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

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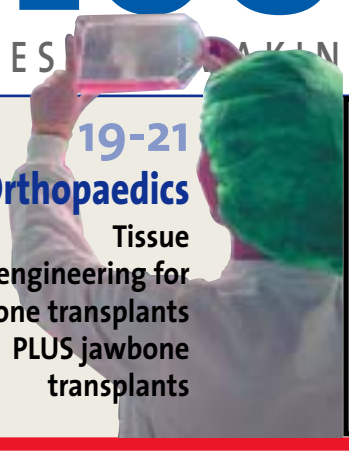

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PARKER
World leader in ultrasound supplies
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Too many German doctors are crossing borders

German doctors are in high demand in countries other than their own - such as Great Britain and Scandinavia, which is causing concern among medical professionals in their own country.

Since 1994 - when Sweden joined the EU, the Swedish health authority Socialstyrelsen, has issued 704 licenses for German doctors. In Norway, in March this year, the Norwegian physicians' association said it counted 650 German doctors working there - 3.7% of the total number of doctors employed. But perhaps the most astonishing number went to the United Kingdom - where, in 2003, that country's Ministry of Health reported 2,600 German doctors working in Britain.

This increasing medical emigration is causing concern in Germany, where Dr. Manfred Richter-Reichhelm, chairman of the physicians' association Kassenärztlichen

Are politicians sending them away?

Bundesvereinigung (KBV), said: 'If we want to turn this trend around, politics, the professional associations and the health insurance companies must work together to make the medical professions attractive again.' In Germany, he pointed out, the physician's workload, the bureaucracy required in doctors' offices and over-regulation stemming from a deep distrust among politicians, all are immense. 'Therefore, the medical professions become increasingly unattractive for young doctors. Above all, working as a self-employed physician is, for many, too high a risk', he explained. 'Our European neighbours value the skills of German physicians highly. And at the same time, our young doctors discover the other European countries as attractive employment potential.'

Editor's comment: Germany's experience is not unique. In the UK doctors consistently complain of burgeoning paperwork, which has even been said to prevent them from treating more cases. In one situation, a hospital doctor, who refused to attend meetings during his working day, was suspended, pending an inquiry, on full pay. A relief doctor, brought in to do his work, also had to be paid. A few months later, the matter was resolved and the doctor returned to work. Two sets of wages had been paid unnecessarily - due to bureaucracy! A budget saving...?

Human stem cell research

France - Scientists now have a five-year opportunity to carry out research using human stem cells - although human cloning is still banned, embryos which have not been subject to parental plans can be worked on, said Philippe Douste-Blazy, Health Minister, adding that most of the stem cells will be sourced from six day old fertilised human eggs. Given its importance, preventing stem cell research would be unrealistic, said Francois Aubert, Junior Science Minister.

Stem cell research and cloning are both allowed in the UK stem cell research and cloning are both allowed, but in the USA, stem cell research is only permitted in privately funded laboratories, and cloning is prohibited. France's positiion now lies between the two.

IT NHS spend may hit £31bn

UK - Although an estimated figure of £6.2 billion was given to realise the UK's gigantic ten-year project to computerise its National Health Service (NHS), experts recently estimated the final cost could reach between £18.6- £31billion (more than it sum to build the Channel tunnel).

However, the UK Health Minister, John Hutton, the NHS will not be overly burdened by the costs when seen in the context of total NHS spending over that period. Computer Weekly wonders how many NHS services will be affected by the financial overshoot.

An investigation of the programme, by the National Audit Office (UK public spending watchdog), will result in a report to be published in the middle of 2005. The investigation will investigate how the system was selected, and whether the programme, at those costs, it offers value for money.

According the the journal *Computer Week*, the original estimate was based on American experiences. The latest estimates were published in the magazine *Computer Weekly*.

See IT pages 4-5

Countries unite to boost cancer research

15 researchers from four countries will receive international fellowships to spend time working in laboratories in each other's countries to exchange ideas, techniques and therapies to advance cancer treatments.

The fellowships were launched at the Entente Cordial Cancer Research Summit in London by François d'Aubert, Ministre délégué à la recherché in France, and John Reid, the UK's Health Secretary.

France, UK, USA and Canada

In France, L'Institut National du Cancer (l'INCa) France, and in the Department of Health (DoH) UK will each commit £225,000 a year to fund six UK/ French fellows. The Department of Health will commit a further £340,00 to fund six UK/USA fellows and three UK/Canadian fellows, with joint funding from the National Cancer Institute (USA) and the Canadian Institutes of Health Research.

Professor David Khayat, Director of l'INCa said: 'This is the first joint programme signed by l'INCa - a new national institution created by President Jacques Chirac to coordinate, evaluate, accredit and finance all aspects of an ambitious, patient-oriented cancer control programme. It underlines our willingness to seek partnerships in Europe, and beyond, in the war on cancer. The fellowships are for young investigators, and this is especially important because so many hopes rest on the abilities of future generations to develop new concepts and ideas to fight cancer more efficiently.'

The 3-year fellowships are due to start in the autumn of 2005. The UK's National Translational Cancer Research Network will administer the initiative.

contents

7th European Health Forum

GASTEIN 2004

Left to right: Franz Weichenberger (EHFG Director), Marc Danzon (WHO Regional Director), Anders Gustav (Committee of the Regions), Maria Rauch-Kallat (Austrian Minister for Health and Women Affairs), Günther Leiner (EHFG President).

'The EU must, in its own interest, be a catalyst in order to improve health in the EU, in Europe and even in the whole world,' said Professor Günther Leine, President of the European Health Forum Gastein, speaking at this year's meeting in October, opened by the Maria Rauch-Kallat, Austrian Minister of Health.

High on the agenda this year was the attempt to find common European values concerning health services. 'Though it is obvious that we have to counteract the development of costs in the health sector, the question of how to save money in a useful and morally responsible way, is quite hard to be answered. Europe's big chance lies in the use of cross-border synergies in the high-tech sector. 'There is, for instance, a border region with eight main hospitals in a surrounding of 30 kilometres. In case one of these hospitals was closed, this would neither have negative effects on healthcare nor would it lead to an increased need of staff or beds in one of the other hospitals. Still, this potential way of saving money is not applied,' the professor said, adding that a European consensus needs to be found on preventive measures such as the international control of tobacco and alcohol advertisement, as well as on existential human needs. The life of old people with multiple illnesses is often artificially lengthened with all kinds of means, instead of enabling them to die with dignity, he added.

'In Austria 70% of people still die of heart-circulatory diseases. Overweight and obesity has spread among teenagers. Every year, 60,000 people have a stroke or a heart attack and the number of patients in kidney machine therapies rose by 20% from 1998 to 2002. Only 10% of Austrians have a regular medical check-up,' Maria Rauch-Kallat said. Such figures are warning messages and must be taken in consideration for every health reform in order to encourage the reach of certain goals in the people's interest. Prevention is the key to a successful health policy in Austria and Europe. 'However, an effective health encouragement must be carried out without a warning finger. It has to affect people's awareness of life.' She said. The Austrian Federal Ministry is currently revising the concept of screening tests. 'From now on the emphasis should not be on technical check-ups, but on a personal consultation. In this way, we hope to convince more people to think about preventive check-ups.'

'The EHFG,' the organisation reports, 'has managed to set itself up as a small health summit,' the professor explained Several high-ranking actors from national as well as international (health-)politics participate, including the EU Commissioner David Byrne, the WHO Regional Director Marc Danzon and Roel Bekker (General Secretary of the Ministry of Health, Netherlands), Governor of Land Salzburg Gabi Burgstaller, Secretary of State Hong-Jen Chang (Taiwan, C.o.R.), Minister Chien-Jen Chen (Taiwan, C.o.R.), Minister Julio Frenk (Mexico), Deputy Secretary of State Mojica Gruntar Cinc (Slovenia), President of the Regional Parliament of Land Salzburg Johann Holztrattner, Secretary of State Imre Holló (Hungary), Vice Minister Mihály Kökény (Hungary), Vice Minister Slobodanka Krivokapic (Serbia), Minister Mitalip Mamytov (Kirghizia), Ex Minister Michéal Martin (Ireland) and Vice Minister Petko Salchev (Bulgaria).'

The OECD is now a partner of the EHFG, along with the World Bank and the WHO. On an Austrian level, the Ministry of Health and Women as well as the ORF are also partners of the EHFG. The EHFG receives support from the EU Committee of the Regions (CoR), from the European Commission, General Directorate for Health and Consumer Protection, and from the European Observatory on Health Systems and Policies.

Which fields earn hospitals the most?

Paediatric surgery is a low earner, orthopaedics is a winner in terms of hospital revenue, according to a survey carried out for the American Hospitals Association by Merritt, Hawkins & Associates, a Texas-based physician research company.
4,000 hospital chief financial officers nationwide were asked how much revenue physicians had generated for the hospitals in the previous year, to include net inpatient and outpatient revenue arriving from patient referrals and procedures. 146 surveys were completed.

	2004 Survey	2002 Survey
Orthopaedic surgery	$2,992,022	$1,858,944
Cardiology	no data	$1,879,870
Cardiology (non-invasive)	$2,646,039	no data
Cardiology (invasive)	$2,490,748	no data
General surgery	$2,446,987	$1,835,470
Neurosurgery	$2,406,275	$2,364,864
Internal medicine	$2,100,124	$1,569,000
Family practice	$2,000,329	$1,559,482
Ob-gyn	$1,903,919	$1,643,028
Haematology/oncology	$1,802,749	$1,810,546
Pulmonology	$1,781,578	$1,278,688
Gastroenterology	$1,735,338	$1,246,428
Psychiatry	$1,332,948	$1,138,059
Urology	$1,317,415	$1,123,697
Nephrology	$1,121,000	$1,704,326
Neurology	$924,798	$1,030,303
Paediatrics	$860,600	$690,104

Source: Merritt, Hawkins & Associates

Reducing alcohol consumption

A&E teams could target heavy drinkers

Referring heavy drinkers for counselling at the time they attend hospital emergency departments for alcohol-related health problems could be an effective way of reducing subsequent alcohol consumption, suggest Dr Mike J Crawford, Department of Psychological Medicine, Faculty of Medicine, Imperial College London, and Dr Daniel W Hungerford, Centres for Disease Control and Prevention, National Centre for Injury Prevention and Control, in Atlanta, USA, in a study published online in September by The Lancet

Such intervention could also lead to fewer subsequent hospital visits, and thus save pressure on staff and budgets.

Alcohol misuse is highly prevalent among people attending emergency departments. About a third of patients have consumed alcohol shortly before presenting themselves at A&E units. This increases to over two-thirds of patients who arrive after midnight. However, the effect of intervention by staff working in these departments is unclear.

Mike Crawford and colleagues at Imperial College carried out a randomised controlled trial to investigate the effects of two types of intervention at the time individuals attended Accident and Emergency Departments. Some 600 patients were enrolled in the study; half received an information leaflet, the other 50% were given an information leaflet and a future appointment with an alcohol-health worker.

At 6 months, those referred to an alcohol-health worker were consuming an average of 60 units of alcohol per week compared with an average of 83 units for individuals who received only the information leaflet. Patients referred to an alcohol-health worker had on average 0.5 fewer visits to emergency departments over the following year (1.2 visits on average compared with 1.7 visits for the group not given counselling).

'Screening and referral for brief intervention for alcohol misuse in an emergency department is associated with reduced alcohol consumption and re-attendance in the emergency department,' said

Dr Crawford. 'Identification and referral of patients attending an emergency department who are misusing alcohol provides an opportunity to help patients develop insight into the consequences of their drinking and promote improved health.'

In an accompanying commentary, Daniel W Hungerford (Centers for Disease Control and Prevention, Atlanta, USA) concludes: "They {Crawford and colleagues} highlight the value of the physician's encounter with the patient and show that the ED {emergency department} visit can be used to start a clinical pathway for care of alcohol problems...physicians can take heart that the act of referral itself might motivate patients to reappraise their drinking behaviours.'

Contacts:
m.crawford@imperial.ac.uk.
DHungerford@cdc.gov

Senology society holds 24th congress

Outstanding interdisciplinary cooperation and the large number of participants and the many achievements at this year's congress in Freiburg, resulted in a very successful event, said Professor Diethelm Wallwiener (above), Chairman of the German Society for Senology. There was, he said, an awareness of the need for interdisciplinary cooperation to achieve the highest level of quality assurance in diagnosis and therapy of breast cancer - culminating in the increasing number of certified centres for breast cancer care in German-speaking countries.

In addition, the interdisciplinary, society's official newspaper, Senology, was founded (publisher: Georg Thieme Verlag).

In terms of advances in diagnoses, the professor spoke of interventional stents used for minimum-invasive examination of breast tissue controlled either through stereotactic-X-ray or sonography under local anaesthetic for a definitive, histological diagnosis under avoidance of in-patient treatment and general anaesthetic.

In therapeutic progress, he said outstanding results had been achieved '... in preoperative system therapy with innovative chemotherapies or hormone therapies, where pathological complete remission rates can be achieved in up to a quarter of all cases, as well as the outstanding results achieved with aromatase inhibitors, documented by the Femara MA-17 study as an extended adjuvant therapy to avoid relapses.'
Congress data: www.senologie.org

Cross-border abortion problems

England & Spain - A British charity might face an investigation because it helped women to obtain late-term abortions in a Spanish clinic.

The British Pregnancy Advisory Service (BPAS), which receives funding from the UK's National Health Service (NHS), and provides about 25% of all the abortions carried out in Britain annually, has been taken to task by two anti-abortion groups in that country.

According to Ann Furedi, BPAS Chief Executive, the clinic did not break the law by referring pregnant women to the Spanish clinic who were past the 24-week British abortion limit. The Service had simply provided them with international contacts to clinics for abortion services, she said, adding that it would be 'morally reprehensible' not to help clients obtain the services they needed.

The new EU health insurance card

The European Health Insurance Card (EHIC), introduced in June, is valid in the countries of the European Economic Area (EEA), i.e. the countries of the European Community (EU) plus Iceland, Liechtenstein and Norway. The card can be to obtain treatment by EU/EEA individuals and their dependants travelling in those countries.

The following countries are already issuing the new cards: Belgium, Denmark, Estonia, Finland, France, Greece, Ireland, Luxembourg, Norway, Portugal, Slovenia, Spain and Sweden. Other countries are taking advantage of the transition period and will introduce the card by 1 January 2006.

Only state-provided treatment is covered, and the individual will receive treatment on the same terms as nationals of the country s/he is in. Private treatment is generally not covered.

The new EHIC is intended to replace the following forms: E111 for people staying abroad temporarily on holiday, E128 for individuals posted abroad by their employer or for individuals who study abroad, E110 for international road transport and E119 for individuals looking for a job.

Whereas it was possible to obtain a family E111 to cover spouse and dependants, the new European Health Insurance Card will be issued to each individual family member travelling in the EU/EEA.

As of 1 January 2005, the existing 'old style' form E111 will be abolished. For those states in the process of introducing the new card, a temporary certificate should be made available for use when forms E111 and E128 are no longer valid.

Since countries are transitioning at different times, it is advised that further information is obtained from a country's own ministry of health or a health insurance provider. (AB)

Transforming the procurement and delivery of clinical IT systems

IT procurement in healthcare has traditionally been a somewhat haphazard affair in Britain, and the English National Health Service (NHS) is currently engaged in a hugely ambitious programme for modernising and improving both the procurement and delivery of IT systems.

The 9 billion euro National Programme for IT (NPfIT) makes systems integration companies (so-called Local Service Providers) responsible for managing the integration and delivery of all IT systems in their region. In just 18 months this has completely changed the outlook for suppliers to the NHS.

With health IT often seen as a problem in most European countries, could the English model, and the lessons it has taught, be applied across other countries or regions in Europe?

Mark Simon outlines the English experience

The answer, I believe, is a qualified yes, but it is necessary to appreciate the fundamental differences between the English NHS, and these other markets. Whereas throughout Europe healthcare providers are typically private companies that receive funding from government to provide a service free to the citizen, in England the NHS is a magnificent national asset, owned by the country through central government. It's doctors, nurses, employees, facilities and patient relationships are all owned by - or their contracts are directly with - the NHS.

The other notable thing about the NHS is its sheer scale (employing over 1 million people). There is no other employer in Europe to compare with the NHS for size.

But although these differences are so fundamental, the English experience still has lessons for Europe to learn. If just a fraction of the English NHS is able to successfully modernise and integrate health IT systems, it can provide a blueprint for other regions of Europe.

However, the key point is that there must be certain building blocks in place first, and England has gone a long way towards establishing these. First, there has to be the political will to enact such dramatic change. The support of the UK Department of Health and the UK Treasury has been absolutely crucial, and will continue to be. This is partly due to the second building block - funding. If the political will is there, then the money will be made available.

Lastly, it is vital that there is leadership at every level. Government must lead with the overall vision: delivering healthcare differently, buying healthcare systems differently, and using IT differently to get better results. Further down the chain regional health authorities, hospitals and care trusts must all understand the relevance of the central vision, and display leadership to enforce it in their own domains.

If this political will, money and leadership exists, there is no reason why other areas of Europe cannot follow the English model, even allowing for the different nature of ownership of health systems on the Continent. European governments might not be able to initiate these changes as directly as their British counterparts, but a central directive to healthcare institutions along the lines of "these are the new rules at which we will reimburse you" would soon see these institutions fall into line. Such an approach might even translate across the Atlantic.

Significantly for the rest of Europe, the English NHS National Programme is progressing towards a shining new healthcare IT system, and is doing it more cheaply than many thought possible - capitalising on the NHS-wide bargaining power that has always been its trump card.

In any such projects, there will be pain, so it is essential that the political and local leadership make it clear that nothing will be perfect on Day One. There is still a battle to be fought to win English clinical hearts and minds, and under the close and often negative scrutiny that these projects command, this is perhaps the hardest part of all.

IT in a UK NHS Hospital

By ***Robert Shaw***, head of the Information Management and Technology Department at the Newcastle Upon Tyne Hospitals NHS Trust - one of the UK's biggest referral centres teaching acute and tertiary care

Robert Shaw

Information is at the heart of an NHS Trust. Information, and the technology used to drive it are used in all areas of work from delivering healthcare at the bedside through to investment decisions made by managers.

Over the last few years we have seen a significant shift in the desire to use information technology. National policy drivers to push more information into the public arena, thus creating more public accountability, have driven the use of technology. When I started by career the role of the senior manager was to convince people to use technology. I am now in the position of trying to deliver their expectations, rather than persuading them to use the technology.

The key to unlocking this shift was the advent of web technologies and integration technologies like Extensible Mark up Language (XML). Use of the web has given people the confidence to gather information at the computer. XML has then enabled us to link previously disparate systems. Deliver this through the web and we have technology at the point of delivery of care. This isn't quite as simple as it sounds, however, when it is done properly the benefits to patients and clinicians are immense. For example we have clinicians in the Trust that are able to use the PACS system within a patient in their consultation along other diagnostic results and clinic letters.

