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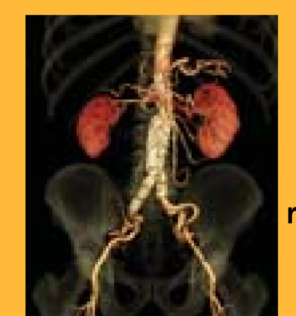

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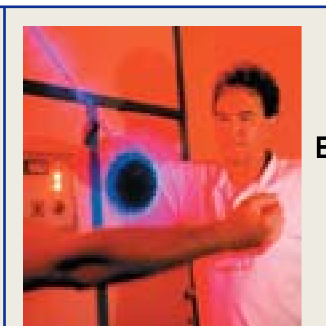

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VOL 14 ISSUE 1/05 FEBRUARY / MARCH 2005

NURSE-SURGEONS

New arrivals on the healthcare platform face a welcome - and controversy

Waiting lists, EU limits on working hours, doctor and nursing staff shortages, how could healthcare providers overcome all those hurdles let alone glimpse the winning post ahead? A scheme launched in the UK may provide some answers by shrinking lists, easing working hours, as well as attracting more people to enter the nursing profession.

As part of the UK Government's revolutionary plans for the country's National Health Service (NHS), nurses are now being trained to perform a range of surgical procedures.

The length of the training is two years, and those who qualify will be called 'surgical care practitioners' (SCP). Up to 5,000 nurses, physiotherapists, and operating theatre assistants are expected to become SCPs within 10 years, and the pay scale proposed for three grades of SCPs is expected to be €50,766 euros per annum.

Behind this job revolution is The NHS Modernisation Agency's 'New Ways of Working Programme'. Explaining this concept, an agency spokesperson said that the NHS is trying to give its staff greater job opportunities, and that job upgrades are about ensuring that people who have the potential and skills are being used effectively. Indeed, the NHS has already upgraded the role of certain radiographers, as well as nurses in terms of their being allowed to prescribe certain medi-

Report by ***Brenda Marsh***

cines. In addition, without formal training, an estimated 400 NHS nurses already perform procedures such as vein stripping from the leg for coronary bypass surgery, and some procedures in orthopaedics, ophthalmology and gynaecology. Another significant point made by the NHS Modernisation Agency is that the use of SCPs in two hospitals, reduced the average time for bilateral varicose vein surgery by 30 minutes in one and in the other enabled a two-week target for bladder cancer treatment to be met.

However, as some twenty-five pilot schemes for this training in 'simple operations' continued, the further

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Possible SCP procedures include:

- Breast biopsy
- hernia repair
- vasectomies
- testicular torsion
- small bowel anastamoses
- opening/closing for laparotomy
- fracture manipulations
- open fracture debridement
- arthroscopies and ACL reconstructions
- shoulder stabilisations
- reduction and fixation of facial bone fractures

SARS no longer deadly threat - But avian flu is

USA - Scientists are confident that the virus that caused severe acute respiratory syndrome (SARS) is no longer circulating in humans, or other animals, according to **Professor Kathryn Holmes**, a microbiology expert at the University of Colorado, USA. Only if the SARS virus could evolve again - as an identical mutation of the original animal coronavirus - or if it were accidentally released from a lab - could it become a threat again, she said at a recent meeting of the *American Association for the Advancement of Science*.

Indeed, after the epidemic, the virus escaped, three times, from research centres in Taiwan, Beijing and Singapore. However, just nine people were infected and the elderly mother of an infected Chinese lab assistant died. Now, even if such an accident or mutation should occur, Prof. Holmes said, there several SARS vaccines and treatments to block infection, and the quarantine methods are better understood.

Avian 'flu - Nancy Cox, chief influenza scientist at the US Centres for Disease Control, has called the threat from the avian influenza virus - which has killed 42 people in Asia - 'very frightening'. Its death rate is now 76% - compared with 1% for the Spanish flu that killed about 40 million people in 1918-19.

Funds for adults with hospitalised children

Germany - The Federal Associations of Health Insurance Funds and the German Hospitals Association are now following Germany's Regulation 1 on the co-admission of child/adolescent patients and accompanying adults. From January this year, a universal rate of 45 euros a day has been allocated to cover extra accommodation and food for an accompanying parent, or family member or someone chosen by those with parental responsibility for the child.

'This has finally put one of the stipulations of the *Charter for Children in Hospital* (agreed in 1988) into practice, said Jochen Scheel, who heads the board of the Association of Children's Hospitals and Children's Wards in Germany (GKinD). The co-admission of an accompanying adult in Children's Hospitals is known to have positive effects on recovery, he said, so co-admission of an adult can always be medically justified, apart from certain admissions to paediatric psychiatric wards, or for some children with psychosomatic symptoms. 'From our experience gained in children's hospitals we know that the co-admission of an adult is also dependent on the state of development of each individual child and of the characteristics and severity of the illness. Up until now the admission of accompanying adults was not governed under a nationwide scheme but was handled on an individual basis, dependent on the medical insurer and location of the hospital. There rarely were any sensible or suitable solutions; in fact, things were often quite confusing and rather arbitrary. Now there's an end to all that!'

Euthanasia debate rekindled

'Clandestine mercy killings of neonates must end'

The Netherlands - Although this country became the first, in 2002, to legalise euthanasia for people aged 16 years and over, child euthanasia remains illegal. Nonetheless, 72% of Dutch doctors are in favour of this in extreme cases, and a survey has suggested that the lives of about 15-20 disabled neonates are ended annually there. However, the first Dutch study to focus on child euthanasia has demonstrated that physicians are so afraid of criminal prosecution that, since 1997, only 22 deaths involving terminally ill babies were reported. 'It's time to be honest about the unbearable suffering endured by newborns with no hope of a future,' said one of the study's authors, paediatrician Eduard Verhagen, of Groningen University Medical Centre. Out of compassion, he added, doctors everywhere end lives discretely and without any regulation. 'Worldwide, the US included, many deaths among newborns are based on end of life decisions, after physicians reached the conclusion that there was no quality of life. This is happening more and more frequently. If we take this awfully difficult decision, it must happen with complete openness.'

The study, conducted with the cooperation of the Universitair Medisch Centrum Groningen, and published in *Nederlands Tijdschrift voor Geneeskunde* (www.ntvg.nl), aims to highlight under-reporting and to encourage doctors to report cases without fear of prosecution. The authors point out that none of the physicians involved in mercy killings was prosecuted. In the cases, involving babies with extreme spina bifida, it was revealed that four unofficial rules were used to guide prosecutors in their decisions not to charge those involved in these deaths. The criteria: the child's medical team and independent doctors had agreed; the child's condition could not be improved, nor pain be eased; the parents had consented and the life had ended in a medically correct manner.

With the agreement of Dutch legal

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TSUNAMI the aftermath

Up to 9 in 10 people will suffer psychological trauma

At a recent conference on the care of tsunami survivors, the Thai Health Ministry reported that over 5,300 of its population had been confirmed dead, leaving tens of thousands bereaved, as well as homeless, and that 10,000 people had already been treated by touring teams of mental health workers, as well as receiving counselling from Buddhist monks trained in psychology. It was suggested that about 20% of tsunami survivors were 'very significantly affected' by the disaster, by, for example, showing symptoms of obsession with waiting for the return of their loved ones, whilst about 30% suffered 'moderate' post-traumatic stress disorder, which included symptoms of insomnia and avoidance of looking out to sea.

'Recovery cannot take place unless we remain aware of the emotional effects and the mental health consequences,' warned psychiatrist Dr Jonathan Davidson, director of an anxiety and traumatic stress programme at Duke University in the USA, when addressing a recent Bangkok conference on the treatment of tsunami survivors. The mental health damage, he said, could last years and post-traumatic stress disorder and depression could affect 50-90% of the population, he said, pointing out that this estimate was based on data from previous major natural disasters. Whilst recognising the need to cover general health issues and reconstruction, Mr Davidson emphasised that survivors could not recover properly without appropriate mental health care, and warned that the task would take years.

Alexander McFarlane, head of the psychiatry department, University of Adelaide, Australia, also pointed out at the conference that there are very different beliefs within communities about the nature of human suffering, and that the delicate nature of cultural differences must be carefully considered when providing post-traumatic care.

Don't just go there!

Many medical organisations have warned that no one who wishes to help in the relief work in tsunami-hit regions should travel there individually, i.e. without being officially affiliated with an already involved organisation.

The World Health Organisation (WHO) has a web page that not only provides information about the recruitment of emergency specialists but also about donations in kind, which includes drug donations.

In January, The International Council of Nurses (ICN) (http://icn.ch/disasterprep.htm) offered the following guidance to member national nurses associations (NNAs) and individual nurses worldwide: 'Many nurses have expressed willingness to volunteer for relief work in the worst hit areas. **Currently there is no capacity to absorb any further relief workers on the ground.** However, the relief effort and subsequent reconstruction will be long-term and nursing skills will be needed for many months to come. It is important that nurses who wish to volunteer are part of a comprehensive plan to mobilise the right number of properly prepared health professionals. This is best accomplished by working through, and registering with, your national nurses association and/or the national branches of the major disaster relief agencies - such as the Red Cross, Red Crescent and others. **It is not advisable for individual nurses to travel to the disaster struck area on their own.**

ICN suggests that nurses wishing to volunteer for the disaster relief agencies should:

- Contact their national nurses associations or the relevant national disaster relief organisation for full information on volunteering services on the ground
- Update vaccinations appropriately
- Update all relevant skills and training
- Ensure that their current place of employment can cope with and plan for staff absences.

National nurses associations can:

- Coordinate with the national disaster relief societies regarding the need for nurse volunteers
- Provide contact and further information for nurses wishing to volunteer
- Maintain a roster of nurses wishing to volunteer and make this information available to disaster relief organisations.

The ICCN also added: 'Your country may have communities of citizens who originate from the affected countries and these communities may be in need of both funding and moral support. Lobby your government to give sufficient aid and to sustain this support as long as it is needed, while remembering the continuing needs of developing countries in Asia, Africa and elsewhere.'

The Tsunami International Survey on Emotional Impact

The Netherlands - Immediately after the tsunami devastated countries around Asia, three trauma researchers at the Department Psychiatry, University Medical Centre Utrecht, The Netherlands, as well as from the Department Military Psychiatry, Central Military Hospital in Utrecht, became involved in the care for a group of wounded Dutch patients who had been in Phuket. 'We sought how to help the survivors and at the same time learn from their experiences,' explained Dr Eric Vermetten. Little over a week later, on 6 January, little over a week after the tsunami, we had written a protocol that used the internet to invite survivors, their loved ones, and professional aid workers to use a web survey to engage in active coping by emotional expression, using standardised trauma questionnaires. Based on prior experience after 9/11, when a web survey was initiated by a group of researchers from Stanford University, we wanted to do more. The 9/11 web survey demonstrated the benefits of using the internet to structure ones emotions, find family and friends, and seek help.'

Working as a team, Dr Vermetten, Dr Cobie Groenendijk and Dr Luc Taal opened the website to enable survivors to contact other victims though a forum, to track missing persons, and provide electronic consultation and information through links and documents. 'They were enabled by pre-existing expertise with family tracking systems, network systems, experience with electronic consultation, and expertise with the assessment of the effects of trauma,' said Dr Vermetten. 'Also, several professional translations were invited for the survey, so that people from all over the world could use the survey. In under four weeks, the *Tsunami International Survey on Emotional Impact (TISEI)* website was launched. With no funding, but unconditional help from some large companies, data collection began and it provided help, initially for survivors in the Netherlands, and soon will be able to do the same for survivors across the world.'

From left: Cobie Groenendijk, Eric Vermetten and Luc Taal

Dr Vermetten also pointed out: 'It is well known from previous disasters that the emotional impact is felt most when the world has forgotten about a disaster, whilst the mourning has not subsided, and the suffering is part of everyday life.

'The initiative is new and challenging. Taken during this critical event, the initiative has also opened up new ways to implement the internet to assess the needs of disaster victims. The *Organisation for Economic Cooperation and Development*, and many other international organisations, should make use of the internet to deal with large-scale disasters. Where people can be lost, information management is critical, at both organisational and personal levels. Currently the site asks for local user groups to organise themselves and to provide regional psychological support.

Details: info@tisei.org
Or: Eric Vermetten MD PhD: e.vermetten@mindef.nl

EUTHANASIA DEBATE

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authorities, Groningen University Hospital, had drawn up a document setting out circumstances in which euthanasia of new-born babies could be justified, which include the same criteria mentioned above - i.e. that the disease is incurable and impossible to relieve through drugs or surgery; parents consent must be given; the child must have no prospects of a future and euthanasia must be carried out with meticulous care. In December an article appeared on the Groningen University Centre website, headed: '*Paediatricians call for nationwide protocol for the ending of life of unbearably and incurably suffering newborns*'. In this, paediatricians at eight Dutch academic hospitals called for the formation of a national committee to draw up a nationwide protocol for life ending treatment for neonates who are so ill and suffering so severely that the future offers no hope. Worldwide, such cases amount to about 600 annually. 'These children face a life of agonizing pain,' Dr Verhagen said. 'We're talking about newborns with hydrocephalus and no brain, for example, or a child with spina bifida with a sack of brain fluid attached where all the nerves are floating around. This child is barely able to breathe, and would have to undergo at least sixty operations in the course of a year to temporarily alleviate its problems. These operations would not ease the pain. Moreover, the child would suffer such unbearable pain that it has to be constantly anaesthetised. The parents watch this in tears and beg the doctor to bring an end to such suffering.'

