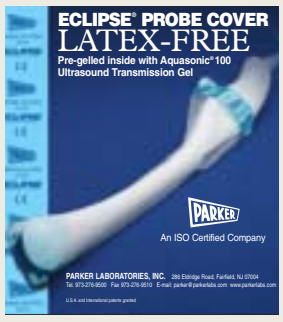
EUROPEAN HOSPITAL

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

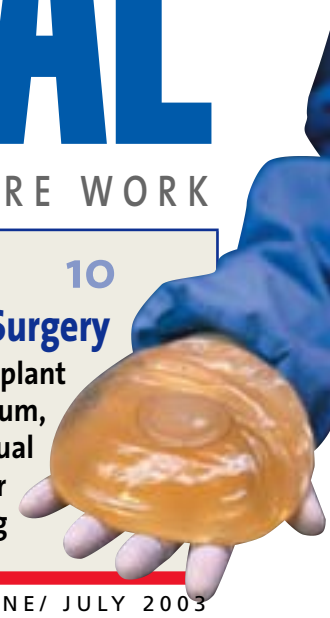
Parker – World leader in ultrasound supplies please see page 4



17-18 IT/Telemed & Innovations Iris recognition, PACS, patient alarms etc

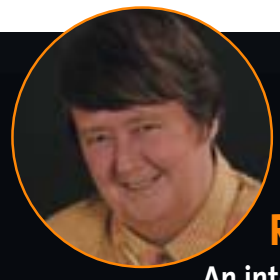
14-16 Cardiology Paclitaxel-eluting stents 'safe' for coronary artery; cardiac devices and research

10 Surgery Breast implant with titanium, plus virtual patients for MIS training

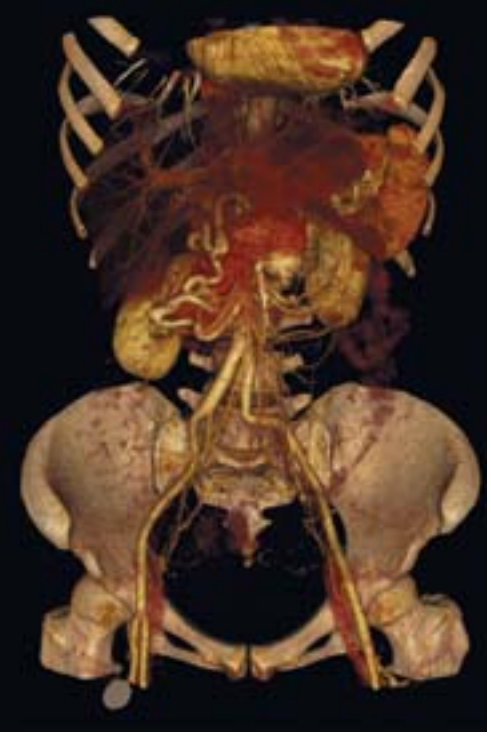


VOL 12 ISSUE 3/03

JUNE/ JULY 2003



6-8 Radiology An interview with Professor Helen Carty President ECR 2004



'Polypill' cuts cardiac attacks by 80%

The impact of this invention on disease prevention will be enormous - but, manufacturers may not rise to low profits

A newly invented 'Polypill', composed of currently available drugs, may act as a 'vaccine' against heart disease, according to new research published in the *British Medical Journal* (28 June. BMJ 2003;326:1419).

Professors Nick J Wald and Malcolm R Law, the Polypill's inventors, maintain: 'The Polypill strategy could largely prevent heart attacks and stroke if taken by everyone aged 55 and older and everyone with existing cardiovascular disease. It would be acceptably safe and with widespread use would have a greater impact on the prevention of disease in the Western world than any other single intervention.'

In his related editorial, Richard Smith, Editor of the BMJ, also expressed excitement, stating that this issue may well become a collector's item. 'It's perhaps more than 50 years since we published something as important as the cluster of papers from Nick Wald, Malcolm Law, and others.'

At the Department of Environmental and Preventive Medicine, Wolfson Institute of Preventive Medicine, Barts and the London, Queen Mary's School of Medicine and Dentistry, University of London, London EC1M 6BQ, the professors worked to determine drug and vitamin combinations and doses that could, in a single pill, achieve a large effect in preventing cardiovascular disease with minimal adverse effects. The strategy was to simultaneously reduce four cardiovascular risk factors (low density lipoprotein cholesterol, blood pressure, serum homocysteine, and platelet function) regardless of pre-treatment levels, they write.

Efficacy and adverse effects of the proposed combination was qualified from published meta-analyses of randomised trials and cohort studies and meta-analysis of 15 trials of low does aspiring (50-125 mg/day)

'They synthesise an enormous amount of information (including over 750 trials with 400,000 participants) to estimate that the pill would reduce heart disease and risk of stroke by over 80%, while causing symptoms warranting withdrawal of the pill in one to two per 100 and fatal side effects in less than one in 10 000 users. If this were correct the benefits would substantially outweigh hazards in

continued on page 15

IN BRIEF

Nuclear medicine

New Orleans, USA - The Society of Nuclear Medicine celebrated half a century of annual meetings this year - with over 1,480 scientific papers, presentations and posters.

Cycle saddle unsafe

Brussels - Following a study of 1,000 bicyclists, gynaecologist Dr L Baeyens reports they are twice as likely to suffer erectile and other problems than non-cyclists (study sample: 1,000) and, he adds, a fashionable saddle, with central hole, is also harmful.

Asylum seekers and HIV

London - People from HIV/Aids-ridden countries face screening on arrival, since some doctors' reported that two thirds of new HIV patients are foreign, many seeking asylum. Cost to the NHS: c. £15,000 a year each, cutting budgets to treat British citizens.

INSURERS BALK AT MEDICAL RISK COVER

As in the United States, European hospitals now face an inevitable result from escalating compensation payments made to medical injury patients - in the near future, premiums are expected to rise 25-100% in some EU countries.

In France, Belgium and Ireland some insurance companies will not even insure hospitals for patient injury claims. In other countries, such as Denmark, the Netherlands, Luxembourg and Malta, insurance premiums are increasing to such an extent that it is difficult for hospitals to cover the costs. As a result, several have cancelled their insurance - opting to pay claims directly from already beleaguered budgets.

This disturbing situation became a key issue at the 9th Plenary Assembly of HOPE, the European Hospitals Organisation (May, Portugal).

Insurance companies cannot rely on income from stock markets as in the late 1990s, and they motivate rising premiums by invoking difficulties to obtain accurate and reliable knowledge on the real number of injuries that occur and of future claims they will have to pay, HOPE pointed out. Although some countries have found temporary solutions, the long-term position remains unsatisfactory, the organisation added.

In the UK and Ireland, 'state claims agencies' have been set up to meet public liability claims of public hospitals. In France the government has taken economic responsibility to pay for 'non-fault-injuries' with over 25% invalidity. The Netherlands, France, Finland and Sweden have mutual, non-profit, insurance companies owned by hospitals themselves.

Funds for compensation are being discussed in Luxembourg, France, Belgium and Hungary.

No-fault compensation systems already exist in the Scandinavian countries and are being studied in Belgium, the UK and Ireland (for children). In Austria this system was introduced on a small scale.

Insurance systems are also being discussed in Hungary and Cyprus.

Risk prevention to reduce medical injuries is now a major topic in many countries. The creation of high quality, patient centred care, based on safe practice and supported by safe systems remains the goal for European hospitals, HOPE pointed out. 'It is of utmost importance that patients across Europe can feel confident that there is a robust and reliable insurance coverage for medical risks. The organisation plans to focus on:

- A study and comparison of different systems for medical risk insurance and evaluation of the scale of the crisis facing many European hospitals.
- Encouragement for the development of risk prevention schemes to reduce medical injuries.
- Examination of how patients are insured when using 'free movement of patients' entitlements.

Details: www@hope.be.
Or: Kaj Essinger, kaj.essinger@lf.se

contents

EUROPEAN HOSPITAL
Reader Survey

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

1. SPECIFY THE TYPE OF INSTITUTION IN WHICH YOU WORK

☐ General hospital ☐ Outpatient clinic ☐ University hospital
Specialised hospital/type
Other institution (eg medical school)

2.YOUR JOB

☐ Director of administration ☐ Chief medical director ☐ Technical director
Chief of medical department/type
Medical practitioner/type
Other/department

3. HOW MANY BEDS DOES YOUR HOSPITAL PROVIDE

☐ Up to 150 ☐ 151-500 ☐ 501-1000 ☐ more than 1000
☐ None, (not a hospital/clinic)

4 . WHAT SUBJECTS INTEREST YOU IN YOUR WORK?

☐ Surgical innovations/surgical equipment
☐ Clinical research/treatments/equipment
☐ Ambulance and rescue equipment
☐ Physiotherapy updates/equipment
☐ Nursing: new aids/techniques
☐ Hospital furnishings: beds, lights, etc.
☐ Hygiene & sterilisation
☐ Linens & laundry
☐ Information technology & digital communications
☐ Personnel/hospital administration/management
☐ Material Management
☐ EU political updates
☐ Radiology, imaging/high tech advances
☐ Intensive Care Units/ management/equipment
☐ Pharmaceutical news
☐ Speech therapy/aids
☐ Laboratory equipment, refrigeration, etc.
☐ Hospital clothing and protective wear
☐ Nutrition and kitchen supplies
☐ Waste management
☐ Hospital planning/logistics
☐ Hospital Purchasing
☐ Medical conferences/seminars

Other information requirements - please list

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

What is your speciality?

In which department do you work?
Are you head of the department? ☐ Yes ☐ No
Are you in charge of your department's budget? ☐ Yes ☐ No

How much influence do you have on purchasing decisions?
I can only present an opinion ☐ Yes ☐ No
I tell the purchasing department what we need ☐ Yes ☐ No
I can purchase from manufacturers directly ☐ Yes ☐ No

Do you consider that your equipment is
out-dated ☐ Yes ☐ No
relatively modern ☐ Yes ☐ No
state-of-the-art ☐ Yes ☐ No

Do you use/buy second-hand equipment? ☐ Yes ☐ No
If so, what do you use of this kind?

Is your department linked to an internal computer network? ☐ Yes ☐ No
Is your department linked to an external computer network? ☐ Yes ☐ No
Is your department involved with telemedicine in the community? ☐ Yes ☐ No
Do you consider your department is under-staffed? ☐ Yes ☐ No
Are you given ample opportunities to up-date knowledge? ☐ Yes ☐ No
Do you attend congresses or similar meetings for your speciality? ☐ Yes ☐ No

This information will be used only in an analysis for European Hospital, Höherweg 287, 40231 Düsseldorf, Germany, and for the mailing out of future issues 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 3/03

PUBLICATIONS

Managed Care - Facts, Trends & Data - the 8th edition of a publication that annually updates market and healthcare information relating to the US, is due out in August. *Details*: www.AISHealth.com/Products/mfbE199.html

The Yellow Book, published by the USA's Centres for Disease Control and Prevention, focuses on international travel and covers everything from the use of insect repellents, to scuba diving safety, high altitude travel, children and travellers with special needs, to health hints about international adoptions, plus, of course, vaccination and medications relating to disease risks according to destinations.
Details: www.cdc.gov/travel/
Or: http://bookstore.phf.org/prod159.htm

The high cost of bipolar disorder

The most expensive behavioural healthcare diagnosis, for sufferers and their insurers, is bipolar disorder, according to a study published in the American Journal of Psychiatry (160:1286-1290, July 2003). For every behavioural healthcare dollar spent on outpatient care for those with this disorder, $1.80 is spent on inpatient care, say the researchers, adding that this suggests that better prevention management could decrease the financial burden of bipolar disorder.

The researchers examined insurance claims from 1996 from about 1.66 million people. The average annual charges per person and payments for behavioural healthcare were calculated along with patient's out-of-pocket expenses and in-patient hospital admission rates. Behavioural healthcare expenditures for bipolar disorder were compared to expenditures for other behavioural healthcare diagnoses in the same insurance plans. The researchers found that 7.5% of all covered individuals filed a behavioural healthcare claim. Of those, 3.0% were identified as having bipolar disorder, but they accounted for 12.4% of total plan expenditures. Patients with bipolar disorder incurred annual out-of-pocket expenses of $568, over double the $232 incurred by all claimants. The in-patient hospital admission rate for patients with bipolar disorder was also higher (39.1%) compared with 4.5% for all other behavioural healthcare claimants. Additionally, annual insurance payments were higher for covered medical services for individuals with bipolar disorder than for patients with other behavioural healthcare diagnoses.
Full details: http://ajp.psychiatryonline.org/cgi/content/abstract/160/7/1286

Patients in five countries reveal healthcare deficiencies

Disturbingly high rates of medical errors, lack of care co-ordination, poor communication between doctors/patients, and barriers when accessing care, are experienced by patients in the United States (US), Australia, Canada, NZ (NZ) and the United Kingdom (UK).

These findings - from a survey conducted by the Commonwealth Fund, a private foundation supporting independent research on health and social issues, and published recently in Health Affairs - point to widespread error, inefficiency and missed opportunities in the five countries' healthcare systems. The authors, health policy analysts R J Blendon and C DesRoches of the Harvard School of Public Health, C Schoen and R Osborn of The Commonwealth Fund, and K Zapert of Harris Interactive, suggest that reforms targeted at populations with health problems could reap system-wide improved quality and potential cost savings.

'Frequent error, miscommunication, and wasted resources from duplicate tests, delays, and conflicting information are common problems in the health systems of all the countries studied,' said Karen Davis, President of The Commonwealth Fund. 'These findings highlight serious problems with quality of care and wasted resources, and make a compelling case for implementing interventions that we know will make a difference, including electronic medical records and computerised systems for physician ordering of prescription drugs.'

The survey of healthcare experiences involved patients aged from 18 years, who reported fair or poor health, serious illness, injury, disability, major surgery or hospitalisation for something other than a normal delivery in the past two years.

Medication and medical errors - One-fourth of adults with health problems in Australia, Canada, NZ, and the US and one-fifth in the UK, reported experiencing a medication error or medical error in the past two years. Most of these, in every country, said the error caused serious health consequences. Among all respondents, this represented 13% in Australia, 15% in Canada, 14% in NZ, 9% in the UK and 18% in the US.

Lack of care co-ordination - One in five of the more ill adults in Canada (20%) and the US (22%) reported being sent for duplicate tests by different health professionals, as did one in six in NZ (17%), one in eight in Australia (13%) and the UK (13%). In all five countries, about half of the patients said they had to repeat their health history to multiple health professionals

One-fourth of US (25%) and UK (23%) respondents, one-fifth (19%) of Canadian respondents, and one in six in Australia (14%) and NZ (16%) said their medical records did not reach a doctor's office in time for an appointment. About one-fourth of respondents in Australia, Canada, NZ, and the US, and one-fifth in the UK (19%), reported receiving conflicting information from different health professionals.

Communication - US patients were more likely than those in the other countries to report communication difficulties with their physicians. Three in 10 in the U.S. (31%) said they did not have important questions answered by their physicians, compared with one in five in Australia (21%), NZ (20%), and the UK. (19%), and one in four Canadians (25%).

Access and Cost Problems - Not surprisingly, a higher proportion of US respondents said they encountered problems accessing healthcare due to cost - although cost did affect access to an extent in all the countries. Also due to cost, in the US 35% of respondents did not fill a prescription (35%), and 28% did not receive medical care or a recommended test/treatment/follow-up (26%). 23% in Australia, 19% in Canada, and 20% in NZ, said they did not fill a prescription due to cost, but only 10% in the UK said the same.

26% of NZ respondents said they did not have medical care due to cost, as did 16% in Australia. UK respondents were least likely to report this: 4% cited cost as the reason they did not have medical care and 5% said cost influenced the lack of a recommended test/treatment.

About 16% of US respondents said they skipped doses to make their medication last longer, but less than 10% did this in the other four countries.
Full details or to order publications: www.cmwf.org.

please see page 17

Britain earmarks £50 million for NHS genetics

A 'Genetics Strategy for the NHS - 'Our Inheritance, Our Future - Realising the Potential of Genetics in the NHS', presented to Parliament in late June by John Reid, Secretary of State for Health, aims to set out a vision of how patients could benefit from future advances in genetics, and raise awareness of the potential of genetics in healthcare. The 'White Paper' sets out a comprehensive plan to prepare the NHS, and includes an investment of £50 million over the next three years towards this initiative, by

- Substantially upgrading genetics laboratories, and boosting the genetics workforce: more genetics counsellors, consultants and laboratory scientists
- Spending over £7 million on new initiatives to introduce genetics-based healthcare into the mainstream of the National Health Service
- Setting up a new Genetics Education and Development Centre to spearhead education and training in genetics for all healthcare staff
- Funding a new research programmes in pharmacogenetics, gene therapy and health services research to help turn the science into real patient benefit.

> 'Genetics offers prediction of risk, more precise diagnosis, more targeted and effective use of existing drugs, new gene-based drugs and therapies, and prevention and treatment regimes tailored to an individual's genetic profile.'

Safeguards and controls against inappropriate or unsafe use of genetics developments are also set out. In addition to existing controls on gene therapy and use of genetic test results by insurers, new legislation is planned, to ban DNA theft: it will become an offence to test someone's DNA without their consent except for medical or police purposes.

