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5-10 Radiology

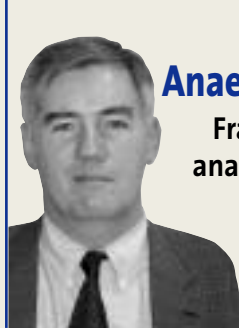
X-rays: health risks and border controls. Plus ECR reports



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Endoscopy

Virtual colonography, plus CT fluoroscopy guidance - a new therapy



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France welcomes anaesthesiologists for the 13th World Congress



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Germany's 121st congress; plus CT 3-D tumour modelling

VOL 13 ISSUE 2/04

APRIL/MAY 2004

WHO warns of global TB threat

China - a very high risk



The largest trial ever performed for drug-resistant tuberculosis (TB) has revealed alarming figures. Patients from former Soviet States such as Kazakhstan, Uzbekistan or Estonia have a ten-fold greater chance of contracting the disease. The WHO trial has also shown that there is a very high risk of TB for China. *Continued on page 2*

What hospitals should learn from SARS

The sudden arrival of the deadly lung disease SARS (Severe Acute Respiratory Syndrome) prompted the rapid development of acute measures in affected hospitals to detect and contain the disease. As a result, Dr Bien-Soo Tan (right) Head of the Department of Diagnostic Radiology, Singapore General Hospital, told a press gathering at ECR 2004, that the SARS virus infections could 'serve as an impetus for the introduction of long-term changes in various guidelines to minimise the transmission of any form of infectious disease within hospitals - and radiology departments in particular'.

When SARS appeared in the Far East in early 2003 the disease had never been observed in humans before. (The virus is transmitted through droplets spread when an infected person coughs or sneezes,



In the face of unexpected new viral outbreaks or even possible

biological terrorist attacks, recent lessons learnt, and measures taken in the Far East to combat this dangerous disease, could serve as a model for hospitals everywhere

and the droplets are spread to a nearby contact). However, Dr Bien-Soo Tan said that, within days, it changed working conditions in the Department of Diagnostic Radiology and the hospital.

'One of the first SARS patients in Singapore was treated in Singapore General Hospital. With the help of strict quarantine



measures it was initially possible to prevent the further spread of the disease within the hospital. In April 2003, however, a resident of Singapore who suffered from an atypical form of SARS was admitted to the General Hospital. Based on the patient's symptoms, it was not possible for doctors treating him to immediately tell that he was suffering from the easily transmittable lung disease. As a result, several other patients and personnel in the hospital also became infected. Among those affected were three members of the Department of Diagnostic Radiology at Singapore General Hospital.

'Within a very short period of time, new standards for protection against infection had to be developed and implemented. These measures have enabled us to rule out the possibility of the spread of this hitherto unknown deadly disease in the hospital with the maximum efficacy. These standards involve three essential areas: protection, detection and isolation. *continued on page 2*

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With health services overextended and concerns that quality of care may be compromised by overworked healthcare professionals, could telemedicine help ease the burden and maintain a high standard of care? Reporting in the April issue of the *Journal of Telemedicine and Telecare*, Dr Claude Sicotte and colleagues at the University of Montreal, present a cost-effective analysis of interactive paediatric telecardiology in the Canadian national health system. The retrospective study, carried out over a four-year period (from Jan '98) was performed with 78 infants who had received a paediatric cardiology teleconsultation.

Studies that evaluate outcomes and cost of telemedicine are rare - especially for an established four-year project. This study compared the telecardiology service with conventional means of providing the same service and the cost analysis took into consideration expenses for patients as well as the healthcare system.

The study's most impressive result, Dr Sicotte reports, is the effect on tertiary care visits. 'Both emergency transfers and semi-urgent or elective visits were

Telecardiology

More expensive but quicker, better care



Claude Sicotte

reduced by 42% and the delay in consulting a cardiologist was decreased significantly.' This is especially important for patients living in remote areas with low mobility. Worried parents and physicians were reassured by earlier contact with a cardiologist that lead to 'enhanced early diagnosis and treatment.'

The cost analysis aspect of the study 'demonstrated that teleconsultation did not result in overall cost savings,' Dr Sicotte says. The patients received direct cost savings but the healthcare system did not benefit in this way. The conclusion is that teleconsultation is more expensive but increases effectiveness. However, Dr Sicotte does stress that 'human and organisational issues remain difficult to resolve. Projects like these need to be carried out over a long period of time in order to realise their full potential.'

This study may be a move

toward exploring how telemedicine can assist in preserving a high level of healthcare in the UK while helping ease the problems faced by patients, physicians and consultants. *Telemedicine in the EU: pages 5-7*

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

Signature Date EH 2/04

NEWS

NEW

Drug monitoring system

SATO Deutschland GmbH, manufacturer of label and barcode printers and a specialist in data collection systems (DCS), has launched a new system for medication monitoring in hospitals. Used for tracking and tracing drugs, the system was jointly developed by SATO and scanner specialist Denso - and it is already widely used in British, Belgian and Japanese hospitals.

Upon admission, a new hospital patient is given a water-resistant, durable barcoded wristband (printed with either linear or 2-D codes), produced by the SATO CT400 barcode label printer (see 'Award', below). The barcode is keyed to the patient's data/history, stored with his/her medication instructions on the central database. In seconds, using the light-weight Denso scanner, medical staff can scan the band and access individual patients' instructions.

The system also aids drug supplies identification, via barcode

labels for each storeroom shelf. Pharmacists compiling prescriptions scan shelf labels with the Denso BHT-8000 Bluetooth Scanner, and print individual tracking labels for patient's drugs, using the mobile SATO MB400 Bluetooth label printer.

When the drugs arrive in a ward, again the tracking label is scanned, with the Denso BHT-200 WLAN, and the data is compared with the patient's data scanned from the wristband. The scanner either displays the name of the recipient, or warns that the drugs do not match the patient.



AWARD

SATO received the LogiMAT Product Award 2004, in its category, for the new SATO CL400e RFID label printer, at the international trade fair for distribution, materials handling and information flow (March 2004).



Wolfgang Huss, Publisher and Owner of Hussverlag (left) presented the award to Morihito Suzuki, Managing Director of SATO Germany (centre), and Alexander Unruh, Project Manager RFID Kühne & Nagel and SATO's German representative

The industrial printer for RFID (radio frequency identification) prints, reads and programmes the integrated transponder in line with ISO 15693, at a frequency of 13.56 MHz. The major advantage of an RFID label is that it carries information that is automatically exchanged between the in-built transponder and external receiver, the firm points out. 'Whereas a conventional paper barcode cannot be edited or rewritten, the data stored on an RFID label can be updated, supplemented or deleted at any time. What is more, as the labels do not need to be in view for the data to be transmitted, RFID technology enables rapid, reliable tracking of goods and materials throughout the entire supply chain.'

WHO warns of global TB threat

Continued from page 1

The trial included one fifth of the new TB infections worldwide. 77 countries and provinces were examined (the 2001 trial in 2001 involved 58). Kazakhstan was most affected worldwide. There, 57% of those who had contracted the disease for the first time were resistant to one drug and 14.2% showed multiple resistances. Five of the ten largest crisis regions for multiple resistances had not been recorded up to that point. These regions include Kazakhstan, Uzbekistan, Lithuania, Equador and the Chinese Provinces Liaoning and Henan. Six of the largest crisis areas are in the former Soviet Union. The WHO blames the collapse of the health services after the end of communism.

The WHO urgently demands that control measures be expanded, including the supervision of the drug-resistance and investing in the WHO's DOTS initiative.

'Without treatment, this disease is deadly,' said Paul Nunn, the WHO-trial coordinator. 'The treatment requires a drug cocktail which is very costly and complicated to administer.'

SARS continued from page 1

'All hospital employees were equipped with a special mask with a strong filtering effect. The entire staff also had to wear protective gowns, caps, goggles and shoe covers when in contact with patients at risk. Every employee had to be instructed on how to put on the protective gear and about which further measures - such as hand hygiene - were necessary. Within the Department of Diagnostic Radiology in particular, all devices used in imaging procedures had to be equipped with protective covers and carefully disinfected after every use.'

'All patients, employees and visitors of Singapore General Hospital were screened for symptoms of SARS. The most important measure in this respect was regular temperature screening of all people in the hospital. Common ear and mouth hospital

The treatment of non-resistant TB is much less expensive. Yet there are nine million new cases annually, of which two million are deadly, according to the journal New Scientist. The WHO assumes that approximately 300,000 new TB infections every year are multiple drug resistant (MDR). Paul Nunn was particularly concerned about the development in China. 'If, on a national level, MDR TB spreads as widely as in the Province Liaoning (approximately 8%) then we are confronted with a massive problem in China, too.'

In that country, approximately 485,000 people contract TB for the first time every year. Drug resistant TB strains develop as a result of the selective survival of naturally occurring strains of mycobacterium tuberculosis. If patients do not receive the necessary drug dose, or if they do not complete their treatment, a selection can occur. Of the MDR TB strains that are currently known, 79% are so-called super strains, which are resistant to at least three of the four drugs generally used. Source: WHO. www.who.int/gtb

thermometers were used for this purpose. In addition, a temperature scanner was set up at the entrance to the Department of Diagnostic Radiology to scan patients and visitors. This scanner displays changes in body temperature on a screen.

'Whenever an inexplicable fever was detected in patients or employees in a certain section of the hospital, the cause of the infection was immediately and very thoroughly examined.'

'All patients and hospital employees in some way suspected of having SARS were immediately placed in strictly isolated hospital rooms in order to prevent the further spread of the disease. For employees of the Department of Diagnostic Radiology this meant, among other things, having to carry out our examinations in a very complicated way - by using portable



Linking for electronic medication management

At the 9th congress of the European Association of Hospital Pharmacists (March) Charlie Kegley, President of logistics firm Swisslog Healthcare Solutions, and Fridrik Sigurosson, CEO of TM Software, the parent company of IT company Theriak, announced an alliance to provide drug selection/prescription software, in a system that supports electronic prescribing, therapy management, storage, packaging and dispensing of patient specific medication, as well as bedside verification. This will combine Swisslog's Pillpick System and Theriak Therapy Management software.

x-ray and ultrasound devices directly at the bedside of the infected patients. In addition to fear of contracting the disease, radiologists, radiographers and all other hospital staff members had to deal with a greater workload and significant increase in stress due to the measures implemented to protect against SARS.'

Early detection via radiology

'The specialised field of radiology, which generally enjoys a high status in the world of modern medicine, can also play a significant role in the early detection of SARS. X-rays of the chest can detect lung infections caused by SARS. In cases where the chest radiograph was not yet positive, it was possible to detect illness-related changes in the lungs at an earlier stage by means of high resolution computed tomography.' Further details: Dr Bien-Soo Tan. Email: gdrts@sgh.com.sg



GE's Amersham buyout will 'change hospital perspectives'

The General Electric Company (GE) recently acquired all outstanding shares in the UK firm Amersham plc – specialising in the production of contrast agents. With GE Healthcare Technologies, specialist in medical imaging, healthcare services and information technology, the combined \$14 billion business is expected to generate \$16 billion in revenues in 2005. Daniela Zimmermann, EH, interviewed Reinaldo Garcia, President and CEO of GE Healthcare International, about the firm's prophesy and the impact of this buyout.

RG: Our know-how and expertise is in engineering, physics and mathematics. If we want to develop a new MR or CT we must increase our understanding of the interaction between that equipment and contrast agents. Development includes both the pharmaceuticals and medical technology, so to advance we must understand the relationship between the two. For example, if you think of the huge spectrum of delivering a new healthcare concept – covering preventive medicine, earlier diagnoses, keeping patients and experts informed about the situation, treating patients far more individually – you can't achieve it with the biologists and chemists on one side of the world and the mathematics and physics specialists on the other. By bringing the companies together, we might develop the technology to make a genetic 'fingerprint' to identify a baby's genetic potential to contract a certain disease. So, earlier than ever before, we may find out what causes cancer, or Alzheimer's or cardiac disease, and deal more precisely with an individual to prevent those diseases from happening. By acquiring Amersham we have, for the first time, a holistic approach in medicine.

EH: But won't the only difference be knowing about a disease earlier, but not preventing it?

RG: Yes, but we could prevent the consequences. If you know early enough that a patient will develop Alzheimer's, GE Healthcare, using biosciences and technology, may be able to develop an individual test that will show when someone will begin to develop Alzheimer's. So you could take a drug that may not be really efficient in stopping the disease, but would be very efficient in slowing its progress.

EH: GE has said it foresees an end to inter-departmental rivalries in hospitals due to the Amersham buyout. Why is that?

RG: The new combination of experts will do what our customers cannot do alone. A radiologist needs a biochemist at his side to really interpret what the technology can tell him – seen a little today in MR spectroscopy, when the chemical composition of a specific area is being explored. This is a very simple example of what we will see in the future – often you will see a radiologist, cardiologist, biochemist and others side by side. Amazing! This will unite the various disciplines.

Drugs are a necessity - and expensive - sadly a combination that inevitably attracts the ugly attention of 'get-rich-quick' profiteers. The World Health Organisation (WHO) has estimated that about 3-7% of all medications sold worldwide are illegitimate. One of the tricks of the drug profiteer's trade has been to re-label legitimate low-dose medications as high-dose drugs that are more expensive - disregarding the threat such practices could present to patients with infectious conditions such as HIV/AIDS.

The USA's Food and Drug Administration (FDA) has already announced their intention to enforce requirements for individual and



DNA coded drug packets

secure drugs labelling - a practice that is likely to spread.

Over a year ago, leading pharmaceutical firm Bristol-Myers Squibb (Germany) decided to label its anti-cancer drugs with 'genetic fingerprints' - unique synthetic DNA codes that can be authenticated simply via a hand-held reader (smaller than a point-of-sale scanner), to prevent tampering of any kind. 'A coding sequence as short as 20 units already offers more than a billion different combinations and thus guarantees 100 percent product safety,' the firm

points out, adding that it has now extended this security system to cover its HIV/AIDS drugs.

The DNA coding technology used was developed by identif GmbH, a subsidiary of the German-based firm november AG. 'For the first time ever a 100% protection is guaranteed for both patients as well as manufacturers,' says Dr Georg Bauer, managing director of identif GmbH.

(In December, november AG was placed 64th on the international auditing and consulting group Deloitte's '2003 European Technology Fast 500' list).



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The majority of people (81%), in almost all EU-countries (Spain, France, Ireland, Belgium, Austria, Portugal and Germany) consider their health better than satisfactory, according to a survey* by the Statistical Office of the European Communities (EUROSTAT).

Over 50% of Greeks and almost 50% of the Irish felt in top shape. However, less than 50% of Germans consider their health better than satisfactory while every fifth German said they felt very poorly. Only 8% of the German people felt 'very well'. In the EU, only the Portuguese were similarly disaffected.

Private and public health expenditure – The Greeks, who feel best, also spend most on health: 5.7% of their disposable income. Runners-up are Belgians and - the Portuguese. Notably, despite spending only 1.52% of disposable income on health, the least in the EU, 70% of the British say they feel well or even very well. In Portugal, both private households and the State spend a considerable amount on health. 30% of all social service funds are spent in the healthcare sector. In this, Spain and the Netherlands hold position second and third place. In Germany, healthcare accounts for 26% of all public social service expenditures and for 4.2% of private expenditures. According to the German Federal Statistical Office, in Germany 234.2 billion euros, or 2 830 euros per capita, were spent on healthcare in 2002, which is up 3.1% from the 2.9% of the year before. In addition, 67.8bn euros are allocated for sick pay, continuing payments for sick employees and invalidity pensions. Private households contribute 48% to this, employers 39% and the State 13%. Greece was the Member State with the lowest rate (64%) and also recorded the lowest percentage of people doing some exercise (19%), but had the highest share of smokers (45%) and people feeling stressed (72%).

Diet – Around three quarters of the EU population thought they ate a

balanced diet. Only Italy (48%), Portugal (59%) and Greece (70%) recorded lower figures. As for sports, 78% of people in Luxemburg, and 76% in Finland exercised at least twice a week, compared with an EU average of 40%.

Alcohol - In Ireland, 52% of the population drank alcohol regularly (1999), compared with 25% for the EU average. Denmark and the United Kingdom (both 44%) and the Netherlands (43%) also recorded high percentages, while the lowest were observed in Italy (12%) and Spain (19%).

Tobacco - The lowest proportions of smokers were found in Sweden (22%), Italy (27%) and Portugal (28%), while the lowest percentage of people feeling stressed was observed in Finland (27%), Sweden (30%), Denmark and Germany (both 32%). The EU averages were 34% and 38% respectively.

Healthcare employees – The num-

ber of people employed in healthcare and social work in the EU grew from 13 to 15 million between 1995 and 2000, with in particular the number of practicing physicians having increased steadily in most Member States over the last 20 years. The highest rates of practicing physicians were found in Greece (438 per 100,000 inhabitants in 1999), followed by Belgium (386 in 2000) and Germany (359). The lowest rates were in the United Kingdom (179 in 2000) and in the Netherlands (192 in 1999). The number of practicing pharmacists has also increased in the last 20 years. However, there were wide variations between Member States, from 19 per 100,000 inhabi-

tants in the Netherlands (in 1999) to 148 in Finland (in 2000). There were also large variations between Member States in the number of medical specialists. For general surgery, for instance, they ranged from 6 per 100,000 inhabitants in the Netherlands (in 1999) and 8 in France (in 2001) to 19 in Finland (in 2001). Paediatricians ranged from 6 per 100,000 inhabitants in Denmark and the Netherlands (in 1999) to 26 in Greece (in 2001). Finland recorded the highest number of nurses and midwives, with 2,181 per 100,000 inhabitants (in 2000) and Portugal (379 in 1998) and Greece (391 in 1999) the lowest. These differences should be reduced with the implementation of new measures to facilitate the free movement of doctors and nurses and the mutual recognition of their diplomas.

