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4th GE Global Research Centre

Germany - With Global Research Centres at the GE HQ near New York, plus in Bangalore and Shanghai, in June General Electric opened a European centre in in the grounds of Garching's Technical University, Munich. From 2005, 150 employees will work in the $52 million building on a diverse range of high tech projects, particularly focusing on research involving high-field MRI and real-time 3-D ultrasound, using nanomaterials to achieve high-contrast images.

Jeffrey R Immelt, GE's Chairman/CEO, said: 'Germany is the centre of a unified Europe, so an excellent site for us.' Scott C Donnelly, GE's Senior Vice President, Corporate Research and Development, added: 'The European Centre increases our research capacity and gives us access to a new pool of technical talent.'

Dr Armin H Pfoh director of the GE Global Research Centre (left), with Dr Edmund Stoiber, Bavaria's premier (right), and Otto Schily, Germany's Minister of the Interior (centre)

OBESITY: Up with the biggest killers

WHO endorses strategy to beat burden on society and healthcare

Czech Republic - *'Obesity has reached an epidemic proportion affecting almost one fifth or a quarter of the adult population in many European countries ... over 50% of the adult population in some European countries are overweight or obese*,' said Dr Vojtech Hainer, President-elect of the European Association for the Study of Obesity (EASO) addressing some 2,500+ scientists, doctors, and health specialists at the 13th European Obesity Congress this month. Governments, he warned, must recognise that obesity treatment is a top priority.

Dr Hainer was echoing findings that led to The World Health Organisation (WHO) Global Strategy on Diet, Physical Activity and Health being endorsed by Member States at their annual Health Assembly in Geneva last month (May 2004). This strategy addresses two of the major risk factors responsible for the heavy and growing burden of noncommunicable diseases (NCDs), responsible for some 60% of global deaths and almost half (47%) of the global burden of disease. Obesity is not limited to affluent countries. It is increasing in developing countries. The worst statistic indicates that one in ten children are overweight or obese - globally.

With input from 58 Member States, the strategy explains the global burden of NCDs and how healthier diet, nutrition and physical activity can help to prevent and control them. The specific roles are identified, for WHO Member States, UN agencies, civil society and the private sector in helping to reduce the occurrence of NCDs. The document also addresses the role of NCD prevention in health services; food and agriculture policies; fiscal policies; surveillance systems; regulatory policies; consumer education and communication including marketing, health claims and nutrition labelling; and school policies as they affect food and physical activity choices. It suggests limiting intake of sugars, fats and salt in foods, and increasing the consumption of fruits, vegetables, legumes, whole grains and nuts. The strategy emphasizes the need for countries to develop national strategies with a long-term, sustainable perspective to make the healthy choices the preferred alternatives at both the individual and community level.

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SARS doctor still missing

Physicians demand release of 'courageous man'

China - Last year Dr Jiang Yanyong, 72, a semi-retired military surgeon, exposed China's cover-up of the Severe Acute Respiratory Syndrome (SARS), which forced the Chinese government to admit the true extent of its SARS epidemic. On 1 June, this year, he and his wife, Madam Hua Zhongwei, also a doctor, disappeared - just prior to the 15th anniversary of the Tiananmen Square massacre (3/4 June 1989).

Dr Jiang is also a well-known campaigner for democracy in his country. In February, this year, he had sent a private letter to the National People's Congress, and other political leaders, to ask for an official reassessment of the Tiananmen events. It has been reported that some of China's current leaders were involved in - or benefited from - the Tiananmen Massacre. Clearly an investigation of the event would not suit them. Dr Jiang's letter somehow became public and was soon endorsed by

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The trouble with ties

USA - Doctors' neckties, observed occasionally brushing against patients during ward rounds, prompted a study* to analyse the bacterial content of ties worn by doctors, their assistants and medical students, who worked in surgical, medical and cardiac intensive care units, and on surgical and medical floors. Ties take from the hospital's security personnel (the control group) were also analysed. Over a period of three randomly selected days, at the New York Hospital Medical Centre, Queens (NYHMCQ), samples were scraped off the ties, cultured, and the pathogens were identified. 20 out of the 42 ties of clinical staff contained pathogens, whereas only one in 10 in the control group were contaminated (50% compared with 10% in non-medical personnel!).

One in three of the contaminated ties harboured *Staphlococcus aureus*, and other potentially serious pathogens included *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*. With contact those clinicians' ties just might introduce conditions to patients such as pneumonia and blood infections.

'The study brings into question whether wearing a necktie is in the best interest of our patients,' said Steven J Nurkin, who led the NYHMCQ team. 'Being well-dressed adds to an aura of professionalism and has been correlated with higher patient confidence, but while there is no direct evidence to implicate neckties in the transmission of infection to patients, the link between contaminated necktie and the potential for transmission must be considered.'

On a brighter note, co-researcher Ed Mangini said none of the germs were resistant strains, and that he did not think ties are a major culprit in the spread of nosocomial infections. Bacteria found on the ties are common and can be picked up in shops, restaurants,when travelling to work, he said, and pointed out that finding MRSA outside a hospital is rare. As the hospital's infection control expert he emphasised that greater attention to hand washing between seeing patients would '... reduce infection transmission dramatically'.

If you are a clinician reading this, and you've tightened your tie firmly

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OBESITY; UP WITH THE BIGGEST KILLERS
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Health problems associated with obesity include respiratory difficulties, chronic musculoskeletal problems, skin problems and infertility. Among the more life-threatening problems are: cardiovascular disease; conditions associated with insulin resistance e.g. type II diabetes; certain cancers (particularly hormonally related and large-bowel cancers), and gallbladder disease.

By hosting an international congress on the subject of obesity, the Czech Republic's (CR) own statistics naturally came under scrutiny. With obesity levels of 22% men and 25% women (an increase in 12-14 years from about 16% men and 20% women) and 5% of children, the CR is among Europe's leading countries for obesity, Dr Marie Kunesova, of the Czech Obesity Management Centre, pointed out. The causes are common to all: increased food intake plus decreased physical energy expenditure at home and at work, as well as less walking due to more cars and better public transport.

Michael Vit, Czech Deputy Health Minister, said that the CR is already active in prevention and the management of obesity. In the last three years, he pointed out, the health ministry has allocated '... tens of millions of crowns to projects on the prevention and education of children and their parents, to inform them about healthy eating habits. I should also stress that the Czech government is aware of the problem and adopted the Zdravi 21, government is to improve the health standards of Czech citizens.' However, he added that to win against the obesity epidemic the government needed to gain support from other sectors, most specifically co-operation and agreement with food producers. 'We must convince them to respect proposals from experts and scientists,' he said. 'The Czech Republic has been concentrating on obesity prevention among children very intensively because our statistics are alarming.'

The CR operates five centres for severely obese patients, and about 40 obesity out-patient clinics, and the country is also seeking ways to gain the collaboration of the food industry to produce healthier food.

However, although public awareness of the hazards to health has been improved - about 95% of the population now know obesity is unhealthy, and about 25% of obese adults in the Czech Republic seek help - weight loss is not easy to gain. Although most obese people can lose weight through exercise, eating less or even medication, for the morbidly obese or those who suffer a weight-related illness, this does not always happen. More people are seeking surgery as a last resort. 'Non-surgical treatment fails in perhaps 70-80% of patients, but surgical treatment is successful in 70-75%, and, of the morbid obese about 30-40 percent would qualify for surgery,' said Dr Martin Fried, of the Laparoscopic-Obesity Treatment Hospital, Prague.

About 50,000 of these operations are performed annually in Europe. In less difficult, minimally invasive surgery (MIS) the stomach is 'shrunk' by closing off the top area with a silicon band. In the first 18 months after surgery patients lose about 40kg with only 5% complications. Alternative methods are stapling or even gastric bypass - with 12% of complications. Surgery is therefore costly for health services, and not a truly desirable option for patients. A far better approach may be to involve general practitioners (GP) more in the basics of helping the obese.

Professor Philip James, Chairman of the International Obesity Task Force (IOTF), which has linked with EASO to establish a new approach for training doctors, said GPs need to cooperate on this increasing problem: 'This is a medical crisis. But there are two fundamental problems: the question of whether doctors are going to be enough, and that they are seen to have neglected the problem of obesity. So, patients, from all analyses, do not visit their doctors, because they don't think they will be helped. We are therefore producing an extension to the scope process, whereby we are going to develop educational techniques for nurses, pharmacists, and for others, starting with a new programme towards the end of this year.'

Footnote: According to new data, the Czech Republic has the second lowest fertility rate in the world (average number of children per woman: under 1.3). There are now 10 million Czechs. Only the Ukraine has a lower level (1.1 children per woman). The fertility rate is over 1.6 or 1.7 in EU countries such as France, Norway and Denmark.

Report: Brenda Marsh

Medical products sales set to rise

EU expansion

Due to EU expansion Europe will contain almost 500 million consumers, which, from 2003 to 2008, is expected to expand the healthcare industry (pharmaceuticals and drugs, medical devices and equipment, plus health services) at a compound annual growth rate of 6.4%, according to a new study from the international consultancy Frost and Sullivan.

'With enlargement comes the concern of ensuring that products of uniform high quality are available throughout the EU. Acceding member states are expected to provide effective and innovative medicines to make this possible,' says Lasya M Narasimhachari, research analyst at F&S. 'This can be achieved by enforcing international standards of intellectual property protection and a sustainable basis for the (medical) industry to supply innovative medicines throughout the EU. The future availability of new drugs is expected to be influenced by the radical differences in economic and market conditions and the healthcare coverage for medicines between the present EU-15 and the accession countries.'

The huge ageing population in Europe is also likely to drive research on more effective drugs, and the report points out that pharmaceutical companies are aware of the rising healthcare costs for this group, and are trying to make products cost-effective.

For an emailed overview of the 'Country Industry Forecast - European Union Healthcare Industry' (Ref: code 4550), email katja.feick@frost.com giving your full name, title, company name, phone number and e-address.

Hospitals & homes install security systems

VIOLENCE!

Austria - A recent, severe attack on a nurse by a patient has underlined the increase in violent incidents in Austria. Other EU countries are also affected by such incidents, some even seeking police presence at weekends. The problem of attacks on carers is one issue. The other arises if patients, e.g. suffering dementia or mental health problems, manage to leave secure wards, presenting a potential danger to the public or themselves. The need to improve security is therefore evident.

A set-up called the *Home Free System*, already in use in Tyrol's psychiatric hospital, has now been selected for nursing homes and homes for the elderly in Hallein, Zistersdorf and Hofgarten (Innsbruck). This wireless security system consists of a wristwatch (alternative: electronic pendant) for patients, emergency call buttons for nurses, and permanently installed transceiver devices. Alarms can be displayed via pagers, DECT phones or existing care communications systems. The wristwatch battery condition is continuously monitored, as is any attempt to remove this device.

Should a patient assault a nurse, assistance can be summoned by using his/her personal emergency call button; and if a patient/resident leaves the secure area, e.g. through an entry door, the alarm is triggered and nurses immediately know the patient's location, so he/she can be returned to the ward.

The fire protection and security company, Total Walther Austria, which manufactures the Home Free System, employs 80 people. With a turnover of EUR 18 million, the firm is a wholly-owned subsidiary of the American Tyco Group.
Contact: Til Mittlmeier.
Email: tmittlmeier@tycoint.com

SARS DOCTOR STILL MISSING
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hundreds of Chinese dissidents, academics and others, in China and abroad.

Surveillance of Dr Jiang soon increased at the No. 301 People's Liberation Army Hospital, where he worked part-time. He had to gain permission to attend social events; visitors to his home were screened and he was questioned after some had left; he was barred from treating patients at other facilities without the hospital's permission and, once, when he travelled some distance to treat an old patient, the hospital ensured he was accompanied.

In the doctor's letter, lengthy revelations as to the state of young people brought in for treatment after the Tiananmen Square massacre makes heart-rending reading - particularly for those in the medical field - and for all those of us with the freedom to speak without fearing the loss of our freedom - or even our lives. Your individual views given on this matter, may help to secure the release of Dr Jiang and his wife.

In the period leading up to the Tiananmen 15-year anniversary this year, reports suggested that dissidents were being rounded up, to be kept out of the way until the date passed. A media blackout was also reported. Neighbours of the couple said they had not returned to their Beijing home, after leaving for the military hospital in an official hospital vehicle. (It was also later reported that the couple had been on their way to the US Embassy to obtain a visa). Trying to trace them, one of their children, Jiang Rui, who lives in *California, said she believed the hospital authorities were 'deliberately withholding information'. They only told her the couple were 'safe'. A plea that followed read: 'We, the children of Dr Jiang Yanyong, would like to appeal to the Chinese government to investigate the disappearance of our parents in Beijing.' On 4 June, the children received a note from Madam Hua saying the couple were all right, but also suggested their incarceration could be long-term. On 8 June, her son was told by officials to deliver his father's personal belongings to the Chinese authorities.*

The couple have only been heard from once since their detainment, and had not been released at the time when EH went to press in mid to late June.

Human Rights Watch, based in New York, has now stated: 'The Chinese authorities should immediately release Dr Jiang Yanyong, a government critic who exposed the government's cover-up of last year's SARS epidemic. When a courageous doctor points out the Chinese government's abusive practices, he should be honoured. Instead, the government has detained Dr Jiang and held him incommunicado.'
The full version of Dr Jiang's letter is on: http://www.89-64.org/disp.asp?Id=12574, the website of the US-based Human Rights Watch. Updates also may be found on the Amnesty International website: www.amnesty.org. The websites also indicate how you may become involved.

Report: Brenda Marsh, Editor in Chief, European Hospital

Healthcare reform

Fact-finding from a global network

In 2002, a large international project, '*Internationalen Netzwerks Gesundheitspolitik*' (International Network Healthcare Policy) and organised by Bertelsmann Stiftung, an independent consulting and competence centre for socio-political reform issues, had recruited healthcare experts from renowned professional and research institutions in Germany, Denmark, the Netherlands, France, England, Spain, Finland, Austria, and Switzerland, and work began to continuously evaluate healthcare experiences and concepts in those countries, with input from Australia, Japan, Canada, New Zealand, Singapore, South Korea and the USA.