The Government said it recognises the importance of openness and public debate, and will continue to respond to new developments and shifts in public attitudes

Conference
Healthcare across borders
Amsterdam • 22-23 Sept

The Netherlands - Raphael Medical and the Strategic Research Institute will hold a conference at the **Grand Sofitel Demeure, Amsterdam (22-23 September 2003)**, following a successful inaugural conference in Washington DC, last October. Under the banner ***Seeking, Providing and Funding Excellence in International Healthcare***, the event is anticipated to attract international healthcare managers, insurers, hospital medical directors and business and political experts, investors, and healthcare equipment manufacturers covering all healthcare fields. Within a broad range of topics, emerging strategic and technological trends and best practices will be presented. Details: www.srinstitute.com/ci278

40,000 mobile theatre operations

UK - Launching the 'world's most advanced mobile operating theatre', at the annual scientific meeting of the British Association of Day Surgery, Gary King, Managing Director of Vanguard Healthcare predicted that, as from January 2004, over 40,000 NHS operations will be carried out in mobile theatres. This, he said, would aid the NHS Trusts' strategy in the face of tough Government day surgery targets and: 'Because the units can operate anywhere in the UK at short notice they can also help to smooth out regional inequalities in healthcare.'

A fleet of 15 units are being developed by the firm, which include mobile eight-bed recovery wards that self-unload from low loaders on to hospital car parks. Arriving complete with nursing team, a unit contains a high tech operating room, anaesthesia facilities and recovery area and can receive patients within two hours of arrival at a site.

Mobile surgical units made by the firm have just completed their 10,500th surgical procedure. Details: phone +44 (0)1270 884067

First EU Women's Healthcare Centre opens

NEW

From left: Dr F Baum, Dr D von Heyden and Professor Uwe Fischer, medical executives at Europe's first Women's Healthcare Centre

The Diagnostic Breast Centre Gottingen has opened the first European Women's Healthcare Centre (WHC). Professor Uwe Fischer, head of the new centre, said: 'We have set ourselves the objective, with the help of ultra-modern systems and high-quality processes, to diagnose breast cancer in the very earliest stages. Our medical team has a combined experience of over 40 years in mammography, and the centre also consults with senior physicians at the University Hospital.'

Bernd von Polheim, Vice President of GE Medical Systems Central Europe added: 'GE Medical Systems has supported the opening of WHCs in the USA for many years... and the firm is working in close co-operation with doctors, universities and other healthcare representatives to initiate further women's prophylaxis centres.'

Senographe 2000 D, a full field digital mammography system, plus ultrasound and MR mammography have been installed at the centre, where comprehensive training courses are being provided to keep abreast of the latest imaging technology.

Karin Samorra, Women's Healthcare Manager at GE Medical Systems, said the firm would like to see further development of the Women's Healthcare Centres '... horizontally and vertically' - meaning proliferation across Europe, with the Gottingen centre used as a kind of prototype. 'Our aim is to offer woman in all phases of life everything that is medically necessary under a single roof,' she explained, adding that the focus would not only be on breast cancer prophylaxis, but also on gynaecology, cosmetic therapies and health through exercise/sports.

HOTSPOTS COOL DOWN BUT STAY ALERT!

The known global death toll due to the new virus (as of 1 July) was 811. Total number of cases 8447. Cases reported in Europe were: one case each: United Kingdom, Switzerland, Spain, Finland and Romania; 3 cases Sweden; 5 cases Italy; 7 cases France and 10 cases Germany.

China, Hong Kong, Macao and Taiwan had a combined total of 7761 reported cases as of June.

Towards the end of May, the World Health Organisation lifted its warning about travel to Guangdong, China. This month the organisation removed the warning about four more Chinese areas - Hebei and Shanxi provinces, Inner Mongolia and Tianjin city.

However, the WHO has not raised the warning about non-essential travel to Beijing, which had reported about 2,500 cases and just under 200 deaths, out of China's 5,300 cases 347 deaths. WHO Executive Director for Communicable Diseases, David Heymann, has travelled to China to assess the level of control of the Sars epidemic, indicating doubt on the decline in reported numbers of new infections. His team are investigating whether cases are being missed, or that patients with suspected Sars are being turned away.

Both China and Taiwan are lobbying the WHO to lift warnings against travel to their areas.

New infections and deaths caused by the respiratory disease have been reported as lower in all affected countries except Canada over recent weeks, but China and Taiwan reported the highest success rate in reduction of cases, despite a large surge of cases in Taiwan in April and May. The figures logged in had dropped to such a level that the WHO pointed out that it is unlikely that the SARS virus has suddenly become less virulent - or that China's isolation and quarantine procedures are more successful than those of other nations. (The WHO had already warned that facilities for monitoring and treating the virus are inadequate in China, and it was concerned that the virus could spread to rural areas from Beijing).

In Taipei, over 150 doctors and nurses quit their jobs in protest at the lack of safeguards and two hospitals were fined for covering up the spread of the disease. Taipei's top health official, Chiu Shu-ti, resigned in late May. Just prior to this, the island's record number of new infections in one day reached 65, at which point the WHO extended its travel warning about Taipei to cover the whole of Taiwan.

That outbreak prompted an offer of help from Mainland China to combat the disease. Taipei refused this and demanded that China stop blocking the island's efforts to join the WHO.

Meanwhile, Singapore was removed from the list of SARS-affected countries at the end of May. There, 31 people had died due to Sars out of 206 cases. Singapore took stringent measures to prevent the spread of the disease, which include isolating all Sars patients and suspected cases in one hospital; the thermal-imaging of air passengers to detect any with high temperatures; issuing digital thermometers to thousands of primary school children for daily temperature checks; and the city state has now announced that it will fine and imprison patients who lie on new health forms distributed at health clinics and Chinese medicine halls. The country also recently implemented mandatory temperature checks for workers at construction sites, factories and shipyards.

Hong Kong was also taken off the non-essential travel list in June, although this area had more Sars cases per capita than any other.

Meanwhile in Canada, which had apparently eliminated Sars, doctors were recently investigating whether a new cluster of pneumonia cases at a hospital near Toronto is Sars-related.

Health authorities were criticised for easing up on precautions too soon, when it was also reported that some quarantined people had ignored isolation orders.

The authorities appealed to health workers in Toronto to go voluntarily into quarantine.

Meanwhile, health authorities in the USA reinstated advice to those visiting Toronto to take precautions against infection.

Many countries won praise for their approach to reporting and controlling the disease; these include Canada, Singapore, Vietnam, and the Philippines. Most have not only suffered the disease but economically due to the drop in tourism.

The Sars epidemic is now possibly tailing off. Gro Brundtland, Director General of the WHO, said the number of new Sars cases logged in daily was declining, but has advised that countries remain on the alert. 'We have several examples where we have seen the figures drop in one country before seeing a new wave,' she said during a press conference in Oslo. She also warned of a possible surge when winter arrives in the Northern Hemisphere.

Why is there so much concern about Sars? Because other contagious diseases, such as influenza (which kills 1% or less of those with the illness) do not all show the very high mortality rate that Sars has achieved.

'We're so used to there being an answer to everything, that there is either a medicine or a vaccine,' said Gro Brundtland, but this time the world had to rely on old-fashioned ways of isolating cases to combat this disease.

HYGIENE

SINGAPORE - The UK firm Bioquell has won a Singapore contract, said to be work £250,000) with Asia's largest private healthcare company to 'bio-decontaminate' two hospitals.

The firm reports that three of its employees will be working in Sars-free hospitals but will wear protective clothing and take relevant precautions when they work with the company's computerised sterilisation system in the Gleneagles and Mount Elizabeth hospitals.

Weighing only 25kg, the system kills bacteria and viruses in hospital wards by spraying hydrogen peroxide vapour that then catalytically converts into oxygen and water.

Although the hospitals are Sars free, the contract was said to be part of a 'robust approach' to infection control.

SARS UP-DATE

SYSTEMS SOAR TO CHINA

100 mobile X-ray systems and 200 respiratory systems were offered to the People's Republic of China by Siemens Medical Solutions (Med) and Lufthansa cargo offered to deliver them free of charge, to help the country to combat the Sars outbreak. Both companies worked closely with the Ministry for Economic Co-operation and Development, which is led by Heidemarie Wieczorek-Zeul, who said: 'The strong commitment shown to the people of Asia by Lufthansa Cargo and Siemens is commendable. They deserve a lot of credit.'

The delivery was accepted in Beijing by a delegation from the German embassy, which officially handed over the systems to members of the Chinese Ministry of Finance for distribution to Beijing hospitals. The Schenker Logistics Company sponsored and co-ordinated local deliveries in China.

TREATMENT

Existing drug may combat virus

GERMANY - Tests have shown that the existing anti-viral drug Glycyrrhizin may be effective in reducing the ability of the 'Sars' virus to reproduce itself, according to a report in The Lancet by scientists at the Frankfurt Medical School. Jindrick Cinatl indicated in the journal that since the side effects of the compound are known and can be controlled, '... proper monitoring could lead to effective use of Glycyrrhizin as a treatment for Sars.'

Used to treat hepatitis C and HIV infections, this compound is made from liquorice roots.

The researchers also that, although Ribavirin has been used in some cases to treat Sars patients, it shows no effect.

MEDICA expands again

More exhibits, more hotel rooms and a bigger emphasis on service

Despite global unrest and the economic picture, the organisers of MEDICA 2003 (www.medica.de) Messe Dusseldorf, report continuing expansion. 'Space bookings for the 35th world forum for medicine (19 to 22 November 2003) have already reached the final figure of the previous year (111.800 sq. net). About 3,600 exhibitors will participate, despite the numerous company mergers in the medical industry.'

'Over 43,000 trade visitors from more than 132,000 will come to MEDICA 2002 from other countries,' said Horst Giesen, Project Manager of MEDICA.

International sales of German-made medical products account for a good percentage of the reported sales growth of 8-10% in this industry, seen despite years of market stagnation in its own country. The proposed healthcare reforms - depending on the extent to which they are implemented - will contribute to clearing the accumulation of investments and provide new funds for various health service providers, said a MEDICA representative.

This year, an addition to the fair will be MEDICA MEET-IT, a forum for trade visitors interested in medical software products for in-patient and out-patient care.

The International Trade Fair for Components, Upstream Products and Raw Materials for Medical Production (ComPaMed) will again run parallel with MEDICA.

Messe Dusseldorf has started an extensive modernisation and extension programme of the Exhibition Centre, building a new exhibition hall on the Europaplatz, near a multi-purpose arena currently under construction. Completion is scheduled for late 2004. There will also be a new railway bringing direct access to the centre.

Currently twelve new (*** to *****) hotels, which ill offer 3,100 rooms, are under construction, increasing the city's capacity by 20%.

Day trips - Fairs & Guests travel services is offering various travel packages from different airports in Germany as well as from Vienna and Zurich. E-mail: info@fairs24.com.

High costs of US healthcare

The May/June edition of the specialist journal '*Health Affairs*' contains the results of a current comparison of costs and capacities of healthcare systems of the OECD Member States. Referring to the OECD Health Care Data statistics, the authors particularly consider why the US healthcare system is the most expensive in an international comparison (healthcare expenditure/GDP in 2000: 13%), although in terms of capacity indications and take-up of medical services, the values are below average.

The authors attribute this to several factors: The highly fragmented US fee-payment system for in-patients involves a high level of administrative expenditure, which partly explains the high costs of US hospitals. In addition, the US healthcare system is exceptional in terms of the significantly above-average availability and use of high-quality and cost-intensive medical technology (although it is also worth noting that such technology is more widespread in Japan, without this being reflected in the level of Japanese healthcare expenditure).

However, according to the study, the principal cause of the high costs of the American healthcare system is the level of prices, fees and wages for medical services ('It's the prices, stupid'). All are significantly higher than in other OECD countries.

Not only do the Americans pay significantly more, they actually receive fewer services than patients in other countries.

Free study: www.healthaffairs.org

E-health

In May, EU Ministers for health and for telecommunications, at a meeting attended by Erkki Liikanen, EU Commissioners for the Information Society, and David Byrne, EU Commissioner for Health, confirmed their intention to develop national and regional plans to implement electronic healthcare and to investigate the possibility of co-ordinating EU-wide implementation.

The ministers have also welcomed the Commission's Communication regarding quality criteria for websites on healthcare and encouraged the Commission to examine the possibility to introduce EU-wide quality seals.

In addition, they agreed on a number of specific measures to improve access to and exchange of relevant health information and to support the development of standards which ensure the interoperability of the many different systems and services.
http://europa.eu.int/information_society/eeurope/ehealth/conference/2003/doc/min_dec_22_may_03.pdf

EUROPEAN HEALTHCARE policy update

By Dr Martin Schoelkopf

Awards

The first eHealth 2003 conference was initiated by the European Commission and carried out in close collaboration with the Greek Presidency. At the conference, the first eEurope awards in the field of electronic healthcare were presented.

Recipients of the 1st e-Europe Awards for electronic healthcare

Name	Description	Organisation & Place	Country
EVISAND	Virtual environment for healthcare	Consejeria de Salud, Junta de Andalucia, Seville	Spain
SJUNET	National IT infrastructure for healthcare in Sweden	Carelink, Stockholm	Sweden
COHERENCE	Information system for successful hospital	Georges Pompidou European Hospital (HEGP), restructuring, Paris	France
NHS Direct	NHS direct online website	National Health Service, Southampton	UK

Paediatric medicines

At the request of Belgium, in a June meeting the Council of EU Health Ministers focused on medicines for children, looking at clinical research and development work on paediatric medicines. Until now, the development of medicines was not generally tailored to the specific requirements of children. For this reason, the Commission published a consultation paper and requested views on the topic. (Summary of proposals: http://pharmacos.eudra.org/F2/pharmacos/docs/Doc2002/june/overchild.pdf). At the Council meeting, the Commission agreed to present the proposal for a corresponding Directive beginning of 2004.

Health insurance card - update

In June the European Commission reported (Employment, social policy, health and consumer affairs meeting) on the status of the European health insurance card scheduled for introduction by summer 2004. Among subjects discussed was the problem that some Member States don't have the technical infrastructure necessary to introduce the health insurance card. For these countries, the Commission suggests a transition period until the end of 2005, to set up facilities for the card's use.

Other open issues concern the type of data to be included on the card and the period of a card's validity. http://register.consilium.eu.int/pdf/en/03/st09/st09910en03.pdf

INTERVIEW

Hospital quality reports

Professor Matthias Schrappe, Chairman of the Gesellschaft für Qualitätsmanagement in der Gesundheitsversorgung e.V. GQMG - (Association for Quality Management in Healthcare) and Medical Director of the Philipps University Clinic, Marburg, Germany, discussed quality management issues during an interview with Denise Hennig, of European Hospital

EH: *You believe that quality management should be an integral part of a hospital's workflow, not just an additional service. Would you explain your ideas?*

MS: Quality management should always have a joint 'bottom up and top down' approach - that is, not simply imposed from above but experienced and managed on the frontline. It is not viable to address quality management issues in wards or departments, with hospital or company managers showing little interest. They depend on each other. Therefore, training and resources should be made available for those working in the departments, so that they can establish quality management activities and find and develop solutions for quality assurance. Individuals with the right know-how, who develop and implement improvement processes, and who can solve problems, must also provide adequate support.

EH: *But departments and wards are usually under-staffed - does this mean more people should be employed to improve quality of care?*

MS: Yes, that's the big problem - not enough staff! Of course it would be nice to have more. However, until we can afford it we must make do with the level we have. On the other hand, we have to develop self-criticism and admit that certain issues can be improved simply by better work organisation. Hospitals are quite sluggish when it comes to making changes. Recently, we've made some quite surprising improvements simply by changing certain workflow processes. Initially, both doctors and nurses expressed doubts about our ideas. However, by demonstrating issues with encouraging examples we could show how beneficial and timesaving certain changes to individual workflow can be. So now our available resources are used far more efficiently, which, in turn, gives more satisfaction to employees.

EH: *Patients also profit from this, and will talk about positive experiences.*

MS: That's our intention. Modern hospitals are service-orientated. Patients have a right to expect processes to be centred on their needs.

EH: *As a patient, how do I find a good hospital? Is there a hospital 'seal of quality'?*

MS: There are various accreditation concepts for hospitals. Audits are carried out by licensed independent organisations, which then issue one of the three types of certificate externally. Some are certified by the ISO. Also, there's the European Foundation For Quality Management (EFQM), and the Co-operation of Transparency and Quality (KTQ) - a self-evaluation tool which uses 'visitors' who are healthcare experts trained to write reports on hospitals, on which the accreditation is then based. Hospitals can add the accreditation to letterheads so patients know they are taking the certification issue seriously.

That's one way. However, according to current Social Welfare Legislation V guidelines, there is another way. For 2004, all licensed hospitals will have to write up quality reports. We have done this since 1995 in Marburg. The quality report contains information - accessible for patients - on how many operations of a certain kind were carried out at the hospital, or how many types of illness were treated at the hospital. There will also be data about the degree of complications experienced by patients in the hospital. We think this is a good thing - if the figures are correct.

EH: *That can be the problem with statistics.*

MS: Which brings us to the next problem. If quality and competition are so important politicians will argue that there must be spot checks. Many countries have done this for a long time and I think we in Germany will follow soon. This will be a good thing, otherwise those who are honest and up-front with their facts and figures - for example about numbers of complications - will lose out to hospitals that are vague about their statistics and do not admit to problems.

