High flyers and high earners

Talking of foreign medical professionals underpinning the UK’s National Health Service (NHS). In 2004, of the country’s newly registered medics, two thirds of the doctors, and over 40% of the nurses, had come from other countries. In total, about 72,000 of the UK’s 212,000 registered doctors are not British. That figure includes, for example, around 12,500 doctors from Africa and, from the EU, 3,764 from Germany.

Now a newer phenomenon has presented itself: ‘the weekender’. Wanting to race for a Friday night flight after a week’s work in your own country, then to toil on medical emergencies through to Monday, in a foreign country where you often experience language difficulties, is not difficult to understand, if you know you will return home with £4,350 - just for one weekend’s work. Just compare the annual income of doctors in the eight EU countries and the monthly figures presented in the boxes. The fee earned in that weekend nears what a senior physician earns in Germany after a month’s work. No wonder an estimated 2,000 German physicians now regularly take those Friday flights.

What caused this situation? The UK is short of doctors. On top of this, last year, the NHS gave its general practitioners (GPs) the option not to work during weekends. Another 40% of doctors have spent hours in transit and time in hospital theatres. In addition, some of the incoming doctors have expressed concern about the mercury equipment.

Last year, the number of German doctors registering in Britain, compared with 2003, more than doubled.

Study by the UK’s National Health Service (NHS)

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britain</td>
<td>104,000</td>
</tr>
<tr>
<td>France</td>
<td>90,000</td>
</tr>
<tr>
<td>Italy</td>
<td>81,000</td>
</tr>
<tr>
<td>Sweden</td>
<td>56,000</td>
</tr>
<tr>
<td>Denmark</td>
<td>50,000</td>
</tr>
<tr>
<td>Germany</td>
<td>44,000</td>
</tr>
<tr>
<td>Spain</td>
<td>44,000</td>
</tr>
</tbody>
</table>

These euro sums are approximate, and based on a study by the UK’s National Health Service (NHS)

United Kingdom - 53% of aneroid sphygmomanometers used to measure blood pressure gave inaccurate readings during a study led by Professor Andrew Shennan, the Government’s chief adviser on blood pressure measurement. (Pub: Blood Pressure Monitoring, 10(4):181-188, August 2005). Overall one in five devices was found to be of poor quality or faulty, indicating the potential for misdiagnosis that could affect treatment decisions.

The study concluded that if blood pressure readings are being over-estimated by 3mmHg across the population, the number of patients diagnosed as hypertensive would increase by 24%. Underestimation of the same amount would result in 19% being diagnosed with better blood pressure than was the case.

The Department of Health is reviewing the Blood Pressure Committee’s recommendations - which include calibrating aneroid devices at least once a year - and new guidance is expected shortly.

Hospital doctors' salaries

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britain</td>
<td>104,000</td>
</tr>
<tr>
<td>France</td>
<td>90,000</td>
</tr>
<tr>
<td>Italy</td>
<td>81,000</td>
</tr>
<tr>
<td>Sweden</td>
<td>56,000</td>
</tr>
<tr>
<td>Denmark</td>
<td>50,000</td>
</tr>
<tr>
<td>Germany</td>
<td>44,000</td>
</tr>
<tr>
<td>Spain</td>
<td>44,000</td>
</tr>
</tbody>
</table>

High flyers and high earners

Europe’s doctors

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>44,000</td>
</tr>
<tr>
<td>Spain</td>
<td>44,000</td>
</tr>
</tbody>
</table>

These euro sums are approximate, and based on a study by the UK’s National Health Service (NHS)

Europe’s doctors

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>44,000</td>
</tr>
<tr>
<td>Spain</td>
<td>44,000</td>
</tr>
</tbody>
</table>

These euro sums are approximate, and based on a study by the UK’s National Health Service (NHS)

Europe’s doctors

<table>
<thead>
<tr>
<th>Country</th>
<th>Salary in €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>44,000</td>
</tr>
<tr>
<td>Spain</td>
<td>44,000</td>
</tr>
</tbody>
</table>

These euro sums are approximate, and based on a study by the UK’s National Health Service (NHS)
**European Hospital**

*Russian doctors remove organs for transplantation without family consent*

One problem appears to be that, in kidney patients the situation is now so dire that some have no choice but to turn to illegal organ changes. Russian doctors, it seems, are able to perform these operations without the family’s consent.

In the case of a recent case, the problem was that of a young adult who needed a kidney transplant. The patient had a mismatch in blood groups, which made finding a suitable donor difficult. The patient’s family was unwilling to consider organ donation, as they believed it to be a violation of religious beliefs.

As a result, the patient was taken to a hospital in a neighboring country where, despite the patient’s family’s objections, the transplant was performed. The patient’s kidneys were removed without the family’s consent and the organs were transplanted into another patient.

The patient’s family was shocked and appalled by what had happened. They were also outraged by the lack of respect shown for their wishes. The hospital officials, however, defended their actions, stating that the patient’s life was in danger and that the only option was to proceed with the transplant.

In another case, a patient was taken to a hospital where he was subjected to a liver transplant without the family’s consent. The patient’s family had requested that the patient be declared brain dead, but the hospital refused to do so. Instead, the liver was removed and transplanted into another patient.

The patient’s family was outraged by what had happened. They had been unable to contact a hospital in time to have the patient declared brain dead, and they were now faced with the knowledge that their loved one’s organs had been removed without their consent.

In both cases, the hospital officials defended their actions, stating that the patient’s life was in danger and that the only option was to proceed with the transplant. They also stated that the family had been informed of the situation and had agreed to the transplant.

However, the family’s lawyers have stated that the family was not informed of the situation and was not given the opportunity to make an informed decision. They have also stated that the hospital had acted outside the law in removing and transplanting the patient’s organs.

The cases have sparked a debate about organ donation and consent. Many are calling for stricter laws to protect the rights of patients and their families.

Additionally, there is a growing concern about organ trafficking and the use of organs from undamaged bodies. It is feared that the use of organs from undamaged bodies will only encourage further organ trafficking and the use of organs from damaged bodies.

**Non-beating heart lung transplants**

The Netherlands - Two lung transplants, using lungs from non-beating donors, have been successfully performed at Groningeveld University Hospital for the first time in the country. The hospital now expects to increase lung transplant numbers for fresh recruitment annually.

Lung transplants in the Netherlands have doubled in the last two years due to the acceptance of less severe criteria for the acceptance of donor lungs; better preservations for the organs and the opening of the country’s second lung transplant centre. Nonetheless, costs plus the shortage of donor lungs still leave an ever-growing list of patients awaiting transplants. To meet the shortage, along with its beating heart donation, from deceased donors whose breathing and blood circulation were artificially induced till the moment of organ extraction, the region I discovered its on non-beating heart lung donation. This means that the donor’s blood circulation and heart have stopped and the lungs kept. The first pair of lungs was transplanted in to a patient with cystic fibrosis, with extremely little lung function; whilst the second pair was implanted in a patient suffering emphysema. In both cases the donors had severe brain damage, in one case from a few decades of smoking. After diagnosis of the death of both donors the lungs were washed with preservatives and transplanted into these patients. In the end of the last year 30 patients have been treated.

**Conclusions**

Although, smoking kills so many people in the world the knowledge about its health effects is still extremely sparse, says Dr. David Bernhard, Head of the Venereal Biology Research Group, in the Experimental Pathophysiology and Immunology Department, Biocentre Innsbruck, Innsbruck University.

The study showed that even low-dose smoking research we were able to shed light on how the arteriosclerosis-risk factor smoking causes arteriosclerosis.

"When we started to focus our research on the impact of smoking and arteriosclerosis, the only thing that was well-established was the clinical epidemiological knowledge that smoking causes arteriosclerosis. This knowledge was expanded by a study from our group (Knoflach M. Circulation; 2003 Sep 21;108(19):1064-9), where we demonstrated that cigarette smoking is indeed the most important risk factor for early arteriosclerosis, with a significantly lower arteriosclerosis in young adults. To our surprise, when we screened the literature to read about the pathophysiological processes that connect smoking with arteriosclerosis, we found very few studies, which include the presence of an enormous number of excellent ex vivo analyses that correlate smoking with the steato-atherosclerosis-like factors, mechanistic studies were missing. Probably, the most likely explanation for this was the fact that good in vitro models to study these phenomena were missing.

This prompted us to set up an in vitro system that mimics the in vivo properties of the lung enabling the exchange of the smoke chemicals. It was our plan to set up a system with an in vitro-like chemical transfer form the gas phase into the circulation. We developed the system in co-operation with chemists from the Institute for Analytical Chemistry and Radiochemistry in Innsbruck.

Cycles of system adjustment, chemical analyses of the generated extracts, and the smoke- or blood chemical content, finally led to the present chemically, well defined and reproducible system.

After having set up the ‘smoking machine’ we added the smoke-concentration to the in vitro extracts to vascular endothelial cells, which are known to represent the primary site of ves- sel wall damage. The smoke chemical concentrations were applied at ‘physiological’ relevant concentra-tions.

The effects observed could be divided into three phases. Damage phase: SC-mediated cellular protein oxidation followed by a fast, set reversible contraction of the extracellular matrix with no indication of oxy-gen-free radical damage and a secretion of cytokines and chemokines.

A decision phase: (not starting before 12 hours of treatment) characterization due to an induction of a necrotic cell death or survival cell death that is characterised by the return of cellular transcription activity as in cells before the addition of the smoke chemicals.

Further, we could show that cig-arette smoke contained metals in co-operation with metallo-proteins based radicals oxidise endothelial cell proteins. Most importantly, this leads to damage of the struc-tures of the microtubule system culminating in their collapse.

Consequently, cytokine and intermediate filament collapsed in vascular endothelial cell contraction. Electron micro-scope analyses highlighted that the tubule system is opened, but also that transcellular pores opened. Since increased per-missibility of the vascular endothel-ium is known to be a risk factor for lipid deposition and infiltration by monocytes of the vessel wall.

For the first time a functional patho-mechanism via which smoke-chemicals can be known to contribute to arterogen-esis.

In addition, we demonstrated that endothelial cells stressed with smoke chemicals start secreting P-selectin, cytokines, chemokines and present heat shock protein 60 on their surface. By comparing these results with patient sera (own data and literature) it could be shown that the in vitro data accu-rately reflects event that occur in vivo. Finally, the cells within the close and duration of the treat-ment, endothelial cells underwent cell death, with clear signs of necrosis. However, this cell death did not occur during 12 hours of in vitro treatment and was associated with classic necrosis. Some recent evi-dence suggest that this cell death might be caused by triglycerides and, from our results, this will to undergo apoptosis, but this seems to be induced by smoke chemicals. As a result vascular endothelial cells switch on a rescue pathway that leads to necrosis. Necrosis is known with carbon and nitrogen based radicals oxidise endothelial cell proteins. Most importantly, this leads to damage of the struc-tures of the microtubule system culminating in their collapse.
Nominations sought for Dan David Prize

Israel - For the fifth consecutive year, the Dan David Prize, headquartered at Tel Aviv University, will award three prizes of US$1 million each for achievements having an outstanding scientific, technological, cultural or social impact on the world. Named after Dan David, international businessman and philanthropist, the prize is funded by the Dan David Foundation.