Sophia Schlette, political scientist and health policy expert

Sophia Schlette, MPH (Master of Public Health) the Project Director, discussed its aims in an interview with *Christian Pruszinsky*, our correspondent in Vienna, giving examples of the many questions to be addressed: How does healthcare policy function in industrialised countries? Can, should or must a country, government, or ministry learn from experiences in other countries, and profit or adopt other approaches for their own systems? If so, when does such rethinking make sense? If not, why, if some things have been proven elsewhere, are they unsuitable for one's own healthcare system? When is a paradigm shift necessary? How can this be argued? How long does the process last until a new idea has been implanted, established and exhibits measurable effects? Who determines what in a power game of interests? What impact does a bundle of measures have on the daily lives of patients, healthcare facilities, hospitals, physicians, sickness funds, insurers and service staff?

Such questions and considerations are the starting point of efforts at healthcare reform, regardless of the initial situation, responsibility for financing, system organisation, preparation of quality criteria and their weighting. Sophia Schlette pointed out.

If it is assumed that reform efforts in various countries pursue the same great objectives, albeit with differing speed and priorities - financial (services provided, own responsibility) efficiency (quality, transparency, system organisation), optimum care (access, fairness) - the importance of cross-border information and experience exchange, with comparable data and rapid access, is evident for their respective reform efforts.

To obtain the data, a questionnaire is used, which had been tested, discussed and revised by all network partners to reach a common understanding of objectives, method and terms. (This is still a work in process, as is the network). The six parts include:

- Content of policy or idea. A summary description of the main objectives, incentives, and groups affected.
- Economic and social background of policy. Pressures, driving forces, and influences from abroad, financing or quality concerns.
- Policy process. A detailed analysis of actors and influences at each stage of the policy development.
- Expected outcome. Expert opinion regarding the likely results of a policy compared with its objectives, or regarding the feasibility of an innovative idea or approach.
- Review mechanisms and their outcome.
- Ratings of policy: expert assessment of policy or idea in terms of innovation, impact, controversy, public visibility and transferability

Using this, in six-month cycles, participants report current developments in healthcare policy in their individual countries. Subjects are oriented towards (estimated) urgency in the reform debate and include, above all, financial viability, efficiency, quality and the organisation of their systems. Returned questionnaires contain observations and presentations of relevant healthcare policy concepts, model projects, reform steps and their implementation, as well as the related revaluation process (not always).

In the first semi-annual report, edited by Sophia Schlette and Professor R Busse, head of the Healthcare Management department at TU Berlin, the focus is on financing, remuneration, quality assurance, integrated care, and public health. The breadth of information extends from Japanese experiences with surcharge increases, to England's alternative methods of healthcare financing and Finnish plans to reform invoicing for hospital services. An additional special report deals with insurance and care gaps in the USA. Of special value is the rating offered, with which the innovative value, impact and transferability of individual ideas and measures in other healthcare systems are appraised.

The second report (March-October 2003), which appeared this June, continues the subjects discussed, and also deals with healthcare policy challenges, such as demographic change, pharmaceuticals policy and questions on personnel development.

The value of hospitals, in the course of the reform debates and efforts, is seen by Sophia Schlette as clearly positive. Optimisation of healthcare provision remains an uncontested political interest. The hospitals' position in acute medical care and highly specialised treatment will be even further strengthened in future, given efficiency concerns - polyclinic versus individual specialist surgery. She maintains that the challenge for shaping healthcare policy lies not so much in demographic development ('People live longer but are not so ill, thus demography pointing to a challenge for retirement policy') but in a far more elemental value debate: 'How much solidarity with its old, sick, low-income, handicapped people can and will a society afford itself?' Notwithstanding political 'short-termism', it is clear that health services cannot be looked at only when holding a red pencil, as in Austria. On the contrary, they can be expanded, and at a high level, as proved in regionalisation examples from Finland and Spain, where even psychiatric illnesses, dentistry and nursing care have been integrated.

Further details and purchasing: www.healthpolicymonitor.org
Publications purchasing: Verlag Bertelsmann Stiftung, Postfach 103, 33311 Gütersloh, Germany.

NEW

Computed Tomography Laser Mammography CTLM

Dr Thomas Helbich, head of the Women's Imaging Department, University Clinic for Radiodiagnostics, AKH Vienna, describes the development and potential advantages of CTLM

Computed Tomography Laser Mammography is a method of examining the female mammary gland, which works by shining a non-absorbent laser light through the breast, where it is eventually absorbed (Dear Dr Helbich - If the light is non-absorbent, how does it become absorbed - i.e. is it absorbed only by a tumour area?) and processed. You need a computer to collect the data and for tomography of the multi-slice images, hence the forenames computed tomography. The difference between this and conventional mammography examinations is that there is no ionising radiation, so patients are not exposed to that. Another advantage is that the breast is not compressed during the examination and the patient feels no pain. While lying on her front, the breast is lowered into an opening in the table, and an examination can be carried out very quickly - and repeated as often as required. This is a brilliant method for young patients, those at particularly high risk and for patients with breast implants.'

Could CTLM become the sole method of examination?

'We are still in the trial phase, but the objective is to find an alternative to conventional mammography and ultrasound. Initially, CTLM is a method that has to be used in combination with other imaging diagnostic procedures. We are learning a lot about the interdependencies between CTLM and mammography and CTLM and ultrasound. The next step will be to use CTLM completely alone, but we are not quite there yet.'

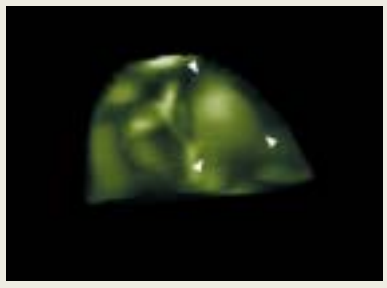
Are there comparative studies for this and other methods?

'Some are being carried out by a number of institutes and hospitals in several countries. In the USA the first results, from a large-scale study with trial groups ranging between 50 and 1,000 patients, are currently being presented at various congresses. FDA licensing is expected there soon.

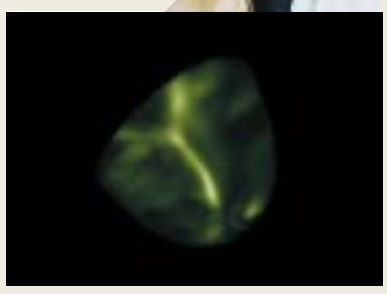
CTLM is a completely new procedure for all of us; it can determine morphological changes, such as changes in the blood supply to tumours. Diagnosticians know that it is not always easy to differentiate between benign and malignant tumours. CTLM seems to be developing into a method that essentially makes the tumour light up, helped by a fluorescent media that is similar to contrast media but used in much smaller quantities. Therefore, tumours that might otherwise be overlooked can be diagnosed using this method. So, I believe that the future of CTLM will be its use in combination with these types of fluorescent media.

Initially, will these images be difficult to read?

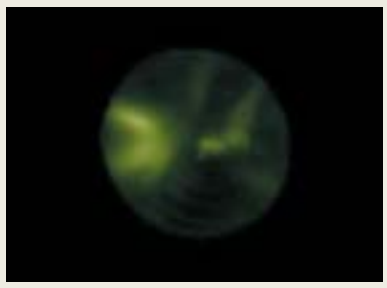
'We'll learn about it just as, way back, we learned about ultrasound scanning. Those images were nothing like as good then as they are now. When the handbook for CTLM is completed and the initial training period is over, we should be able to familiarise ourselves with this new method very quickly, particularly from the experience of using it in about 2-300 trial cases. This is an innovation - and if we don't press ahead with it, somebody else will. There's always a political decision as well.'



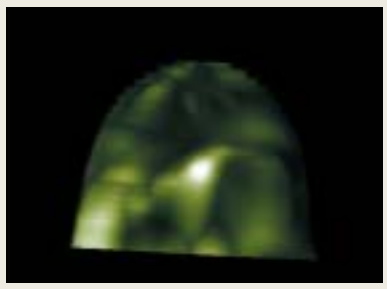
43-year-old with histologically verified invasive ductal breast cancer. The correlative in the CTLM is the shape of suspect absorption across a 30mm area



CTLM of a 46-year-old, without pathological findings and no evidence of suspect absorption. The image shows a blood vessel with branches close to the chest wall



38-year-old patient with breast implants: The implant is completely transparent for the CTLM laser; only in the medial (left in this case) part of the breast can two blood vessels be seen



70-year-old patient with the following histological diagnosis: Invasive ductal breast cancer of medium differentiation of around 2cm; the correlative in the CTLM is a lesion with suspect absorption of about 3cm

Once CTLM is established, won't women demand this diagnostic method?

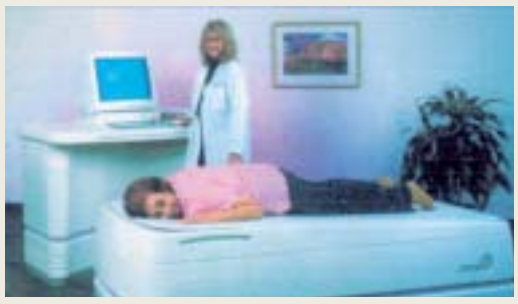
'I don't believe it's every woman's right to choose whichever examination method they think is best. However, I imagine patients will exert a certain degree of pressure for this method. I'm saying this with a lot of caution, but our first results certainly indicate that it is at least as good as combined mammography and ultrasound.

As a rather middle-aged radiologist I'm seeing the beginning of a new era in my field. CTLM is one of the first methods that can be used in a rather ground-breaking way - by leading us towards molecular imaging. At some future stage, I'm sure we'll be able to "light up" single human cells, along with the smallest cellular changes.'

This will be a very exciting subject for the next few years.

'Yes, and I think we will live to see it.'

The new scanner



The CTLM scanner is designed to acquire data to allow reconstructing cross-sectional images of the breast based on measured optical data. A laser beam of approximately 3mm diameter impinges on the breast and a circular array of collimators and photodiodes measures light emerging from areas on the breast that are within the field of view of each detector. The wavelength of the laser is within the 700-1000nm 'optical viewing' window for human tissue. The measured optical values are directly related to the optical effective transport coefficient, μeff, of the breast. Each pixel of the displayed image of the breast has a grey-scale value related to the measured μeff.

The patient lies prone on the scanning table with one breast at a time pendulant in a scanning chamber. In 8-45 seconds, the laser beam, in a horizontal plane, sweeps 360° around the breast, i.e. one orbit. The orbit's direction alternates on each scan, from clockwise (CW) to counter-clockwise (CCW) rotation, to prevent winding up the electronic cables. The laser beam is directed to the breast by a fibre optic cable with a collimator to focus the laser beam to a spot size of about 3mm. The laser beam projection apparatus and the detector array are moved vertically downward a selectable distance, typically 4mm, and another slice plane of data is acquired.

Data from each individual slice plane is used to reconstruct an image of the interior structure of the breast. The process of moving the laser beam and detectors is repeated until the entire breast from the chest wall to the nipple is imaged.

The geometry used is essentially the same as the geometry used in third generation CT-scanners. The x-ray tube has been functionally replaced with a laser and the x-ray detectors have been replaced with optical detectors forming a 2960 array around the breast. At 100-350 points (depending on the breast size) in the orbit around the breast, data is collected from the array of 168 detectors and is referred to as a "fan of data". The data acquired in a scan performed using this geometry is used to reconstruct an image of the interior of the object the laser beam passed through.

IMRT

Misinformation on the Net

USA - Increasing numbers of patients search the World Wide Web to glean information about their diagnoses or treatments, and doctors are frequently faced with questions from patients who have been misinformed or even (dangerously) mislead.

A study, published online in June by the *American Cancer Society*, underlines the problem. Researchers at the Departments of Radiation and Cellular Oncology, and of Radiation Oncology, University of Chicago, examined information focusing on intensity-modulated radiotherapy (IMRT) and found, in general, that this presented poor content and quality on many websites. They warn that both patients and doctors need to be aware of these problems when selecting treatments.

About a third of US radiation oncologists currently use intensity modulated radiation therapy (IMRT), in which, instead of passing a single, large radiation beam through the body, radiation is broken into thousands of thin beams to intersect on the cancer, which, it is understood, provides greater accuracy and minimises harm to surrounding tissues.

In the study the team used the full name and the IMRT abbreviation as search terms and, from five search engines, reviewed the first 50 uniform resource locators. Three informal observers then evaluated each site to assess presentation, accuracy and balance of information on IMRT. Scores: low, moderate, or high were used to describe each category, based on a predetermined scoring system. The overall score for each website ranged from -35 to 100 points.

In all, 77 patient-oriented websites giving IMRT information were identified (45% private, 21% academic and 18% commercial). 82% of the sites used patient-oriented language. 42% of all the sites gave false and/or misleading information.

58% of the sites gave a low level of information and 50% offered the fundamental aspects of IMRT planning. The most commonly discussed tumours were genitourinary (65%), and head and neck (53%) lesions. Few sites described the potential benefits of IMRT. The median overall scores for academic, private, commercial and other sites were, respectively, 10, 20, 25, and 20 points.

Paediatric patients

MDCT angiography is better

Turkey - Multidetector computed tomography (MDCT) angiography can be used safely and effectively used as an alternative to conventional angiography in imaging the extremities of paediatric patients, according to a study published in July in the American Journal of Roentgenology.

This is the first review of MDCT angiography of children suspected of having arterial occlusion and stenosis, or for pre-operative evaluation before reconstructive surgery. The study involved six paediatric patients, said Dr Musturay Karcaaltincaba, at Hacettepe University School of Medicine, Ankara. 'The technical success rate in our study was 83%, but diagnostic information was obtained in all patients.'

Arteries in children are small and difficult to locate so modified automated bolus tracking was used. Success depended on the ability to image the arteries when they were fully enhanced by the contrast media, he said. 10 seconds after the contrast media was injected intravenously, stationary images were taken near the proximal artery and the monitor was watched to see when the media began to enhance the artery lumen, then sequential scanning could begin to assess flow.

Conventional angiography is a long procedure, during which patients are sedated, and an arterial catheter is inserted. Dr Karcaaltincaba said MDCT angiography needs no sedation, requires a low volume of contrast media, is non-invasive - and quicker.

To avoid complications from the conventional procedure, he recommends paediatric radiologists to consider non-invasive vascular imaging tests such as this.

Automation

'A dramatic impact on human error reduction'

USA - The need for accuracy in laboratory testing is obvious, since up to 80% of the data used for medical decisions is based on laboratory tests *(Source: Joint Commission on Accreditation of Health Organisations)*.

Now the value of automation systems has been underlined in a poster presentation at the 6th Patient Safety Congress, organised by the National Patient Safety Foundation (NPSF) in May, which focused on safety as well as medical error reduction.

