EUROPEAN HOSPITAL DUSSELDORF **WEDNESDAY 15 NOVEMBER**

2006 @MEDICA

NOVEMBER 2006

SPECIAL ISSUE: MEDICAL, TECHNICAL, PHARMACEUTICAL, INDUSTRIAL NEWS & MUCH MORE

The heart of healthcare beats in Dusseldorf


Horst Giesen

Welcome to the 38th MEDICA – the world's biggest medical trade show – where once again the number of exhibitors, as well as visitors, is predicted to break all previous records. **Horst Giesen**, the project coordinator of MEDICA, described highlights of this year's show, and future plans for the event, in an interview with *Daniela Zimmermann*, of *European Hospital,* publisher of the annual @MEDICA series, who asked 'What are the hot topics this year?'

HG: Nothing will be presented with a lot of razzle-dazzle. However, it's one of MEDICA's strengths to focus on the ongoing development of trends. A point in case: miniaturisation. There are a number of innovations, as devices are becoming ever smaller and better.

Point-of-care testing is another big issue where we see a constant flow of clinical enhancements. Today, many procedures and measurements that traditionally had to be performed in the laboratory can be done at the bedside – with results instantly available.

Is the integration of such data into the electronic patient record (EPR) and hospital information system (HIS) still a big focus?

Very big – particularly in German healthcare, where the focus is on the electronic health card. At the show, several companies will demonstrate how that card works and explore its potential. We have scheduled the special show MEDICA.Media, which will also deal with the subject. Technically, these cards are available, but the different stakeholders have to agree on the ways they will be used.

This is a very German issue.

Indeed! But the electronic health card, I mean the software, and the technological know-how behind it, can be exported and thus presents major international market potential.

continued on page 2

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Medica 2006
November 15-18th, Düsseldorf
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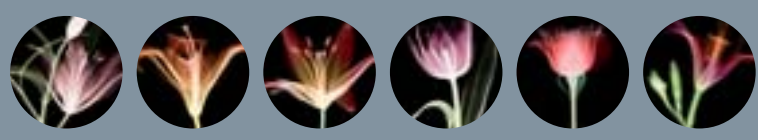

Meet us at MEDICA! Hall 7 Stand E15

The **European Hospital** team will be happy to hear about your research, products R&D and/or trials and launches, hospital management issues, or any other aspects of your work, so that we can discuss your editorial and/or advertising needs. (You can also locate our contact details on page 14).

Our publications are distributed to Europe's leading medical and hospital administrative personnel, making EUROPEAN HOSPITAL the leading pan-European medical and healthcare journal.

We also publish the hospital architecture/design magazine **D4 Health** and the **@MEDICA** series.

During this year's show, **three** special 2006@MEDICA editions will be distributed - on Wednesday, Thursday and Friday – so don't miss any! If you did not receive your ***free*** copies at the entrance of Messe Dusseldorf, simply visit our stand.

If you miss us at MEDICA, we will also be at **RSNA 2006**, held later this month in Chicago, USA. (South building. Hall A, stand 1008).

So, enjoy your visit – and let's meet!

2006@MEDICA – Tomorrow!

Thursday's edition of **2006@MEDICA** focuses on **rescue and emergency care**, including national and international disaster services planning and much else.

Other hot topics include updates on **hospital hygiene**.

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What are the major international issues at MEDICA 2006?

The international character of the trade show has prompted the Deutsche Krankenhaustag, for the first time, to look into questions of European concern. Under the general heading 'Competition and Performance Results – What the Future holds for Hospitals' an exchange of information and experience on a European level will be promoted.

Would you give us some MEDICA statistics?

The number of exhibitors has increased again, compared with last year: we have 4,200 exhibitors and 60% are non-German. Although we are completely booked, we were able to optimise the set-up and division of available space to accommodate even more exhibitors. However, there is still a waiting list.

With its huge growth and demand for space, might you plan to move MEDICA?

MEDICA is a product of Messe Dusseldorf and certainly won't take place anywhere else. The city of Dusseldorf is the majority owner of Messe Dusseldorf and thus is eager to host the worldwide largest medical trade show. But quite obviously, there are other economic factors, for example the fact that the trade shows in general, and MEDICA in particular, generate income for hotels and restaurants, retailers and others in this city and the entire region. We have a certain obligation towards the location Dusseldorf.

In terms of space, we are currently building another hall, 8 B, to be completed by September 2007. It will accommodate 35–400 additional exhibitors, so next year we'll grow, along with our exhibitors.

Any other plans?

Yes, we will take a closer look at the exhibitors, to check whether they present real medical products – we will be more selective. Consequently, we have to change a few things in the products catalogue. However, this doesn't mean we'll weed out certain product segments – the segments are appropriate – but we have noticed that, upon registration, exhibitors classify their products incorrectly and that some of those products do not fit in the MEDICA portfolio. We will look at this more closely, and here, we rely on the industry associations to help us identify exhibitors who do not fit into our show concept.

As its organiser for 16 years, do you still look forward to this event?

Very much so! I'm impressed that more than 130,000 visitors from over 100 countries and 4,200 exhibitors with about 26,000 staff from 62 countries come here to meet, do business, exchange ideas and learn from one another. For us, as organisers, this is a wonderful confirmation that our work over the years has been, and continues to be, successful. We can proudly claim: For four days every year, the heart of healthcare beats in Dusseldorf.

THE EU'S 30 BILLION HEALTHCARE LOSSES

Fraud and corruption network protects 210 million citizens

Spain – Speaking at the *3rd European Healthcare Fraud and Corruption Conference* (EHFCN), Jim Gee, EHFCN director general, reminded delegates that this is the first organisation set up to tackle this problem across Europe. 22 organisations, representing 14 countries and 210 million European citizens, joined the network in the last year. Membership is also being considered by 37 organisations from 19 countries and, if they join, he said the EHFCN would become even more 'influential and powerful'.

He particularly praised work undertaken by the Ministry of Health in Poland, and the Caisse Nationale de l'Assurance Maladie (CNAMTS) in France, which set up its own Fraud Prevention and Litigation Directorate this year; it provides a 'road map' for future success in tackling the problem, he said.

Waiting for fraud to happen will only lead to further losses and reduced standards of care, he added. 'This could lead to patients being sick for longer, and in some cases, patients dying unnecessarily because they do not receive the care they need.'

In Europe, estimates of healthcare losses due to fraud are at least €30 billion annually. He said those who have already faced this problem have gained more money for healthcare provision. In England and Wales, after the National Health Service (NHS) began taking measures to counteract the problem six years ago, losses were reduced by up to 55% saving €1 billion.

Speakers included leading figures in healthcare and law enforcement agencies from Europe and beyond, for example Jaclyn Zappacosta, Legal Attaché at the FBI's Healthcare Fraud Unit and Dora Akumyili of Nigeria's National Food Agency for Food and Drugs Administration.

Jim Gee has now given up his leadership of the network to focus on healthcare fraud and corruption in England and Wales.

