Middle East
HEALTH
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September-October 2014
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Medical science

Al Jalila Foundation aims to elevate research in UAE

Ebola outbreak

WHO issues roadmap plan to prevent spread of virus

Groin pain

Doha's Aspetar sets up center to tackle this sports injury

In the News:

- AIDS 2014 conference
- MERS virus airborne
- The world's first malaria vaccine
- Huge Middle East polio vaccination campaign underway

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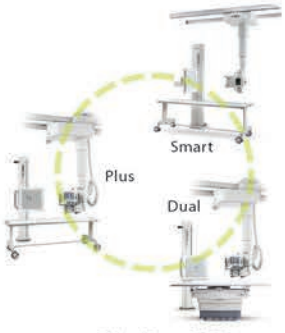

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Prognosis

Ebola scare

The Ebola outbreak in West Africa has grabbed the attention of the world in the past month. This devastating disease has claimed the lives of more than 1900 people at the time of going to press and doctors say it will claim many more lives before it can be brought under control. There is no known cure. The big fear is that it will spread to other parts of the world. The World Health Organisation has issued a Response Roadmap in an effort to control the disease, treat the infected and prevent its spread. They have also agreed to provide unapproved medications to affected people. You can read more about this in our focus on Ebola in this issue.

Also in this issue we publish an article looking at Germany's global health policy. The article looks at the strengths, weaknesses and opportunities of this policy and what the German government can do to strengthen this initiative.

In our focus on orthopaedics and sports medicine we look at the work of the Aspetar Sports Groin Pain Centre – a new department at the Aspetar Orthopaedic and Sports Medicine Hospital in Doha, Qatar. Dr Adam Weir, the deputy head of the department, discusses prevention of groin injuries, acute groin injuries and looks at their multi-disciplinary clinic.

In our UAE report Dr Abdulkareem Sultan Al Olama, the CEO of the Al Jalila Foundation, writes about the foundation and its efforts to kickstart relevant medical research in Dubai through the issuing of seed and fellowship grants. It has got off to a strong start with a number of philanthropic donations to the foundation which bodes well for the future of focused medical research in Dubai and the UAE.

Turkey recently held a very successful medical tourism conference in Istanbul. As an official media partner we attended the event and spoke to a wide range of delegates representing Turkish hospitals that offer services to foreign patients. In this issue's medical tourism report we look at what some of these hospitals have to offer foreign patients. They are clearly well advanced in this field.

This issue has a wide range of medical news including an update on MERS, news from the AIDS 2014 conference in Melbourne, as well as a fascinating report on the development of an artificial retina using graphene.

We trust you will find this issue of *Middle East Health* informative and educational.

Callan Emery
Editor
editor@MiddleEastHealthMag.com

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Publisher
Michael Hurst
michael@middleeasthealthmag.com

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
Foehn Sarkar
Telephone: (+9714) 391 4775 ▮ Fax: (+9714) 391 4888
marketing@middleeasthealthmag.com

Subscription & Admin Manager
Savita Kapoor
Telephone: (+9714) 391 4775 ▮ Fax: (+9714) 391 4888
savita@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
jfranco@middleeasthealthmag.com

Japan
Mr Katsuhiro 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*

Middle East Health is published by Hurst Publishing FZE, Creative City Fujairah, Licence Number: 3910/2013 FBCC.

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middle east monitor

Update from around the region

Dr Ala Alwan, WHO's Regional Director for the Eastern Mediterranean, speaks to the press in Gaza.

WHO Regional Director visits Gaza, urges support for healthcare

Dr Ala Alwan, WHO's Regional Director for the Eastern Mediterranean, made a visit to the Gaza Strip and Ramallah on 11 August to witness first-hand the humanitarian conditions in Gaza and review the damage to the health infrastructure and facilities caused by Israel's bombardment. He discussed priority requirements with leading figures in healthcare.

Dr Alwan started his mission in Jerusalem where he met Dr Jawad Awwad, the Palestinian Minister of Health, and his senior staff.

Dr Alwan visited three hospitals that had been damaged by Israeli bombardment and were no longer functioning, including the Mohammed Al Durrah pediatric hospital in which 30 people were injured on 24 July.

"The level of damage to the health system in Gaza is considerable and requires urgent support from partner and donors," said Dr Alwan. Up to one third of hospitals and one half of primary healthcare clinics had to be closed either because of damage or because of being in an insecure location for staff and patients.

According to a press release issued by WHO Eastern Mediterranean Regional Office (EMRO) in Cairo, Dr Alwan toured Gaza's main hospital, Al Shifa, meeting with casualty patients, health workers and the hospital directors who described how the hospital staff had managed to treat the many casualties it received under exceptionally difficult conditions. Dr Alwan congratulated the hospital directors and leaders in the health sector for being able to maintain effective emergency services, even when 240 seriously injured patients arrived at the same time: "Their dedication and highly professional work are greatly appreciated," he said.

More than 300,000 people have been displaced from damaged homes and have taken refuge in UNRWA and government schools as temporary shelters. Dr Alwan visited one school where more than 1000 people have taken refuge in extremely overcrowded conditions.

"I am particularly worried about the risk of waterborne and communicable disease in such settings where overcrowding, poor hygiene and lack of access to clean drinking-water predispose to disease outbreaks. These risks have to be addressed immediately," said Dr Alwan.

Dr Akihiro Seita, UNRWA's Director of Health and also a senior WHO official, accompanied Dr Alwan during his visit and highlighted the health challenges in shelters: "While we do our best, we are deeply concerned about the health and hygiene situation in our very crowded shelters. Our efforts are limited as a result of heavy damage to the entire water, electricity and sewage systems."

Even if the war ceases now, more than 50,000 people will have lost their homes. "Recovery and reconstruction will require an immediate assessment of needs and considerable resources. There is an urgent need to provide mental health support for patients, bereaved families, children and especially for displaced persons, many of whom no longer have a home to go to," said Dr Alwan.

Palestinian health authorities are planning to refer more patients to hospitals outside of Gaza to access life-saving treatment as well as to reduce the caseload in the hospitals to a more manageable level. Dr Alwan said that there was a need to speed up approvals and procedures to allow these patients to be transported across border crossings.

"Referral of patients outside of Gaza to receive specialized treatment will have to be facilitated at all levels," urged Dr Alwan.

Dr Alwan pledged WHO's continued support to the Ministry of Health and to the Palestinian health system in general: "Health workers have been doing heroic work since this crisis began. Our WHO staff in Gaza and Ramallah have been working jointly with the Palestinian health authorities in an integrated way in responding to the immediate and urgent needs to support and sustain emergency health services in Gaza throughout the crisis."

Palestinian President Mahmoud Abbas,

who met with Dr Alwan and his team, thanked WHO staff for their effective contribution and joint work, coordination and partnership with the Palestinian health authorities in Ramallah and Gaza. "WHO is committed to providing support in any possible way," said Dr Alwan.

New social network platform setup for MENA doctors

A new social networking platform specifically for doctors in the Middle East has been set up. *Doxunity.com* is a free, secure and collaborative platform aimed at uniting doctors across the Middle East & North African region.

Doxunity is built around the needs of physicians throughout the Middle East & North Africa (MENA). The site enables physicians to search for colleagues by educational institution, speciality, affiliations, demographics and languages.

It also enables physicians to collaborate on patient data whilst abiding to patient information privacy laws, thus allowing physicians to ensure proper patient diagnosis.

Doxunity's messaging feature has the ability to upload studies, lab work, samples and medical images for needed collaboration on tough cases. Essentially, Doxunity is a LinkedIn for medical professionals only in the MENA region.

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Government workers to be trained to handle emergencies

The Abu Dhabi government announced that around 70% of all staff members at government organisations and institutions in the UAE capital will be trained how to perform first aid at the scene of an emergency before paramedics arrive.

The 'Be a Paramedic' initiative conducted by the Ministry of Interior's Emergency and Public Safety Department will be run over three years in three phases and will include training sessions on first aid, common health risks and how to use medical equipment.

Lieutenant Colonel Mohammad Ebrahim Al Ameri, Director of the Emergency and Public Safety Department at Abu Dhabi Police, was quoted as saying: "The number of reports for medical emergencies are increasing at a rate of about 5,000 calls annually, with the rise of the emirate's population and the public's enhanced ability in communication."

Al Ameri highlighted the ministry's recent project for installing Automated External Defibrillators (AED) in the UAE's most crowded locations such as malls, public parks, and government buildings.