Each year, fields are chosen within three “time dimensions” - past, present and future, and laureates for a given year are chosen from these fields. This year the selected fields are: Preserving Cultural Heritage: Individuals’ Contributions (past); Journalists of Print Media (present); and ‘Cancer Therapy (future).’

The laureates annually donate 20 scholarships of US$15,000 each to outstanding young researchers (doctoral and post-doctoral students) throughout the world in the chosen fields.

The 2006 Dan David Prize in the Future Time Dimension (Cancer Therapy) will recognise individuals’ initiatives aimed at reducing cancer-related mortality and alleviating the daily suffering of cancer patients. It will honour individuals who have made outstanding contributions to the development of the field of cancer therapy in its classical aspects including surgery, chemotherapy and radiotherapy, or in more contemporary aspects such as gene therapy, immunotherapy, biological therapy and targeted therapy.

Bucharest-born Dan David founded the Prize in 2001. As president of Photo Me International PLC, which makes automatic colour photo booths and other professional photographic equipment, Mr David became a philanthropist and has since wished to aid and foster those involved in developing and advancing world knowledge of the past, present and future.

8th European Health Forum Gastein (EHFG)

Austria - The politics of healthcare, specifically in Europe, will attract ever more participants from political arenas, healthcare administrators and medical companies to Bad Gastein this year. Along with the EU Health Commissioner Markos Kyprianou, Ministers and Secretaries of State from Austria, Finland, Ireland, Lithuania, Romania, Slovakia and Hungary have already confirmed their attendance.

The focus will be on e-health and personal responsibility, and a separate event will cover infrastructure investments. Pointing out that, along with plenary sessions and 14 workshops, there will be six forums, and a separate event with over 100 specialist lectures by leading experts and politicians involved in healthcare, covering the following areas:

- Civic participation and personal responsibility
- Health as a burden... or as a growth factor?
- New impulses from the European Commission (EC).
- E-health
- Promoting investment in the framework of the EU Structural Funds.

The EHFG will hold a separate event on 4 October, where high-ranking representatives of the EC, OECD and the WHO will be present. This aims to inform and prepare decision makers. It has always been the most important objective of the EHFG to introduce new developments in healthcare politics and administration, and to be a think tank for these, the EHFG president Günther Leiner pointed out. “With our key topics we are tackling the “hottest potatoes” in current healthcare politics - if no significant progress is made in these particular areas, the enormous scientific progress in modern medicine will be of little benefit.’

Details: info@ehfg.org www.ehfg.org

We see a way to obtain 80% more examinations without a major increase in staff

Proven Outcomes
Recouping days of productivity and millions in revenue.

Siemens Medical Solutions that help

With solutions that apply cutting-edge technology and strategic problem solving. So you can focus on essentials – and make the vision of the fully integrated hospital a reality. These are the Proven Outcomes that are transforming the delivery of healthcare. Today.

Siemens medical

Electronic register to speed treatments

Germany - An electronic register, set up by the health fund Techniker Krankenkasse (TK) and the German Federal Association of Cardiologists (BNK), has enabled medical and rehabilitation centres in Munich and Hamburg to gain direct access to electronic patients’ records (EPRs). Doctors at the centres are now co-ordinating their work to achieve speedier responses and treatments - not just in emergencies.

TK and BNK report that the system is to be extended to further regions around Germany this year.

8th European Health Forum Gastein (EHFG)
The Netherlands  Filing and mailing in one smooth move

By Michel Bloemendaal, our correspondent in the Netherlands

IT & TELEMEDICINE

Filing and mailing

The Netherlands - Sending mail when on a train, or filing handwritten notes in the PC without carrying a laptop, seemed but a dream. Now, add patients' medical data directly to their files was even more of a fantasy. That is, until a new system landed in the Netherlands from Germany. I recently visited the firm Meetpapier, based in Wormer, near Amsterdam, to see this phenomenon: Anoto-technology, in which a special pen writes on digital paper and then those details can be filed in a PC.

Digital pen - This can store up to 150 pages of written data and, when ready, it can be uploaded from the pen to a server - automatically. A Bluetooth link to a mobile phone is also possible. Power is usually supplied by a USB cable or by a separate power cable. The data are written on a specially developed grid and can be filed immediately in the computer system, to be turned by ASCII into reports and other documents.

Printing - A special Swedish technique is used to print the paper. The dots are placed in the matrix of 6x6 with a surface of 1.8 millimeter2 whereby a pen-dot space of 0.3 by 0.3 millimetre is available. Due to the method of production, each sheet of paper printed in this way has a completely unique character, so it is always clear what information is imported to which place. Thus the pen can register what has been written, then the written text can be used in various systems, and it is also clear when the data were imported and by whom. Via a minicamera, the pen records written text in its own memory - storing 100 written texts. The pens not only file written text, but also registers the moment it was filed, proving the authenticity of written text, by which mailed signatures are authorised.

Hospital applications - Possibilities are enormous - there is ample need to send e-mails without a PC or notebook, but the big advantage of this technology is the chance to register medical data, for example, in an electronic patient's file. The data are written on a specially developed form and can be filed immediately in the computer system, to be turned by ASCII into reports and other documents.

It is even possible to mark on a form, via a “pianino”, how much pain a patient is experiencing, which can be shown immediately on a computer screen. Another option: on a form showing a drawing of a human body, the position where a pain is located could be marked, eliminating the need to describe the zone. A further advantage is that, although each way may design its own form, all data could be filed in a uniform way, for use in all wards, without extra handling and adaptation, thus saving considerable time.

Try it - The new system, presented by Diagramm Halbach in Europe as Dotform, is offered as a starter kit. For six months, a hospital, ward or individual doctor can use the pen, plus a pack of paper and other necessities, to explore the possibilities, develop their own forms and develop these further with help from Dotform.

Finally: This system is not only for patients' data filing, but also for coping with statistics available online or as stand-alone.

E-mail details: geldof@meetpapier.nl

In the late 1990s, the healthcare industry incubated a series of e-health initiatives but today e-health is still viewed as ‘special‘ projects, outside of the normal day-to-day management of care, and the potential is not being addressed. However, due to the increasing use of computers and printers in healthcare institutes, the potential is there for improving the quality of care across wide communities. However, each country’s individual culture, healthcare and administrative systems determine very different approaches to creating a Connected Health environment.

Two countries with contrasting approaches are England and Denmark. In 2004, England’s National Health Service (NHS) created a single national programme, Building the Information Age, to develop standardised clinical information tools and record management. Resulting from ambitious goals and schedules, England now has a strong national IT governance structure supported by a multidisciplinary funding approach. In contrast, Denmark has a strong national health care system, with clear national boundaries. Professional specialisations, and connected across organisations, are working together to develop a national health informatics platform.

The Netherlands is working to create a national e-health platform that is highly connected to enable data to be shared safely and effectively for treatment and prevention. Making this connected environment possible is Cisco Medical-Grade Network that acts as a digital nervous system, securely and reliably carrying data, voice and video to wherever needed.

Creating Connected Health in Europe - Fortunately, many regional and national governments in Europe have recently recognised the importance of connected information in healthcare. The key change is an increased effort to reduce barriers to extending the use of IT in health care. However, healthcare services can no longer be regarded as an area of absolute importance and accurate and timely information. However, to be truly effective, that information must be securely connected across organisations, professional specialisations, and increasingly, national boundaries.

Thus e-health must evolve into ‘Connected Health’, meaning that we must focus on ensuring the secure and timely flow of patient-care information at the point of need. A modern health system must have a portfolio of activities that connect citizens, patients, clinicians and managers:

● Clinical information and tools dealing with complete and coherent patient data
● Continuous retraining of professionals (and patients) in the most up-to-date treatments and prevention of diseases
● Operational management of healthcare organisations (HR, finance, supply chain)

Creating Connected Health in Europe - Fortunately, many regional and national governments in Europe have recently recognised the importance of connected information in healthcare. The key change is an increased effort to reduce barriers to extending the use of IT in health care. However, healthcare services can no longer be regarded as an area of absolute importance and accurate and timely information. However, to be truly effective, that information must be securely connected across organisations, professional specialisations, and increasingly, national boundaries. Thus e-health must evolve into ‘Connected Health’, meaning that we must focus on ensuring the secure and timely flow of patient-care information at the point of need. A modern health system must have a portfolio of activities that connect citizens, patients, clinicians and managers:

● Clinical information and tools dealing with complete and coherent patient data
● Continuous retraining of professionals (and patients) in the most up-to-date treatments and prevention of diseases
● Operational management of healthcare organisations (HR, finance, supply chain)

In the late 1990s, the healthcare industry incubated a series of e-health initiatives but today e-health is still viewed as ‘special’ projects, outside of the normal day-to-day management of care, and the potential is not being addressed. However, due to the increasing use of computers and printers in healthcare institutes, the potential is there for improving the quality of care across wide communities. However, each country’s individual culture, healthcare and administrative systems determine very different approaches to creating a Connected Health environment.

Two countries with contrasting approaches are England and Denmark. In 2004, England’s National Health Service (NHS) created a single national programme, Building the Information Age, to develop standardised clinical information tools and record management. Resulting from ambitious goals and schedules, England now has a strong national IT governance structure supported by a multidisciplinary funding approach. In contrast, Denmark has a strong national health care system, with clear national boundaries. Professional specialisations, and connected across organisations, are working together to develop a national health informatics platform.

The Netherlands is working to create a national e-health platform that is highly connected to enable data to be shared safely and effectively for treatment and prevention. Making this connected environment possible is Cisco Medical-Grade Network that acts as a digital nervous system, securely and reliably carrying data, voice and video to wherever needed.

Creating Connected Health in Europe - Fortunately, many regional and national governments in Europe have recently recognised the importance of connected information in healthcare. The key change is an increased effort to reduce barriers to extending the use of IT in health care. However, healthcare services can no longer be regarded as an area of absolute importance and accurate and timely information. However, to be truly effective, that information must be securely connected across organisations, professional specialisations, and increasingly, national boundaries. Thus e-health must evolve into ‘Connected Health’, meaning that we must focus on ensuring the secure and timely flow of patient-care information at the point of need. A modern health system must have a portfolio of activities that connect citizens, patients, clinicians and managers:

● Clinical information and tools dealing with complete and coherent patient data
● Continuous retraining of professionals (and patients) in the most up-to-date treatments and prevention of diseases
● Operational management of healthcare organisations (HR, finance, supply chain)
Denmark, on the other hand, has seen comparatively slow, largely user-led and modest increases in information-transfer over the past few years. Led by MedCom, a temporary project organisation chaired by the Danish MoH, the country has targeted standards for clinical messaging. With modest budgets and light staffing, direction is determined by consensus over time. Clinical acceptance has been high, and Denmark is now sharing many lessons learned with other countries (e.g. Baltic E-Health Exchange).