The poster presenter Denise L Uettwiller-Geiger PhD, administrative director and clinical chemist at John T Mather Memorial Hospital, Port Jefferson, NY, said automation improves patient safety in two important ways - by improving the precision and reliability of test results and reducing turnaround time (TAT) to deliver them faster, enabling quicker diagnoses/treatments.

The 248-bed John T Mather Memorial Hospital began extensive laboratory renovation in 2000, which included upgrading instrument systems, and installed robotics and software to automate testing processes, including pre- and post-analytical sample handling.

The hospital selected the Power Processor by Beckman Coulter Inc, whose automation systems include automated centrifugation of samples, in addition to pre-analytical steps, e.g. automated labelling of aliquot tubes, sorting and decapping of sample tubes. Dr Geiger pointed out that the pre-analytic phase is the most error-prone phase of testing because of the preponderance of human steps. By automating steps in this phase the Power Processor was found to have '...a dramatic impact on error-reduction'. The Beckman Coulter systems also provide extensive post-analytical capabilities, such as refrigerated sample storage and automated sample retrieval for additional testing.

Bar-coding and automated sample sorting and handling helps to ensure that every sample and result is matched to the right patient. Underlining this aspect, Dr Geiger said that, since automation, the hospital had reduced labelling errors by 20%. The Power Processor also indirectly improves the quality of manual tests, Dr. Geiger added, because tasks now performed automatically are those that were mundane, time-consuming and not a productive use of technologists' expertise and energy. With the Power Processor handling most pre-analytic steps, technologists can focus on interpretation of test results.

Dr Geiger said that the hospital sharply improved patient safety by using Beckman Coulter's Access AccuTnI troponin I assay for cardiac testing. Producing results in 12 minutes, this means the lab can deliver them to a physician less than 30 minutes after blood sampling. The TAT for troponin testing dropped by 30 minutes - a 33 percent reduction in TAT to the emergency room, she pointed out, adding that Access AccuTnI yields high quality results, both in comparison to traditional markers and other troponin assays. It is highly resistant to interferences in blood samples such as heterophile interferences, human anti-mouse antibodies (HAMA), and rheumatoid factor, for instance. This means fewer false positive results and fewer delays from repeat analyses.

Dr. Geiger also noted that AccuTnI protects cardiac patients by being specific and sensitive to cardiac damage. Troponin in general is more specific to cardiac damage than traditional markers such as CK-MB. In addition, AccuTnI is more sensitive to cardiac necrosis than many other troponin assays.

The laboratory's financial performance has also improved, said Dr Geiger. Since 2000, test volume increased 18% and productivity (tests per full-time employee) increased 73%. 'There's a myth that automation is mainly for large hospitals and commercial labs, not modest-sized labs like ours,' said Dr Geiger, concluding that, although the Mather lab's test volume is only 1.6 million tests annually, the hospital has benefited both in terms of efficiency and lower operating costs.

OPINION

***Mark Simon**, Chairman of the UK e-Health Association Small and Medium Sized Enterprise Special Interest Group and CEO of the UK-based software and services firm **ComMedica**, discusses IT development and the UK's NHS National Programme for IT*

"In the UK, small companies supplying the NHS have traditionally been unable to expand because of the high costs and long lead times involved in procurement. As a result, there are remarkably few vigorous and growing UK-based IT companies, and even fewer who can compete internationally.

However, the massive and far-reaching changes in the procurement of IT through the NHS National Programme for IT threaten to make - or break - players of every size in this market.

Innovative Small and Medium sized enterprises (SMEs) have much to offer the NHS, and the UK eHealth Association's Special Interest Group for SMEs has been established to ensure that they are not overlooked during IT procurement. The SIG will provide a platform to discuss issues and ideas, and through the National Programme's Supplier's Consultation Group and the media, we aim to raise the profile of SMEs within the marketplace.

In healthcare, as in most industries, SMEs are the primary source of IT innovation. In the UK, SMEs in healthcare IT employ almost half as many people as the 25,000 that work in NHS information technology departments, and so represent an essential resource for the coming revolution to tap.

Having transformed the English healthcare IT market, and with it the prospects for health IT SMEs, the National Programme should deliver:

- A set of clearly defined channels through which to distribute SMEs products
- Standard, nationally defined, terms and conditions under which to supply their products
- Standard IT environments across the NHS in which to deploy products, including rigorously defined public standards-based messaging and conformance rules which, once implemented, can be deployed across the NHS, and clear processes by which to gain accreditation and the right to go to market.

The National Programme promises to provide an environment in which well organised IT businesses can grow substantially faster and more profitably than has ever been possible before.

However, the National Programme still needs to do much to provide a good environment for healthy commercial development. The SME community strongly believes that the National Programme needs to:

- Provide a clear process for the accreditation and certification of new IT applications and innovations, allowing rapid evaluation and availability to NHS users
- Build on the openness of the procurement process by wider communication of all the key IT specifications and deliverables and by encouraging healthcare IT vendors to promote their offerings in the context of the National Programme
- Provide clearly documented standards with regard to interoperability and interfaces to ensure that smaller companies can integrate new offerings with other NHS systems

Any market where the customer is committed to raising spending on the use of IT from the current 1.4% of 97 billion euros to 4% of 144 billion euros by 2008 is bound to be an interesting place for IT companies. Also the NHS represents a particularly great opportunity for the origination and application of research, dedicated as it is to the provision of healthcare to the complete population of the UK.

SMEs, not content with the historical constraint of having only a small circle of contacts to sell to, are now able to grow valuable and capable businesses by investing, innovating and partnering with the existing and new players in the revitalised NHS IT sector. But this can only happen if such companies enthusiastically adopt the new processes and adapt to the new and faster competitive imperative created by the National Programme."

Background - Specialising in radiology and ophthalmology, ComMedica has installations in the US, UK and Saudi Arabia. As one of the companies chosen to supply IT systems the UK's National Programme for IT, the firm is currently completing an electronic link between the burns/cuts unit at the paediatric A&E department, St Mary's NHS Trust (London) to the specialist Burns Unit at Chelsea & Westminster NHS Trust. (Prior to this, phone calls were made to determine whether patients should be transferred for specialist treatment).

Doctor Volker Krause, Senior House Officer at the St Mary's A&E unit, said the new system will initially handle c. 200 cases of lacerations or burns received annually, but he added: 'We hope to extend the technology to other areas, e.g. dermatology, and for referring ophthalmology injuries to the Western Eye Hospital.'

(For the last two years, a ComMedica electronic image-sharing link has operated between St Mary's and the National Hospital for Neurology and Neurosurgery (London), to speed up diagnosis and treatment of critical head injuries).

AWARDS

TOP AWARD for telemed team for services in Latin America

The Enlace Hispano-Americano de Salud programme (EHAS) has scooped a top prize in the *Stockholm Challenge* IT awards (health category), for its project that provides low cost communication tools and telemedical services adapted for isolated medical teams in Latin America.

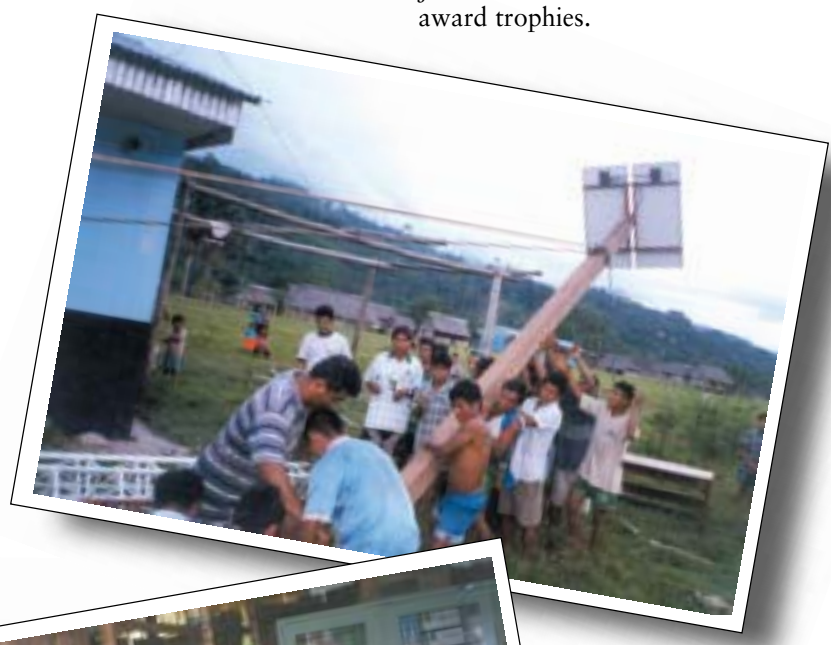
Spain - Starting as an initiative of the Bioengineering and Telemedicine Group (GBT) at Madrid's Polytechnic University (UPM) and the city's Engineers Without Borders Association (ISF-Madrid), EHAS now works in partnership with several Spanish American and European institutions working in partnership, and the UK's London School of Hygiene & Tropical Medicine provides technical support to the project in Colombia, Peru and Cuba.

EHAS reports that it specifically targets primary healthcare personnel, who are predominantly female, and insufficiently trained, lowly paid and very isolated. 'Telephone networks and computers are scarce in developing countries, there is limited access to the power grid and the transportation infrastructure can be poor,' AHAS points out. However, even where land and power lines are absent, the group has overcome such problems by providing rural health centres and medical outposts with voice communication and electronic mail via VHF and HF radio, which has no operating cost. The programme also offers distance training medical courses; relay queries to medical specialists; help to access published medical papers, and advises on developing computer based epidemic surveillance systems.

In evaluations prior to the set up, nine out of ten healthcare workers said they found consultations were either impossible or difficult to make. However, after using the system the same number said consultations had become easy - and fast. AHAS reports: 'The project has cut by a quarter the amount of hours staff spend delivering administrative and epidemiological reports, and reduced the time it takes to detect malaria cases by half.'

At the London School of Hygiene & Tropical Medicine, Dr Carolyn Stephens, who led the project, said the team were delighted and honoured by the award. 'EHAS shows that telemedicine is not just about high-cost technology and high-cost healthcare. We are showing that information technology can be harnessed to support millions of dedicated front line health workers bringing health care to the most isolated rural communities'.

The Stockholm Challenge awards pioneering IT projects worldwide, and helps to build networks between entrepreneurs who will benefit from contacts across borders, cultures and economies. The artist Jonas Torstensson created the award trophies.



Even where land and power lines are absent, AHS managed to provide an electronic network

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If so, what do you use of this kind?

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This information will be used only in an analysis for European Hospital, Höherweg 287, 40231 Düsseldorf, Germany, and for the mailing out of future issues of the Beta publication European Hospital. Candidates will also be automatically entered for a draw to win the prize featured on this page.

Signature Date EH 3/04

Multi-access telemed for diabetics

(Ref: Design, methods, and evaluation directions of a multi-access service for the management of diabetes mellitus patients. Diabetes Technol Ther. *2003;5(4):621-9)).*

EU - The technical barriers and limited flexibility of standard telemedical services, usually based on a single mode of access, e.g. internet or phone, can now be overcome due to the integration of Web and phone services, plus the arrival of palmtops and the smart modem to download data. These provide patients with multi-access modes to a single service. The M2DM project (funded by the European Commission) had a specific aim: to investigate the potential of such multi-access services in diabetes management, and to design a new service to provide a 24/7 access system for diabetics and carers with case management teams.

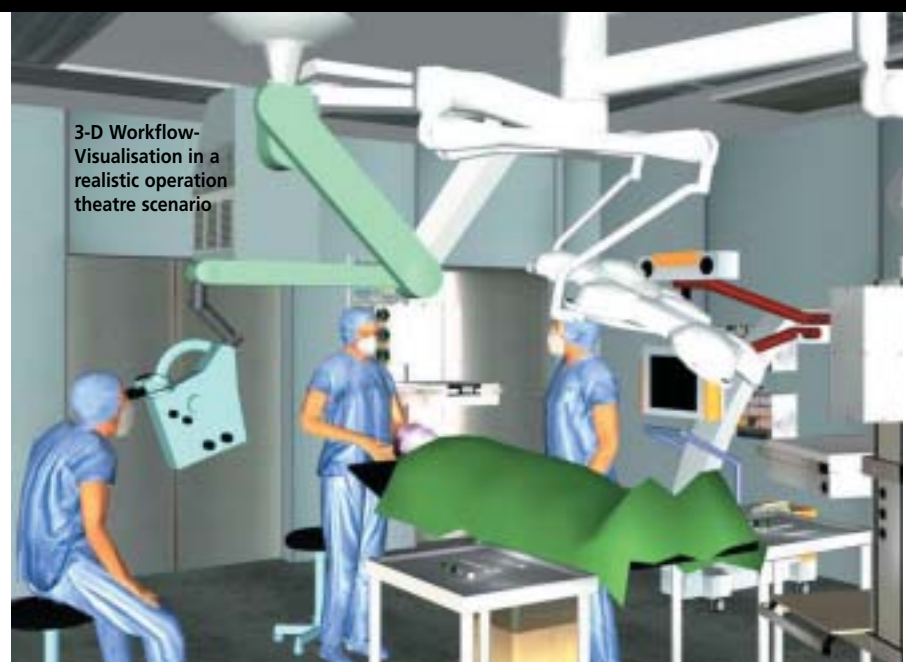
Such a service has been designed and implemented in the diabetic units of five European medical centres: Fondazione S Maugeri and Policlinico S Matteo Hospital, Pavia, Italy; Bogenhausen Hospital, Munich, Germany; San Pau Hospital, Barcelona, Spain and the Padova University Hospital, Italy.

The service comprises a data-base, linked to the hospitals' EPRs, which is accessible through: i) the Web (and Web-TVs); ii) an interactive voice responder system for fixed and mobile phones; iii) a smart modem for data downloading from reflectometers; iv) a palmtop.

A distinguishing feature of M2DM is its capacity to tightly couple the different modalities of telematic access, relying on an advanced system for data management based on a software tool called a multi-access organiser. Thanks to this organiser, the system can, for example, automatically notify physicians about data downloading performed by patients, then relay back modifications in therapy from his/her care providers. Finally, M2DM explicitly manages available knowledge on the care process, enabling automatic data analysis, simulation and a watchdog function to advise patients and care providers of potentially dangerous situations.