"During the first phase, we placed 200 working devices at 20 institutions across the capital, with the most recent AEDs at Al Ain Zoo and UAE University. During the next phase, schools and government institutions will be targeted.

"Over the next five years, around 3,000 of these instruments will be ready at strategic locations across the UAE," he told the newspaper.

Fake nurses, anaesthetists, lab technicians exposed in KSA

A report released recently by the Saudi Commission for Health Specialties (SCFHS), notes that 828 fake certificates were recently uncovered among health practitioners in government hospitals and clinics.

The report said 929 forgery cases have been discovered in the private health sector since the verification of health practitioners' qualifications was made mandatory four years ago.

According to the SCFHS report, from the total number of cases in the government health sector, the nursing department topped the list for forgeries at 523 cases, followed by lab test technicians (60), X-ray (47) and anaesthesia technicians (37).

New hospitals for Makkah

In July the Saudi Arabian Ministry of Health (MoH) announced a series of health projects in the Makkah region worth more than SR3 billion (about US$800 million)). Some of the hospitals and clinics are already under construction, according to a report in *Arab News*.

Projects include the construction of a 500-bed hospital in northern Jeddah costing almost SR363 million.

The hospital is partially operational, while other works are under way. The project also includes out-patient clinics and kidney dialysis buildings.

In the eastern part of Jeddah there is a 300-bed capacity hospital being built at a cost of SR310 million.

According to the report other projects include the construction of a medical tower at King Fahd Hospital in Jeddah, with a capacity of 270 beds and costing SR97.15 million.

Death from heart attack on the rise in young Saudi people

The *Arab News*, quoting Dr. Mohammed Khalil, a senior cardiology consultant in Saudi Arabia, reports that there is an alarming increase in mortality in young people under the age of 35 due to cardiac arrest.

The newspaper says several doctors have revealed that this is often due to hidden heart defects or abnormalities caused by smoking, obesity and lack of exercise.

Other cardiologists estimate that at least four cases of mortality out of 10 are youngsters.

Dr. Khalil told the newspaper that "cardiac arrest normally occurs due to coronary artery disease or heart failure, conditions that are uncommon in people this young, but lately, smoking and obesity have become major risk factors for cardiac arrests.

"We have noticed that around 50% of youngsters we examine suffer from obesity, which leads to diabetes, hypertension and high levels of cholesterol, all major risk factors for heart attacks. Cases of sudden death in youngsters are on the increase. Many of these youngsters die before reaching hospital.

"It is important to spread awareness on this issue and educate people on the importance of decreasing tobacco consumption, taking up regular exercise and eating a proper diet to reduce the risk of developing coronary heart disease." MEH

worldwide monitor

Update from around the globe

Epidemic of non-communicable diseases a challenge to development

UN Member States have reaffirmed their commitment to take bold measures to reduce the avoidable burden of noncommunicable diseases. These ailments, including heart disease and stroke, cancer, diabetes and lung disease kill 38 million people every year, many of them before they reach the age of 70. Most of these largely preventable deaths occur in developing countries, where this epidemic threatens to undermine social and economic development.

Member States, gathered for the second time in three years at the United Nations in New York to discuss this topic, pledged to intensify efforts to combat the growing menace of NCDs. They acknowledged that progress has been too slow and uneven since 2011, when the UN General Assembly adopted the Political Declaration and pledged to better protect the lives of their people.

"Three years ago we agreed that it is time to act," UN Secretary-General Ban Ki-moon said. "The global epidemic of non-communicable diseases is a major and growing challenge to development."

He also noted that "success will depend on finding new ways to strengthen the ability of countries to adopt bolder measures," calling for strong leadership and action from governments, the private sector and others.

Under the leadership of the World Health Organization (WHO), the international community agreed in 2011 on global mechanisms including a Global NCD Action Plan. This plan aims to reduce the number of premature deaths from NCDs by 25% by 2025, in part by addressing factors such as tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity that increase people's risk of developing these diseases.

The United Nations, through an Interagency Task Force established by the Secretary-General, is providing support to developing countries. Civil society, academia and the private sector contribute to NCD prevention and control worldwide through a Global Coordination Mechanism, and achievements are measured by a set of joint indicators.

"The obesity epidemic has been getting worse, not better, for more than three decades," stressed WHO Director-General Dr Margaret Chan. "Industry practices, especially the marketing of unhealthy foods and beverages to children, play a contributory role."

She noted that the article in the political declaration calling for collaboration with the private sector "has not been fully implemented. Healthier food formulations are neither affordable nor accessible in large parts of the developing world. Unfortunately, the unhealthiest foods are usually the cheapest and most convenient."

The most recent WHO NCD country profiles give a detailed picture on the situation in 194 Member States and identify existing gaps and weaknesses. They also indicate that countries need to do more to reduce the toll of death and disease from NCDs. As one of the results of the New York meeting WHO will prepare a Framework for Country Action together with partners. WHO was also tasked to establish systems to register and publish contributions of the private sector, philanthropies and civil society to the achievement of the nine voluntary targets of the Global NCD Action Plan.

The first UN General Assembly High-level on NCDs took place in 2011 and resulted in the adoption of a Political Declaration that put NCDs high on the development agenda. In 2018, the UN General Assembly will convene a third high-level meeting to take stock of progress.

Cerner acquires Siemens Health Services

Cerner Corporation and Siemens AG in August signed a definitive agreement for Cerner to acquire the assets of Siemens' health information technology business unit, Siemens Health Services, for US$1.3 billion in cash. By combining investments in R&D, knowledgeable resources, and complementary client bases, the acquisition creates scale for future innovation. As part of the agreement, Cerner and Siemens will form a strategic alliance to bring new solutions to market that combine Cerner's health IT leadership and Siemens' strengths in medical devices and imaging.

"We believe this is an all-win situation for the clients of both organizations and all of our associates and shareholders," said Neal Patterson, Cerner chairman, CEO and co-founder. "Through more than $4 billion of cumulative investments in R&D, Cerner has established a strong market standing and is positioned for continued growth. Siemens' health care IT assets provide additional scale, R&D, an impressive client base, and knowledgeable and experienced associates who will help Cerner achieve our plans for the next decade. In addition, the alliance we're creating will drive the next generation of innovations that embed information from the EMR inside advanced diagnostic and therapeutic technologies, benefiting our shared clients."

John Glaser, Ph.D., CEO of the Health Services business unit of Siemens Healthcare, commented: "We are excited to join with one of the most competitive companies in health IT today, and a recognized leader in innovation. Siemens cares deeply about its clients and believes Cerner is the best organization to fully support their health IT needs going forward. The knowledge and strength of our combined resources opens up great possibilities for future collaboration and development, which is exciting for all of us. And our clients will benefit from our alignment with a company that has such a strong historical and future commitment to rapid innovation."

Following the acquisition, support for Siemens Health Services core platforms will remain in place. Current implementations will continue, and Cerner plans to support and advance the Soarian platform for at least the next decade. Cerner will work with all clients to support their short-term and long-term business needs.

Cerner and Siemens will create a strategic alliance to jointly invest in innovative projects that integrate health IT with medical technologies for the purpose of enhancing workflows and improving clinical outcomes. Each company will contribute up to $50 million to fund projects of shared importance to both companies and their clients.

The alliance has a three-year initial term. Advanced workflows along with medical images and their unique role in diagnostic and therapeutic decision-making, will be an early focus of the joint work.

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US NIH Common Fund to support areas of science ready for transformation

The US National Institutes of Health's Common Fund will focus on scientific areas ready for targeted investments in technology development and research to improve health. The programs include work to facilitate the study of how sugar modifications affect proteins, to understand the arrangement of DNA within cells in four dimensions, and to enable the development of new therapies that allow control of organ function through manipulation of nerves.

Each program was selected through rigorous efforts to capitalize on new areas of biomedical research for which strategic investments can have a transformative impact over five to 10 years. Implementation of the programs would be based on the availability of funding.

"The Common Fund enables NIH to identify areas of science where opportunities for broad transformation exist," said NIH Director Francis S. Collins M.D., Ph.D. "Emerging technologies or new discoveries in each of these new program areas provide the opportunity for a 5-10 year investment to radically change the scientific landscape, leading to new therapeutic avenues for many diseases and providing new foundational knowledge."