Marieke Koken, director of claim control at Zorgverzekeraars Nederland (ZN), a sector organisation for the Dutch healthcare insurers, and new EHFCN Director General, said more criminals must be found and punished. The network is to develop a training database and common training syllabus for all EFCN counter fraud professionals, she said. A manual, due out in 2007, will include detection and investigation methods, supported by case studies showing their success around Europe.

The new EHFCN Executive Committee includes experts in corruption prevention, counter fraud and security, labour and welfare, health and labour insurance and healthcare insurance.

During a month-long Fraud and Corruption Awareness Campaign, this November, one of the aims is for network members to visit hospitals, for example, to talk with staff and patients.
Details: www.ehfcn.org

Drunken abuse and violence against hospital staff

PROSECUTIONS UP, NUMBERS DOWN

UK – Speaking at the first National Health Service (NHS) Security Management Professionals conference in November, Rosie Winterton, the country's Health Minister, said the number of NHS staff who were physically assaulted in England has reduced. Statistics collected by the NHS Security Management Service (NHS SMS), show a fall of 1,690 in 2005 – a significant achievement, since violence and abuse had increased year-on-year until 2003, when the NHS SMS was set up. In addition, the number of people prosecuted for assaulting NHS staff in England also increased by 12% in the last year, from 759 to 850.

The statistics record 58,695 physical assaults against NHS staff in England, 1,690 fewer than 2004-5, and one for every 23 staff members, down from 22 last year.
Figures include:

- 1,104 assaults against ambulance staff, down 229 from 2005 (one assault per 29 staff members)
- 11,100 assaults against staff from acute and foundation hospitals, 342 more than last year (one assault per 67 staff members)
- 5,145 assaults against staff at primary care trusts, 47 fewer than last year (one assault per 68 staff members
- 41,345 assaults were against mental health and learning disability staff, 1,752 fewer than last year (one assault per five staff members)

'It is totally unacceptable that NHS staff should face violence and aggression in the course of their job. Thankfully, these statistics show that the tide is turning and we are finally seeing a reduction in the number of assaults. However this does not mean we can rest on our laurels. There are still too many attacks on staff and for this reason, following our public consultation, we are proposing to make anti-social and nuisance behaviour on NHS premises a criminal offence,' Rosie Winterton announced.

In response to a public consultation on nuisance behaviour in hospitals, the country's Department of Health has proposed to make nuisance and anti-social behaviour in hospitals a criminal offence, with fines of up to £1,000, and the power to remove the offenders from NHS premises. Responses were overwhelmingly positive showing that the NHS and the public support measures to tackle nuisance and abusive behaviour before it becomes violent. 'By giving the NHS the power to remove a potential threat, the offence would help reduce violent attacks on staff,' she said. 'This, alongside an increase in prosecutions, conflict resolution training for over 250,000 staff and our close working relationship with the Association of Chief Police Officers, means we can win the war against these violent offenders.'

Richard Hampton, Head of the NHS Security Management Service, said:

'The statistics are the most accurate on the issue in the history of the NHS. They show that the very hard work that has been undertaken in the last three years is beginning to bear fruit, making patients and staff safer. Since the NHS Security Management Service was created in 2003, there have been fewer physical assaults, a 16-fold increase in the number of prosecutions and a greater awareness amongst staff that action is being taken. We hope NHS staff will feel more confident in reporting every incident.'

However, he added: 'Most people respect NHS staff and would never dream of attacking them, but the NHS SMS will continue to strive to create a safer and more secure environment for staff and patients.'

The full response to the consultation is available at www.dh.gov.uk/consultations

New protective rights for hospitals

Royal Bolton Hospital has one of the busiest accident and emergency (A&E) departments in the North West, treating between 300–320 patients daily, which amounts to around 100,000 people annually.

Between April and September this year, 40 people were escorted from the hospital's A&E by security staff due to unacceptable behaviour (for example, spitting, shouting, swearing and being disruptive or abusive) towards staff. In addition, during that period 41 people verbally abused A&E and security staff. 'No one should have to put up with this kind of behaviour in their workplace. It also causes distress in other patients and visitors in the department. Staff do not always report incidents of aggressive behaviour towards them – many feel it is part of the job – but this is unacceptable and it has to stop,' said Dr Richard Parris, consultant in accident and emergency medicine at the hospital.

Today's MEDICA congresses and briefings

CONGRESSES

10:00 – 13:00 hrs. 1st floor, room 4C
Case-management in the hospital and surgery – new challenges and tasks for doctors
Moderation: Hans-Dieter Falkenberg (Munich); Ralph Höll (Munich)
Ref.: Gabi Schneider, Rösrath

10:00 – 13:00 hrs. 1st floor, room 17
Cardiac imaging update 2006
Moderation: Prof. Georg Sabin (Essen); Prof. Raimund Erbel (Essen).
Organiser: Medizinische Gesellschaft Essen

Clinical imaging
Prof. Andreas Mügge (Bochum)
Myocardium at risk – ischaemia diagnostics with MRI: dobutamine stress MR versus adenosine MR perfusion.
Dr Peter Hunold (Essen)
Diagnostics for cardiac nuclear medicine – now obsolete?
Prof. Rainer Zimmermann, Pforzheim

12:00 hrs. Medica meet IT. Hall 15, stand G 48
Interoperability. IT networks in hospitals – underestimated risks
David Kibilka, Head of IT-Management Systems, DS Data Systems GmbH; Ludger Witte – responsible for Electronic Data Processing, St-Marien-Krankenhaus Ahaus-Vreden GmbH

13:15 – 14:00 hrs. CCD South, room 2
Advances in catheter therapy at the KHK
Prof. Hartmut Gülker (Wuppertal)
Moderation: Prof. Ernst-Gerhard Loch (Wiesbaden)
(This lunchtime symposium includes snacks)

14:30 – 17:30 hrs. 1st floor, room 16
The Diseased Kidney – Dialysis or transplant
Moderation. Prof. Christoph J Olbricht (Stuttgart)

MEDIA BRIEFINGS

14:00 hrs. Hall 12, stand E 17
New products for large-scale disinfection & other innovations
Among the speakers: Dr Markus Miele, of Miele & Cie. KG, Gütersloh

15:30 hrs. North entrance, room 201
Alternative finance solutions in healthcare – the way to higher process efficiency
Siemens Financial Services (Munich)

Medical and financial assessment of new technologies in hospitals


Frederik Giesel

** Giesel FL (German Cancer Research Centre, Heidelberg, and the HfB-Business School of Finance & Management, Frankfurt), Rius M (German Cancer Research Centre, Heidelberg), Sibbel R (HfB-Business School of Finance & Management, Frankfurt, Germany); Grosch S (Swisslog, Switzerland); Stroud M (BMI Health Care, London, UK), Kauczor HU (German Cancer Research Centre, Heidelberg), Wocher J (Kameda Medical Centre, Kameda, Japan) and Breitenbach F (EDAG Engineering + Design AG, Business Unit Clinic, Fulda, Germany)*

Frederik L Giesel MD MBA, is a senior resident in radiology at the German Cancer Research Centre, Heidelberg, Germany, and recently a visiting lecturer at the University of Sheffield. His research focus is on pharmacokinetic and molecular imaging. He holds several patents for contrast media, undertakes various clinical trials, and has broad expertise in industrial cooperation.