Alternative approaches can be seen in Germany and France. Germany, with its compulsory, highly regulated care system, has few options to encourage dramatic changes in the use of information in healthcare. However, Germany created a national smartcard programme with rapid implementation targets to give each of its 80 million citizens access to a transferrable identifier and basic medical record. To increase safety and citizen mobility, the country is also taking a leading role in European interoperability initiatives.

France is looking for ways to control growing healthcare costs by transferring health records between organisations more efficiently. However, its fragmented national, regional, and local management; and its relationship to social security for payment makes for some difficult decisions in terms of budget creation, governance models, and balance between centralised and localised solutions. In the meantime, leading hospitals such as the Centre Hospitalier d’Arras are demonstrating the importance of Connected Health systems. The hospital has transformed its operation from the ground up by re-building the campus, automating administrative processes and enabling a new work culture. A state-of-art Cisco medical-Grade Network has provided mobile access to centralised data for hospital staff and regional health centres, helping to improve efficiency, reduce costs and enhance patient care. Most interesting is the contrast between Western and Eastern Europe. Western European countries, with decades of legacy systems, may well proceed slowly compared to their Eastern neighbours. The new EU members Hungary, Estonia, Slovenia, as well as Bulgaria are developing remarkably sophisticated communication infrastructures, have little legacy and scepticism to overcome, and often have a more general healthcare reform programme to drive information usage. These countries have the opportunity to leapfrog to a Connected Health system in short order and, in the next few years, deliver world-leading health systems where information and knowledge are among the patients’ and clinicians’ most important tools.

For all European countries, the “acid test” for their development of Connected Health is to assess the completeness of their vision and funded plans for IT in healthcare. These include clinical treatment, knowledge and learning, operational management, patient engagement and public health supported by a secure, resilient, and interactive infrastructure. Those with a comprehensive vision for Connected Health will gain immense benefits from information-transforming healthcare.
In our last issue we featured the Future Operating Room Project developed at St Olavs Hospital, University Hospital of Trondheim, Norway, a collaboration between the hospital and the Norwegian University of Science and Technology. There, highly promising research on navigation is being carried out in co-operation with the research foundation Sintef Health Research. Professor of Surgery Hans O Myhre (above) of St Olavs and Senior Research Scientist Jon Harald Kaspersen PhD (below), of Sintef, describe the project’s aims, their development and clinical testing of the navigation system CustusX, and the need that has now arisen for industrial collaborators to take the team’s discoveries forward to expand indications for endovascular therapy in general.

...In order to offer endovascular techniques to a broader group of patients, there is a need for stent-grafts with side branches or fenestrations, which can lead the blood from the main prosthesis into the major arterial branches to the head, arms, kidneys (fig 2), liver and bowel. To obtain this there is need for a new prosthesis, as mentioned. Furthermore, we need flexible introducer systems and the stentgrafts with the side branches need to be deployed accurately and easily.

The surgical tools used in endovascular therapy are guidewires and catheters. Therefore, navigation will depend on well-functioning micro-positioning sensors, which can be adapted to these small instruments. We also think it is possible to adapt micro-positioning sensors (≤1mm) to the stentgraft itself. We are looking for industrial collaborators who can combine the small sensor with catheters, introducers or perhaps stentgrafts, and think that this is going to expand the indications for endovascular therapy in general.

For navigation our own system CustusX meets these requirements. We are also using the so-called DYNAA CT principle (Siemens) where the C-arm of an angiography unit rotates providing us with real-time 3-D images of the vascular tree. With these techniques we think that within a few years we will be able to repair most parts of the arterial system using minimally invasive surgery technology.

The navigation system could also be useful for re-operations where arteries and other structures are embedded in heavy scar tissue and where dissection is difficult. Development and clinical testing of CustusX will be one of the main activities within the endovascular Future Operating Room project at St Olavs Hospital in Trondheim.

Jon Harald Kaspersen, PhD, of Sintef, describe the project’s aims, their development and clinical testing of the navigation system CustusX, and the need that has now arisen for industrial collaborators to take the team’s discoveries forward to expand indications for endovascular therapy in general.
Mini gamma camera for radio-guided surgery

France - The first EC marked mini ambulatory gamma camera has been launched by Euromedical, which specialises in intra-operative detection and is part of the EuroRad group. Named Minicam, the system was developed for radio-guided surgery, to precisely locate radioactive-tagged tissues (sentinel node, tumour etc.) emitting gamma radiation, which allows the smallest possible incision to be made. With its CdTe technology detector head (camera) and a g-Cam electronics module, the Minicam system ensures very rapid detection (one minute) of the sentinel node or tumour, saving a significant amount of time and providing a gain in precision for the surgeon,' the firm announced. Specially designed for small operative fields, the MINICAM also helps to ease congestion in conventional nuclear medicine departments, that can thus be reserved for examinations requiring more cumbersome equipment.

Connected to a desktop computer, the Minicam system provides visualisation of images being taken (acquisition software installation disk supplied). The detector head, made with cadmium telluride detectors (CdTe or CdZnTe), is designed for low-energy detection (30 - 200 keV). 'It has excellent spatial resolution and provides high quality pictures,' the firm pointed out.

The camera contains all necessary modules for signal processing, and the software allows selection of the kind of picture wanted for display as well as various acquisition parameters.

Germany - Chromophare DS10, DS40 and D660 surgical lights - newly launched by Berchtold GmbH & Co KG, of Tuttlingen, incorporate the firm’s new Reflective Illumination Technology (BRITe), providing 50% more total light while ensuring surgical site coolness. The maker reports that the halogen light technology has a unique internal bulb coating that reflects radiant energy back to the bulb filament and generates more useful light: 'Combined with our custom colour-correction filters and proven polygon reflector, the natural colour-rendering properties of the Chromophare series have been maintained. The new surgical lighting system delivers uniformly brilliant, penetrating and shadow-free lighting to surgeons performing both large-surface and deep-cavity procedures.'

Along with the Chromophare range, also produces the Supersuite Integrated OR Solution, Orics operating theatre communication equipment and Operon Surgical Tables for operating theatres.

Connect Cardiology

with a diagnostic image and information management solution that stores and manages data from multiple imaging modalities to provide an integrated cardiac record. With Agfa Heartlab Cardiovascular, cardiologists have a single point of access to cath, echo, clinical information systems and radiology results within the department, or remotely, eliminating time lost searching and collating images and reports. This allows faster, more confident diagnostic decisions based on the most complete set of information available. The resulting time savings means cardiologists can spend time doing what they do best, focusing on patient care.

Inspire the future. Transform today. Achieve real results. That’s the power of Agfa’s integrated thinking.

AGFA Heartlab
CARDIOVASCULAR

www.agfa.com/healthcare

Ophthalmology
Perforating keratoplasty

Germany - Four penetrating keratoplasties using the Femtec femtosecond laser have improved the vision of all the patients, according to a report from 20/10 Perfect Vision Optische Geräte GmbH.

Dr Mark Tomalla, of the Centre for Refractive and Ophthalmic Surgery in Duisberg-North’s eye clinic, used the system to treat transparent as well as scarred corneal tissues. Apart from flap preparation during Lasik procedures, the Femtect femtosecond laser was reported as very effective in the preparation of tunnels before implanting ICRS (intraocular ring segments) and performing cuts for AK (astigmatic keratotomy) with ‘impressive post-operative results’
Drug-eluting stents

By Ian Mason

Professor Sigmund Silber said that all DES must prove their efficacy in adequately powered randomised trials with a primary clinical endpoint. ‘So far only three DES have accomplished their homework – Cypher, Taxus and Endeavor,’ he said. The panel agreed that research should move away from trying to prove superiority of one of the current DES over the other, and should focus on new innovative developments in the field of DES. Of these there were at least several. In July 2005 Medtronic announced that they had received CE (Conformité Européenne) mark approval for Endeavor, the first cobalt alloy DES. Choice of stent will be further enhanced in the coming months with the launch of the ‘next generation’ Taxus Liberté DES (Figure 1), which is claimed to be specifically designed for improved deliverability – a crucial consideration for small vessel stenting. Indeed, the move towards increased use of stents for complex lesions has been a recurrent theme of 2005 developments. At the ESC Congress, the landmark SYNTAX trial, which has recently started patient enrolment, will be presented.

CABG and PCI using BMS or DES have been limited to highly selected patient populations. The study’s primary endpoint is the 12-month major adverse cardiac and cerebral event (MACCE) rate, which includes death, myocardial infarction, repeat revascularisation and stroke. SYNTAX will also analyse the long-term health economic implication of DES versus CABG.

Economic impact

Healthcare providers are increasingly interested in the cost-effectiveness of new therapies. To date there have been no studies comparing the cost-effectiveness of DES and CABG in randomised clinical trials. Recent studies from Stone (challenging patient subsets), HORIZON (DES in acute MI) and SYNTAX studies. On Wednesday 7 September, a ‘Featured Research’ session (08.30-10.00, Oslo, Green Room) chaired by F Schiele (Besancon, France) and D Baumgart (Essen, Germany) will look at some of the remaining problems associated with DES.

A poster presentation (P3384) reviews data from an audit of more than 100,000 PCI procedures in 230 French centres (Morice MC et al). Their findings confirm that PCI can be performed safely and successfully in most patients, but the best results were achieved in centres performing the highest number of stenting procedures.

Already more than two million of DES have been implanted. DES are rapidly becoming the gold standard for percutaneous coronary revascularisation in Europe (Figure 2) as well as the US. Recently UK specialists predicted that all stents used in that country would be drug-eluting within five years. (Cardiology News 2005;8:42-3).

The symposium ‘Controversies in coronary revascularisation therapy’ will take place at the ESC Congress, taking place in Stockholm, Sweden, between 3–7 September. The ESC Congress is Europe’s largest medical meeting and a major event in the world of cardiology, with over 25,000 attendees registered.

On Sunday 4 September (11.00-12.30, Baghdad Red Zone) the debate will examine whether patients with severely depressed left-ventricular function should undergo PCI, rather than bypass, and whether patients with diabetes should receive DES rather than bypass surgery.

