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 and containment measures 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 human H1N1 flu virus that killed 15 people in 1918-19.

Waiting lists, EU limits on working hours, doctor and nursing staff shortages, how could healthcare providers overcome all those hurdles let alone glimpse the winnning 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 €55,766 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-

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 parents were 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 experienced 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 discreetly and without any regulation.

‘Worldwide, the US included, many deaths among newborns are based on end of life decisions, after physi-

-08
The Tsunami International Survey on Emotional Impact

Up to 1 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 thousandsbereaved, as well as homeless, and that 10,000 people had already been treated by touring medical 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 trauma, 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 reminders of the disaster.

Recovery cannot take place unless we remain aware of the emotional and physical consequences, warned psyc

iatric 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 pointed 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 M Vermetten, head of the psychiatry department, University of Adelaide, Australia, also pointed out that there were 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.

Patients’ rights

France

An estimated 150,000 patients die in French hospitals annually following decisions by medical staff that the treatment is futile, or when osteoporosis patients with multiple fractures and replacement of the hip. It is known that the number of people with osteoporosis in France exceeds 2 million, and that about 30% of the population of Europe is affected by this disease. The French government has introduced a new law that provides for the legalisation of euthanasia in certain cases.

The law, which was adopted by the French parliament in 2002, permits the ending of life for patients who are suffering from a terminal illness and are in a state of severe suffering. Under this law, a patient who wishes to end their life may be granted permission by a medical panel consisting of at least three doctors who are not related to the patient. The panel must determine that the patient is suffering from a terminal illness and that the suffering is unbearable. The patient must also be able to communicate their wishes and give consent to the decision to end their life.

The law was introduced in response to public concern about the inadequate care provided to patients who are in pain or suffering from a terminal illness. The law is intended to provide a compassionate and dignified end to life for patients who are suffering and who have expressed a wish to end their life.

The law has been controversial, with some people arguing that it is a violation of human rights and that it is morally wrong to actively end life. However, there are also many who argue that the law is necessary to provide a dignified end to life for patients who are suffering and who have expressed a wish to end their life.

The law has been implemented in a number of countries, including France, Belgium, and the Netherlands. In these countries, medical professionals and patients have had more freedom to control the timing and manner of their death.

The law has been met with mixed reactions from different groups, with some people supporting it and others opposing it. It remains to be seen how this law will be implemented in practice and whether it will have a positive impact on the quality of care provided to patients who are suffering from a terminal illness.
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DESIGN in EH - our special supplement that presents well-designed healthcare buildings and their environments, as well as the broad range of goods needed to stock them - will appear in the March/April issue of EUROPEAN HOSPITAL. Don’t miss it!

Also, don’t forget... if YOU have opinions about any items that have impressed you due to their good design, in terms of handling as well as visual appeal, why not let us know? Or, if your firm is proud of your product design, why not show off in an advertisement (EH contact details: page 15)
Several EU Member States expressed concern when, in 1998, the European Court of Justice first introduced a limited access to healthcare for visitors, patients needing treatments, beyond the usual emergencies, which were then to be financed by their own national healthcare systems. It was the first time this reached all forms of outpatient treatment or health-related purchases, 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 Smilde/Peerboms, and finally Muller-Faute, the ECJ 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 long waiting lists common to many EU Member States, though the shock waves of a true migration wave had not materialised. Following the first wave of information given in the press, this important subject is no longer hidden 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 which would enable them to present a well-founded claim.

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

The reality

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The 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 left behind 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 higher than what would be reimbursed at home. It should be noted that this Regulation only affects healthcare bills to be honoured by public institutions. Different rules apply to people ready to pay privately, or to claim compensation from a private health insurer. For many decades this has been, in grosso modo, the only widespread form of cross-border access to healthcare.

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 able to receive reimbursement up to 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 as to what the 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 not by the legal action of the patient care.

Consequently, despite long waiting lists, there has been not too much discussion of the mutual recognition of treatments and a certain amount of noted progress in all east European countries, including Russia.

In reality, this will be less than simple: many a waiting list has its origins in rigid cost-containment and the patient’s wish to be treated will be expect to be thrown overboard.

Consequently, what an individual patient will 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 sympathy and, on the other, the current widespread lack of transparency concerning payments by various individuals paying patients. A High-Level Committee has tried to find a solution according to the ‘dual status principle’ where national institutions have signed contracts with care providers abroad. How fast this will actually help, only the future can show.

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 will not be an attractive business model, and, if utilised in a larger number of cases, lead to serious financial problems for the CECC institutions.

The private health insurance

This is a highly dynamic and supportive care should care providers in the EU health care have already been launched or, 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 ECJ rulings. Instead it seems more likely that a generous interpretation of Regulation 1408/71, which concerns ‘emergencies’ of healthcare are necessary, and, in general, to utilise in such offers will benefit from future developments.