The number of hospital beds per 100,000 inhabitants in the EU decreased by roughly one third in less

than 20 years, linked to the drop in the length of hospital stays, from more than 17 days in 1980 to less than 11 days in 1997. Germany and France had the highest number of beds per 100,000 inhabitants, with 920 (in 1999) and 820 (in 2000) respectively.

Diseases - Those that are preventable by vaccination - e.g. pertussis, polio, measles or mumps are contagious - but their incidence is very low because vaccines are given routinely in childhood. For instance, for measles and mumps, almost no cases were reported in Finland, with the highest values for measles recorded in Belgium (16 cases per 100 000 inhabitants in 1999) and France (14 cases in 2001), and for mumps in Belgium (30 cases in 1999), Italy and France (both 20 cases in 2001). Polio could be considered as eradicated in the EU.

The same applies to hepatitis B, for which the incidence has declined over the past 10 years. 4 cases per

100,000 inhabitants were recorded in the EU in 1998, with the highest levels observed in Luxembourg (19 in 2001) and the Netherlands (10 in 2001).

By contrast, other infectious diseases such as salmonellosis or legionellosis are becoming a more significant EU health problem. 41 cases of salmonellosis per 100,000 inhabitants were recorded in 2001, with the highest incidence rates recorded in Belgium (104 cases), Germany (94 cases), Luxembourg (83 cases) and Austria (81 cases). Highest incidence rates for legionellosis in 2001 were found in Spain (3.5 per 100,000), Denmark (2.0), France (1.4) and the Netherlands (1.1).

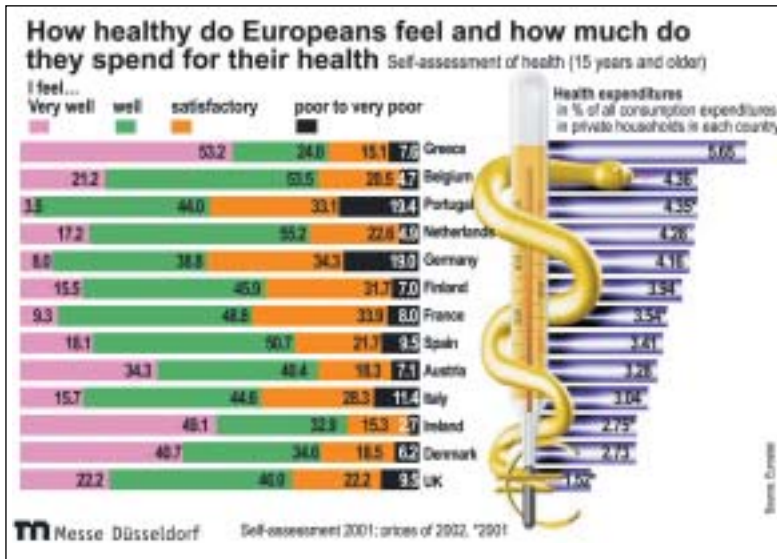
Cancer is one of the most important causes of mortality. Malignant neoplasms cause around 25% of deaths. At the incidence rates prevailing in 1997, it would be expected that 1 out of 3 men and 1 out of 4 women would be directly affected by cancer in the first 75 years of life.

In 2000 it is estimated that 4.1% of the EU population or 15.6 million people were diabetics (type I and II), with the highest proportion in Finland (5.3%), Sweden (5.1%), Italy and Greece (both 5.0%), and lowest in Ireland (2.7%). In the EU an estimated 4.6 million people aged more than 30 suffered from different types of dementia in 2000, that is 12 per 1000 inhabitants. Sweden (15%) and Italy (14%) recorded the highest estimated prevalence and Ireland the lowest (8%).

The EUROSTAT publication 'Health statistics - Key data on health 2002' (457 pp. ISBN 92-894-3730-8, EUR 45, exc. VAT) is available free of charge in PDF format on the Eurostat website. The organisation says it provides a wide, comprehensive, consistent and internationally comparable set of health data and indicators taken from the most relevant data sources available: Eurostat, the OECD (Organisation for Economic Co-operation and Development), the WHO (World Health Organisation).

The publication is divided into six chapters (Population and socio-economic background, Lifestyles, Risk associated with the environment, Working conditions, Leisure and traffic, Health status, Mortality and Health care), and covers many new topics such as human resources in the care and social sector, work-related health problems, well being, mental health, childhood mortality, antimicrobial resistance and certain communicable diseases.

'Me? I'm healthy,' say most Europeans



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OPEN MINDS

Lead leads to children's brain impairment

MALTA - Lead continues to affect children's brains in parts of Europe, putting their development at risk. New research being carried out by the World Health Organisation (WHO) and the University of Udine (Italy) focuses on the burden of disease in children caused by chemicals and other environmental factors, such as indoor and outdoor air pollution, water and injuries.

Early findings were released (24/3/04) in Malta, during the final negotiations prior to the Fourth Ministerial Conference on Environment and Health to be held in Budapest, Hungary (23-25 June). They show that in the countries of the WHO European Region, the children's burden of disease from preventable environmental risks is larger than previously reported. 'Evidence shows that reducing exposure to lead protects a child's intellectual potential. We should take action to make sure that our children are all protected from this and other environmental hazards,' said Dr Marc Danzon, WHO Regional Director for Europe.

Conference details:
<http://euro.who.int/budapest2004>



ADVANCING EUROPEAN TELERADIOLOGY

By Dr Erik R Ranschaert, a founder and co-owner/director of Eurad Consult

Professor Ian McCall, 2nd vice-president of the EAR, has pointed out that several European Union (EU) countries suffer a shortage of qualified radiologists. Speaking at the 6th Congress for Management in Radiology (MIR) last October, he quoted figures drawn from a study evaluating radiology services in 14 EU countries. In the UK, where the number of radiologists per capita of the population is among the lowest in the EU, radiologists produce an average of 20,000 reports annually - which is comparable with those of the US. However, the average in Europe is about 12,000-14,000 reports per radiologist. Also discussing shortages, and particularly of specialist radiologists, Professor Adrian Dixon (Cambridge) questioned the legal status of reports delivered by general radiologists in difficult pathologies such as oncology. Teleradiology, said Professor



Dr Jan Schillebeeckx

Gabriel Krestin, of Erasmus University Hospital, Rotterdam, could be the creative solution to the problem.

In the US, teleradiology is already used in many hospitals and radiology practices. Undoubtedly geographic and demographic elements have sped up the phenomenon, but a shortage in radiologists is certainly among other main influences. Oddly enough, Europe is lagging behind (comparatively) in setting up commercial teleradiology reading services - less than a handful of such companies operate in the EU, perhaps because due to scepticism and some prejudices among European radiologists, most of whom think that teleradiology means reading studies from laptops at home (or in some exotic resort), and they cannot see it as a professional reporting service that could even help improve workflow. Additionally, commercially operating teleradiology companies might be seen as a threat to their own activities.

Prof. McCall is well aware of the numerous benefits of teleradiology. He suggested the possibility of flexibly using any 'surplus' radiologists in some EU countries to provide expertise in places with a shortage - although he did express some concerns. These mainly related to language difficulties, training levels, registration policies and variable experience with more advanced techniques throughout




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Europe. Furthermore, the absence of a legal EU framework is still raising some concern at the European Association of Radiologists (EAR). Prof. McCall said it is essential that the personal interaction between radiologists and clinicians remains, and that good patient care is the primary objective.

Dr Jan Schillebeeckx, head of the radiology department of the Imelda Hospital, Bonheiden, Belgium, is the co-founder of Eurad Consult, currently one of the leading teleradiology providers in Europe. After successfully introducing PACS into his department and converting his hospital into a filmless environment, he decided to use this experience to establish a teleradiology company that would set the standard for Europe, and utilise Belgium's 'surplus' radiologists. At the MIR congress he effectively deployed a model for successful implementation of teleradiology services. Teleradiology, he said, should be seen as a tool to increase productivity and even improve reporting turnaround. Practices that permanently or temporarily face staff shortages (holiday, sickness, postgraduate training) are ideal candidates for teleradiology services.

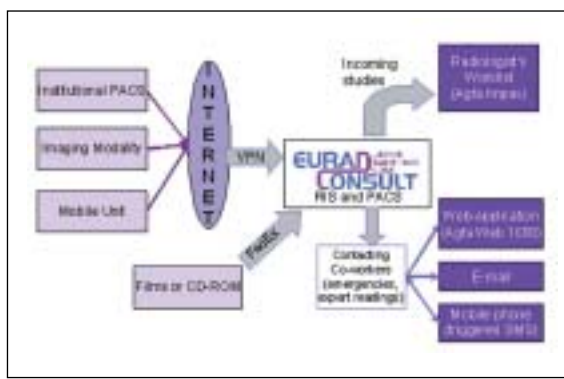
Eurad Consult's model is a teleradiology centre where several radiologists work. Such a centre should provide real time interpretations of high quality images and complex cross-sectional studies containing numerous images, with quick reporting. Off course a good technical infrastructure - including a PACS-RIS and state-of-the-art diagnostic workstations - is a prerequisite. For image transmission, the public network, with a high-bandwidth secured tunnel (VPN), is used. As a guideline for secure transmission the professor advocates following the rules of the joint NEMA/COCIR/JIRA Security and Privacy Committee. Studies that are sent to the teleradiology centre are automatically imported into the radiologist's work list and priority can be given to urgent cases. Reports are electronically transmitted and can even be incorporated in the client's RIS or EPR by using an HL-7 link (see figures 1 and 2).

According to EU regulations, all medical specialists who qualified in an EU-member state are eligible for full registration in any other EU-country, so for all EU-nationals no additional licensing is needed - some countries do not even request registration in their own countries when using cross-border teleradiology (within the EU). However, it is necessary for firms such as Eurad Consult to obtain liability insurance covering all countries where they are active. In addition, all radiologists although they work for that firm, also should be individually insured. To guarantee a high quality level of services Schillebeeckx handles several selection criteria: radiologists must be trained in a centre of excellence and all applicants must obtain full approval from the firm's Medical Advisory Board - composed of several academic radiologists. Currently all the radiologists who work for Eurad Consult have been trained at the Leuven's Catholic University, are fluent in several languages, e.g. French and English (in any case Belgium has three official languages: Dutch, French and German).

As standard procedure, a testing phase is set up for each new client, during which all reports are reviewed. Reading services only

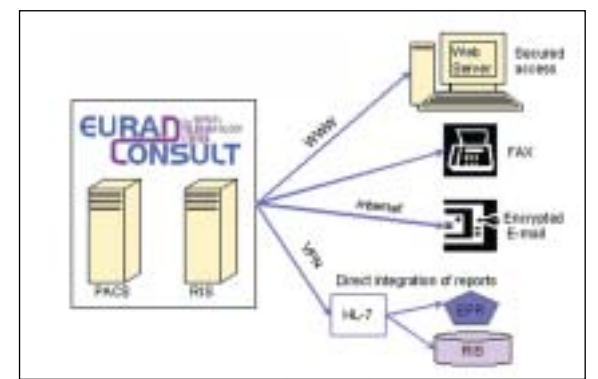
start after final approval of the reports for all test cases received. Good communication between the radiologist and image provider is essential: every Eurad radiologist is asked to present him/herself to the local medical staff, and to participate regularly in staff meetings or clinical conferences on-site. Permanent contact between the radiologist and referring clinicians is facilitated via the provision of mobile phone numbers on each report, and by the installation of a web cam. Images can be discussed at any time, thanks to the availability of a web server, to which authorised people can log in from any other PC wired to the web. In cases of work

Figure 1: Electronic routes



overload, or for emergency cases, additional radiologists are on-call. The teleradiology centre has also built up a network with other hospitals - for example, the St.

Figure 2: Delivery of Reports



Radboud University Hospital, Nijmegen, the Netherlands. Professor Hans Blickman, chairman of the radiology department, is also president of Eurad Consult's

Medical Advisory Board. For difficult cases, several subspecialty radiologists can be contacted at any time. Secured connections have been established with expert



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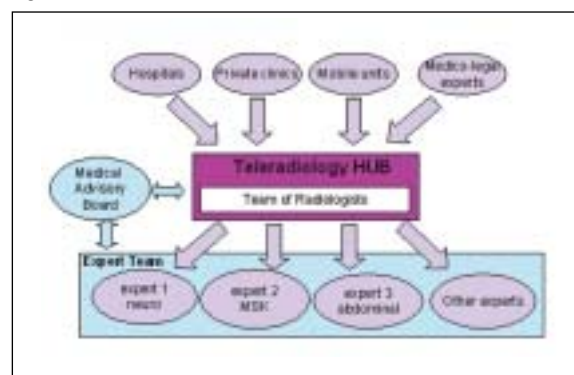
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Figure 3: Model Eurad Consult



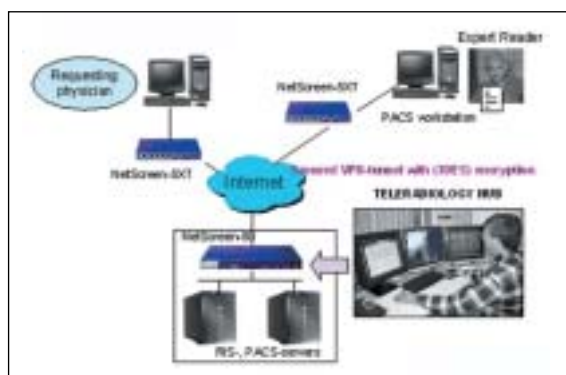
readers such as Professor Donald Resnick of the UCSD, San Diego, California and Dr Stephen Pomeranz of Proscan, Cincinnati.

Eurad's model of a 'central tel-

eradiology hub' has another great advantage, which is more related to the provision of second opinions and expert readings. The company has contracted several renowned

specialist radiologists, so 'difficult cases' can be sent to the hub, for an attending radiologists to prepare the case for transmission (Figure 3). This radiologist functions as a 'fil-

Figure 4: Teleradiology Hub



ter' - i.e. only relevant images are sent, and the most appropriate expert is contacted. In the absence of one expert the case can be transmitted to another. The rationale for a hub goes further: instead of having to establish secured connections with several experts, the requesting physician only needs to connect with one address (at the hub). The hub takes care of all other connections (Fig. 3-4). Expert readers always receive standardised requests, and provide standardised reports, because they only have to communicate with the hub.

The Eurad hub covers all administrative functions, including

invoicing, and will deliver the report in the form desired by the client - even translations can be made. Probably, Eurad Consult will begin to use 'structured reporting' software soon, for automatic translations. Because Eurad sends greater volumes to expert readers than to any individual physicians, the firm reports it also can achieve better costing.

Not everyone fully realises the many potential advantages of sending cases for expert opinions via teleradiology. Physicians, patients and hospitals can benefit. In places without experts, patients will not need transportation, so could receive more effective, quicker, locally managed care. It has been shown that, about 25% of cases seen in teleradiology consultation leads to changes in therapy. Consequently, the treating physician/patient relationship could improve along with case satisfaction.

For Dr. Schillebeeckx the key element in selling reading services is to make radiologists understand that teleradiology is not the enemy, but a 'virtual extension' of their practices, which could allow them to work more efficiently. Rather than a threat, this is an insurance for radiologists, he believes, and also can ensure continuity of care when locums are in short supply. He also believes such services offer equality of care - by bringing expert advice to more patients.

Contact: ranschaert@euradconsult.net

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Eurad Consult's technical infrastructure is based on a variety of radiology solutions from Agfa's Healthcare division.

At EuradConsult's reading location, Impax BASIX, Agfa's Windows Based PACS solution, provides a direct, secure DICOM connectivity via VPN to Eurad Consult customers.

It also enables study import via CD or other media formats. Film based radiology departments use Agfa's T55 film scanning solution combined with a VIDAR medical film scanner and an Agfa document scanner. Again, all image transfer between the remote located T55 film scanner and the EuradConsult PACS is provided via a secure DICOM connection.

EuradConsult's radiologist work-places are equipped with Impax DS3000, where fully-integrated RIS and PACS allows a seamless and fast access to all radiology information. A three-monitor display set up with two diagnostic quality monitors for image interpretation and a third monitor for RIS information is an 'all-in-one' reporting desktop, allowing for very short report turnaround time.

For patient registration, transcription, medical reporting and business intelligence Eurad Consult chose QDoc, Agfa's powerful, high-level radiology information system. This is seamlessly and bi-directionally integrated with Agfa's IMPAX PACS. An additional module - QdBridge - allows for automated feedback of reports to Eurad Consult customers.

Agfa's IMPAX WEB1000 is Eurad Consult's preferred choice for an efficient way of distributing images and information to secondary users or as feedback to their customers. With its secure communication to protect data transfer and on-demand web-based access to images and reports.

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Head to foot whole body scan in 12 minutes

By Professor Claus D Claussen, Director of the Department of Diagnostic Radiology at Tübingen University Clinic, Germany

A special MRI scanner sets new standards in magnetic resonance tomography: for the first time in radiology the entire body can be examined in one procedure, producing whole body scans of excellent quality, from head to foot, in a minimum of 12 minutes. Called the 'Magnetom Avanto', and set up at Tübingen University Clinic last November, the device is the first magnetic resonance system in the world to use Total Imaging Matrix (TIM) - a new procedure developed by Siemens.