IT has also had to come out of the 'back room' and into the forefront of healthcare delivery. IT is no longer just about delivering PCs to users and enabling email. IT now has to deliver projects and drive the benefits, to support the hospital in delivering patient care. This has meant a whole new skill set for IT managers. IT has moved into project management and benefits realisation, working with clinicians to deliver visible benefits.

An IT strategy has also moved on from a 'stand a lone' strategy to an integrated strategy that supports the delivery of the hospital. Systems are used to deliver a variety of information from performance ratings through to blood gases in a High Dependency Unit. IT also has to pull multiple projects together to support the delivery of health care. However we do need to see a move away from 'pilots' and 'early adopters' to a more normalised roll out of day-to-day services, so that all areas of the hospital can benefit from the initial pilot work.

For an electronic hospital, there needs to be an understanding of the cultural aspects of delivering health care in an electronic environment. Instead of a ward round with paper medical records, could this be carried out using an electronic wireless tablet? Yes it probably can with the creation of wireless networks integrated into the local area network. Again we have implemented a wireless environment at Newcastle. Although we still have people who bring in mobile phone and switch them onto silent and think that this doesn't interfere with equipment ... human nature.

Education of clinicians, nurses and patients to harness the technology and harvest the benefits from it, is probably the single most important task. Not only do we need to train people in new systems as part of a project, but we also need to educate and empower self-learning so we can change organisational processes. After all what is the point of putting in a new system if you simply replicate what's gone before? The most difficult area in this is getting staff to take time out from the day to day working to think about changing working practices. We are getting much better at setting time within work to train on new systems, but we still don't always reap the benefits from different ways of working brought about by the new system. All of this putt's human nature at the centre of implementing IT projects. Given that the staff is the biggest resource in any hospital, then they have to be at the centre of change and new systems implementation.

Canadian firms head for Dusseldorf

Over 600 firms produce biotech products, pharmaceuticals and medical devices in Ontario, Canada, placing the province as fourth among the largest biomedical industry cluster in North America.

Manufacturing firms in Ontario's medical and assistive technology industry are predominantly Canadian-owned and operated and house a talented workforce of almost 16,000 Ontarians.

These firms are well received in the exporting arena with approximately $1 billion being exported to global markets. This November, at MEDICA 2004, seven of these companies will demonstrate products collectively.

IT for the lab

The Athlecon Corporation (www.athlecon.com) reports that it has developed a powerful Quality Control Information System (QCIS) for clinical laboratories. The firm's software products allow for the collection, analysis and centralisation of data from any instrument and/or database management system and to transfer that data over the internet for peer comparison in real time.

Medical equipment

Amvex Corporation (www.amvex.com) produces an extensive line of technologically advanced secondary medical equipment, including, the firm reports: 'UL listed, CE marked and CSA approved hose and hose assemblies, first ever patented digital suction regulators, smallest and lightest flowmeters in the industry, gas regulators, adapters and couplers, fittings and international fittings and more'.

Medical diagnostics

Canamet Inc (www.canamet.com) specialises in non-invasive medical diagnostic systems that were basically developed by Canadian government researchers at the Department of National Defense, and are licensed to Canamet for commercialisation. The firm's first product, an ambulatory blood pressure system, called Piesometer MK-1, measures blood pressure and heart rate even in very noise intense environments, the firm reports. This has received 510K FDA marketing clearance and is now in production. Another, Vital Signs '7 in One', samples and reports vital signs from the body and the external environment.

Laser systems

Theralase Inc (www.theralase.com) designs/manufactures/distributes high quality therapeutic medical laser systems. The firm says that the technology of low-level laser technology of its TLC-1000 enables non-invasive and non-toxic therapy for various medical conditions, including soft tissue injuries from sports or repetitive strain, arthritis and various musculoskeletal pathologies)

Electronic devices & computer programmes

Vivosonic Inc (www.vivosonic.com) specialises in electronic devices and computer programs for clinical use and biomedical research, with core competencies in proprietary solutions for recording and processing of acoustic and electrical biomedical signals. 'VivoScan is a fully portable diagnostic distortion product and transient evoked otoacoustic emissions (OAE) audiometer for hearing assessment, monitoring and screening. Amplitrode, a pre-amplifier for auditory brainstem response and auditory steady state response, largely reduces electromagnetic and physiological noise. And VivoLink,' the firm adds, 'is a mobile wireless interface module for Auditory evoked potentials (EP) and OAE recording.'

Petri dishes

Established in 1980 to manufacture petri dishes, **Phoenix Biomedical Products Inc** (www.phoenix-biomed.com) reports that it is now '... the industry leader and supplier of

choice for major distributors, diagnostic device manufacturers, hospitals, industrial laboratories and research institutions'. Its state-of-the-art plant in Mississauga, Ontario, with class '10-100'clean rooms, produces 200 million plates per annum. 'The Phoenix Biomedical microbiologically controlled plant is considered the finest petri dish facility in the world. In the last six years alone, Phoenix Biomedical has sold over one billion plates in 50 countries,' the firm points out.

Herbal remedies

In the 1950s, Rolf Zimmermann founded **Swiss Herbal Remedies Ltd** (www.swissherbal.ca} to improve the quality of life through the advocacy of natural remedies'. The firm's line of vitamins, minerals and herbal supplements contain no preservatives, artificial colouring or flavours, starch, added salt or corn and they are gluten free. The company also points out that its products are recommended for research and personal use by healthcare organisations, universities and healthcare professionals.

90th SCIENTIFIC ASSEMBLY & ANNUAL MEETING OF THE RADIOLOGICAL SOCIETY OF NORTH AMERICA (RSNA)

CHICAGO 28 November - 3 December

Career prospects at RSNA 2004

Brian C Lentle MD, RSNA President

*Welcoming Europeans who will attend this year's of the Radiological Society of North America (RSNA) in Chicago, the RSNA President, **Brian C Lentle MD**, and Board of Directors, pointed out that the enhanced scientific programme has been made more 'user friendly', and that the event will offer '... 80.5 continuing medical education (CME) credits for physicians, medical physics continuing education credit for medical physicists, and category A credit for radiologic technologists'.*

'An audience-response system (ARS) will be used in more refresher courses,' he said. 'The ARS allows the instructor to tailor a course on the basis of the knowledge level of the audience. The ARS also allows optional self-assessment - a component that will be expanded in 2005. Self-assessment activities help physicians develop and revise personal lifelong learning plans.

'RSNA's new Society-wide content coding system makes it easier to help with lifelong learning plans. The RSNA Scientific Assembly and Annual Meeting Program will identify content codes for CME credit categories. The same codes are used for the CME components of RadioGraphics and RSNA Internet CME courses at InteractED (www.rsna.org/education/interactive/index.html).'

Case-based review courses will also be offered again, which utilise ARS technology to enhance learning. Additionally, the 'Essentials of Radiology' series has been updated.

'RSNA continues to present more meeting content online,' Dr Lentle added. 'This year, education exhibits and scientific posters in neuroradiology and thoracic radiology will be presented at dedicated computers, for individual study. Special theatres will enable groups to review and discuss the exhibits.'

Refresher courses: 284 refresher courses will include 45 limited-attendance hands-on workshops featuring intensive demonstration, discussion, and question-and-answer periods.

The emerging radiologist assistant

Among the RSNA's 20 boards, committees, subcommittees and councils, which cover bylaws, education, credentials, electronic communications, medical legal aspects and much else, the nine-member *Associated Sciences Committee* must monitor and interact with 11 associations representing various roles within a radiology department. In themselves these associations underline the huge range of this field: the American Healthcare Radiology Administrators; American Institute of Architects - Academy of Architecture for Health; American Radiological Nurses Association; American Society of Radiologic Technologists; Association of Educators in Radiological Sciences Inc; Association of Vascular and Interventional Radiographers; Canadian Association of Medical Radiation Technologists; Radiology Business Management Association; Section for Magnetic Resonance Technologists; Society for Radiation Oncology Administrators, and the Society of Nuclear Medicine-Technologists Section.

The *Associated Sciences Committee* recommends policies and programmes to the Board of Directors and implements board-approved activities. The chairman of this committee - currently **Dr Jordan B. Renner** (above, right) is also chairman of the Associated Sciences Consortium. These two committees were linked to focus on manpower and staffing issues, and through the years have produced/published the radiation biology syllabus, co-ordinated a student radiographers' theatre at the annual scientific assembly, and sponsored an annual workshop and refresher course programming at the scientific assembly.

With *Daniela Zimmermann*, Executive Director of European Hospital, Dr Renner discussed a new professional role that is causing considerable interest: 'New pathways are being developed in the US to give radiologic technologists further options, in roles that will allow them to have different responsibilities,' he explained. The implications and practicalities of this recent radiology evolution in the US clearly involve continuing examination by the committee and consortium.

'Historically, in the US, a radiographer is called a radiologic technologist. A radiologist assistant is a more advanced level practitioner - someone who has further education in different levels of responsibilities, beyond those of the traditional radiologic technologist. A similar role has been in place in Britain for years. I believe they are called advanced practitioners. I'm not aware of anything like that in Germany and it's also very new in the US. It's an exciting career option for technologists. Yes, more responsibility and more money goes with it - but the really exciting thing for them is those new levels of responsibility rather than doing just routine work.'

In the 1970s an educational programme was developed to train advanced-level radiologic technologists, but those efforts floundered.

However, today, given the (international) shortage of radiologists and speedy advances in technology, in 2002 the American College of Radiology began to investigate the concept of an advanced clinical job for radiologic technologists - to be called 'radiologist assistant' - which would shift them towards more diagnostic work. In September 2003 the first academic training began for this role. Then a certified US radiologist assistant will work under the supervision of a radiologist and, for example, carry out patient assessment, management and provide patient education, as well as carry out fluoroscopy and other radiology procedures. They will also provide the radiologist with initial image observations - but will not be responsible for producing the official, written interpretation.

The US Bureau of Labour Statistics predicted that the US will need 75,000 more radiologic technologists in 2010 than in 2000, but numbers entering this field have actually declined. The case is similar for radiologists. The introduction of a radiologist assistant is seen as a potential aid for productivity as well as a way to release pressured radiologists to concentrate on diagnoses. The elevated role may also encourage more people in to radiology training, and provide a career incentive to those already working in the US as radiologic technologists.

The world's largest medical meeting

- 315 scientific sessions
- 284 refresher sessions and 1,684 scientific papers, representing 16 subspecialties of radiology
- 504 poster sessions
- 1,141 educational exhibits
- 643 vendor exhibits and
- 51 plenary sessions

Predicted RSNA statistics are astonishing. *Neil Versel* reports from Chicago

A mock jury trial, involving a radiologist charged with missing a carcinoma in an X-ray of a patient who later died from lung cancer, will take place at the RSNA (28/11/04). Both sides will present expert witnesses and a Chicago judge will preside. This event, said RSNA Executive Director Dave Fellers, will be very popular with US radiologists because physicians throughout the country are being squeezed by spiralling costs for malpractice liability insurance. That's the bad news. The good news is that, given the shortage of radiology personnel in private practice and academic medical centres, these professionals are in demand, and the second 'Career Connection' annual programme will be there to help anyone seeking work in radiology and for hospitals to post job openings.

Virtual colonoscopy is another hot topic, but RSNA organisers will take the virtual concept beyond just one procedure. The show has included a surgical simulator as part of an educational session in interventional radiology. 'There is some feeling that, in the long run, this will be more than an educational tool. It will become some sort of companion to computer-assisted surgery,' said Christopher Carr, director of informatics for the US-based host organisation.

Again, RSNA will highlight technology with its infoRAD programme. A showcase on the current state of medical informatics, this will feature 327 exhibits, scientific sessions and demonstrations. For the first time, these will include 28 electronic posters related to neuroradiology and 28 that address chest conditions, to be seen only via computers in the convention hall. However, after the conference, the RSNA will make the electronic presentations available on the Internet. 'We plan to move into full electronic exhibits next year,' Dave Fellers pointed out.

According to Christopher Carr, another area of infoRAD will illustrate what a properly integrated radiology department looks like and what it should do, in terms of equipment and best practices. Each of five leading US academic medical centres will demonstrate a different aspect of radiological technology, from computerised physician order entry to application of advanced three-dimensional reconstruction and measurement techniques.

These events are among the RSNA's many educational and innovative week-long attractions this year, which, despite the prospects of Chicago's legendary winter weather and despite the opening of the meeting coinciding with the end of a US holiday weekend, will draw an estimated 60,000 people to the massive McCormick Place convention complex.

RSNA officials report about 7,000 international registrations this year, with growth from Asia and Africa, which, according to Dave Fellers, partially accounts for the huge number of papers and exhibits. 'Many international people desperately want to attend this meeting,' he explained. However, to do so they often must be on the programme, otherwise, their home institutions will not pay travel expenses.

an ever more exciting programme

RADIOLOGY & MANAGEMENT R&M

A global scientific society

Radiology Manuscript Submissions 1998-2003

	North America	Non-North America
1998	52%	48%
1999	46%	54%
2000	44%	56%
2001	42%	58%
2002	42%	58%
2003	38%	62%

The National Science Foundation (USA) has expressed concerns at a 10% drop in scientific papers produced by Americans that has occurred since 1992. This is reflected in the changed in percentages of submissions to the RSNA's peer-reviewed science journal *Radiology* and to its scientific assembly and annual meeting (see tables). The trend, said the journal's editor Anthony V. Proto MD, is not to do with a decline in the quality of US radiology research, but demonstrates a globalisation of medical science.

Scientific Abstract Submissions for RSNA Annual Meeting 1997-2003

	1997	1998	1999	2000	2001	2002	2003
North America	2158	2034	1950	1676	1914	2170	2124
Non-North America	2387	2366	2668	3503	3537	3351	3503
Total	4545	4400	4618	5179	5451	5521	5627

George S Bisset III MD, chairman of the RSNA Scientific Programme Committee, which reviews abstracts submitted for presentation at the RSNA Scientific Assembly and Annual Meeting, pointed out that the science of radiology should be a global pursuit. 'If researchers are successful in China or Japan at enhancing our pace of discovery, then we all win. When they come up with innovative ideas and we build on those innovations, then we all win again. We have a worldwide scientific community and computer networks that allow us to communicate with colleagues everywhere.'

In the past four years, he said, North American submissions had held steady while submissions from other nations - most notably Asian countries - 'skyrocketed': In 1988, 25% of scientific programme submissions came from beyond North America. Last year, the figure was 56%.

One concern in the US, said Dr Proto, is that, due to a lack of NIH grants to university radiology departments (fewer than 50% received them in 2002), academic radiology research is suffering. The shortage of radiology staff is partially responsible, because those working in academic departments have less time for research.

HIGHLIGHTS of the scientific programme

Members of the RSNA Scientific Programme Committee and its 16 subcommittees reviewed over 6,400 scientific abstracts and accepted about 1,600 scientific papers and 500 scientific posters for presentation in Chicago. These, said Dr George S Bisset III, RSNA Scientific Programme Committee chairman, indicate several important trends, including:

Watch out for...

Breast imaging - A study of ultrasound-guided cryotherapy for the treatment of breast cancer has found that cryotherapy completely destroyed tumours smaller than 15 mm in diameter.

Cardiac imaging - An abstract describes MR planimetry to quantify aortic valve stenoses using steady-state free precession and gradient-echo fast low angle sequences.

Another abstract examines the use of multidetector CT (MDCT) to assess the morphology of coronary artery lesions in patients who recently had unstable angina or a myocardial infarction, and was able to detect and measure the length of the plaque.

Chest radiology - The International Early Lung Cancer Action Project, conducted at 33 institutions around the world since 1993, concludes that, with annual CT screening, a high percentage of Stage I lung cancers are discovered.

An abstract will describe using percutaneous RF ablation alone, or in conjunction with chemotherapy and radiation therapy, to treat primary or metastatic lung tumours. Conclusion: it appears to be safe and technically feasible.

Gastrointestinal radiology - Studies will be presented demonstrating the effective use of RF ablation to treat liver metastases.

A paper shows RF ablation of small hepatocellular carcinomas may be as effective as surgical resection in prolonging patient survival.

Another demonstrates the feasibility of performing CT colonography, or virtual colonoscopy, without bowel preparation.

Genitourinary radiology - A large study, funded by the National

RADIOLOGY & MANAGEMENT R&M

Learning from Stan - the simulated patient

In the 1990's a revolutionary educational module was devised that promised to change the way medical students could learn. In this, a simulated 'patient' was used that could talk, blink, breathe and move like a human patient, and its heartbeat, oxygenation and blood pressure were displayed on a real-time cardiac monitor, alongside customised laboratory results and imaging studies.

In 2002, the first, randomised, double-blinded study of virtual reality simulation in training surgical residents, demonstrated that residents trained on simulators to perform laparoscopic cholecystectomy performed 30% faster and were six times less likely to make intra-operative errors.

As full body patient simulators, originally costing around $200,000, are now less than $50,000, learning on them is more likely to spread.

Anthony G Gallagher, PhD, of Emory University, who co-authored the 2002 study, who will present simulation at the RSNA, pointed out that medicine is changing due to minimally invasive procedures - and particularly image-guided interventions. 'In carotid stenting there is the convergence of interventional radiology, interventional cardiology, and vascular and neurovascular surgery. The FDA says that in order to perform procedures such as carotid stenting, you have to demonstrate a certain level of proficiency. The way to increase your proficiency is through medical simulation. This is a huge paradigm shift in medicine.'

Also at the RSNA, Steven L Dawson MD, an associate professor of radiology at Harvard, and inaugural member of the Board of Overseers of the new Society for Medical Simulation, will demonstrate his 'full-body, immersive simulation' educational model, which uses a robot-mannequin named Stan (short form of standard patient), which aims to replicate a full clinical encounter between physician and patient, and recreate a physician's reactions. In this way, he said, students can integrate and remember material in a powerfully instructive way.

Steven L Dawson MD (left) demonstrates how to place a chest tube into a simulated patient. The monitor shows a representation of the internal position of the tube on an augmented display

- **The use of functional MR imaging (fMRI) to evaluate areas of the body other than the brain, including the heart and abdomen**
- **Expanded use of ablation techniques outside the liver, further moving radiology beyond a diagnostic tool to a treatment modality**
- **Greater use of hybrid imaging with positron emission tomography (PET) combined with CT or MR to provide both functional and anatomic information for the diagnosis and evaluation of tumours**
- **New research on angiogenesis imaging to evaluate tumour activity and identify early tumour growth**

Institute of Diabetes & Digestive & Kidney Diseases, of the use of MR imaging to assess the progression of polycystic kidney disease will be presented.

Another significant study shows percutaneous RF ablation of solid renal tumours to be a promising minimally invasive treatment for patients with high-risk medical conditions. The study's authors concluded that long-term follow-up of the treated patients is necessary to confirm the results of this therapy.