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 systems) the Commission has no right to force a Member State to improve its system through social protection, unless it actually collides with existing EU regulations, e.g. cost-per-value. According to the Regulation 1408/71 is definitely not possible. Despite to the point-assistance. There are particular systems and a certain amount of noteworthy progress there, problems remain to read the genuine picture. These difficulties are characterised by a still weak income situation and widespread poverty for low income level for next to everybody working in the public sector, including doctors and other hospital personnel, as well as the assistance to provide for in the public sector, including doctors and other hospital personnel, as well as for the螳螂pays - whether independent social funds or bigger structures, as stateswide health funds. There is a widespread black market for healthcare involving backhanders and ‘under-the-table’ payments and we undermine the values of statutory health insurance. The burden of citizens to find ways to pay for treatments, will have to be shouldered by the public systems which, to fulfill this important task, are in urgent need for a broader income base. This coincides with the generally dire situation for systems of social provision for healthcare. Employment is adding the omnipresent demographic challenge.

On the other hand, remarkable progress has been achieved in many hospitals and potential sec- tors of improvement - have already gained
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 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 Greenberg, 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. 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.’

Patients fear lack of knowledge may make them worse

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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.

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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, which 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 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 handful of people speaking 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 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, techniques, or ways 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.

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

Toddlers are encouraged to play nice and share - in essence to work and work every day some paint and sing and dance and play and think some and draw and play together in complex high stress environments, where diagnosis and care decisions are needed quickly, steps the caregivers involved in the process are numerous, and little time is allowed to stop or speak. (B J Section: The Better the Team the Safer the World. Golden Rules of Group Interaction. Ladenburg: 2004: And A matter of life or death. Social psychologi- cal and organisational factors related to patient outcomes in the ICU. University of Texas, 2002.) 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 high stress environments, where diagnosis and care decisions are needed quickly, steps the caregivers involved in the process are numerous, and little time is allowed to stop or speak. (B J Section: 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 cre- ating 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 inde- pendent check involves one team member following behind the other team member and indepen- dently 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 bloodstream infections by using a checklist to ensure adherence to evidence-based guidelines for pre- venting CLINICAL trial 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, prac- tice is limited by complex and high stress critical healthcare situations. To improve teamwork, we can reduce complexities and incorpo- rate 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. Contact: ppronovost@jhmi.edu

Leadership -

According to an item in the SCCM Critical Care eNewsletter, leadership during the ordinary and structured situations - but not in those that are routine. It pointed out that leadership in unstructured situations that are complex, unusual, or occur during a high workload time. Research has shown that poor outcomes are associated with leadership behaviours occurring dur- ing routine or standardised situations. ‘During routine situations, a leader who is present but does not hope actively in a technical task should take the opportunity to observe the strengths and weak- nesses of the team as this knowledge is critical during less routine situations when the ability to predict and under- stand the behaviours of others is essential,’ says the author, who also provides an example of leadership in

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Reducing the duration of mechanical ventilation

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.

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 manipulation 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.

Contact: peter.macnaughton@phnt.swest.nhs.uk
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 plastic practice and is becoming more common in adult emergency departments. Grice, Paxton and Marks 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 (19%). Although most of respondents expressed a wish to involve them more in the process, sex, and religious beliefs of the respondents influence 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, conduct- ed by Lynch, Appelboam, 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

Malcacidia 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 deceased patients.

Conclusion: Communication skills and organisational procedures become key issues for an excellent ICU functioning.
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 lipid bilayers 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, at a high electric field strength, or too long an exposure to the electric field, cell death may occur due to membrane 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 other conditions such as cell type and development stage, pulsing buffer, temperature and electrolyte 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 athermic nonthermal food and water preservation. Due to its efficiency, electroporation has found 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 gene transfer.

In vitro electroporation has been used in the laboratories for gene transfer and for the standard laboratory procedure. Medical applications are still in the development stage. 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 therapies, in particular of the antitumour electroporation in vivo, in particular of the antitumour electroporation and subsequent DNA delivery and gene expression in malignant melanoma tissue. The advantages of this therapy, such as its simplicity, the short duration of treatment sessions, low complications and insignificant side effects, are emphasized in the recent study by Put M, Corovic S, Flisar K, Petkovek M, Nastran J, Miklavcic D. Techniques of signal generation required for electroporation. Survey of electroporation 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.

