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March-April 2013

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Anaesthesia

- Researchers show how to keep kids calm for medical scans without sedation
- Scientists use light-sensitive molecule to control action of propofol

Elastography ultrasound

In a few years, this may be as common as X-ray for cancer detection

Arab Health review

We speak to exhibitors and examine their products

In the News

- Global measles deaths down remarkable 71%, but challenges remain, says WHO
- Economist Intelligence report says countries are failing to tackle heavy burden of HCV
- A large study in Finland finds that marriage reduces the risk of heart attack

ASPETAR

SPORTS MEDICINE JOURNAL



**ZLATAN IBRAHIMOVIC THE SWEDISH STRIKER TELLS HOW A DOCTOR OF INTEGRITY IS ESSENTIAL FOR EVERY FOOTBALL TEAM
OVERTRAINING RAMADAN AND FOOTBALL JAW FRACTURES
SUDDEN DEATH IN SPORT HAMSTRING INJURIES
GROIN PAIN PREVENTION PROGRAMME SPORT IN THE HEAT**

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¹ U.S. News & World Report

² NeuStrategy, Inc.

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Prognosis

Growth Market



The Arab Health exhibition in Dubai in January was certainly a great success. It appeared even bigger than the massive show last year – clearly a sign that healthcare in this region continues to grow in leaps and bounds. For the MEH team, it was a great opportunity to catch up with many of our foreign readers and advertisers as well as to make new friends. And, of course, it is always fascinating to see at first-hand the incredible advances in medical technology. You can see a selection of the new products we liked in the Arab Health review.

A main feature of this issue is anaesthesia – or perhaps more correctly ‘not anaesthesia’ – in an article which looks at how to teach young kids to sit still for an MRI exam, so you can avoid having to sedate them. We look at a related interesting new study where researchers have added a light-sensitive molecule to propofol, and have shown in experiments that when the light is on the anaesthetic is deactivated and when switched off it is reactivated.

In our focus on ultrasound we explore elastography, a new form of reading ultrasound waves that makes it possible to detect tumours by measuring elasticity of soft tissue. Some researchers are saying that in a few years elastography may be as common as x-rays!

As usual we have a lot of interesting news from the region and around the world. The prestigious 2013 King Faisal Foundation International Prize in Medicine has been awarded to Professor Jeffrey Michael Friedman of Rockefeller University, New York, and Professor Douglas Leonard Coleman of the Jackson Laboratory, Maine, for their research into the genetics of obesity. You can read more about this in the Middle East Monitor. And in our popular Worldwide Monitor section, there’s a report by the Economist Intelligence Unit which highlights the urgent need for countries around the world to develop strategies to tackle head-on the growing social and economic issues associated with Hepatitis C.

We do hope you enjoy this issue and as always we welcome your feedback. Good reading – and good health.

Brian Wilkie
wilkiexp@emirates.net.ae



Publisher

Brian Wilkie
wilkiexp@emirates.net.ae

Editor

Callan Emery
editor@middleeasthealthmag.com

Editorial and Production

Trident Media - Middle East
www.tridentmedia-me.com

Editorial Consultants

Dr Gamal Hammad, Dr Peter Moore, Harry Brewer

Middle East Editorial Office

PO Box 825, Dubai, UAE
Telephone: (+9714) 334 6609
editor@middleeasthealthmag.com

Marketing Manager

Michael Hurst
Telephone: (+9714) 391 4775 || Fax: (+9714) 391 4888
michael@middleeasthealthmag.com

Advertising Sales

PO Box 72280, Dubai, UAE
marketing@middleeasthealthmag.com

Americas, France

Jay Franco,
3 Erinlea Crescent, Scarborough,
Ontario M1H 2S8, Canada
Tel: 1-416-439-5100 || Fax: 1-416-439-0770
jfranco@middleeasthealthmag.com

Japan

Mr Katsuhiko Ishii
Ace Media Service Inc
12-6, 4-chome, Adachi-ku, Tokyo 121-0824, Japan
Tel: +81-3-5691-3335 || Fax: +81-3-5691-3336
Email: amskatsu@dream.com

China

Miss Li Ying
Medic Time Development Ltd,
Flat 1907, Tower A, Haisong Building, Tairan 9th Road,
Futian District, Shenzhen, China 518048
Tel: +86-755-239 812 21 || Fax: +86-755-239 812 33
Email: medic8@medictime.com

Taiwan

Larry Wang
Olympia Global Co Ltd
7F, No.35, Sec 3, Shenyang Rd, Taichung
Taiwan 40651 || P O Box: 46-283 Taichung Taiwan 40799
Tel: +886- (4)-22429845 || Fax: +886- (4)-23587689
Email: media.news@msa.hinet.net

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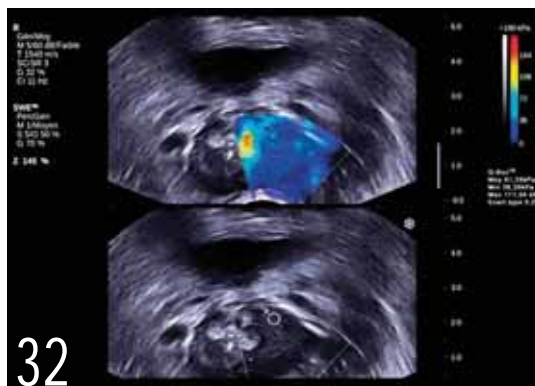
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middle east monitor

Update from around the region



New Al Zahra hospital opens in Dubai

A new state-of-the-art Al Zahra Hospital opened in Dubai in January. The new general hospital complex is located on Sheikh Zayed Road in Al Barsha. Al Zahra Hospital is a well-established healthcare service provider with almost thirty years' experience in providing excellent service to the residents of the UAE.

As part of Al Zahra's commitment to improving healthcare provisions in the UAE, ongoing staff training and development will be at the heart of Al Zahra's approach to ensure it continues to utilise global best practices while delivering care in a healing environment and best value in terms of treatment costs.

opening of a new highly specialised orthopaedics hospital in Dubai. The Burjeel Hospital for Special Surgery and Tarabichi's Centre of Joint Surgery is set to open in Dubai in March this year.

The hospital aims to become the regional centre of excellence for advanced orthopaedic treatments including joint preservation, replacement and trauma and orthopaedic surgery for both children and adults. Its specialists will utilise the latest techniques in hip and knee replacement and in the treatment of bone and joint infections and will comprehensively treat acute fractures, post-traumatic complications, mal-unions, non-unions, infections and a variety of orthopaedic conditions.

With access to highly specialised medical teams that practice orthopaedics exclusively, patients will receive the full continuum of care including initial consultations, surgical and non-surgical services, hospital stay, as well as inpatient and outpatient physical therapy.

The hospital and Centre also signed a partnership agreement with HELIOS ENDO-Klinik Hamburg and announced their knowledge-sharing and training partnership. HELIOS ENDO-Klinik Hamburg is a specialised clinic for bone, joint, and spinal surgery, which has achieved a worldwide reputation for outstanding competence in the treatment of diseases of the locomotor system. The two centres will collaborate on research, academic papers and fellowships for trainee doctors.

Announcing the partnership at the Arab Health exhibition in Dubai in January, Dr Samih Tarabichi, a UAE national, said: "Our mission is to provide world class treatment to patients with complicated and advanced conditions of bone and joint disease from across the Middle East. Our team is dedicated to understanding the needs of the region's patients – from the anatomical differences in their joints to their specific cultural and social needs, so that we can provide a standard of care that is unmatched anywhere in the world. To reach that goal, we are working with the very best doctors and healthcare professionals, investing in state of the art equip-

2013 King Faisal International Prize honours 2 researchers for their work on obesity

Professor Jeffrey Michael Friedman (USA), Rockefeller University, New York, and Professor Douglas Leonard Coleman (Canada/USA), of the Jackson Laboratory, Maine have won the prestigious 2013 King Faisal Foundation International Prize in Medicine. The winners were announced in January. The two professors were honoured for their research into the genetics of obesity.

The research findings of professor Friedman and professor Coleman led to the identification and characterization of the leptin pathway. This seminal discovery has had a major impact on our understanding of the biology of obesity, describing some of the key afferent pathways in body weight regulation active in man. Their fundamental discoveries have also helped in the recognition of more illuminating views of the endocrine system.

Dr Friedman and Dr Coleman discovered the hormone, leptin. Leptin is secreted by the adipose tissue, and it regulates energy intake and energy expenditure – which affects your appetite and metabolism. Normally, when your fat mass increases, your leptin levels increase as well and reduces your appetite – resulting in weight loss.

The same is the reverse, if you lose fat mass, your leptin levels drop, your appetite increases and you gain weight. Leptin essentially is a hormone that helps maintain your weight within a normal range by influencing your appetite.

While leptin reduces your appetite to maintain your weight, they have found that people who are obese tend to have unusually high leptin levels. As a result, these people are said to be 'resistant' to the effects of leptin, much like people with type 2 diabetes are resistant to the effects of insulin. Dr Friedman and Dr Coleman argue that resistance to leptin is genetic, and as a result it may not be your fault if you are overweight.

The King Faisal International Prize rewards individuals and institutions whose accomplishments are not only exceptional in their own right, but which make a significant contribution to the body of knowledge belonging to humankind.

New centre of excellence for advanced orthopaedic treatments set to open in Dubai

A partnership between the operators of Burjeel Hospital, Abu Dhabi and Dr Samih Tarabichi, the Middle East and North Africa's foremost orthopaedic and joint replacement surgeon, will see the

ment, and making a commitment to continued research and academic excellence with our knowledge partners and European peers at the HELIOS ENDO-Klinik in Hamburg.”

Pruefer-Storcks, Hamburg Senator for health, remarked: “We are pleased to see this partnership between the UAE and Germany, which will strengthen the links between our two countries in the vital field of healthcare. Today’s announcement is particularly significant as it marks the continuous investment in healthcare infrastructure and skills development that the UAE has made over the past decades. We are delighted that our specialists in Hamburg at the HELIOS ENDO-Klinik will be part of the continued evolution of orthopaedics care, research and training here in the Gulf, and that the Hamburg team can also learn from and work closely with Dr Tarabichi and his team in Dubai.”

Swine flu kills 25 in Palestine

IRIN reports (29 January) that the swine flu (H1N1) has killed 25 people in the Occupied Palestinian Territory (OPT) and health officials have called on residents to get vaccinated against the H1N1 virus.

Over 700 infections of H1N1 have been reported in the West Bank and 20 in the Gaza Strip, and officials say the number of recent H1N1-related deaths is almost certainly underreported.

“The virus has claimed 25 lives to date, three of them in Gaza, and we are in the midst of vaccinating,” Asad Ramlawi, general director of primary health care at the Palestinian Ministry of Health, told IRIN.

He said 25,000 people had been vaccinated as part of a regular programme over the last few months, and an additional 25,000 have been vaccinated since the outbreak.

“Right now we are targeting patients at risk of heart disease, diabetes, blood diseases and of course, pregnant women. We are seeing a good response to our efforts to raise awareness [of the importance of] getting vaccinated,” he said, saying they had good stocks of the vaccine in reserve.

Young children, babies and infants un-

der five, old people and pregnant women are considered to be at the highest risk of contracting H1N1, an infection caused by an influenza virus believed originally to have infected the lungs of pigs.

The latest surge of cases was detected in the West Bank in early December 2012 but the first cases in Gaza came to light in mid-January, with reported deaths in the Jenin, Qalqilya and Hebron regions, according to Palestinian health officials.

American Hospital Dubai performs first stem cell-based cartilage scaffold implantation in the UAE

The first Chondrotissue implantation in Dubai was recently carried out by Dr Harold Vanderschmidt, Traumatologist at the Total Joint Replacement Center at the American Hospital Dubai, where he treated a 20-year old football player, who suffered from a large cartilage defect in the knee. Chondrotissue combines established orthopedic treatment methods with stem cell technology which harvests the stem cells in the patient’s own bone marrow, during the surgical procedure.

Chondrotissue provides a structure which stimulates the stem cell regeneration potential and creating a three-dimensional scaffold that can replace the missing cartilage tissue. It is a one-step implant used to treat cartilage defects in the knee, ankle or hip and uses the biological potential of stem cells to restore damaged cartilage tissue in the joints. Chondrotissue is implanted into the defective cartilage by mini-open or keyhole procedure.

Speaking about the treatment, Dr Vanderschmidt said: “We have now integrated Cartilage repair and Chondrotissue into our services for patients with cartilage defects. I performed the first case here in Dubai in 2012 and the case has been pub-

lished extensively; I am delighted to say that the patient is recovering very well and can’t wait to go back to playing soccer.”

King Abdulaziz University Hospital installs image guided cancer treatment system

In part to address the 12,000 new cancer cases annually in Saudi Arabia - many of them diagnosed at an advanced stage - King Abdulaziz University Hospital is the first center nationally to acquire image guided treatment technology from Elekta. The 700-bed hospital launched a new era of advanced radiotherapy with the first clinical treatments on its Elekta Synergy system in February last year, offering patients with difficult cases sophisticated Image Guided Radiation therapy (IGRT) and Volumetric Modulated Arc Therapy (VMAT) for added precision and speed. The hospital also acquired Elekta treatment planning systems in May last year.

“Managing the planning and treatment of late stage cancers is challenging,” says Prof. Yasir Bahadur, M.D., Chairman of the Department of Radiology, under which the Department of Radiation Oncology operates. “We needed user-friendly technology that would allow us to accurately cover the target and protect normal tissues, while treating our patients in a comfortable and timely manner. We determined that Elekta Synergy met these needs from a technological standpoint.”

The hospital had been operating two Siemens linear accelerators and added Elekta Synergy because of its advanced technology, such as kilovoltage [kV] cone beam CT [CBCT] and VMAT.

“While our whole radiotherapy practice has been image guided, the kV 3D volumetric imaging of Elekta Synergy enables us to accurately deliver complex treatment plans. The excellent quality of the kV treatment verification images - versus the megavoltage [MV] images the other linacs produce - allows a clear visualization of soft tissue structures without the need for implanted surrogate markers.”

With Elekta Synergy, King Abdulaziz University Hospital has, for the first time, used VMAT in select cases, resulting in



Dr Harold Vanderschmidt, Traumatologist at the Total Joint Replacement Center at the American Hospital Dubai



dramatic decreases in beam delivery time compared to conventional techniques.

“The beam delivery time for VMAT is about five minutes, compared to nine minutes for dynamic Intensity Modulated Radiation Therapy [IMRT] and 20 minutes for step-and-shoot IMRT,” Prof. Bahadur notes. “In addition, we have found that delivery of IMRT is faster on Synergy versus our other systems.

“With Synergy,” he continues, “we can easily treat 20 patients daily using either VMAT or dynamic IMRT, with daily CBCT, during eight working hours, which we were unable to do before. Now we can treat more patients and this has shortened our waiting list.”

In addition to Synergy, King Abdulaziz University Hospital also acquired Elekta’s XiO and Monaco treatment planning systems, and began using them clinically in May last year.

“We like the accuracy of the dose calculation algorithms and high speed calculation of both treatment planning systems,” Prof. Bahadur observes. “In Monaco, we appreciate the biological modeling feature and the Sensitivity Analysis tool that guide the planner through the plan optimization process.”

The hospital was due to launch its new stereotactic radiation therapy (SRT) service in February this year.

In July 2010, King Abdulaziz University Hospital introduced Elekta’s MOSAIQ Oncology Information System as an upgrade of its LANTIS record & verify system, and recently upgraded MOSAIQ to version 2.4.

“We find MOSAIQ very user-friendly and it integrated seamlessly with our Siemens linacs,” Prof. Bahadur says.

Clemenceau Medical Center wins imaging and diagnostics award

Clemenceau Medical Center (CMC)-Beirut was recognized for its outstanding healthcare achievements and medical innovations during the 2013 Arab Health Exhibition and Congress held in Dubai in January. Being one of only 8 awarded medical institutions across the Middle East, CMC received the “Excellence in Imaging and Diagnostics” award during



the Arab Health Achievement & Innovation Awards 2013 ceremony.

“We are very proud to be recognized by international healthcare leaders and to have been chosen to receive this valuable award” commented Dr Mounes Kalaawi, CEO of Clemenceau Medical Center.

He added: “We, at CMC, have worked hard to establish a state-of-the-art Imaging and Radiology Department equipped with only the latest technologies found in the most advanced radiology centres around the world. We made sure that this same department would integrate the best safety measures to safeguard our patients’ health and control any risk of them getting exposed to radiations. We’ve also designed a soothing setup that would provide our patients and their respective family members with all the comfort and tranquillity they need, under the quality care of highly-trained staff members”.

CMC’s Imaging and Radiology Department is run by top-notch local and international medical experts covering all radiology specialties. The department undergoes constant upgrades, the latest of which was the acquisition of a CT Scan 750 HD device, known for its ability to reduce exposure to radiations by 50 to 83%. Furthermore, the centre will soon acquire a new magnetic 3 Tesla device: a first-of-a-kind silent magnetic resonance

imaging machine.

Clemenceau Medical Center had participated in the 2013 Arab Health Exhibition and Congress in collaboration with the Johns Hopkins Medicine International. The event was held at Dubai’s International Convention & Exhibition Center and was officially inaugurated by H.H Sheikh Mohammed bin Rashid Al Maktoum, Ruler of Dubai, and attended by more than 80,000 doctors and healthcare experts, gathered to discuss the latest healthcare challenges in the Middle East.

CMC will add the “Excellence in Imaging and diagnostics” award to a long list of merits and distinction awards earned by the medical centre since its establishment, namely: the “Best Hospital Building Regulations in the Middle East” award, the “Best Sustainable Hospital Project in the Middle East” award, the “Best Hospital Design” award, the “Best Hospital Strategic Management” award, and the “World’s Top 10 Hospitals for Medical Tourism” award.

13% of UAE population live with asthma

More than half of the patients suffering from asthma in the UAE are not controlling their disease, according to the Vice President of the Emirates Allergy and Respiratory Society.

Dr Bassam Mahboub estimates that



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around 13% of the UAE population lives with the disorder that causes the airways of the lungs to swell and narrow, leading to wheezing, shortness of breath, chest tightness and coughing.

“One of the biggest problems is that there is a perceived lack of need for medication until symptoms occur, and then patients rush to the emergency department because the symptoms, such as shortness of breath, are frightening – this creates unnecessary stress on the patient and also an unnecessary burden on emergency resources,” commented Dr Mahboub, on the sidelines of the Middle East Asthma and Allergy meeting (MEAAM), which took place in December in Dubai.

Approximately 60% of asthma patients suffer from allergic asthma, and concerning for local doctors is the 10% of asthma patients that suffer from severe persistent allergic asthma that are not adequately controlled by conventional therapies – the consequences for the lack of control in the patients could result in death, according to the author of a new local study on the disease.

“There have been recent advancements in the treatment of uncontrolled severe persistent allergic asthma in the form of a monoclonal anti-IgE antibody, omalizumab. We found that over the course of four years, 83% of the patients we treated with omalizumab had significant clinical improvement in their asthma control – which is very promising,” said Dr Wagih Djazmati, Consultant and Head, Respiratory Division, SKMC, who is presenting the findings of his new study at the MEAAM.

“Around 20 to 25% of asthmatics are smokers, which is deeply troubling as smoke can trigger an attack. For this region as well, sandstorms and dustmites are prevalent here, and worsen in the humidity – which is during most of the year,” added Dr Djazmati.

UAE-based mobile clinic helps remote patients manage diabetes

As many as 546 previously unmanaged local patients were examined in 2012 by specialists, thanks to the unique Win Over Diabetes (WOD) mobile clinic, with 11

undiscovered and 42 uncontrolled cases found, and 112 needing further consultation, according to the Head of the Emirates Diabetes Society (EDS), Dr Abdul Razzaq Al Madani.

The WOD mobile clinic visited five rural clinics across the UAE in total, bringing comprehensive care, education and local community interaction.

The ‘Win Over Diabetes’ mobile clinic is a joint patient service initiative between the Emirates Diabetes Society and Swiss pharmaceutical company, Novartis.

“2012 saw many rural, residential areas covered with locals in the areas welcoming the mobile clinic, and participating in the screenings. We have had an incredibly positive response, which has led us to initiate the service over 2013 in Abu Dhabi in collaboration with the Ambulatory Healthcare Service for the first half of the year, and introduce fundus testing for diabetes-related complications such as diabetic macular edema (DME) which can lead to unnecessary blindness in patients,” said Dr Al Madani.

The mobile clinic is also fully equipped to provide screenings to the residents, which will involve blood glucose, blood pressure and lipid testing, together with the monitoring of other important vital signs.