He has considerable international experience, which includes medical studies in Germany, Canada, the USA and the UK, and he recently finished a course in international healthcare management in the executive MBA programme at HfB (Business School of Finance & Management) in cooperation with NCH (Nations Health Career School of management). His MBA thesis focused on medical and financial assessment of new technologies in hospitals. The results of this work - of which he presents a short summary* – will be presented at the *Dubai Hospital Congress* in 2007 (IMDIHF Dubai 2007).

Through the executive MBA programme, Dr Giesel widened his expertise to include management and financial assessment. He is already involved in cost analysis and pricing for ultrasound diagnostic procedures, for the German Association of Ultrasound (DEGUM) and is also developing a business plan for a private MRI unit.

Summary

Healthcare and the increased demands on technology raise the question of the investment and running costs associated with a particular technological device and whether new technology might improve processes and work efficiency (cost per unit). Today, the focus is not only on quality and diagnostic or therapeutic improvement to the patients. There are also important financial aspects involved, and one of the main issues is process management and efficiency.

This work examined the crucial issue of workflow in drug purchasing and delivery in a hospital environment, which is still causing drug distribution errors and therefore critical drug adverse events (~4–5%). Many weak sub-processes were identified through a comparison with an automated process. The latter can make certain sub-processes redundant, such as revaluation of the picking list or decentralized stockage, which holds a lot of unutilised value (~0.5–1 million euros, 600-bedhospital).

The investigation began by taking a closer look into the workflow of medical drug delivery in hospitals, focusing on characterization (responsibility and time) in the process commonly used in hospitals and comparing these characteristics with the utilization of an automated drug dispenser system. In an evaluation of the process from drug prescription to administration, 11 steps could be identified. By using the ADD system, five out of 11 steps could be eliminated (via drug storage centralization and an IT prescription system). The total process time was estimated to be 29.1 hours for the conventional approach, whereas, using ADD, only 19.1 hours were estimated, which means the total process time by human resources could be reduced by about 34%. After the process characterization by time, value and cost was elaborated, the total investment and amortization rate were investigated for an automated drug dispenser system. For a 600–bed hospital the total investment cost was estimated to be around 1.0 million euros, and the break- even after a 100% roll out was estimated after the third year.

This investigation indicates that an ADD system improves not only the process quality in the hospital using newest technology (unit dose and bar coding) and therefore reduces human errors in drug distribution. In addition, with this new technology, costs (reducing time and human resources) can be saved and break-even is reached after just three years of initial investment.

Treatment of orthopaedic patients to accelerate

UK – Around 10 million people suffer from musculoskeletal ailments in England alone. Currently the route to treatment runs between the local general practitioner (GP) and the specialist, with a maximum wait of up to 18 weeks from the GP's referral to hospital treatment.

The new *Musculoskeletal Services Framework* (MSF), announced by Health Minister Andy Burnham this November, will provide the country's National Health Service (NHS) with guidance to help improve services by providing faster, better and more convenient treatment for musculoskeletal patients. It shows how the health service can use a wider range of health professionals, including physiotherapists, nurses and pharmacists, as well as GPs and hospital consultants, and how, by using a range of professionals, patients will receive faster treatment, closer to their own home rather than have to travel to hospital.

The MFS is a real partnership success, as it has been developed by specialists working with stakeholders and so has the endorsement of the profession, said Andy Burnham, adding that patients with long-term conditions, such as arthritis and back pain, prefer treatment close to home, rather than having to travel to and from a hospital. 'The new guidance will mean that this will be possible for more patients, all supported by high quality hospital based services where they are needed,' he said. 'It will also mean faster treatment for patients. Implementing the framework will enable them to be seen sooner by a health professional without the need to wait for a consultation with a surgeon. However, patients who still need to see a surgeon will do so.'

The *Our Health Our Care Our Say* White Paper, produced by the Department of Health, set out a vision to provide people with good quality care in the communities where they live. It identified orthopaedics as one of the six specialties where the greatest progress could be made and the evaluation of pilot sites is already underway. The Department of Health is working closely with a group of key NHS stakeholders to co-ordinate these pilots with the ongoing work to tackle the challenges of meeting the 18-week target in orthopaedics. The MSF is central to this work.

In March, this year, the Pennine Musculoskeletal Medicine Partnership, a Specialist Personal Medical Services partnership was commissioned by Oldham PCT to provide a comprehensive service to the population of Oldham in Rheumatology, Orthopaedics and Chronic Pain.

The pilot study is designed to screen GP referrals for secondary care, managing those patients who did not need to see a consultant rheumatologist, and ensuring patients who were referred on to secondary care were fully investigated before seeing the consultant. The service is managed by the PCT and clinically led by Dr Alan Nye (GPSI Rheumatology) and Anne Browne (Nurse Consultant Rheumatology) with input from specialist physiotherapy, liaison psychiatry and osteoporosis nurse specialist.

The service has been highly successful with 70% diversion of GP referrals away from secondary care, with high levels of patient, staff and GP satisfaction, the Department of Health reports.
Guidance details: www.dh.gov.uk

BONE SUPPORT STUDY IS UNDERWAY

***Cerament Spine Support*, designed by the medical technology company BoneSupport to treat osteoporotic vertebral compression fractures, has achieved full patient enrolment in an open, multi-centre study which will investigate the product's efficacy, safety, and the beneficial quality of life outcome for the patients.**

The study, being carried out at six centres in Germany, involves 40 patients aged between 50-90 years (average: 70 years).

'In Europe, osteoporotic vertebral fractures are mostly treated in a conservative manner, i.e. painkillers and rest. This lack of curative treatment often ends up in a chronic pain syndrome, a crippling kyphosis, and an inability of the elderly patient to handle her daily situation,' said Fredrik Lindberg, CEO of BoneSupport. 'We are delighted to have achieved this important milestone in line with our plan. It should allow us to have the final report published by Q2, 2007,' he predicted.

Since its establishment in 1999, BoneSupport AB, based in Lund, Sweden, has focused on developing synthetic ceramic, injectable bone substitute materials and associated mixing and injection devices. The firm reports that its unique products are based on patented technology, and are primarily for the treatment of vertebral fractures and osteoporosis.

MDCT IMAGING TECHNIQUE TO EVALUATE BONE HEALING

Multi-detector computed tomography (MDCT), using high-quality 2-D formatting, is highly recommended as the primary imaging technique to evaluate bone healing, according to a study by radiologists at the Medical University of Vienna, Austria.

The study included 43 patients with histories of fractures, arthrodesis (joint fusion) or spinal fusions who had undergone MDCT and conventional radiography to evaluate bone healing.