'I am rather awed,' says the new President of the European Congress of Radiology

Radiology's leading lady

HELEN CARTY

At this year's ECR in Vienna, Helen Carty, the incoming ECR 2004 president, said she felt both honoured - and rather awed - at being entrusted to lead a congress built on friendship, in which 'disparate nations of many creeds and races, rich and poor, come together to give and to share knowledge, experience and science in this nonconfrontational atmosphere'. Awe is something many radiologists might feel about the new president, for Helen Carty, 59, is not only Professor of Paediatric Radiology at the University of Liverpool, but an international lecturer, educator and important voice in both medical and political levels.

The range of her knowledge and experience is impressive (Her distinguished medical record even includes a gold medal in midwifery). For example, as an adviser to the British Department of Health (DOH) the professor has focused on the administration of radioactive substances, and patient dose reduction in paediatric radiology. She has previously been personal advisor in radiology to the Breast Committee. She has served on many other DOH working parties. She has also served the Royal College of Radiologists, in many guises, over many years, and completed her four-year term as Warden in September 2002. As a member of various RCR committees and working parties her contributions are too numerous to mention.

In 2002 the professor was guest lecturer at the International Symposium on Medico-Legal Exposure for the DOH, speaking on 'Ethical and radiation issues in child abuse'. She is currently the Radiology Representative for the NHS International Fellowship Scheme, assisting the celebrated transplant surgeon Sir Magdi Yacoub.

Numerous publishing involvements include the editing of 'The Encyclopaedia of Medical Imaging. 2001' (Ref: Paediatric Imaging Vol. VII. Volume Ed. Carty H. Nicer Institute, Elanders Publishing AS, Oslo), and Imaging Children - a 2 volume textbook of paediatric radiology. Her editorial board memberships include Paediatric Radiology, European Journal of Radiology (1990-2000), Radiology Now, and European Radiology. Professor Carty is also a regular reviewer for leading specialist medical journals and was section editor of two editions of the European Journal of Radiology (Jan '98, Feb 2000).

As a lecturer, Irish-born Helen Carty is renowned internationally - from Europe to the India sub-continent and the Far East, the USA and Africa and back, south and north. Last year, for example, the professor was Visiting Expert in Paediatric Radiology and Postgraduate Radiologic Education at Singapore's Ministry of Health HMDP. This year she is Invited External Assessor of the Department of Anaesthesia, Ophthalmology, Otorhinolaryngology, Surgery and Radiology, National University of Ireland.

Professor Carty is a renowned expert in non-accidental injury (NAI). Having seen some 1,000 of such cases she continues to bring valuable insights to the police, the law, specialist societies and medical colleagues (e.g. pathologists), and to write extensively on NAI and enigmas in the diagnosis of child abuse.

The professor's interest and experience in paediatrics, along with her birthplace, have influenced the ECR choice of honouring Ireland (along with England and Poland) next March, at ECR 2004. On exhibit will be the painting 'Bird Market', by Irish artist John Butler Yeats. As a celebration of the innocence of childhood the picture has '... some of the magic and mystery of our speciality,' explained Professor Carty, who is married and has three children.

Involvement with the European Congress of Radiology (ECR)

Professor Carty was invited lecturer at the ECR in 1991, a year in which she also became a member of the ECR's Scientific and Paediatric committees. In 1999 she was elected member of the Executive Committee and became a member of the ECR Council in 2000. The following year, Professor Carty became President Elect 2004. She is now President of the European Congress of Radiology.

Plans are well underway for the next congress, she said, in a recent interview with Brenda Marsh, Editor-in-chief of European Hospital, in which she also described her hopes for ECR 2004, and some ideas about the future of radiology.

Helen Carty: I want to build on the excellence that has already been established and to continue to develop its role as the major multinational European meeting for science and education in radiology. The ECR has already attained a very high reputation for the quality of both and, in particular, for its recognition of developments in radiology - and, indeed, for supporting them. With this in mind, for ECR 2004 we will hold separate scientific sessions on molecular imaging, followed by a sub-committee for molecular imaging, and there will be several special focus and new horizon sessions on that subject.

Hands-on workshops will cover musculoskeletal ultrasound, vertebroplasty and virtual reality angiography - sessions created with the enthusiasm and help of radiologists from across Europe and supported by companies. I'm very grateful to both.

All these developments are at the cutting edge of radiology. Mindful that the spectrum of radiology is huge, we are also developing a clinical radiology foundation course, to be further developed in subsequent years. This will lay down the standards of knowledge required for trainees across Europe and will be the basis for the standard of the European Diploma.

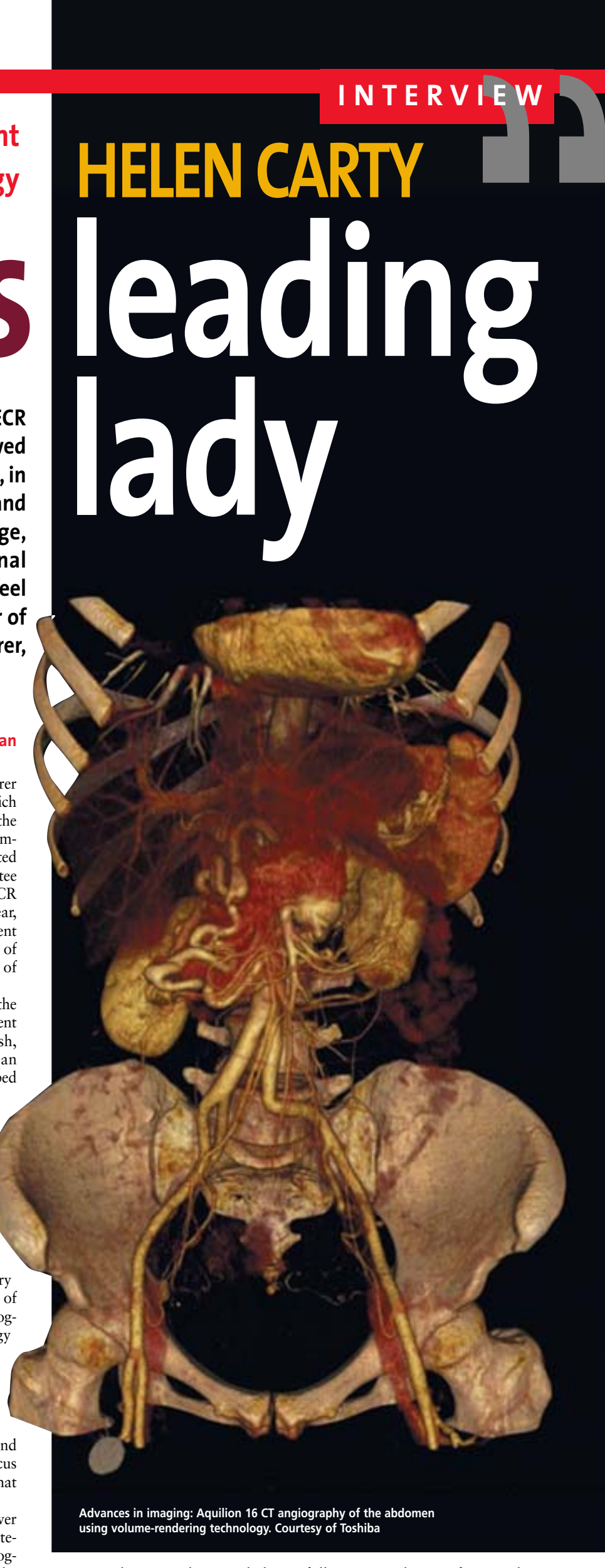
Brenda Marsh: ***What other issues will you highlight and why?***

HC: I specialise in paediatric radiology, and we will highlight particularly relevant aspects in this field for radiologists who are not specialists in paediatrics. Not every child can have radiographs reported by a specialist paediatric radiologist - this is not only impractical but impossible. However, it is important that continuing support and refresher courses are available for those who must do a small amount of paediatrics, to keep them up to date with developments, and to ensure children are not treated as 'small adults'.

BM: ***How have the lecturers been selected?***

HC: For 2004 lecturers were chosen following advice from the European specialist societies, who were asked to identify outstanding speakers in their own fields and, in addition to the tried and trusted, to introduce new speakers - ensuring continuing refreshment in the meetings.

Most suggestions came from the societies, but the final balancing - to achieve a reasonable spread of speakers from across European nations - is undertaken by the ECR Programme Planning Committee. However, I'd like to emphasise that ECR is constantly looking out for new, good speakers, and welcomes suggestion and advice (including



Advances in imaging: Aquilion 16 CT angiography of the abdomen using volume-rendering technology. Courtesy of Toshiba

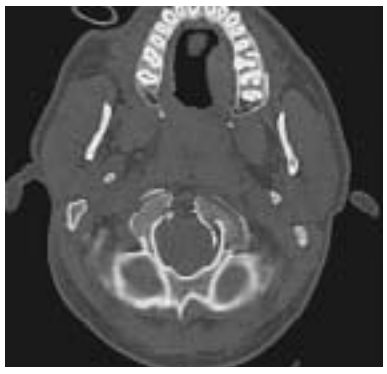
self-nominations, appropriately supported). As before, all the talks will be in English.

BM: ***What other targets have you set?***

HC: We also want to encourage colleagues from the Middle East, South America, the Far East and Australasia, to come to ECR and develop further links with the continent of Europe. Many colleagues, particularly in Australasia and South America, have their roots here, so ECR provides a golden opportunity for them to combine science and CME with a return to the background of their ancestors. With this in mind, ECR Meets - a great success in 2003 - will expand. An invitation has been sent to Poland, as the European nation for ECR Meets, and to Korea, the first overseas nation to attend.

BM: ***Will there be a debate on - and what are your views on - EU harmonisation of qualifications?***

HC: No, a formal debate on this is not envisaged. The subject is discussed at EAR. The role of ECR is to provide the basis of science and education to support any decision made about the harmonisation of qualifications.



Axial image of bilateral condylar fractures of a polytrauma patient, taken with a Siemens SOMATOM Emotion 6 at H.-Hart Ziekenhuis, Lier, Belgium

My own personal view about the harmonisation of qualifications is that one should make haste slowly. Training methods are variable and I would like to see co-ordination of training and standards of training established before one embarks upon examination structures. Personally, I find that the standards of European radiologists are mainly very high, with core knowledge at a relatively uniform level. If these standards can be harmonised, then any qualification that follows will fall into place. However, I believe there are considerable difficulties about translation of multiple choice questions into different languages, because nuances, if not carefully translated, can vary significantly.

BM: ***Do you have ideas to improve staff shortages?***

HC: I am not Solomon! I'm in no better position to solve staff shortages than our political masters. The basic problem is that doctors' training has been controlled for a very long time, for various economic reasons. And when you run into staff shortages it takes about twelve years - for basic medical training plus postgraduate training - before you can redress any staff shortages, at which stage it is obviously too late to catch up. The issue is basically one of economics and of failure to shift resources in the context of alternative developments in different fields. A good example might be largely the replacement of upper GI barium studies with endoscopy. This resulted in a significant reduction in upper GI contrast studies, but the resources used by upper GI contrast studies have long since been absorbed by an increase in ultrasound and, of course, cross sectional imaging. As both these fields continue to expand almost exponentially, with each taking a significant length of time for any individual radiologist to interpret them, shortages will inevitably continue.

The attraction of trying to train non-radiologically qualified staff or, indeed, even non-medically qualified staff, to do single task jobs is great, but the difficulty with this is that, although at the individual level they are extremely effective, it removes the flexibility of someone who is trained across many fields. We should never forget that technology is only one component of radiology. The term used in the UK is clinical radiology, and without correlation and understanding of clinical issues one cannot practise radiology - which is why I believe that one needs a basic medical degree for safe practice across the board. This does not mean that I don't respect the professions supplementary to medicine or, indeed, technicians doing tasks that were previously radiological, but one still has to have an overview of the clinical problems if safe practice is to be maintained.

As I said during my talk on Evidence Based Medicine, in Vienna, (when I was billed as the Cynic): patients and disease do not totally follow scientific rules and it is vitally important that radiologists retain a broad view of a subject so that they can spot, almost instinctively, the uncommon presentation of an illness or, indeed, the uncommon cause of a group of symptoms.

BM: ***You have seen many changes in your career. Which are the most significant, and which, among R&D projects, do you foresee as affecting radiology most significantly?***

HC: Yes, as a UK consultant radiologist spanning 28 years, and all of that spent in paediatric practice, I've seen many, many changes, the most obvious being the explosion in the imaging fields available to us. Of course, cross sectional imaging, in the broadest sense, is the most significant. I think the advent of spiral CT is, in fact, going to have a continuing huge impact on medical practice. So much can be done and diagnosed with a spiral CT, non-invasively and so quickly that I think it will become almost the primary tool of investigation of most acute presentations in medicine.

I'm fully conscious of the significance of the radiation issue. I think this is an area where there will have to be increasing and continuing co-operation between industry, radiation physicists and clinicians, to ensure that the use of radiation in CT is kept as economical as possible, consistent with diagnostic imaging. In this context it is important that the concept of

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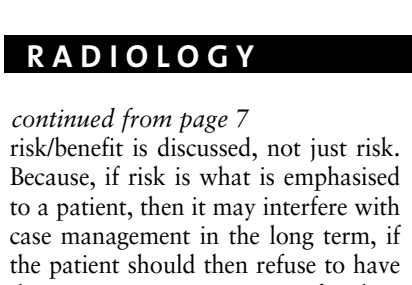
risk/benefit is discussed, not just risk. Because, if risk is what is emphasised to a patient, then it may interfere with case management in the long term, if the patient should then refuse to have the appropriate investigation for their problems.

Though I grew up in the era of a high understanding of plain radiographs, I am increasingly conscious of the relative lack of understanding of these by trainees, beguiled as they are by the detailed anatomy presented in cross sectional imaging. I fear that plain radiographs will become increasingly relegated, which is sad, because a properly interpreted, straight radiograph remains something that can guide patient management properly. However, I hope I am not obtuse and I accept that cross sectional imaging can supplant quite a lot of them and give far more information faster. This, in itself, has a huge impact on health economics, as rapid diagnosis leads to rapid treatment and probably saves money in the long term. More importantly, it also has great benefits for the patient, reducing anxiety and improving quality of medical care. This inevitably begs the question that there will have to be an increase in the availability of that technology 24 hours a



Professor Helen Carty *President - ECR 2004*

day and, because looking at a spiral CT takes longer than a plain radiograph the number of radiologists will have to increase.

The second field I foresee having a huge future impact will be molecular imaging, using the term in the broadest sense. This will give increased insights into disease pathology and, once that understanding is achieved, we can begin to design more appropriate therapies, in which I believe radiology will have a huge impact.

BM: ***Due to advances - and the volume of learning involved with each - could radiology become increasingly more sliced into specialities, say, according to equipment skills? And in this context, how do you perceive the role of the radiologist in future years? Is there, for example, the possibility that, one day, intervention may be undertaken solely by a radiologist, superseding the work of the surgeon?***

HC: I think the role of interventional radiology will increase in the future, not only in the way we understand it today but also as a consequence of molecular imaging advances, with the possibility of delivering precise drug treatments for certain types of cancer. This will have to be carried out in co-operation with our clinical colleagues. With a bit of sensible planning this could occur without turf battles - which bedevil medicine.

It is possible that radiological training will alter to a core training, followed by training in interventional radiology for perhaps three or four years, rather than the current four-year core training followed by interventional radiology. This model may be attained in several other subspecialties of radiology.

The days of someone being able to do everything are rapidly diminishing. However, this is one of the advantages to date of radiology: most radiologists know a little about a lot, rather than a lot about a little, which is the way medicine has gone. Each subspecialty is now so confined to its own area that the broad sweep of general medicine is something that has virtually disappeared from clinical practice, and this can lead to delays in diagnosis if the patient gets into the wrong field. The same could arise in radiology, if the core knowledge does not remain fairly broad before embarkation on specialist training. However it's a little different, for example, for interventional radiology, where technical skills are so very important and understanding of various diseases is in more limited fields.

My personal view is that when a new technique is discovered it should be developed so that there is a specialist in that technique but, as information is acquired and disseminated, radiologists should shift from being technique-based to system-based, because this is in the best interests of patients. Technology is beguiling, and you can forget underlying clinical issues. The best advances are achieved by a symbiosis of those with deep knowledge of a technique combined with an equal knowledge of the clinical issues.

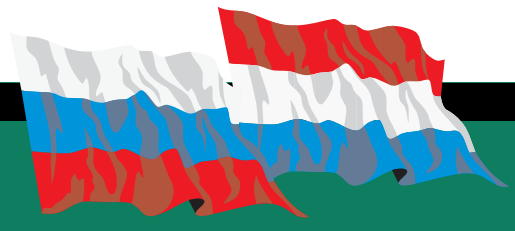
I do not believe one can lay down a blueprint for the future that is unalterable. As situations change, I think the best way to ensure the continuation of high standards is to have enough wise and far-seeing people in radiological developments in different countries, to be able to anticipate the need for change early enough and to ensure that it is achieved smoothly.

BM: ***How do you view the arrival of teleradiology and out-sourcing?***

HC: Teleradiology is happening and is here to stay and I believe it can work to the benefit of patients. However, I am concerned about teleradiology being practised in different countries, when what is proffered is an opinion on a scan or X-ray based on very limited clinical information, and without the availability of dialogue with the clinical consultants in charge of the patient. It may be expedient for governments to try and cover their shortages by using such technology, but I do not believe it is in the interests of patients.