Initially only available in this form in Tübingen and New York, the device is now being installed in various other clinics.

30,000-times magnetic field combs the body

The Total Imaging Matrix and Magnetom Avanto enable us to avoid many of the encumbrances that have existed. Thus we can not only improve clinical procedures with optimal image quality, but also significantly increase patient flow. The core element of TIM technology is the new matrix-coil-concept, with which 76 coil elements can be combined with 32 high-frequency channels

(76x32). This greatly improves imaging speed and quality. In practical terms, during radioscopy, a patient must wear a TIM coil coat in which the 76 antennae are hidden. A magnetic field, 30,000 times as strong as the earth's and radiofrequency radiation are applied to examine the hydrogen atoms in the body. Till now, many hidden coils were needed for this kind of full-body screening, and both these, and the patient, had to be constantly repositioned during an examination.

The head stays clear

Another comfortable aspect of the Magnetom Avanto is that the patient can be scanned feet first in almost all examinations. Therefore, during most examinations, the patient's head can be kept outside the tube during most examinations. Additionally, special foam insulation has reduced the volume of the magnetic resonance tomograph (MRT) from the 120 decibels of earlier devices down to 90 decibels.

The new technology opens up completely new dimensions for radiology, e.g. cancer diagnosis.

Through the innovative imaging procedure the analysis of tumours and possible metastases strewn all over the body is made easier. The same applies to examinations of the vascular and nervous systems.

Magnetom Avanto looks for metastases

However, the possibility for early detection with constantly improved, more expensive and faster devices, raises several questions. For example, the therapeutic relevance of the images can only be interpreted in an interdisciplinary way. An individual doctor could be overtaxed by the complexity of the data resulting from a full-body screening.

The effects of the early detection of diseases on the patient are also currently under discussion. The Magnetom Avanto will initially be used in Tübingen to look for tumour spread in cancer patients with a clinical prehistory and provide a faster alternative to conventional, time-consuming diagnostic procedures and particularly older and louder MRI devices.

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From 'molecular imaging' to the visible genome

By Professor Peter Reimer MD, Central Institute for Imaging Diagnostics, City of Karlsruhe Clinic, Germany



Our current understanding of illnesses is based on anatomical symptoms. But new discoveries have indicated that every illness is characterised with genetic changes, and that the physiological changes that follow are a result of such changes at a molecular level. As a result, in the last few years' research has increasingly dealt with the understanding of cellular and molecular mechanism of illnesses. Even though there is still a gap between scientific research and clinical practice, it is possible to see that this gap is getting ever smaller. The movement of modern technology into practical use is likely in the foreseeable future, and as a result ground-breaking achievements in the next 5-15 years will start to have their effect on patients.

With such 'molecular imaging' we can observe, from a totally new perspective, the actual mechanism and characteristics of illnesses. In co-operation with biologists it is possible for radiologists to look within the living body at the internal activity of the cell, the cell's surface, the area around the

cell, and the way the cells move and interact, and to see the smallest changes in cell structure. The potential of the post genetic era is enormous: Making visible the Genome and the Proteomes allows an individual diagnosis that, in turn, makes precise, individually tailored treatments possible and, in the final analysis, leads to better therapy possibilities.

The smallest molecules will be visible- Using current methods, with the aid of PET (Positron Emission Tomography) it is possible to look at subject material in the finest detail. With the aid of radioactive tracers it is even possible to look at molecules. But PET is not the only possibility for observing such fine detail, and by applying the latest advances even MRI (Magnetic Resonance Imaging) is proving suitable to see changes at a molecular level. However, MRI has a lower sensitivity in contrast to PET, which can find tracers even when present in the tiniest quantities.

Cancer can be discovered at an even earlier stage - By using molecular imaging it is possible to discover illnesses at an even earlier stage - even before a patient can feel the symptoms. For oncologists this means cancer not only can be discovered at an earlier stage, but also that doctors will gain a far better, quicker idea of a patient's responsiveness to chemotherapy by observing the cancer at a nuclear level. It also means that after a matter of days the type of therapy can be varied, depending on its effectiveness on an individual patient.

In future, radiology will be able to use molecular imaging also in key clinical decisions in relation to gene therapy.

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Toshiba at ECR 2004 - At a meeting of experts, organised by Toshiba, and chaired by Professor S Turnher (Barmherzige Brüder, Vienna), Prof. T Fischer (Charité, Berlin) discussed innovations in ultrasound technology, and successful endovascular treatments for intracranial aneurysms were presented by Prof. M Forsting (University Hospital Essen). Describing new developments in MSCT-imaging, R. Klingebiel (Charité Berlin) focused on head imaging, whilst Professor Kauczor (German Centre for Cancer Research, Heidelberg) spoke on cardiovascular imaging.

Pictured, left to right: C Pruszinsky, European Hospital's correspondent in Austria, with B. Amelung, Managing Director of Toshiba Germany and Austria, and Professor Turnher.



Screening as preventive medicine

'Helpful or harmful?' asks Professor Giles W. Stevenson, Cowichan District Hospital, Duncan, Canada



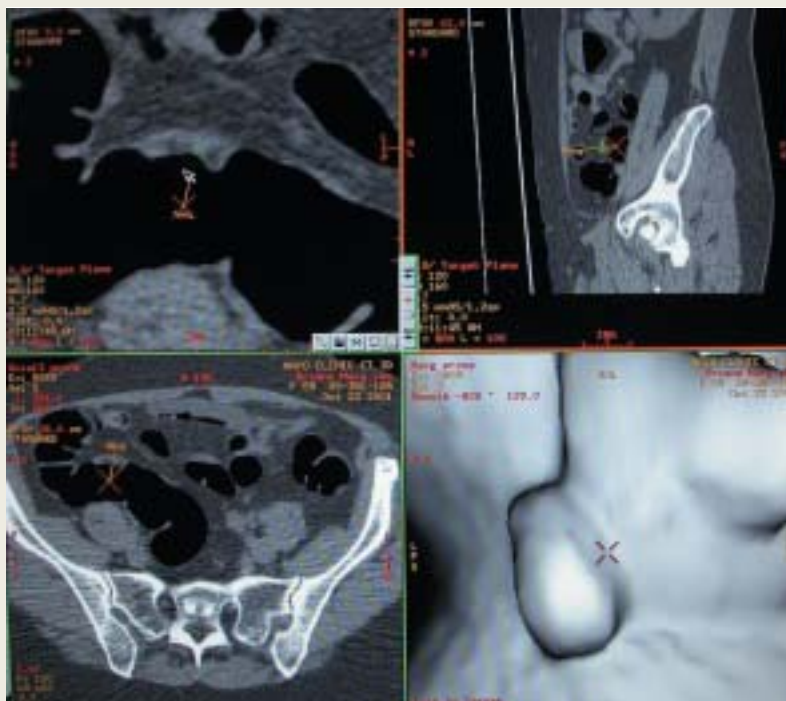
The number and variety of preventive medical programmes are constantly increasing and this creates the impression or hope that they help or at least do some good. In addition, preventive techniques can help improve prestige and are financially rewarding, as they receive the support of politicians and industry. However, clinical epidemiology and chance-controlled examinations can also yield misleading results. Nonetheless, it will probably take decades before procedures, such as hormone replacement therapy for post-menopausal women, are abandoned.

The field of radiology is also

for public and private health care. In addition, there is currently no real proof of the benefits of such examinations. Whole body scans can cause the Ulysses-Syndrome and can lead to operations for what are actually benign diseases which can result in disaster.

Early breast cancer diagnosis using mammography

The main question here is whether screening mammography reduces mortality or not. A study conducted in Edinburgh, Great Britain, divided women into two groups (control and those who were regularly screened). The results were startling: Women in the screening arm of the trial contracted cancer just as often as the control group. However, the



With virtual colonoscopy an apparent polyp can be shown unequivocally to be stool, avoiding unnecessary endoscopy

affected by this tendency towards preventive medicine, particularly with regard to diseases like cancer, tuberculosis, and osteoporosis, or during pregnancy.

One example is a current explosion of expensive private whole body screening in North America. This leads me to ask whether each individual has the right to this treatment. The answer is probably yes, but under two conditions: First, that the individual also assumes the financial and personal cost of harm. Second, that the individual does not impair the ability of others to obtain health care when they are sick.

Neither of these two conditions is currently met in North America. The follow-on costs dwarf the initial costs of the CT scan and costs of these follow-up procedures, which are not borne by the individual, and have increased costs

cancer was detected earlier in this group than in the control group, where the disease was only identified once symptoms appeared. Although the survival time from diagnosis to death was longer for the screened group, early diagnosis could not save them from death.

Treating the potential of radiology with caution

Discovering tumours at an early stage of development and the associated increase in life expectancy is a logical consequence of screening. However, this does not mean automatic reductions in mortality rates. The benefits of early diagnosis of cancer through radiological methods are undisputed and the techniques have helped improve many people's lives. The potential for screening radiology seems very great, but we still have to go cautiously.

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Little Mammoth uses UK teleradiology system

Radiologists at the University of Southern California (USC), Los Angeles, are using a teleradiology link established by healthcare IT supplier ComMedica, of Woking, United Kingdom, to link the university's radiology centre with a small hospital based some 700 miles away.

ComMedica's DICOM-Connector application was installed at the hospital in Mammoth Lakes, which treats a considerable number of ski trauma cases. Within minutes, the

system enables compression encryption and transmission of MRI and CT scans to ComMedica PACS servers at USC where, using the firm's Image Viewer software, specialists can instantly review the full resolution diagnostic quality images.

'This really is a beautiful system,' said Dr Yuri Parisky MD, a radiologist at USC. 'We have excellent quality images from Mammoth in minutes, and can give a comprehen-

sive report back to them soon after. ComMedica's system is turning the dream of teleradiology into reality. Using the company's PACS we have managed to bring University expertise to a small, busy hospital at a ski resort, with limited access to specialists. Our rapid interpretations allow for triage of the ill and injured.'

At Mammoth, the modern 15-bed hospital, located in one of California's most popular tourist

regions, provides specialised treatment facilities for major and minor emergencies, which includes an air ambulance service for critically ill or injured patients. However, there had been a problem with a shortage of radiologists for MR and emergency care. The teleradiology link has helped the workflow of the hospital's department, Tony Huntsinger, Radiology Manager at Mammoth Hospital, confirmed

ComMedica's web-based PACS

technology has been installed at USC for a number of years, and is used by a large team of radiologists on a daily basis within the University Hospital and the Norris Cancer Centre. Over 500,000 radiographic examinations are captured annually and are available to clinicians at all points of care delivery within the Department of Radiology and beyond.

ComMedica has installations in the US, UK and Saudi Arabia and specialises in two key clinical markets - Radiology and Ophthalmology.

85th German Congress of Radiology

19-22 May,
Wiesbaden,
Germany



Professor
Lothar Heuser

At this radiology and technology congress, organised by the German and Austrian Röntgen Societies, the scientific and educational programme will include presentations in all radiological subspecialties with **756 scientific papers and posters, 170 refresher courses and workshops**, said Professor Lothar Heuser MD (Institute of Diagnostic Radiology, Interventional Radiology and Nuclear Medicine, Ruhr University Clinic, Bochum) who added: 'Preparations are running at full speed and we look forward to May and welcoming as many people as possible to Wiesbaden.' Indeed, the congress is expected to attract some 8,000 participants and visitors from their countries as well as Sweden, France, Great Britain, Switzerland, Ireland, the Netherlands and the USA.

Abdominal imaging - focusing on multi-detector CT and ultra-fast MRI - will be a prime topic, with results of new multiplanar and volume-rendered techniques presented in comparison with conventional imaging and endoscopic examinations.

Another main topic deals with **effectiveness and cost/efficacy in German and European healthcare**. Because radiological examinations account for over 90% of all hospital diagnoses, they have come under sharp scrutiny since the introduction of DRGs. To cope with that new challenge, workflow must be accelerated and optimised. In many sessions the benefit and acceleration of workflow through the use of PACS and RIS will be shown and discussed.

'Other highlights will be the first experiences with 3-Tesla-MRI systems in clinical use, interventional radiology with promising results of radio frequency ablation used for percutaneous ablation of liver, kidney and lung tumours and new methods and materials in interventional neuroradiology,' the professor pointed out. 'Also, in addition to scientific papers, refresher courses and workshops we will have special presentations such as the Röntgen Lecture on non-Invasive cardiac imaging, an image interpretation competition between Germany and Austria and a live interventional procedures demonstration, via satellite from Innsbruck.'

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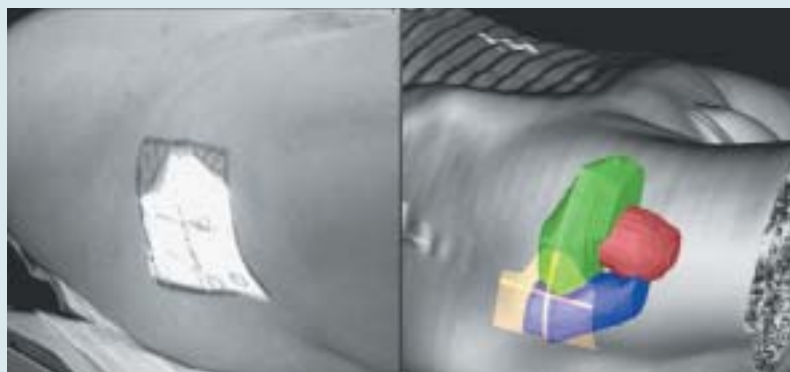
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Simulation system even suggests strategies

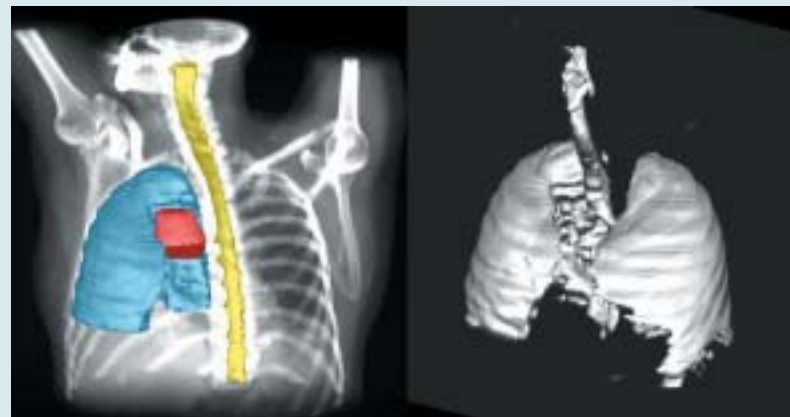
EXOMIO, a simulation system developed at the Fraunhofer-Institut für Graphische Datenverarbeitung IGD, Darmstadt, Germany, promises more effective but less complicated radiotherapy, leading to better patient comfort with less stress. Preparation time for a complex radiation session is 'significantly reduced and the dose can be placed far more precisely,' the institute points out.

Based on image data provided by computerised tomography (CT), Exmio produces a 3-D model of a patient, showing organs and changes to them caused by a tumour. Using the 3-D simulation a physician can plan which areas to treat, without a patient being present during that stage.

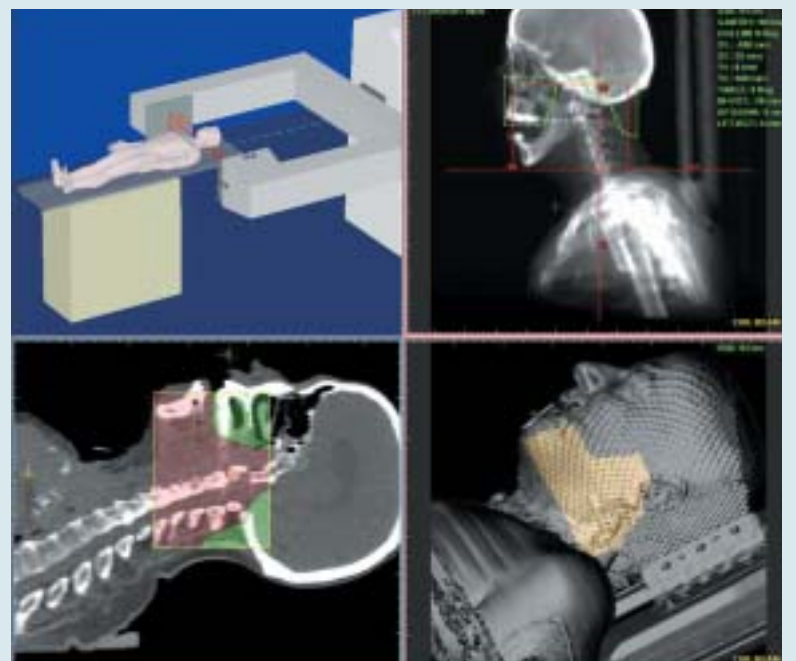
A 'spectacular' feature, the institute reports, is that choosing alternative radiation strategies is significantly aided because the system automatically suggests improvements. A physician can choose from several visualisation procedures. 'Due to high resolution and the anatomical precision of the CT images, a physician can detect details such as overlaps or gaps between neighbouring fields, and can consider these in the radiation strategy. Navigation through the patient's body allows views of organs that are impossible in traditional simulation procedures,' the institute adds.