Glycoscience is the study of how the addition of sugar modifications to proteins change the way the proteins function in important ways. The complexity of carbohydrate chemistry makes the analysis of these sugar modifications inaccessible to most biomedical researchers. The Glycoscience program will develop methodologies and resources to make the study of sugar modifications more accessible to the broad biomedical research community.

The 4D Nucleome program will develop technologies to enable the study of how DNA is arranged within cells in space and time (the fourth dimension) and how this affects cellular function in health and disease. Recent scientific advances, coupled with technological breakthroughs in tools and methods, provide the opportunity to catalyze this emerging field of research. 4D nucleome science aims to understand the principles behind the organization of the nucleus in space and time, the role that the arrangement of DNA plays in gene expression and cellular function, and how changes in nuclear organization affect health and disease.

The Stimulating Peripheral Activity to Relieve Conditions (SPARC) program will develop high resolution neural circuit maps and next generation neural modulation devices – implants that can stimulate nerves – and will demonstrate the use of these tools in the development of new therapeutic strategies. All organs are stimulated by nerves, which send signals that affect the organ's function. Modulation of nerve signals to control organ function has therefore been recognized as a potentially powerful way to treat many diseases and conditions, such as hypertension, heart failure, gastrointestinal disorders, type II diabetes, and inflammatory disorders.

"These programs tackle some of the most difficult and novel areas being confronted by the biomedical research community," said James M. Anderson, M.D., Ph.D., director of the Division of Program Coordination, Planning, and Strategic Initiatives, which oversees the NIH Common Fund. "Each new program has the ability to catalyze biomedical advances and expand research in critical areas of human health."

GSK seeks regulatory approval of world's first malaria vaccine

GlaxoSmithKline (GSK) announced in July that it has submitted a regulatory application to the European Medicines Agency (EMA) for its malaria vaccine candidate, RTS,S. To-date there is no licensed vaccine available for the prevention of malaria.

The submission will follow the Article 58 procedure, which allows the EMA to assess the quality, safety and efficacy of a candidate vaccine, or medicine, manufactured in a European Union (EU) member state, for a disease recognised by the World Health Organization (WHO) as of major public health interest, but intended exclusively for use outside the EU. This assessment is done by the EMA in collaboration with the WHO, and requires products to meet the same standards as vaccines or medicines intended for use in the EU. Eligibility for the application was granted by the CHMP after agreement from WHO that RTS,S met criteria for such an evaluation.

RTS,S is intended exclusively for use against the *Plasmodium* falciparum malaria parasite, which is most prevalent in sub-Saharan Africa (SSA). Around 90% of estimated deaths from malaria occur in SSA, and 77% of these are in children under the age of 5.

RTS,S aims to trigger the body's immune system to defend against the *P falciparum* malaria parasite when it first enters the human host's bloodstream and/or when the parasite infects liver cells.

The vaccine is designed to prevent the parasite from infecting, maturing and multiplying in the liver, after which time the parasite would re-enter the bloodstream and infect red blood cells, leading to disease symptoms. In the phase III efficacy trial, RTS,S was administered in three doses, one month apart.

The EMA submission is the first step in the regulatory process toward making the RTS,S vaccine candidate available as an addition to existing tools currently recommended for malaria prevention. An effective vaccine for use alongside other measures such as bednets and anti-malarial medicines would represent an advance in malaria control.

If a positive opinion from the EMA is granted, the WHO has indicated a policy recommendation may be possible by end of 2015. A policy recommendation is a formal review process by WHO designed to assist in the development of optimal immunisation schedules for diseases that have a global public health impact, such as malaria.

If positive, these regulatory decisions would help pave the way toward the large-scale implementation of the vaccine through African national immunisation programmes.

Dr Sophie Biernaux, Head of the Malaria Vaccine Franchise, GSK said: "This is a key moment in GSK's 30-year journey to develop RTS,S and brings us a step closer to making available the world's first vaccine that can help protect children in Africa from malaria."

GSK has taken the lead in the overall development of RTS,S and has invested more than US$350 million to date and expects to invest a further $260 million until development is completed. With more than US$200 million in grant monies from the Bill & Melinda Gates Foundation, the PATH Malaria Vaccine Initiative (MVI) contributes financial, scientific, managerial, and field expertise to the development of RTS,S.

GSK has committed that the eventual price of RTS,S will cover the cost of manufacturing the vaccine together with a small return of around 5 per cent that will be reinvested in research and development for second-generation malaria vaccines, or vaccines against other neglected tropical diseases.

Roche acquires Intermune for $8.3bn

Roche has won a bidding war and acquired Intermune for US$8.3 billion. According to media reports British GSK and French Sanofi were also trying to buy the company.

California-based Intermune is focused on the research, development and commercialisation of therapies in pulmonology and fibrotic diseases. Its lead medicine pirfenidone, for treatment of idiopathic pulmonary fibrosis (IPF), is already on the market as Esbriet in the EU and Canada and under regulatory review in the United States. Roche now plans to launch the drug in the US this year.

IPF is a progressive, irreversible and ultimately fatal disease characterized by progressive loss of lung function due to fibrosis, or scarring, in the lungs.

The acquisition of InterMune will allow Roche to broaden and strengthen its respiratory portfolio globally.

Pirfenidone is an orally active, anti-fibrotic agent that inhibits the synthesis of TGF-beta, a chemical mediator that controls many cell functions including proliferation and differentiation, and plays a key role in fibrosis. Pirfenidone also inhibits the synthesis of TNF-alpha, a cytokine that is known to have an active role in inflammation.

WHO recognises momentum on tackling viral hepatitus

On World Hepatitis Day, 28 July, WHO welcomed new progress in tackling one of the world's most serious diseases. Viral hepatitis – a group of infectious diseases known as hepatitis A, B, C, D, and E – affects millions of people worldwide, causing acute and chronic liver disease and killing close to 1.4 million people every year.

"For years, viral hepatitis has been largely neglected," says Dr Margaret Chan, Director-General at WHO. "But now we are beginning to see greater awareness and global momentum building to tackle it."

This increasing interest stimulated debate on hepatitis at the 2014 World Health Assembly, when 194 countries endorsed a resolution to intensify efforts to prevent, diagnose, and treat viral hepatitis. The resolution emphasizes how important it is for countries to have comprehensive national plans to tackle hepatitis – designed to meet the needs of the country, using the resources available.

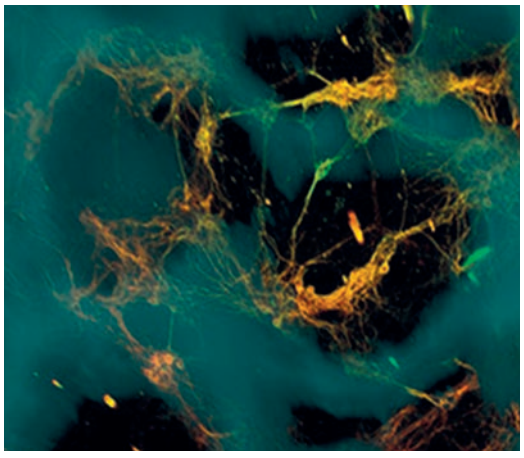
"The experience gained by HIV programmes in scaling up comprehensive prevention and treatment programmes, improving access to affordable medicines and diagnostics, engaging communities and reaching vulnerable and marginalized populations can do much to inform viral hepatitis responses, addressing wider populations of people affected by hepatitis B and C," says Dr Hiroki Nakatani, Assistant Director-General for HIV, Tuberculosis, Malaria and Neglected Tropical Diseases, WHO.

One of the most significant public health developments over the past year has been the huge advances in the treatment of chronic hepatitis C. New drugs, with others in the pipeline, have the potential to transform hepatitis C treatment, with safe and simple treatments resulting in cure rates of over 90%. But major challenges remain to make such treatment affordable and accessible to those populations in greatest need.

In April this year WHO released new guidelines for the screening, care and treatment of people with hepatitis C infection. WHO is developing new guidelines for the prevention and management of hepatitis B. In addition, on the occasion of World Hepatitis Day, WHO released a new manual for tackling outbreaks of hepatitis E. MEH

the laboratory

Medical research news from around the world



Confocal microscope image of neurons (greenish yellow) attached to silk-based scaffold (blue). The neurons formed functional networks throughout the scaffold pores (dark areas). Image courtesy of Tufts University.