Neuroradiology/head and neck imaging - A study will be presented on MR proton spectroscopy to evaluate the impact of highly active antiretroviral therapy (HAART) on the character and intensity of metabolic changes in the brains of HIV-infected patients.

Another shows that fMRI can image varying responses to glucose loading in the hypothalamus of obese and lean humans.

Paediatric radiology - A study will be presented on the use of diffusion tensor imaging (DTI) to evaluate white matter in the brains of children with attention-deficit hyperactivity disorder (ADHD), which the authors believe is the first DTI study to report localised hemispheric white matter bundle abnormalities in ADHD.

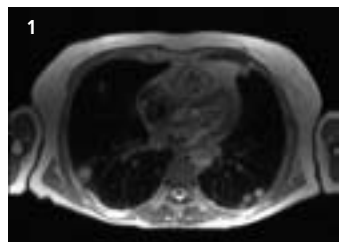
Many abstracts focus on the dynamic contrast-enhanced ultrasound imaging of the liver - thought to be '... by far the hottest topic in ultrasound'. These mainly come from Europe and Asia, because the USA does not have FDA approval for this application of ultrasound contrast.

Unfortunately, due to lack of space, we can only itemise a tiny amount of highlights from so many exceptional scientific presentations promised at RSNA 2004.

Brenda Marsh, Editor in Chief, EH

Maximilian F. Reiser

MRI in on



Malignant tumors frequently result in lymph node or distant metastases. For staging and follow-up in patients suffering from malignant tumors, precise assessment of the local extension of the primary tumor as well as detection of metastases is highly important for prognosis and selection of adequate therapeutic measures.

Traditionally a combination of various imaging modalities is employed, such as ultrasound, CT, MRI and scintigraphy. This approach, however, is time-consuming and poorly tolerated by the patients. Therefore, imaging modalities which allow to examine the whole body within one examination are highly attractive.

PET with fluorodesoxyglucose (FDG) offers metabolic information and is both highly specific and sensitive for most tumor entities. Moreover, the whole body can be examined. FDG-PET proved to be more sensitive than other imaging modalities in lung cancer, colorectal cancer, melanoma and malignant lymphoma. The anatomical correlation and localization of increased tracer accumulation in PET may be difficult due to limited spatial resolu-

Advances in radiology

Why push for 256-slices?

Professor Willi A Kalender **recently lectured at the Stanford University MDCT course on 256 slice detectors. The lecture was entitled '*25-cm detector z-extent: When and how?*' 'My response was: We also have to discuss *Why?*' he said. In an interview with *European Hospital* he explains his reasons**

'With all multi-slice spiral CTs, the speed of examination declines in proportion with the number of slices recorded simultaneously,' the professor pointed out. 'With the Siemens Sensation 64-slice machine, for example, the scanning time is proportionally short and we can honestly say the scan results are actually sensational. Picture quality is outstanding, with scanning time reduced even further. This means progress on all fronts - for patients, doctors, and other medical staff carrying out

Multi-slice systems have already achieved a high standard of performance, now is the time for consolidation

examinations. The patient can co-operate more efficiently, and diagnosis is easier due to improved image quality - not just because more slices are being recorded but also because those slices are thinner, so finer details can be captured. The Sensation 64 has the particular advantage that it works with overlapping slices. This means that we achieve higher resolution with less interference.

'We can also use the equipment for functional diagnostics. When capturing movement it's always important to have a clear image during every movement phase. Key examples are cardiac images; we can show the heart during every phase of movement, ideally with motion-freezing. This works very well for the diastole and works fairly well in other phases where movement is faster. We have now achieved effective scan times of typically 100 milliseconds with this equipment and can image the heart very effectively, particularly three-dimensionally. Movement can also be shown, with slight limitations regarding clarity during faster movement phases - in diastole the heart moves slowly; during systole it moves very quickly, which means a lot changes during the typical 100 milliseconds, so a slight blur is unavoidable during movement. That's why we show the entire coronary artery tree three dimensionally during diastole.

'What we need now is a period of consolidation. We know that available equipment is fantastic in all aspects, and for some investigations they are even faster than we need or want them to be. You almost have to 'hit the brakes' with some examinations. There also are many examinations that can be just as easily done with a 16-slice machine. We need a period of consolidation to fully evaluate the range of services this equipment offers in a clinical setting. Radiologists have to define what they need and what they want to improve. We should not push forward development for the sake of development - development should be driven by clinical requirements. The announcements which we are now witnessing - about 256-slice machines, for example - are the result of excitement about new technology rather than clinically driven reactions.'

'This technology may become available soon, but it will be expensive. We need good reasons to invest in it. So I must ask you provocatively: 'Can you give me a good reason?' I can only see one area of use for which it would be justified, which is to capture images of the entire heart, and I'm very interested in this procedure because we work on the heart a lot. But others should decide whether this justifies a completely new generation of machines.

'We now examine the entire lung in 5-10 seconds, and carry out a complete examination of the heart in five seconds, although we still have the preparation time of patients - the application of a contrast medium. Scanning time no longer determines the time scale of an examination. A reduction from six to three seconds for the scan is great but, on the other hand, it may not make a real difference for the complete examination.'

Yet, the professor remains curious as to whether the 256-slice equipment could show perfusion of the heart. So why not progress with development?

'You are right,' he replied, hesitantly. 'I suppose vanity in itself is a good enough reason! It all started 15 years ago - 1989 - when I showed the first images made with the spiral mode at the RSNA. Combined with the development of multi-slice detectors, we have made huge progress with spiral CT. We will continue.'

Bio in brief

A researcher for many years at Siemens Medical Systems, Erlangen, in 1995 Willi A Kalender became professor and director of the newly established Institute of Medical Physics at the Friedrich-Alexander-University Erlangen-Nuremberg, Germany.

Main research interests: diagnostic imaging, particularly the development and introduction of volumetric spiral CT. Other research includes radiation protection and the development of quantitative diagnostic procedures, e.g. to assess osteoporosis, lung and cardiac diseases. Among over 600 scientific papers that document his work about 150 are original publications.

He is also Distinguished Visiting Professor at Stanford University's Department of Radiology, Visiting Professor at the Department of Medical Physics, University of Wisconsin, Madison, and is a member of the International Commission on Radiation Units and Measurement (ICRU).

In 2005, Prof Kalender will be the President of the World Congress of Medical Physics (Nuremberg. 14-17 September. www.icmp2005.org).

Total 64-slice scan in

Toshiba reports that the speed and clinical accuracy of its new Aquilion 64 enables users to *'... more clearly visualise internal injuries and disease with faster and easier studies'.*

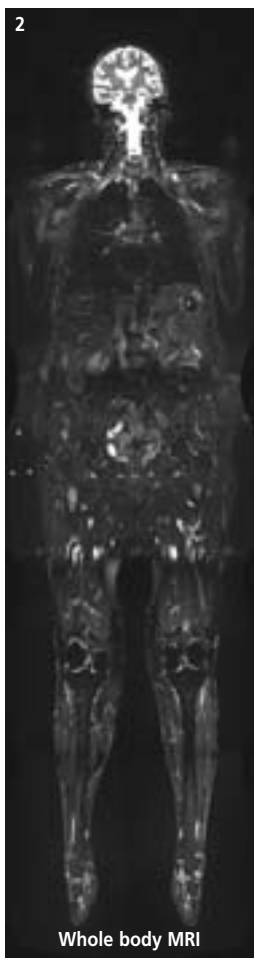
The system's hybrid 64-row detector produces 64 simultaneous slices of 0.5 mm with each gantry revolution for a total Z-axis coverage of 32 mm. 'The result is isotropic imaging in both the head and body field of view with high geometrical efficiency representing the most flexible choice of speed and accuracy in CT scanning,' the firm points out. 'Aquilion 64 is able to sustain high image quality with minimal dose due to Toshiba's use of highly efficient ceramic material for its detector. This material allows for the lowest noise and highest dose efficiency available on the market, which is reflected in the outstanding low-contrast performance of the system. The system also accommodates scanning of larger patients with a 72 cm aperture, the ability to tilt 30 degrees, as well as a scan range of 1800 mm to accommodate taller patients.'

'The most important contribution of multislice CT scanners is the ability to acquire isotropic volume data sets in a short time. Using 64 simultaneous 0.5 mm slices, the Aquilion 64 is capable of acquiring isotropic data sets of any region of the body within a single breathhold. The reconstructed 3D images have essentially the same dimension in all three axes, making it possible to view the data from any direction

Fig. 1, 3: Patient suffering from breast cancer with metastases to the lungs and skeletal system.

Shift in paradigms?

cological imaging



Whole body MRI

tion. Therefore, hybrid systems which also incorporate a CT scanner (PET/CT) have been developed. The PET and the CT-data are combined to one image data set, so that a precise anatomical correlation can be achieved.

MRI has also been employed for whole body imaging utilizing body coils to receive the signals. With STIR sequences, a high detection rate of skeletal metastases could be achieved. Image quality and spatial resolution of this technique, however, are limited. With a rolling platform table (AngioSurf) the acquisition could be made using a phased array coil assembly and an improvement of the image quality could be obtained. (The combination of a rolling platform table (AngioSurf) and a phased array coil assembly permitts a considerable improvement in image quality.) Still, the visualization of the whole body is associated with compromises concerning spatial resolution as compared to dedicated MRI scans of a limited body part. Recently, a new concept for whole body MRI has been introduced. The combination of multiple array coils allows for coverage of large anatomical areas without compromise in image quality. With this technology, no repositioning of the patient and coils systems is required, so that the examination time can be reduced. Another means to reduce acquisition time is parallel imaging. Two different basic techniques of parallel acquisition are available: SMASH and SENSE.The spatial arrangement of the coil elements of an array coil is utilized for spatial encoding of MR-signals.

The combination of automatic table movement, large field of view, high performance gradient systems (45mT/m) and parallel acquisition technique (Avanto, Siemens) allows to scan the whole body for oncological imaging within less than one hour. The patient is scanned in five different table positions. STIR-sequences are highly sensitive for the detection of malignant tumors in many organs. Additional native and contrast enhanced pulse sequences are obtained in the lung , brain, and abdomen, in order to achieve great sensitivity.

As compared to FDG-PET and PET/CT, whole body MRI has a superior spatial resolution. As of yet, no valid comparative studies including PET/CT and whole body MRI have been published. Our first results, however, indicate, that whole body MRI enables for high sensitivity and specificity in the detection of tumor manifestations. Of course, lack of ionizing radiation is a definite advantage of MRI. For the detection of lymph node metastases, on the other hand, PET/CT is superior. Whole body scanning for the early detection of malignant tumors, is still a matter of controversy and it can not be anticipated, whether this is a cost-effective option to reduce overall mortality from cancer. Therefore, extensive research is required.

Maximilian F. Reiser, Stefan O. Schönberg, Harald Kramer

19 seconds

without loss of image quality. The speed and accuracy of this scanning technology significantly reduces patient examination times. Traditional CT angiograms that usually take 60 seconds are now only 15 seconds using 0.5 mm slices with the Aquilion 64. Furthermore, use of these thin slices for scanning improves the accuracy of measurement and makes Aquilion 64 scans more useful for quantitative treatment planning and calculation of volume.'

The firm has also developed a helical conebeam reconstruction technique for the Aquilion based on the Feldkamp method for axial image reconstruction from helical scans. By incorporating only data from views that are close to the image reconstruction plane, cone-angle effects are reduced and artifacts are virtually eliminated, the firm reports.

EuroPACS 22nd International Conference

IT has developed so rapidly that the need for expert information exchange is more than obvious. This year's EuroPACS conference, held alongside a Management in Radiology Conference, hosted group meetings for: Digital Imaging and Communication in Medicine (DICOM), Integrating the Health Enterprise (IHE Europe) and the Academic University Radiologists Europe (AURE). Trieste was an apt choice for the venue. A PACS project began there at the end of the '80s, and a wealth of clinical and R&D experience gained, demonstrated by the virtual visits to local hospitals at the event.

EuroPACS President Professor Davide Caramella, of the Diagnostic and Interventional Radiology, University of Pisa, Italy

Italy - Addressing the conference, **Professor Carlo Castellano**, President Associazione Elettromedicali - Federazione ANIE, and Chairman and MD of ESAOTE S.p.A, asked whether, for IT in CEI Countries, we needed a trans-national committee. 'The digital revolution has evolved and developed in diverse ways and timings within the different departments and functions of each hospital, between different hospitals of each country, and between different countries,' he pointed out, and this 'unstructured' development could underline the urgent need for a well defined, standardised and integrated organisation model, capable of handling patients' medical files not only in and between healthcare organisations, but between those in different countries. 'Trans-national best practice initiatives and benchmarking activities, such as those promoted by the Integrating the Health Care Enterprise (IHE) in Europe, are of mainstream importance to support and control the digital revolution, and to achieve the goal of ubiquitous provision of continuously improved healthcare services to our citizens,' the professor pointed out. The success and support of the IHE rested on the concept of starting from existing standards (e.g. DICOM, HL7), to move through real clinical experience by developing 'integration profiles' in close collaboration with end users, and to aim at integrating diverse IT systems in healthcare, to ensure undisturbed flow of data across IT systems, hospital structures, and country boundaries, he pointed out. An important strategic decision was that a separate European project was needed, to expand the initiative that originated in the USA for properly considering the specific peculiarities and particular attention that the different healthcare systems and different health care IT structures require in European countries. 'This decision,' he said, has made it possible to develop a common European framework that can work as the basis for individual integration efforts at national level and for representing national organisational structures and workflows adequately, while at the same time ensuring that industry can benefit from a common internal market for healthcare IT solutions. Only if we will be able to invest with a strong decision, with the pro-active collaboration of users and producers of technologies, and, especially, with a trans-national and pan-European vision, we will be able to achieve those improvements in effectiveness, efficacy, and quality of the curing processes that will make it possible for the operators of our healthcare organisation to work better and with higher satisfaction, and for the users of our healthcare organisation to receive a quick, personalised, complete and ubiquitous curing service.'

Among paper presentations, **Katrine Weisteen Bjerde** spoke on '*Business benefits from PACS - Realising the planned effects*', giving examples from the National Hospital, University of Oslo, Rikshospitalet, **Norway**, where she works in the radiology department. At the hospital, PACS was implemented in clinical departments in spring 2003. 'As part of the planning process a business case was created, focusing on both increasing quality in healthcare and on financial effects. The financial effect of PACS, based on the business case, was incorporated in the budgets. Accordingly, focus on unlocking the planned effects was strong within the radiology management group.

'Rikshospitalet is investing heavily in IT systems. Evaluation showed project achievement against cost and time objectives to be good, but achievement against business benefits was poor, or at least poorly measured. Also, during project implementation a significant mismatch would often emerge between the original reason for investment and the focus of the project. We therefore saw the need to put more focus on value realisation.

'In August 2003, hospital management initiated a project to establish a method for value realisation. The work was based on experience from some of our most successful projects, including the PACS implementation, supported by external consultants (PA Consulting). A set of process descriptions and templates was established, including a Business Case document standard.'

This method, now being applied to new projects, was found to be a useful tool in project planning, she pointed out, because the definition of objectives became clearer and communication between stakeholders (IT personnel, healthcare professionals and hospital management) became easier.

Egils Stumbris, of the Riga City Council Information Technology Centre Telemedicine and Videoconferencing Division, spoke on a teleradiogy project for **Latvia**, where he said it is a crucial step, because the number of qualified medical experts in this country is decreasing, specialists are not always available when needed, and hospitals in Riga cannot ensure patient treatment without involving qualified external medical experts. In addition, he pointed out, information exchange between Riga's hospitals is practically nonexistent. 'Riga, the capital City of Latvia, has thus taken the initiative to establish a top-of-the-line telemedicine and telecare system,' he said.

The full project in Riga will target teleradiology, telecardiology, teleconsultation of patients, teletraining, tele-emergency services, and telemedical anti-terror systems.

The programme aims to

- establish a communication channel to exchange information between the municipal authorities and the various medical institutions (in and out-patient care)
- develop centralised information aggregation capacities in hospitals and healthcare institutions
- establish a communication channel to exchange information and specialist consultations for the development of a medical home-care network
- organise training for practising family physicians in providing telemedicine services.

The Telemedicine and Videoconference Division at the Information Technologies Centre of Riga's City Council is implementing the programme, which also involves the European Academy for Interdisciplinary Medicine; and the Latvian Development Institute, all based in Riga.

Corrado Amadi, of AUSL4 - La Spezia, described a RIS / PACS integration pilot study in **Italy** to assess the timescale and resulting effects of turning to technology solutions to facilitate the transfer of digital images and patient data throughout a healthcare system.

This involved three hospitals that were net connected. Between them there were 656 beds and 27,000 out-patients were treated annually, with 100,000 diagnostic procedures carried out. Research regarding failures in an IT project, which were blamed on a lack of target definitions, unrealistic expectations, lack of financial and human resources, with poor participation, helped the researchers to aim at realistic approaches.

Within two years the hospitals network was complete, he said. All radiological functions (mammography excluded), reporting stations and archives had been digitised. An up-to-date archiving system archive was optimised by web connection. The short-term management became 'excellent' due to '...a generous raid dimension shared with diagnostic workstation for images distribution'. Image files were automatically routed to the work-stations - without interrupting routine services. 'Special attention was paid to an integrated RIS/PACS solution and security: diagnostic quality workstations with different monitors for data and images, using the same mouse and keyboard; logged users even have patient tracking in the RIS than PACS study status; high levels of archive security: short term in raid5 with hot spare, total software coverage for the images traffic, secure remote connections with https protocol.'

'The elimination of films required that we allowed other departments to view our images and reports. In our facility, we opted for three levels of image access: Diagnostic Quality, Review Quality and Web distribution to satisfy most areas.'

With co-author A Taccone, with co-author A Taccone, and **Professor Paolo Inchingolo**, of the Electronic & Information Bioengineering Department, University of Trieste, the team concluded that the complete digitisation and integration of PACS/RIS has increased productivity at the hospital. 'It provides additional support to the radiologist enhancing interpretation. Teleradiology allows for greater interaction with radiologist and referring clinicians amongst the three hospitals (the furthest is 40Km from the main department). During the first six months, film consumption was reduced by under 20 %, (filmless hospitals are our target). The deployment of a Web-based solution permits low cost diagnostic images and reports distribution, when and where necessary.

'Without seamless integrated RIS/PACS solution, and web-based access,' he concluded, 'these technology investments don't address the challenge at its core: convenient and reliable, two-way communication and interaction with referring physicians.

EuroPACS-MIR 2005 will take place in Berlin (22-25 June)
Further EuroPACS data: www.europacs.org

ESAOTE partners Smiths Medical

Italy - The Piccolo vascular access ultrasound system produced by Esaote S.p.A. of Genoa, is to be distributed by Smiths Medical MD Inc, a division of Smiths Group plc, of London UK, following a four-year distribution agreement announced in September. Smiths Medical will cover the market in the USA and Canada.