The system was used by 62 diabetic patients receiving insulin (55 type1 diabetes mellitus (DM), 7 type 2 DM, 49 adult, 13 paediatric, mean age 35 years SD 16.2 years, 37 males, 25 females). These participants transferred 40,595 blood glucose (BG) readings and 15,497 insulin dosages (ID) (avg. 12.7 BG and 4.8 ID per patient per week). Clinical visits were held every three months, when HbA1C was tested. During the first three months 2.3% of the 13,510 BG were below 50 mg/dl, 16.6% were higher than 250 mg/dl. During the last three months of the study only 1.6% were below and 19.5% above the threshold values. Both the reduction in hypoglycaemias ($p<0,003$) and increase in 8.15% (SD 1.85) to 7.4% (SD1.33) ($p<0.001$). The reduction in variance was also significant ($p<0.034$).

Professor Mario Stefanelli said the study team concluded that the use of telemedicine-based management of diabetes mellitus lead to a significant improvement of BG and HbA1C and reduced the rate of hypoglycaemias. The users recognised M2DM as an excellent tool to efficiently and effectively manage diabetes.


3-D Workflow-Visualisation in a realistic operation theatre scenario

Computer assisted surgery

Volkmar Falk MD, of the Innovation Centre for Computer Assisted Surgery, University of Leipzig, describes steps that must be taken to turn this concept into 'a future scientific discipline'

The increasing implementation of Information and Communication Technology into clinical practice will have a deep impact for the hospital of the future especially for the surgical suite. Using state-of-the-art IT will enable surgeons to produce more accurate diagnosis and more efficient therapy. Image processing, integration of biological signals, mechatronics, and system safety issues are the main areas of development. Similar to other high-tech fields, a new way of thinking and a common language is required for both surgeons and engineers. Only then will computer assisted surgery (CAS) become a scientific discipline that balances the technical possibilities and clinical requirements in the upcoming era of technology driven surgery. Economic considerations are of equal importance to justify new technological applications.

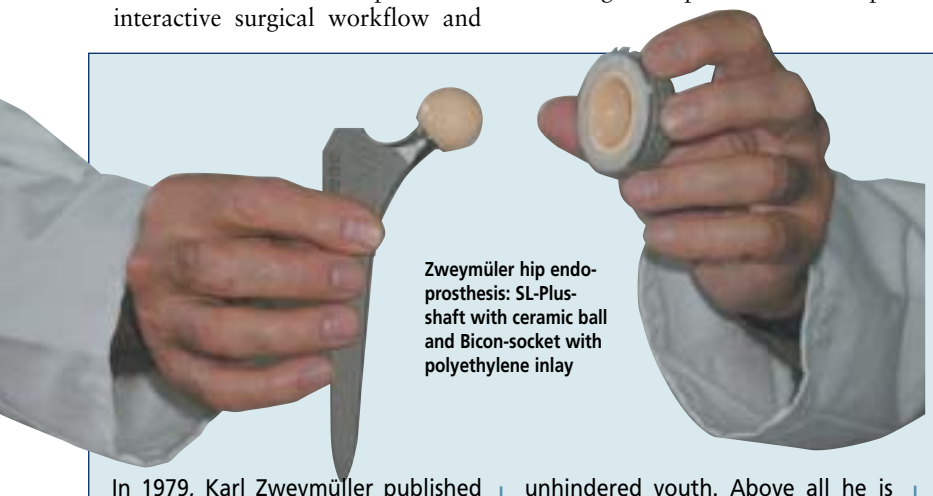
The Innovation Centre for Computer Assisted Surgery (ICCAS), at the University of Leipzig, is an interdisciplinary cooperation between surgery, informatics and medical engineering. Funded by the German Ministry of Research and Education, ICCAS focuses on the development of interactive surgical workflow and surgical integration profiles as the basis for the conception, specification, simulation, design and rapid prototyping of CAS components. Another focus is the integration of all relevant data, including medical imaging and biological data, into a surgical picture acquisition and communication system (Surgical PACS). By creating two research groups at the interface of IT and surgery, ICCAS will hold a key position in the development of future surgery.

By applying standard IT methods, surgical workflow will be generated. Visualisation methods will be applied to facilitate the interpretation of workflow. Ontology - a new language - will be developed to optimise communication between IT and surgical communities. A systematic description of surgical procedures can be developed based on data derived from a multidisciplinary and multi-institutional surgical workflow analysis. Using this large database of surgical integration profiles the conception, specification, simulation and design of prototypes of surgical assist systems and interface technologies can be validated.

Integrating additional modalities, such as functional, structural as well as biological signals, will enhance traditional descriptive and morphologic image analysis. Therefore, the presented image will be a synopsis of all available signals, to allow data transfer between different sources.

Surgical research is an interdisciplinary task. Rather than a discipline-related approach, ICCAS will use a system-related approach to develop surgical integration profiles. For effective technology development, an organ-based classification in deformable/non-deformable structures, and passive as well as dynamic tissue shift will replace traditional discipline-oriented thinking. This will require a reorientation for engineers and medical professionals and an innovative educational approach that changes the traditional, one-dimensional way of teaching.

The strategic concept of ICCAS is a continuation of research efforts begun in 1998 at the University of Leipzig. The concentration on conception, specification and evaluation, as well as the application of IT-based methods, questions the relation to surgical reality. The answer is provided by the recent CAS research history and current research developments. Given current economic restraints, individual CAS solutions are no longer viable. Surgery must adopt the experiences in other high-tech fields, where precisely described conceptions and specifications lead to solutions that have sustained the test of time. By having carefully selecting over 15 co-operation partners outside the University of Leipzig, and creating a network of complementary competence, ICCAS will be able to accomplish its mission. The ICCAS partners are leading centres in computer-assisted surgery, which reflect its interdisciplinary nature and international orientation.


Zweymüler hip endo-prosthesis: SL-Plus-shaft with ceramic ball and Bicon-socket with polyethylene inlay

Professor Karl Zweymüller, medical director at the Orthopaedic Hospital Gersthof, Vienna, and pioneer of the cementless hip endo-prosthesis, describes 25 years of developments, from biological anchoring to computer-aided navigation.
Interview: ***Christian Pruszinsky***, EH correspondent, Austria

Hip joint replacements

In 1979, Karl Zweymüller published the study '*Bone and Joint Replacement using Bio-ceramic Endo-prosthesis*', and in the same year performed the first implantation of the hip prosthesis shaft he had developed from titanium forged alloy, to anchor the implant without bone cement. Then he knew he had achieved a revolutionary development in hip endo-prosthesis, but could not have guessed the success story would prove just as impressive 25 years later:

Worldwide over 750,000 hip joints have been replaced using his system, which has been continuously developed and improved. Professor Zweymüller, currently medical director at Austria's Orthopaedic Hospital Gersthof (who enjoys an international reputation as the 'hip pope') has performed numerous surgical demonstrations in Europe, Saudi Arabia, Russia, China, Egypt and Mexico, and is a sought-after speaker at top congresses worldwide. He has also trained over a thousand orthopaedic surgeons internationally, demonstrating the precise surgical implantation of his endo-prosthesis at Gersthof. And today, his profound knowledge is also communicated through centres of excellence in many European countries, which already serve as surgical training centres in new EU states such as Poland, Czech Republic, Slovenia, Slovakia, and Croatia.

The professor's oldest patient was 100 years old; she left the hospital in a 'condition to walk well'. The youngest was just 13 years old and can thank the operation for an unhindered youth. Above all he is proud of the fact that numerous first generation implants are still functioning today.

A brief history - Prof. Zweymüller's work was based on a problem, recognised since the early 70s, that the then almost exclusive use of bone cement for anchoring implants had serious disadvantages and side effects. This spurred efforts to find alternatives to bone cement and to design hip prostheses in a way that they could be anchored in bone without using cement. Boutin, in France, and Mittelmeier, in Germany, focused on bio-ceramic, which proved not too successful as a substitute anchoring material because, although bone matter grew together with the smooth ceramic, there was no integration between them so, in most cases, an intermediate layer of tissue lay between implant and bone. The introduction of titanium, with a surface structured with an average micro-roughness of between 4-6 mm, made two substantial improvements possible: the material is extraordinarily bio-compatible, i.e. is fully accepted by the bone, and the bone grows into the surface's micro-roughness - an osteo-integration.

Biological anchoring - is based on a tapering straight stem made of hot, forged, titanium alloy with a square cross section and micro-rough surface. The square cross section keeps the implant anchored in the marrow area of the femur for absolutely stable rotation, without occupying the entire marrow space. This means the important aspects of the bone's blood vessel supply are preserved. Even the pure titanium socket has a micro-rough surface. It also has sharp-cutting lamellas to screw it into bone. The result is a stable implant under pre-stress. In this metal socket, a ceramic inlay of high-density polyethylene is inserted as a glide partner for the artificial joint ball. The long-term success of a hip implant depends on how well both these articulated surfaces abrasively harmonise. The abrasive wear expected from the polyethylene inlay lies at 0.01 to maximum 0.05 mm per annum with the Zweymüller endo-prosthesis. In other words, there is frictionless joint function for 15 years upwards. In addition, the inlay also can be replaced without any problem, in most cases.


Prof. Karl Zweymüller (right) with Christian Pruszinsky

Since 2002, a highly cross-linked polyethylene is also used, further reducing predictable abrasive wear. The combination of a ceramic ball with a ceramic inlay anchored in the titanium socket - i.e. ceramic with ceramic - also promises less abrasive wear in the future. Ceramic abrasion of only a few thousandths of a millimetre annually is also very compatible for the body. Thus negative effects, such as polyethylene abrasion against the bone, need not be feared.

During our interviews, Prof. Zweymüller emphasised that there has already been a remarkable shift in the discussion of hip endo-prosthesis anchoring with or without cement. The cost argument usually used for cement fails when factors are examined carefully, such as surgical time and additional disposable articles needed for cementing. The biological anchoring process has increasingly become the gold standard, ultimately due to the ease by which later replacement of the implant can be done. Furthermore, since cement is not seen as free of toxic effects, its use is not uncontroversial.

Navigation versus Robodoc - Major decisions for the implantation of an artificial hip joint are essentially intra-operative. Long-term operation success depends on the exact positioning within fractions of a millimetre. Even the final selection of the ideal combination of 14 available shaft sizes, 3 standard collar lengths and 9 socket sizes for the patient is inter-operatively defined. During the past two years, Prof. Zweym¸ller also developed a computer-assisted implantation aid, which provides the surgeon with the information needed for truly precise installation of the individual components of an artificial joint.

Robodoc, using a robotic arm to perform the operation, is theoretically perfect but in practice has led to a high rate of complications - already leading to law suits in Germany. By contrast with Robodoc, the professor points out that the navigation method has three great advantages:

- It provides a surgeon with the greatest possible support whilst allowing necessary discretion
- The patient is spared additional pre-op computer tomography because the orientation aid uses infrared sensors oriented on pelvic landmarks
- No cables are needed - a particularly significant factor in the operating theatre

During this computer-aided navigation procedure, metal clips with infrared sensors, that have been placed on selected parts of the pelvic and femur bones, transmit the immediate data to the computer, where the software uses this data to calculate the exact position for the new hip joint, then displays it for the surgeon on-screen. This method optimises the final selection of the prosthetic elements, as well as the position of the joint, and only adds ten minutes to a surgical procedure that lasts about an hour, on average. Given that inexact positioning can lead to restrictions in mobility, luxations, as well as increased abrasion and thus reduced lifetime for the joint, it becomes clear that the navigation method should be used wherever the operation is subject to sensitive preconditions. A further advantage for a surgeon (of no small significance) is that the method is not too complicated, which is no doubt a great relief to orthopaedic surgeons with limited experience.

Details: http://www.zweymueller.at

Tissue-engineered

A bio-implant developed by H Strobl and Gert Grubwieser at the Innsbruck Laboratory for Tissue Engineering (Director: Professor W Puelacher), in co-operation with the Department of Oral and Maxillofacial Surgery, Innsbruck University Hospital, is a 'sensational success that opens new horizons for OMF surgery', the team reports. The implant - a disk of the temporomandibular joint - was engineered from the cells of a 44-year-old patient, who had suffered ankylosis following an accident and could intake only liquid nutrition via a straw. In this particular case, a joint space had to be created to receive the implanted disk. The low-invasive procedure required a high-precision 2.5 cm cut in front of the ear. Just five days after surgery, the patient could move his mandibular and open his mouth to ca 30 mm, allowing almost normal eating.

Preparation for engineering the cartilage was conducted at the Innsbruck Laboratory for Tissue Engineering. Cartilage was extracted from one of the patient's ribs and the cartilage cells were reproduced in a GMP lab in Wels, Austria, using the patient's plasma.

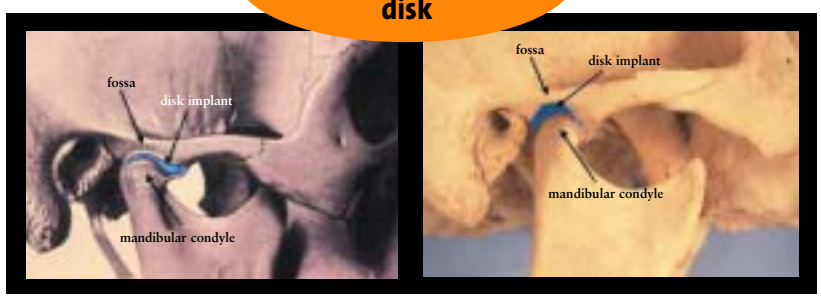
Because living cell material must be processed very quickly, both the implant's production and the surgery presented a logistical challenge. On the same day as delivery to the Wels lab, the cells had to be fused with the biological carrier substance. Then, an implant was formed to fit precisely into the joint space and was implanted in the patient's mandibular.

Within a few weeks the body turned this bio-engineered spare part into tissue, which assumed its function within the body. The highly sensitive immune system readily accepted the bio transplant because it had been created from the patient's own cells.

The OMF team - For over a decade Professor Puelacher's team at Innsbruck's Laboratory for Tissue Engineering, which specialises in oral, maxillary and facial surgery and the clinical application of bio-engineered tissue, has pioneered bio-engineering of cartilage, bone, and tendons, and registered numerous bio-implant successes during the last three years. Patients suffering painful stiffening of the mandibular joint that prevents normal food intake, can be helped by this new method, but the team reports that it has far more potential - i.e. over-used joints can be coated with new cartilage, and other parts of the mandible, such as the disk, can be replaced.