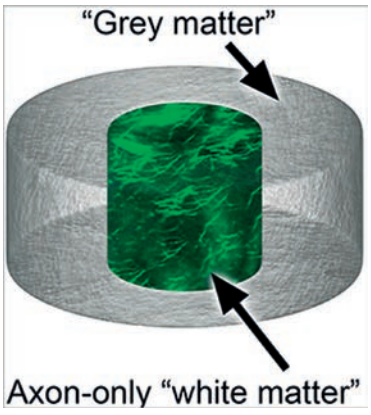


Diagram of scaffold donut showing grey-white matter compartmentalization. Rat neurons attached to the scaffold (donut ring) and also sent axons (labeled with green fluorescence) through the collagen gel-filled center.

Scientists bioengineer artificial functional 3D brain tissue

Bioengineers have created three-dimensional brain-like tissue that functions like and has structural features similar to tissue in the rat brain and that can be kept alive in the lab for more than two months.

As a first demonstration of its potential, researchers used the brain-like tissue to study chemical and electrical changes that occur immediately following traumatic brain injury and, in a separate experiment, changes that occur in response to a drug. The tissue could provide a superior model for studying normal brain function as well as injury and disease, and could assist in the development of new treatments for brain dysfunction.

The brain-like tissue was developed at the Tissue Engineering Resource Center at Tufts University, Boston, which is funded by the US National Institute of Biomedical Imaging and Bioengineering (NIBIB) to establish innovative biomaterials and tissue engineering models. David Kaplan, Ph.D., Stern Family Professor of Engineering at Tufts University is director of the centre and led the research efforts to develop the tissue.

Currently, scientists grow neurons in petri dishes to study their behaviour in a controllable environment. Yet neurons grown in two dimensions are unable to replicate the complex structural organization of brain tissue, which consists of segregated regions of grey and white matter. In the brain, grey matter is comprised primarily of neuron cell bodies, while white matter is made up of bundles of axons, which are the projections neurons send out to connect with one another. Because brain injuries and diseases often affect these areas differently, models are needed that exhibit grey and white matter compartmentalization.

Recently, tissue engineers have attempted to grow neurons in 3D gel environments, where they can freely establish connections in all directions. Yet these gel-based tissue models don't live long and fail to yield robust, tissue-level function. This is because the extracellular environment is a complex matrix in which local signals establish different neighbourhoods that encourage distinct cell growth and/or development and function. Simply providing the space for neurons to grow in three dimensions is not sufficient.

In the August 11, 2014 early online edition of the journal *Proceedings of the National Academy of Sciences*, a group of bioengineers report that they have successfully created functional 3D brain-like tissue that exhibits grey-white matter compartmentalization and can survive in the lab for more than two months.

"This work is an exceptional feat," said Rosemarie Hunziker, Ph.D., program director of Tissue Engineering at NIBIB. "It combines a deep understand of brain physiology with a large and growing suite of bioengineering tools to create an environment that is both necessary and sufficient to mimic brain function."

The key to generating the brain-like tissue was the creation of a novel composite structure that consisted of two biomaterials with different physical properties: a spongy scaffold made out of silk protein and a softer, collagen-based gel. The scaffold served as a structure onto which neurons could anchor themselves, and the gel encouraged axons to grow through it.

The researchers found that the neurons in the 3D brain-like tissues had higher expression of genes involved in neuron growth and function. In addition, the neurons grown in the 3D brain-like tissue maintained stable metabolic activity for up to five weeks, while the health of neurons grown in the gel-only environment began to deteriorate within 24 hours. In regard to function, neurons in the 3D brain-like tissue exhibited electrical activity and responsiveness that mimic signals seen in the intact brain, including a typical electrophysiological response pattern to a neurotoxin.

Because the 3D brain-like tissue displays physical properties similar to rodent brain tissue, the researchers sought to determine whether they could use it to study traumatic brain injury. To simulate a traumatic brain injury, a weight was dropped onto the brain-like tissue from varying heights. The researchers then recorded changes in the neurons' electrical and chemical activity, which proved similar to what is ordinarily observed in animal studies of traumatic brain injury.

Kaplan says the ability to study traumatic injury in a tissue model offers advantages over animal studies, in which measurements are delayed while the brain is being dissected and prepared for experiments.

"With the system we have, you can essentially track the tissue response to traumatic brain injury in real time," said Kaplan. "Most importantly, you can also start to track repair and what happens over longer periods of time."

Genetic risk for autism outweighs other risk factors, study finds

Most of the genetic risk for autism comes

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from versions of genes that are common in the population rather than from rare variants or spontaneous glitches, researchers funded by the US National Institutes of Health have found. Heritability also outweighed other risk factors in this largest study of its kind to date.

About 52% of the risk for autism was traced to common and rare inherited variation, with spontaneous mutations contributing a modest 2.6% of the total risk.

"Genetic variation likely accounts for roughly 60% of the liability for autism, with common variants comprising the bulk of its genetic architecture," explained Joseph Buxbaum , Ph.D., of the Icahn School of Medicine at Mount Sinai (ISMMS), New York City.

"Although each exerts just a tiny effect individually, these common variations in the genetic code add up to substantial impact, taken together."

Buxbaum, and colleagues of the Population-Based Autism Genetics and Environment Study (PAGES) Consortium, report on their findings in a unique Swedish sample in the journal *Nature Genetics*, July 20, 2014.

● **Reference:**

Gaughler T, et al. Most genetic risk for autism resides with common variation. *Nature Genetics*, July 20, 2014.

Researchers say BMI indicator may be missing 25% of kids with excess body fat

Physicians using body mass index (BMI) to diagnose children as obese may be missing 25% of kids who have excess body fat despite a normal BMI, which can be a serious concern for long-term health, according to a Mayo Clinic study published online in Pediatric Obesity.

The researchers found that BMI has high specificity in identifying pediatric obesity, meaning BMI accurately identifies children who are obese, but has a moderate sensitivity, meaning the BMI tool misses children who actually should be considered obese, according to the percent of fat in their bodies.

"If we are using BMI to find out which children are obese, it works if the BMI is high, but what about the children who have a normal BMI but do have excess fat? Those parents may get a false sense of reassurance that they do not need to focus on a better weight for their children," says Francisco Lopez-Jimenez, M.D., senior study author and director of preventive cardiology at Mayo Clinic.

In the meta-analysis, the researchers used 37 eligible studies that evaluated 53,521 patients, ages 4 through 18. It is the first systematic review and meta-analysis to assess the diagnostic performance of BMI to identify excess body fat as compared with techniques considered reference standard to measure obesity. These other techniques include skin-fold thickness measurement and dual-energy X-ray absorptiometry, which can be used to measure body composition and fat content.

It is known that childhood obesity can lead to an increased risk of type 2 diabetes and cardiovascular disease, says Asma Javed, M.D., the study's first author and a pediatric endocrinology fellow at Mayo Clinic Children's Center. "Our research raises the concern that we very well may be missing a large group of children who potentially could be at risk for these diseases as they get older," Dr. Javed says. "We hope our results shine a light on this issue for physicians, parents, public health officials and policymakers."

While not part of this study, its results mirror what has been found in Dr. Lopez-Jimenez's research of adults. Over several years of research, he and investigators discovered what they call normal weight obesity (NWO), wherein adults have a normal BMI but a large percentage of body fat. NWO shares some of the risks of obesity, which can lead to pre-diabetes, metabolic syndrome and cardiovascular death. "The lesson is that we need additional research in children to determine the potential impact of having high fat in the setting of normal BMI to recognize this issue and perhaps justify the use of body composition techniques to detect obesity at an early stage," he says.

Study shows extreme obesity may shorten life expectancy up to 14 years

Adults with extreme obesity have increased risks of dying at a young age from cancer and many other causes including heart disease, stroke, diabetes, and kidney and liver diseases, according to results of an analysis of data pooled from 20 large studies of people from three countries. The study, led by researchers from the US National Cancer Institute (NCI), part of the US National Institutes of Health, found that people with class III (or extreme) obesity had a dramatic reduction in life expectancy compared with people of normal weight. The findings appeared July 8, 2014, in *PLOS Medicine*.

"While once a relatively uncommon condition, the prevalence of class III, or extreme, obesity is on the rise. In the United States, for example, 6% of adults are now classified as extremely obese, which, for a person of average height, is more than 100 pounds over the recommended range for normal weight," said Cari Kitahara, Ph.D., Division of Cancer Epidemiology and Genetics, NCI, and lead author of the study. "Prior to our study, little had been known about the risk of premature death associated with extreme obesity."