Left: Light field projection on an actual patient's skin using a conventional X-ray simulator. Right: Simulated light field on the 3-D reconstruction of a patient's skin surface



3-D reconstruction of segmented structures. The coloured structures have been segmented manually and semi-automatically [left]. The complete trachea and lung volume has been extracted automatically [right]



Planning procedure for the two lateral opposing 6 MV asymmetrical fields for the treatment of the oropharyngeal region. The isocentre is positioned between vertebrae C5 and C6 and at the superior vertebral limit. The treatment technique is termed half-field because the lower half of the lateral fields are closed [Y1 = 0 mm] and the region they do not irradiate is treated using a direct anterior field with the upper half closed [Y2 = 0 mm]. All fields have a common isocentre. A third field is used to treat the cervical region, using an anterior 6 MV photon single field. The four windows give the following detail: 3-D view of the room with the virtual simulator and patient [top left]. DRR for the 90° field with the two individually designed blocks [top right]. Sagittal plane through the isocentre, showing 90° field configuration [bottom left]. OEV showing a patient wearing the immobilisation mask and with the light field projection on the mask and skin for the 90° gantry position [bottom right]

Health risks and border controls by X-ray

X-ray techniques are used to reveal smuggling of arms, people, drugs and much else.

However, **Professor H Vogel MD**, of the X-Ray Department, St. Georg Hospital, Hamburg, poses an important question: **Could an individual refuse to be X-rayed, or must s/he accept this form of control?**

Weapons hidden in clothing, or within the body, can be seen; humans, arms or drugs, hidden in cars, containers and rail wagons recognised



Figure 1: Guns and knives



Figure 2: Surface scan with back scatter technique



Figure 3: Stowaways Mexico USA

'This conflict often remains unsolved,' he points out. 'Images resulting from control measures - of humans and lorries - create anxiety, and often induce the argument that X-rays may be harmful. Therefore, due to radiation risk, exposure for the purpose of control should not be allowed. Manufacturers quantify this radiation risk and compare the exposure to that of irradiation by natural sources, for example, during air travel or by the intake of radioactive Potassium-40 when eating bananas.'

'This,' he says, 'is not really the point. The anxiety felt is a reaction to the loss of an individual's privacy and by offending his feeling of shame and dignity. His agreement to be checked over personally or in his car doesn't solve the problem; it is only postponed.'

Questions arise: Was consent achieved by free will? Was consent enforced? Were alternative methods of control considered seriously? States like the former DDR have avoided this discussion - and any critics - by keeping their controls secret.'

Professor Vogel believes that a search using X-rays must have a goal, for example, to protect an individual, group (airline passengers) or the general public.

'The EU,' he says, 'created a working group to prepare directives. It was agreed that exposing

humans to X-rays, with ionising radiation, must be preceded by a risk evaluation. In terms of X-ray control at country borders, the profit for society must be compared with the risk to the individual; X-ray use there is different from the medical application, where the profit for the individual is weighed against the risk. If possible, the individual should be free to refuse being exposed. However, one must consider that the position of a state imposing the control, and enforcing the consequences in the case of a refusal, is

stronger than that of the individual being controlled. It is also important to consider how many people are controlled in what frequency: X-ray controls of people suspected of transporting drugs within the body happen 30 times a year in Sweden; in Amsterdam the number is 300 times a week.'

'The images are ambivalent, they are shown in meetings, they can be

found in the internet. The addresses can be given by the author on demand.'

'The technology used can be admired,' Professor Vogel says, 'but its use can be criticised.'

(Ref: B.G. Brogdon, H. Vogel, J.D. McDowell: A Radiologic Atlas of Abuse, Torture, Terrorism, and Inflicted Trauma. Published by CRC Press 2003 Boca Raton)

Large volume data sets processed in real-time 3-D

Siemens Medical Solutions and HipGraphics, Inc, which have jointly developed 3-D diagnostic imaging applications since 1992, have agreed to further the development of syngo InSpace, an interactive 3-D medical imaging application. (HipGraphics, Inc, headquartered in Baltimore, Maryland, is a privately owned corporation that develops medical imaging software focusing on real-time multi-dimensional imaging).

InSpace is an advanced 3D medical imaging application powered by Siemens' syngo software, which is designed for an intuitive and seamless workflow across virtually all imaging modalities, the firm says. syngo InSpace (installed on over 1,000 Siemens systems since its introduction in 2002) enables the real-time 3-D processing of very large volume data sets - as produced by the company's SOMATOM Sensation multislice CT scanners. The latest version of this software - syngo InSpace4D - also enables 3-D images to be displayed in motion.

syngo InSpace offers high performance 3-D interaction for a variety of rendering techniques, including Maximum Intensity Projection (MIP), Minimum Intensity Projection (MinIP), Volume Rendering Technique (VRT), and Multi-Planar Reformating (MPR) rendering. It also allows the real-time analysis of anatomy, for example during an angiographic intervention with the Siemens AXIOM Artis C-Arm. syngo InSpace is available for implementation directly at the imaging system, and also on the Siemens Leonardo Workstation, a multi-modality workstation that manages CT, MR, X-ray and nuclear medicine images.

'In my experience, InSpace is the only software on the market that can make real-time interpretation possible,' said Dr Anders Persson, director for the Centre for Medical Image Science and Visualisation (CMIV), Radiology (US), Linköping University, Sweden. 'Rapid development of techniques for 3D imaging has led to an exponential increase in the size of data sets. This situation demands an effective solution to maintain a functioning clinical practice. For us, InSpace has been the right tool to handle large CT and MR data sets in a very effective way.'

Bone grafting trial for Spain



A bone grafting clinical trial is to be conducted at the Institut de Teràpia Regenerativa Tissular (ITRT) at Hospital General de l'Hospitalet, Hospital de Barcelona and Centro Medico Teknon in Barcelona, Spain. have initiated The feasibility clinical trial, initiated by the US firm Aastrom Biosciences Inc, and its Germany-based subsidiary, Zellera AG (sales & marketing), is designed to demonstrate the safety and effec-

tiveness of the Company's Tissue Repair Cells (TRCs) to regenerate new, healthy bone in the repair of non-union large bone fractures. This is the second clinical trial for the treatment of tibial non-union fractures initiated in Europe using Aastrom's TRCs. The lead clinical trial is taking place at BG-Kliniken Bergmannsheil Ruhr-University, in Bochum, Germany, led by Thomas A. Schildhauer MD, Attending Physician of the Traumatology-

Surgery Department.

At ITRT In Barcelona, Carlos Solano-Puerta MD, principal director of the trial there, will use the TRCs combined with a commercial synthetic matrix, to treat up to five patients, under the direction of.

The two EU trials will evaluate slightly different implant approaches, to provide combined clinical results that will enable Aastrom to formalise product development and commercialisation for tibial non-

union fractures.

DR R Douglas Armstrong, President, Chairman and CEO of Aastrom, said: 'We are engaged in three separate clinical trials in Europe and the US of our lead bone grafting product, which is ultimately intended to provide orthopaedic medical professionals with a viable and highly preferable method of treating severe bone fractures'

In general, bone grafting techniques include various types of spinal fusions and repair of major arm and leg fractures. Using autograft, the standard treatment proce-

dure, a surgeon chisels out bone chips and marrow from a patient's hip to obtain bone graft material, which can cause acute and chronic pain and complications in the hip area. To eliminate this clinical problem various bone matrix substitutes have been developed and are sometimes used as an alternative, but they lack the cellular components needed to generate bone. Aastrom's TRCs, containing large numbers of stem and other cells needed to generate bone, will be combined with a synthetic matrix product and applied directly into the fracture site.

The first spring-enhanced stress-sharing bone implant

USA - After a four year clinical study, and US Food and Drug Administration (FDA) clearance of the ComPreSs Distal Femoral Replacement System for use in patients with tumours of the distal femur and revisions of oncologic distal femoral replacements, Biomet Inc (Warsaw, Indiana) is set to manufacture this first spring-enhanced, stress-sharing orthopaedic implant.

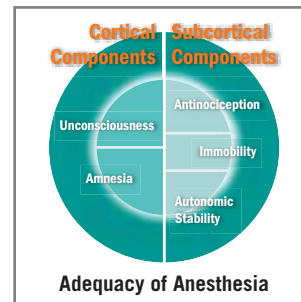
The system, used in conjunction with a total knee implant, consists of several springs stacked within a metal shell which has a porous coating to allow bone to grow onto the implant, thus securing its position.

Unlike other implants, the firm reports that the springs generate stress on the host bone, which helps prevent bone atrophy - that can lead to loosening and the need for a second surgery.

The ComPreSs System has been studied for over 10 years. In 1999, the first clinician to apply the device in a clinical setting, James Johnston (Emeritus Professor of orthopaedic surgery and clinical radiology, University of California, San Francisco [UCSF]), said: 'With this new device, we've changed the whole picture of how forces go through the bone to promote bone growth.' In the same year, Dr Richard J. O'Donnell, chief of orthopaedic oncology service and associate professor of clinical orthopaedic surgery at UCSF, who has been instrumental in researching and performing clinical applications of the ComPreSs System technology, said the system might not only help to prevent a knee implant from loosening, but could also allow patients to function long term.

Additional clinical sites using this system: University of Florida Department of Orthopaedics and Rehabilitation; Memorial Sloan-Kettering Cancer Centre, New York; University of Texas MD, Anderson Cancer Centre, St. Luke's Medical Centre, Phoenix and Huntsman Cancer Institute at The University of Utah.

Dr Dane A Miller, Biomet's President and CEO, said, 'Although the FDA has cleared the ComPreSs System for strictly distal femoral oncologic use, Biomet is actively pursuing clearance for the ComPreSs System to also be used for revision knees, primary and revision hips, shoulders and elbows. This technology could represent a significant growth opportunity for Biomet as the ComPreSs System potentially may be cleared for numerous applications.'



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SPECIALISTS DIARY

APRIL

17-23 13th World Congress of Anaesthesiologists (WSFA)

Paris, France. Information: Colloquium, 12 rue de la croix-faubin, Paris 75557 Cedex 11 France. Phone: +33 1 4464 1515, Fax: +33 1 4464 1516, Email: colloquium@colloquium.fr. Or www.wca2004.com.

24 Paediatric Anaesthesia WCA Post Congress Bordeaux

Information: Prof. Claude Ecoffey, Service d'Anesthésie Réanimation, Chirurgicale2. CHU. Pontchaillou. 2 rue Henri Le Guilloux, Rennes, CEDEX France.

24-25 The 6th World Congress of Paediatric Anaesthesia

will take place in Bordeaux, France. Details: cecoffey.rennes@in vivo.edu

JUNE

2-4 The 6th International Symposium on Memory and Awareness in Anaesthesia (MAA6)

a triennial conference, will take place at the University of Hull, UK. Consciousness, monitoring depth of anaesthesia, detection and psychological consequences of awareness, brain function, and learning during anaesthesia, and memory and sedation in intensive care will be covered. Details: www.maa6.com

4-5 The European Society for Intravenous Anaesthesia (EuroSIVA) 7th Meeting on Intravenous Anaesthesia

will take place in Lisbon, Portugal. Details: www.eurosiva.org

5-8 Also in Lisbon: The European Society of Anaesthesia: Euroanaesthesia 2004. Details: www.euroanaesthesia.org

9-11 The 19th Annual Meeting of the European Association of Cardiothoracic Anaesthesiologists, EACTA 2004

will take place in London. For further information, or exhibitors' details, contact Dr J-P van Besouw, Department of Anaesthesia, St George's Hospital, London, SW17 0QT. Further details: www.eacta.org

24 ASSC8 Satellite Symposium: Coma and Impaired Consciousness

is scheduled for Antwerp, Belgium. Details: www.ruca.ua.ac.be/assc8/satellite. Or email: steven.laureys@ulg.ac.be

JULY

2-3 RIFCA10 Reunion de Formacion Continuada en Anestesia / 10th International Meeting for CME in Anesthesia

is set for Pamplona Spain. Details: www.unav.es/anestesia

12-13 International Masterclass Symposium on Acute Circulatory Failure in the ICU

will take place in the Amsterdam RAI Exhibition and Congress Centre, The Netherlands. Details: www.mahealthcarevents.co.uk

17-19 Simulation Applied to Medicine (SESAM) Annual Meeting

will take place at Huddinge University Hospital, Stockholm, Sweden. Details: www.sesam2004.se. Or: www.uni-mainz.de/FB/Medizin/Anaesthesie/SESAM

AUGUST

25-27 The XVIIIth Edinburgh Anaesthesia Festival

Venue: Scotland. Organised by the University Department of Anaesthesia, Critical Care and Pain Medicine at the Royal Infirmary of Edinburgh, and with lectures delivered by UK specialists, this event also coincides with the famous Edinburgh International Festival of Arts. Email contact: anaes@ed.ac.uk

SEPTEMBER

Resuscitation 2004 7th Scientific Congress of the European Resuscitation Council

is set for Budapest, Hungary. Details: http://congress.erc.edu. Or email: congress2004@erc.edu

ESRA, European Society of Regional Anaesthesia 23rd Annual Congress

will take place in Athens, Greece. Details: www.optionsglobal.com

THE 13TH WORLD CONGRESS OF ANAESTHESIOLOGISTS

17-23 APRIL PARIS

A 'World Congress' happens only every four years, and is therefore the major event in the calendars of the World Federation of Societies of Anaesthesiologists

2004 became the turn of the French Society of Anaesthesiology and Intensive Care (SFAR) to organise the event, and to encourage its own members to attend the world meeting in force, SFAR President **Jean Marty** arranged for the society's annual meeting to take place simultaneously.

Speaking of the need for anaesthesiologists to jointly gather their values to promote a humanist concept of this speciality, **Philippe Scherpereel**, this year's Congress President said its theme would be 'Progress for all'. A World Congress, he added, is a forum where all medical cultures gather, constituting an invaluable time to make new friends and exchange ideas.

Claude Martin, the Scientific Committee President, pointed out that the Scientific Programme Committee has drawn 'several hundreds of speakers and workshop presenters' from all regions of the WFSA: Latin America, Asia, Australia, Africa, North America, and Europe, to provide a programme of 'variety and depth' covering topics such as anaesthesia and hypnosis, cardiovascular anaesthesia, pharmacology, chronic

pain, severe sepsis and veterinary anaesthesia, and much else. The congress will also focus strongly on intensive care medicine, with subjects including ARDS, sedation in the ICU, acute renal failure, the use of the pulmonary artery catheter, CPR and neuro-trauma.

In addition, there will be contributions from educators, ethicists, lawyers, and social scientists.

Professor Benoit Vallet, head of the SFAR Scientific Committee, has established a programme (Language: French) that will provide a complete view of how anaesthesia and intensive care are practiced in France.

Workshops led by experts in regional anaesthesia and resuscitation, will be delivered in English, French and Spanish. At the congress, simultaneous interpreters will work in French and Spanish.

Kester Brown, President of the WFSA pointed out that the event would underline that anaesthesia varies in practice depending on the facilities and funds available. 'Hopefully,' he added, 'those from more affluent countries will see ways that they can help their less affluent colleagues.'



Philippe Scherpereel
President WCA 2004



Jean Marty
SFAR President



Kester Brown
President WFSA

EU APPROVAL FOR NAROPIN

Sweden - AstraZeneca's long-acting local anaesthetic Naropin (ropivacaine) has been recommended for approval in all EU member states for a new clinical indication as a post-operative pain relief, using continuous peripheral nerve block techniques following surgery.

The Netherlands acted as the Reference Member State in the Mutual Recognition procedure for European approval and the medication has already received approval for this new indication in Finland, Sweden, Australia, Mexico, New Zealand, Switzerland, the Czech Republic, and Turkey. Additionally, the anaesthetic is recommended for approval in South Africa.

In clinical studies of peripheral nerve blocks, Naropin (2.0 mg/ml) was shown to provide adequate analgesia for 48 hours after surgery and was well tolerated, the firm reports, adding that Naropin is currently approved for epidural anaesthesia during surgery and post-operative pain relief, pain relief in childbirth, Caesarean section, local infil-

tration anaesthesia and for surgery using peripheral nerve block techniques.

(Nerve block techniques involve the injection of local anaesthetic around a nerve, thereby temporarily stopping the nerve impulse transmission and the sensation of pain from a part of the body. For surgery, a higher concentration of Naropin is selected (7.5 mg/ml) so that also muscle function is anaesthetised, and thereby muscle relaxation is provided, which is often required by surgeons, the manufacturer points out. For post-operative pain relief blockade of the sensory function, but maintained muscle function, is desirable. This can be achieved by using a lower concentration of Naropin (2.0 mg/ml). When general anaesthesia is used, muscle relaxation is instead achieved by addition of a neuromuscular blocking agent to the general anaesthetic agent).

Naropin is the latest addition to the AstraZeneca portfolio of anaesthetics, and its sales increased by

ZEUS - anaesthesia system with new dimensions



Dräger Medical will present its latest anaesthesia system, Zeus, at the 13th World Congress of Anaesthesiologists, which takes place in Paris from 17-23 April. Visitors will find Zeus on level 1, booth 41.