However, within one's own country, in the context of seeking second opinions, this is an invaluable resource. I believe that, for subjects like paediatric radiology, what will ultimately evolve is a core of fairly major paediatric hospitals, employing more radiologists than they need, but who would provide, by teleradiology and videoconferencing, paediatric radiological opinions to hospitals within a much wider surrounding area. These would work on the basis of hub and spoke, with specialist radiologists going out to the more peripheral units to do procedural work, as necessary.

PUI saves costs



RUSSIA & NETHERLANDS - Immediate echocardiographic assessment during consultation rounds can lead to significant cost savings and can shorten the time to diagnosis, according to a new study carried out by teams at the Dept. of Cardiology, Thoraxcentre, Erasmus Medical Centre, Rotterdam and the Dept. of Internal Diseases, Medical Academy of Nizhny, Novgorod.

To assess the clinical utility and cost effectiveness of a personal ultrasound imager (PUI) during consultation rounds to evaluate patients with suspected cardiac disease, the teams enrolled 107 unselected patients from non-cardiac departments (55% men). After a physical examination, the consultant cardiologist used the PUI to obtain an echocardiograph of each patient, and the final report was passed on immediately to the referring physician.

Subsequently, all patients were checked with a standard echocardiographic device (SED), and in each case the consultant noted whether the PUI findings had been sufficient for a final diagnosis. The time from request to diagnosis was also compared for each method.

In 84 (78.5%) patients no further examination with an SED was considered necessary. 23 patients (21.5%) needed a further detailed SED examination to obtain haemodynamic information.

Both devices produced excellent detection of abnormalities (96%). Use of the SED per patient cost €132; PUI per patient cost €75 - showing a 33.4% reduction in total cost. Diagnosis times: SED = 4 days, PUI = immediate.

Source: *Heart 2003;89:727-730* Details: j.r.t.c.roelandt@erasmusmc.nl

3-D simulation streamlines radiotherapy

Exomio, a new simulation technique, improves the accuracy of radiation therapy and reduces treatment planning time to a matter of minutes, according to scientists at the Fraunhofer Institute for Computer Graphics Research IGD, who developed the system with industrial partners MedCom GmbH and Medintec GmbH. They also report that the product has obtained worldwide clinical approval and that 60 clinics in 19 countries are now using the system, including the radiation clinic in Offenbach, Germany, and the Tubingen's University Hospital.

When radiotherapy is the choice of treatment for a cancer patient, physicians use the medical case history and computer tomography data to determine the number, position and intensity of the radiation beams to be applied.

A large amount of preparatory work involves simulating the radiation therapy using low-power x-ray beams, says Professor Georgios Sakas of the IGD. 'During this, a patient must remain completely immobile on an examination table for up to an hour. 'Even the slightest movement could compromise the accuracy of the ensuing treatment - every millimetre counts,' he adds. Sites for treatment are drawn on the patient's skin with an indelible marker pen. These outlines must not be changed or washed off for the duration of treatment, which may last many weeks and cause considerable inconvenience for a patient and incur high personnel and other costs.

Using the new technique a physician simulates treatment realistically and accurately, based on computerised CT data, which does not tie up medical resources - and a patient need not be present. 'Exomio has a simple, intuitive user interface that enables a physician to evaluate 3-D images as easily as conventional X-ray images,' says Professor Sakas. 'The greatest advantage is that preparatory simulation offers more flexibility in the siting and number of areas to be targeted by the radiation source.' Without the patient's presence, a physician can study individual tumours and experiment with various alternative treatment plans before deciding the best choice. 'After simulation, the prepared therapy plan is passed to the radiologist who calculates the required doses.'

Modification of the beam angle can improve the accuracy of the radiation treatment and the ability to lower or raise the dose and limit damage to healthy tissue benefits the patient's well-being and prospects for recovery. Professor Nikos Zamboglou of the Offenbach radiation clinic also adds: 'This software allows us to show patients what the therapy involves, how it works, and where the radiation treatment will be applied, which helps them to better understand and thus place more trust in the therapy.'

In October, the Exomio, which runs on a standard high-performance PC, gives superior results and improves treatment costs without major investment, was voted a finalist out of 600 other IT projects in the 'Health' category of the prestigious Stockholm Challenge Award.

Details: www.igd.fhg.de/igd-a7/index.html

Titanised silicone breast implants

Every year, about 250,000 US women have silicone breast implants either after cancer surgery or for cosmetic purposes. However, despite advances in substances used in the implants, the risk of foreign body reactions remains. In extreme cases, due to capsular fibrosis, the encapsulated, deformed and hardened implants must be removed and replaced.

Implants presently in use consist of a smooth or textured silicone shell filled with a silicone gel or saline solution. The latter has one decisive drawback - the breast may cool considerably in winter. Smooth silicone implants may also shift or turn.

Currently most surgeons opt for textured plastic silicone shells filled with silicone gel. Plastics are used to great effect in many medical fields without showing such dramatic side effects as in capsular fibrosis, so cosmetic surgeons have hoped for a more biocompatible coating for some time. Finally, at last year's German Surgeons' Association Congress, surgeons were introduced to breast implants made from a brand new composite material called titanised plastic, developed by GfE-Medinzintechnik of Nuremberg.

The development of this titanisation technology was a genuine engineering challenge, says GfE-Medinzintechnik. In 1996, the Bavarian Research Association for Biomaterials launched the Forbiomat Research Project to develop biocompatible implant materials. The industrial partner on that research project was GfE-Gesellschaft fuer Elektrometallurgie, Nuremberg, the parent company of GfE-Medizintechnik. The firm has worked in metals, ultra-thin coatings and high-tech materials for almost a century, and produced titanium coatings for hip implants - with proven biocompatibility.

Using titanium the firm produced the new composite material titanised plastic for breast implants. In these, the plastic substrate is coated with just a few atomic layers of titanium (c. 30 nanometres thick), to maintain the flexibility of plastic but ensure body tissue only comes in contact with the titanium. Chemical binding with the silicone prevents detachment of titanium atoms.

The new material has been utilised in hernia surgery, where a mesh implant reinforces defective connective tissues. Such mesh had been made of polypropylene, but since last year, when TiMESH (the first product made of titanised polypropylene) was marketed, 60,000 units have been used in Europe.

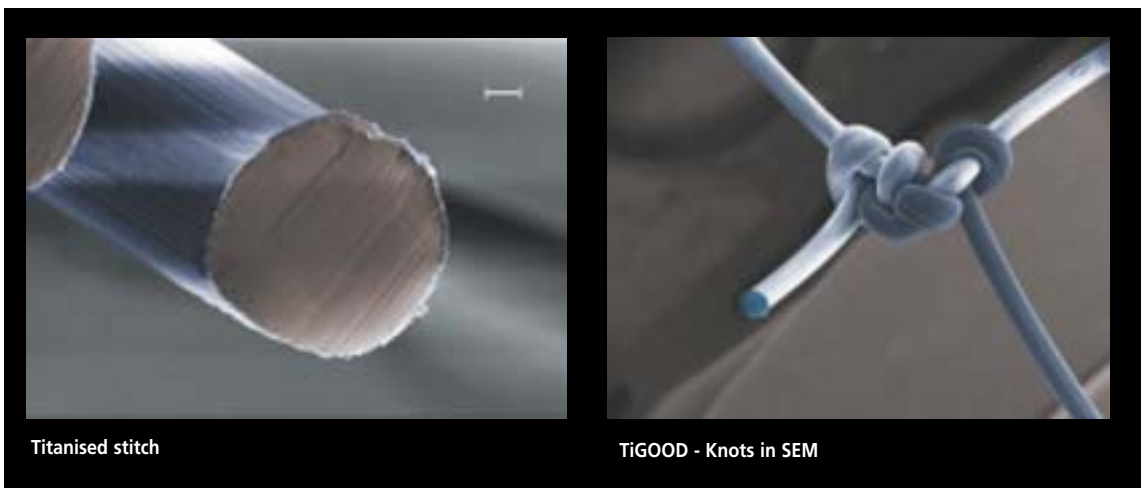
One leading expert in this field, Professor Ferdinand Koeckerling, who contributed to the development of TiMESH and who is Senior Physician of the Surgical Clinic and Centre for MIS in the Hanover Clinics, Siloah, pointed out that: 'In modern hernia surgery there are two things we need: as little foreign material as possible and material that is as biocompatible as possible. That is what our patient's demand.'

TiMESH extralight is the lightest mesh implant material on the market, weighing 16g/m². The body tolerates and incorporates it in an optimal way. European surgeons encouraged GfE Medizintechnik to apply titanisation technology to other plastics, such as silicone.

The world's first titanised breast implant, called TiBREEZE, is textured and filled with a cohesive silicone gel.

Other products made of titanised plastic were also introduced at the Congress: titanised suture material called TiGOOD is biocompatible suture material for skin closure and implant fixation in soft tissues, e.g. in hernia mesh.

The mesh implant TiMESH will also be available in new variants for other surgical applications.'



Titanised stitch

TiGOOD - Knots in SEM

Production and assets

Titanium molecules are broken down into their atomic components in a reaction chamber. The molecular components of the titanium then spread over the entire surface of the plastic substrate and enter into a pair bond with the plastic molecules. Advantage: The entire surface, even knots and tiny irregularities, wherever an atom finds a niche, is evenly coated with titanium, says the manufacturer. 'This technology works with almost all plastics, e.g. PVC, silicone, as well as metals such as platinum or silver.

The development opens up completely new perspectives in the physiological tolerance of plastic implants, the firm adds. 'Titanised implants also have better wetting qualities (hydrophilic surface) so can adapt perfectly to an anatomical situation.

'The titanium layer is not visible and does not appear on X-rays, but is clearly seen in ultrasonic examinations.

'Many extracorporeal applications are feasible in which the biocompatibility of plastics is the essence, e.g. synthetic parts of heart-lung and dialysis machines or blood bags.

NEW

Virtual patients for MIS TRAINING

By Professor Vicente Hernandez and Ignacio Blanquer

Minimally invasive surgery (MIS), carried out through very small incisions, minimises patient trauma and shortens rehabilitation time. However, there are drawbacks: direct contact is not possible, visibility is limited to a screen image, and special training in the use of tools is necessary.

Generally surgeons have trained on cadavers, phantoms, live animals or during actual surgical interventions under supervision of

experts. The many disadvantages presented make training on real patients the only effective way, but this could result in risk to the patient.

To avoid risks during training, the Polytechnic University of Valencia has developed a virtual reality simulator aiming at several aspects, including the improvement of repeatability of actions - which obviously cannot occur if using animals or humans. Another objective is to train specific pathologies.

Blanqu - Vincent Hermandez

Ignacio Blanquer

The simulator consists on two main modules: the image pre-processing module, which consists of the segmentation Model Generator Tool and the Scenario Generator, and the Surgery Simulator module. One module presents surgical scenarios, using real medical images, for example of an abnormal anatomy or an interesting pathology. Thus the teaching surgeon can prepare special cases to increase the trainees' abilities and skills before dealing with the first real case.

The image pre-processing module presents surgical scenarios using synthetic organs or real organs obtained from real images (such as 3-D CT or MRI). Medical images are processed to obtain models of the organs, which are compiled on the scenario generator to present textures, dynamic properties and to define the surgical environment. Thus qualified surgeons can prepare training in complex or rare cases using patients' real anatomic data.

Scenarios are loaded on the surgical simulator, which computes organ deformity with respect to the interaction of users. Surgery is carried out on the virtual patient via haptic devices, resembling real surgical instruments, which allow users to feel the feedback of the force of organ reactions. The simulation is computed in real-time using high-performance parallel computing, by simultaneous use of several processors.

The system automatically generates a report on the quality of the intervention, indicating parameters such as the number of incorrect cuts, poor placement of staples, procedural errors, organ damage and the intervention time. Currently, although the simulator is generic and can be used for many different MIS interventions, the system has been validated for cholecystectomy interventions - usually one of the first learnt, but which requires most of the surgical gestures used in conventional interventions. Currently the system is being adapted for arthroscopy.

As in many engineering disciplines, virtual training will become the most common method to begin surgical practice in the future. Surgery simulation is more complex that flight or driving simulation, but advances in this technology, and physical models, can provide enough sensitive feeling to achieve a useful training of motor skills and procedures. Patients will not have to suffer risks during surgeons' learning curve, and the surgeons will be more prepared for rare or severe pathologies.

NEUROLOGY

Spinal cord repair: pilot trials within sight

Injury to the brain and spinal cord cause permanent damage because, unlike bone and skin tissues, they lose the ability to repair themselves soon after birth. Some experts suggest this is due to an inability to form new connections, others think the adult nervous system produces molecules that stop the growth of nerve fibres.

Both theories are disputed by Dr Geoffrey Raisman, at the National Institute of Medical Research, who points out that the brain constantly changes as we learn throughout life, and that cut nerves 'sprout vigorously', albeit not in the right direction. He suggests that adult nerve fibres fail to regenerate because they have to contend with much greater distances and much more complex pathways than those in the embryo.

Scarring is another problem with healing spinal cord injuries. During development, nerves grow along glial cells (types of supporting tissue arranged in regular networks and channels). When glial cells are damaged each type behaves differently - some swell up, others die and some move into the damaged area, which is swamped with blood cells. The resulting scar blocks nerve fibres.

Dr Raisman has now developed a new and novel method for spinal cord regeneration, and this could soon lead to a human pilot study

Using rats with injured spinal cords, Dr Raisman and team navigated around scar tissue by grafting a culture of glial cells from olfactory nerves (which regularly regenerate even in adults), onto the scarred section. These then grew into a 'bridge', through which the severed nerve fibres could follow, growing safely inside the sheath of graft cells and finding their way to the right targets in the rat's brain.

The shift to humans

Dr Raisman's team successfully restored nerve functions in rats with Partially severed spinal cords, and they believe their method 'really is predictive of human repair'. They report that more work needs to be done on sourcing enough suitable graft cells and refining the implantation technique, and suitable patients must be found for a pilot trial. However, he hopes to overcome these final obstacles in the near future. Currently, discussions are underway, with the Institute of Neurology at University College London, about a possible trial at the National Hospital for Neurology and Neurosurgery.

Details: Royal Society of Medicine Journal, June. www.rsm.ac.uk

High-cal intake: Hope for bowel cancer?

FRANCE - Less than 50% of those affected by bowel cancer survive beyond five years after diagnosis. However, new research* surprisingly suggests that a high calorie diet may increase chances of survival for longer.

Dr Marie-Christine Boutron-Ruault and researchers at the Institute for Food and Nutrition, INSERM, Paris, studied the energy intakes before diagnosis of 148 patients (97 men and 51 women) who had undergone successful surgery to remove cancerous bowel growths. These patients were monitored for up to 10 years.

46 died within five years, the strongest predictor of death being the advanced state of the tumour when first diagnosed. Factors increasing the length of survival were female gender, aged up to 65 years, and tumour location. Exercise, alcohol consumption, and smoking before diagnosis had little influence over survival rates, but energy intake did. Patients on low andmoderate energy intakes before diagnosis were about three times more likely to die within five years compared with those on a high intake.

Out of 50 patients (12%) on a calorie laden diet, six died within five years, compared with 22 of 48 on a moderately high calorie intake (46%), and 18 of 50 (36%) on a low calorie diet. The research was unable to identify a specific food or nutrient that increased survival.

Because a calorie-laden diet appears to increase the risk of bowel cancer, and calorie restriction is known to increase immune cell activity, this finding is surprising, say the authors. But they speculate that a high-energy diet may select for specific forms of bowel cancer that carry a better chance of survival.

Details: *GUT 2003; 52:868-73.*
boutron@cnam.fr

Alga may help

A European study involving 500,000+ people aged between 25-70 years, in 20 European countries, has confirmed a connection between dietary fibre consumption and colon cancer protection. In the study, carried out by the WHO and the European Prospective Investigation into Cancer and Nutrition (EPIC), the top 20%, with the highest consumption of dietary fibre - about 35g per day - showed 40% less risk than people consuming a daily average of 15g.

In a USA study, similar results were obtained. When 34,000 healthy people were compared with 36,000 patients with benign intestinal polyps, it was found that the risk for patients on a high fibre diet was reduced by 25% - particularly if fruit, cereals and products derived from grain were consumed.

Certain dietary supplements based on algae, such as Bio Reu-Rella made from Chlorella pyrenoidosa (a freshwater alga), contain a high percentage of fibre and provide a balance of lactobacillaceae, streptococci, bifidus and bacteria producing vitamin B12. The alga's anti-tumour effects have been reported following animal tests. *(Source: Janina Klein. Lancet, May 2003)*

Alcohol ups colon cancer risk

But wine's a lesser problem

Denmark - Regular drinkers significantly increase their risk of rectal cancer, but that risk is reduced if wine makes up a third or more of weekly consumption, according to research carried out by Professor Morten Grønbaek, at the Centre for Alcohol Research, National Institute of Public Health, Copenhagen, published in the journal GUT.