In the study, researchers classified participants according to their body mass index (BMI), which is a measure of total body fat and is calculated by dividing a person's weight in kilograms by their height in meters squared. BMI classifications (kilogram/meter-squared) are:

- Normal weight: 18.5-24.9
- Overweight: 25.0- 29.9
- Class I obesity: 30.0-34.9
- Class II obesity: 35.0-39.9
- Class III obesity: 40.0 or higher

The 20 studies that were analyzed included adults from the United States, Sweden and Australia. These groups form a major part of the NCI Cohort Consortium, which is a large-scale partnership that identifies risk factors for cancer death. After excluding individuals who had ever smoked or had a history of certain diseases, the researchers evaluated the risk of premature death overall and the risk of premature death from specific causes in more than 9,500 individuals who were class III obese and 304,000 others who were classified as normal weight.

The researchers found that the risk of dying overall and from most major health causes rose continuously with increasing BMI within the class III obesity group. Statistical analyses of the pooled data indicated that the excess numbers of deaths in the class III obesity group were mostly due to heart disease, cancer and diabetes. Years of life lost ranged from 6.5 years for participants with a BMI of 40-44.9 to 13.7 years for a BMI of 55-59.9. To provide context, the researchers found that the number of years of life lost for class III obesity was equal or higher than that of current (versus never) cigarette smokers among normal-weight participants in the same study.

The researchers noted, the results highlight the need to develop more effective interventions to combat the growing public health problem of extreme obesity.

"Given our findings, it appears that class III obesity is increasing and may soon emerge as a major cause of early death in this and other countries worldwide," said Patricia Hartge, Sc.D., Division of Cancer Epidemiology and Genetics, and senior author of the study.

● **doi**: 10.1371/journal.pmed.1001673.

New combination drug therapy shown to cure chronic hepatitis C

A multicenter team of researchers report that in a phase III clinical trial, a combination drug therapy cures chronic hepatitis C in the majority of patients co-infected with both HIV and hepatitis C.

"In many settings, hepatitis C is now a leading cause of death among HIV co-infected patients," says Mark Sulkowski, M.D., medical director of the Johns Hopkins Infectious Disease Center for Viral Hepatitis and professor of medicine at the Johns Hopkins University School of Medicine. Approximately one-third of HIV patients in the United States have hepatitis C, with an estimated 7 million co-infected patients worldwide.

Because of poor tolerability to the previous standard of treatments for hepatitis C, including injections of interferon-alpha and medications that can have interactions with anti-retroviral medications used to treat HIV, this population of co-infection patients has been considered difficult to treat. Data from this phase III clinical trial were incorporated into the FDA's approval of the new drug, sofosbuvir, December 2013, so treatment with this all-oral regimen – sofosbuvir and ribavirin – is considered on-label.

The trial, paid for by the developers of sofosbuvir, Gilead Sciences, is published in the July 23 issue of *The Journal of the American Medical Association*.

Researchers and doctors enrolled study participants from the United States and Puerto Rico through 34 academic, private practice and community health centres. In addition, says Sulkowski: "Doctors and patients alike recognize the idea that it would be difficult, if not impossible, to randomize clinical trial participants to an injectable treatment (interferon) that's linked to many side effects versus an oral treatment (sofosbuvir plus ribavirin)." For these reasons, the clinical trial, named PHOTON-1, was open-label, nonrandomized and uncontrolled.

"The PHOTON-1 study represents the first clinical trial to demonstrate that we can cure hepatitis C in patients with HIV co-infection without the use of interferon," says Sulkowski. "As such, it represents a transformative step in our approach to this therapeutic area."

New hope for diabetes cure

Work by scientists at the Universities of Manchester and Auckland suggest that both major forms of diabetes, type-1 and type-2, are the result of the same mechanism.

The findings, published 20 August in the *FASEB Journal*, provide compelling evidence that juvenile-onset or type-1 diabetes and type-2 diabetes are both caused by the formation of toxic clumps of a hormone called amylin.

The results, based on 20 years' work in New Zealand, suggest that type-1 and type-2 diabetes could both be slowed down and potentially reversed by medicines that stop amylin forming these toxic clumps.

Professor Garth Cooper, of The University of Manchester and with his University of Auckland-based research team, led the study.

According to the American Heart Association, the prevalence of diabetes for all age groups worldwide was estimated to be 2.8% in 2000 and is projected to be 4.4% in 2030. The total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030. Similar figures have been produced by other groups such as the International Diabetes Federation.

As well as producing insulin, cells in the pancreas also produce another hormone called amylin. Insulin and amylin normally work together to regulate the body's response to food intake. If they are no longer produced, then levels of sugar in the blood rise resulting in diabetes and causing damage to organs such as the heart, kidneys, eyes and nerves if blood sugar levels aren't properly controlled.

However, some of the amylin that is produced can get deposited around cells in the pancreas as toxic clumps, which then, in turn, destroy those cells that produce insulin and amylin. The consequence of this cell death is diabetes.

Research published previously by Professor Cooper suggested that this is the causative mechanism in type-2 diabetes. This new research provides strong evidence that type-1 diabetes results from the same mechanism.

The difference is that the disease starts at an earlier age and progresses more rapidly in type-1 compared to type-2 diabetes because there is more rapid deposition of toxic amylin clumps in the pancreas.

Professor Cooper's group expects to have potential medicines ready to go into clinical trials in the next two years and it is anticipated that these will be tested in both type-1 and type-2 diabetic patients. These clinical trials are being planned with research groups in England and Scotland.

● **Reference**:

"The pathogenic mechanism of diabetes varies with the degree of overexpression and oligomerization of human amylin in the pancreatic islet beta cells" FASEB J - Journal of the Federation of American Societies for Experimental Biology (*www.fasebj.org*), 20 August 2014. MEH

Researchers find possible airborne transmission of MERS-CoV

Scientists studying the possibility that dromedary camels serve as the potential animal reservoirs of MERS-CoV, say in research published in *mBio*, July 22, that have found that MERS-CoV RNA fragments were detected in an air sample collected from the same barn that sheltered the infected camel owned by an infected patient in their previous study.

They say the data indicates that the virus was circulating in this farm concurrently with its detection in the camel and in the patient, which warrants further investigations for the possible airborne transmission of MERS-CoV.

The researchers warns that while "current MERS-CoV transmission appears to be limited, we advise minimal contact with camels, especially for immunocompromised individuals, and the use of appropriate health, safety, and infection prevention and control measures when dealing with infected patients. Also, detailed clinical histories of any MERS-CoV cases with epidemiological and laboratory investigations carried out for any animal exposure must be considered to identify any animal source."

The report can be read here: Detection of the Middle East respiratory syndrome coronavirus genome in an air sample originating from a camel barn owned by an infected patient. *mBio* 5(4):e01450-14. doi:10.1128/mBio.01450-14.

CASE UPDATE

At the time of going to press the latest MERS update from the World Health Organisation (23 July 2014) states that on 12 July 2014, the National IHR Focal Point of the Islamic Republic of Iran reported to WHO an additional laboratory-confirmed case of infection with Middle East respiratory syndrome coronavirus (MERS-CoV). This is the fifth case reported in Iran – all have come from Kerman province.

The patient was a 67-year-old woman from Kerman Province. The patient had Chronic Obstructive Pulmonary Disease (COPD) and was admitted to a hospital on 6 June 2014 due to a COPD exacerbation. The patient was discharged on 14 June 2014 and continued treatment at home. She was in a stable condition until she developed severe acute respiratory symptoms and was readmitted to a hospital on 25 June 2014. The patient was laboratory-confirmed with MERS-CoV on 5 July 2014 and died on the same day. The patient had no history of travel and no known history of contact with animals or consumption of raw camel milk products in the 14 days prior to becoming ill. The patient did not have known contact with a previously reported MERS-CoV case. However, during her first hospitalisation, the patient had close contact with another patient with severe acute respiratory infection.

Investigation of contacts in the health care facility and family of the case is ongoing.

Additionally, Saudi Arabia reported 3 deaths among previously reported MERS-CoV cases.

And in mid-August Saudi Arabia reported two new cases of MERS, one of them fatal, after a month-long lull in reported cases of MERS.