The technique could also travel beyond cartilage replacement. The team plans to focus on bone marrow stem cell research and say small bone fragments already can be precisely engineered in laboratory animals. A next step may well be maxillary surgery with bio-engineered bones, they add. 'Jaws will not be the only area to profit from the new technology. We will be able to create tailor-made replacements for knees, hips, and intervertebral disks from the patient's own tissue.'

A temporomandibular disk



Colon cancer

MIS matches conventional procedure

USA - A large-scale, ten-year trial, supervised by the Mayo Clinic, has shown that minimally invasive surgery (MIS) to treat colon cancer is as effective as the traditional procedure.

Physicians had been concerned that without opening the abdominal wall tumours might recur. However, the trial, which included 872 patients from the USA and Canada, showed that both procedures shared the same number of survival rates and rates of recurrences but, according to a report in the New England Journal of Medicine, with MIS pain was less pronounced and the hospital stay shorter.

Heidi Nelson, the lead researcher, concluded it could be assumed that this procedure is safe, effective and advantageous for patients.

Conventional surgery creates a 20 cm long wound in the stomach area. The incision for MIS - i.e. to insert a tiny camera and remove diseased tissue - is just five cm long. Of the 50% of the participating patients who had the traditional procedure and the 50% who had MIS, complications such as wound infections and bleedings arose 20 percent of the first group, and 21 percent of the MIS group.

After three years, the survival rate was almost identical (86%; 85%). 16% of the patients in the first group had a recurrence, 18% in the second. The only evident disadvantage was that one in five MIS patients needed a conventional operation later, because the cancer had spread further than originally assumed.

CyberKnife at work in Italy

Centro Diagnostico Italiano (CDI), a full-service healthcare and diagnosis centre based in Milan, has installed a CyberKnife Stereotactic Radiosurgery System (CSRS), and in May began using this robotic system. Based on advanced image-guided technology to treat intra and extracranial tumours, malignant and benign lesions and vascular malformations, the system was developed by Accuray Incorporated (Sunnyvale, California, USA) in co-operation with Stanford University (Stanford, California, USA), and has FDA approval. However, at present there is only one other CSRS in use in Europe.

CDI also reports that it has '...one of Europe's most advanced electronic medical records systems', which includes patients' smart cards that provide automatic recognition and updated patient data.

Established in greater Milan 30 years ago, today CDI employs over 400 consultants and 250 nurses, clinical workers and office staff, serving over 2,000 patients daily at its centre and several satellite clinics, and with its own laboratory facilities. Services include personalised outpatient, preventive, diagnostic and therapeutic care and a full range of therapies and imaging services (CT, MRI, PET etc).

Celebrating the installation: Diana Bracco, CEO of CDI; Dr John Adler of Stanford University and President of Accuray, which developed/produces CyberKnife; Carlo Borsani, regional healthcare councillor; neurosurgeon Giovanni Broggi and radiation oncologist Dr Laura Fariselli, both of Carlo Besta Neurology Hospital, Milan; Dr Alberto Brambilla, surgeon at Milan's San Carlo Hospital

Spacelabs enters the European Community

At the Euro-anaesthesia 2004 Congress (June, Portugal), the US firm Spacelabs Medical displayed a range of new systems and products that can now be sold in the EU. This follows the firm's divestment from General Electric, as part of GE's acquisition of Instrumentarium Corp, and Spacelabs gaining an EU agreement to sell its full range of anaesthesia systems and other products here

For its expansion into the peri-operative field, the firm displayed:

- A range of anaesthesia delivery systems sold under the Spacelabs UltracareADS brand, to meet needs such as high-acuity and specialised operating theatres, and outpatient clinics, which cover patients from neonate to adult.
- Spacelabs will also sell anaesthesia monitors, including the UltracareSLP peri-operative monitor and the UltraviewSL modular monitoring line. The UltracareSLP is available on an exclusive basis to customers in EEA member countries, whilst the UltraviewSL line will be available globally.
- Anaesthetic gas measurement technology, considered the gold standard in gas monitoring, will be incorporated into Spacelabs UltraviewSL monitoring line, sold globally.
- Enhancements for anaesthesia include integrated haemodynamic, respiratory gas, spirometry and neuromuscular transmission monitoring.

The new offerings complement the company's existing patient monitors, networks, telemetry and connectivity solutions for adult and neonatal critical care.

The firm reports: 'For hospitals that need to integrate different devices and systems easily and seamlessly, Spacelabs offers an unusual degree of open architecture and connectivity through its Intesys Clinical Suite (ICS), which collects and stores real-time patient information, seamlessly integrating data into hospital information systems, Flexport connectivity solutions and WinDNA, which enables clinicians to view and control Windows applications directly on the patient monitor display. Spacelabs equipment is also forward- and backward-compatible, offering further benefits to hospitals seeking to protect their existing investment.'

PAEDIATRIC SURGERY

1st World Congress of Paediatric surgery

Boris Kobrinskiy

'Where is paediatric surgery going?' asked consultant paediatric surgeon Ivan Fattorini, MD, FEBPS, FAAP (S), Director of the Children's Hospital Zagreb and President of the World Congress of Paediatric Surgery. 'Paediatric surgery now faces the most challenging ethical and professional questions and decisions. The technological revolution has emphasised the difference between developed and developing countries. Whilst a tremendous amount of human, technical and financial resources are spent to save the life of a single child, at the same time millions of children face horrifying death from hunger and infectious diseases that could have been prevented simply by vaccination - many times less expensive.

Prenatal ultrasound diagnosis and medically induced pregnancy termination have largely diminished the number of children born with severe congenital malformations - in counties where such diagnostic means are available to most women. In reverse, in countries on the lowest developmental line, even ultrasound is a rarity, available to very few, and prenatal diagnosis is something to dream about. To make matters worse, those countries are where most children are being born, simply due to population policy and measures, low standards and many other factors that have been well described in scientific and popular literature. However, even in those countries, slowly but surely, improvement in standard and technological development will influence the number of congenital malformations, and that will surely change prospects for modern paediatric surgery.

Among the many questions raised, one is frequently forgotten: the right of a child to proper medical care. The medical profession in well-developed countries is increasingly adopting 'the market'

Ivan Fattorini

concept - and marketing rules. In such conditions, children are often treated, for reasons way beyond strictly medical ones, by physicians who were not properly trained for such medical care. This subject is covered in the Declaration of Paediatric Surgery, adopted by the World Federation of Associations of Paediatric Surgeons in Kyoto, 2001.

Given these points, it is obvious that paediatric surgeons now face many challenges, and these were just some of the questions discussed during the First World Congress of Paediatric Surgery (Zagreb, 22-27 June). The options are many, and on the many roads towards the future many crossroads will be presented. It is hard to tell which to follow but the Paediatric Surgery Declaration remains as a guiding light. So, we have every right to ask "Quo vadis, paediatric surgery?"

Boris A Kobrinskiy, of the Medical Centre of New Information Technologies, Scientific Research Institute for Paediatrics and Children's Surgery, Moscow, Russia, described how new information technology has already affected paediatric surgery. He pointed out that information and telecommunication (IT) advances support decision-making by medical professionals in various disciplines, including paediatric surgery. In this field the following are already on offer or in use: (a) electronic patient files (b) databases to provide previous case precedents (c) access to intellectual systems for diagnosis/treatment advisories (d) surgical/post-surgical case monitoring, including home telemonitoring, (e) medical videoconference systems to remotely carry out difficult investigations, manipulations and surgery (f) software for radiological diagnoses, as well as functional and laboratory investigations (g) programmes to estimate the outcome of children's therapies (h) information systems to provide standards for qualified and specialised medical care at various stages (i) training/testing multimedia systems for physicians/nurses in surgical units and first aid (j) programmes for analysis of surgical statistics from surgical units.

Thus, he said, using those aids, paediatric surgery could optimise clinical data exchange between surgical and other departments, increase efficiency and accelerate diagnostic processes; optimise examination and therapy planning; access comparative analysis and so choose surgical treatment for sick children; find new methods of analysis as well as increase productivity in the laboratory, radiography and other diagnostic departments; estimate surgical risk; gain remote advisory help for surgery/anaesthesiology; increase efficiency control over treatment/rehabilitation activities; analyse surgical activities using evidence-based methods, and manage streams of victims in catastrophes

'For extreme situations, such as natural or technological disasters, or local conflicts, a highly efficient disaster telemedicine system is needed to cover diagnostics, medical tactics, evacuation of patients/victims, the possible structural and functional disorganisation of public healthcare services, and difficult medical and tactical conditions,' he pointed out. 'A tele-advisory service to deal with organisational and clinical situations in field medical hospitals would help reduce decision-making delays about therapies and, in the case of transportation of children, help o define which cases to expedite to specialist hospitals.

Oxygenators for neonate and paediatric perfusion

Cardiopulmonary bypass in connection with heart surgery on babies and infants is a challenging procedure requiring experience and expertise on the part of the perfusionist. These patients are not small adults and cannot be managed as such. Equally the perfusion equipment used for these patients must be both designed and sized appropriately.

Jostra Maquet report that the firm's Safe Micro and Safe Mini oxygenating systems '... have been developed to provide both effective and safe function in connection with cardiopulmonary bypass in patients up to about 15 kg in weight.

'With a blood flow rating of 0.8 lpm and a priming volume of 52 ml the Safe Micro is appropriate for babies up to about 5 kg in weight. The very high efficiency heat exchanger of the Safe Micro makes it very appropriate for use in profound hypothermic procedures. The Safe Mini with a blood flow rating of 2.3 lpm and a priming volume of 90 ml has been designed for patients from about 5-15 kg. The venous/cardiotomy reservoirs for both oxygenators are low profile sealed units (compatible with vacuum applications) with separate large surface venous and cardiotomy filters. Both oxygenators and reservoirs can be used as integrated or stand-alone units.

'Other important features include connectors in some positions, onto which either 3/16" or 1/4" tubing can be mounted. This is particularly relevant with the Safe Micro as it allows tubing circuits to be designed to give total circuit priming volumes under 200 ml. All gas and water supply tubes enter and exit from the bottom of the oxygenators. Both reservoirs include a unique dual function safety valve to prevent any accidental over-pressurization of the reservoir. The oxygenator with integrated reservoir includes complete purge, recirculation and sample lines with sampling manifold and one-way valves. Both oxygenators are also available with either Safeline or Bioline coatings for improved biocompatibility. These unique coatings further improve blood handling, which is so important in this patient group.

'With eight years of clinical use for the Safe Micro and five for the Safe Mini these two oxygenators provide the perfusionist and patient with optimal oxygenating systems designed specifically for these small patients.'

The hospital MBA – a springboard to international leadership

Gaining an MBA in International Management, at the Nations HealthCareer School, has far-reaching effects

The deficiency in numbers of qualified leaders in healthcare, particularly in the private hospital sector, is an international problem. Obtaining an International Degree (MBA) in Hospital Management presents the biggest individual step towards becoming a qualified leader.

The praxis-oriented Nations HealthCareer School of Management has just published its fifth programm and the third in cooperation with the HfB Business School of Finance and Management in Frankfurt/Main, Germany, a renowned, private, top-level institution that trains bankers and managers in services and industry.

The 18-month in-service degree course, beginning on 22 October this year, is aimed at executives in the fields of medicine, administration and business. The programme overcomes national borders and different healthcare policies, with eight international modules taught in Germany, The Netherlands, United Arab Emirates, Great Britain, USA, Singapore, Japan and Austria. Apart from theory, the programme offers students qualified insights into the different healthcare systems, management approaches and hospital structures through numerous case studies, teamwork, site visits, meetings with experts and management hearings.

The English-speaking degree course is made up of eight attendance modules, each lasting nine days, as well as several e-learning units. Students on the course come from Asia, Europe, and the near and Middle East.

The curriculum, plus information on registration, can be found at http://www.Nations-HealthCareer.com/downloads/curriculum_autumn_2004.pdf or please call ☎ +49-173-67 66 737 Closing date for applications: 30/8/2004.

Symbiosis

EH asked *Professor Reinhard Busse* MPH, FFPH, Module Co-ordinator and Member of the Scientific Council, Nations HealthCareer School of Management, whether combining experiences in healthcare politics in our varied nations, all in one course, is a big challenge.

Yes, but it's also fascinating to see how the participants of the MBA modul 'Management in Different Health Systems' learn together and from one another. Generally, people – and not only the course students – tend to be aware that healthcare systems elsewhere are 'somehow' different, but subconsciously they think their own country is the norm. They are different, but basically only in the standards to which our students are accustomed. But although they assume their standards are best, and although coming from 13 countries, participants soon realise this is a false conclusion.

In Dubai with students: Prof. Robinson (3rd from right), and Prof. Busse (4th from right)

Does this result in recalcitrance or a more broad-minded approach?

Not recalcitrance! Participants have either invested a lot of money in the course or fought hard for a grant, so naturally they are very open-minded.

Does this experience affect your syllabus?

Yes of course! Although our professors have knowledge of many healthcare systems globally, we learn something new all the time. Some of our information is even obtained during the courses. Before seminars begin, participants are asked to present the healthcare systems of their own countries to the group, and once we all examine these, all of us gain insights that we could not obtain otherwise. Another aspect of this is that the questions and discussions arising from the presentations encourage us to question and revise our own material, and ensures we are more explicit about certain things.

Does this progress in to comparative studies on healthcare systems?

I personally publish these, but, no, the objective of the 'Management in Different Health Systems' module is to teach students to ask the right questions about their healthcare systems: How do I look at a healthcare system? What are its elements, and how do I tell them apart for analysis. There are tools to help analyse the different elements.

We want to enable students to quickly translate their knowledge to systems in other countries. For example, on completion of the course, someone managing a German hospital today should be able to take a similar role in a Dubai hospital, without major difficulties.

Could you suggest three relevant questions they need to ask when they become managers?

The entire course, with all its modules providing the tools as well as questions to ask in each country, should enable them to manage a hospital. The module in which I work covers the interrelations of a hospital with the its healthcare system. Target-oriented questions for this are: What must I do if I want to open a hospital? Are there guidelines on where my hospital can be opened? What services should I offer? Would I only be allowed to provide inpatient treatment? The next set of questions include: Where do I obtain funding? Do I need contracts with health insurers or can I simply wait for patients to walk through the doors and pay? The third set would be: Who should become my ally in the healthcare system? Who could help me reform the healthcare system if I find there aren't actually any patients coming and paying for themselves – because they have no money? I might need to get together with others to lobby and convince a government that they should set up health insurance funds. Or, I might need to talk to other service providers, because I may have found that my hospital is good at care for acute cases, but lacks performance in rehabilitation, which means I may need to link with a rehabilitation clinic to improve my services. So, here are your three questions: Who decides what I can actually do? Where do I obtain funding? Who could link with if I want to change the first two conditions?