The EDS AHS mobile clinic campaign in the first half of this year intends to cover nine remote clinics UAE with specialist health care practitioners onboard making visits to the country’s many hospitals, healthcare clinics, and community centres.

WCMC-Q represents region in Worldwide Immunoscoring Consortium set up to tackle cancer

Weill Cornell Medical College in Qatar (WCMC-Q) is representing Qatar and the MENA region on an international consortium dedicated to fighting cancer.

The Worldwide Immunoscoring Consortium (WIC), led by Drs. Jerome Galon from France and Bernard Fox from the U.S., is an initiative of the Society for Immunotherapy of Cancer (SITC) and is currently researching how to improve the accuracy of colon cancer prognoses. The results could ultimately lead to personalized cancer treatments and potentially

even new drugs.

WCMC-Q was offered the opportunity to become part of the consortium in February 2012 and is organizing a symposium in April, comprising representatives from 17 countries and 23 medical centers, about research into colon cancer.

Dr Lotfi Chouchane, representative of Qatar in SITC and in WIC and WCMC-Q’s assistant dean for basic science curriculum and a professor of genetic medicine, microbiology and immunology, Weill Cornell Medical College in Qatar



Dr Lotfi Chouchane, assistant dean for basic science curriculum and a professor of genetic medicine, microbiology and immunology, Weill Cornell Medical College in Qatar

He said: “The consortium is made up of world-class medical institutions and centers so for WCMC-Q to have been invited to join really demonstrates the reputation that the college has developed, specifically in its research and translational work.

The Worldwide Immunoscoring Consortium is currently investigating whether T-lymphocytes or T-cells (which are a type of white blood cell) can help improve the accuracy of the prognosis for a patient with colon cancer. Essentially, doctors currently make prognoses based on the size of the tumour, its aggressiveness and whether the lymph nodes have been invaded among other factors.

But research suggests that determining whether T-lymphocytes have infiltrated the tumour is a more reliable approach: the more T-cells that have infiltrated the tumour the better the prognosis for the patient. This could mean that doctors do not have to administer as much chemotherapy or radiation therapy. Alternatively, it could lead to doctors increasing the dosage of medication if T-cells are found not to have invaded the tumour.

Further into the future the research could also open the door to drugs being developed that encourage the infiltration of T-cells in tumours. **MEH**

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The new 64 Slice PET/CT Scanner at American Hospital Dubai

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Update from around the region

News in Brief

Cases Database launched

The Cases Database has been launched. Cases Database allows you to explore thousands of peer-reviewed medical case reports, including content integrated from PubMed Central and publishers such as BioMed Central, Springer and BMJ Group. By aggregating case reports and facilitating comparison, Cases Database provides clinicians, researchers, regulators and patients a simple resource to explore content, and identify emerging trends.

● www.casesdatabase.com

More effective test for bowel cancer

A less invasive test using CT scans is more effective for investigating patients with possible bowel cancer than the traditional X-ray test, according to research published in *The Lancet*. The authors say CT colonography (CTC) should now be considered alongside the 'gold standard' of colonoscopy. However, they caution that guidelines are needed before this type of scan is used more widely because its ability to detect relatively unimportant issues can result in patients being referred for unnecessary follow-up tests.

Great Ormond Street Hospital launches Arabic website

Great Ormond Street Hospital for Children (GOSH), one of the world's leading centres for treating sick children, has launched a dedicated Arabic website for patients and families, in the United Arab Emirates (UAE). The website, www.gosh.ae, is geared towards informing parents of sick children, as well as regional health-care providers and professionals, of the services and facilities offered by the hospital to all nationalities across UAE and the Arab world.

New report highlights global burden of HCV and says countries are failing to tackle it

A new Economist Intelligence Unit (EIU) report titled *The Silent Pandemic: Tackling Hepatitis C with Policy Innovation*, made possible as a result of an educational grant from Janssen Pharmaceutica NV, highlights the urgent need for countries around the world to develop strategies to tackle head-on the growing social and economic issues associated with Hepatitis C (HCV).

While the total number of infected individuals is unknown due to a lack of available data, the World Health Organization (WHO) estimates that approximately 150 million people globally are currently living with the blood-borne infectious disease, HCV. Of these, up to two thirds will develop chronic liver disease and one in five will develop cirrhosis. HCV is also the leading cause of liver transplantation worldwide and in the US the disease now accounts for more deaths than HIV.

"The report highlights that worldwide, despite the significant burden of HCV, governments have failed to get a grip on the scale and impact of the disease," said Charles Gore, President of The World Hepatitis Alliance. "In both developed and developing countries, the true human and economic cost of HCV will continue to rise unless policy makers confront this urgent public health issue now."

Despite the devastating effects of HCV, the report states that it is now considered preventable and with modern treatments, the majority of sufferers can become clear of the virus. The report notes, however, that as few as 10% of patients are currently receiving treatments and there is a large disparity in care across countries. As a result, the report calls for countries to take a "comprehensive approach," which takes into account local needs and resources available.

"The report highlights that each country has different needs and resources; however, we urge all those involved in the management of HCV and public health to help increase awareness of the disease and look at the most effective ways of delivering effective treatment to those most in

need," said Gaston Picchio, Global Hepatitis Disease Area Leader, Janssen



The Silent Pandemic
<http://tinyurl.com/bs04quw>

European report calls for more research in neuroscience

A new strategic report, *The Human Brain – From Cells to Society, Toward Better Mental Health in Europe*, has been published by the European Science Foundation (ESF). In Europe it is estimated that around 38% of the population is affected by a disorder of the brain, so it is becoming increasingly important support to research in neuroscience.

This interdisciplinary initiative, supported by all scientific committees of ESF and numerous European organisations, presents the current important issues for research on the human brain. The publication also highlights five key opportunities for advancing our understanding of the human brain:

1. the development of integrated neuropsychotherapeutic approaches to the treatment of psychiatric disorders;
2. the development of more valid disease models for research into psychiatric disorders;
3. an improved understanding of the underlying mechanisms of the relationship between biology and environment;
4. more comparative and cross-disciplinary studies to explore how scientific concepts relating to the human brain are received and understood in different socio-cultural contexts;
5. research into the legal and ethical implications of recent developments in the brain sciences, including behavioural screening and manipulation, and emerging neurotechnologies.

This initiative brought together experts from an array of scientific disciplines, from philosophy and anthropology through to clinical, cellular and molecular neuroscience to discuss issues at the boundaries between biology and psychosocial interactions.

The aim of the report is to provide a framework for the discussion of future research and practice in light of the changes occurring in our understanding of the hu-

man brain. The authors write: “Understanding brain function is not only of use to medicine – it is important for all aspects of individual health and wellbeing. Many psychiatric disorders are known to begin during childhood and adolescence, at a time when brain plasticity is also critically important to learning and socialisation, for instance.”

The personal and societal burden of disorders in the brain is alarmingly high and still increasing,” said Marian Joëls, president of the Federation of European Neuroscience Societies. She continued: “In line with the recommendations in the current report, making the next step towards novel treatment strategies requires a joint effort from clinical and basic neuroscientists in coordination with many other neuroscience disciplines. It is however important also to stress that the healthy brain is crucial for so many aspects of our daily life. Capturing the full spectrum of brain function will truly allow us to understand why investing in brain research is such a unique opportunity to improve our overall quality of life.”



The Human Brain – From Cells to Society Toward Better Mental Health in Europe
www.esf.org/humanbrain

New initiative to accelerate Parkinson’s research

A new initiative aims to accelerate the search for biomarkers – changes in the body that can be used to predict, diagnose or monitor a disease – in Parkinson’s disease, in part by improving collaboration among researchers and helping patients get involved in clinical studies.

A lack of biomarkers for Parkinson’s has been a major challenge for developing better treatments. The Parkinson’s Disease Biomarkers Program (PDBP) supports efforts to invent new technologies and analysis tools for biomarker discovery, to identify and validate biomarkers in patients, and to share biomarker data and resources across the Parkinson’s community. The program is being launched by the US-based National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health.

Biomarkers can include changes in body

chemistry or physiology, in genes and how they are regulated, and even subtle changes in a person’s behaviour. For example, certain antibodies in the blood can be biomarkers for different types of infection. For Parkinson’s, there are no proven biomarkers.

Parkinson’s disease is a movement disorder that affects about 1 million people in the United States. Symptoms of the disease get worse over time, and include uncontrollable shaking, rigidity, slowed movements and impaired balance. Inside the brain, there is a progressive loss of cells in a motor control region called the *substantia nigra*, and an accumulation of protein-filled structures called Lewy bodies. Lewy bodies and other tell-tale signs cannot be observed until after death. Biomarkers could be used to detect and monitor the disease much earlier, perhaps even before symptoms appear. This could improve the success of existing therapies and help researchers test new ones in clinical trials.

The range of potential biomarkers for Parkinson’s is vast, and there have been promising leads. Some researchers are investigating the use of non-invasive imaging to detect changes in brain function or biochemistry. Several studies have tentatively linked the disease with changes in proteins or other molecules in blood, urine, or in the cerebrospinal fluid (CSF) that bathes the brain and spinal cord. PDBP is an initiative to fund and coordinate multiple biomarker studies.



Parkinson’s Disease Biomarkers Program
<http://pdbp.ninds.nih.gov>

Global measles deaths down but challenges remain

The number of measles deaths globally decreased by 71% between 2000 and 2011, from 542,000 to 158,000. Over the same period, new cases dropped 58% from 853,500 in 2000 to 355,000 in 2011, according to new data released by the World Health Organization, a leading member of the Measles and Rubella Initiative. Although the WHO Region of the Americas has sustained measles elimination since 2002, and the WHO Western Pacific Region is on track

News in Brief

Marriage reduces the risk of heart attack

A large population-based study from Finland has shown that being unmarried increases the risk of fatal and non-fatal heart attack in both men and women whatever their age. Conversely, say the study investigators, especially among middle-aged couples, being married and cohabiting are associated with “considerably better prognosis of acute cardiac events both before hospitalisation and after reaching the hospital alive”. The study is published in the January 31, 2013 issue of the *European Journal of Preventive Cardiology*.

Saudi donates funds for medicines for Syria

A statement by WHO Eastern Mediterranean Regional Office on 4 February says Saudi Arabia donated US\$2,107,000 to provide essential medicines, vaccines and medical equipment to the people of Syria. It is expected that as many as 3 million Syrians will benefit from the donation. This includes 710,000 refugees in neighbouring countries (75% of whom are women and children) and 1.5 million internally displaced persons (50% of whom are children).

Preventing traffic collisions has major economic benefits

Countries that take simple measures to prevent road traffic collisions not only save countless lives but also make substantial savings that translate into major economic benefits for society as a whole, according to a study published in the *Bulletin of the World Health Organization*. The study looked at the effect of measures taken in Catalonia, Spain, between 2000 and 2010, including in-

News in Brief

creased police surveillance and use of fines, improving road infrastructures and, from 2006, the introduction of legal measures to fine reoffenders with a penalty point system and to turn severe road violations into criminal offences. These measures resulted in a 57% reduction in road deaths between 2000 and 2010 as well as substantial reductions in traffic collisions, hospitalizations and sick leave.

Checklists in the operating room

The use of the World Health Organization's Surgical Safety Checklist in the operating room considerably lowers the risks of surgery, concludes Axel Fudickar and co-authors in their article in Issue 42 of *Deutsches Ärzteblatt International* (Dtsch Arztebl Int 2012; 109(42): 695–701). The most common errors in safety-related behaviour in the operating room are attributable to inadequate communication and teamwork.

Does changing the price of medicine influence consumers' perceived health risk?

Consumers assume their risk of getting a serious illness is higher when medications are cheaper because they believe that prices for life-saving products are based on need and not profit, according to a new study in the *Journal of Consumer Research*. "When consumers see lower prices for a life-saving product, they infer a higher need and thereby a greater risk that they can contract the disease. On the other hand, higher prices signal that a drug or treatment is inaccessible and thus the risk of getting a disease must not be all that great," write authors Adriana Samper (Arizona State University) and Janet A. Schwartz (Tulane University). **MEH**

to achieve elimination, large outbreaks of measles are jeopardizing progress in the remaining regions that have these goals.

WHO recommends that every child receive two doses of measles vaccine. The new data, in WHO's *Weekly Epidemiological Record*, show overall progress in reducing deaths is linked largely to increased vaccination coverage.

Estimated global coverage with a first dose of vaccine increased from 72% in 2000 to 84% in 2011. The number of countries providing the second dose through routine services increased from 97 in 2000 to 141 in 2011. Since 2000, with support from the Measles & Rubella Initiative, more than 1 billion children have been reached through mass vaccination campaigns – about 225 million of them in 2011.

Despite this global progress, some populations remain unprotected. An estimated 20 million children worldwide did not receive the first dose of vaccine in 2011. More than half of these children live in five countries: the Democratic Republic of the Congo (DRC) (0.8 million), Ethiopia (1 million), India (6.7 million), Nigeria (1.7 million), and Pakistan (0.9 million).

In 2011, large measles outbreaks were reported in all these countries and several others: in DRC (134,042 cases), Ethiopia (3,255 cases) India (29,339 cases), Nigeria (18,843 cases), Pakistan (4,386 cases) France (14,949 cases), Italy (5,189 cases), and Spain (3,802 cases). Most of these countries are in WHO regions which have committed to eliminate measles by 2015 or 2020.

The measles outbreaks pose a serious challenge to the regional elimination efforts and signal where national health systems and routine immunization programmes need strengthening. Resuming progress in reducing measles cases and deaths means strengthening health systems so that they can provide effective immunization services and laboratory-supported surveillance for vaccine-preventable diseases to all children.



Global Measles and Rubella Strategic Plan

<http://tinyurl.com/brupv2t>

Nations agree to phase out use of mercury by 2020

The World Health Organization (WHO) welcomes the approval of a new international convention – the Minamata Convention on Mercury – that will reduce the harmful health effects of mercury. Mercury is recognized as a chemical of global concern due to its ability to travel long distances in the atmosphere; its persistence in the environment; its ability to accumulate in ecosystems, including in fish, and its significant negative effect on human health and the environment.

Mercury can produce a range of adverse human health effects, including permanent damage to the nervous system, in particular the developing nervous system. Due to these effects – and also because mercury can be passed from a mother to her unborn child, infants – children and women of child-bearing age are considered vulnerable populations.

Agreement on the treaty followed extensive analysis of evidence and a series of high level intergovernmental negotiations involving more than 140 countries. The treaty establishes a number of protective measures, including controls on mercury emissions from coal-fired power plants and industry, as well as the use of mercury in artisanal and small scale gold mining, which are the major sources of mercury in the environment.

The treaty also includes an article dedicated to health. In particular, the treaty sets a phase out date of 2020 for mercury thermometers and blood pressure measuring devices used in health care. This adds support to WHO's programme assisting countries to replace these mercury devices with non-mercury alternatives.

WHO also supports the treaty's "phasing-down" of the use of dental amalgam (a compound of mercury and silver-based alloys). This action will contribute to a reduction of mercury use and the risk of release to the environment.

An important exception that was strongly supported in the negotiations was the use of thiomersal (ethyl-mercury) as a preservative in human and animal vaccines. **MEH**

البحوث العلمية عالية التأثير متاحة الآن للمجتمع بأكمله.

nature
الطبعة العربية



انضم إلى زوّاد العلوم بأُطلاعك على *Nature* الطبعة العربية، التي تصدر شهريًا باللغة العربية، إلى جانب الموقع الإلكتروني الخاص بها على شبكة الإنترنت، الذي يتم تحديثه بصفة دائمة.

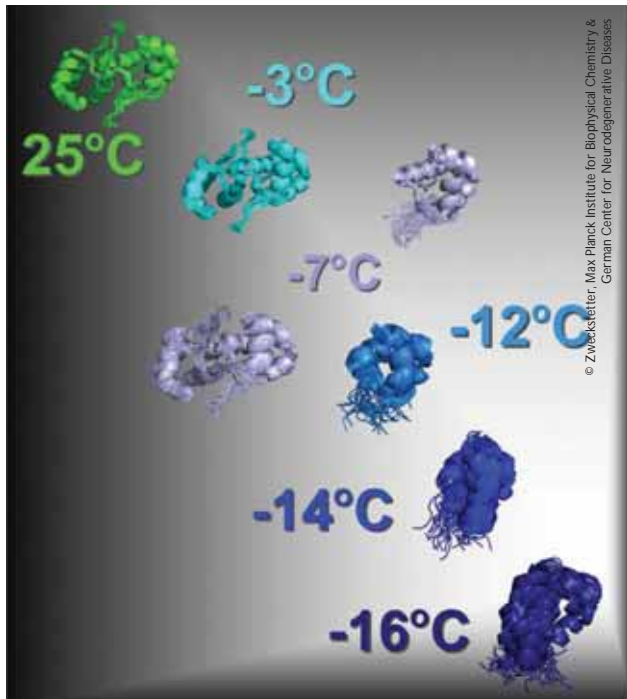
إن *Nature* الطبعة العربية تتيح للناطقين باللغة العربية متابعة الأخبار العلمية العالمية فائقة الجودة، والتعليقات الواردة عليها من خلال "Nature". إن محتوى المجلة سيكون متاحًا مجانيًا على الإنترنت كل أسبوع، مع وجود نُسخ مطبوعة محدودة من المجلة شهريًا.

اطلِّع على *Nature* الطبعة العربية من خلال الإنترنت، واملأ النموذج الخاص بالاشتراك مجانيًا باستخدام الرابط التالي:
arabicedition.nature.com

بالمشاركة مع:

the laboratory

Medical research news from around the world



“Snapshot” of the unfolding of the CylR2 protein from *Enterococcus faecalis*. If the protein is cooled from 25°C to -16°C, it successively breaks down into its two identical subunits. The latter are initially stable, but at -16°C they form an instable, dynamic protein form, which plays a key role in folding.

Protein “filmed” while unfolding at atomic resolution

Whether Alzheimer’s, Parkinson’s or Huntington’s Chorea – all three diseases have one thing in common: They are caused by misfolded proteins that form insoluble clumps in the brains of affected patients and, finally, destroy their nerve cells. One of the most important questions in the biological sciences and medicine is thus: How do proteins – the tools of living cells – achieve or lose their three-dimensional structure. Because only if their amino acid chains are correctly folded, can proteins perform their tasks properly.

But what exactly happens when proteins fold or unfold was previously nearly impossible to investigate. With heat and pressure, proteins easily lose their shape – and thus their function. However, such methods are not suitable for directly observing their unfolding process. The intermediate forms that occur in the course of protein folding are much too transient.

With a novel approach, researchers have now succeeded in “filming” the complex

process of protein folding for the first time. Scientists at the Max Planck Institute for Biophysical Chemistry (MPIBpc) and the German Center for Neurodegenerative Diseases (DZNE) in Göttingen, together with their colleagues at the Polish Academy of Sciences in Warsaw and at the University of Warsaw, have rendered visible – at atomic resolution – how a protein progressively “loses its shape”. In doing so, the researchers had pinned their hopes on low temperatures. “If a protein is slowly cooled down, its intermediate forms accumulate in larger quantities than in commonly used denaturation

methods, such as heat, pressure, or urea. We hoped that these quantities would be sufficient to examine the intermediate forms with nuclear magnetic resonance (NMR) spectroscopy,” said Markus Zweckstetter, head of the research groups “Protein Structure Determination using MNR” at the MPIBpc and “Structural Biology in Dementia” at the DZNE in Göttingen.

As research object, Zweckstetter’s team chose a key protein for toxin production in *Enterococcus faecalis*, a pathogen frequently encountered in hospitals where it particularly jeopardizes patients with a weak immune system. But that is not the only reason why the so-called CylR2 protein is interesting. Some time ago, researchers working with Stefan Becker at the MPIBpc succeeded in elucidating its structure, which shows: Its three-dimensional shape makes CylR2 a particular promising candidate for the scientists’ approach. “CylR2 is a relatively small protein composed of two identical subunits. This gave us a great chance to be able to visualize the individual stages of its unfold-

ing process in the test tube,” explained the chemists Mariusz and Lukasz Jaremko.

Stefan Becker’s group undertook the first step: to prepare a sufficient quantity of the protein in the laboratory. Subsequently, the two chemists cooled the protein successively from 25°C to -16°C and examined its intermediate forms with NMR spectroscopy. They achieved what they had hoped for: Their “film clip” shows at atomic resolution how the protein gradually unfolds. The structural biologist Markus Zweckstetter describes exactly what happens in this process: “We clearly see how the CylR2 protein ultimately splits into its two subunits. The individual subunit is initially relatively stable. With further cooling, the protein continues to unfold and at -16°C it is extremely instable and dynamic. This instable protein form provides the seed for folding and can also be the ‘trigger’ for misfolding.” The scientist’s findings may help to gain deeper insights into how proteins assume their spatial structure and why intermediate forms of certain proteins misfold in the event of illness.