Two musculoskeletal radiologists analysed multiplanar reconstructions and radiographs in a consensus interpretation. Their results showed no evidence of bone bridging in 14 patients. 23 patients showed evidence of partial fusion, and six showed complete fusion. In 27 patients (63%), MDCT and digital radiography were concordant in terms of the extent of bone healing, while in 16 patients (37%) the results were not concordant. In eight patients digital radiographs underestimated the extent of bone healing, while in another eight patients they overestimated the degree of fusion. 'Most cases were dealing with bone healing after spondylodiscitis, fractures or arthrodesis,' said Christian R Krestan MD, the study's lead author. 'However, no scientific data were available concerning the value of MDCT in bone healing compared with radiographs, which had been used for decades in this indication.

'The study results have a considerable impact on orthopaedic patients and lead to a substantial improvement in patient care,' he added. 'The exact diagnosis or exclusion of bone healing provides a basis for decisions like mobilisation or immobilisation and even repeated surgery in these patients.'

Source: The American Roentgen Ray Society (ARRS)

Discovered: a new genetic route to skin cancer

UK – A complex chain of molecular triggers involved in the development of malignant melanoma, the deadliest form of skin cancer, has been unravelled, according to a study carried out by scientists at the Institute of Cancer Research (ICR) and published in *Cancer Research**.

Most skin cancers are caused by damage to genes from UV (ultraviolet) rays in sunlight. Melanoma occurs when melanocytes, the cells in the skin that protect us from UV light, grow uncontrollably. Knowing the way in which the sun-damaged genes cause skin cancer could lead to the development of drugs to target people whose cancer developed in this way.

The research team discovered how a damaged version of a gene called RAS stimulates the growth of about 15–20 % of malignant melanomas. The growth and behaviour of melanocytes are controlled by many different factors. Crucially, faults in the RAF genes are important because they send signals to the cell telling it to grow. Scientists already know that faults in the B-RAF gene are associated with around 50–70% of melanomas.

However, until now it was not known how a growth signal was generated in the melanomas in which B-RAF is not mutated. This new research reveals that faults in the RAS gene activate another form of RAF, C-RAF, which then substitutes for B-RAF and so contributes to the development of melanoma.

Lead researcher Professor Richard Marais (left), at the ICR, said: 'We knew that RAS is mutated in up to a fifth of melanoma cases, but did not know how it was able to drive the growth of cancer cells. This research found that RAS activates one of the RAF proteins and from our previous work, we knew that a different RAF protein was implicated in the development of most other melanomas. Knowing more about the behaviour of all the different pathways involved in the development of melanoma could have implications for drug targeting. This discovery has the potential to enable us to develop targeted treatments to repair this particular fault and reverse the effects of the disease.'

Professor John Toy, Cancer Research UK's medical director, said: 'These findings will help improve our general understanding of how melanomas develop and grow out of control. Finding new treatments to effectively target melanoma is of critical importance because cases of the disease are set to treble over the next thirty years.'

* In melanoma RAS mutations are accompanied by switching signalling from B-RAF to C-RAF and disrupted cAMP signalling. Dumaz et al. (2006). Cancer Research Vol 66 Issue 19.

Malignant melanoma

About 8,000 cases of malignant melanoma are diagnosed in the UK annually, and it causes almost 1,800 deaths each year there. The disease usually develops in cells in the skin's outer layer, with first visible signs possibly a change in the normal look or feel of a mole.

Although the risk of this disease increases with age, it is one of the few cancers to affect young adults and is the third most common cancer amongst 15–39 year olds.

More women than men develop malignant melanoma. Melanomas in women are most common on the legs and in men they are more common on the back.

When melanoma is caught early it can be treated successfully. However, if a malignant melanoma is left it can spread to other parts of the body and may prove fatal.

Non-malignant melanoma

Over nine in 10 skin cancers are non-malignant and these are a more easily treatable and less likely to spread. These cancers are most common on areas of skin frequently exposed to the sun such as the head, neck, hands and forearms. Those most at risk have, for example, fair skin, red or fair hair, many moles or freckles, a personal or family history of skin cancer, and experience of sunburn. Over 65,000 new cases are reported annually in the UK.

Increasing the range of minimally invasive tumour therapy

Imaging, targeted drugs, magnets and more...

Surgery is no longer the automatic choice to eradicate malignant tumours. For about a dozen years small tumours and metastases in the liver have been eliminated by heat generated at the tip of a catheter, a technique that began with liver tumours, has spread to the lung, and could be applied to breast and prostate cancers in the future.

Whether using laser beams, high-frequency electrical current or, more recently, highly-focused ultrasound – direct image monitoring is used to control such procedures.

MEDICA 2006 is presenting a range of innovations in this area.

Magnetic resonance tomography (MRT) is considered one of the ideal tools for these less invasive procedures, not only because it is radiation-free, but also because it provides a continuous picture of temperature distribution.

The prognosis for patients with malignant liver tumours is poor, particularly for those with large tumours; following diagnosis, their average survival period is less than six months and, even for those with smaller tumours, estimates are that only one in four will survive beyond three years. *Laser thermo-ablation*, which involves destroying small tumours by applying localised heat, promises better survival rates.

Using this technique, at Frankfurt am Main University Hospital, Professor Thomas Vogl carried out tests on 80 patients. The results are impressive: 60% (compared with the usual 25%) reached a three-year survival period; around 33% survived for five years.

With twelve years' experience in this area, Prof. Vogl now intends to use this therapy for tumours and metastases in the lung - an area of many complications. The frequency of this disease makes the less invasive procedure particularly desirable. Bi-polar high-frequency ablation could be combined with localised chemotherapy drugs to achieve success. To confine cytostatic substances within a tumour, magnetic particles have been added to them, so that when two magnets are applied externally, the iron particles – and thus the medication – cannot migrate.

Aiming to localise prostate cancer treatment, researchers at the Institute for Diagnostic and Interventional Radiology, in Frankfurt's Johann Wolfgang Goethe University Hospital, are developing 'galvanotherapy'. In this method, iontophoresis (or electromotive drug administration [EMDA]) is used. A DC current applied to the prostate gland draws the drugs to the cancer site.

The disadvantage in these therapies is that any tumour that is not totally destroyed will grow again - and more quickly than is usual, resulting in frequent aftercare.