The value of MBA-site visits

During the MBA course *Dr Uwe Preusker*, Member of the Nations HealthCareer School Faculty, lectured on Scandinavian healthcare systems, and took the MBA students to visit The Coxa Hospital in Tampere - specialising exclusively in joint replacements; the Diacor Hospital, Helsinki - run by deaconesses; and the Association of Finnish local and regional authorities – which also acts as an association of hospitals. Here he describes the benefits of this on site experience.

The highlight was the visit to the hospital district in Tampere (c. 250,000 inhabitants). Healthcare is organised in such an efficient way that local authorities join forces and run the healthcare institutions as a sort of holding group. During our visit, managers presented their complete portfolio of strategies for the future. The incredible level of Finnish organisation was a major experience. The Coxa Hospital, founded in September 2002, is the first hospital to specialise on hips at that level. Coxa now serves about 20% of all Finnish patients needing joint replacements – 1,500 operations last year.

This visit inspired and excited the students, in that the Coxa managers, as well as those in the entire hospital district, gave us very deep insights into strategies: plans and models to ensure there will be good, sensible and affordable hospital services for 10-20 years. Centralisation was one issue: doing away with old, hierarchical structures in favour of process-oriented structures, such as setting up a central facility for cardiac disease patients, or a centre for joint replacements, or laboratory work.

They work with a balance scorecard, which gets away from a purely cost-oriented approach to running hospital services by measuring satisfaction among patients and employees, as well as considering many other important parameters. The Finns have developed the idea of the balance scorecard to an impressive degree, which particularly captivates due to its simplicity: Coloured signals show whether everything is ok - Yellow means 'attention, monitor', red signals 'immediate action'.

Perhaps we should send many European hospital directors there?

Yes, maybe we should! Another figure that confirms Finland's excellent system is the average length of inpatient stays – 3-4 days – which is the general standard across Scandinavia, but Coxa is still in the lead, due to its deliberate strategy towards specialisation. I think that's what impressed the students.

We do not often have the opportunity to gain such a deep insight into a country's strategies and the strategies of a fairly sizeable hospital association. Some students are from Africa and Asia, and are responsible not just for single hospitals but actually an entire healthcare systems, and gained ideas to further develop their own systems.

Afterwards, there was an exciting and intensive discussion, when many issues where scrutinised and challenged: 'Why are you doing it like this, why did you take this basic decision?' and so on – the best proof that the visit was a success.

Financing healthcare systems

***Ray Robinson*, Professor of Health Policy, LSE Health and Social Care, London School of Economics and Political Science, Module Coordinator and Member of the Scientific Council, Nations HealthCareer School of Management, explained his focus on healthcare financing.**

This MBA-modul examines healthcare purchasing arrangements in European countries, on which I'm leading a European study. This looks at Eastern and Western Europe and the way purchasing arrangements are being developed.

Why would an Asian or African student benefit from that?

Certain developments in healthcare in Europe are not unique to Europe. The concept of purchasing organisations, such as private health insurers, social insurers, local government organisation, is that they are proactive and place contracts with hospitals and other providers – a process happening worldwide. So students are interested in hearing about these, to gain a comparative perspective, because some are already occurring in their own countries.

More generally, what Reinhardt Busse and I seek to emphasise is that this is an international programme with attendees from different countries, and they learn from each other. So, I talk about purchasing arrangements perhaps in Germany or the Netherlands or Spain. Then I turn to, say a participant from Singapore, and say: 'Tell us about Singapore. Is it the same?'

Do those who think: 'My health system works and is the best', find difficulty in being confronted with people with completely different systems that obviously work?

Yes, it's challenging. The students know the programme is international, and they'll meet people from very different healthcare systems – we had 12 students from 11 countries – Germany, Austria, Sweden, Vietnam, Cambodia, Singapore, the Sudan, Nigeria, Oman, Saudi Arabia, Dubai – and they wanted to learn from each other.

What does the financing session cover?

Generally it familiarises students with the ways of funding healthcare in different countries: social and private health insurance, tax-funded systems and the role of user charges, and the strengths and weaknesses of different systems. I then present purchasing arrangements. I also do a module covering economical evaluation – basically the way you carry out cost-effective studies of different healthcare programmes and I give insights into what health economists do in this area. In another unit, we examine the relationship between public and private healthcare sectors and the advantages and disadvantages in the way this is changing in different countries.

One of the good things the students pointed out, at the end of the Dubai module, was that Professor Busse and I are practicing researchers, and told them about research we are currently carrying out, so the information is very up-to-date. Of course, it's also good from our point of view, because we can talk about our research and gain feedback from people from different countries, which otherwise would not be available.

What three main points would they have learned when the course ends?

My objectives are to give people from different disciplinary backgrounds – doctors, managers and accountants – a common understanding of some of the major health policy issues, current in the world today - and the chance to stand back from their everyday work to think of and reflect on the big issues.

The second objective is to stop them thinking analytically about how to approach a question; if you're a doctor, say, and only recently came into management, you cannot always take an objective view, because you came in with opinions based on past experiences. What we want is to stop people thinking like social scientists. What are the costs and benefits of doing this, or the advantages and disadvantages of doing that? And so on. So it's about a way of thinking. The third issue has been discussed: for people from very different systems to think about their own in the light of other systems they've learned about. That's it: to raise health policy awareness, get them thinking analytically and to challenge their own ideas about their own systems.

MRSA

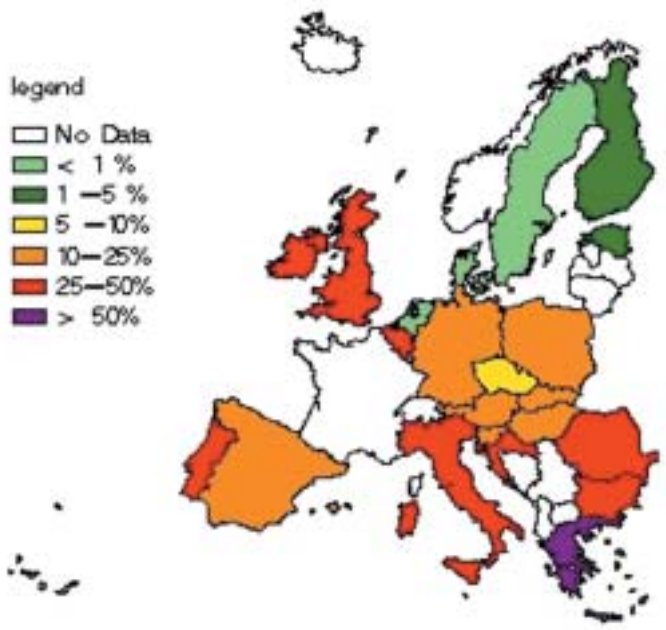
A call for EU guidelines

By University Docent ***Ojan Assadian*** MD, DTM&H (London), Clinical Institute for Hygiene and Medical Microbiology, University of Vienna Medical School

"*Staphylococcus aureus* is one of the most frequent nosocomial pathogens worldwide. Soon after physicians had become accustomed to penicillin-resistant S. aureus at the end of the 1950s and methicillin-derivatives had become the drug of choice for infections caused by this organism, the first isolate of methicillin-resistant *Staphylococcus aureus* (MRSA) was reported in 1961 in Great Britain. Since then, MRSA gradually emerged as a major pathogen. In Britain, initially, the number of infections attributed to MRSA was small, but they had the ability to spread in the hospital environment and caused some serious infections, frequently including wound infection and rarely septicaemia.

Infection control measures used in the prevention of spread of MRSA concentrated on identifying infected or colonised patients, barrier-isolation, and following the rules of aseptic and antiseptic practice, including the most effective control measure, hand disinfection.

However, different countries introduced and stressed the importance of these simple measures differently. While some did nothing, others improved staff awareness via educational programmes, and a few tried to fight against further spread by implementing multimodal strategies, like restriction of antibiotic prescription and strengthening general hygiene. As a result, today the incidence of invasive MRSA isolates varies substantially between regions as less as 1% in Scandinavia - e.g. Denmark 0.6%, Sweden 0.9%, Finland 1.4% - to over 24% in Spain, 37.6% in Italy, and 44.3% in Great Britain. (See figure).



Proportion of MRSA isolated in participating countries in 2003 - European Antimicrobial Resistance Surveillance System (EARSS)

In Denmark in 1967, over a quarter of all S. aureus isolated from one country hospital were methicillin-resistant and 20% of S. aureus isolated from blood cultures from nearly all Danish cases of staphylococcal bacteraemia were MRSA. In France as early as 1961, the incidence of MRSA in nine hospitals in Paris was 12%, rising to 19% by 1963; Methicillin-resistance among S. aureus in Greece during 1978-79 was 67.5% and, in the General Hospital of Athens, a prospective study carried out in 1987 showed that 50% of S. aureus were MRSA.

The United States differed from Britain and Europe in that MRSA were rarely found. Only two outbreaks were reported prior to 1976. Between 1961 and 1967, no MRSA were found among 1,000 strains tested at the Boston City Hospital.

However, since the late 1970s, MRSA have become a major problem in hospitals worldwide, and no country has escaped from the emergence and spread of MRSA. This organism causes serious infections and is particularly troublesome when introduced into specialist units such as burn, surgical intensive care, or orthopaedic. The reservoir within the hospital is infected, or colonised patients and staff carry MRSA in their noses and on their hands.

The future will show if further spread of MRSA can be controlled. In Europe, a great difference exists between infection control measures in hospitals from different areas. The European Community should define guidelines for proper infection control in order to harmonise the member states, and see to its implementation."

UK hygiene is poor

UK - In 1993 deaths from hospital-acquired Methicillin-resistant Staphylococcus aureus (MRSA) caused 51 deaths in England and Wales. By 2002 this figure had reached 800. In addition, MRSA infection cases rose from 210 to 5,309 in that period - a 24-fold increase. These figures place Britain amongst Europe's worst at protecting against this pathogen.

In a study carried out by Natasha Crowcross for the UK's Health Protection Agency, in association with the UK's Office of National Statistics, the author pointed out that the rise in MSRSA cases in UK hospitals indicates hygiene is very poor in that country, and that clinical staff need to be more aware of the dangers and given more support to tackle this problem '... from the top professors down to ward cleaners'. She also pointed out that, because MRSA infection is relatively rare, death can result from delayed diagnosis and treatment of the pathogen, adding that hospital staff should not wait for confirmation of a suspected case before isolating a patient.

By contrast with the UK, the author points out that the conscious adoption of meticulous hygiene and isolation procedures in the Netherlands has shown a drastic fall in MRSA rates, placing the Dutch among the best in Europe.

*(*Figures were derived from analysis of thousands of death certificates, where doctors' or coroners' notes specifically showed MRSA as the cause of death).*

Dutch hygiene shines

BEDPANS

Control dangerous pathogens!

Disposable or multiple-use bedpans are an obvious source of dangerous pathogens. 'The method of working with these reduces hygiene efficiency whilst increasing the danger of contamination for all concerned,' the firm Meiko Maschinenbau reports. 'The risks lie in the details. The disposable bedpan has a frame to ensure its stability under a patient, but that frame could play a multiple role in the transmission of life-threatening bacteria if it is not thoroughly disinfected after each use - that is, before being passed on to another patient. The smallest omission in the cleansing cycle can have appalling consequences. Traces of human excreta can lodge between the lid and lip of disposal equipment and quickly form the first link in a new infection chain - and service technicians are the second link. Even the daily chemical disinfection specified by a disposal equipment supplier is of doubtful value, because chemicals will never kill all the dangerous pathogens. In addition there are no effective methods of preventing spray shadows, in which bacteria can settle. European standards committees, working with the International Organisation for Standardisation (ISO), have found a way of solving (or at least reducing) the problem. The European Standard (EN) ISO 15883, covering hygiene security and the economic efficiency of cleaning and disinfection equipment, clearly favours bedpan washers that use thermal methods of disinfection for hospital and care home equipment.

'Testing the effectiveness of thermal disinfection is easy, because the physical disinfection parameters can be checked. If these comply with the requirements of EN ISO 15883, which is true of branded products, effective disinfection, in line with equipment stipulations, can be assumed. At the same time, the multiple-use principle supports the disinfection of hands and surfaces in an extremely effective way and, ideally, allows a virtuous circle of hygiene to develop, which also can form the basis for planning sluice rooms. To minimise the distance that contaminated equipment needs to be carried, in an ideal world, each ward would have two readily accessible sluice rooms. The hygiene cycle begins in the patient's room, and from there contaminated equipment is emptied, washed and disinfected in the bedpan washer disinfector; this equipment is also sealed. A state-of-the-art bedpan washer/disinfector empties, washes and disinfects utensils in a single operation without any user-intervention. The advantages of thermal disinfection over chemical disinfection are:

- reliable disinfection (utensils are enveloped in steam)
- the process works efficiently

UK hospital bathrooms - more bad news

Calls for improvement in the National Health Service (NHS) hospital bathrooms - made 38 years ago after a King's Fund patient survey, and again 6 years ago after a Department of Health (DoH) survey - have had little effect, according to a qualitative survey carried out by Dr Andy Monro and colleagues at St James's University Hospital, Leeds (pub: *Journal of the Royal Society of Medicine*, May 2004). Indeed, many other problems remained the same as those observed during the previous surveys, which included concerns about cleanliness and lack of privacy; unpleasant smells, often with the scent of urine; missing locks; no heating; wet floors; obstructive clutter; delayed repair of broken equipment and poor signs. And although the survey focused on 46 wards in three hospitals in the North of England, the authors said: 'We suspect that the inadequate state of hospital bathing facilities is a widespread phenomenon [in the UK].'

72% of the patients involved in the new survey needed assistance with washing and bathing, making disabled access a top priority. Improvements for this group did include the installation of alarm call systems in all facilities; hoists and showers in use almost generally and many taps are now the 'easy to use' variety.