Patients' rights

France - An estimated 150,000 patients die in French hospitals annually following decisions by medical staff to halt treatment or turn off life-support systems. In November a bill, proposed by Health Minister Philippe Douste-Blazy MD, which gives terminally ill patients the right to 'passive' euthanasia, was passed unanimously (3 abstentions) by parliament. This gives patients the right to request the discontinuation of medical treatment (including artificial feeding, life-support machines). The bill is said to clarify hospital medical practice and should protect doctors from prosecution in such cases.

NURSE-SURGEONS

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expansion of a nurse's role met with stronger debate and reactions. Whilst support has come from the National Association of Theatre Nurses, the Royal College of Surgeons and the National Association of Assistants in Surgical Practice, the British Medical Association has warned that the advent of a nurse-surgeon might affect patient safety, and many individual doctors jumped into the controversy, even in one hospital undertaking nurses' surgical training. Perhaps the strongest argument against educating nurses as SCPs is its potential impact on the education of junior doctors.

As the debate, as well as the keen observation of the results from training are likely to continue, hospitals in the following areas are undertaking SCP training: Birmingham - general surgery; Central Middlesex - minor procedures; Cheltenham - vascular surgery; Liverpool - orthopaedics; Manchester - ophthalmology; Milton Keynes - urology; Morecambe Bay - colorectal; Manchester - gynaecology; Plymouth - hernias.

Hot topic:

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On arrival, patients become part of a complex logistical process, and today they consume healthcare services just as modern consumers do: discerningly and consciously. This places high demands on today's healthcare institutions and creates an enormous challenge for management and staff - which becomes particularly apparent during construction and renovation of new and old healthcare institutions.

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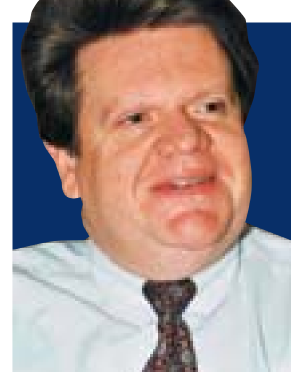

By Günter Danner

Günter Danner MA PhD, is socio-political and economic afffairs adviser to the CEO of Techniker Krankenkasse - Germany's third biggest non-profit health fund. He is also a member of the permanent liaison bureau of the Brussels-based joint associations of German statutory social insurance, for which he is Deputy. Director.
As an expert on social security systems in France, Germany, Switzerland and Sweden, Dr Danner lectures on socio-economic subjects, and is involved in major research on questions relating to EU-developments and enlargement. He also participates in PHARE/TACIS projects on social reform in all east European countries, including Russia.

Several EU Member States expressed concern when, in 1998, the European Court of Justice first introduced a limited access to healthcare for visiting patients needing treatments, beyond the usual emergencies, which were then to be reimbursed by their own national healthcare systems. At first this related to all forms of outpatient treatment or health-related purchases of goods such as spectacles or other aids. The far more crucial question - whether or not access should also be granted for hospital treatment - remained a major bone of contention for several more years. However, with its final rulings in the cases of Smids/Peerboms, and finally Muller-Faure, the EJC made it clear that, in spite of existing restrictions, the EU healthcare market, with cross-border access to care, would be in the offing.

On various occasions, national governments have tried to come to grips with this rather unusual situation. Most of the first patients to be sent abroad for treatments had been on the long waiting lists common to many EU-Member States, though the shock waves of a true migration have not materialised. Following the first wave of information given in the press, this important subject is now quite distanced from public attention. This implies that it is difficult for Europeans to ascertain how to start with such a healthcare move and, above all, where to get the information necessary to present a well-founded claim.

The following summary gives an overview of the status quo of cross-border access to care.

Regulation 1408/71 and International Claims Forms, e.g. E 111 or future technical replacements, such as the EU Health Insurance Card, gives access to care when temporarily abroad, e.g. as a traveller or tourist, or permanently so, as a pensioner having officially moved to another Member State. Basically the person presenting an E 111 claims form in a guest country will be treated like a normal patient resident in that country, so that benefits will be granted according to its system, as will the mode of co-payments or the degree of coverage.

Treatment of this kind is legally restricted to emergency care and will therefore be limited to urgently needed medical essentials. In theory, it does not cover any treatment for which the person has deliberately travelled abroad.

The statutory institution of the patient's home country will ultimately pay for the treatment received, according to fees charged in the guest country. However, as in many such cases, reality is quite different. For many years, tourists have found that this claims form has shown a falling degree of acceptance in many EU Member States, even if that is contrary to European legislation. Therefore, emergency healthcare invoices for under 1,000 euros will be reimbursed by the healthcare institution of the patient's country of residence, according to the national reimbursement limits of its institutions. This requires the patient's attention because, in certain cases, the foreign invoice might be much higher than what would be reimbursed at home. It should be noted that this Regulation only affects healthcare bills to be footed by a public institution. Different rules apply to people ready to pay privately, or to claim compensation from a private health insurer. For many decades this has been, grosso modo, the only widespread form of cross-border access to healthcare.

Rulings of the ECJ and the EU Market of Health Care

After a lengthy process, involving vital economic and political interests of the Member States and their national healthcare systems, the ECJ rulings meanwhile established a general right of a patient to address him/herself to another Member State for almost any kind of outpatient treatment. Irrespective of the mode of remuneration of the home country - e.g. whether they apply a system of cost-reimbursement or 'benefits-in-kind' - they should be obliged to reimburse at least up to the limits of what they would have paid if the treatment had occurred at home. This leaves the patient in quite a difficult situation: millions just do not have a clue about how much a visit to a doctor actually costs, let alone whether the price charged abroad is the normal tariff there - or a fancy amount several times higher. Moreover, little, if anything, will be known about the ultimate reimbursement of the home institution: if it is actually willing to pay or would have to be forced to do so, if need be by legal action. Consequently, despite long waiting lists, there has not been too much demand, in most EU Member States, even for simple visits to doctors. Furthermore, it is still legally undecided whether or not a person from a Member State with a GP gatekeeper system, i.e. without the patient's right to go to a specialist straight away, may deviate from this line when abroad. At least this does not seem likely, because on no occasion did the ECJ wish to infringe on national structures and their individual restrictions.

In terms of inpatient care, all forms of hospital treatment involving public institutions and public planning are even more difficult. It is now clear that hospital treatment is a service within the EU meaning of this term. It is also clear that the particular nature of the hospital setting, above all the high degree of public provisions and planning, requires a patient to formally apply to his/her paying body - usually the health service or social health fund - for coverage of treatment abroad. Contrary to former times, nowadays these institutions will have difficulties in automatically turning down such a wish without examining that particular patient's individual situation. If a waiting list at home accounts for 'undue' problems for the patient, the OK for such a treatment should ideally be given without further bureaucratic ado. However, in reality this will be less than simple: many a waiting list has its origin in rigid cost-containment and thus may not be expected to be thrown overboard. Consequently, what an individual patient might expect upon presentation of such a claim is virtually unknown.

Only a few Member States have slowly but surely introduced transparent ways to find one's way to treatment abroad in the case of additional suffering due to waiting-lists at home. Even if this element of the EU market liberties may gain in momentum, the financial situation of many national systems of healthcare are rapidly declining and might place a limit on cross-border access to care. National governments have tried to find a compromise between, on the one hand, unilateral streams of patients from waiting-list-countries to those not marred by that symptom and, on the other, the current widespread lack of transparency concerning access of non-individually paying patients. A High-Level Committee has tried to find a solution acceptable to all parties and national institutions have signed contracts with care providers abroad. How far this will actually help, only the future can show.

Central and East European Member States (CEEC)

The huge EU enlargement project has had only a limited direct impact on national healthcare systems. Due to the principle of subsidiarity (the national prerogative to mould one's own healthcare system) the Commission has no right to force a Member State to improve its public system of social protection, unless it actually collides with existing EU regulations, e.g. coordination according to the Regulation 1408/71 is definitely not possible. Despite to-the point-assistance to CEEC healthcare systems and a certain amount of noteworthy progress there, problems remain galore. These difficulties are characterised by a still weak income situation and widespread poverty, a very low income level for next to everybody working in the public sector, including doctors and other hospital personnel, as well as financial handicaps of the paying institutions - whether independent social funds or bigger structures, such as statewide health funds. There is a widespread black market for healthcare involving backhanders and 'under-the-counter' payments, which undermine the values of statutory health insurance. The burden of citizens' access to healthcare will have to be shouldered by the public systems which, to fulfil this important task, are in urgent need of improvements. Unfortunately, this coincides with the generally dire situation for systems of social protection because high unemployment is adding the omnipresent demographic challenge.

On the other hand, remarkable progress has been achieved in many hospitals and potential sectors - mostly spa-treatments and rehabilitation - have almost gained fame as potential future centres of best practice. However, as things stand, these are normally not open to patients who rely on social insurance coverage. Patients from CEEC who wish to improve their lot by crossing borders to West European Member States to seek treatment will find it hard to make their home institutions pay, and even if they do succeed, they may not be happy with what they receive. Given the generally low income level, it is unlikely that many patients will base their claims on the EJC rulings. Instead it seems more likely that a generous interpretation of Regulation 1408/71, which concerns 'emergency' cases, might arise, and, if utilised in a larger number of cases, lead to serious financial problems for the CEEC institutions.

The private consumer

With growing individual wealth more citizens will be ready and willing to spend private money on their health. For these, the EU healthcare market already has wealth to offer, and EU regions are competing for customers looking for wellness activities or private treatment. It stands to reason that regions specialising in such offers will benefit from future developments.

Private health insurance

This is a highly diverse field of support for coverage of cross border care. With the exception of Germany and, (hugely different) the Netherlands, there is no EU system where compulsory membership or public coverage might be replaced by private insurance. CEEC have only shown a very limited growth of private health insurance and are evidently not yet considering a promising and therefore proper market. Consequently policies, and their small print, will vary almost from case to case making it difficult to provide the reader with a rule of thumb. Therefore, anybody wishing to make a claim involving cross border access to care should carefully read the general rules and conditions of his or her individual policy. Under no circumstances should so-called 'holiday' insurance, i.e. private travel insurance for a short or at least limited stay abroad, be misunderstood as a passport to free access to care abroad. Next to nowhere else are restrictions more subtle than in this case where, of course, only emergencies occurring during short term stays are concerned.

Information helps healing

Most patients who receive health information change lifestyle and believe they reap benefits, according to a study carried out in Europe and the USA.

Almost two thirds of the 4,500 patients surveyed - all suffering chronic conditions - said they had changed their behaviours based on health information received, and over three quarters of these people perceived a positive impact on their health. Yet the survey also revealed that over half of the European patients felt they did not know enough about their disease and its treatments to confidently manage their health, and 50% were also concerned that their lack of knowledge might worsen their conditions.

Commissioned by the drug company Pfizer, the research was devised to explore levels of health information received by patients

Patients fear lack of knowledge may make them worse

suffering from three chronic diseases - asthma, adult onset (type II) diabetes and heart disease. Conducted between June and September 2004, the survey gathered the views and experiences of the 4,500 patients from eight European countries (Finland, France, Germany, Italy, Poland, Spain, Sweden, UK) and the USA.

Baroness Sally Greengross, Co-Chair of the Alliance for Health and the Future, said: 'Without question, both patients and the public at large are becoming more interested in, and more knowledgeable about health matters - shown clearly by the numbers of hits across the world on health websites. A more informed population should be celebrated and further encouraged because, as this survey shows, when patients receive information on their condition, a high percentage of them change their behaviour leading to a positive impact on health.'

European health knowledge is inconsistent

The survey also established the knowledge levels of all respondents by testing their awareness of the basic facts they might be expected to know about their condition, in order to effectively manage it.

On the whole, across the three disease areas, US patients displayed greater knowledge of their conditions. (Only 3% of European heart disease patients, for example, displayed an excellent knowledge of their condition compared with 19% of US respondents). There were also significant differences in knowledge levels across European countries. For example, 43% of UK diabetes patients displayed 'excellent' knowledge of their condition, whereas other countries showed far lower figures: Italy (23%), Germany (17%), Spain (15%) and Poland (4%). Similarly, significantly more UK respondents with asthma showed 'excellent' knowledge of their condition than, for example, Poland.

Surprisingly, high proportions of respondents from many European countries displayed 'poor' knowledge of heart disease - Spain (92%); Italy (87%); France (81%).

'These differences in knowledge across Europe highlight the importance of improved information and education in the health arena. Better and more cost-effective management, as well as the prevention of diseases, is possible only if patients have access to, and a good understanding of, accurate information from reliable sources,' said Jack Watters, Pfizer Europe/Canada Vice President of Medical Affairs.

To obtain health information the European patients used a wide number of sources, including pharmacists, newspapers/magazines, TV and radio, books on health, the internet, friends/family, patients support groups, etc. However, for 90% of European and US respondents, the main source of health information turned out to be their doctors and nurses.