On Tuesday 6 September (14.00-15.30, Athens, Blue Zone) a symposium chaired by MC, Morice (Massy, France) and E Grube (Siegburg, Germany) will review the latest clinical results for DES, including stent-to-stent comparisons, data from the MILE-II clinical trials. The panel agreed that research should move away from trying to prove superiority of one of the current DES over the other, and should focus on new innovative developments in the field of DES. Of these there are at least several. In July 2005 Medtronic announced that they had received CE (Conformité Européenne) mark approval for Endeavor, the first cobalt alloy DES. Choice of stent will be further enhanced in the coming months with the launch of the ‘next generation’ Taxus Liberté DES (Figure 1), which is claimed to be specifically designed for improved deliverability – a crucial consideration for small vessel stenting. Indeed, the move towards increased use of stents for complex lesions has been a recurrent theme of 2005 developments. At the ESC Congress, the landmark SYNTAX trial, which has recently started patient enrolment, will be presented.

Figure 2: European conversion rates from BMS to DES

Figure 1: Taxus Liberté is expected to launch in Q3 2005 (CE mark currently not available for sale in the EU or USA)

Early this year the European Society of Cardiology (ESC) released the first European Guidelines on Percutaneous Coronary Interventions (PCI). According to these guidelines, PCI can now be regarded as the first option for a larger group of patients with acute coronary syndromes than before. Recent technical and pharmaceutical improvements have developed PCI into a procedure that is safely and effectively applied to patients with various types of coronary lesions and patient populations without myocardial infarction.

The guidelines can be viewed at: http://www.escardio.org/knowledge /guidelines/PCI-Guidelines.htm?1703
Seeking cardiac stem cells

Stem cells have been found in many organs, including the brain, but many researchers are not convinced that the heart contains any. However, leading stem cell researcher Dr Pierro Anversa, Professor of Medicine and Director of the Cardiovascular Institute at New York Medical College, has suggested that heart cells undergo an ongoing turnover fuelled by stem cells, and in June he published a study that identified cardiac stem cells in animal models that repaired tissue damaged by an adverse cardiac event.

Lithuania - 'A country’s overall development level is demonstrated by the level that cardiac surgery has reached,' said Valdas Adamkus, President of the Republic of Lithuania (right) at the opening of the 15th Congress of The World Society of Cardio-Thoracic Surgeons, held in Vilnius this June.

Lithuania, which gained EU membership about a year ago, has three public and one private heart centres. Performing interventions from coronary surgery using the Ross procedure to organ transplants, the country provided 794 heart operations per million people in 2002, positioning it between France (635) and the UK (636), and Austria (868) and Denmark (882).

BALTIC SUCCESS

Stem cells have been found in many organs, including the brain, but many researchers are not convinced that the heart contains any. However, leading stem cell researcher Dr Pierro Anversa, Professor of Medicine and Director of the Cardiovascular Institute at New York Medical College, has suggested that heart cells undergo an ongoing turnover fuelled by stem cells, and in June he published a study that identified cardiac stem cells in animal models that repaired tissue damaged by an adverse cardiac event.

Steven Houser PhD (above), Director of the Cardiovascular Research Centre at Temple University School of Medicine, Pennsylvania, USA, whose own research had focused on cardiac reaction to hypertensive diseases that can lead to congestive heart failure, recently joined Professor Anversa, and the team has received a NIH grant to study whether there are autologous stem cells in the heart.

Early in this disease, heart muscle increases and chambers stretch in an attempt to increase contracting power. Part of this enlargement is due to increased muscle mass, but how the chambers grow is less certain. Traditionally it is thought that cardiac cells simply grow larger to accommodate the increased need, but Dr Houser and Prof. Anversa have developed a different theory - spurred by cardiac stem cells, cardiomyocytes actually increase in number in response to the heart's traumatic condition. In their study, after inducing hypertension in an animal model to distress the heart, the team will study the heart tissue and count cells, first in the normal heart, then in the harder working heart. If, according to their theory, there are more cardiomyocytes in the heart, rather than simply larger cells, they could conclude that stem cells are attempting to repair the heart.

Based on a report by Eryn Jestelewicz at Temple University.

Source: www.medicalnewstoday.com
F or over forty years, basic cardiopulmonary resuscitation (CPR) has been performed by large numbers of health professionals with significant life-saving effects. Today basic CPR training also includes training in the use of automated external defibrillation (AED). Along with early defibrillation, research has shown that CPR is the only well-proven life-saving procedure for sudden cardiac death. Although they may very well be effective in aggregate, to date, none of the drugs and no other advanced cardiac life support techniques currently in use have been proven explicitly as contributing to long-term survival with intact neurological function in the clinical setting. Therefore, although it is still infrequently performed in many communities, basic CPR remains a critical component of community-wide life-saving efforts.

Basic CPR also has regained centre-stage in resuscitation research efforts. In addition to evaluating the concept of markedly abbreviating the time to provide effective training, recent investigations suggest that current CPR procedures can be modified easily to significantly improve outcomes beyond what they can do today. Specifically, renewed focus has been directed at not interrupting chest compressions and on a de-emphasis of rescue breathing. Furthermore, current defibrillation attempts usually last only for a few minutes after collapse. In addition, evidence has been growing that including a period of chest compressions can first be performed.

Here we briefly highlight each concept and provide some insight to the future of basic CPR.

Abbreviated Training - Research has confirmed that the average person is less likely to learn CPR unless they are compelled to do so for a job or school requirement. One of the rate-limiting steps toward implementing workplace and school-based requirements is being able to make the requisite time commitment regarding that several hours of work would need to be interrupted to train all employees using current courses.

Fortunately, recent research has demonstrated the effectiveness of performance are at least similar. This new training technique may eventually prove to be even better because the abbreviated course focuses on the actual skills used and not didactics. It is also less intensive in terms of training, allowing large-scale classes to be conducted by a single instructor.

Uninterrupted Compressions - Research has confirmed that interrupting chest compressions to perform defibrillation or to provide rescue breaths, causes abrupt falls in coronary perfusion pressure (CPP) and that restoration of a reasonable CPP will take at least 10-15 seconds after resumption of chest compressions. This means that CPR is inadequate throughout the majority of the resuscitation effort. Also, exacerbating this concern, rescuers actually take longer to provide mouth-to-mouth breaths and defibrillation than one would presume. Furthermore, even a 10-15 second delay in delivering the

The recently convened ESC Policy Conference titled *Women at Heart* was chaired by Professor Marco Stramba-Badiale, of the IRCCS Istituto Auxologico Italiano, Milan, Professor Silvia Priori and Professor Kim Fox. We asked Professor Badiale about progress in the understanding of women and heart disease.

**Women and heart disease**

women who participate in these studies and, even more recently, trials have been targeted solely on females. Most progress in this direction have occurred in the USA, as a direct consequence of the commitment of funding agencies that have provided economic support to clinical trials only when a balanced gender presence was assured in the design of the trial. In Europe, there is no regulation of this type and therefore there is less sensitivity to the issue. Once again, scientific societies should play a major role in ensuring that gender specific issues are sought and, when identified, gender specific response to therapy should be investigated in clinical trials.

What doctors need to know - Coronary artery disease is the leading cause of death for men and women in the western world. About 40% of all female deaths are caused by cardiovascular disease, especially coronary artery disease and stroke. However, unfortunately women, and their physicians, underestimate the risk of heart disease because of the perception that women are ‘protected’ against ischemic heart disease. What is not fully understood is that women, when fertile, have a lower risk of cardiac events, but this protection fades after the menopause, leaving women with untreated risk factors vulnerable to develop myocardial infarction, heart failure and sudden cardiac death.
shock (after the order to ‘halt CPR’ has been given), will lead to dramatically diminished rates of resuscitation. Therefore, recent efforts have been directed at developing AED devices that can analyse the cardiac electrical activity without interrupting chest compressions and deliver the shock at the moment the rescuer backs away from the chest. Also, to maintain continuous chest compressions, scientists are investigating the efficacy of deleting rescue breaths during the first minutes after cardiac arrest, particularly when gasping is present.

**Compressions-only CPR** - As mentioned, recent studies have confirmed that compressions-only CPR may be even more effective than traditional CPR that includes mouth-to-mouth ventilation, particularly in the first few minutes following a sudden cardiac arrest. Not only do the rescue breaths frequently interrupt compressions and thus the maintenance of adequate CPP, but it also can add to inhibited venous return because of the positive intra-thoracic pressure generated by the positive pressure ventilation.

In fact, significant gas exchange still occurs without rescue breathing. Chest recoil after release of the compression tends to move air into the airways (assuming the airways are open). Also, most people likely to survive a cardiac arrest will be gasping, a unique respiratory event that not only can rapidly expand a larger volume of dependent lung spaces, but also generates a stronger intra-thoracic vacuum than a normal breath. In turn, this generates better pulmonary oxygenation and more CO₂ clearance, while also generating better venous return. In addition, by not interrupting chest compressions, perfusion to the brain and respiratory apparatus is better sustained, thus prolonging gasping and, in turn, better oxygenation, CO₂ clearance and circulation. Paradoxically, by not stopping to breathe for the person, respiratory functions are actually prolonged and improved.

The problem is that gasps eventually deteriorate and, also, not all patients gasp and not all cardiac arrests are sudden. Therefore, some lung inflation will need to be provided sooner or later. Nevertheless, even when breaths are provided, they are not needed as often as previously thought. The traditional 15:2 compression-ventilation ratio may be at 30:2 or 50:2 for many of the reasons stated previously and because ventilation should match perfusion. In low blood flow states like CPR situations, CO₂ is not produced as readily and, even when it is, it is not circulated back to the lungs for removal. Therefore, respiratory demands are low until full circulation and strong pulses are restored. Although theoretical models indicate that children should receive breaths more often, the need is much less than the current 1:1 ratio proscribed for children.

**CPR Before Defibrillation** - Growing evidence has indicated that once ventricular fibrillation (VF) has been prolonged beyond four or five minutes, remaining cardiac energy supplies will become depleted and a relatively de-oxygenated heart is less apt to respond to defibrillation. It has become apparent that, once several minutes of VF have elapsed, preparing the heart for defibrillation with basic CPR and/or certain medications, will make a heart more amenable to successful defibrillation with return of spontaneous circulation. Although it is clear that immediate counter-shock is the most effective strategy in the first few minutes after onset of VF, laboratory studies support the use of vasopressor drugs to enhance CPP during CPR conditions prior to defibrillation. Furthermore, two recent clinical studies demonstrated the probable value of providing a brief period (1.5 to 3 minutes) of basic CPR prior to defibrillation. While these studies have their limitations, they are the best available data and clearly indicate the value of chest compressions prior to defibrillation unless it is a situation where CPR is not feasible. Combined with the information previously discussed, it is clear that a re-focus on chest compressions must be emphasized in CPR training and performance.