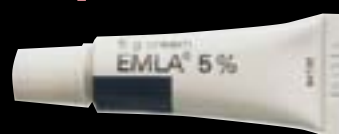


The company reports that this new concept integrates all acute forms of anaesthesia applications, patient monitoring, and documentation. 'In addition to the manual control of fresh gas dosages, Zeus also allows for automatic control of oxygen, carrier gas, and volatile anaesthetics (TCA=Target-Controlled Anaesthesia). Additionally, intravenous applications, from TIVA (Total Intravenous Anaesthesia) to TCI (Target-Controlled Infusion), can be controlled through the same operating concept. Zeus incorporates all the functionality of the Infinity Patient Monitoring System, including connection to hospital information systems via the

Infinity Network.' The first Zeus installation worldwide is in Essen University Hospital, Germany, where Professor Jürgen Peters MD, chairman of the Department of Anaesthesiology and Intensive Care Medicine, said; 'Improved mechanical ventilation will allow us to control anaesthesia much more precisely and to improve pulmonary function during anaesthesia and surgery. This anaesthesia device will give us performance equal to a state-of-the-art ICU ventilator. Finally, intensive care has been brought into anaesthesia and surgery - and with no compromises.'

'The new indication extends the use of Naropin from surgery into pain management in the post operative period, for a large number of additional surgical procedures such as those involving the shoulders, arms and legs,' explained Thomas Engberg, Global Brand Director for Zomig/Anaesthesia. 'Physicians will now be able to use Naropin, a proven, safe and high quality anaesthetic, as a continuous peripheral nerve block during the most painful period after surgery where Naropin provides excellent pain relief for their patients.'

Topical anaesthetic cream



EMLA is the first topical anaesthetic able to numb intact skin prior to needle insertion procedures and superficial surgical procedures, the manufacturer reports, adding that this is the only topical anaesthetic with proven efficacy of all three indications: intact skin, genital mucous membranes and leg ulcers, and it is 'a more effective topical anaesthetic of intact skin than single-component lidocaine formulations'.

WANTED: a 'preventive' anti-angiogenic treatment approach for cancer

USA - Judah Folkman MD, of the Children's Hospital Harvard Medical School, Boston, who is known since the 1970s for proposing that angiogenesis - the recruitment of new blood vessels - is required for tumour growth, has urged for a 'preventive' anti-angiogenic treatment approach to cancer, in a recent presentation at the New York Academy of Sciences

Calcitonin is an example of a marker that is detectable in the blood of patients with medullary thyroid cancer at one year or more before appearance of the tumour, which has about an 80% mortality rate. 'Why are we waiting for an

By Karen Dente MD, *European Hospital's* US correspondent

80% mortality?' Folkman asked. 'We need to treat non-toxic blood markers before cancer appears,' he said.

Not all types of cancer have known markers that are easily found in the blood or urine to help determine whether a tumour is growing or regressing. To the clinic, one of several challenges that face the application of anti-angiogenic therapy includes the need for surrogate markers of efficacy, he pointed out, suggesting: 'Recurrent or metastatic medullary carcinoma of the thyroid gland might be one tumour type for which a preventive anti-angiogenic strategy could be tested in a small clinical trial. Angiogenesis inhibitors are becoming less and less toxic.' Various angiogenesis inhibitors have been developed to target vascular endothelial cells and block tumour angiogenesis. Since angiogenic therapy is generally less toxic and less susceptible to induction of acquired drug resistance, angiogenesis inhibitors lend themselves to prophylactic therapy in patients who have a high risk for cancer, Dr Folkman reasoned.

An example of an anti-angiogenic drug that caused birth defects in the 1950's and was withdrawn from world-wide markets in 1961, that has re-entered clinical practice in the treatment of cancer, is thalidomide. 'Australia is now the first country to approve thalidomide for multiple myeloma,' said Dr Folkman, citing the findings of a study that has shown that it causes a 50% reduction in tumour burden in about a third of patients with refractory disease. Thalidomide has become one of the most effective drugs for treating patients with multiple myeloma and is now being considered first-line management of the disease. 'It is the best treatment advance in the past 25 years,' said Gareth Morgan, Chair of the UK Myeloma Forum Scientific Subcommittee. A positive response for treatment for multiple myeloma could be assessed by reduction of the serum levels of myeloma protein and urine levels of Bence-Jones protein.

Thalidomide has been shown to inhibit angiogenesis induced by pro-angiogenic proteins bFGF or VEGF, and although bFGF and VEGF levels have been developed as useful surrogate markers for determining

the response to thalidomide, according to Dr Folkman: 'there is an urgent need for surrogate markers to determine the efficacy of other types of anti-angiogenic therapies.'

'Surrogate markers are vital to all drugs,' said Robert Kerbel PhD, a researcher at Sunnybrook and Women's College Health Sciences

Centre, Toronto.

'Preliminary data indicates that quantification of circulating endothelial cell precursors might be used as a surrogate marker of tumour angiogenesis,' said Dr Folkman. The number of these bone marrow derived endothelial cells has been correlated with efficacy of endostatin therapy of

experimental lymphoma, and has shown a tenfold reduction after thalidomide treatment.

Rakesh K Jain PhD, at the Harvard Department of Radiation Oncology of Massachusetts General Hospital, Boston, investigated the effects of the anti-angiogenic agent bevacizumab - also known under the brand name Avastin - an antibody to VEGF in a phase I clinical trial in patients with locally advanced rectal cancer, with

results recently published in *Nature Medicine* (Feb 2004). The study found that circulating endothelial cells went down after three days of anti-angiogenic therapy. 'One of the biggest challenges right now, when looking at the whole field of anti-angiogenic therapy, is what to use for a surrogate marker,' said Dr Jain. 'Looking at vessels is not easy, you need very powerful non-invasive methodology,' he explained, adding: 'If I were designing a clinical trial today, the number of circulating endothelial cells in the blood stream would be one of my top candidates in terms of surrogate markers that we need to explore.'

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Under the banner 'Surgeons and surgery: between set standards and reality' around 5,000 medical specialists will discuss perspectives for the professional and the social standing of surgeons, as well as their range of duties and responsibilities. In addition, 1,435 specialist papers and workshops will cover the newest trends in traumatology, and visceral, vascular, paediatric, thoracic, heart and plastic surgery. There will be a focus on the interdisciplinary approach, surgery under DRG conditions and innovations, as well as evidence-based medicine and clinical research.

The impact of reduced working hours

Do trainee surgeons suffer professionally as a result of a reduction in their working hours? **Fernando Holzinger** and **Kaspar Z'graggen MD**, Chairman and Professor of Surgery, Department of Visceral and Transplantation Surgery, CHUV-University of Lausanne, Switzerland, consider the implications



Kaspar Z'graggen

The public view of surgeons is largely positive: a surgeon is competent and often perceived as tenacious and determined. Long working hours are also an integral part of this image. Surgeons are moulded in residency programmes, which used to be 1) competitive and 2) one or several years longer than for other disciplines.

Legal mandates to reduce resident work hours have prompted many positive changes in the structure of surgical training programmes and in the organisation of surgical departments. The most dramatic change seen over the last 15 years is the reduction of weekly working hours to 80 hours weekly in the US, 50 hours in Switzerland and about 40 hours in Germany and Scandinavia. Little is known about the effects of these changes on the quality of surgical resident education. Whilst reductions in working hours have had positive effects on resident's quality of life, in and outside the hospital, and on basic education, a number of associated elements must be considered.

Undoubtedly, a sleep-deprived surgeon is no longer acceptable to the public. An efficient organisation of on-call schedules essentially excludes this possibility. Organisational responsibility has increased and legal implications, in cases of treatment errors, are nowadays evident. There is, however a wide gap between chronic sleep deprivation - which is remembered by many with a certain pride - and a 50-hour or even 40-hour working week. The quality and continuity of patient care must remain as the surgeon's primary professional goal. Hopefully, residents and trained surgeons will continue to invest the necessary working hours to achieve that goal.

The biggest concern of trainee surgeons is that limiting working hours lowers the number of patients managed and the number of operations performed. Few data are available on this topic. Still, some studies demonstrate that a reduction to a 70-80 hour working week does not negatively impact on the number of cases treated, but the effect of a further reduction has not been demonstrated. Clearly many excellent surgeons have already been trained under restricted working hours, but they often achieve their goals by continuing to work despite restrictions and without financial compensation - a very traditional and successful way to invest into their own future. Resident working hours have received much publicity, yet there is little information concerning faculty working hours. A large majority of general surgeons believe - and many of us already know - that reducing resident working hours increases faculty hours.

In conclusion, in many ways, limiting working hours has improved the organisation of surgical departments and the quality of training programmes. Changes seen with restricted working hours do not impact on the positive public image of surgeons if quality and continuity of patient care remain at the core of our professionalism.

Contact: Kaspar.Zgraggen@hospvd.ch

Speaking at the Congress, **Professor Wolfgang Teichmann**, head physician at the general and visceral surgery department, Allgemeines Krankenhaus Altona, Hamburg, will outline how consultants and teamwork could become part of daily routine:

'The frequency of malignant diseases is rising. At the same time, therapy possibilities become more frequent and complex. This is why the special knowledge, across the disciplines, must be channelled to find an individual and optimum therapy option for each diseased patient. Regular co-operation between consultants, as a matter of daily routine, mostly turns out to be extremely difficult - too many different forms of organisations and special departments must be considered.

One possible solution for this problem is a 'Tumour Board' - an organised collaboration linking pathologists, surgeons, oncologists, radiotherapists, diagnostic radiologists, gynaecologists and urologists. The organisation is based on three pillars: Tumour conference, com-



pliation of internal clinical standards and quality management.

Tumour Conference - Consultants of the already mentioned departments meet several times a week in a so-called 'oncological conference' to determine a therapy strategy for each cancer patient. The important precondition for efficient co-operation during this conference is a complete presentation of all the patients' histories and all diagnoses by the doctors who know their cases well. After all diagnoses have been considered, a final and binding decision can be taken. Results must be documented online, at once, and must be avail-

able on the Clinical Intranet at any given time. Resolutions during the conference will be taken unanimously. All consultants have equal rights. General Practitioners (GPs) may come to contribute information about their patients - a co-operation that helps to ease transition from stationary to ambulant treatment. The concept of integrated care can be materialised. The advantage for the patient is obvious: s/he gets a tailor-made treatment ideal for the disease, based on the latest state-of-the-art methods. All those involved in the treatment are well informed. Incorrect data and double examinations can almost certainly be ruled out.

Internal Clinical Standards - All consultants involved in the treatment meet regularly to check and update their state-of-the-art knowledge related to a certain disease. Consequently, another compilation of clinical-internal standards will be worked out, again available for all doctors on the Internal Clinical Intranet. Thus, necessary examinations and measures will have been already agreed on when a patient

Professor Arnulf Thiede, Director of the University Clinic for Surgery, Würzburg, will also offer predictions when he addresses trends in surgical treatments and healthcare delivery, and answers the vexing question: 'Surgery: Quo vadis?'

'The present political and economic frameworks, as well as changing demands of patients and changing professional parameters for surgeons, have led both the public and hospital staff to ask an ardent question: What will become of our hospitals?'

With the ongoing increased specialisation and sub-specialisation in all fields, especially in surgery, one can expect that the way will inevitably lead to the set up of heavily specialised clinics and surgical centres - a concept that will be promoted for both university clinics and hospitals. Additionally, pri-



vately run hospitals cannot ignore this development. Under the theme 'Teleportal Clinic' one can imagine a development of structures creating a sophisticated nationwide network. By means of a very closely woven interdisciplinary connection, it is planned to combine services for in/out-patients at several clinics. In particular, the benefits of modern communication systems for teleradiology and telepathology

have helped achieve, in non-specialised departments, the process of diagnosis by modern and comprehensive tomography. By optimisation of processes within a hospital, as well as the structures of organisation between hospitals, immediate transport of patients to special clinics can be carried out. Thus the total time of therapy can be shortened and the quality of treatment optimised.

The cluster model functions in a similar way. A cluster is formed across already set up disease-related centres, or special clinics, hospitals or a municipal-run hospital, enjoying maximum support. This should secure a more effective use of resources, shorten treatment times and eventually lead to shorter vocational treatment times as well as further education times. Quite essentially it should lead, in due course, to

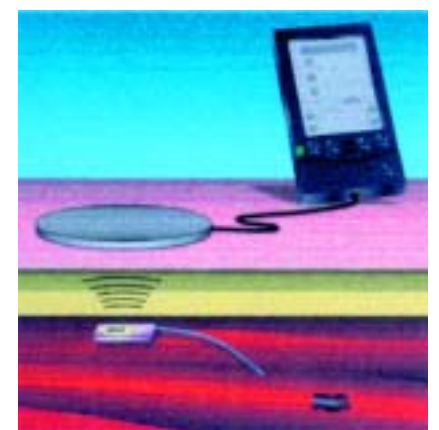


Professor Gert Muhr, Director of the Berufsgenossenschaftliche Kliniken Bergmannsheil, will examine advances in 24-hour care monitoring of patients via implantable sensors, and will challenge those responsible for health to: 'have the guts to exactly analyse all diagnostic and therapeutic processes by means of the patient's clinical pathways and then act accordingly and sim-

plify or abolish older or less economical procedures.'

Telemedical applications, the professor points out, are waiting on the threshold for a broad clinical introduction.

'Pacemakers are widely accepted in the society for vital reasons. That doesn't apply for implantable microsystems, such as measuring instruments for pressure or recordings of nervous activities, whereas recordings of the stimulation of brain centres of patients suffering from Parkinson's disease still lack overall social acceptance. That has to be improved. Implantable microsystems measuring for instance brain or bladder-pressure could help avoid complications with children suffering from water in the brain (hydrocephalus) - or, in another case, could bring consider-



able relief in the daily routine of a paraplegic patient. It improves life quality and saves costs, because relapses of diseases can be recognised prematurely, thus avoiding costs of in-patient treatment. Besides, even rehabilitation results can be traced on a telemedical basis, using minute

Congress for German surgeons

■ Three patient forums will cover colorectal tumours, varicose veins and artificial knee joints, during which specialists and patients will report on and discuss the latest surgical techniques and chances of recovery. Bowel cancer will be a central focus. Five experts will present precautionary and early diagnostic measures (30 April) as well as surgical procedures for tumour removal.

■ In addition to Dr Christa Maar, Chairperson at the Felix-Burda Foundation (which provides information on causes of this disease and promotes early diagnosis of bowel cancer), the panel for the subsequent discussion - led by TV moderator Dr Susanne Holst - will include eminent personalities who will report on their personal experience of bowel cancer. (Admission free - but numbers limited by space). Full details: www.chirurgie2004.de

sees his doctor for the first time. Unnecessary or prolonged stays at the clinic can be avoided. The result is a considerably improved stay for in-patients. In addition, one can achieve, via a more economical way of diagnosis and therapy, an advantage to benefit the public.

Quality Management - Statistics of all oncology cases allow the establishment of a cancer register, which enables doctors to document treatment results. By comparison of our own data with those published in medical papers an interdisciplinary and active qualitative management becomes feasible.

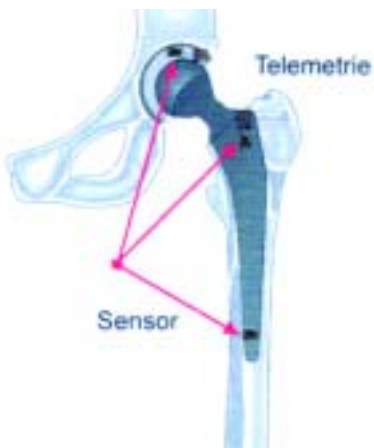
The Future - For the first time, the concept of the Tumour Board Organisation materialises an interdisciplinary collaboration of all doctors involved during treatment. For the future, this form of organisation shall be the standard for cancer therapy. Thanks to improved telecommunications, it will also be possible for smaller clinics to cooperate with other regional Tumour Boards and thus optimise the quality of treatment.

the standardisation of the quality results.

A particularly important aspect of this modern, integrated healthcare in re-organised hospital structures is the improvement of the attraction of the job-outline of doctors and particularly surgeons. To help secure Germany as a location of university medicine, including clinical and experimental research, reformed concepts of vocational training must be introduced - as well as scientifically and clinically attractive additional further education - which should open up new avenues to stop our up-and-coming young surgeons and highly-gifted doctors from emigrating abroad, or switching to other professions. That is why the demands and reality of hospital surgery must match and mirror a safe and sound prospect for our succeeding generations of surgeons.'

intelligent sensor technique hidden in clothes.'

Focusing on artificial hip surgery, the professor will also describe the development of an independently implantable telemonitor system (see image) to keep a watch on artificial limbs and joints.



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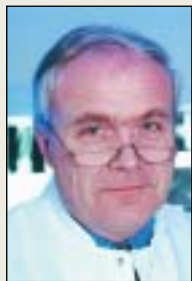
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TERRORISTS

We must prepare for the 'worst case scenario', says **Professor Norbert P Haas**, Director, Casualty and Reconstruction Surgical Clinic, Charité Humboldt-University Medical Faculty, Berlin



The terrorist attack during the 1972 Olympic Games in Munich made us realise, for the first time, that Germany also could be a target for terror. Since 9/11 international terrorism has increased beyond all proportions, and we should be all aware that we could become victims, anytime. The German government does not seem to care much; warnings are rare. Yet there are clear signs that European institutions are

possible targets for terrorists, and we face big international events that will have an enormous public impact. Therefore we should all brace ourselves for the inevitable in all areas of security and maintenance. Public savings of the past, based on an alleged absence of potential aggression, were wrong.

One essential demand of the German Society of Surgery and the German Society of Disaster Medicine points to the fact that the previous concept of preventive medicine (based on a state level) is regarded as discarded - especially in the light of recent attacks and imminent terrorist strikes in the near future. This is why new concepts are needed urgently. Assignments on state-level lack funding and qualified personnel. The concept wished for by the ministers of the interior (new strategies to protect our people) is still grounded by teething-problems and must start from scratch again. There is a nationwide, urgent demand to train for disaster-prevention and equip personnel and experts. To achieve an improved protection of our population, the lack of laymen's competence must be tackled.