● doi:10.1038/nchembio.1181 (2013)

Spanish researchers show breast milk has enormous microbial diversity

Spanish researchers have traced the bacterial microbiota map in breast milk, which is the main source of nourishment for newborns. The study has revealed a larger microbial diversity than originally thought: more than 700 species.

The breast milk received from the mother is one of the factors determining how the bacterial flora will develop in the newborn baby. However, the composition and the biological role of these bacteria in infants remain unknown.

A group of Spanish scientists have now used a technique based on massive DNA sequencing to identify the set of bacteria contained within breast milk called microbiome. Thanks to their study, pre- and post-natal variables influencing the microbial richness of milk can now be determined.

Colostrum is the first secretion of the mammary glands after giving birth. In



some of the samples taken of this liquid, more than 700 species of these microorganisms were found, which is more than originally expected by experts. The results have been published in the *'American Journal of Clinical Nutrition'*.

"This is one of the first studies to document such diversity using the pyrosequencing technique (a large scale DNA sequencing determination technique) on colostrum samples on the one hand, and breast milk on the other, the latter being collected after one and six months of breastfeeding," explain the coauthors, María Carmen Collado, researcher at the Institute of Agrochemistry and Food Technology (IATA-CSIC) and Alex Mira, researcher at the Higher Public Health Research Centre (CSISP-GVA).

The most common bacterial genera in the colostrum samples were *Weissella*, *Leuconostoc*, *Staphylococcus*, *Streptococcus* and *Lactococcus*. In the fluid developed between the first and sixth month of breastfeeding, bacteria typical of the oral cavity were observed, such as *Veillonella*, *Leptotrichia* and *Prevotella*.

"We are not yet able to determine if these bacteria colonise the mouth of the baby or whether oral bacteria of the breast-fed baby enter the breast milk and thus change its composition," outline the authors.

The study also reveals that the milk of overweight mothers or those who put on more weight than recommended during pregnancy contains a lesser diversity of species.

The type of labour also affects the microbiome within the breast milk: that of mothers who underwent a planned caesarean is different and not as rich in microorganisms as that of mothers who had a vaginal birth. However, when the caesarean is unplanned (intrapartum), milk composition is very similar to that of mothers who have a vaginal birth.

These results suggest that the hormonal state of the mother at the time of labour also plays a role: "The lack of signals of physiological stress, as well as hormonal signals specific to labour, could influence the microbial composition and diversity of breast milk," state the authors.

Given that the bacteria present in breast milk constitute one of initial instances of contact with microorganisms that colonise the infant's digestive system, the researchers are now working to determine if their role is metabolic (it helps the breast-fed baby to digest the milk) or immune (it helps to distinguish beneficial or foreign organisms).

For the authors, the results have opened up new doors for the design of child nutrition strategies that improve health. "If the breast milk bacteria discovered in this study were important for the development of the immune system, its addition to infant formula could decrease the risk of allergies, asthma and autoimmune diseases," conclude the authors.

Study describes relationship between a gene variant and calcium deposits on the aortic valve

Researchers have found a genetic variant that doubles the likelihood that people will have calcium deposits on their aortic valve. Such calcification, if it becomes severe, can cause narrowing or a blockage of the aortic valve, a condition called aortic stenosis. The study is the first large-scale, genome-wide association study to uncover a genetic link to aortic valve calcification. An article detailing the findings is published in the February 7, 2013 issue of *The New England Journal of Medicine*.

The study's lead investigators — from Johns Hopkins, Harvard University, McGill University, the University of Iceland and the US National Institutes of Health — found that having a genetic variant in the LPA gene, which codes for a type of cholesterol particle called lipoprotein (a), also increases the risk of developing aortic stenosis by more than 50%.

The researchers say their findings not only help explain why heart valve calcification may run in families, they could also lead to the development of targeted medications that might slow the progression of the disease. Statin medications, which reduce common forms of cholesterol that can clog blood vessels, have not been shown to reduce aortic valve calcification.

"This is an important step forward in

understanding the biology of the development of aortic stenosis and how this common genetic variant, which is found in 7% of the general population, contributes to that risk," says Wendy Post, M.D., a cardiologist and associate professor of medicine and epidemiology at the Johns Hopkins University School of Medicine who is a senior author of the study.

Non-genetic risk factors for aortic valve calcification include advancing age, high blood pressure, obesity, high cholesterol levels and smoking. Men are at higher risk than women.

Flexible approaches needed to reduce children's pre-operative anxiety

A survey of nurse anaesthetists in Sweden identified difficulties in preparing children for surgery but also found that when the hospital and the staff were flexible in their approaches, the children's anxiety could be reduced. These approaches included varying the operation schedule, provided it do not create risk to the child, and pre-surgical visits with operating staff.

Swedish researchers have found that reducing the anxiety of a child before an operation requires flexible approaches, which could have implications for all stressful hospital procedures involving children.

The study of nurse anaesthetists' experiences and actions when administering and caring for children requiring anaesthesia is reported in the February issue of *Nursing Children and Young People*.

The study concentrated on critical incidents in relation to the induction of anaesthesia.

Among the findings are that:

- The absence of sufficient advance information about the child made it difficult for the nurse anaesthetists to make the necessary preparations.
- Some respondents described having no alternative but to physically restrain the child, although they knew this was not good practice. Those situations usually arose in emergencies.
- Arranging a visit to the operating theatre for the child to meet the nurse anaesthetists several times before surgery increased the child's confidence. Another technique involved sending a photo of the nurses to a



child with special needs so the child could see a familiar face at the hospital.

● Deviating from organisational and personal routines, for example diverting from the operating schedule, without risking the patient's safety, could lessen a child's anxiety.

"Being sensitive to the child, acting according to the situation and being flexible in altering actions to suit the needs of the child are important strategies to reduce pre-operative anxiety and avoid physical restraint of a child," the researchers said.

"Furthermore, making the child and parents active participants in the pre-operative process is another successful strategy."

Study refutes accepted model of memory formation

A study by Johns Hopkins researchers has shown that a widely accepted model of long-term memory formation – that it hinges on a single enzyme in the brain – is flawed. The new study, published in the January 2 issue of *Nature*, found that mice lacking the enzyme that purportedly builds memory were in fact still able to form long-term memories as well as normal mice could.

"The prevailing theory is that when you learn something, you strengthen connections between your brain cells called synapses," explains Richard Huganir, Ph.D., a professor and director of the Johns Hopkins University School of Medicine's Department of Neuroscience. "The question is: How exactly does this strengthening happen?"

A research group at SUNY Downstate, led by Todd Sacktor, Ph.D., has suggested that key to the process is an enzyme they discovered, known as PKM-zeta. In 2006, Sacktor's group made waves when it created a molecule that seemed to block the action of PKM-zeta, and only PKM-zeta. When the molecule, dubbed ZIP, was given to mice, it erased existing long-term memories. The molecule caught the attention of reporters and bloggers, who mused on the social and ethical implications of memory erasure.

But for researchers, ZIP was exciting primarily as a means for studying PKM-zeta.

"Since 2006, many papers have been published on PKM-zeta and ZIP, but no one knew what PKM-zeta was acting on," says Lenora Volk, Ph.D., a member of Huganir's team. "We thought that learning the en-

zyme's target could tell us a lot about how memories are stored and maintained."

For the current study, Volk and fellow team member Julia Bachman made mice that lacked working PKM-zeta, so-called genetic "knockouts." The goal was to compare the synapses of the modified mice with those of normal mice, and find clues about how the enzyme works.

But, says Volk, "what we got was not at all what we expected. We thought the strengthening capacity of the synapses would be impaired, but it wasn't." The brains of the mice without PKM-zeta were indistinguishable from those of other mice, she says. Additionally, the synapses of the PKM-zeta-less mice responded to the memory-erasing ZIP molecule just as the synapses of normal mice do.

The team then considered whether, in the absence of PKM-zeta, the mouse brains had honed a substitute synapse-building pathway, much in the way that a blind person learns to glean more information from her other senses. So the researchers made mice whose PKM-zeta genes functioned normally until they were given a drug that would suddenly shut the gene down. This allowed them to study PKM-zeta-less adult mice that had had no opportunity to develop a way around the loss of the gene. Still, the synapses of the so-called conditional knockout mice responded to stimuli just as synapses in normal mice did.

What this means, the researchers say, is that PKM-zeta is not the key long-term memory molecule previous studies had suggested, although it may have some role in memory.

"We don't know what this ZIP peptide is really acting on," says Volk.

"Finding out what its target is will be quite important, because then we can begin to understand at the molecular level how synapses strengthen and how memories form in response to stimuli."

Research advances understanding of movement control

Voluntary movements involve the coordinated activation of two brain pathways that connect parts of deep brain structures called the basal ganglia, according to a study in mice by researchers at the US National Institute on Alcohol Abuse and Alcoholism

(NIAAA), part of the National Institutes of Health. The findings, which challenge the classical view of basal ganglia function, were published online in *Nature* on January 23.

"By improving our understanding of how the basal ganglia control movements, these findings could aid in the development of treatments for disorders in which these circuits are disrupted, such as Parkinson's disease, Huntington's disease and addiction," says NIAAA Acting Director Kenneth R. Warren, Ph.D.

The predominant model of basal ganglia function proposes that direct and indirect pathways originating in a brain region called the striatum have opposing effects on movement. Activity of neurons in the direct pathway is thought to promote movement, while activity in the indirect pathway is thought to inhibit movement. Newer models, however, suggest that co-activation of these pathways is necessary to synchronize basal ganglia circuits during movement.

"Testing these models has been difficult due to the lack of methods to measure specific neurons in the direct and indirect pathways in freely moving animals," explains first author Guohong Cui, Ph.D., of the NIAAA Laboratory for Integrated Neuroscience (LIN).

To overcome these difficulties, Dr. Cui and senior author Rui Costa, Ph.D., D.V.M., worked with LIN chief David M. Lovinger Ph.D., NIAAA Cellular Biophotonics Section Acting Chief Steven Vogel, Ph.D., and their colleagues to devise a new approach for measuring the activity of neurons deep within the brain during complex behaviours. Their technique uses fibre optic probes implanted in the mouse brain striatum to measure light emissions from neurons engineered to glow when activated.

Using this new approach, the researchers detected neural activity in both the direct and indirect pathways when mice performed a bar-pressing task. No such activity was detected when the mice were inactive.

"These neuronal activity patterns differ from previous predictions that one pathway would be active when animals begin moving while another would be active when animals are at rest," notes Dr. Costa, of the Champalimaud Neuroscience Program in Lisbon, Portugal. MEH



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gene pool

Genetic research news from around the world

Scientists find new clues to chromosome crossovers

Neil Hunter's laboratory in the UC Davis College of Biological Sciences has placed another piece in the puzzle of how sexual reproduction shuffles genes while making sure sperm and eggs get the right number of chromosomes.

The basis of sexual reproduction is that a fertilized egg gets half its chromosomes from each parent – sperm and eggs each contributing one partner in each pair of chromosomes. We humans have 23 pairs of 46 chromosomes: so our sperm or eggs have 23 chromosomes each.

Before we get to the sex part, though, those sperm and eggs have to be formed from regular body cells that contain twice as many chromosomes. That happens through a specialized type of cell division, meiosis.

During meiosis, the couples in each pair of chromosomes have to, well, couple by “crossing over” with each other. Each chromosome pair must become connected by at least one crossover so that when the couples separate, they are delivered to separate sperm or egg cells.

These crossovers also mean that chromosomes can exchange chunks of DNA with each other, shuffling the genetic deck for the next generation. But if too few crossovers are formed, gametes end up with the wrong number for chromosomes, a situation that can cause infertility, pregnancy miscarriage or chromosomal diseases such as Down Syndrome.

Large-scale studies of human genetics have shown that the number of crossovers formed during meiosis is under genetic control. Moreover, women that make more crossovers tend to have more children. One gene suggested to control crossover numbers in humans, called *Rnf212*, is the subject of a new study by UC Davis researchers led by Professor Neil Hunter.

Hunter studies how crossovers form and chromosomes separate at the UC Davis Department of Microbiology & Molecular Genetics and the Comprehensive Cancer Center. In 2009, he was awarded an early career fellowship from the Howard Hughes Medical Institute.

The latest paper from Hunter's lab, published February 10 in *Nature Genetics*, shows that *Rnf212* is essential for crossing-over in mammalian cells. Crossovers form by a process called homologous recombination, in which chromosomes are first broken and then repaired by coupling with a matching template chromosome. Although hundreds of recombination events are started in each cell, only one or two crossovers will form between any given pair of chromosomes.

“There isn't a special, predetermined site for a crossover. It can occur just about anywhere along a chromosome. But there has to be at least one and there always is,” Hunter said.

In a series of experiments in mouse cells, graduate student April Reynolds, Hunter and colleagues found that the *RNF212* protein defines where crossovers will occur by binding to just one or two recombination sites per chromosome where it triggers the accumulation of the protein machinery that actually carries out the cutting and splicing of DNA.

Mice that lacked the gene for *RNF212* were sterile. Mice that had one working copy of the gene were fertile, but on careful examination there were fewer crossovers formed while sperm and eggs were being made than in normal mice, potentially reducing fertility. It's possible that this might be tied to some causes of infertility in humans.

It remains unclear how each pair of chromosomes always manages to crossover at least once. But Hunter says he is, “convinced that *RNF212* holds the key to understanding this unique problem in chromosome biology”.

● doi:10.1038/ng.2541

Researchers find promising new approach to preventing progression of breast cancer

Doctors currently struggle to determine whether a breast tumour is likely to shift into an aggressive, life-threatening mode – an issue with profound implications for treatment. Now a group from The Scripps Research Institute (TSRI) has identified a mechanism through which mitochondria, the powerhouses of a cell,

control tumour aggressiveness. Based on their findings, the team developed a simple treatment that inhibits cancer progression and prolongs life when tested in mice.

The research team, which describes its results February 15, 2013, in an article published online ahead of print by *The Journal of Clinical Investigation*, hopes to proceed quickly to human clinical trials to test this new approach using drugs already in use for other conditions.

The TSRI laboratory of Associate Professor Brunhilde H. Felding studies cancer, especially the mechanisms that control metastasis, the spread of cancer from its primary site to distant organs in the body.

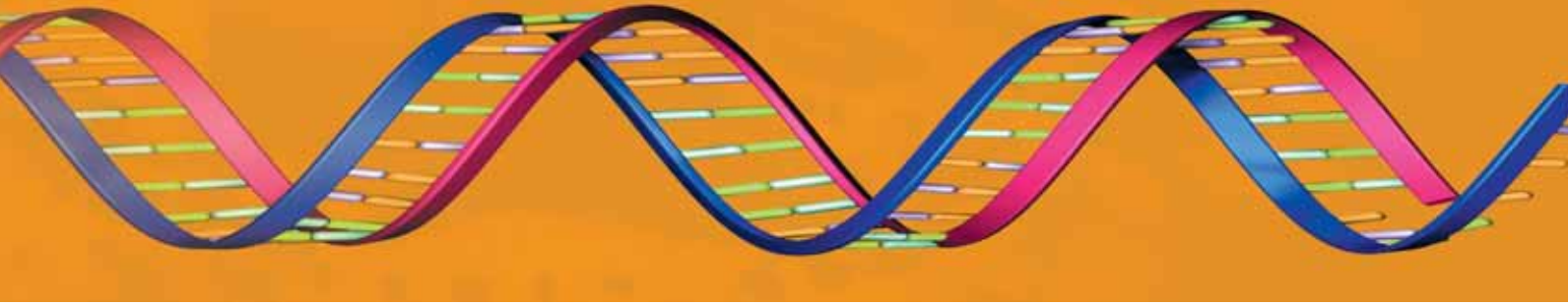
Past research suggested that mutations affecting mitochondria, which are key to energy production in cells, strongly influence whether a tumour becomes aggressive. But the mechanism was not clear.

“We decided to investigate a specific protein complex, called mitochondrial complex I, that critically determines the energy output of cellular respiration,” said the study's first author, Antonio F. Santidrian, a research associate in Felding's laboratory. To do this, the group teamed up with Akemi and Takao Yagi at TSRI, who are leading experts in complex I research. Using unique reagents from the Yagi group, the Felding team discovered that the balance of key metabolic cofactors processed by complex I – specifically, nicotinamide adenine dinucleotide (NAD⁺) and NADH, the form it takes after accepting a key electron in the energy production cycle – was disturbed in aggressive breast cancer cells.

To find out if the balance of NAD⁺ and NADH was critical for tumour cell behaviour, the team proceeded to insert a yeast gene into cancer cells that caused a shift toward more NAD⁺. To the scientists' amazement, this shift caused the tumour cells to become less aggressive.

“It was a really happy moment for me,” said Santidrian. But the more exciting moments, he said, were yet to come.

To confirm and extend the initial find-



ings, the team altered genes tied to NAD⁺ production. The resulting shift again showed that higher NADH levels meant more aggressive tumours, while increased NAD⁺ had the opposite effect.

The next logical step was to find a simple way to enhance the critical NAD⁺ level therapeutically. So the team explored what would happen if mice with breast cancer were fed water spiked with nicotinamide, a precursor for NAD⁺ production. The scientists found cancer development was dramatically slowed down, and the mice lived longer

“In animal models at various stages, we see that we can actually prevent progression of the disease,” said Felding.

Now the group is working toward human trials to learn whether nicotinamide or other NAD⁺ precursors will have similarly impressive results in humans. Since NAD⁺ precursors are already used for other purposes, such as controlling cholesterol levels, achieving approval for human clinical trials should be simpler than is normally the case.

“It is not a totally new treatment that would need to be tested for toxicity and side effects like a new drug,” said Felding. “And we already know the precursors can be easily ingested.”

If manipulating the NAD⁺/NADH ratio in humans has the same effect as in mice, the results could be profound. Such treatment could benefit people at risk of developing aggressive breast cancer, offer complimentary treatment to chemo and radiation therapy to avoid disease recurrence, and maybe even provide a preventive treatment for women with a family history of breast cancer.

Potential major new treatment strategy in fight against leukaemia

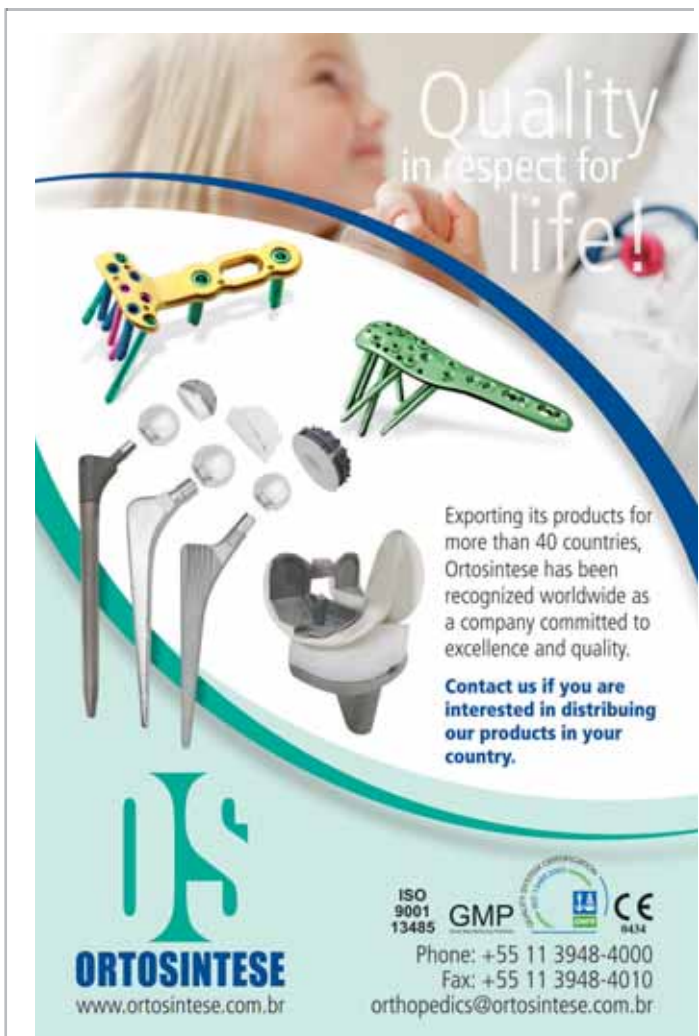
An international research effort in which the University of Essen was a participant has produced results which lay the foundation for a totally new approach to the treatment of leukaemia and lymphoma. These results are published in the journal *Cancer Cell*. The first author of the article describing the breakthrough is Dr Cyrus Khandanpour from the Department of Hematology of the West German Cancer Center at Essen University Hospital. Khandanpour has been involved in this effort since working as a postdoc on the research team headed by Prof. Tarik Möröy, who was previously a professor at the University of Duisburg-Essen and is now head of the Institut de recherches cliniques de Montreal in Canada.