'People with diabetes may only see their healthcare professional for a few hours a year, yet they have to manage their own condition every day. Patient education must be a priority,' said Simon O'Neill, Director of Care and Policy, Diabetes UK. (With over 170,000 members Diabetes UK is Britain's largest organisation for this illness). 'This survey indicates that the majority of people act on the education they receive and achieve positive health benefits,' he added. 'However, the survey also highlights concern about the lack of information available. This must be addressed so all people with diabetes have accurate, up to date knowledge on their condition.'

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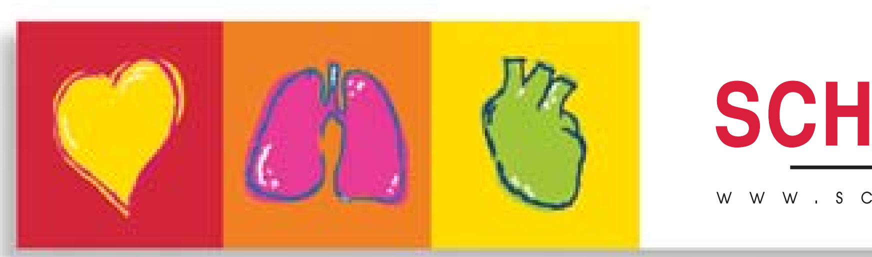

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Vincent team

By **Jean-Louis Vincent**, Head of the Department of Intensive Care, Erasme Hospital, Free University of Brussels, Belgium

The silver anniversary of the ISICEM

The *25th International Symposium of Intensive Care and Emergency Medicine*, to be held at the Congress Centre in Brussels, will see us celebrate our Silver Anniversary, when we will reflect on 25 years of meetings that have encouraged the presentation, discussion, and debate of intensive care medicine, and when we also look forward to what the next 25 years may bring. Indeed, given the rapid change of pace in intensive care medicine, we felt that 2030 was too far into the future, so we selected *My ICU in 2015* as the title for discussion at including lectures, pro-con debates, tutorials, workshops, round tables, and meet-the-expert sessions, the meeting provides a state-of-the art review of the latest concepts and technology in the field and present the most recent advances in the diagnosis, monitoring, and management of critically ill patients.

Each year, the program is carefully planned by the Scientific Committee to provide as complete coverage as possible of the latest developments in intensive care medicine and related fields. This year's programme will include (among many other topics): the Round Table, held immediately prior to the Symposium. Following this, a summary of the results from what promises to be a fascinating round table will be presented in the opening session of this main Symposium Meeting.

The ISICEM has grown from a humble 200 participants and five speakers back in 1981 to become the largest annual meeting of its kind, now attracting almost 5,000 participants from around the world and including a faculty of some 200 international experts in their field. With various presentation formats,

- An update on the continuing search for effective therapies for the patient with severe sepsis including information on currently running and recently completed phase III clinical trials.
- The latest opinions and results regarding the 'best' mode of ventilation and the 'optimal' ventilatory settings for patients with acute respiratory failure.
- A presentation of recently developed guidelines for various aspects of intensive care medicine, including haemodynamic support in sepsis, management of acute heart failure, and nutritional regimes.
- Important new insights into the pathophysiology and management of acute traumatic brain injury.
- The prospects for applying new genetics technology to diagnosis, disease classification, and therapy in the ICU patient.
- A presentation of methods of assessing tissue perfusion and oxygenation and visualizing the microcirculation.

This is just a small selection of the many topics that will be covered during the four-day meeting. Intensive care medicine is one of the fastest growing hospital specialties with new and important pathophysiological, diagnostic, technological, and therapeutic advances appearing so often that it is sometimes hard to keep up with the latest 'best' practice. The International Symposium of Intensive Care and Emergency Medicine helps this process of continuing education, providing participants with the opportunity for learning and discussion with peers, mentors, and colleagues from ICUs in other countries and continents. Our hope is that each participant will take back to their ICU some new knowledge, or technique, to share and implement at a local level to optimise patient care.

I hope this small introduction will encourage you to join us in Brussels in March for what promises to be a very special Silver Anniversary Symposium.

'All we need to know was learned in kindergarten,' say **Peter Pronovost** MD PhD and **Christine Holzmuller** BLA

ACHIEVING EFFECTIVE TEAMWORK

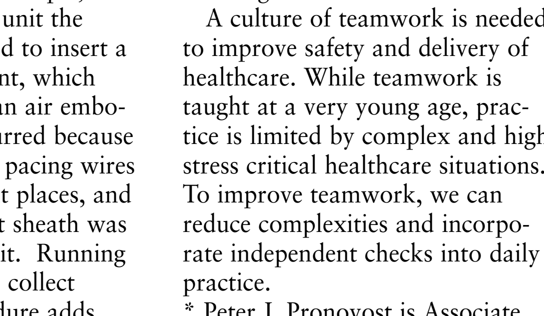
Toddlers are encouraged to play nice and share - in essence to work as a team during playtime (Figure 1). Have you ever watched children building a sandcastle at the beach? Children who work well as a team construct those pristine castles, with multiple turrets, which remain standing until the tide crashes in.

Yet, it is clear that teamwork - and inherently communication - contribute to a significant number of adverse incidents. Reporters who submitted adverse incidents to the web-based *Intensive Care Unit Safety Reporting System* at Johns Hopkins, picked ineffective teamwork as contributing to the incident. Indeed, the role of teamwork in improving healthcare has been moved to the forefront (*The Role of Perceived Team Effectiveness in Improving Chronic Illness Care*. Medical Care 2004; 42(11):1040-1048).

However, the culture of teamwork that parents instil in children is not practiced in healthcare situations. It is easy to surmise how this occurs, particularly when caregivers work in complex high stress environments, where diagnosis and care decisions are needed quickly, steps and the caregivers involved in the process are numerous, and little time is allowed to stop or speak. *(B J Sexton: The Better the Team the Safer the World: Golden Rules of Group Interaction. Ladenburg: 2004. And: A matter of life or death: Social psychological and organisational factors related to patient outcomes in the ICU. University of Texas, 2002.)*

However, we need to remind caregivers to build a structurally sound sandcastle together. Indeed a culture of teamwork can improve medical care

Reducing complexities and creating independent checks has been found to improve teamwork and communication. For example, in a cardiac intensive care unit the wrong sheath was used to insert a pacing wire in a patient, which presented the risk of an air embolus. This mistake occurred because sheaths and matching pacing wires are located in different places, and in this case the correct sheath was not stocked on the unit. Running to several locations to collect devices for one procedure adds complexity and probability of error. To reduce complexity in this unit, sheaths and matching pacing wires are now pre-packaged in the hospital's Central Supply.



Creating independent checks can also improve teamwork. An independent check involves one team member following behind the other team member and independently checking to ensure the action was done appropriately. Checklists are excellent tool for independent checks. Research at the Johns Hopkins Hospital (pub: Crit Care Med 2004; 32:2014-2020) eliminated catheter-related blood stream infections by using a checklist to ensure adherence to evidence-based guidelines for preventing CR-BSIs and by enhancing teamwork between the resident inserting the catheter and nurse assisting.

A culture of teamwork is needed to improve safety and delivery of healthcare. While teamwork is taught at a very young age, practice is limited by complex and high stress critical healthcare situations. To improve teamwork, we can reduce complexities and incorporate independent checks into daily practice.

* Peter J. Pronovost is Associate Professor in the Department of Anaesthesiology & Critical Care Medicine, and Director of the Division of Adult Critical Care, as well as Medical Director of the Centre for Innovations in Quality Patient Care, at Johns Hopkins University, Baltimore, USA.
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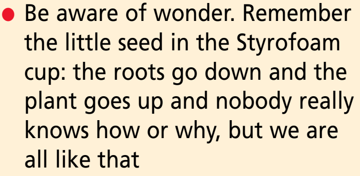
Peter Pronovost

Tips from '*All I Really Need to Know I learned in Kindergarten*' by Robert Fulghum

First Edition, 2003. New York, Random House Publishing Group

- Share everything
- Play fair
- Don't hit people
- Put things back where you found them
- Clean up your own mess
- Don't take things that aren't yours
- Say you're sorry when you hurt somebody
- Wash your hands before you eat
- Flush
- Warm cookies and cold milk are good for you
- Live a balanced life - learn some and think some and draw and paint and sing and dance and play and work every day some
- Take a nap every afternoon
- When you go out in the world, watch out for traffic, hold hands and stick together
- Be aware of wonder. Remember the little seed in the Styrofoam cup: the roots go down and the plant goes up and nobody really knows how or why, but we are all like that
- Goldfish and hamsters and white mice and even the little seed in the Styrofoam cup - they all die. So do we.
- And then remember the Dick-and-Jane books and the first word you learned - the biggest word of all - LOOK



Leadership -

According to an item in the SCCM Critical Care eNewsletter, leadership should be encouraged in unstructured situations - but not in those that are routine. It pointed out that leadership behaviours are most important in situations that are complex, unusual, or occur during a high workload time. Conversely, studies have shown that poor outcomes are associated with leadership behaviours occurring during routine or standardised situations. 'During routine situations, a leader who is present but does not have to engage actively in a technical task should take the opportunity to observe the strengths and weaknesses of the team as this knowledge is critical during less routine situations when the ability to predict and understand the behaviours of others is essential,' says the author, who also provides an example of leadership in

Peter Macnaughton MD MRCP FRCA, of the Intensive Care Unit, Derriford Hospital, Plymouth, UK, describes ways to increase efficiency and reduce length of stays in the ICU

Reducing the duration of mechanical ventilation

Peter Macnaughton

The requirement for mechanical ventilatory support is the most common indication for admission to an intensive care unit - and up to 50% of the time that a patient receives such treatment may be taken up by attempts to discontinue it: a process termed weaning. Ensuring an optimal multidisciplinary approach to the management of the ventilated patient will minimise the duration of ventilatory support and reduce complications such as ventilator-associated pneumonia (VAP).

Conventional ventilatory support is applied through an endotracheal tube. In non-invasive ventilation (NIV) ventilatory support is applied with a facemask and avoids endotracheal intubation. In certain patient groups, such as Chronic Obstructive Airways Disease, NIV is associated with a reduction in morbidity, length of ICU stay and mortality. NIV may also facilitate weaning of patients with underlying chronic respiratory disease. However, inappropriate use of NIV may adversely affect outcome and appropriate patient selection and prompt recognition of failure is essential.

A number of non pharmacological approaches have been shown to reduce the incidence of VAP including nursing patients in the semi-recumbent position (30-45 degrees), avoiding unnecessary manipulaation or changes in the respiratory circuit and the prevention of ventilator circuit condensate, either by regular drainage or the use of heat and moisture exchangers. Meticulous hand washing and disinfection, by all healthcare workers, will reduce cross infection and readily available, alcohol-based lotions, at every bed space, improves compliance.

The optimal approach to weaning includes daily screening of all patients to assess readiness combined with a single daily short (30 minute) trial of unassisted breathing (T piece trial) and gradual withdrawal of ventilatory support with pressure support ventilation in patients who fail a T piece trial. The use of a protocol to guide non-physicians allows nurses or respiratory therapists to undertake weaning confidently and may be more effective than physician directed weaning.

Administration of excessive sedation to ventilated patients is a common factor which delays weaning from mechanical ventilation. Daily interruption of sedative infusions ensures that the continuing requirement for sedation is regularly reviewed and excessive administration avoided. This simple practice has been shown to reduce the duration of mechanical ventilatory support and length of ICU stay and should be included in all sedation protocols.

The organisation of ventilatory support within ICU will influence outcome. Protocols are required to minimise the risk of developing VAP, encourage daily interruption of sedative infusions and allow non-physician directed weaning. Appropriate use of NIV complements invasive support. Whilst a single change may have a limited effect upon outcome, combining all these changes into a respiratory care bundle is likely to have a significant effect on length of stay ensuring that ICU beds are used efficiently.

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when?

action: A patient with a very unstable airway and recent tracheotomy suddenly suffered an obstructed airway. Within a few seconds the patient was experiencing life threatening hypoxia and hypotension. The resident and fellow were not sure how to manage the patient, and had been unsuccessfully paging the ICU attending for the past several minutes. An attending surgeon, unfamiliar with the patient, happened on this ICU scene and immediately assumed charge of the case. She attempted dilation of the airway unsuccessfully, and then requested a scalpel and a replacement trachea. She replaced the artificial airway and stabilised the patient, while the resident and fellow stepped aside to assist her. Within a few minutes, the patient was stable and the surgeon left the care of the patient in the hands of the fellow.

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Because you care

The ICU: caring for patients' relatives

By Dr Eduardo de la Sota

An intensive care unit (ICU) is a ward staffed by medical support who have been specially trained in the high levels of care required by each pathological state. In the ICU, critically ill patients, who could not be safely cared for in general wards, are under constant control, day and night, and everything is done to ensure they receive the highest level of care possible.

Commonly admitted through the accident and emergency (A&E) departments, or from the operating rooms after major surgery, these patients often require life-sustaining treatments, such as artificial ventilation, dialysis and cardiac resuscitation.