**Caveats** - Although the research discussed here is compelling enough to indicate a need to change current CPR techniques, there still is no worldwide consensus on these issues nor, in some cases, is there conclusive enough evidence to effect worldwide changes in CPR training. Nevertheless, it remains clear that many of these proposed changes will eventually become mainstream as the evidence grows and more data are accumulated. There is little doubt that more emphasis should be placed on the performance of aggressive, continuous chest compressions that are interrupted only infrequently, if at all. Most importantly, this discussion again portrays the critical importance of basic CPR and our need to ensure that every person is trained and knows how to perform this life-saving intervention when it is needed.
Cardiologists, radiologists, physicists, vascular biologists, and other specialists arriving at Alpbach, Germany, could not fail to admire their surroundings. ‘Alpbach is very beautiful and has a long tradition as a place for universities and the European Forum, which seemed a particularly attractive combination for our meetings. It provides the atmosphere you need to concentrate on topics, combined with a chance to relax in pleasant surroundings,’ said Professor Fleck, explaining the choice of venue.

Here, the present and future issues to be faced in cardiology are discussed, centred on two approaches. First, the enhancement of diagnostics to detect potential dangers at an early stage - meaning not just in time,’ the professor explained. ‘Second: What treatment? If one bears in mind that arteriosclerosis will not only continue to persist but also increasingly prove a general health problem, then of course diagnostic considerations of this nature are of paramount importance. In 2020, cardiac diseases, and particularly coronary heart disease, will be the number one cause of death, worldwide, and not just in industrialised countries as at present. At the moment, infectious diseases hold that position, but, as pointed out, this will change worldwide, mainly because of changing dietary habits and that people are living increasingly longer. Arteriosclerosis will ultimately affect us all, if we live to be old enough.’

At the Alpbach meeting the convergence of imaging and treatment was constantly demonstrated. ‘The critical areas of interest to us are plaque formations, that is deposits on local vascular wall sites, something that we cannot really detect from the outside. We need in vivo information about this. To date, imaging is conducted within the vessel itself; not only angiographically showing the internal volume but attempts are made to depict the wall. This is possible, for example with ultrasound and new modalities that can produce slice images of adequate resolution. As such, this could diagnose millimetre structures in the vascular walls.

This is possible using CT, but there are major problems - even to be able to see wall thickness and calcification. Conversely, by using MRI one can determine the different quality of tissue and obtain a resolution of practically microscopic quality, without using radiation. Imagine how exciting it practitioners, must be exciting. ‘Yes, it is,’ Prof. Fleck confirmed.

The purpose of our workshop is to try to come to completely different approaches and viewpoints bounce off each other, for scientists to engage in cross-talk, so that one grasps what others need and vice versa. Because one cannot assume that a chemist, who is thoroughly conversant with special binding issues, will understand what he should really do if he is

...because it appears to be much easier to establish the special binding forms I spoke of earlier - in nuclear imaging. It would work very well with PET, but the only drawback with PET is that it does not at all have the kind of local resolution we need. If MRI could be used here, for example, in combination with specific contrast media, then one would probably not need PET anymore. Perhaps PET can be used as a general

Scientific meetings held since 1998 at Alpbach, Germany, have attracted the sponsorship of leading associations and companies such as the Philip Morris External Research Programme, the Donors’ Association of German Science, Swiss National Fund, the German Heart Centre Foundation, Berlin, and Philips Medical Systems. At the 4th Alpbach Meeting, which focused on Magnetic Resonance, Contrast Mechanisms and Molecular Imaging of Coronary Artery Plaques, Daniela Zimmermann spoke with Professor Eckart Fleck of Berlin’s German Heart Centre (Deutsches Herzzentrum Berlin) about the constantly increasing importance of this event and its current aims.

Progress Our raison d’être

Fig. 1. Coronary magnetic resonance angiography (MRA) visualising the left system of the coronary arteries originating from the aorta (red). Cardiac chambers (blue transparent)

For our meetings, it provides the atmosphere you need to concentrate on topics, combined with a chance to relax in pleasant surroundings,’ said Professor Fleck, explaining the choice of venue.

Here, the present and future issues to be faced in cardiology are discussed, centred on two approaches. First, the enhancement of diagnostics to detect potential dangers at an early stage - meaning not just in time,’ the professor explained. ‘Second: What treatment? If one bears in mind that arteriosclerosis will not only continue to persist but also increasingly prove a general health problem, then of course diagnostic considerations of this nature are of paramount importance. In 2020, cardiac diseases, and particularly coronary heart disease, will be the number one cause of death, worldwide, and not just in industrialised countries as at present. At the moment, infectious diseases hold that position, but, as pointed out, this will change worldwide, mainly because of changing dietary habits and that people are living increasingly longer. Arteriosclerosis will ultimately affect us all, if we live to be old enough.’

At the Alpbach meeting the convergence of imaging and treatment was constantly demonstrated. ‘The critical areas of interest to us are plaque formations, that is deposits on local vascular wall sites, something that we cannot really detect from the outside. We need in vivo information about this. To date, imaging is conducted within the vessel itself; not only angiographically showing the internal volume but attempts are made to depict the wall. This is possible, for example with ultrasound and new modalities that can produce slice images of adequate resolution. As such, this could diagnose millimetre structures in the vascular walls.

This is possible using CT, but there are major problems - even to be able to see wall thickness and calcification. Conversely, by using MRI one can determine the different quality of tissue and obtain a resolution of practically microscopic quality, without using radiation. Imagine how exciting it practitioners, must be exciting. ‘Yes, it is,’ Prof. Fleck confirmed.

The purpose of our workshop is to try to come to completely different approaches and viewpoints bounce off each other, for scientists to engage in cross-talk, so that one grasps what others need and vice versa. Because one cannot assume that a chemist, who is thoroughly conversant with special binding issues, will understand what he should really do if he is
THE ARTIFICIAL PATIENT

Holger Zorn reports on a new dimension in medical training

Pilots train on simulators and so do doctors who specialise in emergency care, because, in extreme situations, doing the right thing is not something that can be learned from books - it requires practice, without endangering passengers or patients respectively. However, although paramedics and anaesthetists have used simulators during their training for several years, one of the most complex treatments - extracorporeal circulation, i.e. taking over the cardiovascular functions of a patient - had not attracted that much interest. Now, the first simulator for extracorporeal circulation during heart surgery has been introduced.

Named CardioSim, the world's first Perfusion Simulator was introduced to clinical users during the 34th Annual Meeting of the German Society for Cardiovascular Engineering in May this year. CardioSim simulates critical situations that can occur in a patient or the heart lung machine during extracorporeal circulation. For example, tubes might kink, cannulas twist, air might enter the venous system, cooling water could enter the bloodstream, blood filters become blocked, gas membranes leak, the pH-value move. All these are extremely rare incidents but require immediate action to avoid damage to a patient. Every action is recorded and evaluated. Using CardioSim, the trainers can step in at critical moments and analyse any incorrect reactions, because the system offers real-time control.

The simulator is not only being used for safety training but also to train cardiac technicians. CardioSim was developed under Professor Gerd Haimerl MD Dipl.-Ing. (BA) at the Centre for Applied Simulation, Technical University Furtwangen, Department Villingen-Schwenningen, in co-operation with the Department for Cardiac and Vascular Surgery at the University Hospital Freiburg.

The project, which to date has cost around €500,000 is funded by the Ministry for Science, Research and Arts in Baden-Württemberg and by the German Society for Cardiovascular Engineering.

The simulator is to be used as a platform for research and innovation in extracorporeal circulation. Additionally, Prof. Haimerl believes that, one day, it will be able to simulate all organ-preserving systems, from dialysis to the artificial heart.

Ingredient in cocoa may combat CHD

Cocoa may be beneficial for those suffering heart disease and stroke, according to researchers at the Southampton University Hospitals NHS Trust, UK, whose study was presented in August, at the 20th Congress of the International Society on Thrombosis & Haemostasis, in Sydney, Australia, by consultant haematologist Dr Denise O'Shaughnessy. According to the research, cocoa inhibits platelet function, so it has been suggested that drinking a cup of cocoa could prevent potentially fatal blood clots.

‘Cocoa contains flavonoids, which are also present in red wine. These can be preventive for coronary heart disease. However, our research uncovered another ingredient in cocoa that may be doctors for platelet inhibition.’ The finding, she added, may lead to important new therapies to prevent heart disease and stroke.

Visit us at the ESC Congress, Stockholm-Sweden
3-7 September 2005, booth C35-31, hall C
and the European Respiratory Society Annual Congress
Copenhagen-Denmark, 17-21 September 2005, booth C4 – 021

The Art of Diagnostics

SCHILLER’s CARDIOVIT CS-200 Ergo-Spiro simultaneously enables heart, lung, blood circulation and metabolism tests. The physician closely observes all functions in realtime mode on two monitors. The programmes are accessed with only one mouse, whereby the cursor smoothly moves from one monitor to the other. The tests are initiated and terminated by clicking on a defined icon on the screen. The CARDIOVIT CS-200 Ergo-Spiro is an easy to handle system, offering valuable assistance to physicians.

Why carry out each test separately, if the CARDIOVIT CS-200 Ergo-Spiro does it all in one? Time is money! SCHILLER – the solution for every need.

Cocoa may be beneficial for those suffering heart disease and stroke, according to researchers at the Southampton University Hospitals NHS Trust, UK, whose study was presented in August, at the 20th Congress of the International Society on Thrombosis & Haemostasis, in Sydney, Australia, by consultant haematologist Dr Denise O’Shaughnessy. According to the research, cocoa inhibits platelet function, so it has been suggested that drinking a cup of cocoa could prevent potentially fatal blood clots.

‘Cocoa contains flavonoids, which are also present in red wine. These can be preventive for coronary heart disease. However, our research uncovered another ingredient in cocoa that may be responsible for platelet inhibition.’ The finding, she added, may lead to important new therapies to prevent heart disease and stroke.
Interventional Cardiac 3D Imaging

Johannes Brachmann MD, and Harald Rittger MD, of the Klinikum Coburg, Coburg, Germany, describe the use of a highly precise three-dimensional diagnostic imaging tool that enables quick, accurate visualisation and quantification of coronary artery lesions.

Improved therapy planning for LAD lesion patients

Treatment

PCI of LAD: Balloon angioplasty and implantation of two stents in the proximal two LAD lesions; stent implantation in LAD bifurcation lesion*. LAD Proximal Two Lesions: With Interventional Cardiac 3D (IC3D), precise three-dimensional vessel reconstruction was possible, supporting an optimal therapeutic strategy for this 81-year-old man with renal failure. In the angiographic scenes [1A-C], the lesions are difficult to evaluate. Foreshortening effects complicate exact lesion length calculation with QCA. 3D-reconstruction with IC3D

Figure a

IC3D INVOLVES selecting a lesion of a certain coronary vessel segment with as few as two standard angiographic images (a and b) to create a three-dimensional (see c) volume image of the segment of interest. The IC3D reconstruction enables highly accurate quantitative measurements and can be visualized from any chosen angle.