The various types of leukaemia and lymphoma account for only three to five percent of all malignancies. However, in up to 80% of the affected patients, even intensive treatment fails to produce a cure. “We went straight to the heart of the matter and examined exactly how the various genes participating in the origin and development of leukaemia interact. I am now convinced that these results will also serve as starting points for new treatment strategies,” stated Khandanpour. One of the aspects his research group is looking at especially closely is the role played by the transcription factor Gfi1.

This has in fact proved to be the decisive key. Working together with various international research groups in Canada and the U.S. (Prof. Leighton. L. Grimes and Dr. James Phelan, Cincinnati). Khandanpour and Moroy examined the impact of Gfi1 on the origin and development of leukaemia and lymphoma. In the absence of Gfi1 a different course, remission or complete healing even without chemotherapy is observed in patients with leukaemia. This has been clearly demonstrated in experiments with mice models. The results of the first studies carried out with human leukaemia cells have confirmed that Gfi1 plays an important role there as well. When Gfi1 is lost, human leukaemia also disappears.

These promising results will now be explored further in another study at the University Clinic of Essen, exploring the possibility of targeting Gfi1 to cure human leukaemia. The work will be carried out at various locations. The work was supported among others by the Max Eder Program of the Deutsche Krebshilfe (German Cancer Aid) the IFORES program at Essen University Hospital and the Cole foundation.

● doi:10.1016/j.ccr.2013.01.011 



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business monitor

Carestream awarded 43 patents

Carestream was awarded 43 patents from the U.S. Patent and Trademark Office in 2012 for innovations in radiology imaging, healthcare IT, dental imaging and other areas, capping another strong year for technology development across its businesses, according to a statement from the company.

These new patents include: improvements in digital radiography detectors; advanced image processing techniques for digital radiography, mammography exams and specialty applications; and medical imaging advancements for use in intensive care units, orthopaedics and mobile X-ray systems.

The company also earned patents for innovations in its RIS (Radiology Information System) and PACS (Picture Archiving and Communications System) portfolio, as well as new dental imaging advances in intraoral (within the mouth) optical camera systems and radiography sensors.

Rounding out Carestream's research and development success in 2012 were patents for thermographic printer improvements and new inkjet media formulations for high-quality printing of medical images.

Cerner strikes deal with Saudi hospitals

King Saud University (KSU) and Cerner have recently signed a strategic collaboration in Riyadh, Saudi Arabia to provide electronic health record (EHR) systems for two of KSU's hospitals, King Khalid University Hospital (KKUH), a 950 bed hospital and King Abdulaziz University Hospital (KAUH), a 200-bed hospital.

The contract was executed between KSU and Saudi Health Information Systems (SHIS), which is a joint venture between Riyadh Valley Company, Zamil Group, and Cerner, that was created to focus on EHR programs within the Kingdom of Saudi Arabia. This is Cerner Middle East's first contract in the joint venture partnership established in 2011.

Cerner Millennium solutions will automate clinical processes and provide instant access to clinical information and integrated workflow through an EHR. The solutions digitize registration and scheduling,

laboratory, pharmacy, physician and nursing documentation, emergency, surgery, data warehousing and clinical supply chain. Clinicians at the academic hospitals will also be able to document care and place medication and other orders directly in the EHR.

During the kick-off of the system review session launched by Mubarak Al-Faran, Dean of the College of Medicine at King Saud University, an internal name for Cerner Millennium called eSiHi, or Electronic System for Integrated Health Information was announced. All clinicians and staff will refer to the new name when dealing with the new system, which will consolidate, streamline and standardize all processes and tools to improve the quality of information available to clinicians.

Over a period of 12-18 months, both academic hospitals will integrate approximately 30 Cerner solutions with its EHR serving as the foundation of the health technology implementation.

GE inks deal with Oman's Apex Medical Group for work on International Medical City

GE signed a strategic agreement with Oman's Apex Medical Group (AMG), a subsidiary of Al Joaib Group, the development company and promoter of International Medical City, to jointly explore development opportunities in healthcare, energy, water and home & business solutions within the landmark project that is set to establish Oman as a technology and innovation hub in the healthcare sector.

Nabil Habayeb, GE's President & Chief Executive Officer for the Middle East, North Africa & Turkey, and Dr Abdulla Al Joaib, President and CEO of the APEX Medical Group, signed the agreement in Dubai in January.

Nabil Habayeb said: "We are honoured to be the partner of choice for International Medical City which will mark a new transformation in the delivery of advanced healthcare services in the region. The partnership with Apex Medical Group is a strategic fit to GE's long-term presence in the Middle East region and Oman, as it underlines how GE shares its competencies across the healthcare, energy, water and

lighting solutions to work with our partners to promote sustainable development. Most significantly, the project also focuses on co-creating innovative solutions that meet the healthcare needs of Oman."

Dr Abdulla Al Joaib said: "International Medical City marks a new milestone in the evolution of Oman's healthcare infrastructure. While we are focused on bringing advanced competencies in transplant, rehabilitation and diagnosis, through the facility we are also bringing in best practices in sustainable energy and smart home & business. To cover this comprehensive range of solutions, we need to work with a strong and reliable partner that has proven competencies across all these sectors. GE's proven strengths in all our core sectors complement our long-term growth objectives and we look forward to their strategic counsel in developing the project to world-class standards."

Envisaged as a 530-bed tertiary care multispecialty hospital, the US\$1 billion International Medical City will also include a transplant and dialysis centre of excellence, a rehabilitation centre, and a diagnostic centre of excellence. Other facilities include a Trauma and Emergency Unit, ambulance services, intensive care unit, blood bank, pharmacy, Scientific Registry of Transplant Recipients (SRTR) and Organ Transplant Donor Registry (OTDR), as well as a 4-star hotel.

GE will support the project by providing cutting edge technology as well as developing innovative products during the design and construction period to further enhance operational efficiencies. Apart from sharing its technological competencies in healthcare, GE will also support the project with green energy solutions focused on solar, wind and gas power generation, water technologies and lighting with a focus on sustainability.

Methodist International partners with Medical City in Jeddah

Methodist International, the global subsidiary of The Methodist Hospital in Houston, Texas, United States of America, has entered into an agreement to provide services for the development and op-



erations of a new Medical City, providing the full continuum of care as part of the Prince Sultan Cultural Center in Jeddah, Kingdom of Saudi Arabia.

The Prince Sultan Cultural Center Company (PSCC) is planning to develop a fully integrated Medical City as part of a larger cultural park in Jeddah, Kingdom of Saudi Arabia, in honor of Prince Sultan bin Abdul-Aziz Al Saud and envisioned by Governor of Makkah, Prince Khalid Al Faisal. The Medical City will offer all medical services through the continuum of care at every stage of life, from birth to old age, and from wellbeing to critical care. The complex will include a general hospital, several specialized hospitals and medical centers, wellness and long term care facilities and a school of health sciences. This will be complemented by a range of

support services such as clinics, pharmacies, and hospitality and office space.

Mohammad Al Fadl, Chairman of the Board of Directors at PSCC, said: "Prince Sultan Culture Center Medical City will be the leading healthcare provider in Western Province. We are pleased to have Methodist International as our partner and operator of our flagship hospital."

Methodist International has entered into a long-term relationship with PSCC focusing on quality, training, program management, compliance standards and knowledge transfer. A clinical and administrative team of consultants from Methodist will focus on the development and establishment of exceptional clinical, operational and quality standards for the Medical City.

"Methodist International is committed to setting a global standard of excellence

in patient-centred care, education and training, clinical collaboration, and advisory services. Our partnership with Prince Sultan Cultural Center demonstrates our shared commitment to health care quality and differentiated services for patients. We are honoured to be a part of this project supporting the progress of health care services in Jeddah and Saudi Arabia," said Cathy Easter, President and CEO of Methodist International.

Following the establishment of the Medical City, Methodist International will enter into a ten-year management agreement to manage and operate four of the medical facilities planned as part of the overall project: the general teaching hospital; bone and joint hospital; diabetes, lipids and hypertension centre; and wellness and ambulatory surgical centre. **MEH**

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No anaesthesia needed

Jude Children's Research Hospital reports success using a targeted educational approach to teach young patients to remain motionless during MRI scans, making the process safer.

Sitting still is tough for children, which makes MRI scans a challenge. The scans require that patients remain motionless for extended periods. Findings from St. Jude Children's Research Hospital showed that a brief, targeted intervention dramatically increases the likelihood that children as young as 5 years old will be able to undergo testing without sedation.

That is good news for children with sickle cell disease, who were the focus of this study. Patients with sickle cell disease often undergo brain and liver MRIs to check for complications related to their disease or treatment. But the blood disorder puts patients at increased risk for serious anaesthesia-related complications, so sedation is avoided when possible.

This study of 71 patients with sickle cell disease ages 5 through 12 found that children who completed the short preparation program prior to their MRI were eight times more likely to complete the scans without being sedated than patients of the same age who did not receive the preparation. The work was published online in the journal *Pediatric Radiology*.

The intervention implemented by the Child Life Program at St. Jude involves educating patients and families about exactly what to expect during an MRI, assigning patients jobs to focus on during the scans and also working to identify strategies to help them remain motionless during the test. "Some patients chose to listen to music or to squeeze a ball to help them remember not to move," said Katherine Cejda, a St. Jude Child Life specialist and the study's first author. "Some patients had the option of watching movies or having parents or

other adults in the room with them during the test."

This study is the first designed to determine the effectiveness of this approach and the first to focus on children with sickle cell disease. Cejda said similar programs are used by child life specialists throughout the U.S. to help prepare children for MRIs and other medical procedures.

The paper's senior author, Jane Hankins, M.D., an associate member of the St. Jude Department of Hematology, said that avoiding sedation reduces the risk to the patients, particularly those with sickle cell disease.

Sickle cell disease is caused by a mutation in the gene for assembling haemoglobin. Haemoglobin is the protein red blood cells use to carry oxygen throughout the body. While red blood cells are normally pliable discs, the inherited mistake results in red blood cells becoming brittle and assuming a banana shape that can trigger intense pain and lead to organ

Children examined in MRI without anaesthesia

For the first time, Bochum clinicians have been able to show on the basis of a large sample, that it is possible to examine children's heads in the MRI scanner without general anaesthesia or other medical sedation. In many cases it was sufficient to prepare the young patients for the examination in an age-appropriate manner in order to take away their fear of the tube. And the results speak for themselves: of the 2,461 image sequences recorded with 326 patients, the participating radiologists classified 97% as "diagnostically relevant". At the same time, through his study, the associate professor Dr. Christoph M. Heyer (BG Bergmannsheil University Hospital, Bochum, Germany) has been able to demonstrate for the first time the value of the so-termed BLADE sequences for the comprehensive examination of children in the MRI scanner. The study has just been published in the November 2012 issue of the journal "RöFo - Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren".

Magnetic resonance imaging (MRI) as a radiation-free process today plays

a key role within paediatric diagnostic radiology imaging. It is indispensable when it comes to depicting the central nervous system of children. Although the advantages of MRI over other test methods are sufficiently well known, many institutions and practices shy away from using it with young children. On the one hand, they assume that the children will not keep still enough to achieve sufficient image quality for diagnosis. On the other hand, they shun the organisational effort and expense involved when they need to sedate or anaesthetise the children in order to achieve an unimpeded workflow. For this, the young patients have to be admitted to the ward with a parent. They also have to have a peripheral venous indwelling cannula inserted and be administered sedatives or anaesthetics.

Another way of doing things

Assistant professor Heyer and colleagues have shown that there is another way of doing things. They examined 326 patients with an average age of 7.2 years in the Paediat-

ric Radiology Outpatient Clinic at the Department of Diagnostic Radiology, Interventional Radiology and Nuclear Medicine at the Bergmannsheil University Hospital without sedation or general anaesthesia. All the young patients were previously prepared for the MRI in an age-appropriate manner, given enough time to visit the scanner room, were allowed to take their cuddly toys into the MRI and their parents were with them. In addition, the Bochum clinicians recorded MRI sequences using the so-termed "BLADE" technique so as to exclude "blurring" as far as possible.

With this concept the doctors succeeded in examining 41% of the three year olds, 91% of the four-year olds and 98% of patients over the age of five without sedation. The 2461 image sequences acquired were reviewed by two radiologists, and in a total of 97% of cases declared to be diagnostically usable.

damage. Hankins said the disease also makes anaesthesia riskier.

General anaesthesia can lead to a drop in temperature, blood oxygen levels and dehydration. In patients with sickle cell disease, dehydration can result in a painful and dangerous build-up of sickled cells. Patients can wind up hospitalized, sometimes in the intensive care unit, for treatment of severe pain or acute chest syndrome, a pneumonia-like illness, Hankins said. To reduce that risk, a sickle cell patient scheduled for anaesthesia is hospitalised overnight to receive extra fluids and possibly a blood transfusion.

The combination of factors creates inconvenience and added risk for the patient. It also adds to health care costs. While no family ever pays St. Jude for the care their child receives, controlling costs remains important to the hospital. The program could also be adopted by other health care institutions worldwide to help manage cost.

The intervention is now routinely offered to all St. Jude patients undergoing MRIs. Cejda said the program has been used to help children as young as age 4 complete scans without sedation. "This preparation program offers a real advantage to patients," Hankins added.

The study included children scheduled for brain or liver MRIs, which usually last 30 to 60 minutes. Researchers reported that 30 of the 33 children, or 91%, in the intervention group underwent successful MRI scans without sedation. That compares to 71%, or 27 of 33 patients, who did not participate in the program prior to undergoing MRIs without sedation. **MEH**

● doi. 10.1007/s00247-012-2422-2



CorrectInject Safety System for administering neuraxial medication gets US FDA approval

Smiths Medical's Portex CorrectInject Safety System for administering neuraxial (spinal and epidural) medication has recently received 510(k) clearance from the U.S. Food and Drug Administration (FDA).

The CorrectInject Safety System is intended to enhance patient safety by helping to reduce the risk of tubing misconnections, while minimizing changes to clinical technique. Tubing misconnections often occur, as epidural, intravenous, enteral and other infusion lines look alike. The connectors of the CorrectInject Safety System are uniquely tapered and threaded to be intentionally incompatible with standard Luer connectors. The CorrectInject Safety System's yellow components visually signify a neuraxial delivery route and are intended to prompt

clinicians to check that the medication to be delivered is appropriate for the treatment location.

Professional associations and government agencies, including the National Patient Safety Agency (NPSA) in the UK, the World Health Organization and the Joint Commission on Accreditation of Healthcare Organizations in the U.S. support the use of strategies and best practices to reduce this risk of medication administration errors, calling on product developers and manufacturers to produce connector systems dedicated for neuraxial (spinal and epidural) applications. The National Health Service (NHS) of the UK was the first government agency to adopt practices requiring the clinical use of dedicated neuraxial medication delivery systems. By April 1, 2013 all epidural, spinal (intrathecal) and regional anaesthesia infusions and boluses are to be performed with devices that use safer connectors that will not connect with intravenous Luer connectors or intravenous infusion spikes.

Smiths Medical President Srin Seshadri commented: "We are pleased to be able to offer a solution that help to reduce medication delivery errors during spinal and epidural anaesthesia administration. As a global leader of safety medical devices, it is our obligation to develop innovative medical products that not only help protect patients when they are most vulnerable but help to raise clinical standards of care."

Care providers and providers of medical technologies recognize the potential of the CorrectInject Safety System. Earlier this year, the CorrectInject Safety System was showcased at the Premier Innovation Celebration, an annual conference highlighting breakthroughs in patient care where it received a Premier Innovation Award. Premier, a visionary group purchasing organization serving 2,500 U.S. hospitals and 80,000 healthcare sites, is dedicated to helping healthcare providers improve clinical and operational performance. One way that Premier does this is by collecting and analysing clinical and financial data of its members to identify best practices and products that advance patient care by reducing costs, improving quality, and elevating safety to better manage risk. Premier provides a channel for suppliers of medical technology, products, and services to have their latest innovations reviewed and evaluated by committees of clinical and operational experts.

The Portex CorrectInject Safety System for Epidural Anaesthesia Injection is the first of the line to be cleared for market release in the U.S. The CorrectInject Safety System for Spinal Anaesthesia Administration has been available in the United Kingdom, Ireland, Australia and countries in Asia since September 2011. Regionalised introductions of the CorrectInject Safety System, including a system for epidural infusion, will expand as country registrations and approvals are granted. **MEH**



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Light-activated reversal of anaesthesia

In a new study, a light-sensitive moiety has been added to propofol, a commonly used anaesthetic, allowing its narcotic effect to be controlled by light. The compound also offers a possible route to the treatment of certain eye diseases.

Inhibitory neurotransmitters dampen the activity of neurons.

This regulatory effect forms the basis for the action of many anaesthetics. For example, propofol, a common anaesthetic, interacts with receptors on neural cell membranes that normally bind the inhibitory neurotransmitter gamma-amino butyric acid (GABA). Binding of GABA opens protein channels through which negatively charged chloride ions stream into the cell. By raising the resting electrical potential across the membrane, this makes the cell less likely to fire in response to an incoming stimulus. Propofol magnifies this effect and this functions as an anaesthetic.

Dirk Trauner, Professor of Chemical Biology and Genetics at LMU and a member of the Excellence Cluster CIPSM, is a specialist in the art of conferring on “blind” nerve cells the ability to react to light. Working with colleagues based in Switzerland and the US, he has now developed a derivative of propofol that allows the action of the GABA receptor to be regulated by light. “By attaching a molecular switch to propofol, we have obtained a light-sensitive molecule that is a more potent anaesthetic than propofol itself, in the dark,” Trauner explains.

Sleepless when the sun shines

In this case, light serves to largely inactivate the anaesthetic effect of the compound, as the researchers were able to demonstrate in experiments on tadpoles. When exposed to a low concentration of the propofol derivative, the animals were anesthetized, as expected. However, when irradiated with violet light, they promptly revived, but remained active only as long as the light was on. In the dark, they were immobilized once again. The light-dependent effect is completely reversible, as the tadpoles recovered fully upon transfer to their normal aquarium.

The new agent could be used to treat certain forms of blindness, such as retinitis pigmentosa, which leads to loss of vision owing to progressive destruction of photoreceptors. However, neurons deeper in the retina are unaffected, and are accessible to ambient light. “The inner cells also bear GABA receptors on their surfaces, and in principle they could be turned into light-responsive cells with the help of the new compound, which would allow us to bypass the defective photoreceptors,” says Trauner. He and his research group are now actively exploring this possibility. **MEH**

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Bispectral Index EEG-based monitor recommended for measuring depth of anaesthesia

The UK-based National Institute for Health and Clinical Excellence (NICE) has issued a recommendation for the use of Covidien's electroencephalography (EEG)-based monitors, specifically the Bispectral Index (BIS) monitor, as an option for measuring depth of anaesthesia. Covidien is a leading global provider of healthcare products specifically patient monitors and respiratory care devices.

The recommendation specifies that the BIS monitor should be used with all patients receiving total intravenous anaesthesia and during any type of general anaesthesia with patients considered at high risk of adverse outcomes. This includes patients at high risk of unintended awareness and patients at high risk of excessively deep anaesthesia. The Covidien BIS Brain Monitoring System helps clinicians assess patient consciousness levels through electrical activity in the brain.

The NICE guidance specifically recommends the BIS system as an option in the care of patients at high risk for unintended awareness (consciousness) or excessively deep anaesthesia levels during surgery. Both can lead to serious short- and long-term health risks, including post-traumatic stress disorder, heart attack, and stroke and in older patients, cognitive dysfunction or "brain fog."

Patients at high risk for unintended awareness include older patients as well as those with morbid obesity, poor cardiovascular function, presence of two or more chronic diseases, high opiate or alcohol use, intravenous anaesthesia techniques and certain types of surgical procedures.

The recommendation for BIS monitoring as an option in patients receiving total intravenous anaesthesia was made because it is cost effective and because it is not possible to measure anaesthetic concentration in these patients.

"The NICE assessment and recommendations provide clear guidance to anaesthesia professionals regarding the use of depth of anaesthesia monitoring that will greatly improve patient care and safety for individuals at higher risk for adverse reactions to general anaesthesia," said Scott Kelley, M.D., Chief Medical Officer, Respiratory and Monitoring Solutions, Covidien. "With BIS brain monitoring technology, anaesthetists, in combination with their other standard practices, can accurately determine consciousness and tailor anaesthesia dosing to ensure optimal patient experience and minimize risks."