The Piccolo system is a unique ultrasound device weighing only 800 grams (about 2lbs), which was specifically designed for ultrasound guidance to assist the placement of needles and catheters in vascular or other anatomical structures, Esaote said. 'The combination of high image quality, ease of use and customisation make the Piccolo system an asset to any clinician responsible for vascular access procedures. Better vascular access improves not only the level of care and patient comfort, but also improves safety and workflow.'

The Piccolo is manufactured by Pie Medical Equipment bv, in Maastricht, the Netherlands. Pie is a division of Esaote S.p.A. (Bracco Group), manufacturer of medical diagnostic equipment, including dedicated MRI, and a specialist in IT.

Agfa gains Symphonie on Line

France - Symphonie On Line, a Bordeaux-based company specialising in hospital information systems (HIS), has been acquired by Agfa-Gevaert. The transaction is based on an enterprise value of 42.0 million euros, paid in cash.

Symphonie On Line has successfully developed its administrative application software into a full-blown Clinical Information System, which is offered to its installed base of over 1,200 hospitals in France, the firms report. 240 of these, including 24 university hospitals, have a capacity of over 400 beds. 'Throughout this transition, Symphonie On Line showed substantial growth, consistently posting double digit operating margins. Its 2003 revenues amounted to 24.1 million euros, with an operating result of 4.6 million euros. Symphonie On Line hosts five additional operational sites in France, with over 200 employees.

'This is an important first step in our strategy to become a leading European player in this fast growing market of Information Systems for the hospital sector,' said Ludo Verhoeven, Agfa-Gevaert's CEO. 'From a supplier of diagnostic and image management tools for the radiology departments, we are now evolving to a vendor of diagnostic as well as administrative tools, allowing the hospitals to better manage the care process and thus to contribute to making healthcare spending affordable and controllable.'

Ultrasound on show

At Medica 2004 fascinating outlooks promise completely new instrument generations that owe their technological leap forward to progressive developments in digital electronics. The distance to the image resolution of X-ray CT is shortening while image quality continuously improves.

With Doppler ultrasound and colour-coded duplex sonography it has become possible to image blood flow direction and speed through colour-coding. Therefore, ultrasound, unlike x-rays, can do without using contrast agents in vascular diagnostics.

Progress in ultrasound diagnostics is particularly evident in obstetrics, which has also become the experimental ground for ultrasound's entry into the third dimension. Using 3-D ultrasound, changes in the embryo are now visible that remained hidden with 2-D imaging. Until now, 3-D images of the living human body had been the prerogative of X-ray computer tomography and nuclear resonance tomography.

3-D ultrasound can be used in other medical fields, such as the examination of colorectal and uterine cavities as well as other hollow internal organs. Thus, the tree structure of the kidney vasculature unfolds in its full spatial expanse in 3-D colour ultrasound. In oncology, a properly scaled tumour perfusion can now be imaged. Also, precise ultrasound-guided breast tissue sampling as part of breast cancer diagnostics is possible for the first time using 3D-realtime imaging supported by super fast computers.

NEW - An ultrasound examination method that is still new seeks to make elastic tissue properties visible in real-time. The technology, which the leading manufacturers will present at the trade fair, measures the speed of heart muscle movements making possible the identification of sluggish areas with insufficient blood supply.

The new technology may even succeed where none of the current diagnostic procedures in urology have: high target accuracy with bladder tumours.

Although ultrasound is normally used without contrast agents, their use may have a future e.g. to show the behaviour of liver tumours during contrast agent application. Hope is rising that benign and malignant tumours may be differentiated by means of their blood perfusion. It is conceivable that contrast ultrasound will show lower levels of blood perfusion.

Report by biomedical technologist Claus Schwing

Imaging the central nervous system

In Navigated Brain Stimulation an electrode cap provides EEG signals in response to magnetic brain stimulation. The stimulation coil is positioned precisely over the target brain area with the help of MR-guided navigation display. NBS is non-invasive

Navigated Brain Stimulation (NBS) is a new technique for imaging functions of the central nervous system, by producing non-invasive measurements of neuronal responsiveness and connections from brain and muscles when responding to magnetic brain stimulation

Finland - The system's developer, Nexstim Ltd, of Helsinki, reports that NBS can reveal deficiencies in neuronal electrical signalling - essential information for the diagnosis and treatment of disorders of the central nervous system. 'NBS examination is non-invasive and easy to conduct,' the firm adds. 'The patient wears an electrode cap, used to measure regional changes in the brain's electroencephalography (EEG) signals. The patient's magnetic resonance images (MRI) are acquired in advance to allow a precise delivery of stimulus pulses to the target areas.'

NBS applies transcranial magnetic stimulation (TMS), the only non-invasive tool to safely reach into the human brain, the firm points out. 'TMS uses strong magnetic field pulses that produce a weak electrical current in the brain. The applicator coil is positioned precisely over the head with the help of a navigation display that provides a link to the patient's anatomical MR images.'

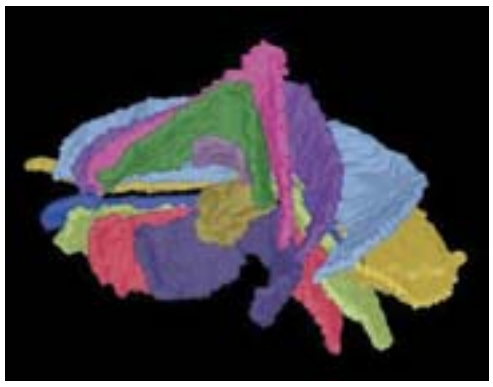
'Targeted stimulus pulses can modulate the inhibitory and excitatory processes in the

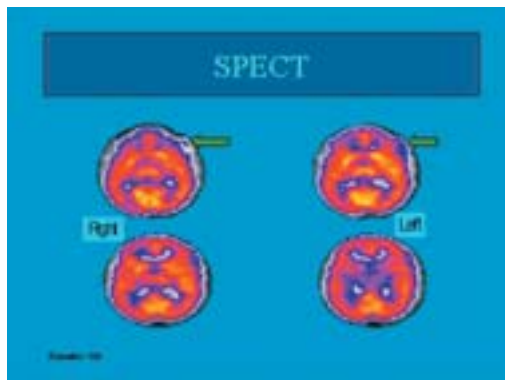
Neuro-imaging and psychiatry

Left: 3D reconstruction by magnetoencephalography

Below left: Cerebellar fissures from Schamalmann Parcellation Inc

Below right: SPECT depresive patient stalling, Pharm & Spicer





By ***Dr Eduardo de la Sota***, *EH correspondent in Spain*

The importance of localisation of function within the human brain has been increasingly accepted for about 150 years. Initial research, developed in the mid-1800s by clinicians such as Jackson and Broca, reported relevant information concerning brains from patients who had sustained major head injuries, or who suffered several mental disorders; by determining the extent of brain damage, and the nature of the loss of function, it was possible to point out which brain regions were responsible for which function.

With the development of computerised tomography (CT) and magnetic resonance imaging (MRI) techniques it became easier to be specific as to the location of damage in brain injured patients. Electroencephalography increased possibilities in studying brain function.

Later, the introduction of Positron Emission Tomography (PET), Single Photon Emission Computed Tomography (SPECT), Functional Magnetic Resonance Imaging (fMRI), and Magneto-encephalography (MEG), led to a new era in the study of brain function.

Pros and Cons of various techniques

- SPECT, EEG, and MRS techniques are considered to provide low resolution, while PET, MEG and fMRI modalities offer high resolution.
- We may consider SPECT and PET to be invasive methods; MRS and fMRI, meanwhile, are non-invasive.
- In terms of costs (and therefore availability), SPECT and EEG incur low costs; fMRI and MRS are expensive, while MEG and PET are very expensive.

Neuro-imaging interpretation

The basics are well explained by K A Johnson, at the Harvard Medical School: 'Tome is Greek for slice. The standard slice orientation in most brain imaging is transaxial or axial. Left is shown at right. Note that, like the lower organs, we look up to the brain. Other standard planes of view are coronal and sagittal. Non-tomographic images represent projections from a single point of view, and include bolus contrast X-ray angiograms and MR angiograms.

Tomographic images are made up of little squares called pixels (picture elements), each of which takes a grey-scale value from one (black) to 256 (white). Each pixel represents brain tissue, which is about 1 mm on each of two sides. The thickness of the slice is often 3 or 5 mm, thus creating a three dimensional volume element, or voxel, which is shaped like a shoebox. Pixel intensity represents an average from tissue within the voxel.'

Magneto-encephalography

Interestingly, magneto-encephalography (MEG) is a direct measure of brain function, unlike other functional secondary measures. MEG has a very high temporal resolution and an excellent spatial resolution. Besides, MEG is completely non-invasive (does not require exposure to x-rays or magnetic fields or injection of isotopes) - particularly relevant for children.

Obviously, MEG is complementary to other neuro-imaging modalities. Nevertheless, I will point out two limitations: its low resolution for deep structures and the fact that, today, it is very expensive.

Neuro-imaging in Psychiatry

Neuro-imaging is becoming increasingly relevant for psychiatrists. There is an International Society for Neuro-imaging in Psychiatry, whose official publication *Neuro-imaging*, is a section of *Psychiatry Research*, a very prestigious journal. Neuro-imaging publishes manuscripts on PET, MRI, CET, regional cerebral blood flow, MEG, and other imaging techniques, as well as reports concerning psychiatric disorders and dementias, and on the effects of behavioural tasks and pharmacological treatments.

Latest news

Phobia and Anxiety - Paquette et al. (2003), in Canada, studied the effects of cognitive behavioural therapy on the neural correlates of spider phobia, using PET and fMRI techniques. They concluded that a psychotherapeutic approach, such as cognitive behavioural therapy, has the potential to modify dysfunctional neural circuitry associated with anxiety disorders. In Germany, Dilger et al (2003) used event-related functional MRI on patients with spider phobia. Their study confirmed the role of the amygdala in fear processing, when animal phobics are confronted with phobia-related stimuli.

Helped by PET technology, Tillfors et al (2002), at Orebo University (Sweden), examined the cerebral blood flow during anticipation of public speaking in individuals with social phobia. They speculated that anticipatory anxiety in phobics originates in an affect sensitive fear network encompassing the amygdaloid-hippocampal region, prefrontal, and temporal areas. Concerning cerebral blood flow during anxiety provocation, Fredrikson (1997) had already demonstrated that induced fear and anxiety were associated with alterations in limbic, paralimbic and cortical brain regions (according to PET images).

Parkinsonism - The Segmented Inversion Recovery Ratio Imaging technique (SIRRIM) has proved specific for both Parkinson¥s disease (PD) and progressive supranuclear palsy (PSP). Evidence is given from research made by Hutchinson et al (2003) with the Department of Neurology

RESEARCH

Prototype signals next generation US and skin temperature imaging goes on trial

Scotland - The development of an ultrasonic sensor device that enables users to '... see further with ultrasound and to obtain sharper images', is being developed in the University of Paisley's Microscale Sensors research group, co-ordinated by **Dr Sandy Cochran** (pictured at the University's Fabrication Laboratory). This device could prove five times more effective than currently used ultrasonic equipment and meet needs in several medical fields, making more accurate medical diagnoses - including the location and size of cancerous tumours - and clearer mapping of object location. This could, says the group, pave the way to new generation US equipment.

Meanwhile, at the Photonics Innovation Centre of University of St Andrews, **Dr Duncan Robertson** and a team of researchers have developed the '*Medical Imager for Sub-Surface Temperature Mapping*', expected to provide early diagnosis of skin cancer, arthritis and other diseases. The system images body temperature at about one millimetre below the surface of the skin, which is crucial, because skin surface temperature can be very variable, masking the underlying tissue temperature. For example, when melanomas develop, 'hotspots' form under the skin but by the time discolouration is visible on the surface the tumour is quite far advanced. Working like a heat camera, the scanner produces a result in minutes, and generates colour digital images clearly showing variations in temperatures beneath the skin.

Trials of the prototype, the first of its kind in the UK, will now take place at Ninewells Hospital, Dundee, under the direction of staff from Tayside University Hospitals and the University of Dundee.

cortex. Trauma and diseases may alter these neuronal network functions during everyday life, leading also to changes in response to stimulus pulses. The modulation can be detected by Nexstim's EEG. This is what the NBS ultimately offers: an entirely new opportunity to examine and map the well being of the human central nervous system.'

Introduced in 2003, the first devices are in use in Europe, Japan, and the USA, to examine neurological patients and monitor stroke recovery. Additional research projects focus on neuroscience applications and pharmaceutical research.
Details: www.nexstim.com

at the New York University School of Medicine.

Major Depression - An fMRI study, addressed the functional neuroanatomy of major depression in 1998. This research took place in the Department of Radiology at Montreal University. Beauregard et al, stated that activation paradigms represented an extremely powerful and useful way of delineating the functional anatomy of the various symptoms that characterise major depression.

Mania - Poor decision-making is often observed clinically in the manic syndrome. Using the PET, Rubinsztein et al (Department of Psychiatry, University of Cambridge, 2001), found abnormal task-related responses in specific brain regions.

Memory- The orbitofrontal cortex is known to be a critical frontal region for memory formation. In 2002, a PET experiment measured changes in cerebral blood flow in normal human participants during the presentation of abstract visual information. As the information content changed, an increase in activity in the orbitofrontal cortex was observed (Frey & Petrides, 2002).

Sexual Arousal - Various lines of evidence indicate that men generally experience greater sexual arousal to erotic stimuli than women.

Karama et al (2002), investigated this issue using fMRI to compare activations in different areas of the brain in males and females when viewing erotic film excerpts. The results suggested that the greater sexual arousal generally experienced by men, when viewing erotica, could be related to the functional gender differences found here with respect to the hypothalamus (known to play a pivotal role in sexual behaviour).

Shimadzu scoops leadership Award

Shimadzu Europe has won Frost & Sullivan's ***2004 Growth Strategy Leadership Award*** due to its 'outstanding' marketing achievements with the firm's **MobileArt** series. F&S, the international marketing consultancy specialising in high-technology and industry, said the firm's '... focus and dedication has catapulted Shimadzu into a position to compete with major market players that have dominated the European mobile imaging equipment market up to now.'

'Our research and development is guided by a simple but central mission: to offer the best possible diagnostics with the highest patient and user-friendliness,' explained Thomas Nordhoff, European Senior Manager, Shimadzu Deutschland GmbH. All of which, he added, are offered in the MobileArt series (a family of three systems: MobileArt eco; motor-supported MobileArt; MobileArt Plus).

Because mobile equipment is moved between radiology departments and wards, easy manoeuvrability and positioning are critical, as are a large number of collimator-mounted controls for greater efficiency, and high quality images with reduced X-ray dosage. Elements that make machines more patient friendly are also important - which particularly include the potential for a quick examination.

Throughout Europe, several hundred end users have chosen Shimadzu MobileArt, which,

Mobile X-ray units match users' demands

Thomas Nordhoff pointed out, is an '... acknowledgement of our continuous efforts to adjust and improve the system according to their requirements.' In its latest survey of technicians and radiologists who use the series Shimadzu found that their most valued assets were manoeuvrability (36 %), image quality (20%) and X-ray-penetration (20 %).

** MobileArt systems can be viewed at MEDICA (Dusseldorf. 24-27 November. Hall 9, Booth # C60) and at the RSNA (Chicago/USA, South Building, Booth # 1129, Nov. 28 - Dec 2).*

The *Safire* direct-conversion flat-panel detector

Shimadzu, which has continuously produced innovations in X-ray diagnostic systems for over a century, also recently launched its 43 x 43 cm (17-inch-square) Safire direct-conversion flat-panel detector. This enables all diagnostic imaging to be digitised, improving the speed of diagnosis, diagnostic capabilities and accelerating remote medical diagnostics via teleradiology, the firm reports.

Compared with previously used indirect conversion systems, Shimadzu points out, 'this new direct-conversion flat-panel detector creates clearer high-resolution images with less signal deterioration and reduced noise. 'The top layer of the flat-panel detector converts X-rays passing through a patient's body directly into electric signals using amorphous Selenium. A TFT (thin-film transistor) array behind the X-ray conversion layer then collects the signal from each pixel and transfers the data immediately into the processing system.

'The direct-conversion flat-panel detector is far more sensitive than conventional X-ray films. It produces still images as well as fluoroscopic images, which are qualitatively equal to or better than film, even when the X-ray radiation emitted is reduced from one half to a third of conventional X-ray examination. This dramatically reduces the dosage exposed to the patient and the physician.'

Dozens of these detectors are already in use in Japan and Safire will be launched into Europe next year.

Details: www.shimadzu.de

Why treat symptoms? Let's prevent diseases

GE Healthcare will invest over a billion US$ in R&D activities, this year, with a focus on cardiac diseases, cancer and Alzheimer's. 'Every one of us carries a genetic code which contains information on the predisposition for certain diseases,' explained Rudolf Beyenburg, Director of Marketing and Communications of GE Healthcare Technologies in Germany, Austria and Switzerland. 'Genetic testing and molecular imaging will allow us to prevent diseases rather than to treat symptoms, since the predisposition can be detected before the disease is acute or it can be recognized and treated in a very early stage.'

Imaging a complete cardiac anatomy in five heartbeats

'An important development towards this new dimension of patient care is the LightSpeed VCT, GE's most innovative CT scanner,' the firm reports. This is currently being launched. Among the CTs, the best combines two superior qualities: very short scanning times and excellent image quality. The Lightspeed VCT, says GE, is thus is a trailblazer for better and new CT applications, particularly for time-critical examinations in cardiology, neuroradiology and emergency care diagnostics.

'The VCT is worldwide the first instrument which creates in a single rotation 64 credit-card-thin images, totalling 40 millimetres of anatomical coverage,' said Michael Taube, head of business division at GE Healthcare. 'That means the scanner is four times faster than the instruments in use today and it delivers high-resolution images. It scans the heart and coronary arteries in less than five heartbeats, the entire body of the patient can be imaged in less than ten seconds - the VCT outperforms every other CT system on the market.'

In the area of magnetic resonance imaging (MRI) GE has developed Exite High Density - a new technology that opens up new possibilities particularly for com-

plicated examinations, e.g. diabetic or cardiac patients. 'The high density of coil elements in the high-density coils provides improved image quality and allows a wide range of new applications,' explains Dr Erik Penner, who heads scientific MRI projects at GE Healthcare. 'All radiological exams will profit immensely from Exite HD, above all cardiac patients and children, as they don't have to hold their breath so long anymore. But nevertheless high-quality images without artefacts are being generated.' HD coil technology allows MR images to be created and reconstructed four times faster than with traditional MR systems. That means dynamic processes and moving objects can be imaged better and faster, the firm adds.

MRI measures early drug effects on cholesterol & plaque

Ideally, monitoring the effects of initial cholesterol-lowering therapy in patients would help physicans in their treatments, particularly when quick results are needed for those with advanced-stage cardiovascular disease. However, until now, MRI has been unable to show results until one or two years after the onset of a treatment.