The weekly intake of beer, wine, and spirits was assessed, along with factors likely to influence bowel cancer risk (e.g. tobacco, weight, exercise) among over 29,000 Danish men and women aged 23-95 years,

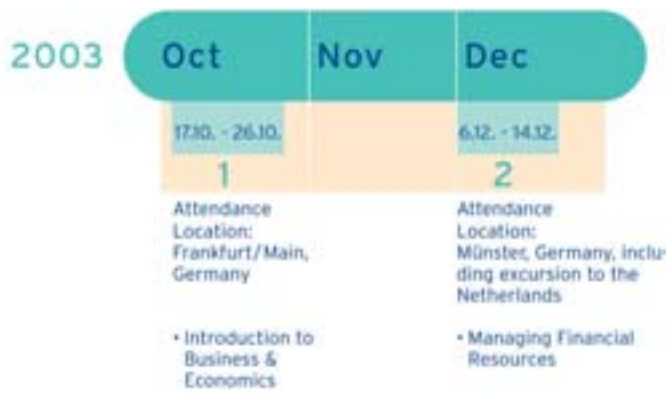
Men were more likely to be heavy drinkers than women, and heavy drinkers were more likely to smoke and weigh more than light drinkers.

Monitored for almost 15 years, 411 cases of colon cancer and 202 cases of rectal cancer were reported. Alcohol seemed to have little influence over the risk of colon cancer, but there was a clear association between rectal cancer risk and the amount of alcohol consumed. Those drinking over 41 units a week had twice the risk of developing the disease as non-drinkers.

But the type of alcohol consumed had a significant bearing on rectal cancer risk. Those who drank 14+ units of beer or spirits weekly were over 3.5 times more likely to develop rectal cancer as non-drinkers. Yet those who drank the same amount of alcohol, but who included about a third or more of wine in their intake were less than twice as likely to develop the disease.

The professor points out that wine drinkers tended to be better educated and to take more exercise than beer or spirit drinkers, so other lifestyle factors may be involved. There are no obvious reasons why alcohol should apparently be more damaging to the rectum than the colon, they add, but the reasons why wine seems to exert its protective effect most likely lie in resveratrol - found in both grapes and wine. Previous research indicates that this chemical dampens cellular processes involved in the promotion and growth of cancerous cells.

** GUT. 2003; 52: 861-7.*
Details: Prof. Grønbaek: mg@niph.dk.



Career boost for global healthcare

MBA in

"Today, sound management know-how and international networking are the key to success in healthcare management. Our MBA programme equips healthcare professionals with the necessary skills to take on a management role in an entrepreneurial global market. Our graduates will be able to drive forward and shape the transformation in a genuinely innovative way." Professor Thomas Heimer, Managing Dean, HfB – Business School of Finance and Management, Frankfurt/Main.

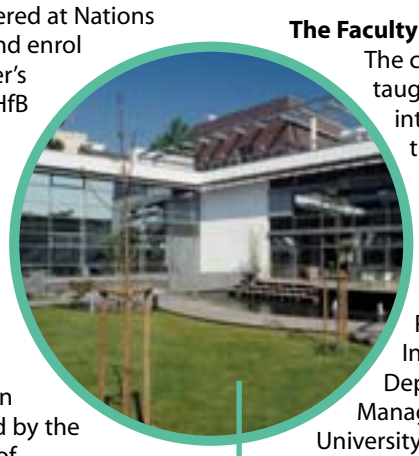
Soaring costs, deregulation, and growing international competition force the healthcare sector to change. For professionals in the business of healthcare a postgraduate degree marks the road from a manager to an executive. Young talents in the healthcare field can acquire the necessary expertise in the specialised **MBA in International Hospital Management** Programme jointly offered by Nations HealthCareer School of Management, Berlin, and its new partner HfB – Business School of Finance and Management, Frankfurt/Main.

The MBA course prepares the next generation of executives for leading positions in the healthcare industry and related sectors (insurances, pharmaceutical and healthcare companies, hospitals and other healthcare facilities). The programme is based on a holistic, competition-oriented concept of management, where quality and cost optimisation, as well as patient and client centred care, are the key. The students come from Europe, the Middle East, and Asia.

Leadership Skills and Expertise for Healthcare Executives Worldwide

The MBA in International Hospital Management Programme can be attended while working full-time. The postgraduate course consists of eight 9-day attendance modules with mandatory attendance, spread over an 18-months period, and additional 160 hours of e-learning. All courses are taught in English. The programme, which focuses on general management issues, but is tailored specifically to entrepreneurial hospital management, provides a strong interdisciplinary perspective. The objective of the practice-oriented Master's thesis is to apply the knowledge and the skills acquired in the programme to a real-life management problem from the students' own business environment. Submission of the Master's thesis and an oral examination are the final steps towards the Master's degree.

Students will be registered at Nations HealthCareer School and enrol at the academic partner's private university, the HfB - Business School of Finance & Management in Frankfurt/Main, Germany. After successful completion of all modules and an oral defense of the Master thesis the degree Master of Business Administration (MBA) will be conferred by the HfB – Business School of Finance and Management.



The HfB and Institute's modern campus based in Frankfurt/Main

To additionally foster international exchange and cooperation, the attendance modules take place at various locations worldwide, including Germany, Great Britain, the Netherlands, Austria, Finland, the United Arab Emirates, Japan, and optionally also the USA.

The modules have to be completed in the sequence prescribed by the curriculum. Most modules start on a Friday or Saturday and end on a Sunday. This requires a high degree of motivation and time commitment from the students. By using the weekends the time off work is reduced to a minimum, nevertheless the students should make the necessary arrangements with their employers prior to the start of the programme.

Candidate's Profile

The MBA programme aims to attract specialists and managers from all over the world – doctors, scientists, economists, engineers, business and marketing managers, administrators, and lawyers alike with at least three to five years' professional experience in healthcare and related industries and institutions world-wide. Students are required to submit a GMAT score.

The next MBA in International Hospital Management starts on October 17, 2003. The deadline for application is end of August 2003.

The Faculty

The cross-cultural groups are taught by professors and tutors of international standing. Among the key members of the faculty are leading scientists and experts in international hospital management such as Professor Ray Robinson, London School of Economics, Professor Reinhard Busse, Institute of Health Sciences, Department of Health Care Management of the Technical University Berlin, John Wocher, Business Director, Kameda Hospital Group, Tokio, Fred L. Brown, Visiting Professor in Public Health and Health Services at George Washington University and Past Chairman of the American Hospital Federation, Professor Thomas Heimer and Professor Erich Barthel of the HfB - Business School of Finance and Management.

The MBA in International Hospital Management is academically supported by an internationaly assigned Scientific Advisory Board chaired by Prof Dr Dr W. von Eiff, Director of the Centre for Hospital Management (CKM) at the University of Münster. CKM has been promoting the transfer of management know-how and expertise between industry and the hospital sector since 1994 and is Europe's leading institute in this field.

Curriculum

Module 1

Introduction to Business and Economics
Frankfurt/Main, Germany
Macro- and microeconomics as well as accounting are on the agenda, accompanied by case studies and field trips to teaching hospitals and healthcare institutions in the Frankfurt region.

Module 2

Managing Financial Resources
Germany and the Netherlands
This module helps to understand financial and controlling issues in the health management context: How to manage business processes, focussing on patient's needs, medical quality, desired outcomes and efficiency. An excursion to the Netherlands will give students an overview of that country's medical expertise and healthcare organisation. The students will have the opportunity to apply their new know-how in case studies and interviews with experts.

Module 3

Management in Different Health Systems
Dubai United Arab Emirates
Dubai is certainly one of the most cosmopolitan places in the world where the staff of healthcare facilities is made up of managers, doctors, and nurses from all over the world. Managing healthcare systems in an effective and target-oriented way and managing healthcare in a multicultural environment will therefore be the theoretical and practical topics of this module.

Module 4

e-based / e-Campus
Students develop the financial part of a business plan.

Module 5

Strategic and Market-Oriented Management
London/Henley, UK
During this module at Henley Management College students learn to develop a vision and translate it into action. Their objective is to establish a market-driven hospital and healthcare institution. The students will visit hospitals and meet representatives from the industry, the British Department of Health and the UK's National Health Service (NHS).
At this stage, an **optional 4 day stay in the USA** is offered.
The students travel to Phoenix, Arizona where they participate in a Six Sigma for Healthcare Training Course of the International Six Sigma Society of Healthcare Professionals. They are introduced to the US healthcare system and visit selected hospitals.

Module 6

Managing the Organisation
Helsinki, Finland
This module, focussing on managing the organisation, will take place in Scandinavia, a European region that offers excellent examples of outstanding organisational structures and performance in healthcare institutions.

Module 7

Management of Processes in Healthcare
Tokyo, Japan
In this module students learn how to set up a company-wide information management system, implement information systems and reengineer business processes within healthcare institutions. Visits to Tokyo's Nihon

Tuition Fees

for the 18-month MBA Programme in International Hospital Management will amount to EUR 28 000. This includes course materials, but excludes travel and accommodation expenses.

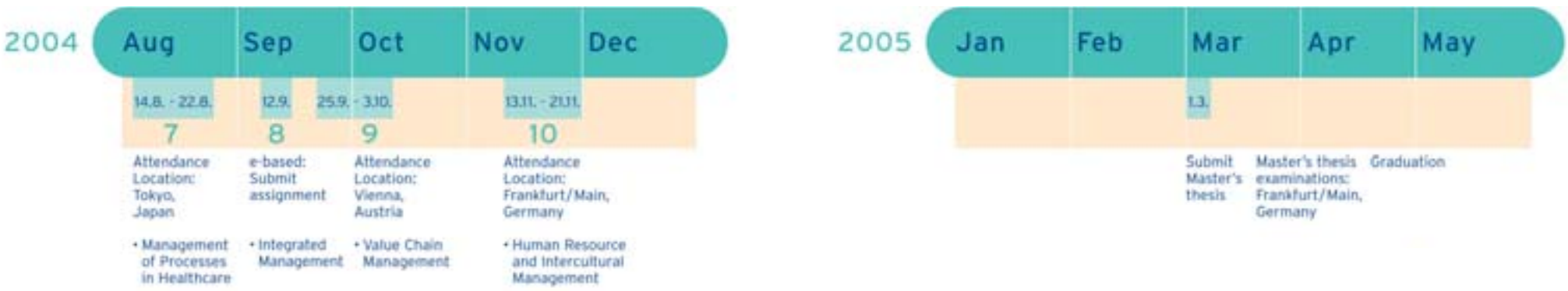
Financial Aid Options: In some countries the fees paid by students themselves attract substantial tax relief benefits. Some students´ fees are fully funded by their employer. Participants in the MBA in International Hospital Management Programme may be eligible for public or private loans.

Objectives of the Programme

The overall objective of the programme is to help students to develop their management competencies, thus enabling them to improve their effectiveness, maximise their contribution to their organisation and achieve their career potential.

The programme is designed to:

- familiarise participants with the philosophy, methodology and techniques of target-oriented management in the entrepreneurial and international healthcare industry;
- enable them to recognise the fundamental principles of microeconomic action in a medical decision-making environment;
- provide practical economic and business training
- develop practical recommendations for managers' role in business administration, controlling and human resource management in the healthcare sector;
- immerse programme members in a transnational way of thinking about healthcare by arranging residential stays in select relevant locations, accumulating a unique knowledge of management in different healthcare systems.
- promote an international, intercultural curriculum which equips practitioners with the flexible skills required by healthcare managers working in a range of cultural contexts, and to encourage the exchange of system management approaches and best-practice;



International Hospital Management executives

Structure

University Hospital, and to the Kameda Medical Centre in Kamogawa are included. Students will meet Kameda Business Director John Wocher and other executives to carry out case studies and in-depth interviews.
During this module students will be introduced to the Asian-Pacific healthcare system, with a focus on Japan, Australia, and Singapore.

Module 8

e-based / e-Campus
The module focuses on Integrated Management and deals with the decision-making processes in a healthcare companies as a complex system.

Module 9

Value Chain Management
Vienna, Austria
In this module students learn award-winning business reengineering, purchasing and logistics strategies. They apply their new knowledge in case studies and exchange experiences with specialists from the Vienna General University Teaching Hospital.

Module 10

Human Resource and Intercultural Management Frankfurt/Main, Germany
The final module on the ultra-modern campus of the HfB in Frankfurt/Main focuses on how to develop and maintain human resources potential in a healthcare environment and how to become an effective international manager. Special emphasis is put on leadership, motivation, fostering cooperation and the creation of synergies.
This module offers additional special evening sessions—tailored to the experiences and preferences of the students. Doctors can familiarise themselves with the terminology and concepts of business and management, managers are introduced to basic medical knowledge.

New Chair and Institute for International Health Management

Nations HealthCareer and HfB strategically expanded their partnership to offer a postgraduate MBA in International Hospital Management Programme. In June 2003, an agreement was signed to found the Institute for International Health Management to foster research, postgraduate education and professional continuing education in international healthcare management. The Institute is planned to develop quickly into a centre of excellence in the field of entrepreneurial health facilities management worldwide. The institute will initiate and conduct international research projects, promote and publish reports on research and practical issues and act as a forum to exchange experience in international hospital management worldwide. The founders plan a publication and lecture series. A specialised international library on hospital management is being set up.


Signing the cooperation agreement to found the Chair and Institute of International Health Management : Professor Steffens, President of HfB Business School of Finance and Management, Frankfurt/M (left), with Peter Oberreuter, Managing Director of the Nations HealthCareer School of Management, Berlin

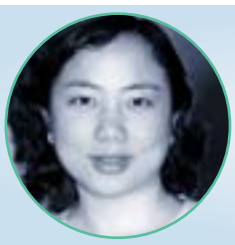
Moreover, the Institute will support the Nations HealthCareer School and HfB - Business School for Finance and Management with their educational programmes. The Director of the Institute and Chair will also be the programme director responsible for the MBA in International Hospital Management Programme.

Established as a research and teaching community on an equitable basis between the Nations HealthCareer School and the HfB Business School of Finance and Management, the new Institute and Chair for International Health Management will be located at the Campus of the HfB in Frankfurt/Main. As one of the first of its kind the new Institute and Chair will offer a unique transnational approach to science, teaching and practice. The Institute is looking for a professor with a high academic reputation in the field of entrepreneurial approaches to international hospital management.

The selection process for the Chair for International health Management is currently under way (see announcement on page 5). The ideal candidate will have a truly international background, a proven track record of postdoctoral lecturing in management and a keen interest in close cooperation with partners from the medical field.

Graduates predict a brighter future

When European Hospital first featured the Nations HealthCareer School of Management the course was newly launched. Last November we focused on the school's progress, and now the first participants are nearing the final stages of their Master of Business Administration in International Hospital Management (MBA) course.



Dr Anna Zhao, who works in a Beijing hospital said
'I trained to be a clinician in China, but after medical practice in the UK, I found a new international outlook. China is a unique market, with a GDP growth rate of more than 7% during the past two decades. This hospital management programme helps me to understand and be understood in another language. With health service management, my career goal, I hope to contribute to the development of society as a whole.'

Fellow student Dr Vuong Anh Duong works in a department of the Vietnam Ministry of Health, which is responsible for drawing up a master plan for new hospitals by evaluating the performance of existing hospitals.
'We are thinking about changing the system – especially the way hospitals are managed. We want them to work more efficiently. After finishing the course, I hope I will be able to pass on my knowledge to hospital managers in our country'.

Portuguese doctor, Pedro Simoès, whose main interest is plastic, reconstructive and burns surgery, works in a UK hospital. Dr Simoès points out that the MBA course has a unique feature:
'It facilitates the discussion of healthcare and hospital management among participants from different parts of the world and enables students to analyse and visit many healthcare systems around the globe. Critical thinking and vast opportunities for open debate are key aspects, which promote a proactive and enriching environment… '

Academic Partners

Nations HealthCareer school of management

Nations HealthCareer School of Management is a non-profit joint academic/industry initiative, dedicated to fostering and promoting education, training and research in the field of international healthcare and hospital management. Its founder members are the Fresenius University Foundation for Healthcare Management, Bad Homburg, Germany, and a publicly-funded Foundation of Berlin-Brandenburg.

Nations HealthCareer sees hospitals as quality-oriented and results-driven commercial enterprises operating in a fiercely competitive global environment. The School's mission is to bridge the gap between teaching, science and practice and aims to develop, together with its partners, high-level postgraduate programmes for young management talents worldwide.

Nations HealthCareer launched its first MBA Programmes in 2002. Its approach of training is based on an holistic, competition-oriented concept of management, where quality and cost optimisation, as well as patient- and client-centred care, are key. The two MBA study courses running at present bring together students from Europe, the Middle East and Asia (including Germany, Italy, Portugal, Austria, Croatia, Romania, the United Arab Emirates, Jordan, Syria, Saudi Arabia, Sudan, China, Malaysia, Pakistan and Vietnam). The next MBA in International Hospital Management Programme starts together with HfB – Business School of Finance and Management on 17 October 2003. Further information is available on www.nations-healthcareer.com

By pooling their core skills and competences, the two partners create synergies which enhance the MBA programme. Nations HealthCareer School draws on its healthcare industry expertise and experience as an international training provider, while HfB contributes its wealth of experience in management education.