Aromatase Inhibitors

Aromatase inhibitors are a class of drugs used to block the production of oestrogen hormone, which would benefit women in that group more than tamoxifen, aromatase inhibitors are the standard treatment for postmenopausal women. Arimidex, Tamoxifen, Alone or in Combination (ATAC) Adjuvant Breast Cancer Trial (2001) followed for five years, has compared the safety, ef\ency and efficacy of tamoxifen with anastrozole alone, as well as a combination of both drugs. The 5- year analysis of the data (PubMed 2002; 359: 2131-39) was encouraging enough to suggest that anastrozole (Arimidex - produced by Zeneica Pharmaceuticals and FDA approved Jan 1999, 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 Journal of the American Medical Association (JAMA), show that, compared with tamoxifen, anastrozole reduces breast cancer relapse by 35% and death by 37% for 3 years survival by over 10%; increased the time to disease recurrence by approximately 20%; reduced breast cancer specific mortality by approximately 44%, 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.

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.

Breast cancer

Studies of tamoxifen v. aromatase inhibitors may change therapies

Electroporation

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

Electroporation

In vitro electroporation has been used in the laboratories for gene transfer and for the standard laboratory procedure. Medical applications are still in the development stage. 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 therapies, in particular of the antitumour electroporation in vivo, in particular of the antitumour electroporation and subsequent DNA delivery and gene expression in malignant melanoma tissue.

Cell elecrotransfection in vivo, in particular of the antitumour elecrotherapy i.e. the combination of a cytotoxic nonpermeant drug with permeabilizing electric pulses delivered to the tumours and of in vivo DNA electrtransferor for gene therapy.

Neumann E, Kakorin S, Toensing K. Fundamentals of electroporative delivery of drugs and genes. Bioelectrochemistry and Bioenergetics 48: 3-16, 1999. In this paper the discussion is focused on the chemical-structural aspects of membrane electroporation and cell deformations, as well as on the fundamentals of transport through electroporated membrane patches. Golzio M, Roli M, Teniente J. In vitro and in vivo electric field-mediated permeabilisation, gene trans- fer, and expression. Methods 33(2): 126-135, 2004. The present paper describes the factors controlling electroporeperabilisation to small molecules (<4 kDa) and the processes supporting DNA transfer in vitro. The description of in vitro events brings the attention of the reader to the processes occurring before, during, and after electroporation of DNA and cells. Developments for the in vivo processes are reported and potential clinical applications discussed. Mir LM. Therapeutic perspectives of in vivo electroporeperabilisation and gene transfer. Bioelectrochemistry 53: 1-10, 2001. This review gives an overview of the therapeutic perspectives of cell electroporation in vivo, in particular of the antitumour elecrotherapy i.e. the combination of a cytotoxic nonpermeant drug with permeabilizing electric pulses delivered to the tumours and of in vivo DNA electrortransfer for gene therapy.
Centralised control for OT devices

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 - Dogs, cats, whales & dolphins or coral fish and many more creatures. The possible intra-operative visualisation of pre-operative image data (X-ray, CT), on 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.

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 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.

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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 murderer victims. Now increasingly complex software programmes are combining medical imaging and laser scanning to build up soft tissue and obtain detailed 3D 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 Düsseldorf 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, RheinAhrCampus Remagen, with key speakers including Christoph P Zollkofer, 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, NIEC Europe Ltd. & C&C Research Lab, the Netherlands Forensic Institute (Rijswijk), Freeburg University, and the IEEE Joint Chapter EMB - German Section.

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

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March 17-18

The woman from Winkeler Bay. Developments in soft facial reconstruction aid craniofacial surgery plus forensics and anthropology.
Melatonin hormone controls the circadian rhythm. In persons of darkness, melatonin reduces cardiovascular activity and induces fatigue. Melatonin secretion in the pineal gland, which increases cardiovascular activity, reduces melatonin secretion. Light with high colour temperature, impairs 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 450/plus, with its high colour temperature (3,400K), 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. 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 aCV value for the halogen light with high colour temperature was 0.59, whilst for the one with lower colour temperature the value 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 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 4,300K - as irradiated by a Chromophare D 650/plus light - can enhance a surgeon’s performance capability during the winter (trend). Work performed under a surgical light of low colour temperature (3,400K) 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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Table 1 presents 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%.
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 Howison 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) £3 billion a year. A survey estimated that some 300,000 patients suffer hospital-acquired infections each year, with more than 5,500 deaths. A fifth of those cases are caused by MRSA.

The story behind the rise of MRSA is inter-twined with many of its harmful re-occurrences. In 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 costs drastically. There are now only 55,000 cleaners working in NHS hospitals, compared with about 100,000 in 1984. The report highlights dangers inherent in outsourcing. The purchase of soap is usually the responsibility of the chief nurses. The chief nurses, however, carry a risk to their patients, and sometimes means that the staff concerned must spend long periods off work. The report calls on the NHS to reconsider its policy of outsourcing and take the simple and effective step of bringing hos-

Congress creates guidelines for EU hospitals

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 25 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 HealthCare Without Harm, the Intergovernmental Scientific Panel on Biodiversity and Ecosystem Services, the World Health Organisation, the Health Promoting Hospitals Network, European Environmental Agency, and the EU. 30 exhibitors also displayed ‘green’ products and services, including organically grown and fair-traded food.