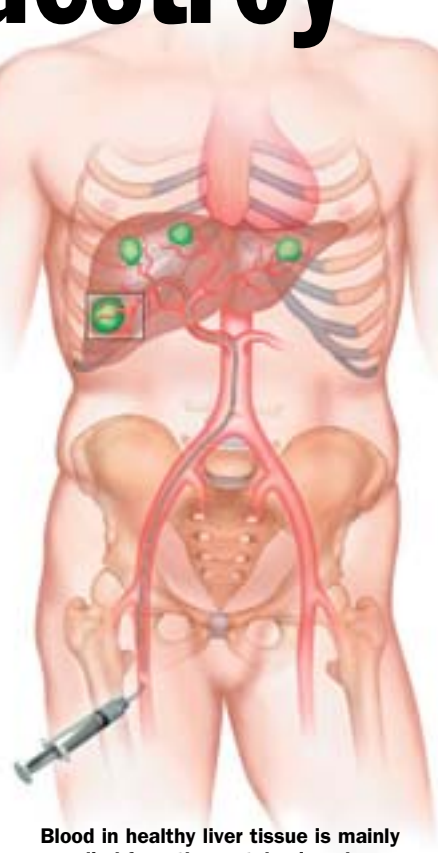
Source: Medica

Microspheres destroy liver tumours

Professor Reiser: 'SIRT is an innovative cancer therapy. The source of radiation is guided directly into the tumour and does not, as is the case in conventional radiation therapy, radiate through healthy tissue from the outside'

Unlike conventional radiation therapy, *selective, internal radiotherapy* (SIRT), developed in Australia, uses tiny radio-active microspheres to attack malignant liver tumours. This technique radiates the cancer cells not externally, thereby passing through healthy tissue, but directly inside the liver tumour. Munich University Hospital was the first to introduce this technique to Europe. There, radiologists and oncologists have now treated about 70 patients with SIRT.

Reporting on this development for *European Hospital, Guido Gebhart* explained: 'SIRT is a minimally invasive therapy, during which radioactive microspheres, made from synthetic resin, are introduced directly into diseased tissue via a catheter passed through the hepatic artery. The microspheres remain within the liver and, during their precisely targeted radiation, the tumour shrinks or is destroyed.' SIRT is reported as being well tolerated by patients. In addition, the healthy surrounding liver tissue tends to recover quite quickly.

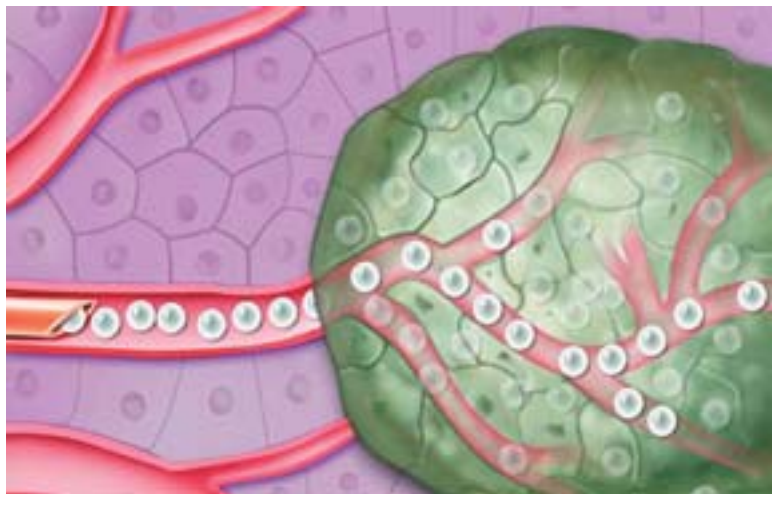


Blood in healthy liver tissue is mainly supplied from the portal vein, whereas tumour tissue is supplied via the hepatic artery. By taking the latter route, the radioactive microspheres can be guided directly to diseased tissue

The new therapy is particularly suitable for cases where other treatment options, such as surgery or chemotherapy, cannot be considered or have failed. 'SIRT now offers hope for those people for whom previously all other treatment options were exhausted. SIRT has a positive effect on the course of the disease for most patients,' said Professor Maximilian Reiser (above), Director of the Institute for Clinical Radiology.

Over 3,000 patients worldwide have been treated with SIRT, and various studies have confirmed its effectiveness. An Australian study documented a significant shrinking of tumours in 73% of patients.

SIRT is now being carried out at several German hospitals. The medical insurers cover certain individual cases. At Munich University Hospital, the insurers have agreed 30 courses of treatment.



DRUG TRIALS

For the last few decades, pharmaceutical companies have increasingly chosen to use medium-size contract research organisations (CROs), or smaller organisations, rather than the larger organisations, due to their enhanced responsiveness and flexibility, that provides good geographic coverage, a broad therapeutic portfolio and years of experience in managing complex trials. Their ability to advise companies on realistic time lines for the clinical development of drugs in a range of therapeutic areas, and on changes in regulatory guidelines, has placed them in an ideal position to handle major projects, while still offering clients a more personalised service than the largest CROs, according to the market consultancy firm Frost & Sullivan.

F&S reports that the European market for CROs earned revenues of US$4.80 billion in 2005, and estimates this figure will reach US$10.21 billion in 2012.

Small and medium-size contract research organisations (CROs) have huge potential

Against a backdrop of stricter regulations, guidelines, price and reimbursement legislation resulting in a changing business environment, research within the pharmaceuticals industry has tripled in the last 25 years, with the pipelines of the top companies doubling.

'The growing market in drug development, and increase in R&D investment – including that of small (biotechnology) companies – coupled with an increase in development costs, the importance of timely development of new products and the need to reduce time-to-market, have emerged as important financial considerations for achieving business growth,' said Dr Amarpreet Dhiman, Programme Leader of Drug Discovery at F&S. 'Even as current pharmaceutical and biotechnology R&D spending levels surpass US$36 billion, and blockbuster drug development plateaus off, CROs are expanding in the direction of becoming either niche-specific or large service providers.'

Growth in the clinical trial industry is inextricably linked to growth in the healthcare industry. In particular, escalating R&D activities have led to a higher demand for clinical trial services that meet global standards. However, even while it expands, the CRO industry faces a raft of new challenges, F&S adds. 'Principal challenges include those related to quality, efficiency, therapeutic expertise, EU regulations, and better sponsor-CRO communication,' Dr Dhiman pointed out. 'Despite these considerations, companies in the CRO industry are experiencing transformed revenue growth rates, together with limitless potential for expansion.'

Soaring drug discovery development times, lengthy regulation-mandated testing and reviewing processes (with approvals often taking up to 15 years), as well as rapidly escalating R&D expenditures are causing clients to place increasing pressure on CROs to yield quick results.

In addition, because a drug's patent protection begins at the R&D stage, manufacturers are trying to move through R&D time lines at a quicker rate, to save as much patent-protected time as possible and profit from drug sales.

Ever expanding rapid diagnostic products

Inverness Medical Innovations develops and manufactures rapid diagnostic products for use in preventive as well as interventional therapies. Information from patients' body fluids, or tissue, assists physicians to diagnose disease, as well as to measure a patient's response to a specific therapy. Its range of clinical diagnostic products already includes, the well-known brands *Clearview, Inverness Medical TestPack, Binax, Determine, BioStar*, and many others. 'Our high quality immunoassays in pregnancy testing and fertility, respiratory, enteric and infectious diseases, autoimmune disorders, osteoporosis, cancer and cardiology, have demonstrated proven efficiency in clinics, hospitals and laboratories internationally,' the firm points out.