Provision of intensive care

According to Bennett & Bion, intensive care comprises 1-2% of total bed numbers in the UK, which compares with proportions as high as 20% in the USA. Therefore, patients admitted in Britain tend to be more severely ill than those in America. The average ICU in Britain has four to six beds, although units in larger hospitals, especially those receiving tertiary referrals, are bigger. Few units have more than 15 beds.

Caring for patients' relatives

An important role of the ICUs is to assist families of patients during their stay in the ICU. As Bennett & Bion point out, the intensive care environment can be extremely distressing for both conscious patients and their relatives. The high mortality and morbidity of patients requires considerable psychological and emotional support, which is provided by the medical and nursing staff often in conjunction with chaplains and professional and lay counsellors. Such support is difficult and time consuming and requires the involvement of senior staff. Many relatives and friends wish to be close to critically ill patients at all times. Visiting periods are usually flexible and many units have a dedicated visitors' sitting room with basic amenities such as a kitchenette, television and toilet facilities. Often on-site overnight accommodation can be provided.

Witnessed resuscitation

Witnessed resuscitation is widely accepted in paediatric practice and is becoming more common in adult emergency departments. Grice, Picton and Deakin, at the Southampton University Hospitals, published a research study examining attitudes of staff, patients and relatives to witnessed resuscitation in adult ICUs. Results showed that if relatives requested to be present, 70% of doctors and 82% of nurses would allow it - if relatives were escorted. The role of the escort was felt to explain, prevent interference, and provide emotional support; 29% of patients and 47% of relatives wanted to be together during resuscitation, the commonest reason being to provide support and see that everything was done.

Life-sustaining treatment decisions

Cardoso et al. evaluated Portuguese intensive care physicians in terms of 'do-not-resuscitate' decisions to withhold/withdraw treatment. The investigators found that, in most of the responding cases, those decisions are made only by the medical group, with little input from the nurses (15%), patients (9%) or patients' relatives (11%), although most of respondents expressed a wish to involve them more in the process. Sex, and religious beliefs of the respondents influences the way in which these decisions are made.

Abuse and violence towards staff

A postal survey of senior nurses in ICUs in England and Wales, conducted by Lynch, Appelboanes and McQuillan (Queen Alexandra Hospital, 2003), aimed to ascertain the frequency of abusive and violent behaviour by patients and relatives towards intensive care staff. During the study period, verbal abuse of nurses, either by patients or relatives, occurred in 74% of ICUs; and as much as in 77% of ICUs nurses experienced physical abuse either by patients or relatives. Illness was the main perceived cause of offences by patients, whilst 'distress' (45%), alcohol (24%) and sociopathic behaviour (27%) were the main causes amongst relatives.

When the patient dies

Malacrida et al. (Lugano, Switzerland) studied the reasons for eventual dissatisfaction among families of patients who died in the ICU, in terms of the assistance offered during the patient's stay in the hospital and the information received from the medical staff. This survey found that the relatives of patients who died were most dissatisfied with the care received according to a) the type of death; this is sudden death vs. death preceded by a gradual deterioration in the patient's status, and b) the manner in which the relatives were notified of the death (in person vs. by telephone). The authors stressed the need for improvement, especially in communicating information to the relatives of these patients.

Conclusion: Communication skills and organisational procedures become key issues for an excellent ICUs' functioning.

Electroporation

How to overcome a cell's protective barrier to enable delivery of therapies

By **Professor Damijan Miklavcic** & **Assistant Professor Alenka Macek-Lebar**, at the Faculty of Electrical Engineering, University of Ljubljana, Slovenia

The function of cell membrane is to maintain the stability of a cell's interior by regulating the amounts and types of molecules entering or leaving the cell. However, sometimes we need to deliver drugs into the cell, which cannot pass through its membrane. Electroporation is an efficient technique to overcome the membrane barrier and allow entry to the cell. When a cell is exposed to an electric field, transmembrane voltage is induced on the cell membrane (Figure 1) and the resulting high electric field strength in the cell membrane leads to its increased permeability. Up to now the most plausible theory for this is that lipids in the membrane are rearranged to form aqueous nanoscale pores - a phenomenon referred to as electroporation.

Induced transmembrane voltage depends on the cell radius, applied electric field strength and orientation of the electric field. By applying an electric field of adequate strength and duration, the membrane returns into its normal state after exposure to the electric field ends - electroporation is reversible. However, too high electric field strength, or too long an exposure to the electric field leads to cell death, in which case electroporation is irreversible. The reversibility is a function of electrical parameters, such as the voltage applied, pulse duration, number, shape and repetition rate; as well as of other conditions such as cell type and development stage, pulsing buffer, temperature and electrode material.

Using reversible electroporation, both small and large molecules can be introduced into cells, proteins can be inserted into the cell membrane and cells can be fused. However, Irreversible electroporation can be used for nonthermal food and water preservation. Due to its efficiency, electroporation has found its application in biochemistry, molecular biology and medicine for genetic manipulation of mammalian cells, plant cells, bacteria and yeast; preparation of hybridoma and monoclonal antibodies, as well as for in-vitro and in-vivo drug delivery.

In vitro electroporation has been used in the laboratories for decades and has become a standard laboratory procedure. Medical applications are still in their earlier stage of development. Nevertheless, clinical relevance has already been shown in oncology as an efficient method for local treatment of solid tumours by introducing cytotoxic drugs into malignant cells, thus potentiating their cytotoxic effect (http://www. cliniporator.com). Moreover, as a physical method of gene delivery with high efficiency, electroporation holds great promises for gene therapy and DNA vaccination. In the future electroporation might become the delivery method of choice for many applications of gene therapy in treating of cancer, metabolic disorders and other genetic diseases.

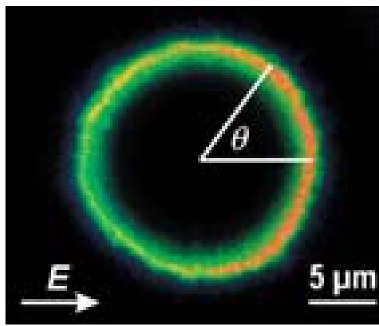
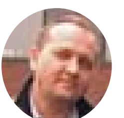


Figure 1. If cells are stained with a suitable potentiometric fluorescent dye, the transmembrane voltage can be observed under a fluorescence microscope. B16F1 (mouse melanoma) cells were stained for 12 min at 4°C with 40 ?M di-8-ANEPPS and 0.05% Pluronic (both Molecular Probes, USA) in SMEM medium (Gibco, USA). The cells were exposed to an electric field of ~63 V/cm during the excitation with 460 nm and 510 nm wavelengths (150 ms each), and the emission was detected at 605 nm. The ratio image was obtained by dividing the fluorescence of corresponding pixels in the images obtained at 460 nm and 510 nm excitations. Pseudocolours were then assigned to the ratio values (red - higher voltage, blue - lower voltage). The images were acquired with a cooled CCD camera (Visicam 1280, Visitron Systems, Germany) connected to the fluorescence microscope (Zeiss, Axiovert 200, objective x100, oil immersion), and processed with Metafluor imaging software (Visitron Systems, Germany).



Professor Damijan Miklavcic (circled) and the research team at the Faculty of Electrical Engineering, University of Ljubljana

FURTHER READING

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Mir LM. Therapeutic perspectives of in vivo cell electropermeabilisation. *Bioelectrochemistry* 53: 1-10, 2001. This review gives an overview of the therapeutic perspectives of cell electroporation in vivo, in particular of the antitumour electrochemotherapy i.e. the combination of a cytotoxic nonpermeant drug with permeabilising electric pulses delivered to the tumours and of in vivo DNA electrotransfer for gene therapy.

Sersa G, Stabuc B, Cemazar M, Miklavcic D, Rudolf Z. Clinical experience in malignant melanoma patients. *Clin. Canc. Res.* 6: 863-867, 2000. This Phase II clinical study demonstrates the high effectiveness of electrochemotherapy with cisplatin on malignant melanoma nodules. The advantages of this therapy, such as its simplicity, the short duration of treatment sessions, low cisplatin doses and insignificant side effects, are emphasized.

Puc M, Corovic S, Flisar K, Petkovsek M, Nastran J, Miklavcic D. Techniques of signal generation required for electropermeabilisation. Survey of electropermeabilisation devices. *Bioelectrochemistry* 64: 113-124, 2004. The authors of this paper compare most commonly used techniques of signal generation required for electroporation. In addition, an overview of commercially available electroporators and electroporation systems is presented.

Breast cancer

Studies of tamoxifen vs. aromatase inhibitors may change therapies

Five years of therapy with the drug tamoxifen has become the norm for postmenopausal women with hormone-sensitive breast cancer. However, this has several adverse side effects, and studies have continued to compare the effects of other drug therapies with tamoxifen.

Aromatase inhibitors

Therapy with a class of drugs named aromatase inhibitors would benefit women in that group more than tamoxifen, according to the international *Arimidex, Tamoxifen, Alone or in Combination (ATAC) Adjuvant Breast Cancer Trial*, which, for five years, has compared the safety and efficacy of tamoxifen with anastrozole alone, as well as a combination of both drugs. The 3-year analysis of the data (Pub: *The Lancet* 2002; 359: 2131-39) was encouraging enough to suggest that anastrozole (Arimidex - produced by Zeneca Pharmaceuticals and FDA approved Jan. 1996, to treat post menopausal breast cancer) could be a future treatment option

The five-year follow-up results, presented at the *San Antonio Breast Cancer Symposium,* in Texas, USA, in December, and simultaneously published online by The Lancet (www.thelancet.com), show that, compared with tamoxifen, anastrozole increased disease-free survival by over 10%; increased the time to disease recurrence by around 20%; reduced cancer spreading (distant metastases) by 14%, and reduced cancer occurring on the other breast by over 40%.

Fewer women given anastrozole stopped taking the tablets early compared with those given tamoxifen; anastrozole was associated with fewer side effects although bone fractures and joint pain were more common than among women given tamoxifen.

Lead investigator Professor Anthony Howell, of Christie Hospital NHS Trust, Manchester, UK) said: 'Results from studies evaluating aromatase inhibitors after

2-3 years or 5 years of adjuvant tamoxifen, compared with continuing tamoxifen, suggest that it is reasonable to switch patients currently on tamoxifen to an aromatase inhibitor. However, these new data from the ATAC trial suggest that it is not appropriate to wait to start an aromatase inhibitor. The higher rates of recurrence (especially in years 1-3), and the increased numbers of adverse events and treatment withdrawals associated with tamoxifen, lend support to the approach of offering the most effective and well-tolerated therapy at the earliest opportunity. Five years of

anastrozole should now be considered as the preferred initial adjuvant endocrine treatment for postmenopausal women with hormone-receptor-positive localised breast cancer.'

Letrozole

'Early' breast cancer (localised in breast tissue and/or nearby lymph nodes) usually involves surgery to remove the tumour and surrounding tissue, followed by post-surgical therapy which can include radiation and/or chemotherapy, followed by treatment with five years of tamoxifen.

New data from the Breast International Group (BIG) 198 Trial, recently presented at the *Primary Therapy of Early Breast Cancer 9th International Conference* in Switzerland, suggests that, for postmenopausal women with early breast cancer, the drug letrozole, as a post-surgery protection against recurrence, reduced the risk by 19% beyond the risk reduction achieved by tamoxifen. Thetudy's chair, Dr Beat Thurlimann said that now further investigations and longer follow-up are needed to optimise the use of letrozole, to establish long-term safety and tolerability of the drug.

BIG 1-98 is the first clinical trial designed to incorporate both a head-to-head comparison of letrozole with tamoxifen and a sequencing of both agents, during the first five years following breast cancer surgery, to determine the most effective approach to minimising the risk of breast cancer recurrence.

The study compares five years of tamoxifen versus five years of letrozole; tamoxifen for two years followed by letrozole for three years; and letrozole for two years followed by tamoxifen for three years.

Study data are expected to answer important questions regarding the optimal sequencing of aromatase inhibitor therapy in postmenopausal women with endocrine responsive early breast cancer.

Results - BIG 1-98 is a multinational Phase III double-blind, randomised multicentre trial being conducted in 27 countries and involving over 8,000 postmenopausal women with early breast cancer who have hormone receptor-positive tumours. The primary goal was to determine if letrozole could reduce the risk of a disease-free survival event (breast cancer relapse, occurrence of a second (non-breast) malignancy or death without recurrence) compared with tamoxifen. At a median follow-up of 26 months the study shows that, compared with tamoxifen, letrozole reduced the risk of such events by 19%. Among the 4,003 patients in the letrozole group, 84.0% remained alive and disease-free at five years compared with 81.4% of the 4007 patients in the tamoxifen group.

Side effects - More on tamoxifen: venous thrombosis and embolism (clots); vaginal bleeding more often, which led to more endometrial abnormalities and endometrial biopsies. More on letrozole: bone fractures; cholesterol elevation (usually mild); heart attacks and strokes slightly more often, though these events were very rare with both treatments.

Background

BIG 1-98 is being conducted under the umbrella of the Breast International Group (an international non-profit organisation), coordinated and managed by the International Breast Cancer Study Group (IBCSG). Novartis, the producer and distributor of letrozole (Femara) provided financial support. The International Breast Cancer Study Group (HQ: Berne Switzerland. www.ibcsg.org), an active member of the BIG organisation, is a non-profit organisation founded as the 'Ludwig Breast Cancer Study Group' in 1977.