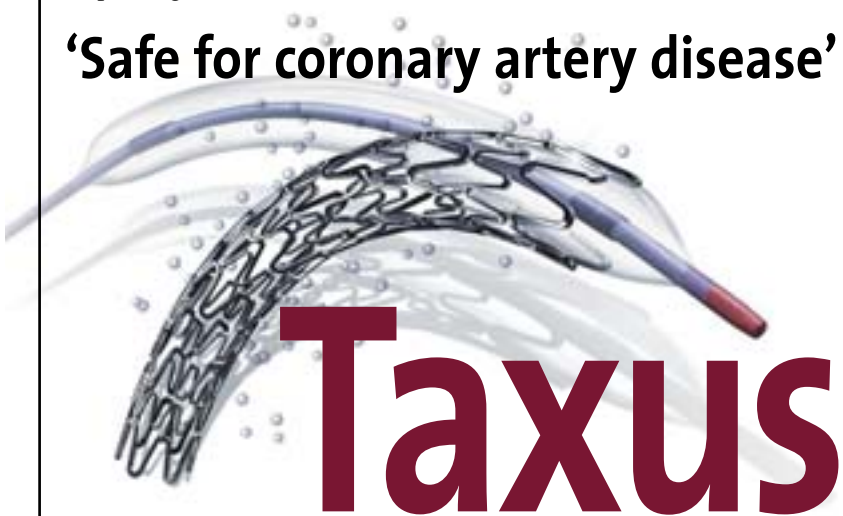
HfB - Business School of Finance & Management

HfB – Business School of Finance and Management based in Frankfurt/Main, Germany, is the centre of excellence for education and research in finance and management. It runs internationally recognised degree programmes, postgraduate studies and open courses for executive education. Up-to-date management know-how for professionals and managers in all economic sectors is provided in international MBA programmes.

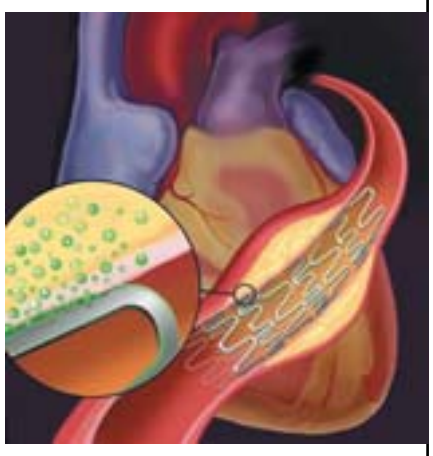
HfB offers a Frankfurt Evening MBA (FEMBA) in conjunction with the prestigious Henley Management College/UK as well as the MBA in International Hospital Management together with Nations HealthCareer School. To ensure that its state-recognised and FIBAA-accredited programmes are up-to-date and have practical relevance, the HfB maintains regular and intensive contacts with the finance, assurance, health and other business sectors.

In its international programmes, HfB cooperates with 24 universities and business schools worldwide, including Emory University in Atlanta (USA), the University of New South Wales in Sydney (Australia) and Universidad Sevilla Hispalensis in Seville (Spain). For more information on the HfB, please visit the HfB website: www.hfb.de.

‘Safe for coronary artery disease’



Taxus



France - Four studies of three TAXUS paclitaxel-eluting stents have demonstrated their safety and efficacy, according to the maker, Boston Scientific Corporation of Natick, Maryland, USA.

Paclitaxel is a multi-functional microtubule inhibitor that controls platelets, smooth muscle cells and white blood cells, all of which are believed to contribute to restenosis. The proprietary polymer on the stent allows for controlled delivery of paclitaxel.

Speaking at the annual Paris Revascularisation Course (the largest interventional cardiology conference in Europe), Dr Mary Russell FACC, Medical Director and Vice President of Boston Scientific Cardiovascular Clinical Affairs, said that the studies included expansion into higher-risk patients, and showed a benefit to patients over two years. Dr Russell added that this provided further evidence that polymer-based paclitaxel-eluting stent technology is a safe and effective treatment for coronary artery disease.

TAXUS I - This randomised, double-blind, multi-centre, feasibility study was designed to assess safety of the firm’s slow-release drug-eluting stent platform. The trial involved 61 patients and results supported safety based on a reported 3% major adverse cardiac events (MACE) rate at two years. No new MACE events were reported in either group in 1-2 years. (One additional intervention did not meet the clinical or angiographic definition for MACE. This occurred between a study [drug-eluting] stent and a non-study [bare] stent and was not attributable to in-stent restenosis.) The data demonstrated excellent performance by the TAXUS stent at six months with respect to vascular healing, incomplete apposition and edge effect following detailed intravascular ultrasound (IVUS) analysis.

TAXUS II - This trial involves 536-patients in a 15-country, randomised, double-blind, controlled study of the safety/efficacy of a TAXUS paclitaxel-eluting coronary stent, in which two sequential cohorts of patients with standard risk, de novo coronary artery lesions were treated with different dose formulas. In March, the firm announced one-year follow-up data supporting safety/efficacy, and has now given additional results based on more in-depth analysis of higher risk patient subgroups, including diabetics and patients with longer lesions and smaller vessels. The results demonstrated that the reduction in target lesion revascularisation (TLR) events for the TAXUS II subgroups at one year was equal to, or better than, that of the general study population. For example, diabetics reported an overall TLR reduction of 85%, compared with a 75% reduction in the general study population.

‘This is an important body of data with a near complete follow-up in 89% of all TAXUS II patients, and it offers us the unique opportunity to systematically study restenosis and vascular healing and to assess safety concerns after placement of drug-eluting stents,’ said Dr Patrick Serruys, of the Thoraxcentre, Rotterdam. ‘Using IVUS technology, and an innovative analysis algorithm, we were able to analyse, millimetre by millimetre, how the vessel responds following implantation of a TAXUS stent. Our results showed that the vascular biologic response along the entire length of the stent as well as the edges is consistent and beneficial, providing further assurance of the safety of TAXUS technology.’

The analysis of incomplete apposition (separation of stent from vessel wall) showed no correlation between these occurrences and adverse clinical events. The rate of late acquired incomplete apposition (develops subsequent to the baseline procedure) in TAXUS II was 8.8% in the slow-release formulation and 9.5% in the moderate-release formulation

compared with 5.4% in the combined control group. The difference was not statistically significant between the TAXUS and control groups. No new MACE events were reported in this group between six months and one year.

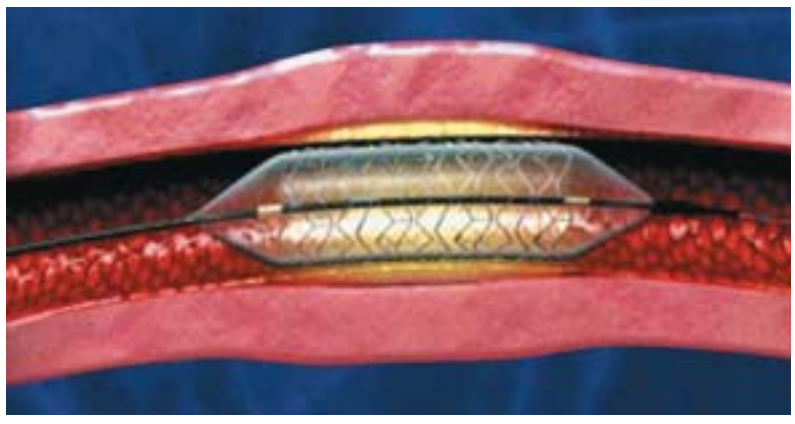
TAXUS VI - This involves 448 patients with complex coronary artery disease at 44 sites, and is designed to establish safety/efficacy of the moderate-release formulation TAXUS stent as a treatment for longer lesions. The trial - which includes the use of multiple stents - has a primary endpoint of nine-month target vessel revascularisation (TVR).

30-day safety results have now been released. Although the trial is divided into two groups (A, B), it remains blinded to treatment assignment through the nine-month endpoint. The demographics, baseline lesion characteristics and procedural results were well matched between the two groups. The 30-day MACE rate was 5.3% for group A and 7.3% for group B. This rate is consistent with the high-risk profile of the patients enrolled, including those with multi-vessel disease and a mean lesion length of nearly 21mm. About 35% of patients needed multiple stents. Nine-month data will be announced this autumn.

WISDOM - The firm reports that this transitional registry, initiated in 2002 as part of a limited commercial launch of the Company’s TAXUS Express2 paclitaxel-eluting coronary stent system, is an international, multi-centre, prospective, observational registry, which collects and analyses real-world data in 19 countries. Of the 500 patients involved, safety results for the first 100 have shown safety based on site-reported clinical outcomes at six months (3% including death, myocardial infarction and TVR). The diabetic patient base for WISDOM is 33% and 61% of the lesions were longer than 12mm.

The TAXUS III trial, which studied the treatment of in-stent restenosis, confirmed safety and reported no thrombosis at one year. The TAXUS IV trial is designed to assess safety/efficacy of a slow-release formulation to support regulatory filings for US product commercialisation. It has completed enrolment and nine-month follow-up is underway. The TAXUS V trial is an extension of TAXUS IV, and studies higher risk patients, including those with smaller vessels and those with longer lesions needing overlapping stents.

In February, Boston Scientific launched the TAXUS Express2 paclitaxel-eluting coronary stent system in Europe and other international markets. The product’s US launch is expected later this year.



The Paclitaxel-eluting coronary stent is covered with the proprietary TransluteTM polymer that allows for controlled drug delivery. Paclitaxel is a multi-functional microtubule inhibitor that controls platelets, smooth muscle cells and white blood cells, all of which are believed to contribute to restenosis

Artificial hibernation and aortic surgery

2,871 aortic surgery procedures were carried out in Germany last year. 317 of these were on the aortic arch - and particularly dangerous. The blood supply to the brain has to be limited for a considerable time or even completely stopped. Under normal circumstances, this would be fatal for the patient - if it wasn’t for a very special procedure: hypothermic circulatory arrest puts patients into artificial hibernation during the entire procedure.

Pencil-thick cannulas are inserted into groin vessels, then blood is circulated via tubes to a heart-lung machine and the body temperature is lowered to 18°C. Simultaneously, the heart-lung-machine pumping rate is reduced until circulation is stopped completely and the blood volume is drained into a reservoir. The surgeon thus replaces the aorta or aortic arch in a blood-free site

The time-scale for artificial hibernation is limited, the decisive factor being oxygen reduction and metabolic activity through temperature reduction. At a body temperature of 18°C, up to 40-45 minutes worth of cerebral ischemia is usually tolerated without problems. With modern heart-lung-machines and hypothermic equipment, temperature lowering and raising can be controlled precisely. There is some controversy over the different methods of control of the acid-base balance during various temperature phases.

At the 32nd International Conference of the German Society for Cardiovascular Engineering e.V. in May, about 300 international specialists discussed strategies for improvements to this sophisticated method of cardiovascular support. *Source: German Society for Cardiovascular Engineering e.V.*

AED - with spoken BLS instructions

For those without practised skills in using automatic external defibrillation (AED) and basic life support procedures, the prospect of coping with a case of sudden cardiac arrest is awesome. However, equipment called AED Plus, which incorporates a CPR feed back system and pre-connected electrode, guides users through the resuscitation process visually and verbally - giving vocal prompts such as *‘push harder’* or *‘good compression’* - while its adaptive metronome leads the user to the recommended 100 compression per minute rate.

Zoll, the manufacturer of AED Plus reports that a resuscitation study has confirmed that an audio-feed back system can improve the patient’s chances of survival. One of the parameters in this study was the depth of chest compressions. Nurses guided by voice prompts, which indicated the correct compression depth, showed a significantly better outcome from basic life support (BLS) skills.

continued from page 1 ‘POLYPILL’ CUTS CARDIAC ATTACKS BY 80%

people with vascular disease (who have more than a one in five chance of a major event over five years without treatment) and many others at higher risk, says Anthony Rodgers, co-director of the Clinical Trials Research Unit, University of Auckland, New Zealand, writing in the same issue of the BMJ.

‘The formulation which met our objectives was: a statin (for example, atorvastatin (daily dose 10 mg) or simvastatin (40 mg)); three blood pressure lowering drugs (for example, a thiazide, a blocker, and an angiotensin converting enzyme inhibitor), each at half standard dose; folic acid (0.8 mg); and aspirin (75 mg),’ the professors report. ‘We estimate that the combination (which we call the Polypill) reduces IHD events by 88% (95% confidence interval 84% to 91%) and stroke by 80% (71% to 87%). One third of people taking this pill from age 55 would benefit, gaining on average about 11 years of life free from an IHD event or stroke. Summing the adverse effects of the components observed in randomised trials shows that the Polypill would cause symptoms in 8-15% of people (depending on the precise formulation).’

In developed countries, Anthony Rodgers suggests that use of the Polypill could achieve ‘... large reductions in risk factors’ and that ‘...one could reasonably expect more than a halving in cardiovascular risk in the first two years and a two thirds reduction in subsequent years.’ He also points out that the pill would have enormous potential in developing countries, which are now facing an epidemic of cardiovascular disease.

‘More information on side effects, from trials of low dose combinations is clearly needed, especially before contemplating widespread use among people at moderate risk. However, common or serious unanticipated problems seem unlikely since these medications have been studied so extensively and used together so often.’ He suggests that prerequisites prior to marketing should include: ‘Widespread debate, technical solutions in developing and manufacturing the pill(s), to maintain chemical activity. Explicit regulatory requirements, ideally based on balance of benefit and harm rather than principles that fixed dose polypharmacy is intrinsically undesirable. Trials assessing bioavailability, intermediate endpoint effects, safety, tolerability, and adherence (clinical endpoint trials should not be needed for existing indications). Ensuring those in need

By Professor Hans-Joachim Schaefers, Department of Thoracic, Cardiac and Vascular Surgery, University Hospital Saarland

50 years of open heart surgery

Fifty years ago Henry Gibbon introduced a vital tool for cardiac surgery - the heart-lung machine. While pioneering efforts were made in the first half of the 20th century, this equipment enabled reproducible operations for either congenital or acquired heart disease in many patients. Between 1953 and 1980 the ground was laid for most of the treatment principles still used in modern cardiac surgery.

Today cardiac surgery can help, or even cure, almost all congenital heart defects, and even correct or effectively stabilise complex defects in the first few days of life, with low mortality and good functional results. Congenital or acquired functional defects of heart valves can be repaired or treated by valve replacement for infants to octogenarians, with marked improvement of prognosis and exercise ability.

Replacement of the aorta for aneurysm or dissection can be performed using synthetic grafts with relatively low risk, and, if necessary, the whole aorta can be replaced. The treatment of coronary artery disease by bypass surgery boomed in the 1980s and 1990s. With the ever-increasing prevalence of this disease, prophylactic operations to improve myocardial blood flow currently play the biggest role in cardiac surgery. Most treatment principles in these areas have remained relatively constant over the past 20 years. Nonetheless, further improvement of results can be anticipated from the gradual modifications made, such as extending the possibilities of valve repair, improving the long-term prognosis in heart valve substitutes or the predominant use of arterial grafts in coronary surgery.

Some changes that have arisen in the past decade that may or may not play an important role in cardiovascular medicine in 2010. Minimally invasive surgery has been introduced successfully into surgical specialities, such as general surgery, gynaecology and urology. This has also been introduced to cardiac surgery to minimise trauma. Presently, technical details are not the only subject of controversial discussion. It is also unclear whether minimally invasive surgery can attain the goal of being less traumatic, without compromising functional results in cardiac surgery. Along similar lines, coronary surgery without using cardiopulmonary bypass (of the 'pump') has been proposed - to minimise potential neurologic complications. Similarly, its effect has not been clearly confirmed and is the subject of controversial discussion.

Currently major challenges to cardiac surgery from a medical perspective come not from the discipline itself but from cardiology. With increased efforts in preventive medicine and the use of lipid-lowering drugs, the prevalence of coronary artery disease is expected to decrease substantially. Interventional cardiology is treating an increasing number of patients by angioplasty, and it is unclear whether advances in interventional treatment - such as drug eluting stents - will effectively reduce the need for surgical treatment. However, the time is also right to look closely at the cost effectiveness of interventional versus surgical treatment. As yet no good analyses are available, and whether it is reasonable and cost-effective to more patients who have had four, five or more coronary interventions before ultimately having surgery, remains to be shown

Other socio-economic factors can be anticipated to have basic effects on medicine in general as well as cardiac surgery. Healthcare's increasing cost (caused by the increasing age of the European population and increased availability of treatment options) is placing strong economic pressure on healthcare in general, to which different countries have reacted differently. Irrespective of national differences, the economic pressure will increase and will affect medical practice.

It can also influence medical evolution or progress. Not only will new technologies, such as robotic surgery, need scrutiny regarding their efficacy compared with more conventional techniques, but the question arises as to whether and to what degree a new technology leads to an increase in cost without concomitant increase in quality of healthcare.

In recent years, a new aspect has come on the scene with particularly strong implications for cardiac surgery. Traditionally, this discipline is characterised by a high percentage of unplanned, i.e. emergency operations and relatively long operating times. During postoperative patient care, close follow-up of patients has been essential, to prevent or aggressively treat potential complications that could be life threatening. The empirical nature of cardiac surgery also requires exposure to a wide variety of situations, during training periods as well as subsequent practice in the profession. Despite the workload and pressure on individual surgeons, cardiac surgery has always drawn interested and ambitious individuals due to its fascination. With the advent of close regulation of working schedules, this system is now substantially challenged. While nobody will argue that an 80-hour week is good for a surgeon or patient, who must be treated during evening hours (when concentration is far from optimal), current trends challenge traditional aspects of quality of care - particularly the continuity of care. Different solutions may be implemented to alleviate the current conflict of interests, but advantages as well as disadvantages of different approaches will have to be carefully weighed in the future.

Over the past 50 years, cardiac surgery has evolved from a clinical experiment to a formally established clinical speciality that can offer prolongation of life expectancy and improved quality of life to many patients in a very wide range of ages. At the beginning of the new millennium this young speciality will have to deal with new challenges, and it is at this point difficult, if not impossible, to predict future development.

get access-clear indications and contraindications, affordable formulations and systems to ensure profits are made on large volumes rather than large margins.'