Currently, Inverness Medical Innovations reports that it is exploring opportunities to optimise the use of its technologies, as well as continually evaluating other technological advances, for development or acquisition, in a variety of medical/health areas.

When introduced about a year ago, the first dual source CT was forecast to become particularly relevant in cardiology. Today, its clinical application can be evaluated. *Daniela Zimmermann* asked **Professor Stephan Achenbach** (SA), of the Cardiology Department, Erlangen University Hospital, about its impact on cardiac diagnostics

Dual source CT reduces heart catheterisations

Prof. Achenbach: Computed tomography, in general, has gained importance in cardiology. Beginning with the 16-row CT scanner, under certain circumstances it had become possible to visualise coronary vessels. The 64-row scanner provides even more reliable results. That was a major development, because before the introduction of CT to cardiology, to examine coronary vessels usually invasive catheterisation had to be used. Today, we can decide far better which patients require a catheter and which do not. In some instances, CT can serve as that filter, which helps to reduce the number of catheterisations.

It is above all cardiology that profits from dual source CT: due to shorter exposure times motion artefacts are avoided, which means the heartbeat no longer causes imprecisions. This has two advantages: first, a more precise image of the coronary vessels, and thus improved diagnostic reliability. Second, to avoid movement artefacts the patient's heart rate no longer has to be slowed with a beta blocker. Also, we can now examine patients with high heart rates.

Could the new 256-row scanners do this?

While the number of rows of a CT is relevant for the total duration of the imaging process, it does not necessarily improve the temporal resolution, and thus image quality. With the 256-row scanner the total time required for image generation will be further reduced, which means the patient's breath hold time will be shorter. However, the exposure time per image will not change. Consequently, a 256-row scanner does not automatically


Stephan Achenback is also President of the Society of Cardiovascular Computed Tomography(SCCT)

provide improved temporal resolution and image quality compared with a scanner with fewer slices. The important issue with the dual source CT is that it has two X-ray sources that are positioned at a 90° angle to each other. A conventional CT image usually consists of 180° data, which corresponds to about half a rotation. With dual source CT, we only need a quarter of a rotation, due to the two sources. An image can be taken twice as quickly than before and exposure time is shorter. This means more images are entirely motion-free. An increased number of rows alone does not offer this effect.

Which patients benefit from dual source CT?

Typically, those presenting symptoms that do not unambiguously indicate the presence of a coronary artery narrowing or occlusion. For example, this is quite common: There is a clinical reason to check for stenoses, but the symptoms, and the stress examinations, indicate only low or average probability of coronary heart disease. Before, in order to exclude coronary stenoses, these patients had to undergo catheterisation. Today, we can perform a cardiac CT first. If the CT shows normal coronaries, we can be very certain that no stenoses are present and the patient doesn't need catheterisation. Another example: A patient with acute chest pain presents at emergency admissions, the ECG is normal; there are no other signs of myocardial injury or impairment. With a CT we can determine whether the heart causes the pain, or if there's another reason. Helped by CT we can provide a quick answer – a crucial factor in acute care.

Additionally, CT enables us to detect coronary plaque and calcification, early. Thus, patients who don't yet show stenoses - but considerable atherosclerosis – can be treated early, for example with lipid-lowering therapy and acetylsalicylic acid - and we recommend they change their lifestyle. CT also helps classify a patient's risk factors. It can be rather difficult to evaluate the actual risk, for example, if a patient has average cholesterol levels. Here, CT provides further information, particularly on the degree of calcification. CT is very reliable in that respect. Thus, CT allows categorisation of patients for further treatment and can be useful in some selected asymptomatic individuals.

In everyday cardiological practice, dual source CT is often very beneficial. However, since the exchange between radiologists and cardiologists helps to make full use of the method's potential, close cooperation between them is very useful.

VISION INSIDE THE HEART

A small, powerful new ultrasound catheter, named AcuNav 8F, improves access to the entire heart, Siemens Medical Solutions reports. Sized at eight French, it is 33% smaller in the cross sectional area than the existing AcuNav 10F. According to clinical evaluations, the new catheter's smaller size, along with the same high resolution and imaging depth of AcuNav 10F, is a significant improvement and allows access even down to small patients.

'The size and flexibility of the new catheter were very impressive and provided us with improved visualisation of defects with less trauma to patients,' said Ziyad M Hijazi, MD MPH, Professor of Paediatrics and Medicine, University of Chicago, USA. 'During evaluation, I performed two atrial septal defect (ASD) closure procedures and one patent foramen ovale (PFO) procedure. Two of the patients were quite small; the third weighed just over 118 kilograms. With the 8F, I was able to get spectacular images of clinical significance with no problem at all.'

Dr Hijazi agreed with other clinical evaluators about ASD closure procedures in smaller patients. 'There will be no need to use trans-oesophageal echocardiography (TEE) in small patients, and the operator will be able to perform the echocardiographic evaluation and closure simultaneously, therefore the resources in the department will be used more efficiently.'

The new catheter provides visualisation of vascular and cardiac anatomy and physiology, measurement of blood flow and visualisation of other devices throughout the entire heart. Klaus Hambüchen, Head of the Ultrasound Division at Siemens Medical Solutions, said the trend is towards more catheter-based procedures, which demands new visualisation techniques. 'The ability of intracardiac echocardiography to see anatomy and devices under blood will enable many new applications such as mitral and aortic valve repair using catheters, and will accelerate the adoption of catheter-based procedures that reduce trauma and recovery time for patients.'

The AcuNav 8F catheter is currently available on the Sequoia ultrasound platforms, the Acuson CV70 cardiovascular system and the Acuson Cypress cardiovascular system.

NEONATAL MRI OF PREMATURE BABIES

Predicting neurodevelopmental risk

Infants born very prematurely have a high probability of experiencing behavioural and neuro-cognitive impairments during childhood and adolescence. Globally, about 2% of all infants are born before 32 weeks of gestation. Due to medical advances in the last 20 years, around 85% of those infants survive in countries with hospitals equipped with neonatal intensive care units.

This impressive statistic is bittersweet, because the quality of life of very premature babies might be severely compromised. Almost 50% of these children will have significant cognitive, behavioural and social disabilities, and 10–15% will develop cerebral palsy and neurosensory impairment. The cost of years of medical treatment and special education is onerous for families, healthcare institutions, and the governments that pay for their citizens' healthcare.

By Cynthia E Keen

A global initiative by neonatal paediatric and imaging specialists has been underway since the mid-1990's to utilize MRI imaging to identify brain abnormalities and injuries, so that treatments can be identified to minimize future disabilities. MRI is non-invasive and emits no radiation.

The Neonatal MRI Imaging Group at Imperial College London and Hammersmith Hospital, which have pioneered this initiative established the world's first dedicated neonatal MR scanner for the neonatal ward in 1996, and garnered a second world's 'first' with the only dedicated neonatal 3.0-T system, installed in 2005. The role of the Neonatal Neuroscience Research Group, headed by David Edwards MD, Professor in the Division of Clinical Sciences, Imperial College London, has been to understand the causes and consequences of neurodevelopmental impairment, so that strategies can be devised and initiated in the perinatal period of life. Numerous studies are in progress that utilize MRI imaging.