Tissue engineering caused a stir at the *34th Annual Meeting of the Germany Society for Thoracic and Cardiovascular Surgery*. The first success in the use of engineered tissue during surgery on tumours has been reported, and researchers are also focusing on its potential for heart valves. If laboratory results can be transferred into clinic use, this will particularly benefit children with cardiovascular diseases, *Holger Zorn* reports

Biotechnology for regenerative surgery

Tissue engineering - transferring a patient's own cells to a biological, or artificial, tissue matrix - is progressing towards the development of new implants to repair or replace damaged organs. At the meeting, Professor Axel Haverich MD, introduced a technology developed by the Leibniz Laboratories, at the Medical University Hanover, and first used two years ago to treat oesophagus tumours. In that procedure, a piece of the small intestine is removed from a deceased patient, then completely cleared of mucous membrane, which uncovers the tissue, its collagen fibres and capillary vessels: the matrix. Endothelial cells are then gathered from the proposed recipient and these are used to completely colonise the matrix, in a bio-reactor. The form and function are prepared to such a level that the matrix can be implanted into the recipient as viable tissue. The body's own processes ensure that final stability and full functions can be achieved. The critical point is that the connection to the vascular system through arterioles and venoles is successful. Due to comprehensive colonisation with autologous cells the immune system does not recognise the implant as foreign; the danger of rejection is avoided and transmission of infections is ruled out.

The first animal experiments with heart valves have taken place, and have shown that, following implantation, these valves actually grow with the recipient. If we succeed in transferring these experiments to humans this could, for example, spare children repeated operations during their periods of growth: 'This would be the breakthrough for individualised, lasting surgery,' Professor Haverich concluded.

Centralised control for OT devices

Core is a modular system that interacts with individual operating theatre (OT) devices to bring them under the ontrol of one centralised monitor. The widely used CAN Open BUS protocol provides a standardised platform for continuous integration of further components. 'Vendor-specific communications interfaces used in the past are losing importance. Networking of devices, and a unique visualisation and operating concept, allow centralised control of the entire system from one central operator panel,' explained Richard Wolf GmbH, the system's manufacturer. 'Core brings with it a further significant increase in efficiency in the form of voice control that is not dependent on the speaker. This allows the direct operation of devices such as cameras, light and operating table from within the sterile field of the OT and provides the basis for immediate intra-operative preparation of the OT report. Consistent use of this module ensures the immediate postoperative availability of the electronic operating report, including pictures of findings, and allows increased efficiency in the documentation from a forensic perspective.'

Core also provides voice control

PACS - Within the system, Medimage unites all forms of image, film and reporting from radiology, cardiology and surgery. 'The possible intra-operative visualisation of pre-operative image data (X-ray, CT), on suitable monitors in the operating field of the physician, plays just as great a role in cost reduction as in increased operating safety,' the firm points out.

The *core* system also provides peripheral devices, which include ceiling supply units, nurse stations, mobile system trolleys for integration with operating tables, and the firm provides full planning services with *core* specialists, and organises the installations of the tailor-made solutions.

Mix & match clothing brightens working hours

A colourful collection of clinical clothing, with many motifs and designs inspired by nature, is now available throughout Europe.

Scrubs wear, made by Green Scrubs, of Grafschaft, Germany (www.greenscrubs.de), includes pants, tops (short sleeved, or as long sleeved jackets), and caps for use in the operating theatre, ICU, general wards, and other clinical areas.

Mix and match - Dogs, cats, whales & dolphins or coral fish and many more creatures and flowers have been incorporated into the many designs, and over 20 plain shades are also available. The plain shade pants can be combined with various tops to create an appealing outfit, which should cheer up staff as well as patients.

Available in over 150 different designs/colours, caps have been made in four sizes and styles - to suit the wearers' hair volume and style.

Green Scrubs also vouches for the '...superior quality, excellent comfort and unique appearance' of its garments.

Contact: kontakt@greenscrubs.de

Colourful clinical clothing

2nd International Conference on Reconstruction of Soft Facial Parts

17-18 MARCH

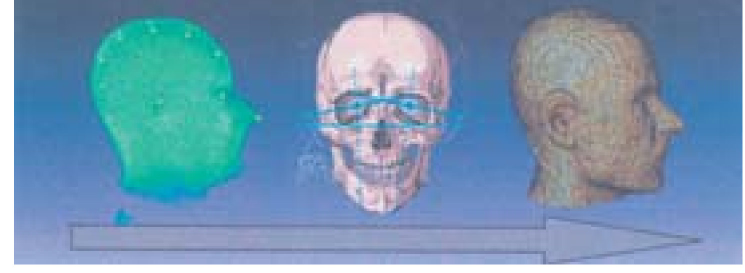
When found at Winkeler Bay the woman had been dead for ten years, her body mutilated beyond recognition. In fact, no one was sure she would ever be identified. However, facial reconstruction techniques not only helped in her identification, but also prompted the hunt for her killer.

Medical artists have carried out facial reconstruction of skulls for decades, using pins and modelling clay to gradually build up a potential likeness of an ancient or modern human being, from mummies to murder victims. Now increasingly complex software programmes are combining medical imaging and laser scanning to build up soft tissue and obtain detailed 3-D facial images onscreen.

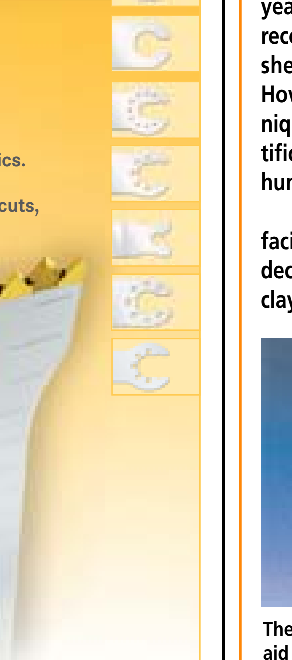
RSFP 2005, the 2nd International Conference on Reconstruction of Soft Facial Parts, organised by the RheinAhrCampus Remagen and Bundeskriminalamt in cooperation with Caesar Bonn, and Dusseldorf and Leuven universities, will take place on 17-18 March. In the conference chair: Professor Thorsten M Buzug (above) of the Dept. of Mathematics and Technology, RheinAhr Campus Remagen, with key speakers including Christoph P E Zollikofer, from the Institute of Anthropology, MultiMedia Lab, Zurich University: *Reconstructing Humans: Hard and Soft Evidence)*', and Jean-Noel Vignal, of the Forensic Anthropology Department, Institute of Criminal Research of the French Gendarmerie: *Facial Reconstruction: Past, Present and Future.*

Cooperation Partners: the Bundeskriminalamt, Caesar Bonn, University Leuven, the Landeskriminalamt Brandenburg, NEC Europe Ltd. C&C Research Lab, the Netherlands Forensic Institute (Rijswijk), Freiburg University, and the IEEE Joint Chapter EMB - German Section.

Details/registration: www.rheinahrcampus.de/RSFP2005/.



The woman from Winkeler Bay. Developments in soft facial reconstruction aid craniofacial surgery plus forensics and anthropology



Right light lifts fatigue and concentration

Study demonstrates the psychological effects of good illumination

Recent research, led by Professor Dietrich Gall, head of the Lighting Technology Department, at Ilmenau University of Technology, Germany, with the cooperation of the lighting firm Berchtold GmbH & Co. KG, of Tuttlingen, analysed lighting as a form of radiation, which therefore the question of the potential psychological effects of its dose level on surgeons.

In 2002, Professor Gall succeeded in describing the circadian effect of light in mathematical terms, defining the circadian effect coefficient (a_{cv} coefficient) as the ratio between the visual utilisation effect (taking the photoreceptors' effect curve into account) and the circadian utilisation effect (taking the effect curve of the circadian retinal receptors into account). So it became possible to measure the circadian effect of light, and provide a simple means to describe the physiological effect of light. Volker Dockhorn, engineer and Product Manager, OR-Lights, Berchtold, explained that the goal was to determine whether surgical lights of different colour temperatures produced different physiological effects on a surgeon, and use that knowledge to deliberately reduce fatigue and improve their wakefulness when working at night.

Table 1 presents results of measurements of the circadian effect coefficient (a_{cv} coefficient) for three surgical lights, one gas discharge light (Berchtold Chromophare X 65), one halogen light with a high colour temperature of 4,300K (Berchtold Chromophare D 650plus) and one halogen light of comparable size, from another firm, with a lower colour temperature of 3,400K and a large red component. All lights were first measured at a luminance of 100,000 lux and subsequently with luminance dimmed to 50%.

The table shows that the gas discharge light achieved the highest circadian effect coefficient, followed closely by the halogen light with high colour temperature. By comparison, the surgical light with low colour temperature showed a poorer performance, achieving a circadian effect coefficient approx. 25% below that of the halogen light with high colour temperature. Dimming the three lights during operation gives a different outcome. The only light to maintain its high stimulating effect when operated at reduced luminance is the gas discharge light with optomechanical dimming. By contrast, electronic dimming of the halogen lights results in an altered colour spectrum, impairing the physiological effect of these two lights.

The results described would suggest that the gas discharge light Chromophare X 65 and the halogen light Chromophare D 650plus, with its high colour temperature (4,300K), cause less fatigue, whereas it would be expected that surgery performed under a halogen light with a lower colour temperature (3,400K) would cause greater fatigue, especially at night.

Melatonin hormone controls the circadian rhythm. In periods of darkness, melatonin reduces cardiovascular activity and induces fatigue. Morning light inhibits melatonin secretion in the pineal gland, which increases cardiovascular activity. Melatonin inhibition peaks at 450 nm in the continuous visual spectrum, i.e. in the blue spectral range. Light containing a large proportion of blue wavelengths therefore inhibits the secretion of melatonin in the pineal gland. If these blue wavelengths are absent (reddish light), melatonin secretion is uninhibited, which produces fatigue.

	Tn	a_{cv} undimmed	a_{cv} dimmed	remark
Chromophare X 65	4300 K	0.60	0.60	optomechanical dimming
Chromophare D 650 plus	4300 K	0.59	0.51	electronic dimming
Comparative light	3400 K	0.45	0.38	electronic dimming

Results of measurements of the circadian effect coefficient for three surgical lights. All lights were first measured at an luminance of 100,000 lux and subsequently with luminance dimmed to 50%

To verify this outcome, the study examined the performance and concentration of 55 participants. In one group, 30 people carried out tests in winter; in the other, 25 performed them in summer, to determine seasonal effects. Experiments were limited to a study of the difference in effect between the two halogen lights, which initially irradiate a similar spectrum. The colour temperature difference between the two lights arises through selective filtering of the wavelength spectrum by light manufacturers.

The irradiated surface was flat, and its reflectivity was therefore higher (76%) than is usually the case with human tissue. For this reason the luminance of both lights was adjusted to 40,000 lux, by altering the size of the light field. The light field diameter was the same for both. The a_{cv} value for the halogen light with high colour temperature was 0.59, whilst for the one with lower colour temperature was 0.45, said Volker Dockhorn.

The participants did not know which lights were being used. To induce a general state of fatigue, such as results through mental work, the participants were asked to solve arithmetical problems under time pressure. Then the d2 test was performed, to determine a subject's performance capability and power of concentration. The sequence in which the lights were used was altered from one test to the next. 50% of participants began the tests under the light with high colour temperature (Berchtold), then, following an adaptation interval, performed them under the light with lower colour temperature. The remaining 50% began tests under the reference light.

On average, participants working under the Berchtold light answered 502 questions; those working under the reference light answered only 485 questions - equivalent to a 3.5% improvement in performance by those working under the Berchtold light. Statistical error probability was 0.069 in this case, i.e. only slightly short of the significance threshold (0.05), and it is therefore justified to point to a trend.

Winter - If, as a means to determine power of concentration - the number of questions answered correctly is considered, the difference was even more pronounced. On average, under the Berchtold light 205 questions were answered correctly, whereas under the reference light 195 questions were correct - an average, 5.1% lower than in the case of the reference light. The result has an error probability of 0.041, i.e. within the significance threshold of 0.05. Therefore, in winter, a significant increase in power of concentration and a decrease in error frequency were found in work performed under the Berchtold light with a high colour temperature of 4,300K.

Summer - Participants' performance was practically the same for the two lights, so no difference in exposure effects was found. Learning effects in the course of the test were observable, but were cancelled out in the outcome by altering the order in which lights were used.

'We eliminated all device-related or test variables that might have influenced the outcome, so as to obtain a meaningful result, free of side-effects,' said the study director Dr Cornelia Vandahl, an engineer at TU Ilmenau. 'It was interesting to see such a great difference in outcome between winter and summer tests. Evidently the participants were already fully charged up with light in the summer, whereas in winter people tend to lack light, making an appropriate choice of lighting all the more important.'

The scientists presume that the results would diverge even more if the tests were carried out at night, when melatonin blood levels are higher. However, as it was, even tests carried out during the afternoon or evening showed a clear trend and, in some part, also significant results that appear to confirm the results of the physical measurements.

Thus the study has proved that a high colour temperature of 4,300 - as irradiated by a Chromophare D 650plus light - can enhance a surgeon's performance capability during the winter (trend). Work performed under a surgical light of low colour temperature (3,400 K) is subject to a significantly greater error frequency. During night surgery, when a surgeon's melatonin blood level is high, this effect is presumed to be particularly pronounced.