Possible attacks involving weapons of mass destruction are increasingly likely. The formation of competence centres and special troops are needed to act throughout Europe. The involvement of the German Army (Bundeswehr) is inevitable.

To take appropriate care of those affected, a link with paramedics and doctors will be vital to obtain treatment. Emergency planning at hospitals is presently inadequate and limited to only a few centres. 'Disaster roadmaps' need to be set up and declared binding, and more medical staff must be recruited and carefully trained. Only through regular exercises will adequate medical care be possible during a disaster. Austerity savings in the health system have been enforced, and clinical beds were slashed, which has an extremely negative impact. Caring for patients with highly infectious diseases requires special beds, for example. For injured and diseased in-patients there are no medical concepts about a disaster. In terms of dangerous new biological and chemical situations, we lack stocks of all kinds of sanitary products, such as dressings and bandages, but above all we lack drugs and vaccines. Piling up urgently needed stocks requires a network of German co-operating states. For diseased patients, who would need therapies for illnesses caused by substances that cannot be controlled by usual medications, corresponding antidotes must be available.

Our goal for 2006 should be to become World Football Champions as well as champions in disaster medicine.

CT tumour model projections exclude risk

Professor Peter Neuhaus



Heinz-Otto Peitgen



By **Professor Peter Neuhaus**, Director of the clinic for common, visceral and transplant surgery at the Charité Berlin and **Heinz-Otto Peitgen**, Professor of mathematics and bio-medical science in Bremen and Boca Raton/Florida



Multislice CT image: three tumours (coloured brown) and areas of the liver that will function through removal of tumours with an additional 1cm safety margin

For decades hopes and dashed hopes have accompanied the search for new cancer therapies. In the last few years we have seen particularly great expectations in genetically engineered therapy techniques. It is hard to say whether these hopes can come true. At present, the public is not aware that the vast majority of cancer patients are cured by surgery. Consequently, innovations in tumour surgery have a promising effect on the probability of surviving - and tumour surgery will have great potential in the fight against cancer.

With over 15 million new cases worldwide (and over 70.000 new cases in Germany) annually, liver carcinoma is among the most important tumour diseases, and has a significant clinical relevance as well as socio-economic impact. Presently, open surgery is still the most effective treatment in most

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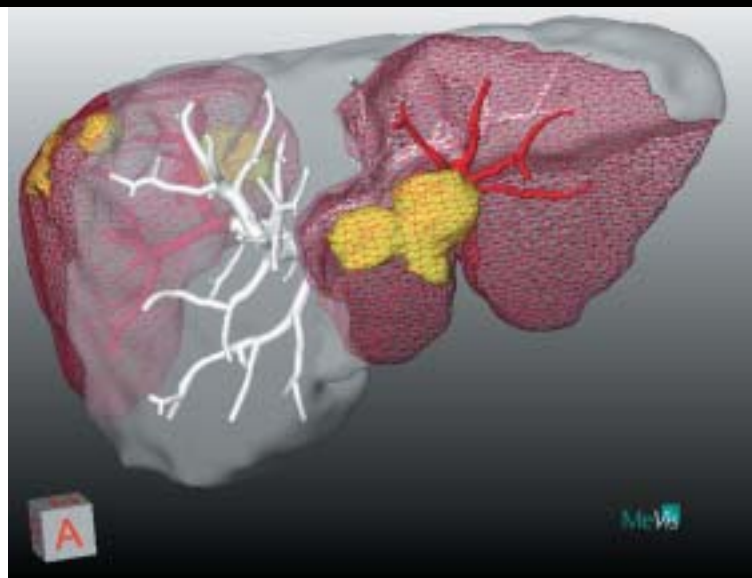
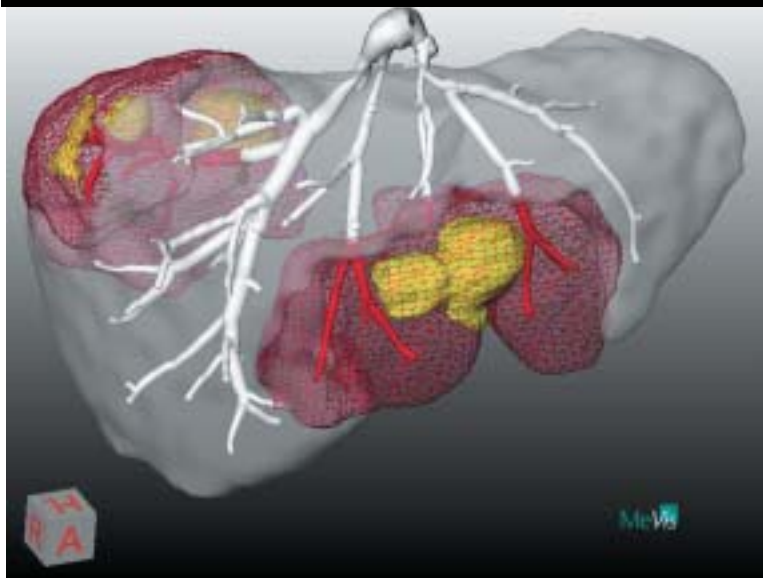
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Far left: Computer-supported risk analysis in 3-D. Tumours are shown in green. The visible blood vessel is the hepatic vein. The red areas would no longer be drained if the tumours were removed with a 1cm tumour-free safety margin

Left: A similar view to image 2, but this shows the portal vein. Areas in red would no longer be supplied if the tumours were removed with a 1cm safety margin. Therefore, both results must be considered in a risk analysis

cases. Minimally invasive methods of tumour ablation by high frequency streams and laparoscopic techniques show the way to the future.

The potential and the patient/individual success of tumour surgery is determined by three factors: tumour resection, including a secure non-tumourous edge, performance optimisation of the remaining liver and maximum reduction of the surgical trauma.

Innovative technologies can favourably influence these factors. The methods of liver surgery capitalise on the liver's potential to regenerate itself within a few months. Latest findings relating to liver transplantations of parts of a living liver show that the regeneration process depends mainly on the preservation of the anatomical structures of the remaining liver.

The basis of innovative surgical methods rests on an image-based, individual patient and computer-aided analysis of risks based on computer tomographies. Before surgery, surgeons can localise and assess tumours, find out which parts of the liver have partly or totally lost their function, if a tumour is removed with a security distance. Of special importance are the portal vein and liver artery, as supporting vessels, the liver vein and the bile-duct system as vessels, which are very closely entwined. The resection should be executed so that the remaining volume can be continually supplied by the four vessel systems. This will not only influence the survival capability (mortality), but also every aspect of complications relating to the regeneration process of the liver (morbidity).

In brief: Based on the risk analysis, innovative and computer-aided methods allow a low-risk surgical plan, involving surgical practicability in terms of an individual patient. Thus the function of the remaining liver can be optimised - and at the same time tumours and multiple tumours can be removed, including a tumour-free edge. Also, for tumour ablation by high-frequency electricity or by laparoscopic treatment, these methods allow assessment of the risk level as well as surgical planning. An important impetus for surgery, including the transplantation of parts of a living liver and the possible impetus into other surgical areas, such as lung or kidney tumours, present more positive aspects in this surgical field with a promising future.

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Colorectal cancer has a high prevalence in all western countries. It has a long asymptomatic pre-malignant phase and is readily treatable when detected in early stages. Therefore, this is an inherently suitable disease for screening.

Of all the proposed screening methods conventional colonoscopy is undoubtedly the gold standard for detecting colorectal cancer and its precursor adenomas. But

has an excellent sensitivity for the detection of colorectal carcinomas and polyps larger than 5mm, while displaying an unsatisfactory sensitivity for the detection of small (<5mm) and flat lesions. At present virtual colonography using MR has an even lower sensitivity in detecting small polyps having a lower limited spatial resolution than multislice CT. But future developments in MSCT and MR

investigations comparing virtual colonography and conventional colonoscopy are promising. However, most of today's data is focuses on the use of this new technique to treat high-risk populations. To date, evidence for the overall applicability of virtual colonography to an asymptomatic population at average risk for colorectal neoplasia is rare.

Overall, virtual colonography

and 25 mSv. Recent investigations using ultra-low-dose (<2 mSv) MSCT-Colonography show promising results with high sensitivities for even small polyps (5-10mm).

Magnetic resonance colonography as a radiation-free modality seems to be the technique of the future. Although encouraging results have been reported on the use of virtual MR colonography for the detection of colorectal polyps, the sensitivity of detecting polyps \pm 10mm and for flat lesions is still poor. The main reason is limited spatial resolution in



By Christoph Vogt MD, Internist & Gastroenterologist at the Gastroenterology, Hepatology and Infectology Clinic, Dusseldorf University (Director: Professor Dieter Häussinger)

Virtual colonography

Indications and limitations

patient compliance for conventional colonoscopy is very low.

Recent technical developments in CT and MR Imaging have made a virtual presentation of the colon possible. Virtual colonography has several advantages as a potential screening tool: it is minimally invasive, quick and safe for the patient and does not require sedation. Therefore it has a higher patient comfort and acceptability. Up to now, results from clinical

technology will improve detection of small polyps and flat colonic lesions. At present a controversy exists regarding the appropriate polyp size threshold for screening detection.

A major disadvantage of CT technology for virtual colonography is exposure of the patient to substantial ionising radiation doses. Today, effective doses resulting from CT colonography in most institutions range between 5



Virtual interior of the colon



Image of colon polyp via virtual colonography

MR colon imaging, which is expected to increase substantially in future.

Virtual colonography has been proposed primarily for colorectal screening but can also be employed if colonoscopy is contraindicated, refused or incomplete. The most widely accepted application for virtual colonography is following incomplete colonoscopy. These examinations can be performed on the same day, without additional bowel preparation. In



3D exterior view of colon

this setting, and in an overwhelming majority of patients, diagnostic virtual colonography can complete the colon evaluation, as well as identify the cause of endoscopic failure. When occlusive colorectal carcinomas prohibit a complete endoscopic review, virtual colonography can detect synchronous carcinomas - which occur in 5% of cases. If intravenous contrast is employed, virtual colonography can be an accurate method for predicting local tumour invasion. In addition, virtual colonography can be combined with liver and lung imaging to diagnose metastatic spread.

In the future, it is possible that there will be a potential role for virtual colonography in the prevention of colorectal cancer. Larger studies are needed on unsymptomatic people at average risk for colorectal cancer, and further improvements in the detection of flat and very small lesions need to be achieved before advocating use of virtual colonography for routine colorectal cancer screening.

Further details: www.colotux.de

Endoscopic ultrasound (EUS) in pre-operative staging of gastric cancer

Lutz Meyer MD, surgical endoscopy, Surgery Department, Carl-Thiem-Hospital Cottbus) questions 'demand and reality'

Gastric cancer is still a gastrointestinal malignancy of comparatively poor prognosis. Despite an optimised and extended surgical technique, and improved peri-operative management, the oncological long-term results are unsatisfactory. In cases of advanced tumour growth, novel therapeutic concepts include multimodal options. In this context, exact pretherapeutic staging is considered essential for decision-making in the therapeutic algorithm comprising multimodal treatment options.

Recent publications ((references on request) have reported the great value and impact of intraluminal ultrasound in preoperative tumour staging of gastric cancer, for example predictive values of correct T and N stage range from 78-88 % and 64-82 %, respectively. For the single T stages, correct predictive values have been found to be: T1, 80-100 %; T2, 31-81 %; T3, 88-100 %, and T4, 67-100%. The great variability for T2 stage indicates the dilemma. There are only a few reports on the problematic reproducibility and range of EUS findings, which describe correct predictive values ranging only from 40-66 %.

In the study, researchers Lutz Meyer, Lars Nowak, Frank Meyer, Uwe Schmidt, Hans Lippert, Ingo Gasteringer, at the East German Study Group for Quality Control and Regional Development in General and Abdominal Surgery and the Institute for Quality Management in Operative Medicine at the Otto-von-Guericke University Magdeburg, enrolled 1,230 patients with primary gastric cancer or gastrointestinal stroma tumour (GIST) from 87 hospitals, between 1 January and 31 December 2002, and documented the nature of peri-operative man-

agement. Surgical departments in all categories, such as district and university hospitals, participated.

Pretherapeutic EUS was carried out only in 35% of the patients. Preoperative EUS findings were compared with the T stage (T1 to T4) and the N category (N+ or N-) revealed by the histopathologic investigation of the surgical specimen. The T stage was predicted correctly in 43.2% overall. The subgroup analysis showed the following results: T1, 31.5%; T2, 40.5%; T3, 69.4%; and T4, 26.7%. The correct predictive value of the N category was 73.4% reaching a sensitivity of 72.1% and specificity of 75.0%.

Thus, EUS had an impact on 1) decision-making for the use of limited or multimodal concepts, or 2) therapeutic results such as the rate of explorations, R1/R2 resections or palliative interventions neither in the overall T stage analysis nor in the subgroups. Only ascites revealed by EUS correlated significantly with peritoneal carcinomatosis, rate of R1/R2 resections and decision for conservative treatment.

The present study indicates the enormous variability and limited reliability of endoscopic ultrasound in gastric cancer, which is considered not sufficient at its current stage. In particular, the prediction of the T stage does not reach the data reported in the literature. One reason is the high interobserver variability of EUS findings.

EUS may fulfil diagnostic expectations in the pre-operative staging of gastric cancer only by an appropriate quality control and standardisation leading to a higher clinical acceptance and reliability of this diagnostic tool.

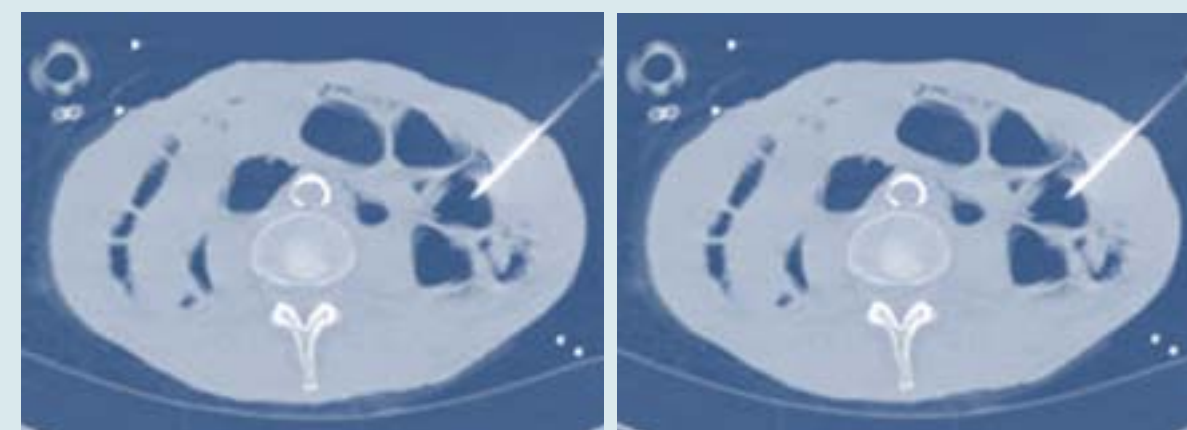
Further details: L.Meyer@ctk.de



Endoscopy guided by CT-fluoroscopy

A new therapy

By Fritz W Spelsberg, H Winter, P Herzog, K Nikolaou, T P Hüttl, R A Lang, K W Jauch, at Grosshadern Clinic's surgery and radiology departments, Ludwig-Maximilians-University, Munich



CT-Fluoroscopy guided PEJ placement in a patient after oesophagectomy and colon interposition due to oesophageal cancer. Transillumination was not possible

Endoscopic placement of PEG / PEJ (percutaneous endoscopic gastrostomy/jejunostomy), or transgastric drainage of pancreatic pseudocysts, is not reliable for all patients. For those cases CT-fluoroscopy can be applied with endoscopic procedures for successful, minimally invasive treatment.

PEG or PEJ are substantial for patients with swallowing disorders who are maintained by enteral nutrition. The technical success rate is reported as 80-95%. Disadvantages are the impossibility of locating the transverse colon and liver, and a relatively high rate of wound infections. The key issue concerns the localisation of the puncture site by transillumination. Endoscopic placement may not be successful due to abdominal operations, billroth resection, gastrectomy, obesity, splenomegaly, hepatomegaly or peritoneal carcinoma. In our department the place-

ment of conventional PEG had failed in 12 cases. After endoscopic insufflation of air, PEG could be performed with 10 out of those 12 patients under CT-fluoroscopy guidance, using the common pull-through technique. The interposition of colon and liver prevented tube placement in two patients. One minor leakage and one minor wound infection occurred, but neither required further intervention. Radiological exposure is low and other clinically relevant findings may be revealed by endoscopy: it is reported that clinically relevant pathology is diagnosed in 22 - 47% of the cases. Pathology that did not modify patient's treatment is reported in up to 70% of the cases.

In comparison endoscopic drainage of symptomatic pancreatic pseudocysts is reported as technically successful in 80-90%. If patients did not have a clear impression of the stom-

ach or the duodenum, transmural puncture of the cyst was performed under CT-Fluoroscopy guidance. This is particularly helpful in situations where endoscopic ultrasound is not available to confirm that the distance between the stomach and the cyst is short enough and that the cyst adheres to the stomach. Furthermore interposed large vessels, between gut and cyst, can thus be detected. Drainage was successful in 5 out of 5 patients, without major complications. Postinterventional pneumoperitoneum in one patient dissolved without further intervention.