Using modified magnetic resonance imaging (MRI) techniques, researchers at **Johns Hopkins** (Milind Desai MD; Henning Steen MD; William Warren MD; Sandeep Gautam MD and Shenghan Lai MD PhD) have now been able to detect the early benefits of a cholesterol-lowering medication much sooner than before. In their findings published in the journal Circulation online, this October, the researchers said they had applied MRI to measure the effects of simvastatin (Zocor), a widely used form of statin therapy to reduce plaque formation in patients with hardened and clogged arteries, or atherosclerosis. Reductions in plaque levels were detected within six months after therapy began

The research also linked the early benefits of statins to their lipid-lowering actions, not to anti-inflammatory properties as some earlier studies suggested.

'Our study increases the likelihood that MRI could eventually be used as a predictive technology for determining which patients should be placed on statin therapy for atherosclerosis,' said the study's lead author and cardiologist Jo„o Lima MD, associate professor of medicine and radiology at The Johns Hopkins University School of Medicine. 'While it has been proven that patients can benefit from even a short period of statin therapy, as early as 16 weeks, our abilities to harness modern technology for monitoring this condition - and tracking the effectiveness of our treatments - have not kept pace until now."

Cholesterol-lowering medications, which decrease lipid/fat levels in the blood, have been shown to reduce plaque formation by as much 30-40%, and death rates by as much as 30%. Increased plaque formation is part of atherosclerosis and consists of the buildup of fatty deposits - hardened by calcium particles - along the inside walls of arteries, making work more difficult for the body's blood vessels.

During the three-year study, the Hopkins team measured plaque levels in 29 patients on a cholesterol-lowering therapy for significant atherosclerosis. Using a standard MRI scanner, the researchers took two measurements of plaque formation. First, they measured calcium deposits at the start of therapy, to establish a baseline reading of plaque volume. Then, after six months, they took another reading to gauge if statin therapy and reduced levels of blood lipids were correlated to reduced plaque volume.

To improve upon standard imaging techniques, the Hopkins team amplified picture taking by placing a series of extra coil rings around the chest of each patient (the main electromagnetic coil ring gives MRI its distinct doughnut shape). To amplify the signal, or image, received by MRI, each patient swallowed an antenna, inserted through the nose and placed in the oesophagus, or 'food pipe', next to and directly in line with many of the main arteries, including the biggest, the aorta. Six different MRI images, each taken at different angles, were required to calculate plaque volume levels in each artery.

After six months of therapy with simvastatin (20-80 mg daily), plaque volume levels were significantly reduced by 9 percent, on average, from 3.3 cm3 to 2.9 cm3. The researchers were unable to determine how these results improved long-term survivability for patients. However, it is already known that cholesterol-lowering therapies can benefit patient outcomes as early as 16 weeks after therapy starts.

'Like a permanent scar, calcium deposits in plaque are a key indicator of how much atherosclerosis a patient has at one point in time,' Dr Lima said. 'Our results show the benefits of statins much earlier than before, and how we can use MRI to more closely monitor the progress of patients under therapy, because we really want to shrink those plaques and rapidly improve the condition of the patient. Eventually, it may be possible to use MRI measurements of plaque volume levels as a predictor to selecting the best statin therapy for treating a patient with atherosclerosis.'

Study results also helped resolve a long-standing dispute in cardiology about whether or not the early benefits of statin therapy are due to their abilities to lower blood lipid levels or if they were merely the short-term effect of a statin's anti-inflammatory properties. What the researchers found was that LDL cholesterol levels, a key blood lipid indicator to lower in treating heart disease, were lowest in patients with the greatest amount of plaque reduction.

This study was funded by the Donald W. Reynolds Johns Hopkins Cardiovascular Centre and the National Institutes of Health, assisted by Merck Inc, maker of simvastatin. The research was part of two, larger ongoing clinical trials that compare the efficacy of low and high dose statin therapies, and the effects of niacin on plaque formation.

Marrying medical disciplines

Knowledge and skills were combined in September when the German Society of Gastroenterology (Deutsche Gesellschaft für Verdauungs- und Stoffwechselkrankheiten) held a joint annual meeting with the German Society for Visceral Surgery (Deutsche Gesellschaft für Viszeralchirurgie) for the first time. 'Medical disciplines that deal with these disorders must cooperate more closely', explained gastroenterologist Professor Wolfgang E Fleig, of Halle, chairman of the meeting and the driving force behind the joint gathering.

'While before joint papers were published which detailed exactly who is allowed to do what, for example in endoscopy, today we focus on organ-centred cooperation,' added Berlin-based surgeon Professor Peter Neuhaus. The new approach creates synergies from which patients will profit, above all for cancer therapy.

At the event, the first scientific papers were presented on confocal laser endomicroscopy - a system developed by Pentax, to be launched early next year. This equipment enables differentiation between benign and malignant tumours when a patient is first examined. However, it was pointed out that the system would not make histological analysis obsolete. To evaluate the exact status of a tumour and determine optimal therapy, the pathologist's expertise will remain indispensable. What the new technology will allow is tissue extraction, which is more exact than traditional biopsies, which allows far more precise diagnoses.


Daniel Zeidler MD

In an EH interview with Holger Zorn, **Daniel Zeidler MD**, Head of Marketing at Pentax Europe GmbH, explained, that this technology is not new. 'Last July the first in-vivo proof of helicobacter pylori was presented at a Gastroenterology Forum in Mainz, Germany,' he explained. 'This is a ground-breaking development, in addition to research results Dr Kiesslich and his team in Mainz have been achieving. During this year's annual meeting of the German Society for Gastroenterology we had two presentations describing the advantages and benefits of endomicroscopy, and Dr Kiesslich's clinical research data will be published in *Gastroenterology*. The presentations confirm that intra-epithelial neoplasia can be diagnosed with high precision (99%) resp. can be differentiated from healthy tissue.'

What does this mean?

For the first time, endomicroscopy allows detailed microscopic visualisation of epithelium, connective tissue and blood vessels of the intestinal mucosa at a cellular level. The distal end of a normal endoscope is fitted with a microscope, which, during an endoscopic examination, is placed on the site to be examined and creates microscopic images that are displayed on a separate screen.

What would be the indications for use?

'For the near future, Professor Stolte, a renowned pathologist in Bayreuth, considers the main indication to be not only colitis ulcerosa, with its neoplastic growth, but also Barrett oesophagus, because in both cases conventional methods are not sensitive enough. So, we are talking about many patients who could benefit from endomicroscopy.'

Will it be possible, for example, to diagnose intestinal cancer without a histological analysis?

Quite obviously it is an exciting idea to be able to base an exact diagnosis exclusively on an endoscopic examination without a biopsy. Recent results indeed show that endomicroscopy provides extremely precise results, therefore I would not entirely rule out that vision.'

Could the new endoscopes be fitted with biopsy forceps, or will the patient have to undergo gastroscopy twice: exploratory and interventional?

'It was certainly a technical challenge but finally my colleagues in the Pentax research department, in cooperation with Optiscan, managed to come up with a solution that gives the physician performing an endoscopy the possibility to intervene directly. So the endoscopic channel enables all standard interventions.'

NEW ACL Reconstruction System

A fixation system named the Endobutton CL BTB, for use in the reconstruction of the anterior cruciate ligament (ACL) of the knee, was launched this autumn by Smith & Nephew's Endoscopy Division.

Injuries to the ACL, which stabilizes the knee joint, occur most frequently among people who participate in activities that require them to jump or change direction quickly, e.g. during football or skiing. Accidental movements that twist the knee can also damage the ACL.

The firm reports that using its system for ACL reconstruction restores stability, by using a bone-tendon-bone (BTB) graft, harvested from the patient's own patella tendon with bone plugs at each end. The bone at one end of the graft anchors it in the tibia. The bone at the other end sits within a tunnel, which has been drilled through the femur. This connects the graft to the Endobutton fixation device, which holds the graft in place.

'This technique also allows you to set the graft so the bone plugs rest flush with the patient's bone surface every time,' says Dr Stuart Fromm, of the Black Hills Orthopaedic & Spine Centre, in South Dakota. 'A protrusion could cause irritation after surgery.'

Surgeons who use the Endobutton CL BTB Fixation System say it provides a stronger repair than previous procedures for ACL reconstruction, and allows them to adjust the length of the graft, depending on the patient's size, the maker reports. 'Earlier ACL repair procedures used suture or surgical thread to connect the bone-tendon-bone graft to the Endobutton anchor. The Endobutton CL BTB system uses a continuous loop of polyester tape that adds strength and doesn't stretch, as suture can,' said Dr Richard Parker, sports medicine specialist at The Cleveland Clinic, Cleveland.

The Endobutton CL BTB system also eliminates complications associated with using screws in the procedure, S&N adds. 'Other types of ACL repair surgery use screws to secure the graft at each end of the surgical tunnel. However, screws can break, enter the bone at the wrong angle or tear the graft. The Endobutton CL BTB system eliminates the need for a screw at the femoral end, in many cases.'

EVAR for aortic aneurysm

Study results show early death reduction of two thirds

Early results of a UK study (pub: *The Lancet* online, 25/8/04) suggest that a less invasive surgical procedure to repair aortic aneurysm could reduce death within a month of surgery by about two-thirds.

Abdominal Aortic Aneurysm (AAA) is a dangerous swelling of the abdominal aorta, which has an increased chance of rupture if it is larger than 5∑5 cm - a majority of people die from ruptures. The cause of AAA is complex, including atherosclerosis, smoking, and a genetic predisposition.

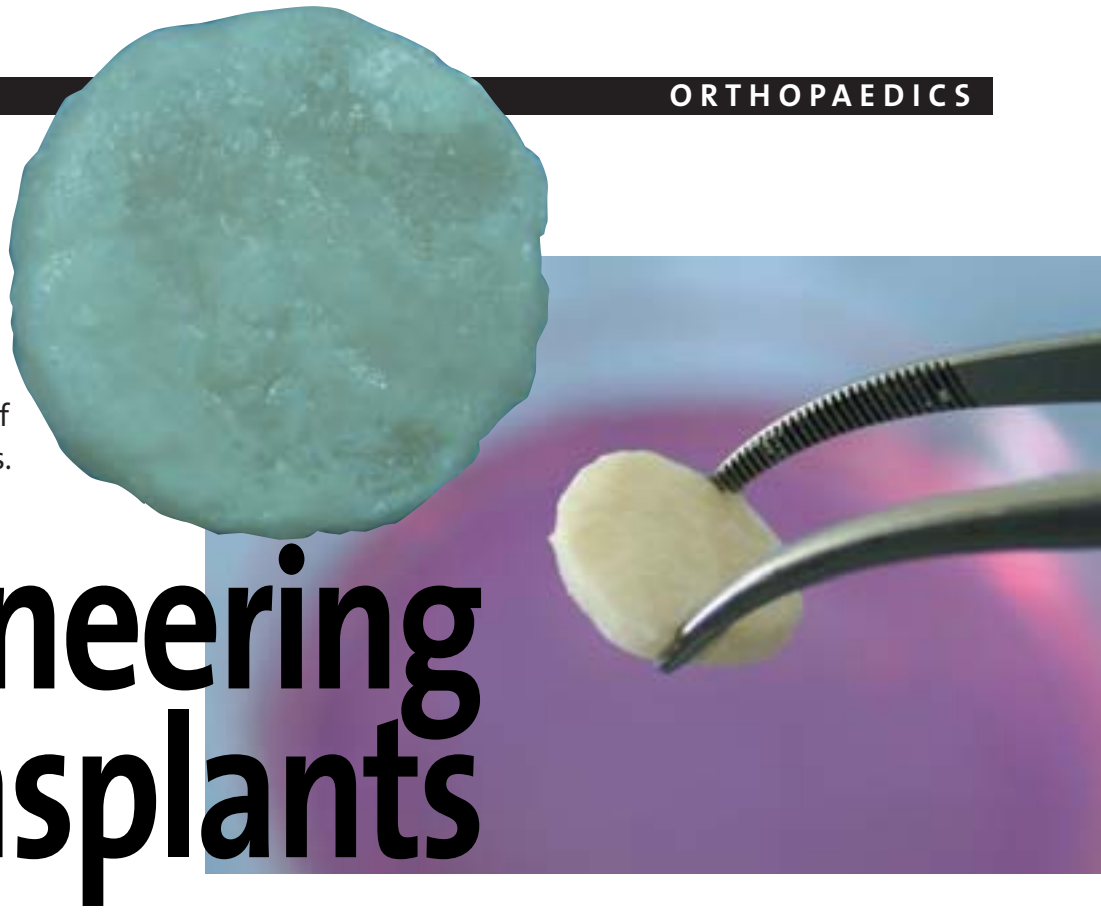
To treat AAA's, over the past decade surgeons have perfected a new procedure, called endovascular repair (EVAR), in which two small incisions are made in the groin, and a graft is passed through the arteries under X-ray control and fixed with a stent which holds the graft in place; this technique is far less invasive than conventional surgery, which requires a deep abdominal incision.

41 UK hospitals collaborated in the study, providing a surgical and radiological team to investigate whether EVAR is as good as, or better than, conventional open surgery. Over 1,000 patients (over 90% men, and all patients aged over 60) who had large (5 cm or greater) AAA, were randomly allocated to receive either EVAR or conventional open surgery. The death rate within 30 days of surgery was reduced by around two-thirds compared with patients given open surgery (1∑7% and 4∑7% mortality rates, respectively); however, there were 75% more secondary procedures done among patients initially given EVAR.

***Professor Roger M Greenhalgh FRCS*, Consultant Vascular Surgeon at Imperial College London, and Hammersmith Hospitals NHS Trust, said: 'These early results with EVAR applied to large aneurysms in suitable patients, provide justification for continued use of this technique in controlled or trial settings; however, the early promise of endovascular repair cannot be guaranteed and might not endure in the long term. These 30-day mortality results are a licence to continue scientific evaluation of EVAR, but not to change clinical practice.'**

** Professor Greenhalgh's areas of expertise include: vascular surgery/surgery of veins; arterial and venous disease; carotid surgery or stroke and mini stroke; aortic aneurysm surgery; medical negligence; causation of arterial disease - aortic aneurysms and stroke; limb reconstructive procedures; endovascular minimally invasive techniques and performance of national clinical trials to establish treatment guidelines. Contact: r.greenhalgh@imperial.ac.uk*

Eight years ago, biologist Dr Michael Sittinger established a multidisciplinary oriented research group at the Department of Rheumatology and German Rheumatism Research Centre, Charité-University Medicine, Berlin. The concept was '... to develop core technologies based on multidisciplinary knowledge for cell biology, cell culture and biocompatible delivery materials'. Among current projects of the Tissue Engineering Team is engineering for bone transplants.



Tissue engineering for bone transplants

Large bone defects remain a major challenge for orthopaedic surgery, the team points out. 'While autologous bone grafts raise problems of restricted availability and donor site morbidity, transplantation of biomaterials relies only on the osteoconductive and mechanical properties of the substitutes.

'Tissue engineering can be seen as a new path to combine aspects from biology, engineering, material science and surgery and benefits from multipotent progenitor and stem cells of appropriate donor sites like periosteum and bone marrow,' according to a team working at the Charité Tissue Engineering Laboratory (Iris Leinhase; Jochen Ringe; Christian Kaps; Michael Sittinger; Carsten Perka and Ron-Sascha Spitzer) in Germany.

'It is known, that periosteal cells (PC) have the potential to regenerate bone and articular cartilage defects. They can be isolated from small periosteal explants, grown in tissue culture and stimulated to form bone and cartilage under appropriate conditions. While for clinical approaches, tissue engineering has to ensure that cells can be expanded sufficiently by maintaining their various differentiation properties.

'In our current studies, periosteal autografts were taken from human mastoid. PC were isolated and cultured in vitro with allogenic human serum. The objective of one study was to determine how long Pc can be expanded without loosing their typical morphology and still keeping their osteogenic and chondrogenic differentiation capacity, while another study dealt with the in vitro multilineage differentiation potential of these cells compared with human mesenchymal stem cells.

Moreover, PC, isolated from New Zealand White (NZW) rabbits, cultured in PGLA fleeces and fibrin-alginate beads, were investigated for their osteogenic differentiation and used to repair critical size bone defects in a rabbit model.

'We found, that during culture period up to passage 7, PC exhibit a typical fibroblast-like morphology. Hereby the proliferation capacity of PC mainly depends on the tissue quality and the serum, being used for cultivation. Even beyond passage 7, osteogenic and chondrogenic differentiation could be initiated.

'The characteristics of the PC were analysed by morphology, histological staining, immunohistochemistry and gene expression analysis. FACS analysis of PC showed expression of ALCAM and ENDOGLIN, which are also typical markers for mesenchymal stem cells. Additionally, differentiation of PC was shown into the osteogenic, chondrogenic and adipogenic linage.

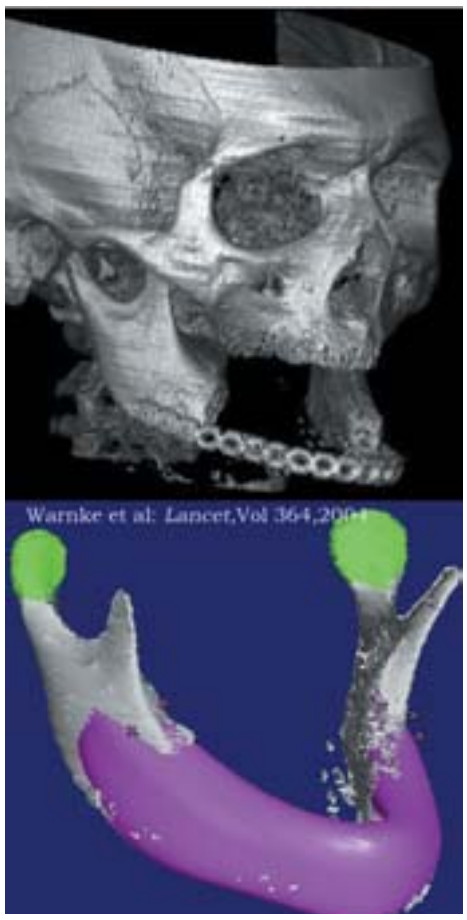
'The osteogenic differentiation of rabbit PC in vitro was supported by cultivation in three-dimensional PGLA fleeces and fibrin gels under appropriate medium conditions,' the team reports. 'Furthermore, in vivo results using allogenic cells in the ulnar and calvarial defect model showed that the combination of PC with PGLA fleeces is a promising approach to engineered bone repair.'

Details: http://ctel.tissue-engineering.net/index.php

Creating a jawbone transplant

Germany - A new procedure for creating and transplanting bone grafts, reported by Patrick H Warnke and colleagues at the Department of Oral and Maxillofacial Surgery, University of Kiel, Germany (Pub: The Lancet. 28/8-3/9 2004 pp 735, 766), has enabled a male patient, aged 56, to eat his first solid meal in nine years, after his jawbone had been removed due to cancer.