In Australia and New Zealand, at the Royal Women's Hospital (Melbourne) and the Christchurch Women's Hospital (Christchurch), a study conducted between 1998 and 2002 of 167 infants born at 30 weeks of gestation or less, strongly indicates that MRI brain scans become a mandatory standard of care for very premature infants. In the study, published in *The New England Journal of Medicine* (17/8/06), MRI brain scans performed at term equivalent could clearly display white-matter and grey-matter abnormalities.

To categorize infants according to the extent of their cerebral abnormalities, these were scored independently.

Of the 167 infants, 4% had severe, 17% had moderate, and 51% had mild white-matter abnormalities, and 49% had grey-matter abnormalities. 48 months later, after a comprehensive neurodevelopmental assessment of each child, the researchers found significant associations between the severity of identified abnormalities and the child's subsequent risk of adverse neurological outcomes.

Research team member Terrie E Inder MD, Associate Professor of Paediatrics, Neurology and Radiology at Washington University School of Medicine (St. Louis, Missouri, USA) said the study results were important because MRI scans can predict the outcome of very premature infants better than any other clinical predictor, imaging predictor or combination thereof. She and her colleagues believe that the ability of MRI to detect changes that can be measured to monitor the impact of interventional treatment on the brain during the first 12–24 weeks of life in a neonatal ward will lead to discoveries of more effective treatments. She observed that similar results are being identified by the Neonatal MRI group at Hammersmith Hospital.

Utilization of medical technology that will improve an individual's life is a priceless gift. Yet MRI imaging is expensive. Will the cost of routinely performing MRI scans of very premature infants, to identify those at greatest risk, lead to treatments that will reduce the overall medical and additional educational/societal cost of caring for these babies during their childhood and adolescence? The question is significant, and the answers are still to be determined.

GUIDELINES INCREASE THE USE OF CONTRAST AGENTS

ULTRASOUND

Although published less than two years ago, the *Guidelines for the Use of Contrast Agents in Liver Ultrasound*, developed by the European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB), early data indicates that they have played a strong role in increasing the use of contrast enhanced ultrasound (CEUS) for evaluating focal liver lesions by up to 30%.

'Many medical centres were waiting for these Guidelines,' said Dr Riccardo Lencioni, Professor of Radiology at the Department of Oncology, Transplants and Advanced Technologies in Medicine, University of Pisa, Italy. 'In the absence of specific, clear recommendations for use, contrast enhanced ultrasound had some difficulties being accepted within the hospital community.'

The Guidelines were created in recognition of the growing clinical applications of CEUS, which has emerged as an imaging modality in its own right. The goal of the Guidelines is to help standardise the use of ultrasound contrast agents and improve patient management.

The Guidelines cover ultrasound contrast agents currently approved for use in Europe, including Bracco's SonoVue, a second-generation ultrasound imaging agent. SonoVue has been approved for all EU countries; an application for FDA approval has been submitted.

Based on comprehensive literature surveys, encompassing results from prospective clinical trials, the first version of the Guidelines focuses on evaluation of known or suspected focal liver lesions. They cover numerous aspects of CEUS for focal liver lesions, including:

- **General considerations: imaging techniques with CEUS, investigator training, and safety issues.**
- **Characterisation: investigational procedures, image interpretation and evaluation, recommended use and indications.**
- **Detection: investigational procedures, image interpretation, recommended use and indications.**
- **Monitoring of local ablative treatment: investigational procedures, image interpretation (definition of complete treatment response), recommended use and indications.**

Liver imaging is one of the most important applications for CEUS with SonoVue. It can be used to help diagnose primary and metastatic tumours in the liver and other types of liver disease. CEUS also can accurately evaluate treatment for liver cancer such as RF thermal ablation (a technique that uses heat created by radio frequencies to destroy liver tumours). When the treatment is performed under general anaesthesia, the ability to identify the presence of residual cancer areas can lead to immediate re-treatment, potentially reducing the need for a second anaesthesia and shortening hospitalisation time.

According to Professor Lencioni, about 170–180,000 abdominal CEUS examinations were performed in Europe in 2003 and 2004; virtually all of these were liver scans. After publication of the Guidelines, in 2005 the number of these scans soared to 240,000. Prof. Lencioni helped draft the Guidelines and has been monitoring their impact on clinical practice throughout Europe.

'The development of the Guidelines underscores that CEUS has moved beyond the research stage,' Professor Lencioni said. 'They provided a very important official document that helped shift CEUS from an investigational procedure to an accepted part of clinical practice.'

In June 2005, the European Association for the Study of the Liver hosted a consensus conference in Barcelona, Spain, in partnership with its American and Japanese equivalent societies, to update the current guidelines for the clinical management of liver cancer, which date back to 2000. Aiming to have CEUS incorporated in the clinical management of liver cancer throughout Europe, US, and Japan, the role of CEUS in early diagnosis of liver tumours was discussed. 'From country to country, there are some differences in the practical use of ultrasound contrast agents,' said Prof. Lencioni. 'In the United Kingdom, for example, many scans are performed by radiographers, while in other countries only medical doctors perform ultrasound. Reimbursement is also a national issue.'

Despite some national variations in the approach to the Guidelines, radiologists' support for them reaches across national boundaries to include all of Europe. The groundswell of appreciation for the current Guidelines indicates future expansion should be well received. EFSUMB met in September this year to evaluate the effect of the Guidelines and to discuss the possibility of expanding them to cover applications not included in the initial publication.

Extending the Guidelines to include other applications will depend on the pace at which clinical trials conclude, publication of results, and unified recommendations. Any future applications will require consensus recommendations, technique indications, and clinical flow charts - all of which are included in the current liver CEUS Guidelines.

Proton

The positive effects of proton rays have been known for years. However, Germany still lacks institutions that utilise those effects. With the construction of RPTC: Rinecker Proton Therapy Centres (RPTC) in Munich and Cologne, **Hans Rinecker MD**, hopes to promote

this therapy nationwide – but as yet no firm date is set for their opening. *Guido Gebhardt* asked what causes the delay and what is the future proton therapy.

Dr Rinecker: The delay has been caused by a part that requires a type of network process where different systems are interfaced. This affects the production and trial of the cyclotron that accelerates protons with a magnetic field. Instead of completion in mid-2004, the centre was finished in May 2006. Afterwards, there was an official acceptance test for the first of five treatment areas; four are exactly the same, one is specialised for eyes and cranium. The test, which included a simulated radiation treatment, was successful – on the whole. The only problem we need to solve is that the system did not process a simulated incident correctly. After a power cut, due to the interruption, the system was unable to remember where to start treatment.

therapy: under construction

Left: Completed almost two years ago, the RPTC Centre in Munich is still not open

Above: The System: A small software error held up the project's official operating licence

Hans Rinecker

This technical shortcoming can be traced back initially to a key manufacturer in the proton system and, since May, this manufacturer has been pushing up the project costs that we had agreed on to unforeseen levels. It is basically trying to obtain a multiple of the amount that the Technical Inspection Authority – South, which the banks commissioned to monitor the project, has deemed adequate. The costs – about 40.5 million euros, initially envisaged for this part of the project – have now increased to around 70 million euros. We can only guess as to the company's motive for this. Since then we have been trying to negotiate, but to no avail. Because one of the banks as well as the company in question are based in North Rhine-Westphalia former State Premier Clement is closely following our negotiations.