This brings the total in Saudi Arabia – as of 14 August – to 723 MERS-CoV cases. Of those cases, 299 have proved fatal. The World Health Organization so far has confirmed 838 MERS-CoV cases and 292 deaths. MEH

First phase of biggest regional vaccination campaign completed

In a report released 22 July, WHO and UNICEF announced completion of the first phase of the biggest polio vaccination campaign ever undertaken in the history of the Middle East. Twenty-five million children under the age of five were reached in seven countries in 37 rounds.

"Despite immense challenges and the desperate conditions around the region, children were vaccinated from three to six times. This gives a glimpse of hope and is largely thanks to thousands of unsung heroes: committed health workers and volunteers who undertook such a formidable task all over the region and inside Syria braving dangers to provide the polio vaccination to children" said Maria Calivis, UNICEF's Regional Director for the Middle East and North Africa.

The report attributes the return of polio to Syria after 14 years to the following factors: Disruption of routine immunization, severe damage to Syria's health infrastructure, continuous population displacement within Syria and across its borders and missing out on children.

According to the report polio vaccination coverage has dramatically declined in Syria from an average of 99% to 52%. At least 60% of Syria's hospitals have been destroyed or damaged and less than a third of public ambulances still function. Supply of vaccination, service vehicles and cold chain equipment have been damaged, put permanently out of service or lost.

"Polio has forced its way back to Syria, adding to what was already a humanitarian disaster. We got to a point where we had to work with very limited resources to defeat what had been a long forgotten enemy in this region: one that does not know borders or checkpoints and can travel fast, infecting children not just in war torn Syria but across the region" said Chris Maher, WHO Manager for Polio Eradication and Emergency Support.

More than 6.5 million Syrian children are now in need of life-saving humanitarian assistance. Inside Syria, 765,000 children under the age of five live in hard-to-reach areas where conflict and restriction makes it extremely difficult to reach them with humanitarian assistance including regular access to vaccines.

The report says that a number of critical actions must be undertaken to end the polio spread in the region:

- Grant immediate and unhindered access to hard-to-reach children under the age of five inside Syria.
- Guarantee the safe passage of health workers and protect medical vehicles and other cold chain equipment inside Syria.
- Raise awareness on polio and the need to vaccinate all children under the age of five around the region multiple times.
- Secure funding to undertake repeated vaccination rounds by the end of 2014.

"Our job is far from over. In the coming months, we have to reach more and more children especially those who have not been reached because of the insecurity and violence" concluded Calivis. MEH

Polio vaccination campaign launched in Iraq

The WHO announced mid-August that Iraq has launched a polio immunization campaign aiming to protect over four million children under the age of 5 throughout the country against the crippling disease.

The four-day campaign, undertaken by the Ministry of Health with the support of WHO and UNICEF, is part of the national response to the re-emergence of the polio virus earlier this year which ended nearly 14 years of Iraq's polio-free status.

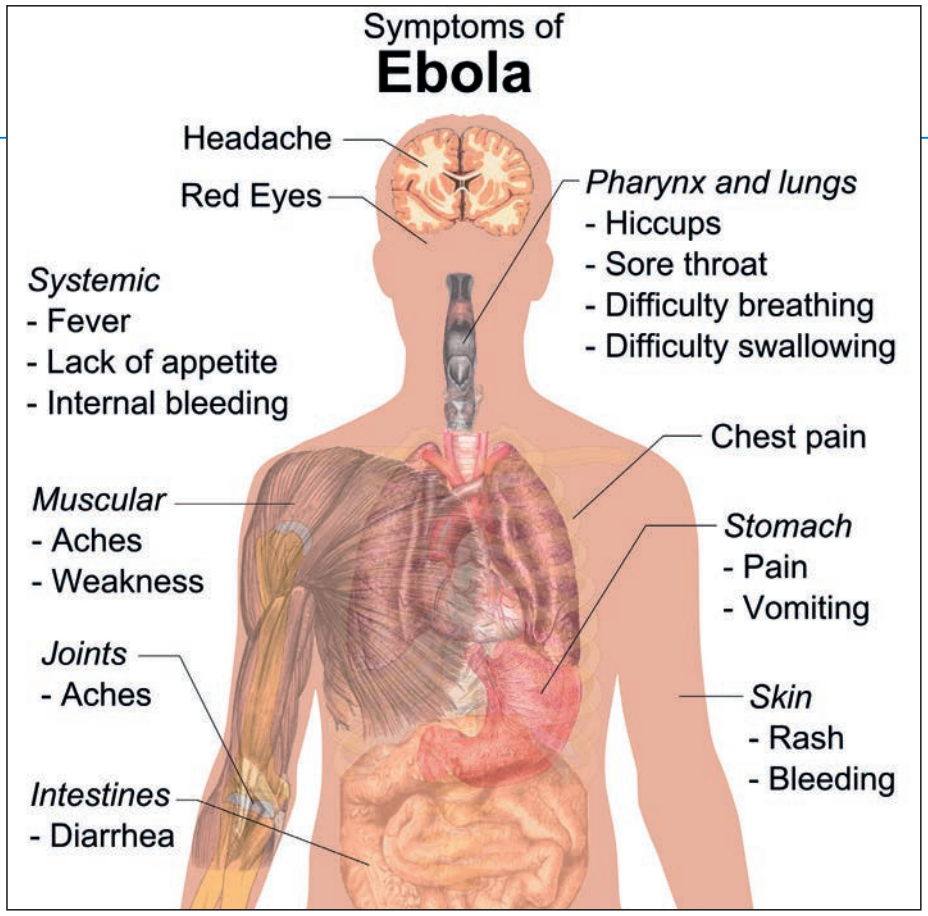
Chris Maher, WHO manager for polio eradication, said: "Iraq is one of seven countries included in a consolidated polio response plan by WHO and UNICEF that aims to reach 25 million children in the region with repeated doses of the vaccine. Everything possible must be done to reach all children and end polio forever."

Marzio Babille, UNICEF Iraq Representative, said: "This campaign comes at a critical time while the country is witnessing a huge internal exodus of children fleeing violence and turmoil. This is a top priority for UNICEF. No child should be missed. No child should be paralysed."

The campaign aims to reach children in conflict zones, displaced communities and host populations. The ongoing violence in the country has precipitated the internal displacement of nearly 1.2 million people since the beginning of the year. Almost 200,000 have been displaced only in the last three days alone (8-11 August). UNICEF estimates half of that number are children.

"As the violence spreads, children are being displaced up to three times with their families, often living in overcrowded conditions where they are at a much higher risk of contracting infectious diseases," said Dr Syed Jaffar Hussain, WHO Representative in Iraq. "WHO is working with the national health authorities and partners to ensure that the health of all vulnerable populations, especially children, is protected against diseases like polio."

With two cases of polio in Iraq and a relatively high number of unvaccinated children due to difficulties in accessing families and children, especially in conflict zones and due to social reservations, Iraq has now become vulnerable to a wider outbreak of the crippling and incurable disease. WHO and UNICEF are helping health authorities reach children in 12 governorates, including the three governorates in the Kurdistan Region of Iraq where approximately 250,000 Iraqi children and 125,000 Syrian children have taken refuge. MEH



Credit: Mikael Häggström

WHO issues Ebola Response Roadmap to stop transmission of virus

The World Health Organisation (WHO) has issued an Ebola Response Roadmap with the goal to stop Ebola transmission in affected countries within 6-9 months and prevent international spread.

The WHO notes that the 2014 Ebola Virus Disease (EVD, or "Ebola") outbreak "continues to evolve in alarming ways, with the severely affected countries, Guinea, Liberia, and Sierra Leone, struggling to control the escalating outbreak against a backdrop of severely compromised health systems, significant deficits in capacity, and rampant fear."

To accelerate actions on Ebola in West Africa, a Ministerial meeting was convened in July in Accra, Ghana, and an operations coordination centre established in Conakry, Guinea. The escalating scale, duration and mortality of the outbreak led the Governments of Guinea, Liberia, and Sierra Leone and WHO to launch an initial Ebola Virus Disease Outbreak Response Plan on 31 July 2014, which outlined the main pillars for action based on the situation at that time and an initial estimate of resource requirements. Since then the outbreak has been further complicated by spread to Lagos, Nigeria.

In August 2014, an Emergency Committee was convened by the Director-General of WHO under the International Health Regulations (2005) [IHR 2005], which informed the Director-General's decision on 8 August 2014 to declare the Ebola outbreak a Public Health Emergency of International Concern and issue several Temporary Recommendations to reduce the risk of international spread.