The NICE Diagnostics Guidance is based on extensive clinical

evidence and an assessment report prepared by the University of Southampton's Southampton Health Technology Assessment Centre and input from a number of professional organisations and device manufacturers. Other brain monitoring technologies assessed as part of the clinical research include the GE Healthcare E-Entropy and Schiller Narcotrend-Compact M. **MEH**

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The new Dräger Perseus A500 anaesthesia workstation

Dräger's Perseus A500 represents a milestone in anaesthesiology

The Perseus A500 anaesthesia workstation is one of the largest development projects ever from Dräger. Its flexible product design, linked with the Infinity Acute Care System (IACS), for patients in intensive care, provides a level of automation that supports the workflow in the OR. This milestone in the development of anaesthesia machines was introduced by the company at Arab Health 2013 in Dubai.

The patient monitor on the left, right, or centered? With or without medical cockpit for linked IT solutions? Even more storage space? Or advanced clinical functionality? "The development of the Per-

seus A500 took into account the option for customers to arrange their anaesthesia workstation as they like and as it fits their specific situation," says Oliver Rosenthal, director of Dräger's strategic anaesthesia business unit.

By users for users

Within the scope of the so-called Customer Process Monitoring (CPM)ⁱ, Dräger specialists have observed anaesthesiologists and nurses around the world in their work environment and subsequently interviewed them. "Only during daily use do technology problems reveal themselves," explains Rosenthal. "Our

objective was, therefore, to empathize with the user even more intensely than before and to integrate and implement our observations into a concept for new anaesthesiology workstations."

The observations have been incorporated into the product design of the Perseus A500. More than 100 different versions of the anaesthesia workstation can be created to match the needs of hospitals by combining the different hardware options, shelf arrangements, and storage areas. In addition, freely selectable software options such as ventilator or monitoring modes, increase the number of possible configurations.

A strong team: Perseus A500 and the IACS

The centralized Perseus A500 15.3" wide-screen monitor can be combined with the IACS monitoring system. The IACS consists of the stationary Infinity Medical Cockpit and portable M540 monitoring component.

The Infinity Medical Cockpit imports the anesthesia data from the Perseus A500 and depicts these on a monitor in real time together with the vital signs of the patient. It can be mounted to the side rails as required, either on the left or the right of the device. As soon as the M540 is connected to the Perseus A500, it automatically adjusts its alert behavior to the surgical situation. The anesthesiologist can retrieve from the system a case summary consisting of patient data, surgery time, consumption of anesthetic gases, and equipment data, and save or print this data for further documentation.

Intensive medical ventilation

The quality of ventilation supplied by the Perseus A500 is similar to an intensive care ventilator. The TurboVent 2 turbine ventilator makes it possible for patients to breathe deeply and freely (spontaneous breathing) at all times regardless of the set mode and thus provides particularly gentle ventilation.

The ventilation system of the Perseus A500 features small fresh gas flows (minimal-flow system). The low volume of 2.2 liters in a circulating system and the ventilator control ensures that changes to the gas dosage are delivered quickly to the patient despite the minimal fresh gas flow.

Automation relieves hospital staff

The automated features of the Perseus A500 provide benefits to personnel throughout the hospital - from the anesthesiologist to the anesthesia nurse to the housekeeping staff.

The Perseus A500 features an automatic and self-starting device test and is therefore ready as soon as the OR doors open in the morning. The automatic drying of the breathing system at the end of the day - the so-called "Flush and Dry" function - frees the care staff to do other tasks and optimizes hygiene. RFID (Radio Frequency Identification) technology is used by the device to remind users of the timely replacement of disposable materials such as the water trap, breathing tubes, and lime scale absorber.

As an ergonomic anesthesia workstation, the Perseus A500 excels with its simple and intuitive usage concept. User interface, nomenclature, and touch

screen of the device are in accordance with the operating philosophy of existing Dräger equipment. Users thus become familiar with the device quicker and more easily, the risk of operator error is reduced, and training and education expenditures are lowered as well

110 years of Dräger anesthesia equipment

In 1902, the "Roth-Dräger" anesthesia machine was already a revolutionary device for achieving a reliably controlled mixture of oxygen and anesthetic agents. The Cicero anesthesia machine, built in the 80's, was the first machine of its kind to feature an integrated patient monitor, device monitor, and ventilator with respiratory system, as well as a dosing unit for anesthetic gases in a single apparatus. Today's devices have become comprehensive anesthesia workstations and ensure not only the exact dosage of anesthetic agents but also provide detailed monitoring of patients and feature intelligent alarm systems. With the Perseus A500 anesthesia workstation, Dräger continues the success story of the company.

● Visit www.draeger.com/perseus for more information.

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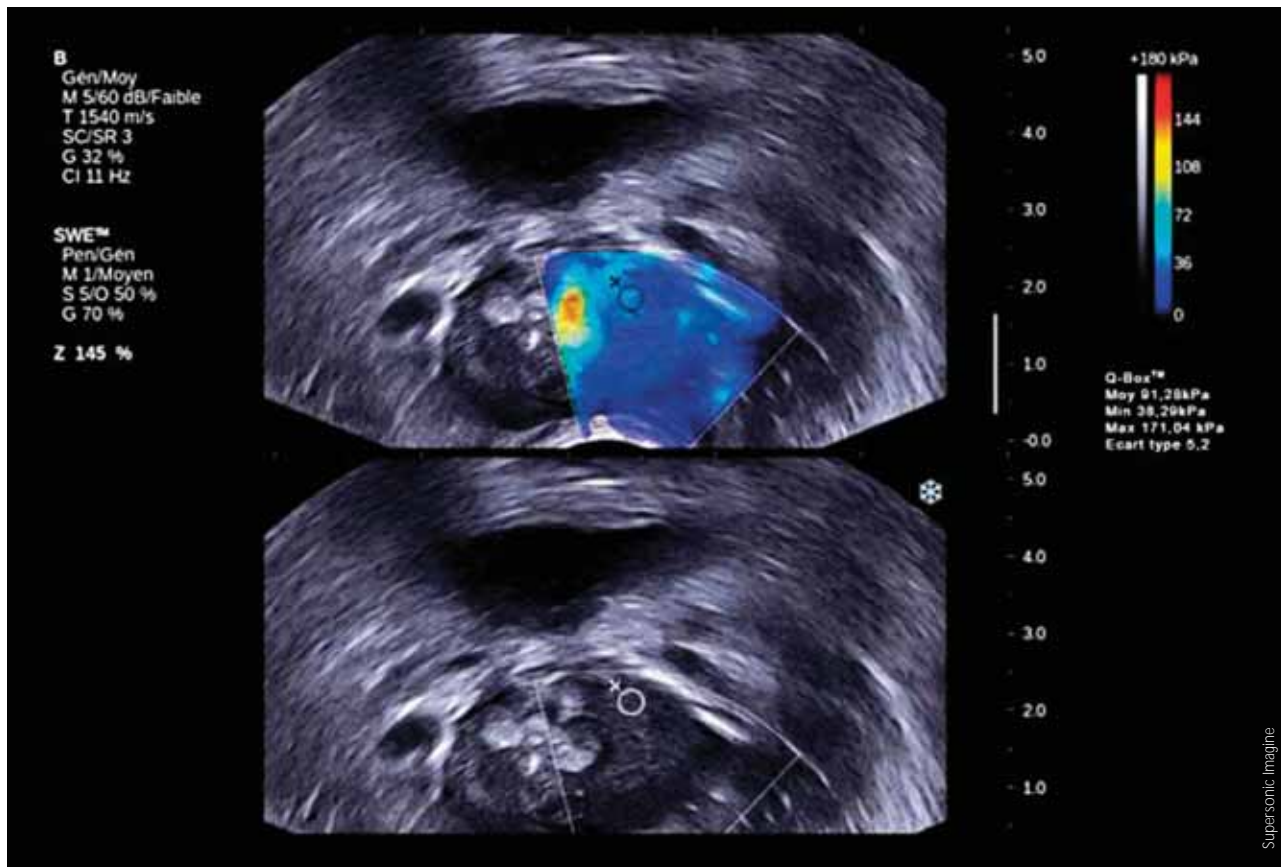
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The advertisement features a background image of a dandelion with its seeds blowing away. On the right side, there are three inset images showing different medical carrier systems: a wall-mounted system, a mobile system with a screen, and a mobile system with a tray.

Elastography-ultrasound offers new cancer detection method



Ultrasound creates two types of waves: pressure waves and shear waves. Pressure waves go down into the tissue. Shear waves run horizontally, and are created by the radiation pressure from the pressure waves. Current ultrasound examinations measure the pressure waves. The new ultrasound examination measures the shear waves. Until now it has not been possible to measure the shear waves. Shear waves can be used to measure elasticity in soft tissue. Elasticity differs between healthy tissue and tumours. The answer is shown in colours.

As the first countries in the world, Norway and France will be testing a completely new method for detecting cancer. This is done by measuring the elasticity of tumours. The method is called *elastography*. You may as well learn this new word right away; in a few years, elastography may be as common as X-rays.

“Elastography gives oncologists yet an-

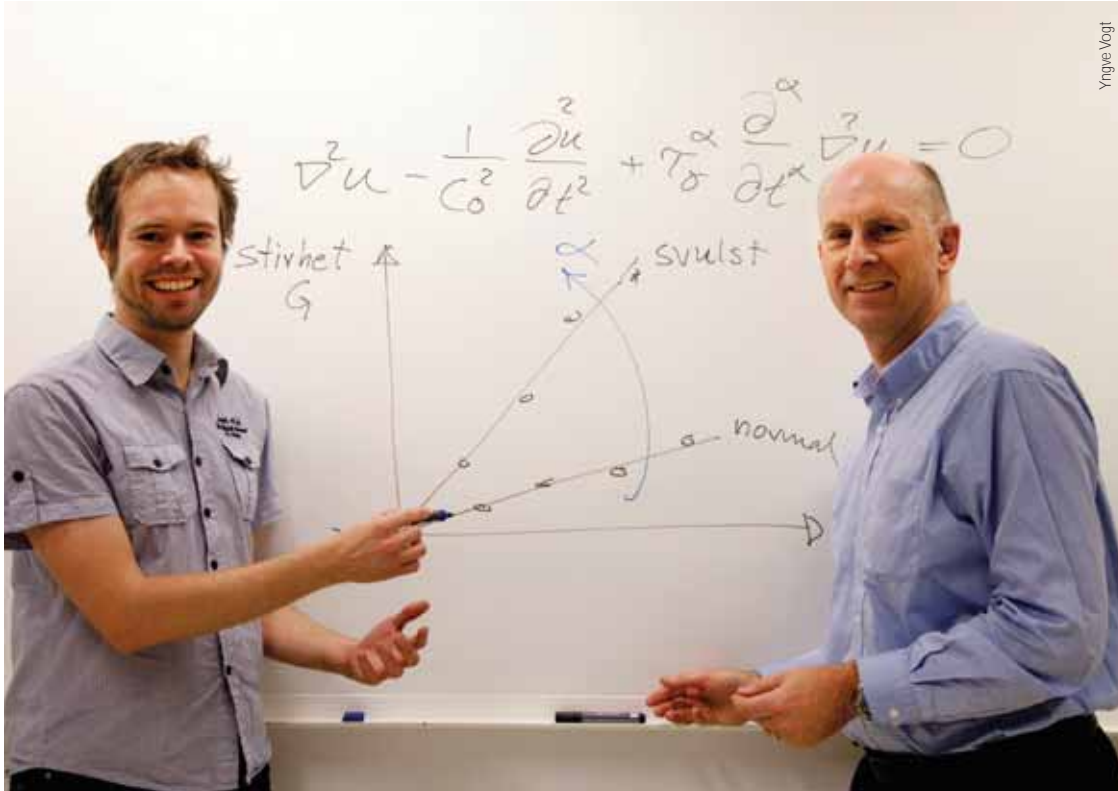
other method for detecting tumours. Elastography may be especially suitable for determining how serious the illness is,” says radiologist and clinical consultant Per Kristian Hol at the Intervention Centre at Oslo University Hospital, Rikshospitalet.

To detect cancer, determine how the cancer is developing and how dangerous it is, hospitals must often use large and

expensive methods such as X-rays, MR, CT or PET.

“Some of the methods use a lot of radiation. Others are very expensive to run.”

Every year, nearly one hundred Norwegians get cancer from X-rays. This is what radiologist *Lars Borgen* found in his dissertation in clinical medicine last year. The radiation from a round in a CT machine



Yngve Vogt

As tumours do not have the same elasticity as health tissue, it is possible to detect tumours by measuring elasticity of soft tissue. This method is called elastography. “Wave velocity in ultrasound measurements increases the more dangerous the tumour is,” explains Professor Sverre Holm (right) and Postdoctoral Fellow Peter Näsholm in the Department of Informatics at UiO.

is ten times higher than the average background radiation during an entire year, according to particle physicist Erlend Bolle. For PET scans, the patient is injected with radioactive tracers.

“We want the best possible diagnostics with the least possible radiation. Elastography is completely safe,” says Hol.

A promising method

Elastography can be combined with either MR or ultrasound. MR machines are expensive.

“Ultrasound is cheap, but the result depends a lot on how good the ultrasound examination is. In the future, we envision that elastography will be performed at a regular doctor’s office,” says Hol.

The University Hospital is now planning to test the method on patients.

“We still don’t know a lot about elastography, but the method looks promising. If elastography is the technique we are hoping for, this can become an important examination in the future. This would allow us to use elastography to characterize different types of tumours, such as cancer of the liver,” says Anne Cathrine T. Martinsen, who

is the Section Manager of diagnostic physics at the Intervention Centre and Associate Professor in the Department of Physics at the University of Oslo.

Vibrator

Tumours do not have the same elasticity as healthy tissue. Elasticity is related to the density of blood vessels. Tumours have more blood vessels than healthy tissue. Malignant tumours usually have even more blood vessels and a greater blood flow than benign tumours.

“Different tumours at different stages of the development of the cancer have different elasticity. Tumours may be less or more elastic than healthy tissue. Some tumours may spread, while others do not. In other words, we can get an entirely new map of organs and tumours by measuring elasticity.”

The examination is simple. The doctor places a vibrator on the location that is to be examined. The vibrator has a pulse of up to 200 oscillations per second. The pressure wave from the vibrator goes through the organ. This allows doctors to study the elasticity of the healthy and diseased parts.

Researchers at the Hôpital Beaujon university hospital in Paris are already testing elastography on patients with liver fibrosis, an illness in which the liver has become stiff due to hepatitis or alcohol damage.

The Intervention Centre in Oslo is now planning to test the method on Norwegian patients with liver fibrosis. The method can replace biopsy. This means that patients do not have to have a needle inserted into their liver.

The trick: divide the waves

In the last four years, Professor Sverre Holm in the Department of Informatics at the University of Oslo, Norway, has collaborated closely with the French researchers. Holm has researched ultrasound for 20 years and is also Adjunct Professor in the Department of Circulation and Medical Imaging at the Norwegian University of Science and Technology.

“Elastography-ultrasound is completely different from the current use of ultrasound. Traditional ultrasound sends out a signal that returns as an echo. The problem is that it is impossible to distinguish between malignant and benign tumours

with regular ultrasound,” says Holm to the research magazine *Apollon*.

And this is where Apollon gets to the point: Ultrasound creates two types of waves. The most common type is pressure waves. Pressure waves go down into the tissue. The other waves are created by the radiation pressure from pressure waves and run horizontally. These waves are called *shear waves*.

While pressure waves are mostly affected by fluids, the shear waves capture the characteristics of the other 30 per cent of the body that does not consist of water.

Until today, it has not been possible to measure shear waves.

“We study how the shear waves behave in the tissue, and look at viscosity (studies how liquid the fluid is), attenuation and velocity,” says Holm.

Shear waves are created when pressure waves are sent to specific points. From there, the special diagonal energy waves are created. The trick is to use the regular ultrasound

waves to measure the diagonal energy pulse.

“We must reconstruct what happens. We must discard all information from the pressure waves and only retain the information from the shear waves,” says Holm.

The pressure wave has a speed of 1,500 metres a second. The shear wave has a speed of one to ten metres a second.

“A regular ultrasound scanner takes a hundred images a second. The speed must be increased to a thousand images a second in order to capture shear waves. To manage this speed, we must sacrifice some of the image quality,” says Postdoctoral Fellow Peter Näsholm in the Department of Informatics.

If the frequency changes, the speed of the waves will change. It turns out that the more dangerous a tumour is, the the higher the speed of the waves is. A large calculation capacity is required to interpret these waves. The mathematics is far from simple.

Hope to replace mammography

French researchers believe that in the

future, elastography can replace mammography. Mammography uses X-rays to examine breasts. Any dose of radiation is unfortunate.

“Elastography can be an important supplementary examination in the diagnosis of breast cancer. Large clinical trials will be carried out in the near future to see if we can replace mammography with elastography,” says Professor Mickael Tanter at ESPCI, the technical university college for industrial physics and chemistry, which is behind the technology used by the French ultrasound company Supersonic Image.

The Intervention Centre in Oslo is less certain than the French professor.

“If elastography is to replace breast cancer screening, it must be able to see smaller tumours and to see the tumours better than it does currently. In mammography, it is difficult to detect small tumours. There is hope that elastography can also be used to see small tumours, but there is still quite a way to go,” notes radiologist Per Kristian Hol. **MEH**

Study reveals significance of second trimester markers for Down's syndrome

A new analysis has found that some second trimester markers for Down's syndrome that are detected by ultrasound are more telling than others. Published early online in *Ultrasound in Obstetrics & Gynecology*, the study's results will help adjust pregnant women's risks for having a child with the condition.

Screening for Down's syndrome is offered to all pregnant women, who start out with a background risk based on their age. Certain features detected during a second trimester ultrasound exam are potential markers for Down's syndrome, and they include dilated brain ventricles, absent or small nose bone, increased thickness of the back of the neck, an abnormal artery to the upper extremities, bright spots in the heart, 'bright' bowels, mild kidney swelling, and shortening of an arm bone or thigh bone.

To determine how these markers af-

fect risk, Kypros Nicolaides, MD, of the Harris Birthright Research Centre for Fetal Medicine at King's College London in England, and his colleagues analysed all published studies that reported results on second trimester markers for Down's syndrome between 1995 and 2012.

The researchers identified 48 studies, and they discovered that most single markers have only a small effect on modifying the odds for Down's syndrome. This finding could have important clinical implications because currently in the United States, when a marker such as a short arm or thigh bone is detected, women are told that they are at high risk of having a child with Down's syndrome. Dr. Nicolaides and his team found that a few markers do carry increased risks, though. Dilated brain ventricles, increased thickness of the back of the neck, and an abnormal artery to the upper extremities increase the risk by three- to four-fold,

and an absent or small nose bone increases the risk by six- to seven-fold.

“The detection of any one of the findings during the scan should prompt the sonographer to look for all other markers or abnormalities,” said Prof. Nicolaides. He added that the study also revealed that if a detailed second trimester ultrasound exam demonstrates the absence of all major markers, the risk of having a baby affected by Down's syndrome is reduced by more than seven-fold.

The findings indicate that the relative importance of ultrasound markers is very different from what has been previously assumed. Prof. Nicolaides noted that the results from this study will be incorporated in obstetric ultrasound scan software that adjusts women's risks for having a child with Down's syndrome.

● doi.wiley.com/10.1002/uog.12364 **MEH**

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The new wireless Siemens Acuson Freestyle



Siemens releases world's first wireless ultrasound

Siemens recently released the world's first wireless ultrasound. The Acuson Freestyle ultrasound system features wireless transducers, eliminating the impediment of cables in ultrasound imaging. To enable this pioneering technology, the system brings to the market a large number of innovations, including acoustics, system architecture, radio design, miniaturization, and image processing. The development of wireless ultrasound is in line with the objectives of the Healthcare Sector's global initiative Agenda 2013, specifically in the areas of innovation and accessibility. The Acuson Freestyle system will expand ultrasound's use in interventional and therapeutic applications, where the technology provides numerous workflow and image quality advantages.

Transducer cables have always been a cumbersome necessity in ultrasound imaging. Not only are they an impediment to fast and ergonomic examination procedures, but they also present an infection control risk in sterile interventional settings, even when they are covered in sterile sheaths. "Siemens Healthcare is the first company to introduce an ultrasound system that enables physicians to work with cable-free transducers," said Jeffrey Bundy, CEO of the Siemens Healthcare Ultrasound business unit. "The Acuson Freestyle system facilitates the use of advanced ultrasound technology into clinical fields

requiring a sterile environment, such as interventional radiology, anaesthesiology, critical care, cath lab, or emergency care." Wireless transducers can also expand ultrasound into new and emerging applications, such as administering nerve blocks, enhancing vascular access, and improving target localization through ultrasound guidance during therapeutic interventions and biopsies.