Berchtold is continuing this research, focusing on a larger group of participants.

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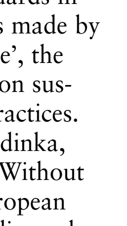
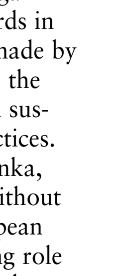
GO GREEN!

Congress creates guidelines for EU hospitals





Austria - A call for the EU and national governments to establish and extend a legal framework for environmental standards in society and healthcare facilities was made by the organisers of 'CleanMed Europe', the first European conference to focus on sustainable healthcare products and practices. Addressing the gathering, Cesta Hrdinka, Executive Director of Health Care Without Harm Europe, stressed that the European healthcare sector should play a leading role in the use of environmentally safe products and technologies, and that healthcare professionals have taken an oath to 'do no harm', which means one of their core tasks is to protect the public from materials and procedures that cause adverse effects on the environment.

Accordingly, during the event, European healthcare experts drafted guidelines, the *Vienna Declaration of Environmental Standards for Healthcare Facilities*, urging the

- Introduction of environmental protection standards
- Substitution of potentially dangerous materials and unnatural compounds, such as PVC (polyvinyl chloride), persistent toxic chemicals or heavy metals, with ones fitting into the natural materials cycles (break down easily in nature)
- Use of organically grown and fair-traded food
- Use of energy generated from renewable sources
- Efficient use of all resources
- Reduced use of disposable items as far as possible
- Reuse of medical products as far as possible
- Application of ecologically sound practices in the construction and renovation of healthcare facilities
- Preservation of green areas
- Information for staff, patients and the public on environmental aspects and activities
- Development of a comprehensive environmental policy and environment management programmes.

Waste management saves costs

It was pointed out that the most important cost-cutting measure is to prevent and reduce the amount of waste through careful handling and consumption of products, energy and water. For example, the Austrian healthcare system, with over 300 hospitals, produces 80-100 million kilograms of waste annually. About a quarter of this is packing material and non-reusable products. The Austrian hospital in Tulln - the first hospital worldwide with an officially certified environmental management system (EMS) - has saved over 400,000 Euros since its implementation. The calculated potential savings for hospitals in the Vienna Hospital Association could amount to 10 million Euros - without any impairment of quality care - indeed, in many cases improving it, according to CleanMed.

Up to one third of all illnesses can be linked to environmental problems

Speaking on waste minimisation schemes in hospitals and laboratories, Harry Oosterbeek, of Valkensward, Netherlands, pointed out that systems exist to test for aerobic and anaerobic bacteria using one and the same test tube, enabling cost reductions of 90%, and waste by 50%.

Findings from several studies have shown that hospital disinfection measures often go far beyond what is actually required. Professor Franz Daschner, head of the institute for environmental medicine and hospital epidemiology, at Freiburg University Clinic, pointed out that surgical instruments are now usually disinfected thermally, leading to annual savings of around 32,000 euros - and 2.7 tonnes less disinfectant solution in waste water. Even more lucrative was the clinic's decision to centralise the preparation of all zytostatica at the main pharmacy, which led to improvements in workers safety; a reduction in waste generated in the consumption of active substances, and of one-way items, which led to a 1.2 million euros saving in a year.

Costs incurred for a water supply plus the treatment of waste water can be saved, as demonstrated in a pilot project carried out by the Styrian hospital association (KAGes). Over the past five years renovating the water pipe system, installing water meters and regulators as well as centralised, water-saving equipment have been a major focus there, along with raising awareness about the issues. 'This enabled us to reduce our consumption of water by 30% from 1999 to 2003 and save up to 400,000 euros in water and sewage charges on an annual basis since 1999', said Dr Birgit Nipitsch, KAGes central environmental coordinator.

The actual potential for environmentally beneficial cost-cutting has been calculated by Professor Bruno Klausbruckner, environmental director at the Vienna Hospital Association, who said that, via the use of environmental management systems, improved waste separation and the optimised use of detergents and cleaning agents, some 8.5 million euros could be saved annually, as well as thousands of tons of unnecessary waste and harmful substances.

It was also emphasised at the congress that professionals play a key role in developing an ecologically sustainable healthcare system, particularly nurses, due to their detailed knowledge of how medical systems work and can be improved.

Best Practice Awards

CleanMed Europe awarded several hospitals across Europe for successfully piloting important environmental practice and model projects. These included the Skane region of Sweden, for their eco-procurement initiative; Mürzzuschlag (Styria) hospital, for its overall environmental strategy, and particularly for reducing food waste; the Vienna Hospital Association, for its long-term strategy to phase out PVC; Vienna's Preyer hospital for children, for its environmental management system, and the Lainz hospital (Vienna) for its laundry reduction programme.

Many of the 40+ projects presented at the poster exhibition clearly demonstrated considerable economic benefits of environmental projects. The Vienna Hospital association estimates that German and Austrian hospitals could save up to 364 million euros through optimised laundry treatment, replacement of mineral with tap water, optimised waste separation and optimised used of cleaning and washing agents.

Dr Ake Wennmalm, Environmental Director of the Stockholm County Council underlined the fact that pharmaceutical products can seriously harm the environment. To protect the quality of drinking water, the industry must develop pharmaceuticals that are safe and biodegradable, he pointed out.

'The congress has shown the high quality of environmental protection programmes in Austria and all around Europe and the passion of the people engaged in these activities,' said Bruno Klausbruckner, Environmental Director of the Vienna Hospital Association. 'These projects not only reduce the environmental burdens from healthcare facilities but also provide other benefits such as cost savings, improved worker safety or better procedures.'

Organised by the Vienna Institute for Sustainable Healthcare, with the Vienna Hospital Association and HealthCare Without Harm, the event drew more than 300 participants from 28 countries, who represented a wide range of healthcare sectors, e.g. hospitals within the Vienna Hospital Association; manufacturers of healthcare products and numerous organisations such as Health Care Without Harm, the International Council of Nurses, the World Health Organisation, the Health Promoting Hospitals Network, European Environmental Agency, and the UNIDO. 30 exhibitors also displayed 'green' products and services, including organically grown and fair traded food.

Contacts: www.cleanmed.org; Institute for Sustainable Healthcare: www.inges.org. Health Care Without Harm: www.noharm.org.

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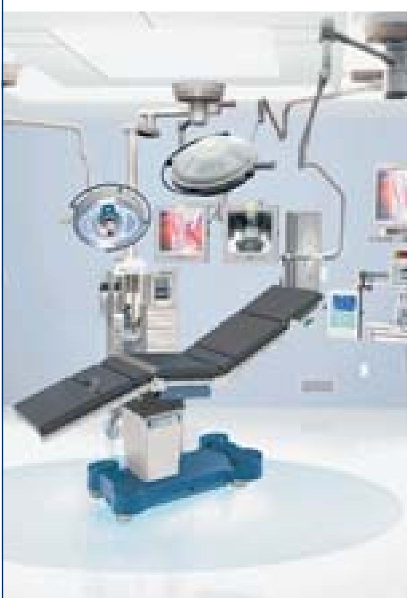

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AN END TO OUT-SOURCING?

As MRSA affects about 300,000 patients and costs UK £1 billion annually, the country's public services union demands the return of in-house cleaners. ***Peter Howieson reports***

Hospital-acquired infections (HAI), of which Methicillin-resistant Staphylococcus aureus (MRSA) is the best known, are reported to be costing the British National Health Service (NHS) about £1 billion per year. Official estimates indicate that some 300,000 patients suffer hospital-acquired infections each year, with around 5000 fatalities. A fifth of those cases are caused by MRSA.

The story behind the rise of MRSA is interesting. After one of its many reorganisations the NHS replaced the cleaners responsible for individual wards with teams of cleaners visiting wards in rotation. To achieve further economies cleaning was then contracted out to outside providers. Over the last 20 years, privatisation, outsourcing, and clever bargains have reduced the hospitals cleaning bills drastically. There are now only 55,000 cleaners working in NHS hospitals, compared with about 100,000 in 1984.

Indisputably the new cleaning regimes have led to a fall in standards. Dirty toilets are often left unwashed for hours if the cleaning team has already visited a ward. A ward sister can request help, but often cleaning teams are too under-resourced to respond immediately. In many hospitals cleaning management is in now in the hands of outside organisations and has resulted in uncoordinated and inconsistent cleaning schedules. If there is a chain of sub-contractors involved in the service provision then the blame for service failure can be passed up and down the line.

An independent report commissioned by UNISON, the public services trade union, found that outsourcing of cleaning jobs has led to lower pay, less training, high staff turnover and dirty hospitals. It wants private contracts scrapped and all cleaning to be brought back under NHS control. The union has called for increased efforts to improve cleaning standards in hospitals, and for procurement to be based on effectiveness and not cheapness. It quotes a now large body of clinical evidence identifying links between poor environmental hygiene and the transmission of the micro-organisms causing HAI

The problem of cheap soap - The report highlights dangers inherent in outsourcing. The purchase of soap is usually the responsibility of the cleaning contractor and some contractors buy cheap substandard soap. Repeated use of such soap - in regular hand washing - may give nurses chronic skin lesions on their hands, and this renders them vulnerable to chronic colonisation with MRSA. This is no special threat to their own health but carries a risk to their patients, and sometimes means that the staff concerned must spend long periods off work

The report contends that the NHS should reconsider its policy of out-sourcing and take the simple and effective step of bringing hospital cleaning back in-house. At the same time it should provide sufficient resources for acceptable pay, training, and staffing levels.

Leonid Roshal

Paediatrician is European of the Year

Russia - Leonid Roshal, 71, paediatrician and head of the Moscow Scientific Research Institute for Emergency Children's Surgery and Traumatology, has received the *Reader's Digest European of the Year Award 2005* for his tireless and dedicated work helping children who have been injured in disasters and conflicts around the world.

Dr Roshal's international aid work began in 1988 when he and 34 doctors from Moscow's hospitals volunteered for the relief effort after Armenia's earthquake. There he encountered 'crush syndrome' - i.e. if flesh around broken limbs appeared 'dead', amputation was the standard treatment. Dr Roshal went on to develop and hone techniques to save the limbs, and he also set up the International First Aid Brigade. The following year he led a team to Chelyabinsk-Ufa, after sparks from two trains had met with a leaky natural gas pipe, triggering an explosion that killed 573 and injured over 600.

Since then he has helped in two dozen major incidents on four continents, including the first Gulf War, Romania, former Yugoslavia, Nagorno Karabakh, the USA, Egypt, Japan, Afghanistan, Turkey, India and Algeria.

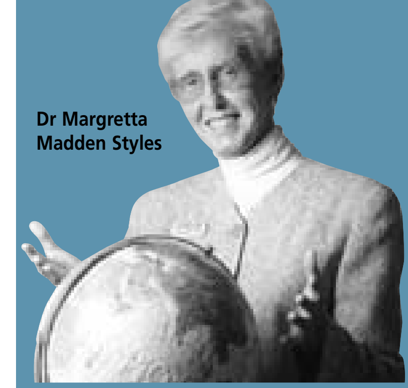
He came into international focus in 2002, when he managed to negotiate the release of some of the hostages held by Chechen terrorists in Moscow's Dubrovka Theatre. Then again, last September, he mediated for three days with terrorists who had seized School Number One in Beslan. He had also liased with local hospitals to prepare for casualties - invaluable planning after an explosion in the school and gun battle outside, left 379 people dead. 700 of the injured received medical attention within two hours.

The Editors-in-Chief of the 18 European editions of Reader's Digest magazine - reaching 4.2 million subscribers - choose the 'European of the Year' (value: 5,000 euros) on the basis of who they think best embodies the contemporary expression of Europe's values and traditions. Dr Roshal's achievements were featured in the magazine in January.

Christiane Reimann Prize

Switzerland - Dr Margretta Madden Styles, a nurse-scholar recognised as an international leader in nursing education, regulation and credentialing, is to be presented with the Christiane Reimann Prize at the International Council of Nurses Congress in Taiwan, this May. The ICN reports that the prize has been awarded for Dr Styles' achievements and contributions to the nursing profession internationally.

As a past president of the ICN, the American Nurses Association (ANA) and the American Nurses Credentialing Centre (ANCC), 'Gretta' Styles has demonstrated a lifelong commitment to leadership in nursing, said an ICN spokesperson. 'She was the architect of the first comprehensive study of nursing credentialing in the 1970s, and an innovator and pioneer in defining this critical work that recognises and differentiates quality in all aspects of nursing practice. In the 1980s, she spearheaded ICN's definitive work on nursing regulation, including the publication of a guidebook on nursing regulation. Always an original thinker, Dr Styles is the author of many other articles and books, including, On Nursing: A Literary Celebration, which has inspired nurses around the world.'



Dr Margretta Madden Styles

• The late Christiane Reimann was the ICN's first full time Executive Secretary. The prize is funded from a trust established through her will.

Respected not rejected

Austrian project wins international care award

The Hartmann European Care Award 2004 has been presented to Dagmar Erdkönig, Petra Makara and Claudia Reicher of Austria. In 2001, the team began Level 1 training in the 'Validation' method devised by Naomi Feil, and first published in book form in 1982. Feil's aim was to help disoriented elderly patients to face reality and to provide them with opportunities for human interaction as part of a group.