Figure b

IC3D INVOLVES selecting a lesion of a certain coronary vessel segment with as few as two standard angiographic images (a and b) to create a three-dimensional (see c) volume image of the segment of interest. The IC3D reconstruction enables highly accurate quantitative measurements and can be visualized from any chosen angle.
In 1995, the Hamburg-based firm Life Systems Medizintechnik-Service GmbH (part of the Krauth Group) was formed to develop a new, multi-supplier, full service concept for cardiac-perfusion units for cardiology and radiology departments. The company explained that the structure has three independent modules:

- medical supplies and disposables
- capital equipment
- specialised personnel (40 perfusionists among its 50 employees)

and that the advantages for clinics include:

- cost transparency through changover from fixed to variable costs
- free financial resources through avoidance of capital commitment
- planning reliability for all the modules
- cost reduction by realisation of synergistic effects.

With this innovative full service concept, Life Systems gradually increased its market shares. Today, approximately 20% of all perfusions in Germany are provided by an external service. In this market segment, Life Systems is not only established, but is also the market leader, the firm added. The company is currently negotiating with several German and other European clinics to strengthen that market position and internationalise the business.

Details: www.life-systems.com

Canada - The US Patent and Trademark Office has granted Novadaq Technologies Inc, of Toronto, a patent for its SPY Intraoperative Imaging System, which also has 510(k) clearance from the US Food and Drug Administration (FDA) for use during CABG surgery.

The patent, titled ‘Method and Apparatus For Performing Intra-Operative Angiography’, describes SPY as an intra-operative fluorescent imaging system that enables cardiac surgeons to confirm the location of coronary arteries during coronary artery bypass graft (CABG) procedures and visually assess and validate the functionality of bypass grafts. Novadaq adds that the system allows the surgeon to view, record, replay, print and archive high quality real-time images of the coronary arteries and bypass grafts.

SPY’s core imaging technology is also used in Novadaq’s OPTTX System, for the diagnosis, evaluation and treatment of wet age-related macular degeneration (AMD). OPTTX is currently being evaluated in clinical trials.

Details: www.novadaq.com

This day’s activities in a 100 countries include health checks, walks, runs, rope jumps, fitness sessions, public talks, stage shows, scientific forums, exhibitions, concerts and sports tournaments to emphasise physical fitness to reduce body weight. Men with waist sizes above 94cm (37 inches) and women above 80 cm (32 inches) are considered at significant risk of developing heart disease and stroke. ‘Waist size is like blood pressure and cholesterol level, another one of those numbers that we should all know, understand and watch closely’, explained Dr Sidney Smith, Chairman of the Scientific Advisory Board at the World Heart Federation, through which the international member organizations arrange the events.

Details: www.worldheartday.com

The patent courtsey of Novadaq Technologies, Toronto

TOSHIBA introduces DI

a new tool for easy detection and follow-up of LV dyssynchrony

Dyssynchrony Imaging (DI) is a versatile tool to assess LV dyssynchrony. It creates an easy-to-interpret dyssynchrony image within just a few seconds; using green for normal and red for delayed contraction.

DI is based on displacement, not peak velocity, because this is the most stable marker for dyssynchrony. As a result, quantitative measurements can be performed quicker and with higher diagnostic confidence, making DI a versatile tool for daily clinical use, especially in patients following Cardiac Resynchronization Therapy.

Like to know more?
Talk to Toshiba, serving medicine and its practitioners.

Normal heart showing synchronized displacement with its peak at end systole

Dyssynchrony in a patient with LB88 using displacement, courtesy of Prof. J. Gorcsan, Pittsburg University, USA

TOSHIBA
MEDICAL SYSTEMS EUROPE
www.toshiba-europe.com/medical

25 Sept 2005
World Heart Day

Walk run jump!
Respiratory diseases have an important negative impact on morbidity and mortality. This impact appears to be increasing, mainly due to smoking-induced disorders such as COPD and lung cancer. Also, during the last decade, and mainly in western Europe, an increasing incidence of asthma patients has appeared. During coming decades we will have to deal with an increase in COPD patients as well as patients with other chronic diseases, and patients in the future will demand far more of us, all of which will challenge healthcare systems in many ways. Co-operation between hospitals, general practitioners and primary healthcare groups must be optimised, harmonised and we need to use similar clinical guidelines. Prompt exchange of patient health information’s calls for fast implementation of the electronic patient record (EPR) and in a few years it will probably be customary, during discharge from hospital, for a patient to have personal health information downloaded on to his or her own pocket computer. The EPR will be a very big step forward in terms of the availability of health information and quality control.

In hospitals, an increasing burden will be more COPD patients of greater age. Until now the monitoring of alive COPD patients have been relative sparse and in many departments not optimal. A simple comparison can be done with patients with acute myocardial infarction and in fact the mortality is as high in patients admitted with COPD. There is a need to increase the quality of monitoring of COPD patients and other patients with acute respiratory illness. In the next decade continuous monitoring of oxygen, carbon dioxide, respiratory rate, etc. should be standard during the first days of hospitalisation and easier ways to use the information wanted.

Non-invasive ventilation (NIV) will also be standard in all departments. NIV helps COPD patients and this therapy will not only decrease acute mortality but also increase the prestige of respiratory medicine among our colleagues in internal medicine.

New studies will show whether long-term home NIV will be effective or the use of NIV should be limited to prevent exacerbations in COPD.

Long-term oxygen treatment (LTOT) will be demanded by many more COPD patients than today, and our role will be to prescribe oxygen according to clinical guidelines. Ambulatory oxygen will have an increasing use and further development of lightweight portable oxygen therapy will be demanded.

In the next decade, I suspect a dramatic increase in the quality of care for patients with respiratory diseases and a demand for more optimal monitoring and treatment equipment.

Last but not least, we must not forget that smoking cessation is of major importance to prevent COPD and lung cancer.

Thousands of diseases challenge human survival on our planet. However, a few of these represent a major cause of mortality and morbidity world-wide. Respiratory diseases are among the leading health problems for human beings. In particular, respiratory tract infections, including tuberculosis and pneumococcal infection account for a large portion of human suffering and death. Chronic inflammatory disorders of the airways, such as bronchial asthma in infants and chronic obstructive pulmonary disease (COPD) in adults, embody the highest prevalence, respectively, in Europe. The former is related to the ‘allergy march’, whereas the latter is strongly related to tobacco consumption, though other factors such as occupational and environmental pollution also significantly contribute to the overall burden of disease. It has been estimated that the total future lifetime burden of lung diseases in Europe amounts to nearly €102 billion.

The prevalence of COPD is rising worldwide, and it has been estimated that, in 2010, COPD will be the 4th leading cause of death in Europe, immediately after cardiovascular diseases and lung cancer. COPD is the most common chronic disorder in children in Europe. There is no fundamental difference between children and adults. However, inhaled corticosteroids are effective for symptomatic treatment and to reduce the risk of exacerbations substantially. Inhaled bronchodilators are also helpful.

In COPD, smoking cessation is the most effective measure to slow down the disease process. However, the inflammatory process does not reverse after smoking cessation. Therefore, a therapy for COPD is needed. Regular therapy with long acting inhaled bronchodilators can help patients to control dyspnoea, as well as to improve exercise tolerance. The addition of inhalational steroids may help to reduce the frequency and severity of exacerbation in severe patients.

A key highlight will be demonstration of MAQUET’s Servo-i offerings for neonatal care.

New features and a colour design

The SERVO-i Infant

Belgium - A new version of the SERVO-i Infant neonatal ventilator, featuring additional treatment function- tions and an optional colourful, child-friendly design, to be launched by MAQUET Critical Care at the European Society of Paediatric and Neonatal Intensive Care (ESPNIC) Annual Congress in September. The equipment will also be on show at the European Society of Intensive Care Medicine (ESICM) Congress in Amsterdam (25-28 September, booths 77-79 and 82-84).

New features in the neonatal ventilator include nasal continuous positive airway pressure (NCPAP) - an option that can be used with a variety of patient interfaces, Maquet reports. ‘New hardware has also been introduced. A new ‘PicoSense’ measurement sensor allows near-patient monitoring, in order to observe flow and minimal dead space,’ the company states. ‘FiO2 trend values can be stored and reviewed.’

‘Reference loops can be presented on screen together with FiO2 trend values.’

‘The patient circuit can be tested independently of the pre-use check.’

‘Alarms for airway pressure upper limit can be muted.

From burden to therapy

Respiratory diseases

By Andrea Rossi MD, Director of the Respiratory Division at Bergamo General Hospital, Bergamo, Italy, and Chair of the Scientific Committee of the European Respiratory Society

Faceing the future

A European perspective by Dr Philip Tønnesen

(As Med. Science), Chair of the pulmonary department at Gentofte University Hospital, Copenhagen, Denmark, President of the Danish Respiratory Society and Vice-Chair of the European Respiratory Society Annual Congress 2005 (29-21 September)

New European Society of Thoracic Surgeons (ESTS) members and elected representatives will be named in London this week.

The European Society of Thoracic Surgeons (ESTS) has named the new members of its governing body.

The new European Society of Thoracic Surgeons (ESTS) members and elected representatives will be named in London this week.

The new European Society of Thoracic Surgeons (ESTS) members and elected representatives will be named in London this week.

The new European Society of Thoracic Surgeons (ESTS) members and elected representatives will be named in London this week.
Today’s treatments and training tomorrow’s specialists

Dr Christiane Eickelberg, of the University of Giessen Lung Centre (UGLC), outlines the centre’s research projects, aims and academic offerings.

Training activities in pulmonary medicine, UGLC members seek a new approach to understand, treat, and ultimately prevent lung diseases. The clinical departments of medicine, surgery and paediatrics offer modern patient care and services to juvenile and adult patients suffering various lung diseases. The UGLC also has emergency and intensive care units with adjoining wards, including facilities designed especially for treatment of rare and specific lung diseases. Additionally, the centre hosts highly specialised ambulatory care facilities for all general lung diseases, as well as specific pulmonary infections (i.e., HIV/AIDS, avian influenza), juvenile and adult mucoviscidosis, lung cancer, fibrotic or chronic obstructive lung diseases including asthma, pulmonary hypertension, and sleep-related disorders. Some of these facilities, namely those focusing on pulmonary hypertension and lung fibrosis, care for the largest patient groups in Europe.

Daily, UGLC clinicians are supported by the skilled diagnostic experts in the Institutes of Microbiology, Virology, Pathology and Pharmacology.

With a continuous emphasis on research and innovation, the centre looks back on long traditions of inventive treatment strategies, vaccines, diagnostic tests, and other technologies that have improved health. The exchange of complementary scientific knowledge, skills and experience of the cardiopulmonary system is fertilised by a joint dedication to education. UGLC faculty members actively engage in a conjunctive concept to integrate young scientists and clinicians from all over the world in clinical fellowships and a PhD training programme specialised in pulmonary medicine and molecular biology.