CT-fluoroscopy guided PEG / PEJ or transgastric drainage of pancreatic pseudocysts are simple and safe procedures. They offer the benefit of minimally invasive therapy even in patients with contraindications to the established endoscopic methods, combining the advantages of both techniques.

Health in a nutshell

Walnuts can help fight heart disease

Substituting walnuts for monounsaturated fat in a Mediterranean diet improves - and even restores - the elasticity of the artery, according to a study titled 'A walnut diet improves endothelial function in hypercholesterolemic subjects: a randomised crossover trial', published in *Circulation: Journal of the American Heart Association* (23 March 2004)

A new clinical study shows that substituting walnuts for monounsaturated fat in a Mediterranean diet improves, and even restores, endothelial function (the property of arteries to dilate in order to meet an increased demand of blood, for instance due to a physical effort). Walnuts also reduce harmful cell adhesion molecules, which are associated with atherosclerosis, commonly known as hardening of the arteries. These dual effects enhance the circulatory system, thus aiding the prevention of heart disease.

During the study, conducted by the Lipid Clinic at the Hospital Clinic of Barcelona, 21 men and women, aged 25-75 years, and with high cholesterol, followed a cholesterol-lowering Mediterranean diet, and a diet of similar energy and fat content, in which approximately 1.4 to 2.3 ounces of walnuts daily (equivalent to 40-65 grams or 8-13 walnuts), based on the subjects' total caloric intake, replaced roughly 32% of the energy from monounsaturated fat. Participants followed each diet for four weeks.

'Put simply, a healthy artery is like an elastic rubber pipe that allows changes in flow, while an artery with impaired endothelial function is like a rigid lead pipe that has a constant flow. The walnut diet in our study actually restored the elasticity of the artery, allowing increased blood flow on demand,' said Dr Emilio Ros (Barcelona Hospital Clinic) who directed the research. 'Specifically,' he added, 'walnuts differ from all other nuts because of their high content of alpha-linolenic acid (ALA), a plant-based omega-3 fatty acid, which may provide additional anti-atherogenic properties.' He also referred to the amino acid L-arginine, and the gamma-tocopherol form of vitamin-E - in which walnuts are rich - as effective in preventing harmful vascular blockage.

'Anyone who has risk factors for heart disease, such as smoking, high blood cholesterol, diabetes, hypertension or obesity, is in a situation where the arteries do not dilate properly when they should. This is called endothelial dysfunction. The patients in our study had high blood cholesterol, a known cause of endothelial dysfunction, and this abnormality was corrected by the walnut diet. The encouraging results provide physicians and patients with a powerful, yet simple, nutritional tool in their fight against heart disease.'

21 men and women (ages 25-75) with high cholesterol followed a cholesterol-lowering Mediterranean diet, and a diet of similar energy and fat content in which approximately 1.4-2.3 ounces of walnuts daily (equivalent to 40-65 grams or 8-13 walnuts), based on subjects' total caloric intake, replaced roughly 32 percent of the energy from monounsaturated fat. Participants followed each diet for four weeks.

University of Barcelona is one of the two most productive scientific institutions in Spain according to statistics recently published by the European Union. With regard to scientific output, the Hospital Clinic of Barcelona is among the top 10 leading hospitals in the European Union and is first place among hospitals in Spain.

Study co-investigators included: Isabel Nunez MD; Ana Perez-Heras RD; Merce Serra D; Rosa Gilabert MD; Elena Casals MD; Ramon Deulofeu MD.

History of stroke raises Alzheimer's risk in elderly

Report by Karen Dente

New York - The association between stroke and Alzheimer disease (AD) in the elderly has been established, according to a study published in December 2003 in the *Archives of Neurology* by Dr Lawrence Honig and colleagues of Columbia University, New York.

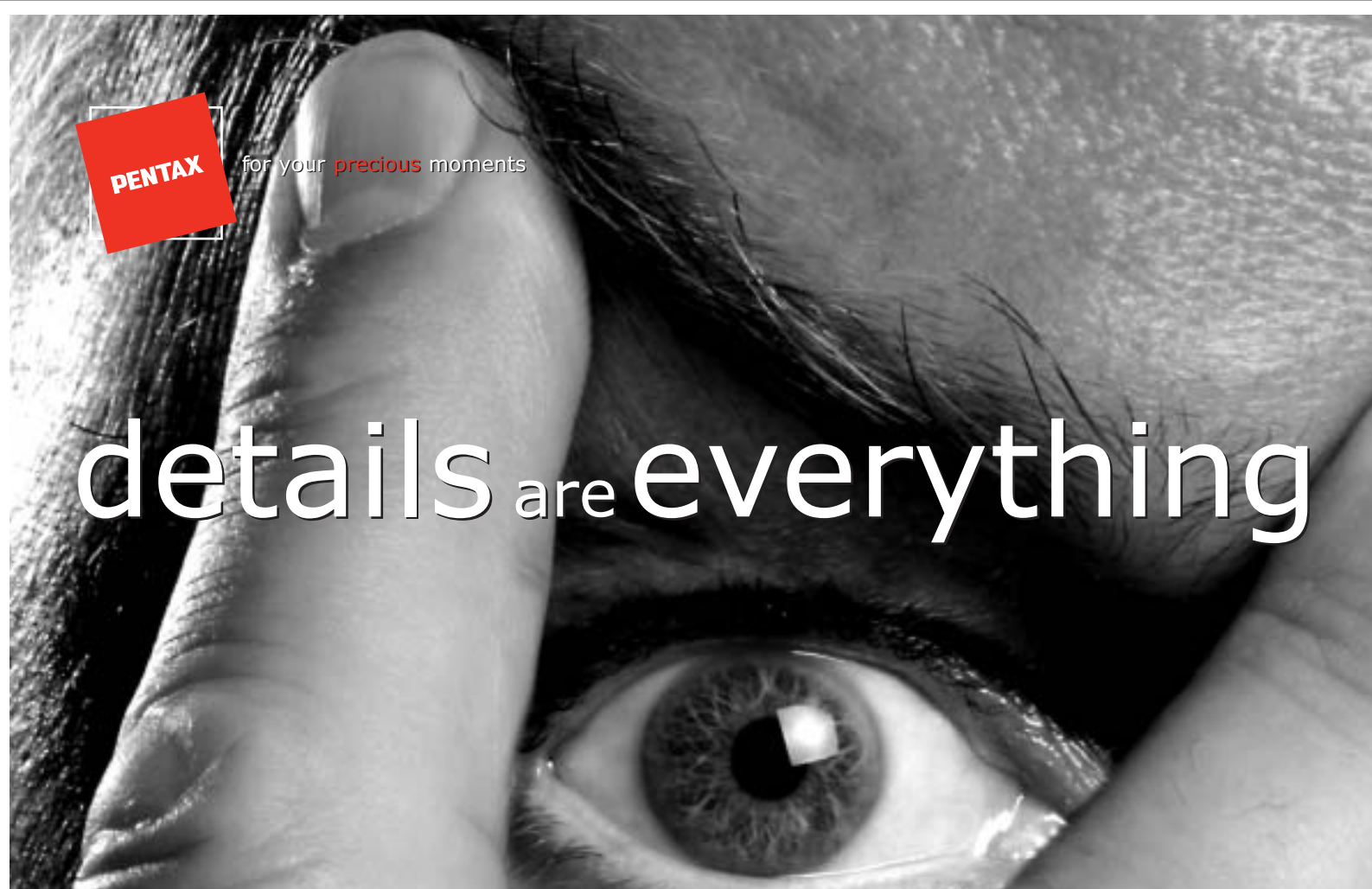
In a longitudinal study, a cohort of 1,766 people, aged 65-105 years and without signs of dementia at the outset, were followed and assessed for Alzheimer disease (AD) within the course of time. The results showed an association between a history of stroke and

AD. There was an increased risk of AD in people with a history of stroke in comparison to those with no history of stroke. A history of stroke was associated with an earlier age of onset of dementia. In addition, the risk was highest for those with stroke who also had established risk factors for vascular disease, such as high blood pressure, type II diabetes or heart disease.

Whether stroke is directly involved in the pathogenesis of AD

or acts indirectly as a contributor to the manifestations of AD still needs to be established. Pure forms of stroke-related dementia are very rare, according to Dr Honig, leading the investigators to believe that stroke-related dementia in fact may be related to AD.

'One in five stroke patients will develop Alzheimer's' said Dr Vladimir Hachinski, Professor of Neurology at the University of Western Ontario, Canada. 'Since stroke is treatable, Alzheimer too, may be a treatable condition' he added.



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Lecture: Topography-guided ablations

Leading ophthalmologist Dr J C Vryghem (Belgium), who, for three years running has organised and directed an instructional course on 'Complications in Lasik: prevention and management' at the European Society of Cataract and Refractive Surgeons (www.es CRS.org), will lecture on Topography-guided ablations, at the first Maurick Castle Refractive Meeting (Vught, the Netherlands) organised by Laser Centrum fNederland Boxtel

18-22 September Paris, France

The ESCRS XXII Annual Congress

Trends in cataract surgery using WaveFront technology to maintain the physiology of the Cornea, clinical research, new biomaterials, paediatric cataract surgery, surgical skills courses, plus a programme for ophthalmic nurses and technicians, an much else, will be among the many offerings at this autumn's annual congress for European Society of Cataract and Refractive Surgeons (ESCRS).

4-8 April 2005 London, UK

The Vision 2005 conference and exhibition

In its 8th year, this, the world's largest conference on issues concerning people with sight problems, will be hosted by the Royal National Institute for the Blind, and will draw in the world's leading researchers and providers of services, equipment and products. Keynote speakers will include:

Professor Anne L. Corn, of Vanderbilt University's departments of Special Education, and Ophthalmology and Visual Sciences. Research: primarily in the use of functional vision in children with low vision, with current topics related to the use of optical devices and the use of distance vision.

Dr Anthony Di Stefano OD MPH, Vice President and Dean of Academic Affairs, Pennsylvania College of Optometry and Executive Director of the World Council of Optometry.

Professor Allen Foster OBE FRCS FRCOphth ILTHE, Director, International Centre for Eye Health, London School of Hygiene and Tropical Medicine, London University.

Professor Allen Foster, Medical Director of CBM International and director of the International Centre for Eye Health at the London School of Hygiene and Tropical Medicine.

Dr Lea Hyvärinen MD PhD, Honorary Professor, Rehabilitation Science, Dortmund University, expert on the effect of early vision deprivation on the function of the parietal lobe, her LEA Vision Test System is widely used.

Krister Inde MA CEO, works with optometry and training at the Low Vision Enabling Lab in Lund University, Sweden, and has been closely involved in developing Low Vision clinics in many countries. Books include Low Vision Training and See Bad Feel Good.

Associate Professor Jill Keefe PhD, Principal Research Fellow, Head of Eye Health Promotion Unit, Centre for Eye Research Australia, Melbourne University, has also been Co-Chair of the WHO's Low Vision Working Group, and Chair of many others.

Dr Raymond Kurzweil, inventor, author, entrepreneur, founder, Chairman and CEO of Kurzweil Technologies Inc and principal developer of the first omnifont optical character recognition, the first print-to-speech reading machine for the blind, and far more. Best-selling book: 'The Age of Spiritual Machines: When Computers Exceed Human Intelligence'. 'Raymond Kurzweil will 'teleport' himself to the conference!' say the organisers.

Professor Gordon E Legge PhD, Distinguished McKnight University Professor, Dept. of Psychology, University of Minnesota. Professor of psychology and neuroscience at the University of Minnesota, and Director of the Minnesota Laboratory for Low-Vision Research. His research deals with visual perception and cognition.

Johanna M Seddon MD ScM, Ophthalmic surgeon and Director of the Epidemiology Unit, Massachusetts Eye and Ear Infirmary. Associate Professor of Ophthalmology, Harvard Medical School. Associate Professor or Epidemiology, Harvard School of Public Health. Johanna Seddon is a world-renowned clinician and a pioneer and leader of landmark studies on nutrition, smoking and other risk factors for age-related macular degeneration.

Professor Hugh R Taylor AC, international authority on river blindness, trachoma and prevention of blindness, and Ringland Anderson Professor of Ophthalmology and Managing Director of the Centre for Eye Research Australia at the University of Melbourne WHO Collaborating Centre for the Prevention of Blindness, Regional Chairman for the International Agency for the Prevention of Blindness in the Western Pacific, Deputy Co-chair of Vision 2020: The Right to Sight Australia, etc.

Eye experts worldwide value the conference for its presentations of the latest in scientific research as well as opportunities for networking.

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Smoking and blindness

Smoking is associated with several eye diseases, including nuclear cataract and thyroid eye disease, but the most common cause of smoking-related blindness is age-related macular degeneration (AMD) - resulting in severe irreversible loss of central vision. Current treatments only partially benefit selected patients, and 'Identifying modifiable risk factors to inform efforts for prevention is a priority,' warn **Simon P Kelly** (consultant ophthalmic surgeon); **Judith Thornton** (honorary research fellow); **Georgios Lyratzopoulos** (lecturer in public health); **Richard Edwards** (senior lecturer in public health) and **Paul Mitchell** (professor of clinical ophthalmology) in an editorial in the British Medical Journal (BMJ, Mar 2004; 328: 537 - 538).

The experts point out that the strength of the association between smoking and AMD is confirmed in pooled analysis of data from three cross sectional studies, involving 12,468 participants, in which '...current smokers had a significant 3-4-fold increased age adjusted risk of age related macular degeneration compared with never smokers. By way of comparison, although the relative risks associated with smoking for lung cancer and chronic obstructive pulmonary disease are in excess of 20, the relative risk for ischaemic heart disease in men is only 1.6. Consistency of effect is demonstrated as smoking was the strongest environmental risk factor for age related macular degeneration across these three different study populations in Australia, North America, and Europe.' A long-term follow up in these groups established the relation between exposure and outcome.

The editorial points out that one in five cases of AMD in the UK may be attributable to smoking. Around 54,000 smokers over 69 years have AMD and nearly 18,000 of them are already blind.

Evidence also shows that stopping smoking slows the development of AMD, whereas continued smoking can affect the long-term response to AMD treatments such as laser therapy. Thus smoking cessation interventions are important, the authors point out. 'Many diabetes, cardiac, and respiratory NHS clinics now incorporate smoking cessation support into their services and ophthalmology or optometry services could follow likewise,' they advise, pointing out: 'The acceptability of this intervention among eye care personnel in the United States is high, but time and knowledge constraints may hinder implementation. Primary smoking prevention is perhaps even more important. In New Zealand, publicity about smoking and blindness resulted in increased telephone calls to the national Quitline and a television campaign incorporating the (slightly modified) Australian eye advertisement was considered more successful than other advertisements relating smoking to stroke and heart disease. A

sustained public health campaign in the United Kingdom is warranted to increase awareness of the ocular hazards associated with smoking... A sustained public health campaign in the UK is warranted to raise awareness of the link between smoking and blindness,' say the authors. 'This should include offering smoking cessation support to people attending eye clinics and more novel, varied, and specific pack warnings of the impact of smoking on eyesight,' the authors conclude.

The UK's AMD Alliance has called for a public health campaign to warn of the dangers of smoking to sight, and Anita Lightstone, Head of Eye Health at the Royal National Institute for the Blind (RNIB) also said: 'The fact that smoking does significantly increase a person's chances of losing sight from age-related macular degeneration (AMD) should be more widely publicised. Awareness needs to be raised and an eye health warning included on all cigarette packets.'

Thousands could be blinded by delay

UK - Macular degeneration is the most common cause of blindness in the elderly, and there are at least 50 centres in Britain ready to provide photodynamic therapy, yet the country's National Health Service (NHS) has delayed making that treatment available for six months, says the Royal National Institute for the Blind (RNIB). In addition, Michael Howard, leader of the Conservative party, recently confronted Prime Minister Tony Blair, in the House of Commons, about that delay, saying that he could not understand why the NHS said staff shortages were to blame, despite the fact that the RIB said the 50 centres are ready to provide this therapy.

Steve Winyard, N Head of Public Policy, said: 'There is no shortage of doctors that we are aware of who could provide treatment.... The situation as it now stands is a sham and it has effectively denied people treatment for far too long.'

It costs about £1,500 to treat a macular degeneration patient, but if this is done early enough, eyesight can be saved. An estimated 2,800 people could go blind in the next few months due to the reported delay.



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Communications

IT for ophthalmology



UK - Medisoft as produced software for an ophthalmology clinical system that runs over hospital networks and interfaces with hospital PACS systems - and some items of ophthalmic equipment.

The programme collects data at every stage of a cataract patient's care - initial consultation, pre-operative assessment, biometry, anaesthesia, pre-op checks, operation, post-op checks, phone calls, follow up clinic visits and visits to the community optometrist. In hospitals using the programme, the Leeds-based manufacturer says, the software has been of great benefit in helping to organise the multidisciplinary Integrated Care Pathway. At each stage, a hard copy of notes and letters can be automatically generated, keeping paper notes up-to-date, but not duplicating data entry, and saving secretarial time.

'The programme includes intra-ocular lens power calculations that recommend the appropriate formula for each eye in accordance with Royal College of Ophthalmologists' guidelines, and automatic customisation of 'a' constants for both the Zeiss IOL Master and ultrasound machines.

Continuous, prospective audit of all aspects of cataract surgery is immediately available with a mouse click, using a sophisticated report and graph wizard, the firm points out, adding: 'Outcomes analysis includes visual acuity, surgically induced refractive change and deviation from predicted post-operative refraction.'