Survey recommendations

- Access to showers, mirrors and taps for the disabled should be improved
- Washing/bathing should be made more pleasurable and dignified, through better decor, privacy and cleanliness
- There should be guidelines for bathrooms for the disabled, which should become standards used as a 'key factor in government star ratings of hospitals'
- A staff member should be designated to 'act as a patient advocate'

'The aim should be to provide bathing facilities that we would be happy to use ourselves,' Dr Monro concluded.

under all site conditions
- additional chemical disinfection is unnecessary
- lowest operating costs; capital costs can be rapidly depreciated
- simple, standardised, automatic disinfection process
- eco-friendly
- the best microbiological effectiveness

Meiko also points out that such equipment should be manufactured exclusively from chrome nickel stainless steel. 'The material is a hygiene prevention itself. Unlike other materials, microbes have no chance of surviving on stainless steel - as long as it is kept clean. This is why stainless steel is found in all hygiene crucial spheres.' In addition, the equipment should have:

- automatic/electronic controls, and the biggest possible number of cleaning programmes
- automatic emptying, cleaning and disinfection
- simple operation via a membrane keypad and foot pedal
- double-walled housing (if possible sound-insulated)
- a double-sealed chamber door that cannot be opened if the disinfection programme has not ended, and which remains locked in the event of a power failure or fault
- after a fault has been rectified, the cleaning programme must automatically start from the beginning and disinfection must be successfully concluded
- a cleaning chamber with well-rounded edges and corners and a sloping roof to prevent washing water from dropping onto the utensils

'When planning sluice rooms,' the firm points out, 'nurses should be involved from the very outset, for it is they who are most familiar with hygiene requirements and the use of sluices.

The value of water filtration


Prof. Matthias Trautmann

Molecular genotyping of water-borne pathogens and the subsequent verification of infection chains from hand basins to patients, has shown evidence that contact with non-sterile water is one major cause for nosocomial infections. According to recent trials, up to a third of *Pseudomonas* spp pneumonias in intensive care units (ICUs), could be induced by routine personal hygiene procedures and wound cleaning. These newer insights lead to the consideration that additional precautionary measures need to be taken to prevent life-threatening infections with water-borne organisms - particularly in hospital areas with high-risk patients.

One method is point of use water filtration. The preventive use of sterile filters is appropriate in areas with immune suppressed patients and has already partially been introduced in ICUs, Professor Matthias Trautmann (Stuttgart) told those taking parting in the symposium '*Legionella, Pseudomonas & Co - underestimated risk from the water pipe*', held during the 7th German Society for Hospital Hygiene Congress in April.

Filtration is not only medically useful, but also economically relevant. Referring to a surgical ICU in Southern Germany, the professor demonstrated that formerly uncontrollable Pseudomonas infections were effectively and rapidly reduced following the installation of sterile filters in every hand-basin of the ICU section (n=7).

The monthly cost for this filtration was 750 euros but, due to the effective prevention of pneumonias, it was possible to significantly reduce the amount of antibiotics prescribed. The costs of the frequently necessary 10-day-therapy with Ceftazidim or Piperacillin/Tazobactam (793,70 resp. 1.170,40 Euro) collectively were about 4,000 Euro monthly, before filters were installed. 'Filters were effectively cost-free after their installation,' said Dr Trautmann. Additionally, he added, cost savings for the shortened time for care and hospital stay must be taken into account.

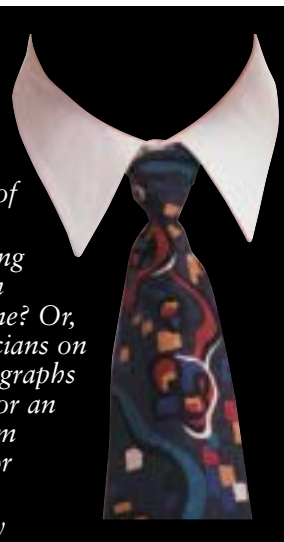
Report: Daniel Neubacher

THE TROUBLE WITH TIES continued from page 1

to demonstrate determination to keep it there, for your 'aura of professionalism' - you might also think again about that action: Recently published research led by eye specialist Robert Ritch (New York Eye and Ear Infirmary) indicates that tight ties could increase the risk of glaucoma - a sight destroying disease. He explained that a tight tie compresses the jugular vein, causing blood to back up en route to the eye, and thus raises pressure, adding that glaucoma mostly occurs due to pressure from a fluid build up in the eye, which damages the optic nerve.

*(*Results from the tie study, were presented at the 104th general meeting of the American Society for Microbiology).*

Your alternative to ties?



Dear Readers: Steven Nurkin received several ideas to cut poor necktie hygiene: using a tie pin; switching to a bow tie; wearing no tie; using tie disinfectants and even the creation of a 'necktie condom'.

Do you think the time has come for doctors to stop sporting this non-essential, bib-like, soup, food and drink collector, in preference for sensible medical clothing that improves hygiene? Or, do you have ideas for well-designed hygienic wear for physicians on ward rounds? Why not send us your thoughts, and/or photographs of an ideal existing garment, or a drawing of your concept for an alternative doctors' garment. We would also like to hear from hospital clothing manufacturers who have specific designs for hospital doctors. (Editorial address: page 18).

Additional thoughts: Some time ago a suit and tie instantly signalled the difference between manual and 'white' or 'blue collar' workers - i.e. power and rank, as opposed to lowly status. This is no longer the case. Think of the world's leading entrepreneurs, e.g. heads of the '.COM' industries, or - certainly in the UK - those multi-millionaire celebrity chefs, who happily meet the stringent measures imposed on caterers. Today's chef's clothing is not only hygienic, easy to wash, and comfortable to wear - but often even distinguished. So, why should hospital doctors remain concerned about their 'image'?

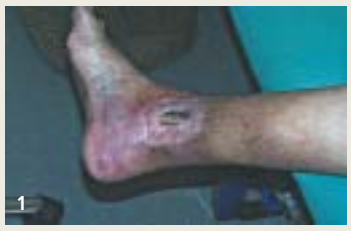
If a quick indicator of rank is indeed important, couldn't this simply be signalled by the colour chosen for doctors' hospital garments? (Royal purple?) Of course there will be diehards who would still refuse to relinquish their somewhat antiquated symbol of rank, but perhaps for them a tie could be painted on the front of the fabric!

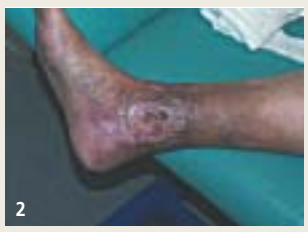
Brenda Marsh
Editor-in-Chief, European Hospital

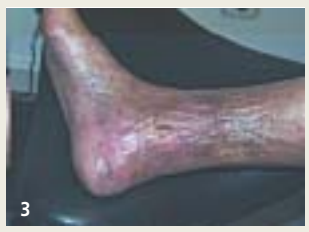
Ulcus cruris

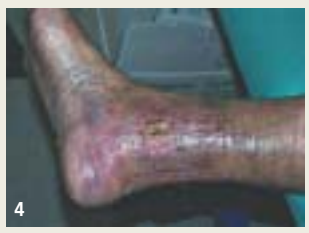
No therapy without compression

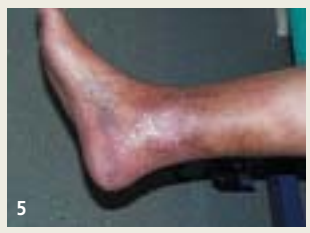
Joachim van de Ven*











The theory and methods for applying compression dressings in Germany are governed by the guidelines set by the German Society of Phlebology, and are not necessarily in line with the techniques used in Austria and Switzerland, particularly in terms of light compression bandages. However, this only means there are different approaches to the same kind of application. One of the differences can be seen in the use of skin protection and the extent of padding used. The different approaches also make it clear that the user can and must decide which technique to use in individual cases (table 1).

Short-term dressing = Light support compression Indication: Maintenance therapy	Permanent dressing = Inelastic compression Indication: Compression therapy
Easy to apply (can be done by patient)	More demanding technique because it is difficult to model (requires trained staff)
Changed daily	Stays on day and night (for days or weeks)
Personal hygiene and local therapy possible	Personal hygiene and local therapy are not possible
High pressure during rest	High pressure during activity
Surface compressed	Has deep-reaching effect
Lighter congestion	Severe congestion
Bandage stretches when leg muscles are tensed, then gives again	Leg gives in to compression effect, decongests, circumference reduces

Table 1: Different indications and objectives require different materials

Both techniques prepare a patient in the same way, with skin care and elasticated tubular bandage being applied. Particularly sensitive areas need padding to compensate for anatomic unevenness. The objective is to 'model' as even a leg as possible, which the dressing shape will follow, thus achieving an optimum depth effect. The bandage is applied using Laplace's Law, i.e. the bigger the circumference of the bandaged leg, the lighter the local pressure and, vice versa, the smaller the circumference of the bandaged leg, the higher the local pressure. The following procedures are essential, when applying a compression bandage:

1. Ensure the ankle joint is in a 90° position, because this is the only way to avoid about a 1-1.5cm difference in increased circumference - which occurs with the foot in plantar flexion. The 90° position achieves a better fit for the dressing.
2. Ensure the gradient bandage shape supports decongestion in the veins, i.e. the bandage must be applied over the top of the foot from the big toe joint to the smallest toe joint.
3. The telltale clinical sign of the correct amount of pressure being applied is a slight blue colouring in toes of a patient with chronic venous insufficiency.
4. Confirmation that pressure is correct: This colouring disappears when the patient walks and toes look rosy again.
5. Padding of the Achilles tendon and the tibia avoids pain and supports compliance.

The 'figure-of-eight' bandage usually fits better around conical shapes (e.g. leg) than spirally applied bandages. However, different application methods are possible, providing they are carried out correctly and have the right therapeutic effect. Successful therapy usually shows when bandages are first changed: The skin looks improved and healthier. There is obvious decongestion, which has a positive effect on wound appearance, as seen in our example (pictures 1-5). However, a reduction in the circumference of the leg does not mean that venous insufficiency has been cured. As soon as the compression is removed for a period of time the congestion reappears, with negative effects on wound healing. Nuclear-medical examinations have shown that compression removes more water than protein from the tissue and therefore increases oncotic pressure, which, if compression is not sustained, leads to a quick reappearance of the oedematous fluid. Following wound healing, compression therapy must be carried out for life, to avoid recurrence of the symptoms.

* Lecture given at the 'Certified Wound Management' seminar, Ehlscheid nr Neuwied, 22-27 Sept. 2003. Pilot project run by Lohmann & Rauscher GmbH & Co. KG in co-operation with Kammerlander Wfi Switzerland.

Since the 1940s, when vacuum closure was introduced, the indications and applications for its use in wound healing have increased considerably. In some countries insurers cover the costs for a large number of these, whilst in others they still doubt this method of wound management. In May, following their conference on vacuum closure, the board directors of the German and Austrian associations for wound treatment issued a 'Consensus Document'* on the merits of this procedure, on which this report is based.

The merits of vacuum closure

What is VAC closure? A sponge is placed over a wound and the area is hermetically sealed with sterile, water vapour-impermeable, transparent polyurethane foil, which ensures ambient air cannot be sucked into the wound. A tube exiting the wound connects with a secretion collection container.

A full list of indications and contraindications for VAC closure are contained in the consensus document.

Surgeons currently use self-made vacuum closure systems, connecting sponges, foils and tubes with a Redon bottle. The document also discusses a 'VAC Therapy Unit' (manufactured by the patent holder, KCI Company, and currently said to be the only complete mechanical system available). This system provides acoustic/visual alarms to warn of a leak, and the unit's exudate collection container is inserted into a pump, with suction strength settings between 50 to 200 mmHg. A 5-lumen tube continually monitors suction, even in the wound area and, if necessary, the suction strength can be changed, the document reports, also pointing out that, generally, self-made systems neither provide precise information on suction strength, nor compensation options for a leak, nor do they provide alarms covering suction loss. These systems also have not been scientifically validated, the document continues. 'When using the Redon bottle (suction strength between 50 - 900 mmHg), a small leak can result in suction loss and constant bag replacement. In wall suction systems, a leak can cause uncontrolled through-suction of air with consecutive drying and necrosis development in the wound region.'

Insurers' backing - and others' doubts: Vacuum closure and VAC therapy is considered a state-of-the-art treatment in the USA and Switzerland for a large range of indications, and insurers there also cover VAC therapy for home healthcare - if deemed suitable and if outpatient carers and supervising physicians are adequately trained.

Dr Thomas Wild, of the University Clinic for Surgery, Clinical Department for General Surgery, Vienna General Hospital; Member of the Board of the AWA (Austrian Wound Association) and Deputy Director of the Austrian Wound Network

(A smaller, lightweight mini-VAC Therapy unit has been developed for outpatient treatment). However, some health insurers say there are no (double-blind) randomised, controlled studies demonstrating, at a high evidence level, this therapy's effectiveness, and point out that research does not meet Evidence Based Medicine (EBM) standards. They also add that a VAC Therapy Unit (KCI) is too expensive. However, the consensus document contradicts this, stating that analyses have shown the VAC Therapy Unit to be 'highly cost-effective' due to the speed of wound healing resulting in earlier patient discharge - and because favourably located wounds can be VAC treated in a home environment - following adequate training of healthcare personnel. Additionally, it adds that the unit has no hidden 'add-ons'.

The consensus authors also dispute the lack of studies, arguing that, among over 700 internationally published articles on this subject, those after about 1994 apply to all the indications described in the consensus document, and that very few randomised controlled trials (RCT) have appeared '...to which a high degree of evidence can be ascribed. Nonetheless, most describe neutral experiences with vacuum closure and VAC Therapy in many medical situations.'

The consensus team also point out that assessment of individual cases has shown that in certain indications the VAC Therapy Unit achieves a therapeutic result that is unique to this method. Clinically, they conclude, evidence is substantial that the method is effective. 'The effect of granulation development, tissue regeneration, oedema regeneration and wound shrinkage

NEW

Non-stick foam dressing

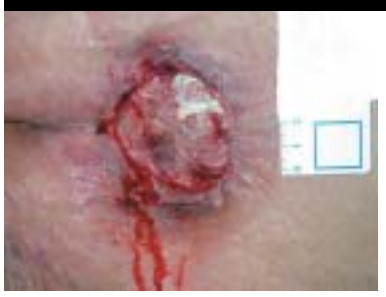
The new, non-sticking wound application - 3M Foam Dressing - treats minimally to highly exuding, partial and full thickness dermal wounds. Made in various shapes and sizes, it also helps with difficult-to-dress areas, such as heels, elbows and sacral-coccyx. The patented 'spoke' delivery system also allows easier positioning, prevents the dressing from sticking to itself, and the stiffening spokes and wide, non-adherent dressing tabs allow fast, one-handed application, the maker reports. 'Thanks to a unique adhesive, the dressing performs well under both dry and moist skin (e.g., diaphoresis) conditions, thus offering long wear time,' the firm points out. 'This results in low in-use cost for a wide variety of dermal ulcers, and is especially comfortable for the patient.'