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

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, Gösta Hedin, 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 on the ‘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

fing into the natural materials cycles
- 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
- Provision 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 kilo-grams 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 official- ly 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.

Speaking on waste minimisation schemes in hospitals and laboratories, Harry Oosterbek, of Valkensward, Netherlands, pointed out that systems exist to test for aer- obic and anaerobic bacteria using only the same test tube, enabling cost reductions of 90%, and waste by 30%.

Findings from several studies have shown that hospital discharge measures often go far beyond what is actually required. Professor Franz Dachne, head of the insti- tute for environmental medicine and hospi- tal epidemiology, at Freiburg University Clinic, pointed out that surgical infections are now usually disinfectated thermally, lead-
The Harmann 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 mobility and physical well-being

Various psychological and philosophical concepts are used 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 Eriksson);
- Any task we skip will have to be resolved during a later stage in life (Erik Eriksson);
- 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 philosophical concepts quoted in the

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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 pain.

**HF shower to treat pain and depression**

Anja Behringer reports on a high-frequency pain therapy applied at the outpatient clinic for electro-physical medicine and hydrotherapy (Ambulatorium für elektrophysiologische 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’Arousual suggested using high-frequency (HF) currents for medical purposes. Due to high voltage, these ‘Arousual 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 spatial 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.

Depression

A recent study indicated a particularly striking effect of the high-voltage capacitor discharge therapy. According to Professor Wolfgang Martik, 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.

**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 lithotripsy and urological table. Lithoskop is an engineering masterpiece for surgeons. Lithoskop is an engineering masterpiece for surgeons.

According to Siemens, the new technology is capable of working reliably and continuously with a flow rate of peristaltic pumps. It becomes a brush light, which becomes electric sparks.

The spatial 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.

**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, they emerged from this research. 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 per hour, 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.

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% - 98.8% 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 compost cow and a match.’

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

**New Innovations & Awards**

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 spatial 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.

**Depression**

A recent study indicated a particularly striking effect of the high-voltage capacitor discharge therapy. According to Professor Wolfgang Martik, 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.
High-tech air rescue

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 (DGS), 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 DGS 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 DGS’s research prize is funded by SIRS-Lab GmbH.

Details: www.uscom.com.au

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2005

MARCH

JUNE

7-13 Miami Beach, USA
13th Scientific Meeting & Exhibition of the ISCOM Society
www.iscom.org

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

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

13-17 Vienna, Austria
10th World Congress of Skin Cancer
www.dcuo.com

7-9 Bucharest, Romania
64th Annual Meeting of the Radiological Society of Europe
www.radiologie.org

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

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

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

27-23 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

JULY

2-6 Athens, Greece
IX European Congress of the International Society of Blood Transfusion
www.irisbt.org

8-9 Positano, Italy
Europe/Asia Medical & Legal Conference
www.eamc.org

16-19 Los Angeles, USA
9th Annual Meeting of the International Federation of Medical Science Educators
www.ifmes.org

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

AUGUST

15-19 Sydney, Australia
11th World Congress of Sport Radiology (WRSR)
www.wsr.org

18-19 Sydney, Australia
Partners in Pain: Patients, Physicians and Pain Management
www.esmrmb.org

SEPTEMBER

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

7-8 Sydney, Australia
International Society of Developmental Biologists 2005
www.isdb.org

10-11 Paris, France
ECCO 2005
www.ecco.org

6-9 Bucharest, Romania
3rd International Conference on Molecular Imaging of the Abdomen
www.buchs.ro

14-17 Stockholm, Sweden
12th European Congress of Clinical Neurophysiology
www.eccn.org

17-23 Bratislava, Slovakia
STAR programme (Sewing and Sowing in Advanced Radiology)
www.srma.org

19-21 Kaunas, Lithuania
5th Congress of Baltic Association for Medical and Plastic Surgery
www.batconference.com/dansp2005

OCTOBER

13-14 Stockholm, Sweden
1st International Conference of IASSID-Pacific
www.iassid.org

NOVEMBER

3-5 Amsterdam, The Netherlands
3rd International Conference on Targeted Anticancer Therapies
www.anticancer.org

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

13-17 Vienna, Austria
3rd International Conference on Molecular Imaging of the Abdomen
www.esmrmb.org

10-12 Vienna, Austria
3rd International Conference on Molecular Imaging of the Abdomen
www.esmrmb.org

DECEMBER

2004

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