One drawback of bone transplantation from one part of the body to another is the creation of a secondary bone defect to treat the primary defect, said Patrick H Warnke. Rather than obtaining a graft from another part of the patient's body (e.g. hip), the investigators used 3D computed tomography (CT) scanning and computer-aided design techniques to produce a replacement for the jawbone defect. The data were then used to create a titanium mesh cage that was filled with bone mineral blocks and 7 mg recombinant human bone morphogenetic protein 7 and 20 mL of the patient's bone marrow. The transplant was implanted into the muscle below the patient's right shoulder blade (latissimus dorsi muscle); 7 weeks later the new



The Lancet

bone graft was transplanted as a free bone-muscle flap to repair the jawbone defect.

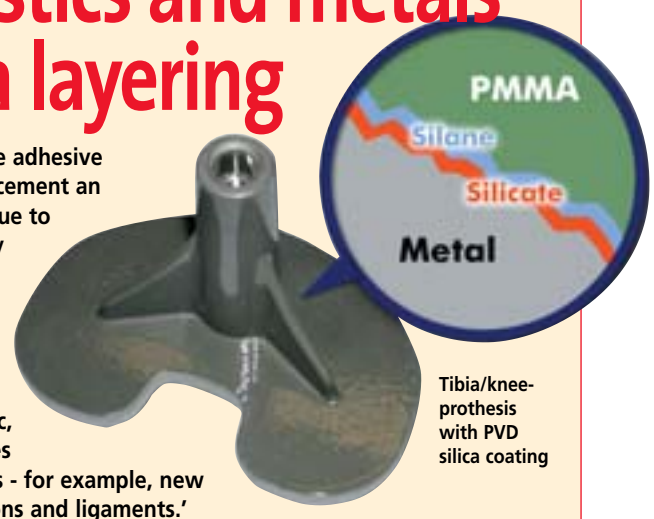
Bone remodelling and mineralisation inside the transplant were evident both before and after transplantation. CT provided radiological evidence of new bone formation. The patient regained the ability to chew, and by the 4th week post-transplantation could eat bread and sausages, whereas before he could only eat soft food and soup.

Dr Warnke comments: 'To the best of our knowledge, this case provides evidence that heterotopic bone induction to form a mandibular replacement inside the latissimus dorsi muscle in a human being with a prefabrication technique is possible. The prefabrication technique described, and subsequent free-flap reconstruction of the mandible, allows for a lower operative burden and a better three-dimensional outcome

than conventional reconstruction techniques. We suggest that our results represent a proof of principle. Many vital questions still remain unanswered. The exciting nature of the result achieved in this patient to date has prompted our group to extend this trial to include additional patients. For us to draw firm conclusions, an extended period of follow-up is necessary. We hope to present this patient's long-term outcome and those of future patients at a later date.'
Contact: warnke@mkg.uni-kiel.de

Minimally invasive surgery (MIS) is widely accepted as being the least aggressive technique in operations of any kind. However, in spinal surgery MIS techniques are still limited to some specific pathologies

Bonding plastics and metals by PVD silica layering



Tibia/knee-prothesis with PVD silica coating

In many areas of prosthetics a suitable adhesive ('bone cement') is commonly used to cement an inserted metal prosthesis. However, due to body humidity this may de-bond early on. Now, in an interdisciplinary project, a layering system has been developed to tackle this problem. 'Longer periods without re-operation should become possible,' said Michael Weber, at the University Clinic, Achen. 'Moreover, adhesive techniques may facilitate new surgical techniques - for example, new fixation techniques for artificial tendons and ligaments.'

The university's pilot PVD system and innovative adhesive techniques developed for prosthetics and surgery will be on show at MEDICA - Hall 3, booth 93
E-contact: mail@michaelweber.de

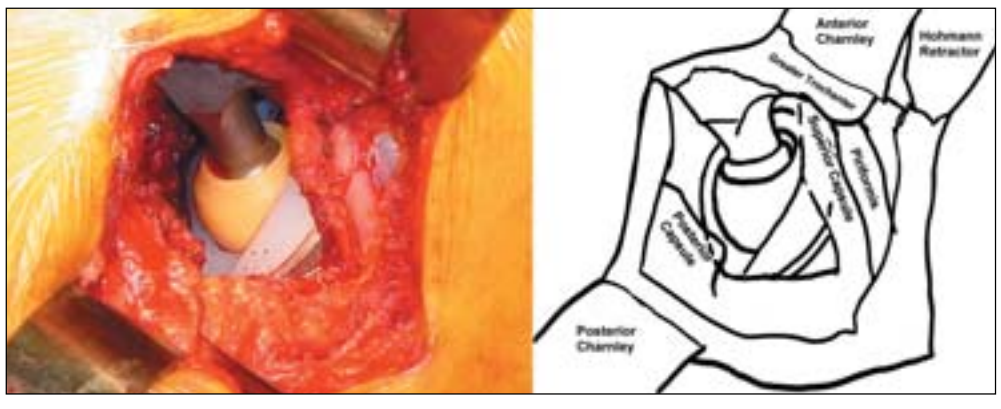
Minimally invasive THA

US Surgeon ***Todd V Swanson*** describes combining MIS for THA with a prosthesis that immediately enables full weight bearing

Minimally invasive surgical techniques have revolutionised many areas of surgery. Although small-incision total hip arthroplasty (THA) dates back to 1980 when Light and Keggi published a small series of THA's performed through a small anterior approach, the technique did not really gain momentum until the late 1990s when surgical techniques and instrumentation were developed and standardised. Anterior, anterolateral, posterior, and dual-incision techniques have been described. To date, single-incision techniques appear to be safer than the dual-incision technique, which has demonstrated a higher complication rate in its early use.

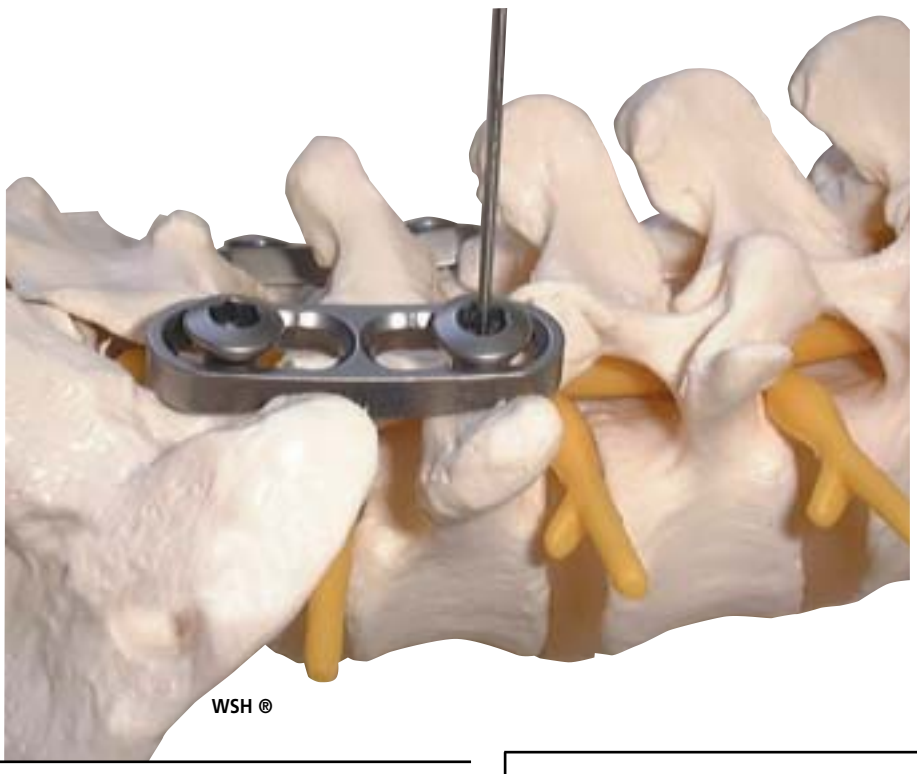
Most studies show that single-incision minimally invasive THA is safe, reproducible, and advantageous to the patient. Advantages include shorter surgical time, less blood loss, less post-operative pain, shorter hospitalisation, and quicker overall recovery than standard-incision THA. Although advantages were initially thought secondary to the shorter incision, it is becoming apparent that less dissection and reduced soft tissue trauma are even more contributory.

Speedy recovery is one of the greatest advantages of minimally invasive THA. Rapid return of function requires early full weight bearing on the extremity. Cornered, tapered femoral components provide primary stability that allows immediate full weight bearing. The SL-PLUS femoral component (PLUS Endoprothetik AG, Rotkreuz, Switzerland), which is based on this design principle, is one of the most stable stems available today, providing primary stability that easily allows full, unprotected weight-bearing without jeopardising osseo-integra-



MIS for spinal surgery

France - The WSH percutaneous posterior stabilisation system has shown very good results since its initial use,' reports Neuro France Implants, which focuses on developing MIS spinal surgery implant systems. In this technique, pedicle screws and their connection plates are introduced, via a working tube, through small incisions of 17mm per pedicle, thus avoiding muscular and ligamentous dissection, the firm explains. 'The approach is posterior. There is no need for general anaesthesia. Neurolept-analgesic with local anaesthesia will suffice, which offered new possibilities for anaesthesia risk patients. There is almost no blood loss, which greatly helps with trauma patients, even though the WSH system has been designed for a degenerative spine, and especially for the invalidating unstable spine. The procedure is very safe as the pedicle screwing is constantly self-guided by the Kirschner pin that has been introduced first and will not be removed until the pedicle screw is in place.'



WSH ®

'The EUROPA posterior interfusion body cage, now available, can be used in association with the WSH system or 'standing alone', complementary to an endoscopic trans-foramina dissection. Again the approach is posterior, and via working tubes. The posterior tripod is not destabilised by the surgical procedure, so the cage can stand alone. The technique consists of introducing working tubes trans-foramina through which the cage is introduced between the two vertebral bodies. The implantation site has been cleared of its discal substance to allow good fusion. The fact that a patient is conscious throughout the operation makes the procedure very safe, due to the patient's immediate feedback to pain. The structures and tissues surrounding nerves are not touched. Of course, the EUROPA cage should be used only when drug and physiotherapies have failed.'

In 2005 Neuro France Implants will launch the WINGS percutaneous dynamic posterior stabilisation system, which is presently used with classic open surgery. 'The dynamic system WINGS tries to mimic normal segment motion as fusion may not always be the best solution,' the firm reports, adding: 'MIS for the spine is in a fast growing process, some systems are only superficially minimally invasive, others are truly minimally invasive. In all cases, it improves the comfort of the patient and the safety of implantation.'

tion to the textured, titanium alloy surface.

I have used a posterior, single-incision, MIS approach combined with the SL-PLUS femoral component since 1997, and have performed over 1,500 consecutive cases using this technique. The technique has evolved considerably since its inception, but even in my first 100 cases, operative time and blood loss were less, complications were fewer, component malpositioning was uncommon, and patients were discharged earlier from the hospital and recovered more quickly compared to my last 50 standard-incision THA's (Swanson TV, Hanna RH. *Advantages of Cementless THA Using MIS Technique*. Poster presentation - 70th Annual Meeting of AAOS, New Orleans. 2/03).

Currently, the technique allows reproducibly excellent results and quick recoveries, with patients resuming normal activities within 3-6 weeks after surgery in most cases.

The combination of a minimally invasive surgical technique and a prosthesis that affords immediate full weight bearing allows extremely rapid return of function. With time, even better techniques will likely be developed and combined with components that are stable and reliably osseo-integrate, allowing patients to recover quickly and return to normal activities in a much shorter period of time than was ever seen with standard-incision THA.

Bracing and support

Senior citizens and new technology push sales

Demographic factors, technological advances and supplier-backed education programmes will fuel growth in sales of orthopaedic braces and supports, according to a new Frost & Sullivan report by research analyst Paul Taylor (http://medicaldevices.frost.com). 'By 2010, the overall European orthopaedic braces and supports market is expected to expand from an estimated 325.067 million euros (2003) to 433.153 million euros,' he points out, adding that by 2020, almost a quarter of Europe's total population will be elderly, which inevitably will increase the number of age-related orthopaedic cases (osteo-arthritis, osteoporosis, degenerative disc disease (DDD), herniated disc and spondylolysis), in turn increasing demand for these orthopaedic items.

According to the report, sales of orthotics are also set to rise, due to the creation of innovative products resulting from computer-aided design/computer-aided manufacturing (CAD/CAM) technology and the development of new materials, e.g. carbon fibre reinforced plastics (CFRPs) or fibre reinforced plastics (FRPs). 'Ongoing robotic orthosis projects, focused on the development of a variety of specialised limb orthosis, also hold promise,' Paul Taylor predicts. However, he also points out that two key challenges confront orthotics manufacturers: continued healthcare reforms and budgetary restraints that force price reductions or increase the provision of value-added services.

Across many European countries, poor or low reimbursement values for orthotics also present a challenge. With few exceptions, Italy, for example, does not provide reimbursement for orthotic products.

Orthopaedic braces products and services are predicted to become increasingly specialised, for example for sports medicine. Another promising niche market is that of hip orthosis, says the report's author. 'These are gaining appeal as a method to help prevent dislocations of both primary and revision surgery of the hip.'

'Both major suppliers and smaller niche companies are active in the highly fragmented and competitive orthopaedic bracing and supports market. In some regions, the entry of new competitors and products is difficult due to the well-established presence of local competitors such as Bauerfeind in Germany, Tielle in Italy and Thusane in France,' he points out. In the future, he predicts, there will be further mergers/acquisitions to maintain viability.

For an emailed report overview, quote 'The European Market for Orthopaedic Bracing and Support'. Code: B381, and send your full name, company name, title, Phone number, email address, to: katja.feick@frost.com.

Lars Hofmann MD, *(right) Global Product & Marketing Manager* (right), Cardiac CT, Siemens Medical Solutions, reports from an expert panel chaired by ***Professor Gerd Assmann***, entitled: *'New perspectives: Cardiovascular risk assessment, including non-invasive imaging'*

International Task Force to prevent CHD

In recent years, a shift in the risk assessment for coronary heart disease (CHD) has occurred. Previously, risk was assessed on the basis of individual risk factors such as high cholesterol or high blood pressure or, at best, by counting the number of risk factors. Today, it is known that risk is best assessed by taking into account the number and level of the major risk factors and by implementing them in a scoring scheme that automatically takes account of the relative importance of each factor. Such schemes have been developed in the PROCAM study and in the Framingham Study.

Use of these scoring schemes allows fairly exact calculation of a person's risk of developing a heart attack within the next ten years. This is important, because statins can now lower risk by effectively lowering LDL cholesterol. An international consensus emerged that in persons at high risk of heart attack (i.e. patients with symptomatic CHD or with a calculated ten-year heart attack risk above 20%), the LDL cholesterol level should be lowered to 100 mg/dL or less. Results of new studies now show that patients who are at very high risk of heart attack are likely to benefit from a lowering of LDL cholesterol much below 100 mg/dL. A target LDL of 70 mg/dL has been suggested for them.

This in turn raises the question of how to identify such patients. *The International Task Force for Prevention of Coronary Heart Disease*, led by Professor Gerd Assmann, MD,suggests that they are best identified with the help of newer emerging risk factors:

- Evidence of atherosclerosis on non-invasive imaging (i.e. an age- and sex-adjusted calcium (Ca) score of the coronary arteries above the 75th percentile or an increased intima-media thickness (IMT) ratio of the carotids)
- Lipoprotein (a) = 30 mg/dL
- CRP > 3 mg/dL (no signs of inflammation)
- Homocysteine = 12 µmol/L
- = 4 of 11 genetic risk factors

Because of their novelty, the exact place of these risk factors is still the subject of research. Nevertheless, sufficient evidence already exists to include them in risk assessment strategies. In general, they should be used in the quarter of all patients who are at intermediate or high risk of heart attack on the basis of conventional risk scores. The presence of age and sex-adjusted 75th percentile of coronary Ca score or carotid IMT, or the presence of two or more of the other emerging risk factors in such patients may tip the balance in favor of their classification into a higher risk category and therefore lower target LDL cholesterol level.

This is no more than a recommendation, however. The final decision to use emerging risk factors to assess risk in an individual patient should at the present time be left to the clinical judgment of his or her doctor.

Question time

How do we define the age and sex-corrected 75th percentile for the calcium score?
Several large-scale, cross-sectional studies exist with up to 35,000 patients relating calcium score to age and gender. These were asymptomatic patients, many of whom presented because of suspected CHD risk and are therefore not representative of the general population. One study showed no difference between Germany and the USA in relation to calcium score percentiles, but further information on racial and geographic variation is lacking at the present time.

What is the evidence that a raised calcium score is associated with increased risk?
Multiple retrospective studies with follow-up periods of up to five years have shown a clear relationship between coronary calcification and increased risk of coronary events in asymptomatic individuals. The degree of calcification showed a graded relationship to risk. Prospective studies are underway in Europe and the US to investigate the question.

Is it possible to define noncalcified 'atherosclerotic wall changes' associated with increased risk?
Some studies in patients with acute coronary syndromes performed with MS-CT have shown a higher prevalence of non-calcified plaque than in patients with stable coronary heart disease. However, no prospective data on this question are available.

Is it possible to identify 'culprit lesions' with multi-slice CT?
Initial MS-CT studies have shown differences in the CT characteristics of lipid-rich (lower CT attenuation) and fibrous plaques (higher CT attenuation) as confirmed by histology and intravascular ultrasound. However, clear identification of rupture-prone lesions is not possible at present.

Is multi-slice CT equivalent to electron beam CT in CHD risk prediction?
Historically, most studies of coronary calcification have been performed using electron beam CT. In recent years, however, many comparative studies using multi-slice CT have clearly shown that both techniques are comparable for assessing the coronary calcium score. Because of its higher spatial resolution and faster volume coverage, multi-slice CT is superior for detection of non-calcified plaques and for visualization of the entire coronary tree.

Is measurement of the coronary calcium score a useful screening test?
The coronary calcium score is an emerging risk marker for coronary events. Screening of the unselected population is not justified at present. However, there is a case to be made for measuring the coronary calcium score for further stratification of patients at high and intermediate risk after assessment of traditional risk factors.

Participants in the 'CHD risk assessment' ECR session

Professor Gerd Assmann (Chair)
Paul Cullen
Stephan Achenbach
Thorsten Dill
Jean-Charles Fruchart
Heiner Greten
Jörg Hausleiter
Andreas Knez
Axel Küttner
Marek Naruszewicz
Anders Olsson
Rodolfo Paoletti
Walter Riesen
Monika Stoll
Matti Tikkanen
Arnold von Eckardstein

First all-diabetic drug-eluting stent trial

SPAIN - Results from non-industry sponsored DIABETES (DIABETes and sirolimus-Eluting Stent trial) trial, presented at TCT 2004 by Manuel SabatË of the Hospital Clinico San Carlos in Madrid, prompted the session moderator and TCT co-director, Dr Martin Leon to say, 'The fact that this study was non-sponsored I think adds important credibility. We had angiographic follow-up on more insulin-dependent diabetics in this study than in the whole SIRIUS trial, so the insights are very important.The results are staggering.'