For image acquisition and processing, the Acuson Freestyle system employs advanced synthetic aperture imaging technology, an integration of proprietary hardware and software, which was specifically developed for the wireless signal transmission of full-resolution digital image data at very high data rates. Focusing on each pixel in the image, this method produces excellent image quality throughout the field of view. This design reduces the transducer's power requirements, increasing battery life. Wireless real-time ultrasound data transmission is further enabled through the proprietary development of a novel ultra-wideband radio technology, which, operating at a high frequency of 7.8 gigahertz, is not susceptible to interference with other electronic equipment.

Three wireless transducers are available for the Acuson Freestyle system, covering a range of general imaging, vascular, and high-frequency applications such as musculoskeletal and nerve imaging. The user can

operate the transducers up to three meters away from the system, which includes an ergonomic interface that enables remote control of scanning parameters from within the sterile field. The Acuson Freestyle system has a 38-centimeter, high-resolution LED display. The system console can be mounted easily on a lightweight cart and also operates on battery power.

Launched in November 2011 by the Siemens Healthcare Sector, "Agenda 2013" is a two-year global initiative to further strengthen the Healthcare Sector's innovative power and competitiveness. Specific measures will be implemented in four fields of action: Innovation, Competitiveness, Regional Footprint, and People Development.

In another development in ultrasound from Siemens, the company has recently launched the Acuson X700 ultrasound system, which offers advanced image quality and improved cost of ownership for a wide range of clinical applications. With the Acuson X700 system, Siemens Healthcare has developed a powerful ultrasound system that offers exceptional image quality, robust technologies, and intelligent workflow solutions at an excellent price/performance ratio. Many advanced imaging technologies that were previously available only on high-end, higher-cost systems are now standard on the Acuson X700 system. The system also features workflow

technologies that support high throughput and improve the total cost of ownership.

The Acuson X700 system expands Siemens' Acuson X family of ultrasound systems, which are dedicated to providing excellent performance and clinical efficiency across a range of clinical specialties. Siemens migrated many of the technologies on the Acuson X700 system from its Acuson S family of premium ultrasound systems to enhance imaging performance. Advanced SieClear spatial compounding, for example, enhances anatomic border definition and improves tissue contrast through electronic beam steering, allowing rapid acquisition of overlapping images from different view angles. The Dynamic TCE (tissue contrast enhancement) technology also improves borders and reduces speckle/noise, facilitating subtle tissue differentiation. Moreover, the Acuson X700 system features intelligent workflow solutions to enable the high throughput required by various clinical departments that use the system. For example, the TGO (tissue grayscale optimization) technology provides instantaneous one-button image optimization by automatically adjusting the image brightness to the tissue type being imaged.

Furthermore, Siemens has migrated its patented MicroPinless (MP) transducer connectors from premium platforms to the Acuson X700 system. MP connectors offer the highest signal fidelity and im-



The new price-competitive Siemens Acuson X700

prove the signal-to-noise ratio to enhance signal quality. The transducers are compatible with Siemens' Acuson S Family, Acuson X Family, and Acuson Sequoia ultrasound systems to increase flexibility and investment value for the customer. The Acuson X700 system also features a new, single-solution, 50-millimeter aperture linear array transducer for superficial as well as deep imaging. The proprietary Hanafy lens transducer technology provides continuous focusing and image uniformity while delivering superb contrast and detail resolution.

The Acuson X700 system offers many features and options to accommodate a broad range of applications and clinical environments. For instance, 3-Scape real-time 3D imaging and Advanced fourSight technology support 3D/4D imaging for fetal, abdominal, and gynecological examinations. Multiple knowledge-based workflow applications sup-

port the workflow to ensure consistency. The software Syngo Auto OB Measurements, for example, draws on a large database of ultrasound images to provide instant automated biometric measurements of the foetus without manual calculations. Advanced cardiac imaging applications like intracardiac echocardiography imaging support physicians during procedure visualization and device placement monitoring. The system's options and features can be configured individually to support various clinical needs.

Moreover, the Acuson X700 system features a new design for improved usability, including a 20-inch LED display. An integrated handle with articulating arm enables the user to easily position the monitor for comfortable viewing. Two front-accessible USB ports allow easy, convenient data transfer. The height-adjustable control panel swivels for maximum user comfort. **MEH**

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Innovative devices for the Middle East

The 38th Arab Health Exhibition and Congress was held in Dubai from 28-31 January 2013. The event provides a platform for the world's medical device and equipment manufacturers and medical service providers to showcase their products to a wide network of interested stakeholders and to meet the medical community in the Middle East.

Middle East Health was at the event. This year's expo was clearly bigger than the previous year – a healthy sign that the industry in the region remains robust. There were literally thousands of exhibitors. We spoke to some of them.

Masimo's rainbow technology

We spoke to Joe Kiani, the CEO of Masimo. Remarkably Kiani started his business, which focuses on developing non-invasive patient monitoring technologies including medical devices and a wide array of sensors, in his garage in 1989 and has built it into a publically traded company with a turnover in excess of US\$500 million. Masimo is responsible for the invention of award-winning Masimo SET pulse oximetry (which resolved the problems of low perfusion and motion in pulse oximetry), Masimo rainbow Pulse CO-Oximetry and new Masimo non-invasive and continuous total hemoglobin (SpHb) monitoring technology.

Masimo rainbow technology allows clinicians to non-invasively measure multiple blood, fluid, and ventilation parameters that previously required invasive or complicated procedures, including SpHb oxygen content (SpOC), carboxyhemoglobin (SpCO), methemoglobin (SpMet), PVI, and RRA, along with Masimo SET Measure-Through Motion and low perfusion pulse oximetry for oxygen saturation (SpO₂), pulse rate, and perfusion index (PI). With touch, drag, and drop functionality, clinicians can move,



The new Masimo Pronto-7 is a breakthrough new solution for the non-invasive measuring haemoglobin and other parameters in less than one minute. It can be used away from the clinical setting thereby increasing access to healthcare.

expand, or collapse any parameter on screen for real-time analysis.

Masimo Pronto-7

Among several new products that the company was showcasing, was the Masimo Pronto-7 – a new palm-sized handheld device designed for quick and easy non-invasive spot-checking of haemoglobin (SpHb), SpO₂, pulse rate, and perfusion index at the point-of-care.

The device offers a breakthrough new solution for measuring haemoglobin in less than one minute – without needles, time-consuming laboratory analysis, blood contamination, hazardous medical waste, and patient discomfort associated with traditional blood tests.

Kiani pointed out that the Pronto-7 “Puts the power of accurate non-invasive haemoglobin spot-check measurements into any clinician’s hands, in virtually any environment.”

“This product can be used away from the

clinical setting and will greatly increase access to healthcare. Maternal mortality is high due to anaemia in areas with little or no access to healthcare. This portable technology will enable the patient to be easily monitored,” he explained to *Middle East Health*.

With dimensions of just 13 cm x 7.2 cm x 2.5 cm and weight of 296 grams, Pronto-7 is lightweight and convenient. It is fast and accurate, and with embedded 802.11 b/g and Bluetooth communication capabilities it makes wireless printing and emailing of test results quick and easy.

iSpO₂

Masimo's iSpO₂ pulse oximeter cable and sensor with Measure-Through Motion and Low Perfusion Masimo SET® technology is a consumer pulse oximeter for use with Apple's iPhone, iPad, and iPod touch. iSpO₂ uses the same technology found in Masimo's breakthrough line of pulse oximeters and Pulse CO-Oximetry – the standard-of-care pulse oximetry technology at work in leading hospitals around the world – providing accurate measurements, even during challenging conditions of motion and low perfusion.



GE unveils new Silent Scan MR

At Arab Health 2013, GE Healthcare unveiled a new [510(k) pending] Silent Scan MR, a technology designed to address one of the most significant impediments to patient comfort – excessive acoustic noise generated during an MR scan. Conventional MR scanners can generate noise in excess of 110 decibels levels, roughly equivalent to rock concerts, and requiring ear protection. GE's pending Silent Scan technology is designed to reduce MR scanner noise to near background sound levels and thus improve a patient's MR exam experience.

"Silent Scan promises to be a huge breakthrough for the MR industry and for patients everywhere," said Maher Abouzeid, GE Healthcare's new President & Chief Executive Officer for the Middle East and Pakistan. "It reflects our focus on humanizing healthcare technologies. Excessive acoustic noise is a major cause of patient discomfort during MR scans and GE is addressing that with Silent Scan, a major innovation in the healthcare industry."

Historically, acoustic noise mitigation techniques have focused on insulating components and muffling sound as opposed to treating the noise at the source. With Silent Scan, acoustic noise is essentially eliminated by employing a new advanced 3D acquisition and reconstruction technique called Silenz, in combination with GE Healthcare's proprietary design of the high-fidelity MR gradient and RF system electronics. Silent Scan is designed to eliminate the noise at its source; with Silent Scan, patients will experience a more relaxing scanning environment.

Speaking at the unveiling, Tom Gentile, President and CEO, GE Healthcare Systems remarked that the Middle East region was "growing tremendously" for the company.

"We're seeing an explosion of mobility and connectivity," he said.

Cancer patients in the region

As part of its US\$1 billion oncology commitment and marking World Cancer Day, GE Healthcare showcased its range of leading oncology solutions at Arab Health 2013, highlighting the benefits of GE's established portfolio for patients across the Middle East. Among the solutions highlighted were the SenoBright Contrast En-

hanced Spectral Mammography (CESM) and FlightPlan for Liver, that have the potential to help healthcare providers improve outcomes in breast and liver cancer for the region's anticipated 140 million and 12 million cases respectively, across the Middle East (according to stats from 'rightdiagnosis.com').

Brainlab launches Buzz Digital OR

For the second year in a row, Brainlab, the German provider of software-driven medical technology that supports targeted, less-invasive treatment, chose Dubai's Arab Health to reveal its new system in the Middle East. Buzz Digital OR was launched in the presence of Stefan Vilsmeier, President and CEO of Brainlab.

Buzz Digital OR is a centralized information hub with a full HD 42" display featuring a multi-touch control interface. This computer- and IP-based system allows for the effective handling of information relevant in the OR. The control interface streamlines and enables intuitive management of medical images and other patient information. With the flexibility to manage video images from endoscope, microscope, etc., communication with other medical equipment, and documentation of patient treatment, Buzz simplifies effective management of increasingly complex op-

erating room data requirements.

"Buzz Digital OR is a highly advanced surgical device, tailored to meet the specific needs of the surgical environment," said Stefan Vilsmeier, "We understand and embrace the trend of fusing medical equipment and IT systems inside healthcare facilities, as this allows for intelligent, scalable, and flexible OR integration solutions; we expect that hospitals and surgeons are going to reap benefits by installing Buzz systems, and will offer new possibilities in data flow and patient care."

Buzz Digital OR effectively manages advanced OR workflow – facilitating planning, navigation and intraoperative imaging connectivity. The newly designed control concept for Buzz also enables intuitive management of data sources and displays with drag and drop functionality. Fast and easy access to medical image data is provided through the integrated interactive DICOM viewer. Procedures can be conveniently documented with screenshots or dual channel recording.

A system that can run data across the hospital IT network, Buzz Digital OR has already attracted attention in the Gulf region, with King Fahd Hospital Jeddah to be the first in the Middle East to purchase it, along with Brainlab latest technologies, and thus taking steps towards creating state-of-the-art, integrated operating suites with Brainlab solutions. **MEH**



Stefan Vilsmeier, CEO of Brainlab (right) shows off the Buzz Digital OR

Mecomed – working for the benefit of the medical technology manufacturing industry

Middle East Health spoke to Craig McLaren, the Chairman of Mecomed, about the association which represents medical technology manufacturing companies – mostly multinationals – active in the MENA region.

McLaren, who is also the Regional Managing Director, MD&D, Johnson & Johnson for Middle East, Egypt and Pakistan, explained that the association took effect in 2007 and keeps growing each year as new companies join.

“Currently we represent 18 organisations and we expect it to grow to about 22 by the end of this year – which will represent about 80% of the industry,” he said.

“We have five steering groups of activity,” he said. “Each organisation can participate in these steering groups.”

These cover regulatory activity, healthcare compliance, diagnosis related groups, industry data analysis, and a marketing steering group.

He said that perhaps the most important of these – or where they have had the most traction – is the group dealing with regulatory issues.

“As markets around the region become increasingly regulated, Mecomed has set up this group to better understand the needs and challenges that are being faced in each country – not just us as a technology association, but also to see if there is a way we can collaborate and assist the authorities to smooth the path for them in setting up a regulatory environment.

“Because we represent global companies we can draw on our experiences in Europe, the US and other emerging markets to assist local authorities in terms of reference points.”

He explained that with rapidly evolving regulations the association also assists their members to gain clarity on new regulations. “We act as a single point of contact for our members and the authorities,” he said.



Craig McLaren, Chairman of Mecomed

Another important part of their work is to help members with business integrity or healthcare compliance.

“We live in a part of the world where the corruption index is still fairly high. We represent companies who are increasingly having more of a presence in these markets, but at the same time rely on distributors as a third party intermediary. So what we are trying to do is establish a common code of ethics within the region and within our industry to stop behaviour that is unacceptable. In this way we can cut out wastage in the system which will ultimately benefit the patient.”

He mentioned as an example healthcare practitioners going for a meeting in a beach resort. “This used to happen regularly in this region, but this for us would not be viewed as acceptable as this sort of meeting should not be considered a holiday. It should be a serious meeting with scientific content, so the value of these meetings will ultimately benefit the patient.”

Another area of their work has to do with ‘diagnosis related groups’ or DRGs.

This steering group is looking at reimbursement in a healthcare system. It has been recently introduced by the Health Authority in Abu Dhabi and other regions in the Gulf are considering it.

This is reimbursement for a procedure, for example, paid for by the funder, whether it be a health insurance company or a state-sponsored organisation.

“The challenge is to get reimbursement set at the right levels so you get an efficient system, but you don’t compromise on quality for the patient,” McLaren explained.

He said they were also doing work internal to the industry and noted the lack of good data available to their members, for example, determining benchmarks for rewarding people who work in the industry. This is available from research done for the pharmaceutical industry, but there is very little data on this in the medical device industry.

“One of the things we have been able to do is work within our own membership and work with an external organisation to provide our members classified data so they in turn can provide the industry with a common set of data points. So, for example, they can say the average salary for a sales manager in Saudi Arabia is X and in the UAE it is Y.

“In this way we can add value for our members.”

The fifth group has to do with marketing Mecomed in the short and long term.

He concluded by saying they have seen substantial change in the medical industry in the past two years, but he believed this was just the tip of the iceberg. “As these markets look set to experience massive change in the next five years, the work of Mecomed will become increasingly important – and increasingly large. And hopefully we will start to have more collaborative work with the authorities.” **MEH**

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Super hygiene qualities of Nora rubber flooring systems make it ideal for healthcare

We spoke to Martin Koch and Steven McFadden of Nora Systems, a specialist manufacturer of customised rubber flooring solutions tailored to the healthcare industry. Koch is the Chief Communication Officer for the company and McFadden is the regional manager for the Middle East.

Germany-based company Nora Systems develops, manufactures and markets high-quality, resilient floor coverings. With a market share of over 80% in Germany and more than 50% worldwide, Nora systems is the global market leader in the market for rubber floor coverings. The main focus of its business activities lies in the market segments of health care, education, transportation, industry and public buildings, as well as commerce and services.

The company opened a subsidiary office for the Middle East region in May 2011.

Koch explained that Nora floor coverings are based on high-quality natural and industrial rubber, which is mixed with naturally occurring minerals and other components such as environmentally compatible colour pigments, drawn into blanks, pressed and then vulcanised under heat and high pressure. "This process gives the coverings their permanently resilient qualities and resistant surface. Nora floor coverings are practically indestructible, displaying scarcely any signs of wear even after years of intensive use."

With more than 300 shades of colour, different surface structures and inlays for innumerable composition possibilities, the standard Nora assortment gives architects, planners and building developers a wide array of options for creative interior design.

Key to Nora's flooring is its capacity to maintain a high degree of hygiene and clean air – essential for any healthcare environment.

Hygiene problems can be caused by floor coverings of linoleum or PVC because their polyurethane coatings are only a few micrometres thick and are open to attack from dirt particles. These open up fine cracks or microscopic holes that viruses and bacteria start colonising very soon after.

"An alternative for perfect hygiene is provided by rubber floor coatings from



Nora flooring in the Bronovo Hospital in Den Haag



Nora flooring in the Children's University Hospital, Basel

Nora systems. Owing to their extremely tight surface and their UV polymerisation, they need neither a coating nor varnish. The danger of viruses or bacteria penetrating the floor covering is therefore eliminated," said Koch.

Unlike other flexible floor coverings, Nora rubber coverings do not present gaps that must be sealed – and that therefore provide a further niche for microbes. Even after thorough cleaning, the gaps in floor coverings can still offer pathogens a place where they can settle and multiply.

Nora rubber coverings do not contain plasticisers (phthalates), so they cannot shrink, for instance like PVC floor coverings, when these substances volatilise over time. Rubber floor coverings retain their dimensions even after decades. Yet their gap free installation minimises not only the danger of microbial invasion.

"There is also no time consuming and costly sealing maintenance, so Nora floor coverings are also the most economical so-

lution for clinics over the long term.

"Moreover, a floor covering's disinfectant properties are also very important for an extensive hygiene concept at hospitals. Nora rubber floor coverings are resistant to surface disinfectants. Also the short term action of solvents or diluted acids or alkalis leave no permanent marks. Even substances containing iodine like skin disinfectants can be removed with ease," said Koch

"Rubber floor coverings not only present convincing hygiene aspects. Especially hospitals and healthcare facilities attach great importance to the quality of indoor air. Nora system blue is a low emission system that applies not only to the rubber covering itself, but also to all of the installation materials."

The sealed and uncoated surface of Nora rubber floor coverings also makes unnecessary the use of aggressive cleaning agents – and this too helps to minimise emissions to indoor air. **MEH**

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Speech recognition software set to change the face of medical reporting

Nuance Communications, the maker of the well-known Dragon Dictate voice recognition software which magically turns speech into text, was at Arab Health to show off their new voice recognition software developed specifically for the healthcare industry. We spoke to Anne Durand-Badel, International Marketing Manager at Nuance, about the product – Dragon Medical.

Durand-Badel explained that by using Dragon Medical, doctors can use their voice to efficiently navigate clinical systems and dictate medical decisions and treatment plans directly into a patient's electronic record.

"Dragon Medical allows doctors to dictate in their own words, generating 'once and done' documentation which they can dictate, edit and sign in succession."

Doctors further accelerate the dictation process by operating macros to re-use frequently-dictated text.

"This approach dramatically reduces the time doctors spend documenting care. Dragon Medical is the only product from the Dragon family that automatically encrypts

all audio and text data, thereby supporting patient security and confidentiality, a necessity for all medical organisations."

She said the company works closely with Hospital Information System (HIS) development companies, like Cerner and GE Healthcare, to tie in the voice recognition software with the electronic patient record and other areas of the HIS.

Durand-Badel noted that the system does require some initial training and following this you can expect around 90-95% accuracy.

"The system has been designed to understand specific voice accents such as those of the United States, England, France, Australia and others," she said.

In the demo Nuance provided for *Middle East Health* the system clearly understood the accent of an Egyptian voice speaking English and it picked up some fairly complex words correctly, like 'atherosclerosis' and 'cardio-vascular disease'.

Local partner

Durand-Badel said the company was working with regional partner Emerging

Technologies. By working with the local partner "Nuance Healthcare is able to provide a localised service for customers across the Middle East, providing a voice recognition solution for the multi-lingual, multi-cultural community of doctors in the region. The software is capable of learning and adapting to its users and is able to recognise different accents, making the native language of the user no barrier to the ability to enjoy the benefits of the technology."

She said the Ministry of Health of the United Arab Emirates awarded Nuance Communications and partner Emerging Technologies a contract to roll out voice recognition in a first phase to over 1000 medical professionals at the country's hospitals and clinics in 2012.

Sheikh Khalifa Medical City and Cleveland Clinic Abu Dhabi have also installed the software.

"We have had a lot of interest across the region," she said.

The state of the art Sidra medical facility in Doha, due to open later this year, has also installed Dragon Medical. **MEH**

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Philips Healthcare shows off some of their research work

We spoke to Dr Henk van Houten, General Manager Philips Research, Programme Manager Healthcare, about some of their products that are in the research pipeline.

“In research we have a number of innovation areas, but let us focus specifically on oncology,” Van Houten said.