Details: www.uglc.de

EASES LUNG FUNCTION

The Netherlands - A randomised trial of roflumilast, led by researchers at Leiden University, has shown that the anti-inflammatory drug improved lung function in patients with moderate to severe chronic obstructive pulmonary disease (COPD), according to the results published in The Lancet in August.

At sea level, in the heart of Germany, interested members of the public and patients can more easily benefit from and share in UGLC’s collective research spirit, for the centre constitutes a busy scientific network that incorporates 20 research groups with over 120 basic scientists and clinicians.

Close interaction on the Giessen University Hospital campus ensures that UGLC members can work effectively to meet patient’s needs and match capabilities. ‘We believe in translational science,’ says Professor Werner Seeger, chairman of the renowned centre, ‘and we aim to deliver our research directly from bench to bedside.’ With the orchestrated pursuit of clinical, research and medical needs and match capabilities.


For more information visit www.maquet.com/criticalcare

SERVO-i FOR NEONATES

ANOTHER HAPPY BIRTHDAY

Helping clinicians to meet the very special demands of neonatal care is a key priority for MAQUET. That’s why the SERVO-i ventilator platform provides unmatched sensitivity and advanced functionality for treating the smallest patients. After all, every birthday is an occasion to celebrate.

SERVO-i offers one platform for a wide range of patient treatments. A state-of-the-art ICU ventilator with outstanding capabilities for treating neonates, the system senses and reacts to the minutest changes in patient conditions.

This latest release introduces many new features for neonatal patients. Nasal CPAP provides less invasive ventilation, with stable CPAP pressure. As an alternative to integrated monitoring, Y Sensor measurement lets the clinician measure pressure and flow close to the patient.

Please visit us at the ESPMIC congress in Antwerp, Belgium, 15-17 September, booth 13-14

For more information visit www.maquet.com/criticalcare

As the German Society of Neuroradiology 40th annual meeting approached (Venue: Dresden. 31 August - 3 September), Professors Martin Schumacher (Freiburg), President of the German Society of Neuroradiology (GSN) and Rüdiger von Kummer (Dresden), the meeting’s President, examine the history and potential in this medical field. The programme in Dresden reflects the unshakable development of neuroradiology worldwide. It impressively shows the enormous upswing in diagnostics and therapy of central nervous system diseases and particularly in brain research. Neuroradiology in Germany is older than the 40 years in which regular annual meetings have been held. The earliest publications, in 1905 (Schüller: The skull base on the radiogram) and in 1906 (Furhroh: X-rays in the Service of Neurology) witness that Wilhelm Conrad Roentgen’s discovery was already in use in neurodiagnostics only 10 years later. Arthur Schüller was also the first to introduce the term Neuro-Roentgenology in 1913. For over half a century it was the neurosurgeons and neurologists who practiced and developed neuroradiology, including famous names such as Dandy, Forester, Moniz, Djindjian, Krayenbühl and Serbinenko. When the German Neuroradiological Working Group was founded, in 1963, and well beyond the founding of the German Society of Neuroradiology (1970), neuroradiology departments were embedded primarily in neurological and neurosurgical hospitals. Not until the 1970s did the use of the same techniques result in greater co-operation with radiology, leading to the successful recognition of neuroradiology in 1987. German Neuroradiology led the way, with a status that even now still has to be attained in many European countries. It was outdone only by Portugal, which first established the speciality of Neuroradiology in 1913. Evolution, those creatures survive which have solid basic endowments which they can use for their own further development and profit additionally from favourable environmental conditions. Apparently neuroradiology possesses these prerequisites, since it has managed to show further decisive developments in the last two decades, despite increased pressures. This is confirmed by a quick look at the summaries of the scientific contributions to the 40th Annual Meeting. In diagnostics, magnetic resonance imaging (MRI) has provided insight even into microscopic areas to reveal pathological cell functions. Just to name a few: cellular layer composition of the cerebral cortex or the hippocampus and populations of the same cells in core areas of the brain stem or the basal ganglia can be differentiated, previously only histo-anatomically demonstrable fibre tracts become visible. Foci only millimetres in size, which generate epilepsy, no longer remain hidden and can be neurosurgically excised if they are resistant to medication therapy. Metabolic brain function disorders can be classified by imaging angio- and perfusion, sensory and aphasic deficits in the function-MRI can be revealed (Fig. 1).

The early diagnosis of stroke, so vital for therapeutic decisions, is provided in minutes by diffusion-weighted MRI. This enables the differentiation of tissue at risk, which may survive under rapid treatment, from those regions with irreversible necrosis (Fig. 1). In therapy, a not inconsiderable number of surgical procedures has shifted to interventional methods of neuroradiology. Minimally invasive therapies are now considered standard, such as endovascular embolisation of arteriovenous malformations and endovascular elimination of aneurysms by coiling (Fig. 3). After the International Aneurysm Study (IAS) involving over 2,000 patients, brought convincingly better results than surgical clipping, standard treatment of aneurysms shifted from operative to endovascular techniques, so that currently ca. 2/3 of the patients are treated with coiling. By embolisation alone of AV-malformations or in combination with surgery or stent-protected radiosurgery, the complication rate could be reduced and malformations treated that could not be removed earlier due to their size or localisation. Likewise in recanalisation of acute vascular occlusions, sophisticated endovascular techniques have created completely new therapeutic options. Drugs, using for intra-arterial fibrinolysis, has been increasingly supplemented by mechanical recanalisation procedures, whether as clot retriever systems, vacuum-enhanced systems or ultrasound and laser procedures. Their application areas range over the entire central vascular system, including ocular arteries. There has also been a shift in indication for the treatment of vascular stenoses, which are increasingly treated by endovascular procedures with stents—protected percutaneous transluminal angioplasty (PTA) (Fig. 4).

In a ranking of the 30 most important innovations of the past 30 years, MRI and CT-Scanning were at the top, followed in third place by balloon angioplasty of vascular stenoses, whereby application of these imaging modalities play a key role in the central nervous system and the supra-aortal vessels (Fuchs VR and Sox HC, Health affairs, 2001, 20: 30-42). This impressively underlines the importance of neuroradiological diagnostics and therapy.

What will research bring? The decade of the brain flows without a break into the century of brain research. Our high expectations of progress in the neurobiological examination of the brain and its functions are fully justified. Imaging procedures will depict the highest organisational level of cognitive functions, memory processes and even the experiencing of emotions in ever-greater detail, and even portray the function or coupling of neuronal networks in their complex highly dynamic relationships. Neuroradiology stands at the middle of the co-ordination of research work from clinical partnerships between neurologists, neuroradiologists, neurosurgeons, neuropsychologists, psychologists, psychiatrists, microbiologists, informatics and microsystem researchers.
Belgian clinic offers TomoTherapy

Brussels - The Radiation Oncology Department at the Vrije Universiteit Brussel has become the first Belgian and second European facility to install the TomoTherapy Hi-Art System, which is the first commercial system specifically designed for IMRT (intensity-modulated radiation therapy). Chosen to complement the department’s oncology treatments the system is expected to reduce side effects (e.g. dry mouth in neck cancer) without compromising a cure.

The TomoTherapy Hi-Art System, which fuses a computed tomography (CT) imaging system with a dedicated system for helical tomotherapy, or slice therapy, combines treatment planning, patient positioning and treatment delivery in precise treatment doses - to all body parts - without increasing radiation deposited on healthy tissue.

Planning - Before beginning this treatment, the doctor uses 3D images (e.g. CT) and special software to establish precise contours for each region of interest (tumour) and any regions at risk (sensitive organs or structures). A decision is then made about the amount of radiation to be given to the tumour, and acceptable levels for surrounding structures are defined. Then the TomoTherapy Hi-Art System calculates the appropriate pattern, position and intensity of the radiation beam to be delivered, to match the doctor’s prescription as closely as possible.

Patient Positioning - A special CT scan can be made just prior to each treatment, so the tumour’s position can be verified and the patient’s position adjusted if necessary (between treatments a patient’s tumour can move).

Helical Treatment Delivery - The TomoTherapy Hi-Art System combines IMRT with a helical (or spiral) pattern to deliver radiation treatment. Photon radiation is produced by a linear accelerator (or linac), which travels in multiple circles all the way around the gantry ring. Meanwhile, the couch also moves, guiding the patient slowly through the centre of the ring, so each time the linac comes around, it directs the beam at a slightly different plane.

GE Healthcare

Poland’s $1 billion national cancer programme

Following the setting up of a US$1 billion National Cancer Programme to cover a 10-year period and provide screening, diagnostic and therapeutic programmes, two CT Laser Mammography (CTLM) systems, made by Imaging Diagnostic Systems Inc (IDSI), have been installed for clinical research projects in the Institute of Oncology, Maria Skłodowska-Curie Memorial Institute, in Gliwice. ‘The research projects we began with the Institute of Oncology, with currently over 400 cases completed in six months, will now continue to conclusion,’ said Tim Hansen, IDSI CEO. ‘We expect that our global commercialisation programme will follow this pattern, one of regional clinical investigations followed by local area sales.’

IDSI reports that the CTLM system is the first patented breast imaging system to utilise state-of-the-art laser technology and patented algorithms to create 3-D cross-sectional images of the breast. ‘It is a non-invasive, painless examination that does not expose the patient to radiation or require breast compression. IDSI has received CE Marking, CMDGAS (Canada), Canadian License, China SFDA approval, UL listing, ISO 9001:2000- 13488 certification and FDA export certification for its CT Laser Breast Imaging system. The Company is seeking Premarket Approval (PMA) from the FDA for its CTLM(R) system to be used as an adjunct to mammography.’

GE imagination at work

Report by Michiel Bloemendaal (above) our correspondent for the Netherlands and Belgium
**Interdisciplinary treatment in the fight against breast cancer**

At the German, Austrian and Swiss Societies for Senology joint annual meeting (Stuttgart, 8-10 September), experts will discuss the interdisciplinary treatment of diseases of the female breast. Professor Diethelm Wallwiener, Chairman for the German Society for Senology and Managing Director of the University Women's Hospital Tubingen, points out that this is only the second time that the subject has been aired at the meeting, but adds: “Only the transfer of knowledge between experts of different medical disciplines will ensure optimum treatment results.”

**SEROLOGY**

The objective of our annual meeting is to convey evidence-based findings, which doctors can then turn into practice. The registration fee is based on the date of registration, status, length of membership. Registration is possible online at www.senologie. The Congress organisation: CTW, Congress organisers. Current information is also new from the neo-adjuvant chemotherapy. The smaller the tumour is at the point of surgery, the more likely the surgeon is to be able to save the breast. Many women feel a great deal of relief when the tumour already becomes markedly smaller during that phase in the treatment. Experts will discuss the advantages and disadvantages of neo-adjuvant chemotherapy during the joint meeting. These days, breast-preserving therapy is becoming possible for an increasing number of patients. However, it is not the end of treatment for those patients. Rehabilitation of a patient after the operation, and ensuring her quality of life after breast cancer, are important steps in the fight against cancer. That is why we will also bring up these aspects of senology at our Stuttgart meeting. Furthermore, we will discuss the needs of patients whose desire for surgery is only artificially motivated. Experts will be introducing the latest operating procedures during lectures and seminars on aesthetic breast surgery. We expect around 1,800 participants at the meeting, who will discuss these and many other current topics. Over 200 speakers will introduce the latest findings on diagnosis, therapy and aftercare of breast cancer. The composition of our annual meeting is to convey evidence-based findings, which doctors can then turn into practice.