In this the first all-diabetic trial of a drug-eluting stent, the Cypher sirolimus-eluting stent (SES) significantly reduced in-segment late lumen loss and restenosis compared with a bare metal stent.

For this randomised, prospective, placebo-controlled trial of the sirolimus-eluting stent (SES) trial, 160 patients (221 lesions) diabetic patients with de novo coronary stenosis, treated at four Spanish university hospitals, were randomly assigned to either a SES or bare metal stent. Eligible patients were either non-insulin dependent (but not managed by diet alone) or insulin dependent and had symptoms or subjective evidence of ischemia. The primary endpoint was in-segment (in-stent + 5 mm distal and proximal) late lumen loss as assessed by QCA at 9-month follow-up.

Similar to the SIRIUS trial, mean lesion length was 15.0 mm, but in keeping with common diabetic presentation and dissimilar to any previously completed DES study, mean reference vessel diameter was rather small at 2.34 mm. 13% of all lesions treated were total occlusions.

At one month, there were no deaths, Q-wave or non-Q-wave MIs, or target lesion or vessel revascularisations in the SES arm, compared to 2 deaths and 3 non-Q-wave MIs in the control arm (MACE = 6.3%; p=0.1 compared to SES).

Nine-Month Results - There was a highly significant 82% reduction in in-segment late lumen loss at 9 months in the SES arm (0.8 mm versus 0.44 mm for controls; p<0.0001), which corresponded with a 76% reduction in in-segment restenosis (from 33% to 7%; P<0.001) and a 84% drop in in-stent restenosis (from 31% to 4.9%; p<0.0001).

Nine-month MACE was also significantly reduced by the SES, from 36.3% to 11.3%.

FRENCH AND ITALIAN FOLLOW-UPS

Data from two registries serve to expand the burgeoning database on the safety and efficacy of the Cypher stent in the treatment of diabetics. At the same meeting, Dr Philippe Commeau, Beauregard Hospital, Marseille, France, presented a 1-year follow-up of 642 patients enrolled into the BRIDGE registry (French study). A TLR rate of 6.2% and MACE rate of 10.2% was found in this highly challenging patient population in whom 73% had multi-vessel disease and >30% were IDDM. In a separate presentation, Dr Giulio Guagliumi, Bergamo, Italy reported a TLR of 1.7% and MACE rate of 4.6% in 4,149 diabetic patients followed-up out to 6-months. *Reports: David Barrow*

Why so few devices, yet so many HF patients?

Firms launch 'awareness' campaign

Heart failure (HF) accounts for 5-10% of all hospital admissions. In the five leading EU countries - UK, France, Germany, Italy and Spain - over 330,000 new cases are diagnosed annually. Most HF patients receive only drug therapy, despite the availability of highly effective devices that could help the condition. At this year's ESC meeting three medical technology companies - Guidant, St. Jude Medical and Medtronic - launched an 'awareness campaign' to inform cardiologists of the benefits of device therapy for HF.

'When considering purchasing policy decision for devices, comparing drug therapy with a device is always difficult,' Dr Amir Zaidi, Consultant Cardiologist at the Royal Bolton Hospital, UK. 'Initial costs for devices themselves are considered high, which makes it difficult to see long-term cost savings. However, the costs associated with the devices are typically recovered within a year through reduced hospitalisation and drug costs.'

It was pointed out that many scientific papers demonstrate that device therapy not only dramatically improves life for patients but also significantly reduces hospitalisation and mortality. Devices for treating HF include cardiac resynchronisation therapy (CRT), and implantable cardioverter defibrillators (ICD) - often combined in a single device (CRT-D). Among recent clinical trials supporting CRT implants, one published in *The New England Journal of Medicine* showed that 69% of patients on CRT had an increase of at least one class in their functional and therapeutic classification for cardiac patients. The could walk 40% further, were less breathless and said they lived a more normal life.'

Automation

The Pentra 400 - for rapid multiple parameter testing

France - About 25% of the world's haematology analysers are produced by ABX Diagnostics (a subsidiary of Japan's HORIBA Group). From its R&D facility in Montpelier the firm has developed numerous innovations, most recently launching the Pentra 400, a bench top clinical analyser for rapid multiple parameter testing; the Pentra DX 120 for fully automated analysis of blood cell development stages, and the Pentra XL 80 providing automated sample dilution and re-run.

Within two months of its arrival, sixty Pentra 400s were in use in Europe. This system offers high-precision chemical analysis with back-up options for 55 on-board parameters at a rate of up to 420 tests per hour, ABX reports. 'A range of CE-marked, ready to use reagents presented in compact bar-coded cassettes further simplify operation. The panel of 52 high-performance liquid reagents include 36 methods for enzymes and substrates, with applications for plasma, serum and urine, as well as 24 methods for specific proteins from serum, plasma, whole blood or haemolysate (HbA1c) and urine (micro-albumin). All methods follow IFCC recommendations and all specific proteins are standardised against CRM 470 with NGSP-certification where required. Its integrated work station and validation station provides Delta-checking and automatic validation with a memory of 10,000 results and offers full tracking and on-line help. The system reduces re-runs and accelerates results readout through multiple sample checks for shock, level and fibrin clots, as well as constant positive identification of samples and reagents using integrated barcode readers and tube presence detectors.'

The Pentra DX120 is the first haematology analyser specifically adapted for preventative diagnostic and haematology screening with automatic results validation, ABX says. 'No other analyser has such broad capabilities in the automated study of the different stages of blood cell maturation. Measuring an unrivalled 45 parameters per analysis, this analyser not only identifies and enumerates cell lines for routine purposes, but can also be used directly for clinical research needs.'

With both reticulocyte and nucleated red blood cell measurement there is no need for manual staining, and the system includes the firm's new Double Diff Matrix (DX), said to significantly reduce manual differentials in the lab and enable scientists to automatically distinguish three different cell lines involved in leucopoiesis - myeloid, monocytic and lymphoid.

For microscope examination of abnormal samples, the new analyser can incorporate an integrated slide-maker (SPS Evolution) that will automatically process 120 slides per hour. It also provides barcode reading and host query for sample identification and for printing patients' data on slides.

The integrated Expert Validation Station provides data management and expandable communication possibilities, the firm points out. 'The haematology process pathway identifies, in real time, samples that should require manual inspection and, through Intelligent Reflex Testing, allows automatic complementary analysis (Retics, NRBCs) and slide creation. Rules are fully adaptable and may incorporate numerical data, flagging, delta-checking and patient demographics. In combination with both SPS Evolution and the Expert Validation System, the Pentra DX 120 offers a totally consolidated approach to haematology workflow.'

The Pentra XL 80 is a fully integrated, accredited, global data management system, which enables onboard validation of results, ensures full tracking of reagents used and stores patient data. The system provides fully automated rapid throughput of 80 samples per hour, with a CBC + DIFF leucocyte count with over 26 parameters.

The Integrated Validation Station automatically provides report validation and comprehensive Delta check flagging. In addition, it undertakes patient reporting using selective results for mixing from run, re-run and manual entry.

Due to the Customised Dilution Ratio (CDR) of the Pentra XL 80, all samples out of the linear range selected by the user are automatically detected, diluted and re-run for extended linearity results. The firm adds that this unique feature completely removes the need for manual dilution and pushes back the linearity limits with a choice of three different ratios (1/2, 1/3, 1/5) for over range samples.

Genes test heralds customised drug therapy

The AmpliChip CYP450 Test detects variations in two genes - Cytochrome P450 2D6 and 2C19 - and provides the associated predictive phenotype (poor, intermediate, extensive, or ultra-rapid metaboliser). Because these genes play a major role in the metabolism of many widely prescribed drugs, results from the test could help physicians to select drugs and individualise treatment doses.

When the test was recently approved for diagnostic use in the EU, Heino von Prondzynski, Head of Roche Diagnostics and Member of the Roche Executive Committee, pointed out: 'With the CE mark for the AmpliChip CYP450 Test we are on our way to helping physicians move towards a more personalised approach to therapy, and to building our new line of chip-based diagnostics products.'

The AmpliChip CYP450 Test uses two industry gold standards, Roche polymerase chain reaction (PCR) amplification technology and Affymetrix high-density microarray technology (glass chips arrayed with tens of thousands of DNA fragments yet no bigger than a thumbnail), Roche reports. 'Affymetrix has also announced that its GeneChip System 3000Dx instrumentation, on which the AmpliChip CYP450 Test is run, is now also CE marked for diagnostic use in the EU.'

Enzymes encoded by the CYP2D6 gene metabolise many anti-depressants, anti-psychotics, anti-arrhythmics, pain drugs, anti-emetics, and beta-blockers (beta-adrenergic receptor blocker drugs). Enzymes encoded by the CYP2C19 gene metabolises drugs from a variety of classes, including anti-convulsants, proton pump inhibitors, anti-coagulants, benzodiazepines, and anti-malarials.

Poor metabolisers treated with drugs that are extensively dependent on certain 'normal' enzyme activity are at increased risk for excessive or prolonged levels of the drug in their blood (excessive or prolonged therapeutic effect) and toxicity, while ultra-rapid metabolisers may not achieve sufficient therapeutic levels in their blood with standard dosing. In the case of pro-drugs (these are drugs that require enzymatic action before they become the therapeutic compound in the body), the opposite phenomenon occurs. In addition, drugs taken at the same time (concurrent medications) and other environmental factors such as diet can inhibit or induce Cytochrome P450 enzyme activity.

To allow highly accurate prediction of patient phenotype, the AmpliChip CYP450 Test has the ability to detect not just the presence of CYP2D6 gene duplications, but also to discern which variation of the gene (allele) has been duplicated. This specificity is important in correctly predicting the ultra-rapid metaboliser phenotype and avoiding potential mis-classification of the patients tested.

Closed-tube sampling

Switzerland - Beckman Coulter Inc has introduced a new closed-tube sampling (CTS) device on its Synchron LX20 Pro and Synchron LXi 725 clinical systems to accommodate Sarstedt DT S-Monovette tubes. Now, in addition to processing BD Vacutainer with Hemogard and Greiner Vacuette tubes, the firm reports that clinical laboratories can use its proprietary CTS technology on Sarstedt S-Monovette 5.5 and 7.5 mL blood collection tubes.

The Synchron LX20 Pro and Synchron LXi 725 are the only chemistry systems on the market with CTS technology, the firm reports. This has a device to pierce a rubber specimen tube cap so that a sample can be aspirated automatically through the cap, thus significantly reducing de-capping and re-capping specimen tubes for chemistry analysis, and so reducing potential medical errors, protecting staff from biohazards and improving turnaround time.

The Synchron LX20 Pro's test menu has over 100 tests comprised of general chemistries, critical care chemistries, proteins, serologies and esoteric chemistries as well as therapeutic drug monitoring (TDM) and drugs-of-abuse testing (DAT) reagents.

The Synchron LXi 725 covers around 140 chemistry and immunoassay tests, plus data management and automated sample handling. Parallel processing technology allows simultaneous immunoassay and chemistry testing, so that a basic metabolic panel can be completed in less than two minutes, 'the fastest stat available,' the firm reports, adding that a critical troponin I test result can be delivered in about 14 minutes.

Analytica China 2004

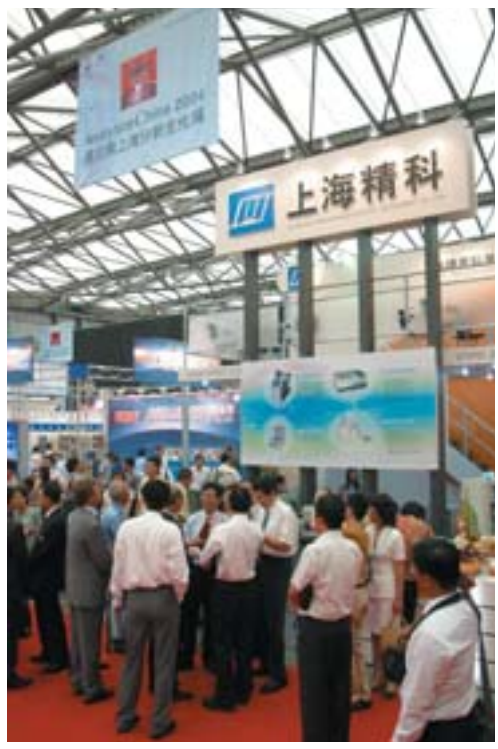
Shanghai - AnalyticaChina and the AnalyticaChina Conference takes place in one of Asia's most vital growth markets - China. When this event premiered two years ago, Dr Richard Zhang, Country Manager and Chief Representative of Merck China, said his firm decided to 'try out the temperature and depth of the water' by exhibiting just a few regular products. In September's second AnalyticaChina, the firm created a grander stand design and introduced its newest products. 'AnalyticaChina is a trade fair worth spending a large budget on,' Dr Zhang concluded, indicating that this is now the most important event that focuses on analysis equipment and accessories, laboratory technology and life-science solutions in the Far Eastern region.

Over three days it drew 6,600 visitors from 40 countries/regions and, with a 20% increase in exhibition space of 20%, 200 exhibitors from 18 countries - 16% more than in 2002. 'Increases in the number of exhibitors and the amount of exhibition space demonstrate that market players have confidence in the show's concept - based on the original Analytica in Munich,' said Kurt Schraudy, Managing Director of IMAG, a subsidiary company of Munich International Trade Fairs*.

In the German Pavilion represented 40 companies, among them EMCLAB. Klaus Engler, the firm's general manager observed that most of those firms were small or medium-sized and some were at the show, or even in China, for the first time. 'Our goal was to get to know the Chinese market, present our companies, meet potential customers and set up co-operation agreements with Chinese partners. We certainly met our objective. We met a lot of dealers, and most were decision makers.'

Over 300 meetings took place during the show between the 40 German firms and 70 Chinese companies, said Sven Behrens, Managing Director of Spectaris - the German Industrial Association for Optical, Medical and Mechatronical Technologies Inc, which held the Asia-Interprise Analytica 2004 event, supported by the EU's Asia Invest Office and others.

Similarly, at the Great Britain Pavilion, John Lees, Managing



Director of LTE Scientific Ltd, confirmed the show's success, as did Juan Fanals, Trade Officer of Consulate Spain, at the Spanish Pavilion.

In a survey carried out at the show, 89% of exhibitors and 96% of visitors said they would recommend it to business partners, and would attend the 2006 event.

LABORATORY & PHARMACEUTICALS

STATINS 10-year follow-up finds long-term value

Scandinavia - Statins lower cholesterol and are associated with cardiovascular benefits, but their long-term effect was unknown because trials ended within six years. Now, however, the results of a 15-year Nordic study and follow-up indicate that long-term use may decrease mortality rate and incidence of cancer.

The Scandinavian Simvastatin Survival Study (4S) led by Dr Timo E Strandberg (University of Helsinki, Finland) and colleagues was launched in 1989, when patients from Denmark, Finland, Iceland, Norway and Sweden were randomly assigned to five years of statin therapy (simvastatin) or allocated a placebo. A five-year follow-up (Pub: The Lancet, 1994; 344: 1383-89) showed that statins lowered lipid fractions and cholesterol concentrations; furthermore, simvastatin treatment reduced cardiovascular mortality and coronary mortality by 36% and 43%, respectively. That trial was the first to demonstrate the advantage of lowering cholesterol in patients with coronary heart disease, and ushered in a revolution in treating heart disease more aggressively.

The long-term follow-up results compare the initial 2221 patients who have taken simvastatin for 10 years, compared with the 2223 patients who initially received placebo (then began on statins five years ago, after the 4S trial was completed and statin benefit became known). Overall, there was a 17% reduction in cardiovascular mortality and a 24% decrease in coronary mortality for 10-year statin use compared with five-year use for people given placebo in the original trial who later used statins. There was a suggestion that 10-year statin use was associated with a decreased incidence of cancer, although the 12% reduction for long-term statin users was not statistically significant. (Results published in The Lancet (28.8 to 3.9 2004 issue, p 761).

'The main finding of this 10-year follow-up study of the participants of 4S was that the survival benefit of patients allocated simvastatin, compared with those allocated placebo, that accrued during the double-blind trial period persisted during follow-up,' said Dr Strandberg. 'The reduction in the relative risk between the two original treatment groups was not unexpected, because open-label treatment with lipid-lowering drugs (mostly statins) was given to most patients when the trial ended. After three years, over 80% of patients in both groups were using these drugs. Nevertheless, the absolute differences in all cause, cardiovascular and coronary mortality achieved during the double-blind trial changed little during the five-year extension of the follow-up.'

Parkinson's disease

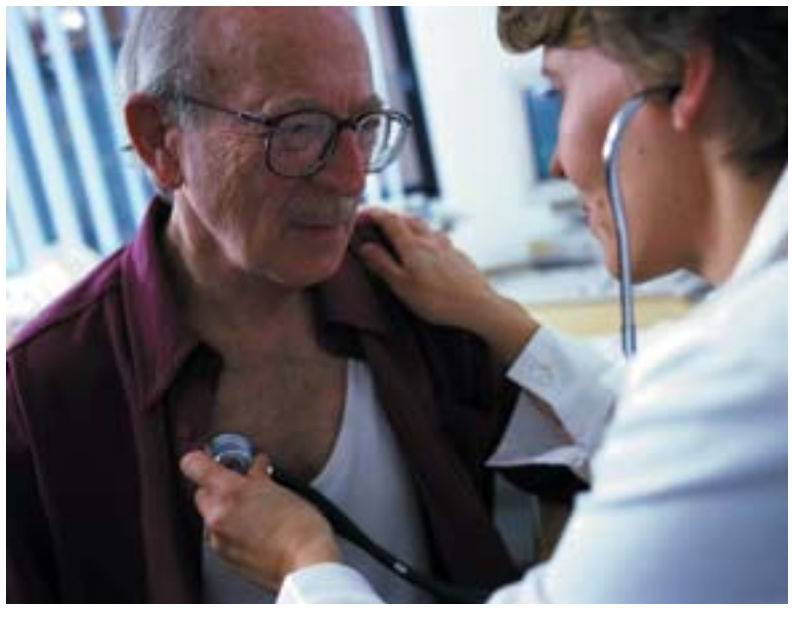
Delaying dyskinesia

Switzerland - A large multi-centre study of motor complications associated with Parkinson's disease (PD) has been launched by Novartis and Orion Pharma. The STRIDE-PD (STalevo Reduction In Dyskinesia Evaluation) will involve 70 centres in 14 countries and about 740 patients suffering idiopathic PD.

Announced at the 8th Congress of the European Federation of Neurological Societies, the study will analyse the effects of Stalevo, a medication that contains levodopa, carbidopa and entacapone.