He said Philips was looking at new screening solutions for breast cancer based on photon counting. Simply put, this device measures the intensity and phase of light that is beamed through the breast and in this way it can detect tumours in the breast tissue more accurately than x-ray mammography.

He also talked about the research Philips is doing into creating low stress environments for patients to help them make important decisions with better clarity of mind – for example if the patient is faced with a choice of different approaches to treat prostate cancer. Philips has created an environment – a special room with ambient lighting that can be adjusted to the appropriate mood. In this room the patient is presented information – gathered during consultation with a specialist – that is specific to his or her condition. With this tailored information and in this stress-reducing environment the patient should be better equipped to make a clear decision when faced with a variety of options.

Dr Matthew Harris, Senior Manager Communications, Philips Group Innovation, explained: “What you have here is technology that is personalised to the patient, so that patient’s profile and risk stratification is presented to them so they can understand the benefits and side-effects of each option.”

Although this low-stress environment is still in the research phase, it is envisaged that a hospital or cancer centre would incorporate such a space into the building as a service for their patients.

In a press statement Philips pointed out that the World Health Organisation (WHO) estimates that there are more than 272,000 cancer-related deaths in the Middle



Dr Henk van Houten,
General Manager
Philips Research

East and North Africa annually and this is set to increase significantly by 2030. WHO has determined that the priority areas for intervention are: primary prevention and early detection, particularly of breast cancer; integration of cancer interventions into primary health care; and promotion of palliative care, including home care.

The company noted that they were developing oncology solutions appropriate for the region. Some of these were on show at Arab Health including the Sonalleve MR-HIFU therapy system which is being studied as a non-invasive method for destroying tumours in the body, as well as the a home clinical monitoring prototype system designed to support cancer patients being given chemotherapy.

Dr Van Houten explained that the home clinical monitoring prototype measures the white blood cell count as this is an early indicator of whether the patient is strong enough to endure the next chemotherapy session.

The prototype device is 3G enabled so the physician can read the patient’s white

blood cell count and let the patient know whether they should stay at home or visit the cancer centre for the next session of chemo. The benefits of this are obvious – such as avoiding the inconvenience and unnecessary stress to the patient of travelling to the cancer centre for chemotherapy only to find when they get there that they are not strong enough for the next chemo session.

Dr Van Houten pointed out that Philips started putting some of their research work on the exhibition floor at RSNA a few years ago – an initiative to get feedback from medical professionals.

“It’s been working very well,” he said.

Diederik Zeven, General Manager, Philips Healthcare Middle East and Turkey, highlighted the ambient experience room they had on the show floor at a previous Arab Health exhibition as an example of how they show off some of their research, and added one of the results of this was a large order for the ambient experience set-up by the Farah Medical Complex in Amman (reported in the January 2013 issue of *Middle East Health*). **MEH**

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Medicall 2013 Gujarat – just what the doctors ordered

Medicall was exactly what the doctors ordered. Held recently from 8-10 February 2013 at Ahmedabad, it attracted professional visitors and manufacturers under one roof in large numbers.

For the second time in Gujarat, Medicall was organized with an exclusive Dental Pavillion called Famdent with live conference and seminars on Dental. The conferences was a huge success and was very well received by the industry.

Medicall Medicall is one of the premier medical equipment expo in Gujarat was amply proved.

Being held in Gujarat for the second time, Medicall had 200 medical equipment manufacturers from India, Germany, China. A wide range of medical equipment and technology product was displayed to over 4,500 serious business visitors from all over India. Medicall offered 3 days of focused business platform to explore business opportunities to an exclusive B2B audience.

The visitors were the doctors, Medical administrators, Procurement department of the hospital, Nursing homes, Biomedical engineers, HOD's of the Hospital, Trade dealers and distributors etc. Healthcare professionals benefitted from the show as they could find the entire range of medical equipment and technology under one roof. Some hospitals even placed firm orders at Medicall 2012 with Indian Medical Manufacturers.

Medicall 2012 Ahmedabad conducted phenomenal conferences and seminars by top industry professionals as speakers. Seminar on Good to Great – How to convert a Family owned Hospital to a Professionally managed healthcare institution was very well received by the healthcare industry. Other conference like Hospital Material Management and Internal Audit was also well received by the industry.

Medicall brought together the best in the business of ALS Ambulances, Clean Room, Climate Control systems, hospital kitchen equipment, ICU and Operation Theatre equipment, refurbished equipment, trolley, wheel chairs, cots and other furniture, hospital linen and laundry, hos-



pital charts and stationary, office automation equipment, printers dealing with pamphlet and file designing, communication equipment, medical disposables, Hospital Information System, surgical and examination furniture, rescue and emergency equipment, diagnostic/laboratory, O.T. equipment and cleaning equipment.

Special products displayed were ambulance, mannequins and other teaching aids for nursing, hospital management software, energy saving equipment, hospital flooring, housekeeping equipment, nurses alarm system, liquid oxygen and central pipeline, physiotherapy equipment, autoclaves and sterilizers.

Medexpert, the organisers of Medicall, are a reputed name in events & trade shows for the health care industry. Being leading trade fair organizers in Chennai and now in Gujarat, they have proved their high degree of professionalism by attracting the right target audiences through highly effective and focused marketing strategies. This is reflected in the level of satisfaction its participants have derived from this unmatched platform over the years. Medexpert are totally committed to making the exhibition experience of exhibitors both profitable and efficient by maximizing return on their investment.

Medexpert also is organizing shows in



Sri Lanka from 15-17 March 2013 and Chennai from 2-4 August 2013.

● For more information email: info@medicall.in, panchal@medicall.in or visit www.medicall.in

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Demand for hospital beds in KSA to increase 40% and reach 70,000 units in 2016

Saudi Health 2013 offers more expansive networking platform to complement KSA's aggressive healthcare investments

Saudi Health 2013
12-14 May 2013
Riyadh International Convention and Exhibition Centre

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Kamil Al Jawhari, Project Manager of Saudi Health at Riyadh Exhibitions Company

Demand for hospital beds in the Kingdom of Saudi Arabia is expected to increase 40% by 2016, representing around 70,000 hospital beds, as KSA's rapidly growing population, which now accounts for more than two-thirds of the entire GCC populace, continues to generate new healthcare challenges across the Kingdom. Underlining its commitment to address evolving healthcare issues in the country, the KSA Government has remained the largest spender on healthcare in the GCC with its healthcare market projected to be worth more than US\$20 billion by 2014.

"Saudi Health 2013", the largest international healthcare event in KSA, has been launched to offer a more expansive networking platform that aims to complement the KSA Government's proactive efforts to further strengthen its healthcare sector. Organised under the patronage of the Saudi Ministry of Health, "Saudi Health" provides a dedicated platform for key industry players to focus on the leading trends and developments within the Saudi healthcare industry. "Saudi Health" will run from 12-14 May 2013, at the Riyadh International Convention and Exhibition Centre.

Kamil Al Jawhari, Project Manager of

Saudi Health at Riyadh Exhibitions Company, said: "Saudi Arabia continues to draw global attention being the Middle East's largest healthcare market and the most aggressive in terms of healthcare expenditure. What is particularly attractive about it from an investor point of view is that although it is a large market, it is far from mature. With KSA's aging yet affluent population, there is therefore an unprecedented opportunity for investors to benefit from new developments in healthcare. On the other hand, it is very important to take advantage of this emerging trend as it will help create better access to the best healthcare products, services and technologies from all over the world. In this regard, "Saudi Health Exhibition and Conference" provides an exceptional combination of networking and corporate branding opportunities and is a perfect platform for healthcare companies to boost their profile among influential decision-makers in the

KSA healthcare industry."

Informa Life Sciences Exhibitions, organisers of the world's second largest healthcare exhibition 'Arab Health', and Riyadh Exhibitions Company (REC), organisers of 'Saudi Medicare Exhibition' for the last 15 years, have partnered to launch the new "Saudi Health Exhibition and Conference". In line with Informa Life Sciences and REC's philosophy of 'exhibition with education', Saudi Health offers a comprehensive multi-tracked congress including a diverse range of conferences covering a broad range of specific medical disciplines. Key global issues that will be debated at the conferences include imaging and diagnostic, medical laboratories, biomedical engineering, nursing, primary healthcare, rehabilitation and trauma.

• For more information on the Saudi Health Exhibition and Conference, visit: www.saudihealthexhibition.com

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Allergic reactions



By Leslie Morgan, OBE
Managing Director Durbin PLC.
Leslie Morgan is a member of the
Royal Pharmaceutical Society of
Great Britain

I read with interest recently that Dubai Hospital has opened a specialist clinic for allergy diagnosis, treatment and prevention. Allergies are nothing new of course, but there seems to be mounting evidence that some types are on the increase and many countries now have hospitals and clinics to provide expertise and specialist care for the worst sufferers.

An allergy is basically an exaggerated reaction from a body's immune system to a foreign substance. These substances are called allergens and typically include pollen, dust mites, 'pet dander' and certain foods such as nuts, shellfish, milk, eggs and wheat. In non-allergic people these substances are regarded by the body as harmless and ignored, but for others they are identified and part of the immune system reacts.

Although an allergic reaction might sometimes appear immediate, research has shown that there must have been some prior contact with the allergen. This period of sensitisation can range from months to years. There is also strong evidence to show that the propensity to develop allergies is hereditary. Interestingly though, children do not always develop the same

allergies as their parents. Much also remains unknown as to why some allergic reactions are more severe than others.

Perhaps the most commonly known allergy is that of 'hay fever' but this is actually a bit of a misnomer. The phrase was coined when it was noticed that the typical symptoms of a runny nose, sneezing and itchy eyes occurred around harvesting time. The phrase has now stuck but the cause is not hay and neither does it cause fever. The more correct term – allergic rhinitis – can be caused by a variety of substances. Seasonal rhinitis is generally due to pollen, the lighter forms of which can be carried on the wind and which, when it finds its way into the membranes that line the respiratory tract, can cause an allergic reaction. Year round allergic rhinitis however is more likely to be due to things like pet dander and dust mites. The latter, along with contributing factors such as pollution, is almost certainly the most common cause in the Middle East, particularly in coastal areas where the combination of temperature and humidity creates an environment where dust mites are known to thrive. Asthma is another condition that is often related to allergies.

There are various theories as to why certain types of allergies are on the increase but most point towards modern society. Studies have shown for example that higher levels of carbon dioxide create an increase in the growth of weeds whose pollen then triggers allergies. Others, such as the commonly cited 'hygienic hypothesis' essentially argue that improvements in public health including the extensive use of antibiotics, antibacterial cleansers and processes such as water cleansing have made us "too clean". Consequently, this has altered the way our immune systems react to allergens. Whatever the reasons though, thankfully the most common allergic symptoms can now be treated with antihistamines, decongestants, steroids, Leukotriene Receptor Blockers, and in the

case of more severe reactions (anaphylaxis), with epinephrine.

Taking practical steps to control exposure to allergies however can often be the most effective. Thus, avoiding going out when the pollen count is high, keeping away from cats, and reducing dust around the home are all to be recommended. In regions like the Middle East where the number of nasal allergy sufferers is rising, there are simple measures that everyone can adopt. These include regular vacuuming, reducing humidity with air conditioning and dehumidifiers, and in the case of beds – where dust mites are known to thrive – by washing linen regularly at 60 degrees and using mattress covers specially designed to address this problem.

Of further interest to some may be the results of a 2004 study by Kingston University in the UK. Scientists there discovered that whilst the warm, damp conditions created in an occupied bed are ideal for dust mites to thrive, they are much less likely to survive when moisture is in short supply. Thus, something as simple as allowing your bed to dry out by not making it in the morning can actually have a positive effect for those who suffer with allergic rhinitis and asthma. A nice thought to leave you with! **MEH**

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Middle East HEALTH

Interview

Personalised cancer care

St. Luke's Episcopal Hospital Cancer Center in Houston, Texas provides personalised cancer care to patients through a fully integrated program using state-of-the-art technology. Jay Franco, *Middle East Health* correspondent, met with Luis H. Camacho, MD, Director of St. Luke's Cancer Center and Medical Director of St Luke's Center for Medical Oncology and Blood Disorders, during his brief visit to Dubai in January.

Jay Franco: As an MD what made you pursue a career in Oncology?

Dr. Luis Camacho: When I entered medical school, I learned that my best friend was diagnosed with chronic myeloid leukemia. In a bid to cope with this news, I spent five years reading and studying his disease. During the process, I was fascinated with leukemia, its treatments and eventually cancer in general. Even as a medical student, I would review these topics with the department of oncology faculty, and they were kind enough to explain them to me. My dream was to train at a very reputable cancer center like Memorial Sloan-Kettering (New York), Princess Margaret Hospital (Toronto) and Institut Gustave Roussy (Paris) – these were names that frequently appeared in most of my reading and studies.

JF: What is St. Luke's Cancer Center all about? When was it established? Does it have any accreditation with any international bodies?

LC: St. Luke's Cancer Center was established in 1992. We see about 3,000 new cancer patients every year. We treat the most common types of cancer – breast, lung, colorectal and prostate cancers and others that are much less common, such as pancreatic, liver, melanoma and neuroendocrine cancers. St. Luke's recently received

a three-year accreditation by The American College of Surgeons Commission on Cancer with high commendation, and only about 90 centers in the U.S. have received this honour. We have also been ranked among the top 50 hospitals by *US News & World Report* in 10 adult specialties and a high performance center in cancer.

JF: What are the various programs covered in this Center? Which forms of cancers are best treated at St. Luke's?

LC: We were the first center to have the Cyber Knife technology. The technology involves a robot that follows the body motion – if you have a tumour and are breathing, the robot accounts for the breathing patterns while the tumours are being detected.

St. Luke's has a very strong pancreatic program with Baylor College of Medicine (BCM), led by Dr. William Fisher, Professor of Surgery and Director of the Elkins Pancreas Center at Baylor. In collaboration with scientists from the Baylor Human Genome Sequencing Center, Dr. Fisher and his colleagues published the results of their work sequencing the genome of this very aggressive tumour type.

St. Luke's Cancer Center has one of the largest liver transplant programs in the U.S. and is managed by Dr. John Goss, Chief of Abdominal Transplantation and



Luis Camacho MD

Hepatobiliary Surgery Division at Baylor. We are using this program as a platform to develop clinical protocols for patients who are on the waiting list for liver transplants. One of the problems these patients have is that their tumours grow while they are waiting for a transplant. We are also developing a melanoma program through clinical research, i.e. investigation of an agent that blocks a negative regulator of the immune system. By blocking these receptors, you unleash your immune system to recognise antigens that are expressed on cancer cells, and attack them. The response rates for those patients with some of these drugs can be in the neighbourhood of 60 percent.

We also have a strong neurosciences program, in collaboration with Baylor led by Dr. Daniel Yoskor, Chief of Neurosurgery Service at St Luke's. Several Middle Eastern patients have received the benefits of this program.

St. Luke's Cancer Center also offers a neuroendocrine program for tumours that are very unusual and require a considerable amount of expertise and a comprehensive

approach. This group is headed by Dr. Omar Barakat, a board-certified General Surgeon working at St. Luke's.

We are also developing an alternative medicine program to treat pancreatic cancer by using an agent derived from a traditional Chinese spice called 'coix seed', which has been approved as an anti-cancer agent in China and Russia. We also have a clinical trial in progress for patients with advanced pancreatic cancer. The preliminary data has been submitted to the annual meeting of the American Society of Clinical Oncology.

St. Luke's Cancer Center is also investigating 'Thunder God' vine ('lei gong teng' in Mandarin), which we are using in our alternative medicine research studies. It has anti-inflammatory properties and inhibition of molecules that are critical in cancer treatment.

JF: Who would be a good candidate for Alternative Medicine treatment?

LC: Usually patients at any stage of pancreatic and biliary cancer. This has been based on a study published by the University of Minnesota. I use alternative medicine treatments in combination with chemotherapy. Preliminary experience in selected patients with advanced stages of pancreatic cancer is promising with remarkable decreases in tumour markers when used in combination with chemotherapy. If St. Luke's Cancer Center wants to compete with other institutions, one great way is to branch out to programs that no one else has explored before. Finally, we treat our patients as a family.

JF: Currently where do your patients come from?

LC: They are mostly from the Middle

East and Central America. Within Houston, we have noticed a significant increase in the number of patients who come to us.

JF: What are your long-term and short-term goals?

LC: My long-term goals are to rank St. Luke's Cancer Center in the top 50 cancer centers in the U.S. The short-term goal is to build our research infrastructure to support the programs I've mentioned that will offer more treatment options to our patients.

JF: Why are you attending Arab Health?

LC: It's a great opportunity to interact with our colleagues in this part of the world, discuss treatments, and to compare how things are done by other physicians and hospitals around the globe. **MEH**



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FDB will be exhibiting at DUPHAT the Dubai International Pharmaceuticals and Technologies Conference and Exhibition from 10-12th March 2013 on stand 716. This event is being held at the Dubai International Convention and Exhibition Centre, UAE. Clinical staff will be on hand to carry out demonstrations and answer questions.

To find out more please visit www.duphat.ae or email Liz Pugh on lpugh@fdbhealth.com to pre-book an appointment.

Tel: +971 5577 30456 or +44 1392 440100 www.fdbhealth.ae



Leading medicine in lung transplant

Methodist lung transplant program performed more transplants than any other US program in 2012



Lung transplant surgeons in the Methodist J.C. Walter Jr. Transplant Center in Houston, Texas USA performed more transplants in 2012 than any other center in the US, making it the No. 1 lung transplant program in terms of volume in the United States.

“We performed 143 lung transplants last year and the center performed a total of 462 transplants. The ability to perform this many lung transplants successfully is a testament to the hard work and dedication of our whole transplant team,” said Dr Harish Seethamraju, medical director of the lung transplant program. “The skill, knowledge and experience of our entire team enable us to take on the most complicated cases.”

The Center has had a 95% 30-day survival rate for lung transplants for nearly three years.

“There are very few centers throughout the world that do as many lung transplants as we do with such high quality and positive outcomes,” said Dr Matthias Loebe, chief of thoracic transplant and assist device division. “We are proud of the fact that patients from all over the country come to Methodist for their transplants and that we are able to help them.”

Some of those cases involve Jehovah’s Witness patients who do not want blood transfusions during surgery.

“We have started performing bloodless transplants on these patients, most of whom have been refused transplantation at other institutions,” said Dr Scott Scheinin, surgical director of the lung transplant program. “It’s rewarding to know that we have the kind of institution that will go the extra mile to successfully give these patients

a second chance at life.”

The lung transplant program at the Methodist J.C. Walter Jr. Transplant Center is among the largest in the US and the only in the Houston area to earn a Bronze award from the Health Resources and Service Administration (HRSA), an arm of the US Department of Health and Human Services.

“The award measures performance based on post-transplant survival rates, transplant rates and mortality rates after patients have been placed on the waiting list,” Seethamraju said. “Only 22% of transplant programs in the US are given this award, so we are honoured to be one of them.”

In addition, the risk-adjusted mortality rates in 2012 for lung transplants at The Methodist Hospital rank as the best among all US academic medical centre programs in University Health Consortium, an alliance of 119 academic medical centres and 291 of their affiliated hospitals representing the nation’s leading academic medical centres.

A heart-lung transplant can offer improved outcomes over a single-organ transplant in the case of conditions that can affect both the heart and lungs:

- Congenital heart defects that can lead to both heart and lung failure
- Metabolic disorders or genetic defects that affect the heart and lungs
- Diseases of the lung that can cause secondary heart failure, such as primary pulmonary hypertension
- Co-existing end-stage heart and end-stage lung disease, such as heart failure and chronic obstructive pulmonary disease (COPD)

There are very few centres throughout the world that do as many lung transplants as we do with such high quality and positive outcomes.

The Methodist Transplant Center offers a wide range of opportunities for treatment of lung diseases. Double lung transplants are performed for patients with cystic fibrosis, primary pulmonary hypertension, COPD, sarcoidosis or scleroderma. Single lung transplants, in which patients keep the healthier of their lungs,

The program has nearly tripled the number of lung transplants performed in the past five years and is one of a handful of large programs in the country offering multi-organ transplants. For example, the Methodist J.C. Walter Jr. Transplant Center is also home to the nation’s largest heart-lung transplant program.

“The accomplishments of the lung transplant program took us from a medium-sized rapidly growing program to a large program,” said Dr A. Osama Gaber, director of the Methodist J.C. Walter Jr. Transplant Center. “This is great news for people who are in desperate need of a lung transplant.”

■ If you are a patient or physician and would like more information about the Methodist J.C. Walter Jr. Transplant Center in Houston, please contact us at:

- methodistinternational@tmhs.org
- www.methodisttransplantcenter.com
- +713-441-2340

Lebanon: Aid lags far behind as Syrian refugee numbers increase

Syrians who have fled violent conflict at home to seek safety in Lebanon do not receive anywhere near adequate levels of humanitarian assistance and are living in extremely precarious conditions, a detailed survey released by the international medical humanitarian organization Médecins Sans Frontières (MSF) reveals.