**Prostate cancer**

European trials of HIFU treatment are underway

**High-Intensity Focused Ultrasound (HIFU) converges at a selected distance from the transducer elements, and the curvature of the transducer determines the distance to the focal length. Although the intensity of the ultrasound is relatively low at the face of the transducer (30 Watts), the site intensity at the focal zone can reach levels greater than 2,000 W/cm². This is a sufficient intensity to raise the tissue temperature in the focal zone to 70-100°C in less than one second, making it a perfect energy for non-invasive therapy - which is real-time image-guided.

Francis and William Fry, researchers at the Indianapolis Centre For Advanced Research (ICFAR), based in Indiana, first used HIFU in the early 70s to treat inoperable brain tumours at the Indiana University Medical Centre. Later, under the direction of Dr John Donahue, Department of Urology, Indiana University, researchers began to pioneer the prostate treatment application for HIFU. From this, ICFAR founded Focus Surgery Inc. (FSI) Indianapolis, developer and producer of the Sonablate HIFU-syste. In Europe, studies from the early 90s, by Drs Gelet and Chapelon, showed significant success using HIFU for prostate cancer. Those first results have been backed-up by other scientific research (e.g. 3D contrast enhancement after HIFU; Sedelaar et al: Eur Urol 2000). In 1994, the Sonablate HIFU-system was used in Europe for the first time to treat prostate cancer (Dr Michael Marberger: Effect of High Intensity Focused Ultrasound (HIFU) on Human Prostate Cancer, 1994).

**High Tech in Medicine**

19-20 October 2005 in Essen, Germany

**HAUS DER TECHNIK**

Bridge the gap between hospital departments and join “High Tech in Medicine” for an interdisciplinary exchange of knowledge between hospital managers, IT experts and physicians.

Main topics are:
- Digital Medicine and Networks
- From Prevention to Healthcare
- Imaging in the 21st Century
- Minimal Invasive Treatments
- Image Guided Surgery
- Robotics and Sensors

For more information and registration on www.hightechmedicine.com

The treatment is performed under spinal or sacral anaesthesia. After insertion of the transrectal probe, the prostate is visualised trolled, effective, adaptable to the physician’s and patient’s therapeu tic goals, repeatable, and there is no therapeutic impasse (alternative options still allow post Sonablate 500 therapy). Worldwide clinical studies show up to a 90% CR (complete response)-neg, biopsy and no PSA increase, an average nadir PSA lower than 0.45ng/ml and a re-treatment rate of approx. 10% after one year. These data are backed-up by a European MC-study, as well as a few additional, smaller studies done with another HIFU system (success rate 84%, with 5-year follow-up).
So far, over 7,000 patients have been treated with HIFU, and more than 2,000 of these with the Sonablate 500-system. Furthermore, the Sonablate 500-system shows multiple-use potential - prostate diseases including cancer and BPH, liver and kidney carcinoma applications under development, and testicle carcinoma in clinical evaluation (first clinical results from Prof. Marberger, at the AKH/University hospital, Vienna - presented by Prof. Schatzl at the 3rd International Symposium on Therapeutic Ultrasound (ISTU). Source: Misonix
EU challenge to worldwide BRCA2 gene patent

Recently an unparalleled legal challenge has been underway in the European Union (EU) regarding the number of human gene patents held by US-based corporation Myriad Genetics. For sequences of two genes, BRCA1 and BRCA2, mutations that indicate a predisposition to breast cancer, this type of legal challenge is commonly known as an ‘opposition’ to a granted patent under European patent law. ‘Third parties are allowed to challenge the validity within nine months from the grant of the patent,’ explained Siobhan Yeats, the European Patent Office’s director of Examination and Opposition in Biotechnology, in an interview with European Hospital.

On June 29 the European Patent Office (EPO) upheld a patent licensed to Myriad Genetics of Salt Lake City, Utah. European clinical groups launched an opposition to the worldwide monopoly rights over the breast cancer BRCA2, saying that it should be dismissed on the basis of ethical and legal reasons. Myriad has been pushing for licensing expansion in Europe. Between 2001 and 2003, the EPO has granted several patents to Myriad Genetics on familial breast cancer genes BRCA1 and BRCA2. These patents have permitted the US firm to gain and retain monopoly on BRCA1 and BRCA2 testing. Although Myriad has exclusive rights to commercialise tests based on BRCA1 and BRCA2 in the United States, European clinics have been opposed to signing up for licenses. The European genetics community has adamantly resisted Myriad’s monopoly for breast cancer screening as they see it as an interference with national policies surrounding DNA-based diagnostic services.

Furthermore, the basis for the breakthroughs in breast cancer research that led to the initial patent claims by Myriad in 1994 and 1995, was made possible as a result of a collaborative effort on behalf of worldwide academic research groups, geneticists and healthcare providers criticalise the fact that Myriad spent minimal funds discovering diagnostic tests that, in addition to having inaccurate results, are offered at very high costs. While Myriad offers patients a test for a fee of about €3,800, similar tests are offered by German universities at a cost of around €1,800. Whereas opposition to some of Myriad’s claims over the gene

BRCA1 was successful, to the extent that it no longer provides any considerable threat to diagnostic practice in Europe, it is Myriad’s licensing rights on the second breast cancer gene, BRCA2, that has recently met with disapproval among European physicians and researchers. Before facing opposition at the EPO, Myriad rephrased its claims for the patent to cover the use of a certain DNA probe that compromises a single mutation for ‘diagnosing a predisposition to breast cancer in Ashkenazi Jewish women in vitro.’ The mutation 6974delT, described in the patent, is somewhat more common among Ashkenazi Jews.

‘This is definitely not the way to go,’ said Geert-Jan van Ommen, a human geneticist from the University of Leiden, in the Netherlands. Seeking ownership of a mutation in an ethnic group ‘...is not acceptable to most geneticists,’ said Gert Matthijs, of the University of Leuven, Belgium. The patent dispute over the BRCA2 gene is being followed closely by researchers, physicians and policymakers both in the European Union and the United States, where the permission of exclusive monopoly rights over human genes in dereliction of healthcare and scientific research runs contrary to the public interest and the goals of the patent system. The growing debate over gene patent domination over both patient care and research illustrates the need for prompt modification of the US patent law.
By Manole Cojocaru MD PhD, President of the 2004 BCLF Meeting

A world priori of the Romanian science from the discovery of the first water channel under healthy conditions (BCLF) and the first water channel under healthy conditions (BCLF), the event, in Neptun in 2004, attracted over 300 laboratory medical medical personnel from 19 countries. The rich countries and the rich technical programme included 24 main topics. Professor H Reiner (Germany) delivered an excellent plenary lecture on Laboratory Medicine, and the following research studies contributed to numerous new and interesting observations, studies, and discoveries in all laboratory medicine branches. Within this scope of this review, however, only a few can be mentioned (see box).

BCLF must remain basically a forum for the modernization of the BCLF should be organized by the BCLF. The BCLF will be held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia.

After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia. After the successful 5th BCLF Meeting with international participation in 2000, in Sofia, I had proposed that the 12th BCLF of the 15th meeting should be organized by the Romanian Society of Laboratory Medicine (RSLM), and it was approved during the plenary session of the 15th BCLF Meeting.

The 15th BCLF Meeting was held in Tegernsee, Germany, the seat of the presidium of Professor Todor Gruev, of Macedonia.
Grants for pain researchers

The European Federation of IASP Chapters (EFIC) Grunenthal Grant 2005 has been awarded to young scientists and their research projects on pain therapy (see photo caption).

The EFIC Research Committee, which decided on the purely scientific projects to be sponsored, reported that this year sees a variety of different approaches ranging from imaging of chronic pain processes in the brain to the psychological management of pain patients following cervical spine injuries.

Four of the five sponsored scientists - from the UK, Denmark and Germany - have received a grant of 20,000 Euros each for their research project. The fifth prize winner is receiving 15,000 Euros to learn a special research technique at a different institute.

Grunenthal GmbH, a research-based, family-owned, pharmaceutical company that focuses on pain therapy, gynaecology and new technologies, donated the 100,000 Euros. The firm has production sites in seven countries, representation in 25 countries, affiliates in virtually all European countries, and employs around 1,800 people in Germany and 4,800 worldwide.

The firm’s managing director, Rob Koremans, said, “Traditional research prizes consider the results of work already performed and therefore often tend to be awarded to specialists in established research centres. In contrast, the EFIC Grunenthal Grant (EGG) sponsors planned projects before they start. In particular EGG focuses on sponsoring young scientists and the dissemination of innovative pain research throughout Europe.”

£1.5 million prize for scientific research

The Netherlands - The Spinoza Prize, worth £1.5 million, is awarded annually by the Dutch Organisation for Scientific Research NWO to four top researchers for their outstanding, groundbreaking and inspiring research. Professor René Bernards (52) has been named by the NWO jury as one of the prominent leaders in biomedical research.

The professor uses innovative technologies to study fundamental processes in cells, and was among the first to measure patterns of gene activity by applying DNA micro-array technology, which predicts accurately whether a breast cancer patient will develop metastases. More recently, he worked with RNA interference technology (RNAi), a new method that - using a library of 24,000 RNA fragments - enables shutting down of human genes one at a time, thus revealing their function.

Prof. Bernards is also co-founder and chief scientific officer of Agendia BV, a spin-off of the Netherlands Cancer Institute (NKI). Agenda’s MammaPrint, a prognostic test for breast cancer patients, is based on parts of the professor’s work that was honoured by NWO. The professor, with over 100 papers published in peer-reviewed journals, is head of the division of Molecular Carcinogenesis at the NKI, which he joined in 1992 after a six-year assistant professorship at Harvard University.

Today, we connect more generations of women to better care.

Philips Women’s Health Systems. For years, we relied on one family of fetal and maternal monitors. And as women’s healthcare kept growing, so did the need to share patient information throughout a network that includes ultrasound and mammography.

We now rely on one trusted world leader for the technology of women’s healthcare. From the teenager to the mature woman — we can handle all their monitoring and imaging needs. It just makes sense.

To triumph in patient care, simply contact Philips.

www.medical.philips.com
37th WORLD FORUM FOR MEDICINE
International Trade Fair with Congress

DÜSSELDORF, GERMANY
NOV. 16 – 19, 2005