Surely it is not easy to provide interim funding in the region of 120 million euros over such a long period?

Adding everything up, the sum is closer to 150 million euros, including a patient hotel, which is part of the care concept. In all, five investors are involved in the project, two banks, the West LB AG and HypoVereinsbank Unicredit, and Hanover Leasing and the NRW Bank (the state bank of North Rhine-Westphalia), as well as myself. Of course, it isn't always easy to keep everyone happy, but the project is well funded and, luckily, my financial background is very stable. At the moment everything is financially safe, but we are losing around one million euros a month.

What will happen in Cologne?

One possibility would be for a third company to finish the centre. However, the company we have chosen – apart from the software problem mentioned earlier – has the most advanced concept by international standards. Changing to another company would entail a loss of know-how. The problem might also be resolved if Dr Clement's intermediation bears fruit. The third option would be for us to buy parts from one of our present suppliers. We hope to solve this amicably. We are happy to lead a 'marriage of convenience'. For the moment we have put the Cologne project on hold. Our ideal solution would be to integrate the good components from our present supplier into the Cologne RPTC in cooperation with a significantly more experienced Belgian company. We have not given up hope.

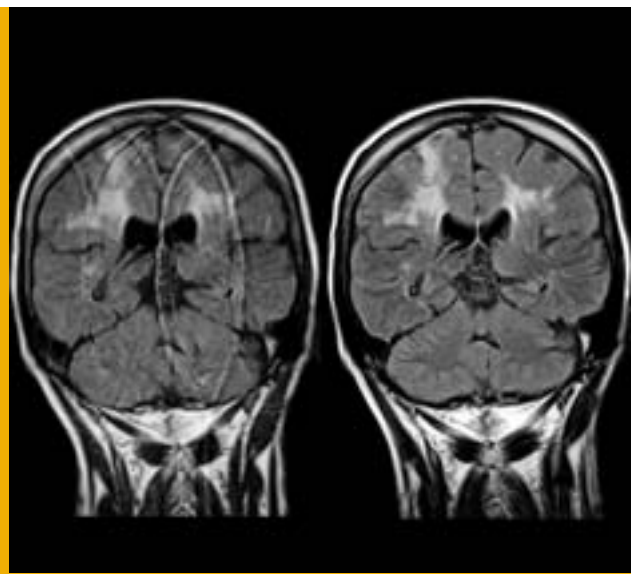
When is the Centre likely to open?

Only the software bug stopped us getting our licence, so everything depends on just this one small issue. As soon as we reach an agreement, we will be under a month away from opening the clinic.

Are you planning further proton therapy centres – in Essen, Kiel and Berlin?

I was recently invited to meet with the Germany Society for Radio-oncology – comprised of radiotherapists who initially were very negative, because they work with linear accelerators. A law introduced in 2001 states that, in all cases, we must choose the therapy that uses the lowest radiation dose – which means proton therapy has an advantage factor of three to five. This means a patient's healthy tissue only receives a third to a fifth of radiation they'd receive from linear accelerators. Scientifically, we are no longer fighting over proton therapy – everyone agrees it's only a matter of when it will come. The new centres can only help to promote proton therapy in Germany. To cover the entire nation we'd need 20 centres the size of the RPTC in Munich. The advantages regarding radiation dose are physical, they are not dependent on the types of tumours we treat. There are no scientific reasons why the advantages of proton therapy should be limited to certain types of tumours. Proton therapy will, in time, completely replace radiation with photons.

MRI software for detection & diagnosis



***syngo* Blade, is the latest total imaging matrix (TIM) technology-powered magnetic resonance imaging (MRI) software from Siemens Medical Solutions. The company reports that the system is '…ideal for paediatric and difficult-to-manage patients in neurological and orthopaedic imaging, *syngo* Blade is not affected by flow and motion. By continuously acquiring low-resolution images, this application measures and corrects any motion, providing clear images. With its low sensitivity to movement, medical professionals can focus on reducing sedation rates in paediatric and anxious patients, increasing time efficiency.'**

This application is available on all Tim systems, including, in the Magnetom range, the Avanto, Symphony, Espree and the Trio.

NEW

Using a single 17 inch LCD monitor, the system monitors both a patient's scan and data analysis in real time.

The system generates high picture quality, 1280 x 1024, by using and tracing the best image size for the monitor – the first trial of such a technique in this field, Medison reports.

SonoAce X8 will become commercially available in the first six months of 2007. It is now on show at MEDICA (SONOACE booth: Hall 9, B 60) – and later will be at the RSNA in Chicago (later in November).

BOWA becomes BOWA

It's a new colour – but not a quality change – for new products BOWA-electronic GmbH reports. Describing its choice of orange to re-brand its image, the company said it is: '…a dynamic new look, as fresh as the wind. You'll see this in our products, for example, in a brand new model soon to be launched in our trusted ARC-series; or at our new building project in Gomaringen, Germany, where our entire operation is efficiently pooled at a single site, from planning and development to production and management.'

BOWA products will be on show at MEDICA (Dusseldorf, 15–18 November) in Hall 10, booth G05.
Details and company newsletter: www.bowa.de.

Electro-medical safety tester meets new IEC 62353 standard

Rigel Medical, part of the Seaward Group, has launched a new biomedical electrical safety analyser – the Rigel 288 – which meets the IEC 60601, and the forthcoming IEC 62353 in service test standard for electromedical equipment. 'The ergonomically designed, hand-held safety tester combines innovative lightweight design and advanced test technology with a range of special features including battery power, blue tooth connection for data transfer and a menu driven easy to operate user interface.'

The analyser provides automatic, semi-automatic or fully manual electrical safety testing of all electromedical equipment. Importantly, preset or customised test programmes can also be selected to enable users to comply with individual, local or international standards outside the scope of IEC 62353 and IEC 60601 to provide fast and efficient testing of medical equipment with up to 10 individual patient connections or applied parts, Rigel adds. 'The instrument's internal memory can be used to store details of test results for transfer to a PC database, alongside user defined inspections and checks on such equipment as SpO_2, NIBP, ECG and other electromedical equipment.'

This, with the Rigel 277 and Rigel 266 and Rigel 300 series (which includes a range of testers to verify the functionality of NIBP testers, pulse oximetry analysers, ventilators and defibrillators) and the company's other test equipment, are on show at MEDICA.

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