The MSF report, "*Misery beyond the war zone*," shows that of the 220,000 Syrians who have sought refuge so far in Lebanon, many cannot obtain necessary healthcare, among other worrying findings. The survey reveals a marked deterioration of the humanitarian situation in Lebanon, in large part due to extremely lengthy registration delays. Refugees in Lebanon are not entitled to formal assistance if they are not registered. Lebanon is home to the majority of Syrian refugees.

"Registration should not be a condition for receiving assistance in any emergency crisis," said MSF General Director Bruno Jochum. "Yet access to humanitarian aid is seriously hampered by the difficulties many refugees encounter in registering on arrival in Lebanon. The roll out of aid must be accelerated and expanded," he said.

Syrian refugees and other displaced people in Lebanon do not have access to free healthcare and adequate shelter. Living conditions for the majority of refugees and Lebanese returnees remain extremely precarious. More than 50% of people surveyed by MSF, whether officially registered or not, are housed in substandard structures in inadequate collective shelters, farms, garages, unfinished buildings, and old schools. Most provide paltry protection against the elements, if any at all. The dire living conditions are contributing to deteriorating health conditions.

The survey completed in late December, 2012, involved 2,100 Syrian refugee families. Seventy-five per cent of the respondents are living in conditions utterly unsuitable for the hardships of winter. People registered with the United Nations High Commission for Refugees (UNHCR) are entitled to food and fuel vouchers and healthcare cost coverage but more than 40% of those surveyed were not officially registered.

"We are in an extreme situation, we don't have enough food and we don't know who to go to for help. The only food we receive is purely out of the solidarity of our Lebanese neighbours. As adults we can eat once a day, but we cannot tell our children to do the same," says a refugee father. "If we didn't fear the bombing in Homs we would go back immediately."

Roughly one in four of the interviewees said they had not received any assistance, while 65% said they had received only partial assistance that did not cover their family's needs. In most parts of Lebanon, the capacity of host communities to absorb refugees has reached its limit. Families that arrived earlier are fast running out of money to pay for food and shelter and have no access to basic medical care.

The medical situation has clearly deteriorated over the past six months. More than half of all interviewees (52%) cannot afford treatment for chronic diseases and nearly one-third have been forced to suspend treatment because it was too expensive to continue. Child vaccinations, prescription

drugs, pre-natal and obstetric care, and basic health maintenance are often out of reach.

Access to medical services for the most vulnerable populations – whether they are registered or non-registered, Palestinians refugees from Syria or Lebanese returnees – must be made an immediate priority and acted upon, MSF said. All refugees must be provided with assistance immediately upon arrival in Lebanon and guaranteed access to healthcare.

"It is time for donors to truly commit themselves to doing what is needed to address the growing needs of the refugee population in Lebanon, and for national and international aid actors to evaluate the methods and the amount of the aid they are providing," said Jochum. "MSF is calling on the authorities and agencies to accelerate the establishment of reception centres for new comers and to immediately make available collective shelters adapted to winter conditions, in order to cope with the increasing influx of refugees."

● To download the full report, visit: www.msf-me.org

Humanitarian assistance

MSF has been providing humanitarian assistance to Syrian refugees in Lebanon since November 2011. In 2012, MSF carried out more than 23,000 consultations in the Bekaa Valley and in Tripoli. Since November 2012, MSF distributed 25,580 basic relief items to Syrian refugees scattered throughout the Bekaa Valley. In mid-January 2013, MSF began distributing fuel vouchers to refugees, with 300 families now able to have heat for two months. As of today, MSF has doubled its staff from 50 to 112 and its operational response is scaling up.

In Syria, MSF is working in three hospitals in the north of Syria, in areas controlled by armed opposition groups. Medical teams provide emergency care, surgery, and maternal health care. Be-



tween June 2012 and early January 2013, MSF teams conducted more than 11,000 consultations and performed more than 1,200 surgical interventions. MSF is also providing medical and surgical services to Syrian, Palestinian, and Iraqi refugees in Jordan, Lebanon, and Iraq.

Timesco makes Callisto fiber optic laryngoscope system for KFMC

Timesco Healthcare, England, has been at the forefront of laryngoscopes design, manufacture and innovative developments in intubation for the past four decades.

As a result of the collaboration between Timesco Healthcare and King Fahd Medical City (KFMC) represented by the Administration of Anesthesiology and OR department concerning the customization of the disposable metal laryngoscope blades to better suit the requirements and standards of KFMC, we have succeeded in designing & manufacturing the low profile laryngoscope blades, Callisto fiber optic laryngoscopes systems as a stock item for KFMC; these have also found approval

amongst other clients within the Kingdom of Saudi Arabia (KSA). Consequently KFMC has proven itself as one of the main partners in KSA having assisted in the design modification process and having become the main user of the newly designed and especially customized blades.

KFMC has also been collaborating with Timesco Healthcare to implement new non

reflective designs on the pediatric Callisto fiber optic blades to prevent light refraction to the Anesthetist during intubation.

Timesco Healthcare has also introduced patented new innovative ranges, EES, of single use Laryngoscope systems at Arab Health in January to aid infection control and is working with KFMC to trail and introduce the same into KSA.

● For more information, call: 00971 508451019



Naffco provides unique mobile medical units

Naffco Mobile Medical Unit is a uniquely designed vehicle, which can be used as a mobile hospital, mobile clinic, or any customizable mobile unit. It offers various facilities like x-ray, laboratory, MRI, CT and recovery room. In addition to the quality and the reliability of the product, Naffco Mobile Medical Unit is manufactured in UAE and will be able to give 24/7 maintenance support. The sandwich layout of construction makes it secure for the medical equipment used in this mobile medical unit. This will avoid the costly maintenance and promises the best function of the equipment. The inside unit temperature has to be absolutely steady and secure, regardless where the unit may be stationed or transported, at any environment circumstances.

This mobile medical unit can be operated as standalone hospital, catering to specific regions allowing you to cover larger areas with less resource, offering economic and flexible mobile healthcare solutions. This unit can also be used

to recover and backup for natural disasters, for example, earthquakes, floods, or any other situation which will result in spiking numbers of patients. The capacity of the installed equipment can be customized to meet any number of patients if necessary. Naffco Mobile Medical unit can save lives by minimizing patient waiting time. It costs less than fixed infrastructure.

Naffco has provided the best quality for over 20 years in manufacturing and maintenance of trucks, ambulances and other vehicles. Naffco exports to more than 104 countries and provides onsite support 24/7 with specialized technicians. Being anchored in UAE, they provide expert support in all languages used in the Middle East.

● For more information: email info@naffco.ae

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- Mobile Laboratory Unit




For Further Info Contact:
info@naffco.ae
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Parker Labs introduces new disinfectant spray

Parker Laboratories, the world-leading manufacturer of ultrasound and electro-medical contact media, recently launched Protex Disinfectant Spray and Wipes, a powerful one step disinfectant effective against a broad spectrum of pathogens, including Influenza Type A (H1N1), MRSA, HIV, Staph, and many others. It is also safe for use on sensitive equipment and is EPA registered. Protex is designed for disinfecting ultrasound transducers, probes, mammography compressor plates and other hard nonporous, non-critical surfaces. Available in 12 oz pump and 32 oz trigger sprays, Wipes, Softpack and Canister. Our convenient, re-sealable Softpack with its exclusive, "STAY PUT" adhesive backing,

allows for single-hand use. Adhere to any convenient surface. The package can be easily removed, when it's time to replace or move to another location.

Protex is available through medical supply distributors, or by contacting Parker Laboratories, at (+973) 276-9500 or Toll Free-inthe USA: (800) 631-8888, or at www.parkerlabs.com.

For over 50 years, Parker Laboratories has been consistently positioned at the forefront of technological advances that characterize the ultrasound and electro-medical industries. Parker's flagship product, Aquasonic100 Ultrasound Transmission Gel, is the World Standard for medical ultrasound.



Middle East drug knowledge - designed for clinicians

First Databank's (FDB) Middle East Drug Knowledge provides up-to-date information on all registered drugs from the Gulf Cooperation Council and the Middle East. When integrated into healthcare systems, clinicians benefit from access to accurate and reliable drug information through clinical decision support.

FDB's electronic clinical decision support is designed to provide healthcare professionals with intelligently filtered,



patient-specific drug information at appropriate times throughout a patient's care. The emphasis is placed on supporting clinicians in their clinical decision-making, rather than making decisions for them.

Our clinical decision support helps clinicians to select an appropriate medication and run a series of checks. It reviews the patient's concurrent medications and triggers on-screen alerts if the newly selected medi-

cation could be harmful to the patient.

When integrated into a clinical system and linked with an Electronic Health Record, FDB's clinical decision support is able to carry out a range of checks including drug-drug interactions, drug-allergies, duplicate therapy, drug-indications and contraindications as well as dose range check. It also provides patient medication labels in English and Arabic.

● For more information on Middle East Drug Knowledge visit: www.fdbhealth.ae

NICE Guidance supports the case to adopt Inditherm patient warming systems in the NHS

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Full guidance can be found at www.nice.org.uk/guidance/MTG7

www.inditherm.com/medical

RTI Electronics unveils the Mover to facilitate dose profile measurement

RTI Electronics AB, a specialist supplier of X-ray QA and Service instrumentation, has unveiled the Mover, a computer-controller motorized support for dose profilers that promises to greatly improve the accuracy and speed of test set-up when characterizing the radiation output of any cone beam CT scanner.

The Mover is designed to overcome the practical and physical challenges encountered by CT technicians when carrying out dosimetry measurements on modern scanners. Many of the latest CT scanners feature wide beam widths that enable patients to be X-rayed in just one rotation, precluding the need to move the patient table – a prerequisite when making CT dose measurements using the computed tomography dose index (CTDI). In addition,

some scanners used for intraoperative analysis do not have an integrated patient table. The Mover provides support for the dose profiler when there is no patient table on which to rest the measurement device and pushes or pulls it through the x-ray field at a constant speed. Crucially, it provides an accurate and easily reproducible way for CT technicians to align the probe in isocentre, potentially providing much faster measurement set-up and a more accurate outcome.

The Mover consists of a dose detector holder with a clamp and flexible ball joint that enables easy orientation in horizontal or vertical positions. Optimized for use with the CT Dose Profiler - though it can be used with most dosimeter probes - the Mover has a range of accessories that



simplifies set-up for different applications such as Dental Cone Beam CT and general CT scanners, free in air or in phantom measurements.

● For more information, visit: www.rti.se

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Infinium launches new ADSII anesthesia machine

The Infinium ADSII offers an integrated ventilator with 10.1 inch color screen and docking for 2 vaporizers. The ADSII features simplified gas delivery with digital O₂, N₂O, and AIR flowmeters. All ventilation and gas delivery controls are located within 10 cm from one another to allow for an extremely simplified user interface.

Ventilation modes of VCV PCV SIMV+V CV+PSV SIMV+PC V+PS Manual, and Standby are standard. On screen monitoring of C, R, VTE, VTI, MV, MV_{spn}, f, f_{spn}, I:E, P_{peak}, P_{mean}, P_{plat}, P_{mini} are also standard. Optional measurement of NIPB, SpO₂, ECG, Temp, CO, IBP, EtCo₂, and anesthetic agent measurements are available.

● For more information, visit: www.infiniummedical.com



Medical Apps



Compiled by Jay Franco



Masimo introduces iSpO2 Pulse Oximeter



US-based company Masimo has launched iSpO2 Pulse Oximeter that connects to your smartphone. Measurements are read via an App on the phone. This consumer product was showcased at the recent Arab Health show. The device measures blood oxygenation, pulse rate and perfusion index with the same technology used in hospitals worldwide, providing accurate measurements even during the challenging conditions of motion and low perfusion. The device is compatible with the iPhone, iPad or iPod touch. Once connected to the device, slip the iSpO2 sensor on your ring finger and the results appear on the screen.

The app provides immediate access to the user's data history and allows the user to view measurements, graphs and trends – with the ability to export data history into CSV files for use with text editing and spreadsheet programs such as Microsoft Excel.

- Price: Free
- 30-pin connector device: US\$250 (available from www.Masimo.com)

Statrad lets teleradiologists view reports on the go

Teleradiologists can now access critical reports on the go with StatRad's latest iPad app. The app provides exam report access even if the user needs to move away from the workstation or scanner to submit exams or review reports.

Push notification alerts are provided instantly when StatRad's radiologists complete or update the reports, which mean there's no waiting for results by the fax machine or phone.

- www.statrad.com
- Price: Free



A complete medical and pharmacological reference

This App is a point-of-care tool that supports emergency physicians in decision making. PEPID EM provides access to a complete medical and pharmacological reference that allows the user to obtain protocols and other critical information that can improve patient safety and speed of care.

The app is able to access information on over 8,500 drug names (including generics, OTCs, herbals and supplements). The pill identifier tool easily identifies patient medications by score, shape and colour. More than 3,000 weight-based and IV drip-rate dosing calculators are linked to drug information, and more than 400 medical calculators, equations and score are available including Body Surface Area, Glasgow Coma Scale, Total Calcium, NIH Stroke Scale and Port Analysis.

Wi-Fi connection is a pre-requisite for downloading and accessing information.

- www.pepid.com
- Price: 1 year subscription US\$260



Blood Pressure Tracker helps maintain healthy BP

Blood Pressure Tracker is simple to use on iPhone, iPad and iPod touch, and helps monitor and keep track of your blood pressure levels – systolic and diastolic BP and heart rate.

It also helps set a goal to maintain a healthy BP and monitor progress. A log history display allows users to view all historic data, and results can be emailed or shared with your doctor. Text notes can be added to each log. Reports can be provided on a daily, weekly and monthly basis, and can be exported to MS-Excel. Internet connection is not required to access data as all information is locally stored on your device.

- www.ihealthventures.com
- Price: \$1.99



App enables health information exchange

This App is a complete point-of-care solution that brings Alere Wellogic's Health Information Exchange (HIE) and Electronic Health Record (EHR) into the exam room and on the road. Alere Wellogic Consult (AWC) enables doctors to communicate with each other and with their patients via direct secure messaging. Doctors are able to have a unified view of their patient's clinical information across all venues of care, and are able to document their patient encounters and manage patient records.

The app integrates both hospital and ambulatory clinical information, and displays the results graphically and dynamically. The user is able to access the patient clinical records fast, easily and in real time.

To use this app, the user requires an account and login access to AWC.

- www.wellogic.com
- Price: Free





Satisfied hospital staff – less patient mortality

The satisfaction levels among a hospital's staff are closely linked to the quality of healthcare it provides, say a team of doctors from Imperial College London.

In the first study of its kind, Dr Richard Pinder and colleagues at Imperial found that hospitals in England with lower mortality rates were more likely to have members of staff satisfied with the quality of care they provide.

Despite the researchers' initial assumptions, satisfaction levels among non-clinical staff were found to be as closely tied to a hospital's performance as those of doctors. A stronger correlation was found among nursing staff.

The paper appears in *BMJ Quality and Safety* days after the long-awaited publication of the Francis report into failures at the Mid-Staffordshire Foundation Trust between 2005 and 2009. In his report, Robert Francis QC recommended that NHS trusts across the UK renew their focus on compassion and the creation of a caring environment for patients. The report also highlighted the central role of staff in raising concerns about poor quality care.

In the new research, the team determined levels of satisfaction by examining data from the NHS's 2009 staff survey. In particular, they focused on whether or not staff would recommend their NHS trust to a friend or colleague, whether they felt that care was their trust's priority, and if they were themselves happy with the standard of care they provided to patients. Over 60,000 responses were collected across the 147 acute general NHS hospitals in England, from doctors and nurses as well as administrative and support staff.

These results were then compared with

the individual Hospital Standardised Mortality Ratios (HSMRs), a figure obtained by comparing the expected rate of death in a hospital with the actual rate of death. Although this has been called a crude approach to assessing the quality of healthcare, the Department of Health continue to use overall mortality figures to assess hospital performance. Dr Pinder says: "HSMR isn't perfect, but it's a useful indicator that gives you a steer on performance and has a role in identifying the best- and worst-performing hospitals. In this paper, what we are suggesting is that staff willingness to recommend their hospital may actually be a more sensitive indicator of the quality of care than HSMR."

Dr Pinder and his colleagues suggest that further research would be needed to establish the mechanism behind the correlation. "What this work does is demonstrate that staff satisfaction is correlated with organisational performance. The logical next question is about establishing whether happier staff provide better care, or if better care creates happier staff. We don't know yet, but it's probably the case that both processes are at work. Better organisations attract better staff, who work harder. It's a cycle of improvement or a cycle of degeneration for many of these hospitals," he said.

The findings suggest that staff satisfaction could be used as an early warning system to help spot more serious institutional failings. Regular surveys asking questions such as 'would you recommend this hospital to friends and family?' might have been able to prevent the deterioration of hospital standards that occurred at the Mid-Staffordshire trust.

The researchers say their study might

What this work does is demonstrate that staff satisfaction is correlated with organisational performance. The logical next question is about establishing whether happier staff provide better care, or if better care creates happier staff. We don't know yet, but it's probably the case that both processes are at work. Better organisations attract better staff, who work harder. It's a cycle of improvement or a cycle of degeneration for many of these hospitals.

also help patients to make informed choices. "It's difficult for patients to make decisions based on the intricacies of adjusted mortality rates. If you want to choose between two hospitals, knowing that 98% of doctors and nurses working there would recommend their hospital, compared with 60% elsewhere is a useful thing to know," said Dr Pinder.

● **Reference:** *BMJ Quality & Safety* "Staff perceptions of quality of care: an observational study of the NHS staff survey in hospitals in England by Richard Jonathan Pinder, Felix E Greaves (both Department of Primary Care and Public Health at Imperial College London), Paul P Aylin, Brian Jarman, Alex Bottle (all three Dr Foster Unit at Imperial College London). **MEH**

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date	Contact
■ MAY 2013		
Comprehensive Cancer Care Conference	29 April – 5 May, 2013 Jeddah, KSA	jcme@kfshrc.edu.sa dreopta@kfshrc.edu.sa
The Saudi Hypertension Conference	30 April – 5 May, 2013 Qatif, KSA	www.saudihtn.org qchpost@hotmail.com
The 2nd Global Network Conference on Emergency Medicine	2 – 6 May, 2013 Dubai, UAE	http://www.emergency-medicineme.com
EgyMedica 2013	9 – 11 May, 2013 Cairo, Egypt	marketing@egymedica.com www.egymedica.com
EgyHospital Build	9 – 11 May, 2013 Cairo, Egypt	marketing@egymedica.com www.egymedica.com
Symposium on Fertility Preservation in Women	10 May, 2013 Beirut, Lebanon	www.mefs.org
SaudiHealth 2013	12 – 14 May, 2013 Riyadh, KSA	info@saudihealth-exhibition.com www.saudihealth-exhibition.com
4th International Symposium on Thrombosis & Haemostasis	12 – 14 May, 2013 Riyadh, KSA	Ms Ruth Gamboa ruthdls@yahoo.com
2nd Child Abuse & Neglect Symposium	15 May, 2013 Jeddah, KSA	jcme@kfshrc.edu.sa



Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date	Contact
International Cardiology Symposium	16 – 18 May, 2013 Dubai, UAE	www.ics2013.com
Health Facilities Infrastructure	26 – 28 May, 2013 Riyadh, KSA	www.healthfacilities.saudi.com
Iraq Medicare 2013	27 – 29 May, 2013 Kurdistan Region, Iraq	info@iraqmedicare.com www.iraqmedicare.com
■ JUNE 2013		
M+Health	3 – 5 June, 2013 Dubai, UAE	www.mplushealth.com
Hospital Health Middle East	3 – 5 June, 2013 Dubai, UAE	www.hospitalbuild-me.com
EFORT Congress 2013	5 – 8 June, 2013 Istanbul, Turkey	EFORTexhibition@mci-group.com www.efort.org/istanbul2013
Beirut International Medipharma Fair	13 – 15 June 2013 Beirut, Lebanon	info@promoteam-ltd.com
■ SEPTEMBER 2013		
Emergency Medicine & Hyperbaric Medicine Conf. & workshop	1 – 4 Sept, 2013 Jeddah, KSA	jcme@kfsshr.edu.sa
Advanced Technologies	5 – 9 Sept, 2013 Amman, Jordan	www.estro-education.org



List your conference:

If you have upcoming conference/exhibition details which you would like to list in the agenda, please email the details to the editor: editor@MiddleEastHealthMag.com

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