Her 'Validation' is defined as:
- a developmental theory for very elderly people who are disoriented and suffering from cognitive impairment or depression
- a method to assess their behaviour
- a specific technique to help them to recover their dignity through individual validation and validation groups

and aims to:
- restore self-esteem
- reduce stress
- affirm life experiences
- resolve past conflicts
- reduce the need for chemical and physical restraints improve verbal and
- non-verbal communication
- prevent withdrawal into the final stage of 'vegetation'
- improve mobility and physical well-being

Various psychological and philosophical concepts quoted in the validation method include:
- *Accept your patients without judging them (Carl Rogers);*
- *A therapist cannot understand or modify behaviour if the patient is not ready to change or does not have the capacity to understand their own behaviour (Sigmund Freud);*
- *Regard your patient as a unique individual (Abraham Maslow);*
- *Each stage of life has its own specific task, which we must complete at a particular point in our lives. We must struggle to achieve this goal, before progressing to the next stage (Erik Erikson);*
- *Any task we skip will have to be resolved during a later stage in life (Erik Erikson);*
- *There is always a reason behind the behaviour of disoriented old people (Naomi Feil), and All people are valuable, no matter how disoriented they are (Naomi Feil).*

Peter Fashing MD, head university lecturer at the Baumgarten Geriatric Centre, in Vienna, who presented the award, said that as the elderly population swells, thanks to medical progress, increasingly large numbers of very elderly people have unfinished issues to be resolved. 'These people need someone to listen to them and to affirm their feelings.' Feil, he pointed out, had created structured training models and documentation to aid the realization and spread of her ideas. The award winners, he added, are among the first in the German-speaking world - and probably internationally - to have implemented the Validation method as part of out-patient home care of disoriented elderly people.

Dagmar Erdkönig, Petra Makara and Claudia Reicher

The project focused on integrating Validation into daily work at the social centre in Judenburg, and its catchment area, where the team managed to involve the full range of healthcare and social services. Presenting the award, Dr Fashing said that the project had raised the image and understanding of elderly people, even if disoriented, and that this had been seen not only among healthcare professionals and involved groups, but also among local people. There was also a clear increase in the number of disoriented elderly people for whom the social centre in Judenburg could provide long-term care at home. Dr Fashing concluded: 'The results of the project confirm the project leaders' assertion in the final sentence of their submitted paper, that the experience has given them the courage to continue their work in the hope of further contributing to the creation of greater understanding for disoriented elderly people.'

Health care starts with hygiene

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Multifunctional lithotripter

Lithoskop, a new multifunctional lithotripsy system, is to be publicly launched by Siemens Medical Solutions at the European Association of Urology Congress, to be held in Istanbul, Turkey this March. The firm reports that the system, which includes intuitive patient data management, is the '... perfect symbiosis of a lithotripter and urological table. Lithoskop is an engineering masterpiece for lithotripsy and urodiagnostics that covers all applications like lithotripsy, endoscopy, urodiagnostics, percutaneous interventions, orthopaedics, as well as pain therapy. A unique and flexible shockwave head makes patient repositioning a story of the past'.

Quick change lancets

Although taking a tiny blood sample for self-monitoring should be as easy as possible for the diabetic patient, this has not been an easy task because changing a used lancet has proved a fiddly and often daunting job.

Now a blood testing kit named Accu-Chek Multiclix has been launched Roche Diagnostics, and this has an integrated, replaceable lancet drum that carries six lancets. After using one, the diabetic rotates the integrated drum, which moves a fresh lancet into position. In addition, there are eleven settings for the pricking depth, to suit individual skin types and make contact gentler.

Recommended retail price: 22.90 euros. Details: www.accu-chek.de

In the first six months of 2004, over 17,000 people sought help and advice from the German Pain Union (Deutsche Schmerzliga), which demonstrates the high number of people, in Germany alone, who have failed to find a therapy that can alleviate recurrent or chronic pains

HF shower to treat pain and depression

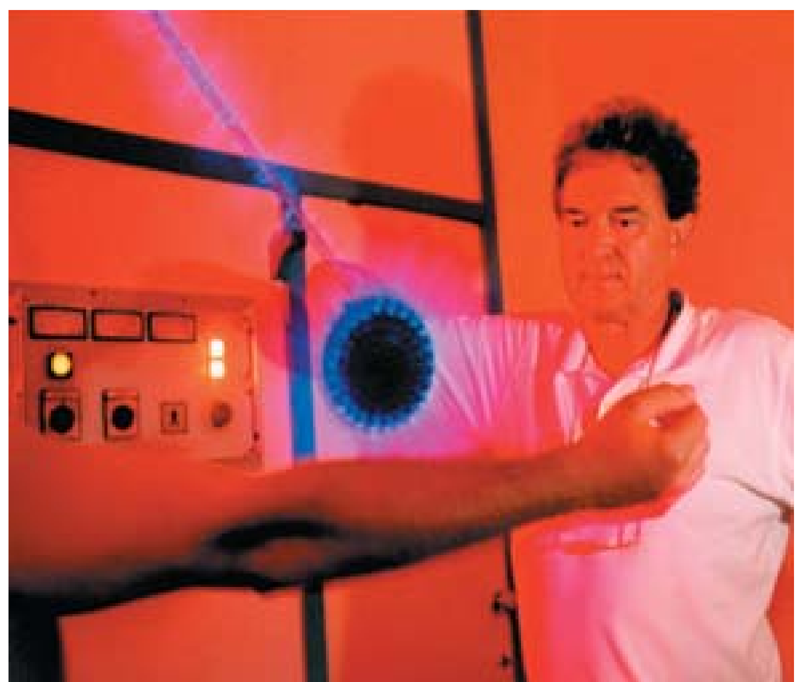
Anja Behringer reports on a high-frequency pain therapy applied at the out-patient clinic for electro-physical medicine and hydrotherapy (Ambulatorium für elektrophysikalische Medizin und Hydrotherapie) Nuhr-Zentrum Senftenberg, near Vienna, and used on patients from all over Europe for over half a century. '*This treatment,*' she said, '*has a long and successful history, although it is less known for its pain-relieving potential. There are procedures to improve blood circulation and to stimulate muscles. With rheumatic conditions, however, electro therapy is primarily used to relieve pain.*' Could this therapy also have evolved to become a treatment for depression?

Over 100 years ago, Heinrich Hertz conducted ground-breaking research on electromagnetic waves. In 1891, Nikola Tesla, a Serbian-American electrical engineer, had managed to build a high-frequency transformer, and a year later, French physiologist Jacques-Arsene d' Arsonval suggested using high-frequency (HF) currents for medical purposes. Due to high voltage, these 'Arsonval currents' could be showered on patients in long spark discharges, without causing harm.

In the 1950s, Austrian physician Dr Otto Nuhr (1912 - 1989), with a founder-member of the Austrian firm Test-Fuchs, developed and modified this therapy, by creating the necessary instruments for its application. (Test-Fuchs specialized in the production of precision instruments for aviation).

According to Dr Nuhr, for a local application of HF therapy a brush-shaped electrode has to be positioned opposite the body region to be treated. The electrode is connected to the single pole of the secondary coil - the Tesla coil. The brush-shaped electrode emits a light generated by glow discharge. When tension is increased, or the distance between the brush and patient is decreased, that glow becomes a brush light, which becomes electric sparks.

The specific effects of these high-frequency currents are deepening of respiration, bradycardia, reduction of heart shadow, increased systole, and an initial increase in blood pressure, followed by a decrease due to the reduction of peripheral resistance. Dr Nuhr said that HF therapy particularly has positive effects on superordinated regulation mechanisms. Consequently, this therapy is applied when patients suffer spinal or disc conditions, rheumatism, as well as infections, arterial problems, stress, and general deterioration of physical performance.



Dr Peter Nuhr demonstrating an 'electric shower'

Depression

A recent study indicated a particularly striking effect of the high-voltage capacitor discharge therapy. According to Professor Wolfgang Marktl, director of the Ludwig-Boltzmann-Instituts, Austria, and physiologist at the Institute for Medical Physiology and Environmental Physiology, University of Vienna, the therapy affects the adrenal gland in such a way that, at night, lesser quantities of the hormones cortisol and adrenaline are discharged. This has resulted not only in improved blood circulation but also in significantly lowered values on the depression scale (VAS). Research indicates that these positive results last up to a year.

FILTER PROMISES CLEAN WATER FOR MILLIONS

Lack of clean water causes as well as perpetuates diseases. Nonetheless, filtration systems have remained beyond the budgets of those most threatened by waterborne pathogens - until now.

In Manatuto, East Timor, where local women already had skills in making ceramic ware, the charity World Vision had hoped to find a way to make ceramic water filters. However, initial research showed local clay to be too fine for this purpose. A couple of years ago, the problem was related to Tony Flynn, a materials scientist in the Department of Engineering of the Australian National University, and materials were sent to him from East Timor for analysis.

Despite the apparent simplicity of filters he devised from these, with David Goggin, an engineering undergraduate studying ceramics, the science involved was not simple. Pathogens are very small, so a filter's pore size must be smaller than them. Time and again samples of different combinations were mixed, fired and tested for strength and filtering ability. Clay composition, plus the size of holes left by burned out organic material would be critical, as would their distribution across the fired material. 'You can have a clay that is very, very porous but the pores might be sealed and not connected to each other. What's very desirable is that the void fraction is articulated or joined. You can have a structure that has a very fine void cross section through which water will seep very slowly, but if you want to produce the volume of water that a family of four, five or more might consume during a day, you'd have to look at something that would be capable of working reliably and continuously with a flow rate of perhaps 8-10 litres over, say, 16 hours.'

The area's clay had a very narrow particle size range, which meant a lot of shrinkage and a very fine articulated porosity fraction within the structure, so filtering was very slow and it would block quickly. A mix of that clay with coarser clay was tested. In addition, beach sand was found to introduce salt that caused too much shrinkage in the filters. River sand proved a better option.

Tony Flynn (pictured with filter): 'We are deliberately not patenting this technology in the hope that it will be used widely around the world'

THE RECIPE

Shopping list

Organic materials e.g. tea leaves, coffee grounds, rice husks, clay, straw, manure.

Method

To a handful of crushed clay add a handful of organic material and mix with enough water to form a stiff, biscuit-like texture. Shape this into a cylindrical pot, with one end closed, and dry in the sun.

Baking oven and time

Pack straw around the cylinder and place it within in a mound of cow dung. Light the straw. Top up the burning manure as needed. The filter will be baked in under 60 minutes.

During the firing, the organic materials burn away, leaving tiny 'pores' in the clay in which pathogens become trapped when water passes through the filter. In tests, the ceramic filters removed 96.4 - 99.8% of E-coli bacterium - well within safe levels - and the filter cleanses a litre of water in about two hours.

'A potter's kiln is an expensive item and could take up to four or five hours to heat. It needs expensive or scarce fuel, such as gas or wood, to heat it, as well as experience to run it,' Tony Flynn reasoned. 'With no technology, and no insulation, none of these restrictions apply. The filters are very simple to explain and demonstrate and can be made by anyone, anywhere. They don't require any Western technology. All you need is terracotta clay, a compliant cow and a match.'

High-tech air rescue

Germany - The Ultrasonic Cardiac Output Monitor (USCOM), a portable system that enables beat-to-beat cardiac output assessment at medical emergency locations, has been tested for use during helicopter patient transportations, and worked effectively, without suffering from or causing interference to helicopter electronics. It also was found to successfully aid diagnoses and supported tailored volume and/or catecholamine therapy, said study leader Dr Karsten Knobloch of Hanover University Hospital's Medical School.

The investigation involved 24 critically ill patients, aged 17 months to 92 years. 14 patients were unconscious due to cardiac and non-cardiac causes. In three patients the USCOM device was used during inter-hospital transfer by helicopter.

Non-invasive cardiac output was determined at the scene and during helicopter transportation aboard the Christof Four rescue helicopter (pictured), based at Hanover Medical School.

Simultaneously, blood pressure, ECG and oxygen saturation were determined, and each examination took approximately 45 seconds. During the helicopter journeys several consecutive CO measurements were taken to assess volume and catecholamine therapy with increases in stroke volume after volume load with colloidal fluids.

In previous research, Dr Knobloch demonstrated USCOM's accuracy in measuring cardiac output, compared with the gold standard Pulmonary Artery Catheter method. Presenting his new study results during November's government sponsored Air Rescue conference, he concluded: 'There is no doubt that improved outcomes can be achieved by non-invasively assessing the patient's haemodynamic status, as soon as possible after the trauma event. This information can play a vital role in deciding fluid and drug therapy.'

In a separate study, at the Great Ormond Street Hospital, London, clinicians used USCOM during ambulance transportations of children. Subsequently the hospital purchased a USCOM device for its Intensive Care Department, the manufacturer reports.

The technology used in USCOM was developed in Australia by USCOM Limited, in collaboration with scientific and academic institutions (including CSIRO). The ultrasound technology used was adopted from technology widely used in medical applications for over 20 years, the manufacturer reports.