Parkinson's disease affects 6.3 million people worldwide (1% of those over 60 years old and 2% of people over 80). The cause is unknown, but PD symptoms are primarily the result of degeneration of dopaminergic cells, or neurons, in the substantia nigra, a part of the brain that controls and modulates movement.

Levodopa has been the gold standard PD symptomatic treatment for almost 40 years. However, after several years of its use, PD patients often start to experience complications such as dyskinesias (fragmented or jerky motions that differ from the rhythmic tremor mainly associated with PD) and motor fluctuations, which have been linked to the medication's effects 'wearing-off'. They are partly due



DETECTING PATHOGENS IN PLATELETS

Bacteria contaminate one in 2,000 to one in 5,000 platelets collected worldwide. A new standard set by the American Association of Blood Banks requires that, from March of this year, US blood centres must test all platelet components for the presence of bacteria prior to transfusion.

Specialising in leukocyte reduction filtration systems, the Pall Corporation carries out extensive R&D on the removal of prions and other pathogens that can contaminate blood. In January this year, the USA's Federal Drug Administration (FDA) cleared the marketing of an 'enhanced Bacterial Detection System' eBDS, made by the Pall Corporation. Additionally, in Canada, this has been approved by the regulatory authority Health Canada, and the system is CE marked for use throughout Europe. Currently, over 30 US blood centres, one of Canada's largest hospitals, plus four European and Middle Eastern blood centres routinely use Pall eBDS.

Pall reports: 'The eBDS can detect bacteria in all platelets, whether derived from single donor (apheresis) or random donor (whole blood) collection procedures. It allows blood banks to accurately detect the lowest levels of bacterial contamination so that viable and valuable platelets are not discarded or wasted. It does this with minimal platelets loss. The eBDS is automated, requires little training to operate and is easy to incorporate into standard blood centre practice. A rapid read system provides pass/fail results in about 30 seconds, thus improving availability of blood for transfusion by allowing faster access to platelets found to be bacteria free prior to becoming outdated.'

The eBDS is part of the Pall Medical Bacteria Risk Management Programme, which includes products to address contamination at each stage of blood collection and processing. Other steps in this programme include the firm's Sample Diversion Pouch, which diverts the usually contaminated initial volume of donor blood during collection and filtration technologies for leukocyte reduction of both red blood cells and platelets.

Recently, Pall agreed that Kawasumi Laboratories Inc, of Tokyo, is to be the exclusive supplier of the eBDS in Japan, where about 780,000 platelets are collected annually. Pall points out that Kawasumi, a global manufacturer of medical devices and pharmaceuticals for haemodialysis, blood banking, cardiovascular, intravenous infusion and other fields, uses only Pall leukocyte (white blood cell) reduction filters in its blood collection and transfusion systems

Among these was the Shanghai Precision & Scientific Instrument Co Ltd, which had constructed a two-storey stand this year. Zhang Jungao, the firm's senior economist and adviser, reported that the firm had positive talks with potential customers 'especially from abroad.'

Conferences were supported by experts from the China Association for Instrumental Analysis, Chinese Chemical Society, Vogel Beijing, eurom 2, and speakers/lecturers included Professor Huijun Zhao (Grifith College, Australia); Prof. Li Hongmei (National Standard Research Centre); Prof. S Terabe (Editor-in-Chief, J. Chromatography magazine), and, from the Chinese Academy of Science, Huang Benli, Wang Erkang, Zhang Yukui and Yu Mingfang.

* AnalyticaChina is part of Analytica-World, an international network of fairs and exhibitions that includes Analytica, Analytica-Anacon India and BioAnalytica.

to PD advancement, with a progressive loss of dopamine neurons in specific brain areas. However, it is also thought that the way traditional levodopa is administered - often two or three times daily, despite its relatively short half-life (1-2 hours) - can lead to abnormal dopaminergic stimulation of the receptors.

Scientists reason that providing a more continuous administration of levodopa might help delay the onset of motor complications. Stalevo is an optimised treatment with a significantly longer half-life than previously available levodopa preparations. In pre-clinical study data this was reported to have significantly enhanced the ability of PD patients to control body movements and perform basic functions, e.g. walking and dressing. The STRIDE-PD study might validate this. Stalevo will be used as an initial therapy and the results compared with patients given a traditional formula of levodopa/carbidopa.

'If the study shows that Stalevo is superior to traditional levodopa/carbidopa therapy in the time to onset of dyskinesias, this could change the current treatment paradigm completely,' added Werner Poewe, Chair of the Department of Neurology at Innsbruck University, Austria.

First study results are expected in 2007.

AWARDS

Microbiologists honoured

Scotland - Neil Gow, Professor of Molecular and Cell Biology at the University of Aberdeen's School of Medical Sciences has been elected to the Fellowship of the American Academy of Microbiology (the fifth professor from Aberdeen's School of Medical Sciences to gain this accolade).

A leading expert in fungal cell biology, Prof. Gow is honoured for his research on the pathogenic fungus Candida albicans, which The Academy said has enhanced scientists' understanding of the mechanisms regulating growth and development in this micro organism. His contributions to several other fields, including environmental microbiology and infectious diseases, are also acclaimed.

2004 Women in Cell Biology

Meanwhile, at the University of Dundee, cancer scientist Dr Inke Näthke has been named the junior 2004 Women in Cell Biology award winner by the American Society for Cell Biology (ASCB), in recognition of her exceptional scientific contribution to cell biology. The award will be presented at the ASCB's 44th Annual Meeting in Washington DC this December.

Dr Inke N‰thke, a principal investigator in the Division of Cell and Developmental Biology in the School of Life Sciences, recently received £1.2 million from Cancer Research UK to investigate the function of the Adenomatous Polyposis Coli (APC) gene. Her work will help understand how mutations in this gene initiate colon cancer tumours.

Ultrasound for the blind

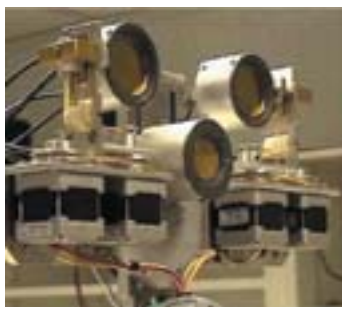
Germany - Scientists at the University Erlangen are constructing an artificial bat head to understand how bats send and receive signals to recognise objects by ultrasound. The ultimate aim of this EU-funded project is to learn more about object recognition with ultrasound and apply findings in medical technology, specifically to develop orientation aids for blind people. Leading the research, Professor Reinhard Lerch, at the university's department of sensor technology, predicts that blind people will use ultrasound sensors to recognise obstacles and generate acoustic signals in the future.

The technology bat's ears and mouth will mirror movements of the live animal, because, Professor Lerch said, 'Movements of head and ears are crucial to understanding the bat's ultrasound locating system. Currently, we are focusing on the ears, which receive the signal and on the acoustic transducer that generates and receives the outgoing signal.'

Sizing the device has been a paramount problem. 'To recreate sending and receiving actions precisely, the artificial head cannot be larger than the original,' explained researcher Alexander Streicher. This is not the only quandary. The team has not yet been able to generate the entire frequency range of bats, which is between 20 and 200 kHz.

In addition, bat ears come in different shapes that are crucial for receiving signals. Different species of bat ears have now been scanned, and digital models generated from the scans to be used in simulation and as a basis for synthetic models. A computer programme calculated the optimal position of the ears, the suitable shape and a genetic algorithm.

Details: http://www.uni-erlangen.de



The 'Tübinger Fledermauskopf', an earlier experimental model. The current artificial bat head, seen here with researcher Alexander Streicher, is only the size of its biological inspiration

Speaking valve with oxygen supply port

Germany - The new Tracoe phon assist I for tracheotomised patients with an intact or partly intact larynx, is an adjustable speaking valve with oxygen supply port.

Developed by Tracoe medical GmbH, Frankfurt, the device enables speech without using finger occlusion, as well as free inspiration or expiration and, for weak and hypoxic patients, a means for oxygen administration.

Adjusting the valve, users can set any necessary resistance to exhalation, which promotes restoration of physiological PEEP to ensure optimum oxygenation.

The speaking valve is available in two versions for use on all fenestrated tracheostomy tubes with 15mm connector, e.g. on Tracoe twist tubes, the Tracoe larynx grid and stoma buttons, as well as on the Tracoe adhesive carrier.

Details: info@tracoe.com

3-in-1 bio-medical devices tester

United Kingdom - Need to test a defibrillator? Analyse a pacemaker? Simulate ECG arrhythmia? One instrument has now been developed to tackle all three tasks. Rigel Medical (part of the Seaward Group) reports that its Rigel 344 can '... test all defibrillators, including AEDs, and measures both monophasic and biphasic waveforms,' and that all external pacemakers, including transthoracic and transvenous, can be tested.

The device has 12 built-in, user-selectable, test loads to test transthoracic pacing and the integral ECG/Arrhythmia simulator allows performance testing of any ECG equipment, the firm adds.

The unit also has a large, four-line LCD for simultaneous display of test measurements and a print key for instant documentation. Yet, despite its several roles and features, this multi-purpose unit is compact and lightweight.

Further details: www.rigelmedical.com

MEDICA launch

Patients' software

France - Natcom, a unique virtual encyclopaedia of anatomy has been developed by the Montpelier firm Geckomedia to help medical professionals (general practitioners, hospital staff, etc) to graphically explain clinical conditions and procedures to their patients, then to supply them with hard copy or to e-mail the data.

This interactive, highly visual software contains 700 individual anatomic regions, presented layer on layer, with regions accessible in seconds. Numerous navigation bars and presentation methods also enable fast and intuitive orientation.

Prepared with patients' in mind, the succinct medical explanations were based on the guidelines of a scientific committee comprised of general practitioners and specialists, who determined the form of presentations for pathologies and surgery, considered navigation, user interfaces and functions and, when necessary, will provide supplements or simplifications.

Natom is available for Windows NT, 98, ME, 2000 or XP. Recommended minimum requirements for configuration: Pentium II 233 Megaherz (or equivalent), 64 MB, screen resolution 800 x 600, 16 million colours.

A teaching version is also available, as is a special version for people with a general interest in medicine.

X-rays, cross-sections, detailed images - presentations bring the body to life

Natom software will be launched at MEDICA in Düsseldorf, this November – Hall 13, Stand 13 A 48 E. Further details: www.natom.com

Double-barrelled syringe

When sampling blood, the point of entry should be thoroughly sterilised. However, because sterilisation takes up to two minutes, this rule is not always followed. Such malpractice results in skin bacterial contamination of about 6% of blood cultures. In turn that can lead to incorrect culture results.

Focusing on 'more elegant and practical modes of delivery', Juan N Walterspiel MD FAAP, Adj. Associate Clinical Professor Paediatrics, Emory University School of Medicine, Atlanta, invented a miniature and standard-sized syringe, attached to a single needle via a y-shaped connector. When the needle enters a patient's vein, the first millilitre of blood - which is most likely to carry skin contaminants - is drawn into the smaller syringe, then the necessary sample enters the main syringe, to be tested.

Professor Walterspiel believes his device would cost under a dollar more than the usual syringe, but would save costs incurred by false results. He is now seeking commercial partners to develop the device.

Labelling patients & medications

Germany - An automatic patient identification system already widely used in UK, Belgian and Japanese hospitals, will be shown at MEDICA this November.

Hospitals already using the system issue in-coming patients with durable, water resistant wristband labels containing a scannable barcode, or radiofrequency identification tag, that have been generated by a Sato CT400 barcode label printer. Then, throughout a patient's stay, hospital staff using mobile, lightweight scanners can read the individual barcodes to access the patient's data, treatment history and medication instructions logged in the hospital's central database.

From storeroom to bedside

By attaching barcode labels to shelves, drugs can be automatically identified via the Denso BHT-8000 Bluetooth Scanner and, using the mobile SATO MB400 Bluetooth label printer, individual tracking labels can be generated for patient's drugs. When drugs arrive in a ward, those tracking labels are again scanned, using the Denso BHT-200 WLAN, and compared with data on th wristbands. The scanner either displays the patient's name or warns that drugs do not match a patient. The Sato system can be used for many such tasks, including blood sampling.

Sato Deutschland GmbH, a subsidiary of Japan's Sato Corporation products, will demonstrate this automated medication tracking system in Hall 16, booth 16E19.

** The 60-year-old parent company - inventor of thermal transfer printing - specialises in data collection systems (DCS and Radio Frequency Identification (RDIF) technology*

LINK-UP

GLOBAL EVENTS

2004

OCTOBER

24 – 28 Amsterdam, Netherlands
ESTRO 23
23rd Annual Meeting of the European Society for Therapeutic Radiology and Oncology.
www.estro.be

27 – 30 Kyiv, Ukraine
Public Health 2004
Email: rmamedsalakhova@ite-exhibitions.com

28 – 29 Amsterdam, The Netherlands
3rd Update in Coloproctology
Email: j.goedkoop@amc.uva.nl

29 Oct – 2 Nov Vienna, Austria
ESMO
29th Congress European Society for Medical Oncology. www.calendar.uicc.org

31 Oct – 4 Nov Hong Kong
7th Asian Congress of Urology, 2004
Venue: HK Convention and Exhibition Centre, Congress Secretariat: MediTech Media Asia Pacific Pte Ltd, 25/F, One Capital Place, 18 Luard Road, Wanchai, Hong Kong.
Phone: + 852 2520 5209.
Fax: + 852 2520 5207.
Email: secretariat@acu2004.org.
Website: www.acu2004.org

NOVEMBER

4 – 11 Taipei, Taiwan
MEDIPHAR
International Medical Equipment & Pharmaceuticals Show. www.auma.de

10 – 11 Dusseldorf, Germany
REHACare International
www.auma.de

11 – 12 Frankfurt, Germany
3rd Frankfurter Meeting on Obesity Surgery

16 – 17 Olympia, London, UK
International Biotech and Lab Automation Europe 2004
Email: davidr@alto-marketing.com

20 – 21 Vienna, Austria
EANM Courses on Clinical PET
www.eanm.org

21 – 26 Sydney, Australia
Annual Meeting of the Australasian Society for the Study of Obesity at AH&MR Congress

22 – 23 The Netherlands
Amsterdam RAI. 4th European Conference on Paediatric Asthma and Allergy
www.mahealthcareevents.co.uk

24 Harrogate, UK
38th Annual Meeting Vascular Surgery Society of Great Britain & Ireland
www.vascularsociety.org.uk

24 – 27 Dusseldorf, Germany
MEDICA
www.medica.de

28 Nov – 3 Dec. Chicago, IL, USA
RSNA
90th Scientific Assembly and Annual Meeting of the Radiological Society of North America.
www.rsna.org

2005

JANUARY

9 – 13 Helsinki, Finland
MEDICINE – Health Care Exhibition
www.finnexpo.fi

15 – 19 Phoenix, USA
34th Critical Care Congress of the Society of Critical Care Medicine
www.sccm.org

16 – 21 Flims, Switzerland
EWOC 9 - European Winter Oncology Conference
www.uicc.org

28 – 30 Stuttgart, Germany
Medicin and Rescue
www.auma.de

FEBRUARY

1 – 4 Paris, France
16th Int'l Congress on Anti-Cancer Treatment
www.uicc.org

5 – 9 Davos, Switzerland
14th European Urological Winter Forum
www.uroweb.org

10 – 13 Salzburg, Austria
8th Int'l Symposium on GnRH Analogues in Cancer and Human Reproduction
www.kenes.com

12 – 15 Dubai, United Arab. Emirates
Arab Health – Int`l Fair for Medical Technic and Hospital Equipment
www.iirdubai.com

12 – 14 Hyderabad, India
Hospimedica India
www.mdna.com

18 – 19 Duesseldorf, Germany
7th Int'l Symposium: Diagnostic & Therapeutic Endoscopy
www.cocs.de

22 – 25 Minsk, Belarus
Belarusmedica/Pharma/Labor/Dent/ Optik
www.tc.by

MARCH

3 – 5 Amsterdam, Netherlands
3rd International Conference on Targeted Anticancer Therapies
www.docguide.com

4 – 8 Vienna, Austria
ECR – European Congress of Radiology
www.myecr.org

10 – 11 Paris, France
ECCO 2005 – European Cancer Conference
www.fecs.be

16 – 17 Glasgow, Scotland
III Medical Patients' Acute Care & Treatment
www.docguide.com

16 – 19 Istanbul, Turkey
EAU: 20th Congress of the European Association of Urology
www.uroweb.org

17 – 19 Posen, Poland
SALUS – Prevention and Health Care, Forum and Exhibition
http://salus.mtp.pl/

21 – 23 Cambridge, England
Annual Meeting of the British Society for Investigative Dermatology
www.docguide.com

21 – 25 Brussels, Belgium
25th ISICM Meeting – Intensive Care and Emergency Medicine
www.intensive.org

31 Mar – 5 Apr New Orleans, USA
SIR 2005 – 30th Annual Scientific Meeting
www.sirweb.org

APRIL

2 – 6 London, England
14th Annual Congress of the International Society for Gynecologic Endoscopy
www.isge2005.org

4 – 7 Harrogate, England
BES 2005: 24th Joint Meeting of the British Endocrine Societies
www.docguide.com

4 – 8 Edingburgh, Scotland
Molecular Pathogenesis of Virus Infections
www.docguide.com

5 – 8 Munich, Germany
122th Congress of the German Surgery Society
www. chirurgie2005.de

6 – 8 Luxembourg, Luxembourg
Int'l Fair for Telemedicine and Telecare
www.medetel.lu

6 – 9 Bukarest, Romania
ROMMEDICA/ROMPHARMA/ ROMOPTIK
www.rommedica.ro

7 – 9 Vienna, Austria
Clinical Dermatology 2005
www.docguide.com

11 – 13 York, England
3rd UK Radiation Oncology Conference
www.docguide.com

16 – 17 Chicago, USA
AOCR – Conference of the American Osteopathic College of Radiology
www.aocr.org

19 – 24 Island of Creta, Greece
10th International Congress on Oral Cancer
www.uicc.org

MAY

1 – 5 Lisbon, Portugal
CISTM9 – Conference of the International Society of Travel Medicine
www.cocs.de

4 – 7 Berlin, Germany
86th German Radiology Congress
www.drg.de

5 – 7 Budapest, Hungary
8th Congress of the European Society for Pediatric Dermatology
www.docguide.com

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Phone: +49 (0)211 7357 532
Fax: +49 (0)211 7357 530
e-mail: info@european-hospital.com

www.european-hospital.com

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

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

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

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

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Advertising:
Ted Asoshina, Japan, +81 3 3263 5065
Ben Chen, Taiwan, +886 2 8712 2385
Denise Hennig, Germany, +49 211 7357 532
Juri Laskin, Russia, +70 95 2711 006
Simon Kramer, BeNeLux, GB, Scandinavia, France +31 180 6172 26
C.K. Kwok, Hong Kong, +85 2 2890 5510
C.H. Park, South Korea, +82 2 3644 182
Hanna Politis, USA, Canada +1 301 8696 610

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

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

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

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

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

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

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