New OCT device to shed light on anterior segment

Anterior chamber optical coherence tomography (AC OCT) - a new diagnostic imaging technique currently being developed by Carl Zeiss Meditec, can produce clinical and physiological information about everything from phakic implants to accommodation, Dr Georges Baikoff (Clinique Monticelli, Marseilles, France) reported at the XXI Congress of the ESCRS.

'The device provides a range of useful data for the anterior chamber and is relatively straightforward to use, giving surgeons a non-contact means of viewing high-resolution images of the anterior segment. I believe that, in the near future, this equipment will be as necessary for preoperative assessment of phakic refractive IOL patients as topography currently is for corneal refractive surgery,' he said.

Dr Baikoff reported on trials carried out earlier this year at the Clinic Monticelli in Marseilles, France, using the AC OCT device to analyse the anatomical relationship between the structure of the anterior segment and four different types of phakic implants: angle supported lenses, NuVita (Bausch & Lomb) and GBR/Vivarte (IOLTech/CIBA Vision Surgical), the Artisan/Verisyse iris-fixated IOL (Ophtec/AMO), and the PRL posterior chamber implants (Medennium/CIBA Vision Surgical).

A cross-sectional scan was performed on different meridians, Dr Baikoff said, which helped underline the anatomical relationship between the implants and the iridocorneal angle, the cornea, the iris and the crystalline lens. Measurements were taken in an accommodated and unaccommodated state. 'With this device we can measure angles, curvature radius and the distances in the anterior segment. What we really wanted was to answer one key question raised by the use of refractive phakic IOLs - do they touch the crystalline lens and do they provoke cataracts?'

Early phakic IOL models were linked to problems of endothelial cell loss, epithelial damage, pupil ovalisation, and pupillary distortion. In the posterior chamber, IOLs ran the risk of inducing cataracts as well as chafing the iris pigment, potentially leading to glaucoma. Design modifications, which increased the 'vaulting' or clearance from the crystalline lens have since reduced these problems, but the long-term implications of the implants intermittently coming into contact with ocular tissue remains at issue. Dr Baikoff highlighted the case of one patient who had been implanted with the Artisan phakic IOL. Under standard observation on a dilated pupil, there appeared to be no apparent contact between the IOL and the crystalline lens. However, a scan with the AC OCT device demonstrated that there was a definite contact between the implant and the natural lens. This, he said, was due to the tilting of the lens when the

pupil is dilated, as the IOL tilts and the down-edge comes into contact with the crystalline lens. That patient was asked to return in a few days and it was observed that, during accommodation, there was a high tendency of the crystalline lens to move forward and increase the risk of contact with the IOL.

Dr Baikoff's team also established that some posterior chamber phakic IOLs were also coming into contact with the crystalline lens during accommodation. Similar problems with angle-supported lenses had also been observed in certain cases. Illustrating the case of one patient implanted

with a ZB5M lens over a decade ago, Dr Baikoff said it was clear that there was contact between the phakic IOL and the crystalline lens. It was evident, he pointed out, that after 10 years, the thickening of the crystalline lens had brought it into contact with the phakic IOL. That patient had been checked every year but this was the first time the team could actually observe that there was a clear contact.

The AC OCT device has also been used on healthy eyes to allow researchers to learn more about how accommodation and ageing affected the anatomical composition of the anterior segment. During accommodation there was a forward

movement of the crystalline lens (about 300 microns for every 10 dioptres of accommodation), but this forward displacement decreased over time as the elasticity of the crystalline lens diminishes and there was less anterior movement. However, this was offset by the fact that the anterior chamber depth also decreases over time due to thickening of the crystalline lens.

The end result of this dual process was that there was decreasing room in the anterior segment for foreign bodies as the patient aged. He concluded that it was vital to adhere to the safety criteria that were established for anterior chamber implants.

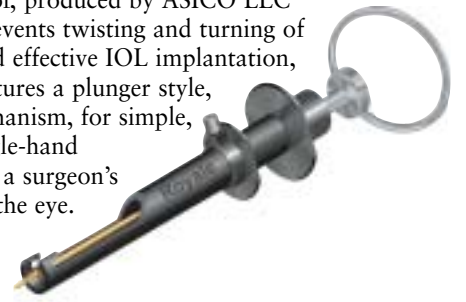
There are still many unresolved questions concerning the risk of phakic IOL-induced complications in the anterior chamber - questions that the new AC OCT device would go some way towards answering, he concluded: 'We now know the importance of correct sizing and anatomical positioning of the phakic implants in the anterior chamber. We will also need new inclusion criteria for refractive phakic IOLs that take into account the dynamic evolution and the ageing of the anterior segment,' he said. The device is expected to be on the market in just over a year or so after completion of European safety trials.

● Full report: ESCRS congress website

Single-Hand IOL Delivery System for one-piece AcrySof IOLs

The new Royale Injector, produced by ASICO LLC (Westmont, Illinois) prevents twisting and turning of the injector for safe and effective IOL implantation, the firm reports. 'It features a plunger style, instead of a screw mechanism, for simple, stable and efficient single-hand injection, which allows a surgeon's other hand to control the eye.

The ring rotates independently of the injector body and plunger mechanism to maintain the most comfortable position. The durable all-titanium injector is lightweight and easy to maintain and it withstands repeated use and sterilisation. The gold tip of the injector allows better visibility through the cartridge.'



Pupil dilation

Duckworth & Kent has introduced 145.00mm long titanium Pupil Dilator Inserter for the insertion of the Milvella Ring. The firm reports that the bayonet fitting allows easy separation for cleaning.

The firm's titanium Dick Internal Incision Micrometer Calliper is used to measure internal corneal incisions from 1.0 to 4.0mm. The angled tip is 2.5mm long. Measurement of smaller incisions is now becoming more critical and this calliper has micrometer calibration to give higher accuracy.



The first single use injector with preloaded IOL

NEW

'For several years European ophthalmic surgeons have used 'soft' intraocular lenses for cataract surgery, 'The main interest of this type of IOL is that it is "injected" into the eye using an injector, of which there are many types: some come with a plunger and others with a screw, some are for single use and others can re-used with any cartridges or with specific ones. Management of those devices in the operating theatre remains quite complicated, since there are as many types of injector and cartridge as IOL types. These injectors require surgeons to perform various manipulations to posi-



tion the IOL in the cartridge and then in the injector, and this results in frequent implantation failures with risks of damaging or contaminating the IOL,' the firm Corneal pointed out, when launching the first single use injector with preloaded IOL in Europe.

'The Premier single use injector with preloaded IOL brings an innovative and reliable response and guarantees easy and reproducible movement for the surgeon. It is an injection device in which the lens is preloaded by skilled technicians in the CORNEAL production unit itself, in accordance with high quality standards. The lens is positioned, nice and flat, in the injector and is folded only at the last minute, to avoid any deformation due to prolonged folding. The surgeon has only two actions to carry out to fold and inject the intra-ocular lens.'

The company lists benefits of the device as:

- Simple gesture for IOL folding and injection
- Reproducible gesture for each surgical procedure
- Protection of the lens which will neither be scratched nor damaged
- Guarantee of non-contamination of the lens (no direct contact)
- Simplified stock control (one packaging only instead of 3: lens/injector and cartridge)
- Cost-saving sterilisation



2004

APRIL

17-23 London, United Kingdom
EACTA, 19th Annual Conference of the European Association of Cardiothoracic Anaesthesiologists
 Email: rob_feneck@msn.com
 www.eacta.org/future.htm

17-23 Paris, France
13th World Congress of Anaesthesiologists www.cmws.co.uk

19-23 Moscow, Russia
MEDTECHNIKA www.auma.de

20-23 Prague, Czech Republic
Pragomedica/farma/labora/optik
 www.auma.de

20-24 Fagaras, Romania
1st Symposium on Inflammation 2004
 e-mail: mcojocar@cmb.ro

21-23 Luxembourg
Telemedicine and Telecare International Trade Fair
 www.telemedicine.lu

22-23 Amsterdam, Netherlands
Benign Hepato-Pancreato-Biliary Disorders e-mail: j.goedkoop@amc.uva.nl

24-25 Bordeaux, France
6th World Congress of Paediatric Anaesthesia
 Email: cEcoffey.rennes@invivo.edu

27-30 Berlin, Germany
121st Congress of the German Society of Surgery
 www.chirurgie2004.de

28-1 May Singapore
AOCR - 10th Asian Oceania Congress of Radiology www.rsna.org

30 Paris, France
Intermedica - Int. Exhibition for Bio-Medicine and Hospital Equipment
 www.auma.de

30 Sofia, Bulgaria
Bulmedica www.auma.de

31 London, United Kingdom
ACTA, Association of Cardiothoracic Anaesthetists of Great Britain and Ireland Spring Meeting
 Email: david@duthie.u-net.com
 www.acta.org.uk

MAY

1 Mannheim-Heidelberg, Germany
13th European Stroke Conference
 www.cmws.co.uk

6 Athens, Greece
4th World Congress on Paediatric & Adolescent Gynaecology
 www.cmws.co.uk

7-10 Antalya, Turkey
8th World Congress of Echocardiography & Vascular Ultrasound www.cmws.co.uk

12-15 Bologna, Italy
Health Expo 2004
 www.senaf.it

12-16 Cairns, QLD
12th Scientific Meeting & Exhibition of the International Society for Magnetic Resonance in Medicine
 www.ismrm.org

14-17 Sousse, Tunisia
IFCC General Conference 2004
 www.ifcc.org

15-21 Kyoto, Japan
International Society for Magnetic Resonance in Medicine
 www.ismrm.org

15-16 Kyoto, Japan
13th Annual Meeting of the Section for Magnetic Resonance in Medicine (SMRT) www.ismrm.org

16-21 Sydney, Australia
7th World Congress on Biomaterials
 www.cmws.co.uk

17-21 Florida, USA
TEPR 2004 www.medrecinst.com

17-22 Tohigi, Japan
7th Congress of the Asian Federation of Societies for Ultrasound in Medicine and Biology (AFSUMB)
 www.calendar.uicc.org

19-22 New York, USA
Annual Scientific Meeting of the American Society of Hypertension
 www.cmws.co.uk

19-22 Wiesbaden, Germany
85th German Radiology Congress
 www.drg.de

19-22 Leipzig, Germany
International World Congress for Orthopaedics and Rehabilitation
 www.auma.de

19-22 Oradea, Romania
3rd National Conference
 with international participation and trade fair at the Marcela Zamfirescu Gheorghiu Clinical Laboratory Foundation.
 E-mail: fmzg@xnet.ro

22-26 Rome, Italy
21st World Congress of the International Union of Angiology
 www.ash-us.org

25-28 Paris, France
Hopital Expo-Intermedica
 Trade Show for Health Materials, Equipment, Technology and Services. www.hospitalexpo-intermedica.com

25-28 Cluj-Napoca, Romania
8th European Congress on Magnesium; Romanian Society of Magnesium Research
 e-mail: pjporr@umfcluj.ro

31st Kattowitz, Poland
Expomedica www.auma.de

JUNE

1 San Diego, USA
15th Annual Scientific Sessions of the American Society of Echocardiography
 www.cmws.co.uk

1 Toronto, Canada
IVBM - 13th Int. Vascular Biology Meeting www.cmws.co.uk

2-4 Amsterdam, Netherlands
Endosonography live in Amsterdam
 e-mail j.goedkoop@amc.uva.nl

2-5 Ljubljana, Slovenia
53rd Int. Congress of the European Society for Cardiovascular Surgery
 www.cardiologyonline.com

3-5 Lisbon, Portugal
EuroSIVA
 http://www.eurosiva.org

5-8 Lisbon, Portugal
ESA-Euro-anaesthesia, Annual Congress of the European Society of Anaesthesiologists
 Email: cathy.bottomley@optionsglobal.com
 www.options.com.cy

6-9 Zagreb, Croatia
EUROSON
 16th European Congress on Ultrasound in Medicine and Biology
 www.congress.hko.hr

6-8 Manchester, United Kingdom
UKRC - United Kingdom Radiology Congress www.ukrc.org.uk

6-10 Cairns, Australia
10th International Conference on Emergency Medicine
 www.icem2004.im.com.au

7-11 Hedelberg, Germany
ESPR - European Society of Paediatric Radiology www.calendar.uicc.org

9-12 Barcelona, Spain
12th Int. Congress of the European Association for Endoscopic Surgery
 www.chirurgie2004.de

10-13 Erfurt, Germany
DEGRO - 10th Annual Meeting of the German Society of Radio-Oncology
 www.degro.org

10-13 Seoul, South Korea
The 13th Congress of the Western Pacific Association of Critical Care Medicine
 www.wpaccm2004.org/intro/welcome.htm

13-16 Paris, France
14th European Meeting European Society of Hypertension
 www.eshonline.org

14-17 Jerusalem, Israel
4th International Meeting on Intensive Cardiac Care cmws.co.uk

15-18 Geneva, Switzerland
ESGAR - 15th Annual Meeting and Postgraduate Course of the European Society of Gastrointestinal and Abdominal Radiology
 www.rsna.org

17-19 Barcelona, Spain
World Congress on Gastrointestinal Cancers (formerly Perspectives in Colorectal Cancer - PICC)
 www.calendar.uicc.org

19-22 Nuremberg, Germany
International German Anaesthesia Congress.
 Email: lindig@mcn-nuernberg.de
 www.mcn-nuernberg.de

21-23 Tromsø, Norway
TTC 2004 - Tromsø Telemedicine Conference www.telemed.no/tcc2004

23-26 Chicago, USA
CARS
 18th International Congress and Exhibition of Computed Assisted Radiology and Surgery
 www.rsna.org

25-29 Montreal, Canada
23rd Int. Congress of Radiology (ICR)
 www.calendar.uicc.org

JULY

2-3 Pamplona, Spain
10th International Meeting for CME in Anaesthesia
 Email: pmonedero@unav.es
 www.unav.es/anestesia

3-6 Innsbruck, Austria

18th Meeting of the European Association for Cancer Research
 www.calendar.uicc.org

11 Bangkok, Thailand
15th Int. AIDS Conference
 www.aidsconference.org/Calendar.asp

11-17 Tokyo, Japan
11th International Pain Clinic of the World Society of Pain Clinicians
 www.congre.co.jp/2004wspc

12-13 Amsterdam, Netherlands
Int. Conference: Acute Circulation Failure in the ICU
 www.mahealthcarevents.co.uk

17-20 Vancouver, Canada
9th World Congress on Heart Failure Mechanisms and Management. Plus, the 4th World Congress on Heart Disease- New Trends in Research, Diagnosis and Treatment. www.cardiologyonline.com

AUGUST

7-11 Brisbane, Australia
18th World Congress of the International Society for Heart Research and 52nd Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand
 www.heart2004.com

18-19 Florida, USA
FIME - Florida Int. Medical Expo.
 E-mail: fime@comcast.net

25-27 Malta
Towards Global Partnerships (clinical)
 www.mahealthcarevents.co.uk

28-1st Munich, Germany
ESC - European Society of Cardiology
 www.escardio.org

31st Budapest, Hungary
Hungaromed
 Int. Trade Fair for Medical Technology and Healthcare. www.auma.de

SEPTEMBER

2-4 Vienna, Austria,
3rd International Congress on the History of Urology
 www.uroweb.org

4-8 Helsinki, Finland
Annual Congress of the European Association of Nuclear Medicine
 www.calendar.uicc.org

4-8 Glasgow, Scotland
ERS 14th Annual Congress of the European Respiratory Society
 www.ersnet.org

5-9 Munich, Germany
40th Annual Meeting of the European Association for the Study of Diabetes www.easd.org

8-11 Budapest, Hungary
7th Scientific Congress of the European Resuscitation Council
 Email: congress@erc.edu

9-12 Tokyo, Japan
ICCVA 2004, 9th International Congress of Cardiothoracic and Vascular Anaesthesia
 Email: iccva2004@jcsva.org
 www.jcsva.org/iccva2004

11-13 Munster, Germany
3rd European Congress of Andrology (ECA) www.uroweb.org

14-18 Constanza, Romania
12th Meeting of the Balkan Clinical Laboratory Federation Romanian Society of Laboratory Medicine - RSLM e-mail: bclf2004@trima.ro

22-25 Wiesbaden, Germany
DGU - German Society of Urology
 www.dgu.de

23-25 Gdansk, Poland
9th Central European Lung Cancer Conference
 www.calendar.uicc.org

23-26 Beirut, Lebanon
8th Pan-Arab Congress on Anaesthesia, Intensive Care, Pain Management, Emergency and Disaster Medicine
 www.isaonline.org

23-15 Vilnius, Lithuania
Baltmedica www.auma.de

25-29 Prishtina, Albania
Medikos fair www.kosovarfair.com

28-1 Geneva, Switzerland
16th EORTC-NCI AACR Symposium on "Molecular Targets and Cancer Therapeutics"
 www.fecs.be

30-31 Brussels, Belgium
Healthcare - Int. Trade Fair for Medical Equipment
 www.auma.de

OCTOBER

2-6 Paris, France
JFR - Journées Françaises de Radiologie
 www.rsna.org

3-7 Atlanta, USA
ASTRO
 46th Annual Meeting of American Society for Therapeutic Radiology and Oncology
 www.astro.org

3-8 Edinburgh, Scotland
10th Biennial Meeting of the Int. Gynaec. Cancer Society
 www.calendar.uicc.org

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