As of 27 August 2014, the cumulative number of Ebola cases in the affected countries stands at more than 3000, with over 1400 deaths, making this the largest Ebola outbreak ever recorded, despite significant gaps in reporting in some intense transmission areas. An unprecedented number of health care workers have also been infected and died due to this outbreak.

The WHO warns that although national authorities in the affected countries have been working with WHO and partners to scale-up control measures, the Ebola "outbreak remains grave and transmission is still increasing in a substantial number of localities, aggravating fragile social, political and economic conditions in the sub-region and posing increasingly serious global health security challenges and risks"

The Roadmap outlines a number of objectives including:

1. To achieve full geographic coverage with complementary Ebola response activities in countries with widespread and intense transmission

2. To ensure emergency and immediate application of comprehensive Ebola response interventions in countries with an initial case(s) or with localized transmission

3. To strengthen preparedness of all countries to rapidly detect and respond to an Ebola exposure, especially those sharing land borders with an intense transmission area and those with international transportation hubs

"Fundamental to the Roadmap is the strengthening of laboratory, human resource, and response capacities, all of which are on the critical pathway for short- and long-term EVD control, as well as strengthening of the public health infrastructure against future threats. Some areas require particularly urgent action, such as infection control training," the WHO said.

Outbreak underestimated

The WHO issued a statement on 22 August stating that the Ebola outbreak had been significantly underestimated.

The magnitude of the Ebola outbreak,

especially in Liberia and Sierra Leone, has been underestimated for a number of reasons, the WHO said.

Many families hide infected loved ones in their homes. As Ebola has no cure, some believe infected loved ones will be more comfortable dying at home.

Others deny that a patient has Ebola and believe that care in an isolation ward – viewed as an incubator of the disease – will lead to infection and certain death. Most fear the stigma and social rejection that come to patients and families when a diagnosis of Ebola is confirmed.

These are fast-moving outbreaks, creating challenges for the many international partners providing support. Quantities of staff, supplies, and equipment, including personal protective equipment, cannot keep up with the need. Hospital and diagnostic capacities have been overwhelmed.

Many treatment centres and general clinics have closed. Fear keeps patients out and causes medical staff to flee.

In rural villages, corpses are buried without notifying health officials and with no investigation of the cause of death. In some instances, epidemiologists have travelled to villages and counted the number of fresh graves as a crude indicator of suspected cases.

In parts of Liberia, a phenomenon is occurring that has never before been seen in an Ebola outbreak. As soon as a new treatment facility is opened, it is immediately filled with patients, many of whom were not previously identified. This phenomenon strongly suggests the existence of an invisible caseload of patients who are not being detected by the surveillance system.

An additional problem is the existence of numerous "shadow-zones". These are villages with rumours of cases and deaths, with a strong suspicion of Ebola as the cause, that cannot be investigated because of community resistance or lack of adequate staff and vehicles.

Middle East response

The Saudi government in April announced that it had stopped issuing pilgrimage visas for travellers from the three affected West African countries.

Dubai-based Emirates Airline, in the first week of August, became the first major international carrier to suspend service to Guinea due to the outbreak. MEH

WHO approves use of unproven medical interventions

On 11 August 2014 WHO convened a consultation panel comprising ethicists, researchers and medical specialists to consider and assess the ethical implications of using use investigational medical interventions to try to save the lives of patients and to curb the epidemic.

Currently the disease has no cure and there are no registered or approved medications or vaccines for Ebola.

Following the consultation, the panel reached consensus that it is ethical to offer unproven interventions with as yet unknown efficacy and adverse effects, as potential treatment or prevention. The panel noted that ethical criteria must guide the provision of such interventions. These include transparency about all aspects of care, informed consent, freedom of choice, confidentiality, respect for the person, preservation of dignity and involvement of the community.

However a number of questions were raised during a press briefing on 12 August, such as how would access to these medications be prioritized as current supplies would not cover demand; would the pharma companies be liable for any adverse effects of these unproven medications and who would pay for the medications. The WHO said these questions would be addressed at a second forthcoming meeting.

At the press briefing the WHO said there were currently three types of medical products available.

1. A blood or blood-derived immunoglobin called ZMapp which had likely saved the life of an American missionary worker who was infected with Ebola.
2. Antibody interventions that have shown efficacy in primate testing.
3. Two vaccines that have yet to be tested in man.

Vaccine

Regarding the vaccines, the US National Institute of Allergy and Infectious Diseases (NIAID) issued a statement on 28 August saying that initial human testing of an investigational vaccine to prevent Ebola virus disease would begin the first week of September.

"The early-stage trial will begin initial human testing of a vaccine co-developed by NIAID and GlaxoSmithKline (GSK) and will evaluate the experimental vaccine's safety and ability to generate an immune system response in healthy adults. Testing will take place at the US National Institutes of Health Clinical Center in Bethesda, Maryland."

The study is the first of several Phase 1 clinical trials that will examine the investigational NIAID/GSK Ebola vaccine and an experimental Ebola vaccine developed by the Public Health Agency of Canada and licensed to NewLink Genetics Corp. The others are to launch in the fall. These trials are conducted in healthy adults who are not infected with Ebola virus to determine if the vaccine is safe and induces an adequate immune response.

"The experimental NIAID/GSK vaccine performed extremely well in protecting nonhuman primates from Ebola infection," Dr. Anthony Fauci, NIAID Director, noted.

In parallel, NIH has partnered with a British-based international consortium that includes the Wellcome Trust and Britain's Medical Research Council and Department for International Development to test the NIAID/GSK vaccine candidate among healthy volunteers in the United Kingdom and in the West African countries of Gambia (after approval from the relevant authorities) and Mali.

The NIAID/GSK Ebola vaccine candidate is based on a type of chimpanzee cold virus, called chimp adenovirus type 3 (ChAd3). The adenovirus is used as a carrier, or vector, to deliver segments of genetic material derived from two Ebola virus species: Zaire Ebola and Sudan Ebola. Hence, this vaccine is referred to as a bivalent vaccine. The Zaire species of the virus is responsible for the current Ebola outbreak in West Africa.

20th International AIDS Conference issues call to 'step up the pace'

The 20th International AIDS Conference (AIDS 2014)) was held in Melbourne, Australia from 20-25 July.

The opening day started with a tribute to the lost colleagues who died aboard fight MH 17 which was shot down over Ukraine en route to the conference.

A one minute global moment of remembrance was held in their honour with eleven former, present and future Presidents of the International AIDS Society onstage together with representatives from those organizations who lost colleagues, the World Health Organization, AIDS Fonds, Stop AIDS Now, The Female Health Company, the Amsterdam Institute for Global Health and Development and members of the Dutch HIV research community.

Some 12,000 participants from all over the world gathered in Melbourne for AIDS 2014. Under the theme 'Stepping up the Pace', during the five days of the conference delegates discussed the latest research developments and heard about the status of the epidemic from world renowned experts.

During the Opening Sessions speakers discussed the encouraging data related to access treatment and reducing new HIV infections, but reminded the audience that HIV is far from being defeated and that stigma and discrimination towards Key Affected Population pose a major barrier to the end of the epidemic.

"The tremendous scale-up of HIV programmes has, for so many people transformed HIV from a death sentence into a chronically manageable disease," Professor Françoise Barré-Sinoussi, AIDS 2014 International Chair, President of the International AIDS Society (IAS) and Director of the Regulation of Retroviral Infections Unit at the Institut Pasteur in Paris told delegates.

"One-third of people living with HIV, who need treatment now have access to it.

"Nevertheless, these remarkable achievements are still not enough, 22 million people still do not have access to treatment. The official AIDS 2014 theme reminds us that we need to step up the pace and redouble our efforts. Too many countries are still struggling to address their HIV epidemic with their most vulnerable people consistently being left behind."

UNAIDS Executive Director Michel Sidibé said that efforts to increase access to antiretroviral therapy are working. In 2013, an additional 2.3 million people gained access to the life-saving medicines. This brings the global number of people accessing ART to nearly 13 million by the end of 2013. Based on recent scale-up, UNAIDS estimates that as of July 2014 as many as 14 million people were accessing ART.

"If we accelerate a scale-up of all HIV services by 2020, we will be on track to end the epidemic by 2030," said Sidibé. "If not, we risk significantly increasing the time it would take, adding a decade, if not more."