Constructed from polyurethane foam covered with a highly breathable transparent adhesive film, capillary action allows fluid to pass quickly into the non-adherent pad, preventing migration onto surrounding tissue, and it maintains a moist wound environment, shown to enhance wound healing. The firm also reports that this product can be used as an absorbent secondary (cover) dressing in conjunction with wound fillers (e.g. alginate dressings or gauze), and under compression wrap systems for venous leg ulcer treatment.

TIP

Scar treatments

Plastic surgeon Ludger Meyer, at Münster University, Germany, reports that although silicone sheets and patches soften scars, diminish redness, and reduce pruritus and feelings of tightness, this application has not yet produced optimal results. 'In the past only circuitously applicable silicone sheets or patches were available. Now, although we use these methods for covering great scar-areas, aesthetically it is still not really a satisfying solution. For facial scars, or those in exposed places, a transparent, quick-setting silicone gel (*Dermatix* - a non-prescription product) offers apparent advances and, in terms of efficacy, the gel is absolutely comparable to sheets and patches. It also makes it easier for patients to treat their own scars. As an objective observer, I can confirm best results.'



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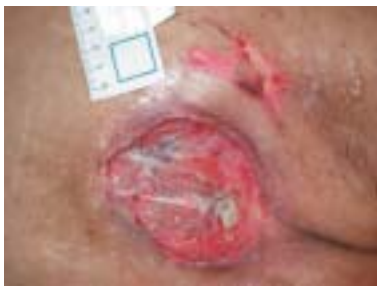

2

	Picture 1 (10.05.2003)	Picture 2 (25.5.2003)
Area	2956.92 mm^2	3786.46 mm^2
Perimeter	231.02 mm	243.81
Granulation tissue	12.4 %	90.97%
Fibrin	81.91%	9.03 %
Necrosis	5.69 %	0 %

Following oedema and infection reduction, the wound size grows. During this therapy-intensive phase, the ratio of the different types of tissue (granulation, fibrin, necrosis) to one another is the essential factor in acute wound healing, because it is a timely indicator of pathological changes of the entire organism, such as insufficient nutrition, limited kidney function, secondary infections.

For further details on the (German language) consensus document, please contact: thomas.wild@meduniwien.ac.at.

The consensus group

German Association for Wound Healing and Wound Treatment (DGfW): Walter Wetzel-Roth MD, Thoracic-cardiovascular surgeon and member of the Board of Directors of DGfW: Karl Schuhmann MD, consultant plastic surgeon (Dortmund); Prof. Raymund E. Horch MD, specialist in hand and plastic surgery; Dorothee Dill-Müller MD, specialist in surgical dermatology.
Austrian Wound Association (AWA): Gerald Zöch MD, plastic surgeon and President of the AWA (Austrian Wound Association); Thomas Wild MD (see photo caption), and Stefan Robek MD, Chief Physician of the Lower Austrian Regional Health Insurance Agency.
Health economy representatives: Prof. Günter Neubauer, PhD, of the University of Federal Armed Forces, Munich and Prof. Dietrich Nord, PhD, University of Constance.

Software for wound care

Wound documentation software, developed by Akestes GmbH for improved management, produces easy to read, detailed reports and statistics. Contact for further details: Oliver Hochfeld, o.hochfeld@akestes.de

Easiest way of wound measurement

is so clear that the criteria for therapy seem to be met.'

The group explain that one reason why there are no larger number of prospective, randomised studies is that, in each patient, wounds are characterized by multiple as well as variable factors - age, wound size/location; underlying disorder; immune competency; infection status and so on.

However, the group does recommend basic research, to better understand the therapy's action, and the physical, biochemical and pathophysiological effects of the various sponge qualities (polyvinyl alcohol sponge, polyurethane), suction strengths (50-900 mmHg) and therapy modes (continuous, intermittent).

The group concluded: 'In principle, modern wound management should be institutionalised. Due to its complexity, only specially trained, certified doctors and care facilities should perform this wound treatment. Interdisciplinary wound centres are examples of efficient diagnostic and therapeutic care.'

In the views of the consensus group members, the report continues, '...it does not appear to be necessary to link professional competency for vacuum closure and VAC therapy to specific specialist arrangements, but rather to measurable expertise in daily activity. The definition of indications for vacuum closure and VAC therapy should continue to be performed by the physician.'

WHAT

Wound assessment is necessary to control the healing process, verify a therapy's success or to adapt that therapy.

The Wound Healing Analysing Tool (WHAT) - software that documents wound healing - accesses an electronic patient's record (EPR), provides automatic analysis of a wound's parameters, and enables manual updating as well as the archiving of wound images.

Bmp, gif and jpg formats, derived from a digital camera or scanned picture, are used for the analysis. After image selection, a pixel/mm calibration is run to show the exact size of the wound in the image (for this, a label of pre-determined size is placed with each wound during photography). The outer limits of the wound are marked with a point-to-point tool, or can be identified by using the tool to automatically focus on a specific area. An automatic analysis of granulation tissue, fibrin and necrotic tissue follows. These calculations are shown in an additional window, in which the image can be controlled. Certain structures, such as open tendons, shadows etc, can be excluded from analysis by demarcation. After affirmation of the analysis, the details are transferred to the patient's database, and then further length measurements can be made and added for comparison.

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Perfusionists?

They should be qualified

Anyone who has completed a relevant training seminar can become a perfusionist. Practical experience must then be gained on the job. The German Society for Cardiovascular Engineering would prefer a better system for entry into the vital role of operating a heart lung machine and other life support devices. Denise Hennig, of European Hospital, spoke with *Gerhard Lauterbach*, Head of Cardiovascular Engineering at the University Hospital Cologne and President of the German Society for Cardiovascular Engineering, about the development of this field and the kind of professional education the society wants to promote.

'In the early years of open-heart surgery the heart-lung machines were operated by physicians who assisted in surgical departments, but they generally did this for only one or two years, before returning to surgery. Those constant changes in the surgical team did not impact well on continuity, or help in further developments in extra-corporeal circulation. So it became necessary to recruit medical personnel (e.g. nurses, engineers) and provide them with on the job training. However, in recent years rapid technical developments made it clear that on-the-job training would not be adequate in the long term. What we needed was an external professional education programme to meet the demands of the perfusionist's profession,' Gerhard Lauterbach explained.

'Originally the technician's responsibilities were limited to the theatre, that is mainly operating the heart-lung machine. However, many other activities have developed, for example, electrotherapy and pacemaker therapy, and the cardiotechnician works with the entire range of technology used in heart surgery - in the theatre as well as in intensive care units (ICUs) and wards.'

'The society favours polytechnic education, or a study course at the Academy for Perfusion, in Berlin - a very comprehensive professional training course to meet today's needs. What's missing is a statutory provision that only those who have achieved a perfusionist's qualification should be allowed to work in the profession. Without this, a hospital director can still decide whether to employ a highly qualified polytechnic graduate or, for financial reasons, whether to choose an existing staff member and train him or her locally. As a professional society we want to ensure that all perfusionists receive their qualifications through professional education, to ensure they can provide the expected quality assurance.'

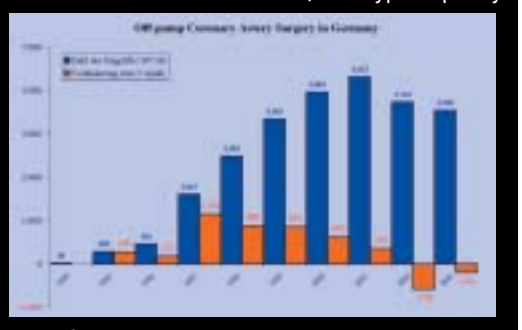

Gerhard Lauterbach

Given the increase in cross-border "health tourism", Gerhard Lauterbach pointed out that one question constantly arises: 'What qualification does your perfusionist have for this work?'

Laws in Austria, Italy, the Netherlands, England, Finland, Sweden and Norway cover this requirement, and the State of Berlin has a statutory regulation,' he added. 'We have established the European Board of Cardiovascular Perfusion (EBCP) to deal with the harmonisation of pan-European professional training for perfusionists, and they can obtain EBCP certification, which is a voluntary, supplementary qualification (renewable every three years). This indicates quality of training and is recognised in the countries mentioned.'

Turnabout for heart-lung machines

The number of cardiovascular operations performed without using heart-lung machines (HLM) has decreased for the second time in Germany, according to current healthcare statistics published during the 4th Joint Meeting of the German, Austrian and Swiss Societies for Thoracic and Cardiovascular Surgery (February). In 2001 there were 4,322 off-pump coronary artery bypass grafting operations (OPCAB); in 2002 the figure was 3,744, and in 2003 it had dropped to 3,550, representing a decrease of 5 % from the year before. The 2 % decrease (1,500 operations) in coronary artery bypass grafting (CABG) was comparatively slight.



Professor Günther Laufer, Director of Heart Surgery at Innsbruck University Hospital, and President of the Austrian Society for Thoracic and Cardiovascular Surgery, said the main reasons for this, apart from the high cost, are the superior results of conventional technology, which have not yet been achieved by OPCAB. Whilst individual hospitals have switched coronary surgery almost completely to the OPCAB procedure, most hospitals are phasing it out again. This is supported by current trials. The first large prospective randomised trial indicates that three months after a bypass operation, with and without HLM, the bypass quality of surgery without HLM is about 10 % worse compared with surgery with HLM [Source: *N Engl J Med* 2004; 350:21-8].

Predictions do not appear to be confirmed that OPCAB operations would increase due to the gradual switch from lump sum compensation and special reimbursements to Diagnosis Related Groups (DRG). 25 out of 78 hospitals billed according to DRGs in 2003, but as yet the new technique is not reimbursed separately. Savings on shorter intensive care unit or hospital stays do not counterbalance the sometimes significantly higher costs of this procedure.

Report: Holger Zorn

Ultrasound with a cardiology package

Italy - Esaote SpA* is marketing the ultrasound systems Picus & Picus Pro, in which the systems' strong OB/GYN ultrasound focus has been expanded, the firm reports. 'A new microconvex transducer, developed specifically for the Picus Family, expands the application possibilities to include first-line cardiology. A cardiology calculation package is also new with the latest release.'

Picus and Picus Pro also include a database interface from Astraia (the Munich-based firm that provides Women's' Health Clinical Database Systems for gynaecology and antenatal assessment). A lithotripsy software package, which is compatible with and approved for EDAP/TMS shock wave lithotripsy, using Sonolith Praktis and Vision systems, is also contained in the Picus Family, and the system produces '...high-sensitivity black & white images, and colour Doppler for advanced applications in obstetrics, gynaecology, cardiology, breast, abdominal, vascular and small parts examinations'.

(The manufacturer of Picus and Picus Pro - Pie Medical Equipment bv, based in Maastricht, the Netherlands - is a division of the medical diagnostic equipment (MRI) producer Esaote (Bracco Group), which also specialises in information technology).*

Valving without open-heart surgery?

France - Aortic valve surgery accounts for about 60% of valve replacement surgery, and this typically involves open-heart surgery. Now the makers of a self-expanding, stented cardiac valve, named CoreValve Percutaneous ReValving System (CPRS), report that this implant eliminates the need for open-heart surgery to treat aortic stenosis.

'This is a universal system for percutaneously replacing a defective aortic valve, based on a catheter delivery system and self-expanding-stent approach on a beating heart, thus avoiding open-heart surgery,' explained Dr Jacques Seguin, chairman and co-founder of the firm CoreValve, based in Paris. 'The CPRS can be adapted to any biological valves currently marketed or synthetic valves when approved, and the CoreValve procedure can be performed in a cardiac cath lab, just like angioplasty and stenting. This results in less trauma to the patient and substantial healthcare cost-savings.'

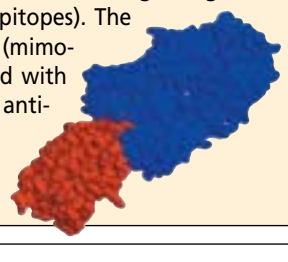
Exhibited in May at the EuroPCR Cardiovascular Congress, in Paris, the firm announced that it was seeking Institutional Review Board (IRB) approval (from two undisclosed medical institutions) to implant the device in a human heart for the first time - probably in June.

Haemophilia research award

A joint project between the Institute for Experimental Haematology and Transfusion Medicine, at Bonn University Hospital, and the Centre of Advanced European Studies and Research (Caesar), has gained a Special Project Award in the Bayer Haemophilia Awards Programme.

Scientists led by Rainer Schwaab (Bonn University Hospital), Daniel Hoffmann and Martin Zabe (Caesar) proposed a project for research and management of a treatment complication that occurs in about 25% of seriously ill haemophiliacs: When the medicine 'Coagulation factor VIII (FVIII)' is injected into the bloodstream, the immune system reacts by forming antibodies that attach themselves to FVIII, thus nullifying its therapeutic effect, which can result in fatal, uncontrollable haemorrhaging.

The team intends to develop a process to provide data regarding antibodies' favoured sites for binding with FVIII (epitopes). The scientists will then produce smaller molecules (mimotopes) that are similar to epitopes, to also bind with the antibodies and thus disrupt the binding of antibodies with FVIII.


Antibody (blue) attached to part of FVIII (red), nullifying its effect

The 2004 Meyenburg Prize

Swiss cell biologist Professor Erich A Nigg (left) head of the Department of Cell Biology, Max-Planck-Institute for Biochemistry, Martinsried, has received this year's award for his research on the mechanism of cell division and malfunctions that can lead to the cancer.

The genome of most cancerous cells is chaotic, said the German Cancer Research Centre, in its award report. 'Many chromosomes have lost whole sequences, have duplicated them or translocated them. Other chromosomes exist in multiples, or have disappeared completely. Such irregularities increase during tumour growth. This chromosomal instability is considered the cause of aggressive growth of tumour cells. Erich Nigg's research concentrates on the different error-prone steps in the complex process of cell division. Problems with this mechanism result in the genome not being passed on in the right way to the two daughter cells. The correct distribution of chromosomes is regulated by a system of tube-shaped proteins or microtubules, the so-called spindle apparatus. These microtubules originate in the centrosome - small part of the cell. Professor Nigg and his team documented the protein components of this cell structure, which plays an important part in the development of cancer: cells with an abnormal number of centrosomes often turn cancerous.'

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