The advent of preventive medications has long been a concern, and clearly needs debate that involves society - adding fluoride to water is one example of preventive care that caused an inevitable outcry when done without prior public debate and consent.

Additionally, 'Widespread uptake would require overcoming perceptions that cardiovascular disease is a 'natural' cause of death, or one that does not lead to substantial disability,' Anthony Rodgers continues, in his editorial. 'One must also bear in mind that a third or more of adults in many countries already take natural supplement pills regularly (mostly multivitamins with uncertain benefits, or antioxidants, now known to have no important benefits for major diseases). The strategy should be integrated with population wide approaches that address the root causes of cardiovascular disease, including reshaping societies so that smoking and development of life threatening levels of body fat, cholesterol, and blood pressure are not the norm.'

Ultimately, he concludes that the professors' claim for their Polypill are possibly justified: 'Only large reductions in smoking or a few other leading health risks could achieve so much health gain. Realising this enormous potential should be a major goal especially for developing countries.'

Richard Smith says in his editorial that it was '...genius to think of the idea and hard work to identify the exact ingredients. The authors have also taken an original step by showing that most of the benefits (and many fewer of the side effects) can be had from taking antihypertensives at lower dose and in combination. '

He also points out that the '... economics and politics of the project are fascinating. The six ingredients are all off (or about to be off) patent, so the pill might be made very cheaply... but large pharmaceutical companies are not keen. Not only will the profit margin be low but also many of their expensive drugs may be made redundant.'

Finally, Dr Smith poses some entertaining suppositions, including the effects of the Polypill 'vaccine' on the roles of cardiologists and cardiac surgeons. ' Will they have to retrain as psychiatrists, hoping that nobody invents a 'happy pill' to oblige further retraining?' he asks.

Surely cardiologists should not ignore the Wald and Law paper plus the editorials and related items in this issue of the journal? Access: www.bmj.com

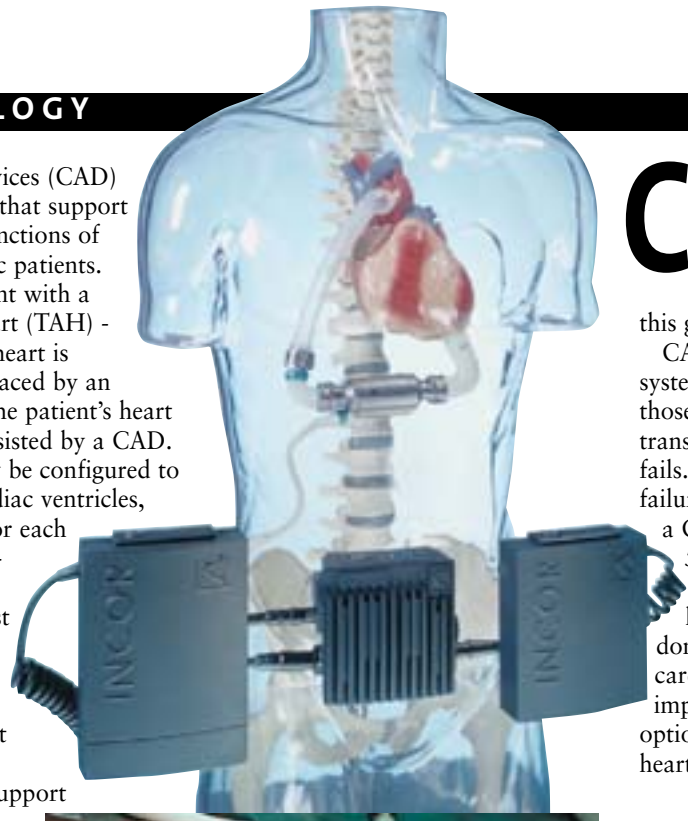
Report: Brenda Marsh

Found: a genetic cause for cardiac defects

New research, which has identified a gene mutation as the cause of congenital heart problems, may result in screening that in turn could help to understand how these diseases develop, and thus aid the discovery of therapeutic and prophylactic interventions.

In research published online by Nature (www.nature.com/nature), Deepak Srivastava and colleagues at the University of Texas Southwestern Medical Centre, Dallas, Texas, analysed a large family with a history of congenital heart problems and found that the GATA4 gene, located on chromosome 8, was mutated in individuals with septal defects, but remained normal in unaffected family members. Whereas conditions like cystic fibrosis arise when both copies of a mutated gene are present, just one copy of the altered GATA4 gene is enough to cause cardiac problems, the researchers report.

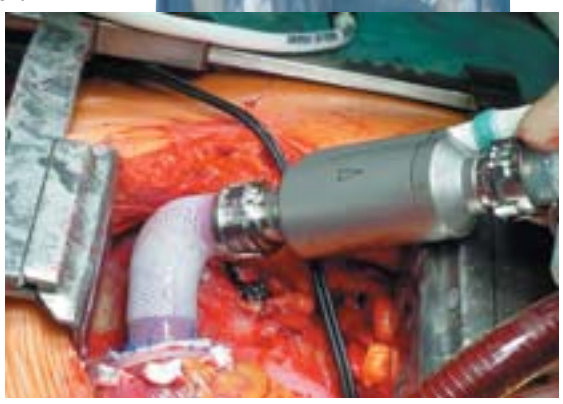
Cardiac Assist Devices



Cardiac assist devices (CAD) are blood pumps that support the circulatory functions of severely ill cardiac patients. Unlike replacement with a total artificial heart (TAH) - when a patient's heart is removed and replaced by an artificial heart - the patient's heart remains and is assisted by a CAD.

The device may be configured to support both cardiac ventricles, with one pump for each cardiac chamber - thus named biventricular assist devices (BVAD). Left ventricular assist devices (LVADs) and right ventricular assist devices (RVAD) support the left or right sides of the heart.

The CAD's position may be inside the thoracic or abdominal cavity but, at present these implantable devices can only support the left ventricle. Implantable pumps are also only suitable for adult patients. If biventricular cardiac assistance is needed, or if a patient's body size makes the implantation impossible, a paracorporeal ventricular assist device outside the body and connected to the heart via cannulae, must be used.



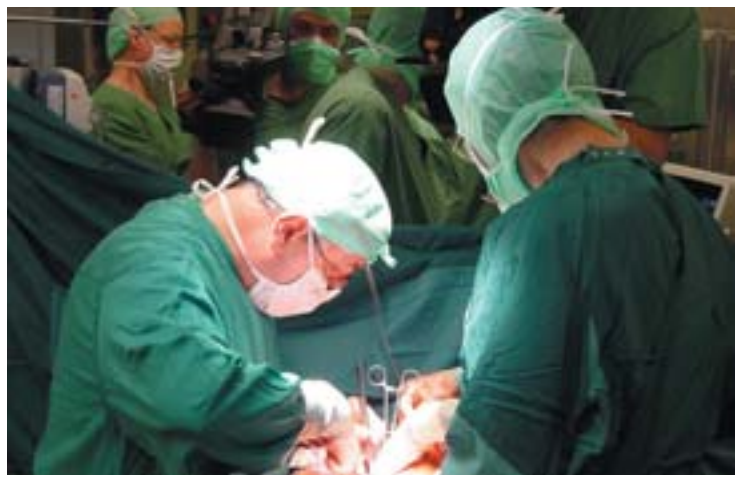
CAD system made by Zoll

CADs may be implanted in patients with acute heart failure, for example after myocardial infarction or after surgery. Patients awaiting a heart transplant, whose cardiac function deteriorates before a suitable organ can be implanted, need circulatory support for the period before a transplant. In selected patients with dilative cardiomyopathy, a CAD may be removed after a prolonged support period, and when the patient's own heart has recovered and can maintain blood circulation.

Permanent mechanical circulatory support is necessary for patients whose own heart function does not recover, if they are not suitable to receive donor organs.

In the special subgroup of paediatric cardiac patients, circulatory support may be provided by paediatric paracorporeal assist devices - after acute myocarditis, dilative cardiomyopathy, surgical therapy, or as a complication of a congenital heart defect. However, only a few CADs are available for this group of patients.

CAD support of the circulatory system is an effective treatment for those who cannot receive a heart transplant when their own heart fails. Patients with acute heart failure (HF), who are stabilised with a CAD before a transplant have 1-5 year survival rates, compared with patients after primary heart transplantation. Due to donor organ shortages, long-term cardiac support is increasingly important and may represent an option for patients with chronic heart failure.



Implanting a CAD

Time of assist	short-time assist	mid-time assist	long-time assist	
			univentricular assist	biventricular assist
Intracorporeal	Impella elect	IABP Impella recover	Novacor Heart Mate II Lion Heart Jarvik 2000 INCOR Berlin Heart DeBakey VAD	
Extra-/paracorporeal	RotaFlow DeltaStream Bio-Pump	Abiomed BVS		Thoratec VAC Medos VAD EXCOR Berlin Heart

Kind of pump	Rotary pumps			Displacement pumps
	Axial pumps	Radial pumps	Diagonal pumps	
	Impella Jarvec 2000 INCOR DeBakery VAD	RotaFlow Bio-Pump	DeltaStream	Thoratec VAD Medos VAD EXCOR Abiomed BVS Novacor LionHeart

Table 1: Cardiac Assist Devices may be divided in the intended time of use or the kind of pump

	1996	1997	1998	1999	2000	2001	2002
VAD without HTx	291	367	323	440	419	463	388
VAD with HTx	46	31	53	25	35	193	166
IABP	*2255*	*2482*	*2384*	*2472*	*2717*	*2689*	*3009*

Source: Leistungen der deutschen Herzchirugie 2002

Table 2: Mechanical circulatory assist in Germany
Legend: VAD - Ventricular Assist Device, HTx Heart transplantation, IABP - Intraaortic balloon pump

Mobile test detects infarction in minutes

The earlier a cardiac infarction is detected the better the patient's chances of survival. However, because tests for cardiac infarction check for protein molecules that are released from heart muscle during cell necrosis, and these enter the blood very slowly, it can take three hours to gain a reliable result.

The real importance of the release of myocardial proteins during a cardiac infarction became clear only in recent years. As a result, in 1999, the European Society for Cardiology (ESC) and the American College of Cardiology (ACC) produced a new definition of acute myocardial infarction, based on the occurrence of typical kinetic courses of biochemical markers (specific myocardial proteins) from myocardial necrosis, for example combined with ischemic symptoms.[1]

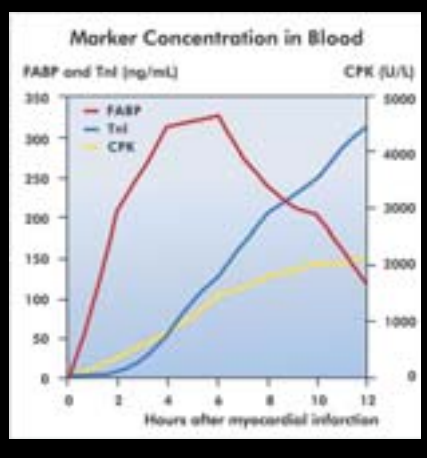
Measuring the cardiac protein troponin T is now the norm, but several companies have been trying to establish other testing systems, using markers with shorter phases of release than troponin T.

They have had no greater success.

To diagnose cardiac infarction as quickly as possible, particularly fast markers are needed, such as the h-FABP (fatty acid-binding protein).

Now, Rennesens GmbH, a Berlin-based bio-tech company, reports that it has developed '...a lab-independent, reliable and easy-to-handle rapid test in the form of an EC-card, which gives a reading of cardiac infarction in just 35 minutes of its onset. CardioDetect is highly sensitive to h-FABP. If used 20 minutes after the onset of symptoms, the card will provide an accurate result in 35 minutes, says Rennesens, adding that the test device is safe and easy to use.

Details: Wolfgang Schwarz, Marketing Manager, Rennesens GmbH. wschwarz@rennesens.de

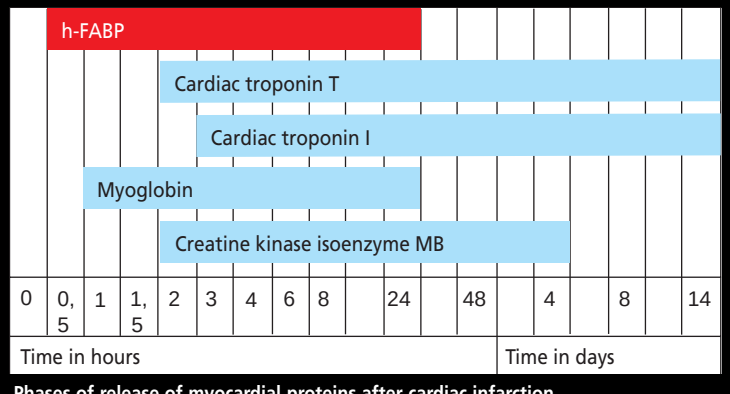


Mobility - test kit in a pocket

The CardioDetect EC-card fits in a wallet and the user, or a non-specialist, can carry out a test anywhere, taking any necessary remedial steps before medical help arrives. No complicated instructions are needed. With an enclosed tool, the tip of a finger is pierced to obtain 2-3 drops of blood. This is put on a test field and 15 minutes later the result is readable. Results are evaluated on an easy YES/NO basis.

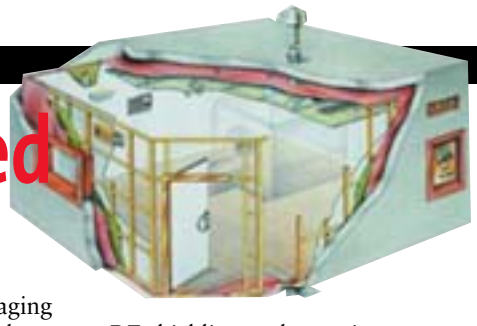
Although CardioDetect is designed for use by anyone, the R&D team and manufacturer see its most important potential in medical institutions, emergency services and geriatric care. Sports clubs or airlines could also use the card.

Diagnostic window of marker proteins compared with myocardial protein h-FABP used by CardioDetect



Phases of release of myocardial proteins after cardiac infarction

Neuromed buyout



GERMANY - Diagnostic imaging equipment handler Neuromed Solutions GmbH (est. 1993) has split from the firm's former managing company UMS Neuromed AG. Thomas Fischer, Stefan Hellwig, and Michael Kwet are now owners/managers of this newly DIN ISO 9000-2000 certified company, which they say is the dominant provider of MRI RF shielding and container systems, technical services (handling CT and MRI equipment including installation), and pre-owned CT/MRI equipment sales. CEO Michael Kwet says the buyout was well received by the firm's main customers: GE, Philips and Siemens, and he predicts significant future growth.

Stimulating cell metabolism

G-ogo sport, a new innovation from Dr. Goettfert Systems, uses a pulsing magnetic field to stimulate cell metabolism. The firm says this increases oxygen in the blood and other cellular tissues, boosting energy levels. Injuries are prevented, while regeneration of existing injuries is accelerated, and the micro-processor controlled programme ensures safe, easy use, the firm points out. 'Although portable, the G-ogo sport's impulse generator provides a powerful intensity comparable to professional equipment systems with large field coils. The pulsing magnetic field stimulates joints, muscles and other tissues through the locally applied applicator that moulds to the body's contours,' the firm adds.

Contact: Dr. Dipl.-Ing. Goettfert Systems GmbH, e-mail: info@dr-goettfert-systems.de www.dr-goettfert-systems.com.

US SKIN REFRIGERANTS FOR EU

Ethyl Chloride skin refrigerants made by the Gebauer Company, of Cleveland, Ohio (established over 100 years ago) have received the CE Mark of approval.

Ethyl Chloride Pain Ease, with two delivery systems - mist and medium stream spray - is ideal for minor surgical procedures, pre-injection anaesthesia, minor sports injuries and pain management due to trigger points using the 'spray and stretch technique, the firm reports.

Exhibiting for the first time at MEDICA, last year, the firm said the product received overwhelming interest and European distribution outlets are being set up to meet demand.

Also in the process of completing the CE Mark requirements are the firm's Salivart Oral Moisturiser, offering 'immediate relief for xerostomia (dry mouth) and dry throat'. One spray coats the mouth, tongue and throat to facilitate speaking, chewing and swallowing, the firm points out.

ISO 9001, EN 4600 and ISO 13485 quality certification have also been received.

SAFER CANES AND CRUTCHES

The biomechanical features of the human ankle inspired the design of a new safety tip called Fedrofuss. When the slanted cane hits the ground the entire Fedrofuss base contacts the surface, says engineer Holger Weber, the designer. 'As steps continue, the ball-and-socket joint anticipates the movement, ensuring optimum traction. When the cane/crutch is lifted the joint in the tip also moves, assuming the correct position for the next surface contact.' Thus the tip helps to avoid falls and also facilitates walking on steep surfaces, exercising on gymnasium floors and standing up with a walking aid, he adds.

The tip has CE approval, TUV approval, and is on the German list of medical aids and appliances (Nr.10.99.01.1007).

Auction saves centre 20,000 euros

It's not usual to win an auction with the lowest bid but, in a bid to save money, the German Cancer Research Centre (GCRC) organised a 'reverse auction', offering a contract for delivery of new computer screens as the prize. Nine firms submitted written starting bids before the event. Then, on a tendering platform leased from Goodex AG/ Ariba Inc, underbidding constantly improved. 90 minutes and 191 bids later, the new partners were confirmed - having come in 20,000 euros lower than the previous contract.