Details: www.uscom.com.au

Sepsis research honoured

Germany - The third *Hugo Schottmüller Prize*, awarded by the German Sepsis Society (DSG), has been presented to Dr Marc W Merx, of the Rheinisch-Westfälische Technical University (RWTH) Hospital, Aachen, for his paper '*HMG-CoA Reductase Inhibitor Simvastatin Profoundly Improves Survival in a Murine Model of Sepsis*', published in the journal *Circulation*. The DSG reported that Dr Merx and colleagues had described a promising starting point for a new sepsis therapy. They reported that the drug Simvastatin, which lowers blood cholesterol levels, increased the survival rate of mice suffering sepsis. Dr Merx' work is a starting point for further investigations on a Simvastatin-based therapy for inflammation-related diseases.

Worth 3,000 euros, the DSG's research prize is funded by SIRS-Lab GmbH.

ADVERTISING COMPANIES

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EUROPEAN HOSPITAL journal		
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Schiller	Cardiology	5
Dräger	ICU solutions	7
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Brassler	Surgical tools	10
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Aloka	Ultrasound	3
Shimadzu	Diagnostic imaging	5
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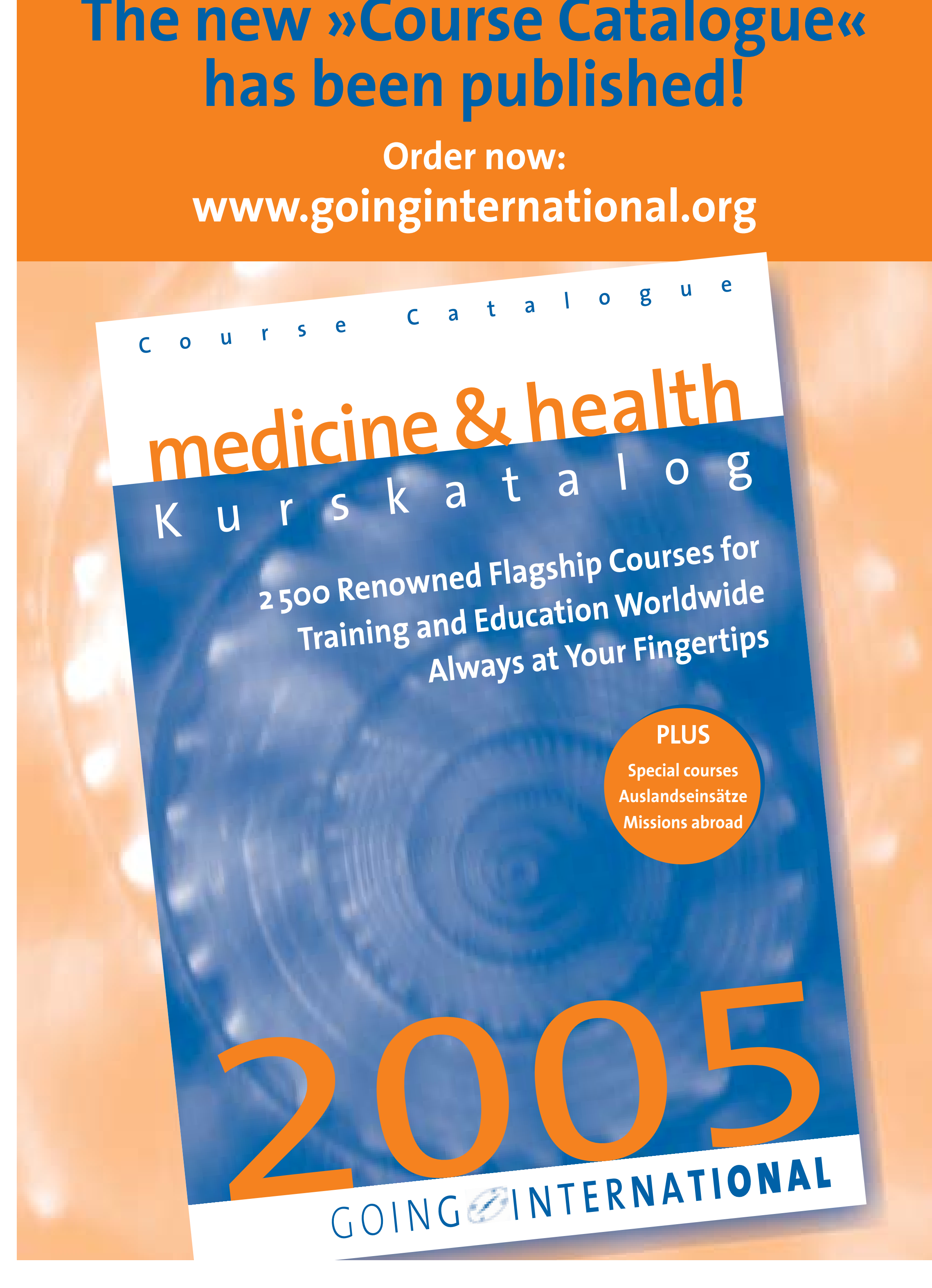
GWI	HIS	15
Barco	Imaging software	17
Siemens	Diagnostic imaging	20



GLOBAL EVENTS

2005

MARCH

3 Vienna, Austria
European Breast Imaging Update 2005
www.eusobi.org

3-5 Amsterdam, The Netherlands
Targeted Anticancer Therapies
3rd International Conference
www.docguide.com

4-8 Vienna, Austria
European Congress of Radiology (ECR)
www.myecr.org

10-11 Paris, France
ECCO 2005
European Cancer Conference
www.fecs.be

10-12 Seville, Spain
School of MRI - Advanced MR Imaging of the Abdomen
www.esmrmb.org

16-17 Glasgow, Scotland
3rd Medical Patients' Acute Care & Treatment
www.docguide.com

16-19 Istanbul, Turkey
EAU - 20th Congress of the European Association of Urology
www.uroweb.org

17-19 Posen, Poland
SALUS - Prevention and Health Care, Forum and Exhibition
http://salus.mtp.pl/

17-20 Seoul, Korea
KIMES 2005
21st International Korea International Medical & Hospital Equipment Show
www.kimes.info

21-23 Cambridge, England
British Society for Investigative Dermatology - annual meeting
www.docguide.com

21-25 Brussels, Belgium
Intensive Care and Emergency Medicine
25th ISICM Meeting
www.intensive.org

31- 5 April New Orleans, USA
SIR 2005
30th Annual Scientific Meeting
www.sirweb.org

9-12 London, England
Charing Cross International Symposium: Towards Vascular and Endovascular Consensus
www.cxsymposium.com

11-13 York, England
3rd UK Radiation Oncology Conference
www.docguide.com

16-17 Chicago, USA
AOCR - Conference of the American Osteopathic College of Radiology
www.aocr.org

19 - 24 Crete, Greece
10th International Congress on Oral Cancer
www.uicc.org

21- 23 Brussels, Belgium
School of MRI - Advanced MR Imaging of the Abdomen
www.esmrmb.org

28-30 Moscow, Russia
School of MRI - Applied MR Techniques, Basic Course
www.esmrmb.org

7-13 Miami Beach, USA
13th Scientific Meeting & Exhibition of the Int'l Society for Magnetic Resonance
www.ismrm.org

8-11 Lisbon, Portugal
ICNC 7 - International Conference of Nuclear Cardiology
www.escardio.org

9-11 Stockholm, Sweden
12th European Congress of Clinical Neurophysiology
www.docguide.com

12-13 Bojnice, Slovakia
STAR programme (Schering and Siemens Training in Advanced Radiology)

13-17 Vienna, Austria
10th World Congress of Skin Cancers
www.docguide.com

19-21 Kaunas, Lithuania
5th Congress of Baltic Association for Maxillofacial and Plastic Surgery
www.balticconference.com/bamps2005

APRIL

2-6 London, England
14th Annual Congress of the International Society for Gynaecological Endoscopy
Hosted by the British Society for Gynaecological Endoscopy.
www.isge2005.org

2-8 Davos, Switzerland
Musculoskeletal Diseases
www.idkd.ch

4-7 Harrogate, England
BES 2005: 24th Joint Meeting of the British Endocrine Societies
www.docguide.com

4 - 8 Edinburgh, Scotland
Molecular Pathogenesis of Virus Infections
www.docguide.com

5-8 Munich, Germany
German Surgical Society 122nd Congress
www. chirurgie2005.de

6-8 Luxembourg, Luxembourg
Int'l Fair for Telemedicine and Telecare
www.medetel.lu

6-9 Bucharest, Romania
RomMedica/pharma/optic
www.rommedica.ro

7-9 Vienna, Austria
Clinical Dermatology 2005
www.docguide.com

8-10 Yokohama, Japan
64th Annual Meeting of the Japan Radiological Society
www.radiology.or.jp

MAY

1-5 Lisbon, Portugal
Cistm9 - Conference of the International Society of Travel Medicine
www.cocs.de

4-7 Berlin, Germany
86th German Radiology Congress
www.drg.de

5-7 Budapest, Hungary
8th Congress of the European Society for Paediatric Dermatology
www.docguide.com

5-8 Edinburgh, Scotland
EANO VI - 2nd Quadrennial Meeting of the World Federation of Neuro-oncology
www.fecs.be

7-10 Florence, Italy
1st World Congress of Thoracic Imaging
www.oic.it/thoracicimaging

7-11 Florence, Italy
International World Congress of the Society of Thoracic Radiology
www.docguide.com

7-11 Strasbourg, France
Neurochirurgie 2005 (Neurosurgery)
www.docguide.com

21-26 San Antonio, Texas, USA
Aua - Annual Congress of the American Urological Association
www.auanet.org

25-27 Barcelona, Spain
8th International Course Advances in CT & MRI
www.amrct2005.com

26-28 Leuven, Belgium
Interactive course on Head and Neck Cancer Imaging
www.kuleuven.ac.be/radiology

28-31 Vienna, Austria
EuroAnaesthesia 2005
www.docguide.com

28-31 Florence, Italy
ESGAR 2005 - 16th Annual Meeting and Postgraduate Course
www.esgar.org

30-3 June Dublin, Ireland
European Society of Paediatric Radiology
www.espr2005.com

30-1 June Madrid, Spain
CNIO Cancer Conference: MAP Kinases and Cancer
www.uicc.org

30-June 3 Dublin, Ireland
ESPR - Congress of the European Society of Paediatric Radiology
www.espr2005.com

JUNE

2-4 Lucerne, Switzerland
School of MRI - Advanced Breast and Pelvis MR Imaging
www.esmrmb.org

2-4 Vienna, Austria
VISAR - 4th Vienna Interdisciplinary Symposium on Aortic Repair
www.visar.at

8-11 Vienna, Austria
EULAR 2005
European Congress of Rheumatology

8-12 Halifax, Canada
4th World Conference on Breast Cancer

8-12 Prague, Czech Republic
10th Symposium European Society for the Study of Purine and Pyrimidine Metabolism in Man

11-14 Taipei, Taiwan
1st International Congress of IASSID-Pacific

19-26 Sweden
European Federation of Audiological Societies

22-25 Berlin, Germany
CARS 2005 - Computer Assisted Radiology and Surgery - 19th International Congress and Exhibition
ISCAS - 9th Annual Conference of the International Society for Computer Aided Surgery
Plus: **CAD** 7th International Workshop on Computer-Aided Diagnosis CMI - 11th Computed Maxillofacial Imaging Congress.
Plus: **EuroPACS** - 23rd International EuroPACS Meeting. www.cars-int.org

22-25 Madrid, Spain
2nd Latin American Congress on Qualitative Health Research

23-25 Cancun, Mexico
1st Latin American Congress in Aging Male

25-27 Kuopio, Finland
School of MRI - Advanced Neuro Imaging - Diffusion, Perfusion, Spectroscopy.
www.esmrmb.org

26-30 Montreal, QC, Canada
International Interdisciplinary Congress on Emergencies

JULY

2-6 Athens, Greece
IX European Congress of the International Society of Blood Transfusion

3-9 Positano, Italy
Europe/Asia Medical & Legal Conference

16-19 Los Angeles, USA
9th Annual Meeting of the International Association of Medical Science Educators

24-29 San Francisco, USA
Meeting of the International Union of Microbiological Societies (IUMS)

AUGUST

15-19 Sydney, Australia
11th World Congress of Sport Psychology (ISSP)

18-19 Sydney, Australia
Partners in Pain: Patients, Clinicians and Pain Management

26-28 Sydney, Australia
4th Int. Conference on Oro-facial Pain and Temporomandibular Disorders

SEPTEMBER

1-3 Lund, Sweden
School of MRI - Advanced Cardiac MR Imaging
www.esmrmb.org

3-7 Sydney, Australia
International Society of Developmental Biologists 2005

4-7 Lisbon, Portugal
9th International Conference on Methods and Applications of Fluorescence: Spectroscopy, Imaging and Probes

8-11 Ljubljana, Slovenia
ESUR 2005 - 12th European Symposium on Urogenital Radiology
www.esur.org

8-10 Istanbul, Turkey
School of MRI - Applied MR Techniques, Advanced Course
www.esmrmb.org

14-17 San Diego, USA
14th International Congress and Endo Expo 2005

15-21 Rome, Italy
Pan Europe Asia Medical & Legal Conference

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