All in one

Anaesthesia combines with monitoring and data management

Datex-Ohmeda's S/5 ADU Carestation combines an anaesthesia machine's electronically controlled gas delivery and agent vaporisation with patient monitoring and information management. This electronic and mechanical integration makes it unique, says the manufacturer, adding: 'The S/5 ADU Carestation has the same outstanding user interface that is the trademark of the System 5 product family.'

The S/5 ADU Carestation, enhanced with new 12.1" LCD displays designed in line with the S/5 ADU evolution, offer 800 x 600 resolution and a 30% larger screen area. The new key layout is also easier to use, and now has a reset case key - in line with the S/5 Anaesthesia Monitor, the firm points out.

Upgraded ergonomics include a strip light integrated in the top shelf; a gas hose zipper to organise incoming gas hoses and a hose handle for alternative storing/hanging of pipeline hoses and easier transportation of S/5 ADU Carestation.

The easy to use S/5 ADU Carestation can be expanded according to needs and configured to suit individual environments, the company adds.

AWARDS

Award for HIV monitoring

The CyFlow and CyLab technique (e.g. for economical CD4/CD8 counting in HIV monitoring in developing countries) has received 1st prize in the Innovations Award 2003, given by the State Ministry of Economy, Dresden, Germany.

CyFlow and CyLab have also received a certificate - an official approval for the perfect counting capabilities of the Partec FCM technology - from the German Institute of Standards (PTB, Braunschweig), the manufacturer reports.

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Web advisories aid physicians

Monitoring and rapidly introducing new developments into everyday practice is an increasingly difficult task for many doctors. Additionally, patients are more informed due to media medical reports, which raise their expectations that doctors can offer a quick, reliable interpretation of the latest medical data.

Following most laboratory diagnostic tests, a doctor receives a report containing various measurements, which he/she uses to choose therapies. This offers diagnostics companies the potential to produce information to assist in the decision-making. Thus, in addition to developing increasingly sensitive diagnostic techniques, information technology (IT) will take a more central role in a firm's business operations. This metamorphosis has already begun.

Our knowledge of the human body, possible predispositions to illness as well as therapies, is constantly increasing. It is our duty as the world leader in diagnostics to collate this knowledge and deduce therapy recommendations from it, for the benefit of doctors and patients."
Heino von Prondzynski, Roche Diagnostics Head

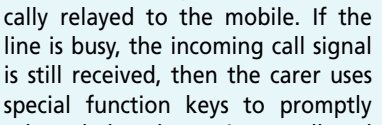
Heino von Prondzynski, Head of Roche Diagnostics, said: 'Our knowledge of the human body, possible predisposition to illnesses, as well as therapies, is constantly increasing. As the world leader in diagnostics, it is our duty to collate this knowledge and deduce therapy recommendations from it to benefit doctors and their patients.' Roche Diagnostics' range of 'Actionable Health Information' services does just that, as in the case of calculating the risks of late-occurring diabetic complications and costs of treatment. Roche's Mellibase system regularly supplies prognoses to doctor and patient, on paper or electronically, for use in doctor-patient discussions and to help diabetics adapt their lifestyles accordingly.

The company's RealFlu also helps diagnose influenza and encourages patients with flu-like symptoms to seek medical advice quickly. From October to April, the website www.mellibase.de provides information about influenza outbreaks in individual German states, and doctors who see influenza developing in their regions can raise diagnosis accuracy up to 80%.

Rapid IT development accelerates the transition from simple data management to a decision-making tool. 'Actionable Health Information' systems enable more effective treatments as well as improved allocation of resources. In future, this will contribute to a healthcare strategy that integrates costs, quality of life and medical quality, and optimise their interaction for the benefit of all.
Dr Burkhard Ziebolz,
Roche Diagnostics

Mobile iris recognition

Iris recognition is thought to be the highest-accuracy, single-factor biometric identification in the world, and could have many uses. In November, for example, an iris recognition system was installed in Bad Reichenhall's city hospital to protect access to the infants' ward.



The developers Byometric Systems Inc, of Mitterfelden, Germany, in co-operation with the University of Applied Science, Salzburg, Austria, report that over 240 degrees of the human iris is examined, to create a 512-byte data template, used to identify individuals and/or authenticate user privileges.

In future, another application could be to identify unconscious patients, who cannot give information about chronic disease. Alexander Lau, CEO of Byometric Systems said that the image of the Iris would be transferred to a computer, to send a unique IrisCode to a central database, where the patient would be identified. Data relayed to the attending doctor could then be used in treatment decisions.

Patients link with mobiles

Photo: Städtisches Krankenhaus Bad Reichenhall

Bad Reichenhall's city hospital is using the DECT-SMS system. The hospital also uses an iris recognition system to protect the infant's ward

Another new system introduced at Bad Reichenhall's city hospital, allows nurses to talk with patients and ascertain whether their calls are due to an emergency or for a non-urgent request.

The system, developed by Damovo Deutschland GmbH and the telecommunications company Ericsson, uses a mobile DECT phone (Digital European Cordless Telephone Standard), interfaced with the Ericsson telephone system MD110. This receives messages from patient emergency paging units using the ESPA 4.4.4 (European Selective Paging Manufacturers Association) standard. When a patient signals for help a call is relayed to DECT mobiles, programmed to alert one or more carers wherever they may be.

By pre-programming, the patient's room number, ward and doctor's names, for example, are automatically relayed to the mobile. If the line is busy, the incoming call signal is still received, then the carer uses special function keys to promptly acknowledge the patient's call and decide relevant action.
Details:Bernd.Fischer@damovo.com.
www.damovo.de

CE approved

Net auto-transmission of patient data

CardioMessenger can be worn on a belt, or kept on a stand

The Biotronik Home Monitoring Service, which gained CE approval in May, has now monitored over 1,500 patients worldwide. Studies indicate that 88% of patients claim an increased sense of security due to the service.

This mobile, internet-based, automatic therapy management system for pacemaker and ICD patients enables a physician to access the patient's data at any time over a secure internet connection, evaluate the data, and initiate therapy as needed. If severe cardiac events occur, the doctor is notified via email, fax, or SMS. Prior to the launch of this system, remote monitoring was carried out by fax transmission.

Biotronik implants automatically transmit data to the CardioMessenger, a cell phone-like patient device, weighing just 220-g (8 oz) and measuring 6x13x4 cm (2.4x5.2x1.6 inches) No active patient participation is necessary, other than ensuring the device is charged.
Details: Dr H-J Wildau. Phone +49 (030) 6 89 05 - 332

Telemed for ophthalmology

O-PACS, the first integrated Digital PACS solution and Electronic Medical Record (EMR) developed specifically for ophthalmology, heralds a new era of tele-ophthalmology and could save the sight of thousands of Type II diabetics, says the system's maker ComMedica, of Woking, UK.

At a new 'reading room' in the Doheny Retina Institute, LA, California (which collaborated in the system's development), ophthalmic experts receive, for example, images of the fundus (back of the eye) from all over the United States. The specialists can then share and make diagnoses from the vascular network, directly and non-invasively. Conditions such as Type II diabetes mellitus can be detected 8-10 years before they would otherwise be diagnosed, allowing much earlier treatment, ComMedica reports.

For hospitals with existing electronic record systems, O-PACS modules (Image Capture, Integrated Patient Record, Eye Consultation workflow and

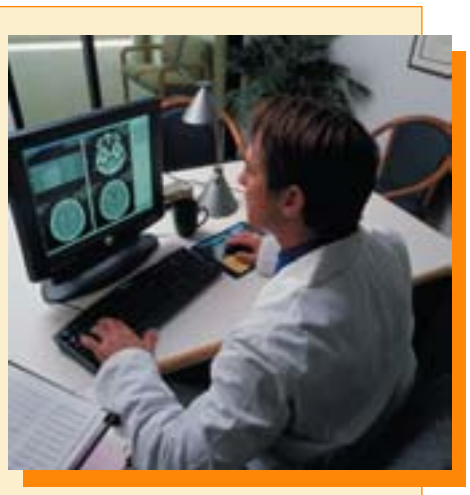
ADVANCING THE PACS PLATFORM

The Eastman Kodak Company is developing a flexible new web-enabled PACS system, suitable for a small hospital, one or more imaging centres, or a large healthcare facility. The firm reports that the Kodak DirectView PACS System 5 platform will be launched in the 2nd half of this year, and will expedite data access and delivery. The Kodak DirectView Web Distribution System, now available for ordering, provides a foundation for the transition to the new architecture. The already well-developed migration path includes a series of upgrades designed to leverage customers' existing PACS equipment, the firm adds.

Significant advances in this PACS platform will be:

- Streamlined workflow supporting both 'push' and 'pull' models and adapting to customer configurations.
- A central database managing a flexible configuration of local and distributed storage components, allowing customers to optimise workflow and performance while enabling all the system's users to participate in a single, global workgroup. Plus rapid access to images, even in multi-facility, limited-bandwidth environments.
- High availability and reliability through clustered server configuration options.
- The software suite could be housed as a single-server solution or replicated across multiple platform hosts - offering a cost-effective system for small hospitals and imaging centres, while scaling up for larger healthcare facilities.
- An HL7 interface provides seamless integration with hospital and radiology information systems.
- Imaging studies and reports can be written to self-playing CDs for distribution to referring physicians and patients, and played on a PC or Macintosh platform.
- The system supports e-mail distribution of key images and radiology reports to referring physicians. E-mail distribution can be configured with an optional web page link that gives physicians the ability to access the entire imaging study with a single mouse click.

The new database (included) will be used with the PACS System 5 architecture, therefore providing both customers easy migration to the new platform.



The web system supports clinical review by physicians on dual-monitor, high-resolution workstations; provides both lossless and lossy (wavelet) compression, and supports both Macintosh and PC platforms using an Internet Explorer or Netscape browser.

Biochips

The way forward

Due to economic pressure, laboratories increasingly consolidate and automate procedures. Further cost reductions could come about through miniaturisation and multi-parameter tests. Both allow fast responses to several target parameters with one sample. Biochips, especially DNS chips, have been developed furthest. But other test formats, such as bead technologies or microfluidic systems are also promising.

While DNA chips have already gained a certain commercial relevance, first-generation developments in protein chip technologies will be introduced to the market shortly. However, such developments can meet severe resistance - as in Germany, where no billing procedure has been implemented.

Biochips are small specimen trays onto which biological material has been applied for analysis. Biochips are also referred to as arrays, whereby target molecules* are aligned in a specific order on the chip surface, making it possible to match the results. (**Here the term target molecule is used for molecules that are bound to the chip surface with a known identity. The free molecules whose identity is to be determined are referred to as assay molecules*). Immobilised spots of under 200-µm diameter are referred to as microarrays; if larger than 300-µm they are called macroarrays. There are now arrays with up to several 100,000 spots on one chip.

Silicon, glass, glass steamed with gold, polymers (nylon membrane, other synthetics) and aluminium are used as carrier materials. Individual biological molecules (DNA, RNA, peptides, proteins) or complete cells are immobilised on the surface, which is modified when necessary.

There is a large range of procedures available for immobilisation. The differentiation is between in-situ and ex-situ procedures. In the in-situ procedure molecules are synthesised directly on the surface of the biochip. DNA chips in particular are manufactured according to this procedure. In the ex-situ procedure molecules are synthesised outside the chip and defined amounts are applied to the chip afterwards. Molecules are applied using instruments called spotters or nanoplotters, which apply solutions on the chip surface in a pl-ratio or nl-ratio. Spotting differentiates between contact procedures and non-contact procedures.

In contact procedures a stamp or a pin dips into the solution to be spotted and prints it on the carrier material. In doing so, the pin's tip touches the chip's surface. In non-contact procedures the spotter pin does not touch the surface, but the liquid is sprayed on (similar to inkjet printers, e.g. piezo-electric spotting). A non-contact procedure is particularly preferable when manufacturing protein chips, to prevent damage to protein structures.

Different procedures are used for biomolecules that are to be immobilised, to bind them to the surface of the biochip. The binding can be a direct adsorption to the chip surface, or appropriately activated surfaces. Furthermore, special coatings have been developed that enable a maximally reproducible biomolecule binding. These include special hydrophobic coatings and a coating with nitro-cellulose or with special matrices, also used in protein clearing.

Generally, biochips for various applications are produced by a corresponding manufacturer and the user carries out the analysis of materials. But now there are complete systems for a biochip assay. Immobilisation of the target molecule on the chip surface is the first fully automated step, then the binding reaction with corresponding molecules from samples to be analysed and finally the detection and evaluation of the results by using specific software.

Objectives and advantages

Smaller analysis systems lead to enormous cost saving. Use of test tubes, microtiter disks and reagents decreases. A significantly smaller sample volume is required, due to increased sensitivity of the microarrays. Analyses are simultaneous, saving time. Several thousand parameters can be analysed in a single experiment. High automation increases reproducibility several-fold.

Applications - Mainly medical and pharmaceutical but also in the food industry (e.g. identifying genetically modified foods), and in the environment, to prove contamination by certain bacteria.

At present, biochips are classified according to their surface molecules: DNA chips, protein chips, cell chips, lab-on-a-chip.

DNA chips - The first biochips and still dominating the biochip market. A few years ago US firm Affymetrix led the way with Gene-Chip, and today just one can contain up to 400 000 spots.

Target molecules of DNA chips are short fragments of single-stranded nucleic acid with known identity, either oligodesoxynucleotides, cDNA, RNA or entire chromosomes. PCR amplification and oligonucleotide synthesis allow efficient production of a variety of highly specialised target molecules. The target DNA can be of human origin, but also of a mouse, yeast, or several bacteria. DNA molecules can be immobilised either by in-situ or ex-situ synthesis.

Samples are culled from the nucleic acids of the biological material to be analysed. Prior to analysis, these nucleic acids must be labelled, in most cases with fluorescent dyes, sometimes with enzymes or radioactively.

The basic principle of the DNA chip assay is hybridisation of the target molecules immobilised on the chip surface with the free and labelled molecules of the sample. Single-strand nucleic acid molecules of the analysis will bond to complementary strands on the chip with high specificity.

Bound and labelled sample molecules are identified either optically or electrically. With optical detection, fluorescence, luminescence, or the radioactive radiation of the previously labelled sample molecules are measured. Quantification is based on the strength of signals. The higher the concentration of the screened substance in the sample, the stronger the signal.

Electrical detection is based on the fact that single strand DNA has a lower conductivity than DNA double strands and therefore a discrimination between hybridised and non-hybridised DNA is possible.

Currently, DNA chips are well-established, high throughput hybridisation systems. One single experiment can generate a huge amount of data that can be analysed with specialised software. *Source: VGD*

HIV Chips help mix winning cocktails

Medication regimes based on cocktails of anti-retroviral drugs can reduce the AIDS virus to almost undetectable levels. Now the Institute of Human Virology (IHV), at the University of Maryland Biotechnology Institute, in collaboration with the Toshiba Corporation, is setting up a project to optimise such regimes.

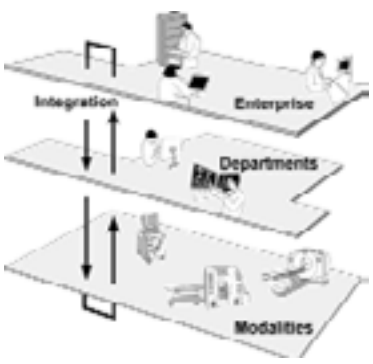
At the IHV (founded: 1996) researchers focus on chronic viral diseases, most notably HIV/AIDS, hepatitis and virally linked cancers (details: www.ihv.org). A particularly vital focus is on pharmacogenomics - how genetic inheritance affects responses to drugs. Progress in this area could lead to tailor-made medicines resulting in a better outcome. The institute's director, Dr Robert C Gallo, who co-discovered HIV, pointed out that over 50% of HIV patients fail therapy in the first two years. Now, however, because the biological causes of failure can be understood, these could be circumvented, which, he said, '... could become a major contribution to AIDS medicine globally.'

The research use Toshiba's electrochemical DNA chip that can analyse and type single nucleotide polymorphisms (common DNA sequence variations among individuals). Electrochemical detection interfaces with IT systems, rather than depending on fluorescent detection like most other DNA chips. Already in use in Japan, the new chip identifies hepatitis C patients who will respond to treatment with interferon, Toshiba reports.

In the new collaboration, patient responses to antiretroviral therapy will be analysed in relation to the host genetic status gene factors, such as metabolic enzyme SNPs that may influence toxicity and efficacy of the drugs. Results will be applied to (the study of) HAART, highly active anti-retrovirus therapy based on nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs).

IHV clinician and hepatitis expert Dr David Oldach will lead the project.

Ophthalmic DICOM Image Viewer) can be installed on a server as a complete package, or individually. The Image Importer compresses 15MB fundus images to 350K. When a thumbnail image is opened in Image Viewer, the image is automatically decompressed to original size and detail, with full diagnostic quality. O-PACS offers full colour



manipulation of those images due to integration of 16 chapters of the standard DICOM image library.

ComMedica was spun out of Imperial College, London, just four years ago, to commercialise clinical information systems (CIS). In 2001 Professor Richard Kitney, who led the development team, received an OBE for his services to IT in healthcare. ComMedica won the 'Best Software Innovation' category of the Wall Street Journal Europe's European Innovation Awards 2002.

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