AIDS 2014 Melbourne Declaration

Speakers also referred to the AIDS 2014 Melbourne Declaration reaffirming the importance of non-discrimination for an effective response to HIV and, more in general, to public health programmes. The enforcement of discriminatory, stigmatizing, criminalizing and harmful laws leads to policies and practices that increase vulnerability to HIV. These laws, policies, and practices incite extreme violence towards marginalized populations, reinforce stigma and undermine HIV programmes, and as such are significant steps backward for social justice, equality, human rights and access to health care.

on the WEB AIDS 2014 Melbourne Declaration
www.aids2014.org/declaration.aspx

Highlights from the conference

Sir Bob Geldof told delegates that the "preposterous reluctance" of governments to fund HIV programs in developing countries is "disgraceful", especially as the journey to the end

WHO guidelines for care of key populations

In the run up to the conference, the World Health Organisation, issued a statement saying failure to provide adequate HIV services for key groups – men who have sex with men, people in prison, people who inject drugs, sex workers and transgender people – threatens global progress on the HIV response.

These people are most at risk of HIV infection yet are least likely to have access to HIV prevention, testing and treatment services. In many countries they are left out of national HIV plans, and discriminatory laws and policies are major barriers to access.

WHO released *Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations*. The guidelines outline steps for countries to reduce new HIV infections and increase access to HIV testing, treatment and care for these five 'key populations'. They include a comprehensive range of clinical recommendations but, for these to be effective, WHO also recommends countries need to remove the legal and social barriers that prevent many people from accessing services.

"None of these people live in isolation," said Dr Gottfried Hirnschall, Director of the HIV Department at WHO. "Sex workers and their clients have husbands, wives and partners. Some inject drugs. Many have children. Failure to provide services to the people who are at greatest risk of HIV jeopardizes further progress against the global epidemic and threatens the health and wellbeing of individuals, their families and the broader community."

on the WEB *Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations*
http://tinyurl.com/prnw3yr

of the HIV epidemic is "in the last mile".

The renowned anti-poverty campaigner made the comments at the conference in Melbourne as he reflected on the impact of HIV on developing nations.

Geldof said that the HIV epidemic in low income countries is "inextricably linked" to poverty, and he strongly criticized wealthy nations for reneging on foreign aid commitments.

Former US President Bill Clinton told delegates that finding more economically efficient ways to respond to HIV is vital to saving lives and preventing the spread of the virus

Clinton said meeting global HIV prevention and support targets is possible within the "existing funding envelope", but only if resources are used more effectively. "The development of super-efficient systems can help us achieve the 90 / 90 /90 goals," Clinton said, referring to the UNAIDS 2020 targets of 90% of people with HIV knowing their status, 90% of people with HIV receiving antiretroviral treatment and 90% of people on treatment having an undetectable viral load.

He said one of the biggest challenges is delivering care to patients in a better way in rural and remote areas. He added that ending mother to child transmission of HIV, and supporting children with HIV is another challenge – as well as a tremendous opportunity for sustaining progress in the response to HIV. "Almost 50% of all new paediatric infections occur during the breastfeeding period. So keeping these women in care until the end of the breastfeeding period is the single most important thing we can do to achieve an AIDS-free generation."

Prof. Sharon Lewin, the Australian co-chair of AIDS 2014, said the focus of efforts for an HIV cure was currently on developing treatments leading to remission. She said the latest research and findings were significant in that "they have shown us that we can wake up the virus reservoir and make enough of the virus to leave the cell, making it visible to an immune response". MEH

HIV epidemics emerging among injecting drug users in Middle East

HIV epidemics are emerging among people who inject drugs in several countries in the Middle East and North Africa. Though HIV infection levels were historically very low in the Middle East and North Africa, substantial levels of HIV transmission and emerging HIV epidemics have been documented among people who inject drugs in at least one third of the countries of this region, according to findings published recently in *PLOS Medicine*.

The HIV epidemics among people who inject drugs (PWID) are recent overall, starting largely around 2003, and continuing to grow in most countries. However, they vary across the region. In countries such as Afghanistan, Bahrain, Egypt, Iran, Morocco, Oman, and Pakistan, on average between 10 and 15% of PWID are HIV-positive. The HIV epidemics in these countries appear to be growing; in Pakistan, for example, the fraction of PWID who are HIV-infected increased from 11% in 2005 to 25% in 2011. In Iran, the HIV epidemic among PWID has stabilized at about 15%. There are, however, other countries where limited HIV transmission was found among PWID, such as in Jordan, Lebanon, Palestine and Syria.

"Not only have we found a pattern of new HIV epidemics among PWID in the region, but we found also indications that there could be hidden HIV epidemics among this marginalized population in several countries with still limited data," said Ghina Mumtaz, lead author of the study and senior epidemiologist at the Infectious Disease Epidemiology Group at Weill Cornell Medical College-Qatar. "For example in Libya, the first study among people who inject drugs was conducted only recently and unveiled alarmingly high levels of HIV infection, suggesting that the virus has been propagating, unnoticed, among this population for at least a decade. Eighty-seven percent of PWID in Tripoli, the capital of Libya, were infected with HIV, one of the highest levels reported among PWID globally."

The study estimated that there are about 626,000 people who inject drugs in the Middle East and North Africa. This translates into 24 people who inject drugs for every 1,000 adults in this part of the world. These individuals are typically involved in several types of behaviour that expose them to HIV infection, such as sharing of needles or syringes, a behaviour reported by 18 to 28% of injecting drug users during their last injection across these countries.

"The levels of HIV infection among people who inject drugs tell only half of the story. We also see high levels of risky practices that will likely expose this population to further HIV transmission in the coming years," said Dr. Laith Abu-Raddad, principal investigator of the study and associate professor of public health in the Infectious Disease Epidemiology Group at Weill Cornell Medical College–Qatar. "We found that nearly half of people who inject drugs are infected with hepatitis C virus, another infection of concern that is also transmitted though sharing of needles and syringes."

"Since the HIV epidemics among people who inject drugs in the Middle East and North Africa are still overall in an early phase, there is a window of opportunity to prevent these epidemics from further growth. This will also limit the potential for HIV transmission to be bridged to other population groups" said Mumtaz.

Dr. Abu-Raddad added: "It is of priority that countries in the region expand HIV surveillance systems among PWID to detect and monitor these budding and growing HIV epidemics. About half of the countries of the region still lack sufficient data to assess the levels of HIV infection among this population, and we continue to discover these epidemics several years after their onset."

doi: 10.1371/journal.pmed.1001663

World-class clinical guidelines from MCG: On the cutting edge of evidence-based medicine for more than two decades

MCG, formerly Milliman Care Guidelines and now part of the Hearst Health network, has been helping providers and payors drive effective care with evidence-based clinical guidelines and interactive solutions for more than 20 years. By the latest count, more than 2,200 organizations license MCG, including 1,200 hospitals and 8 of the 10 largest health plans in the United States. Updated annually by an experienced team of clinicians, the guidelines currently support the care management of a majority of Americans.

Evidence-based guidelines from MCG span the continuum of care, supporting clinical decisions and care planning, easing transitions between care settings, and facilitating conversations between providers and payors. Effective care entails optimal patient outcomes and lower costs. For MCG, this means developing the most thoroughly researched and up-to-date clinical criteria in the world, with a particular emphasis on key problems in care provision: admissions decisions, level of care, length of stay, care planning, complex and chronic care, and readmissions.

Transparent, comprehensive, and actionable evidence where it's needed

Care guidelines from MCG support clinical decisions by providing immediate access to the most complete, thoroughly reviewed clinical evidence in the industry – either online or through one of MCG's interactive software solutions. Inpatient guidelines include contextual references and footnotes, annotated bibliographies, evidence grades of key sources, and a list of supporting references and abstracts pertinent to the given diagnosis.

MCG's team of clinical editors thoroughly reviews the vast body of international medical literature published each year and incorporates the most relevant findings into the care guidelines. For the most recent edition, the editors reviewed and ranked 118,982 new references. The latest guidelines cite a total of 25,789 references, about a quarter of which are new.

MCG's inpatient guidelines are designed to guide care toward optimal recovery using disease- and procedure-specific best practices and length of stay benchmarks. MCG offers the most thorough coverage of acute inpatient conditions and procedures on the market – 292 guidelines in all, including 238 adult and 54 pediatric.

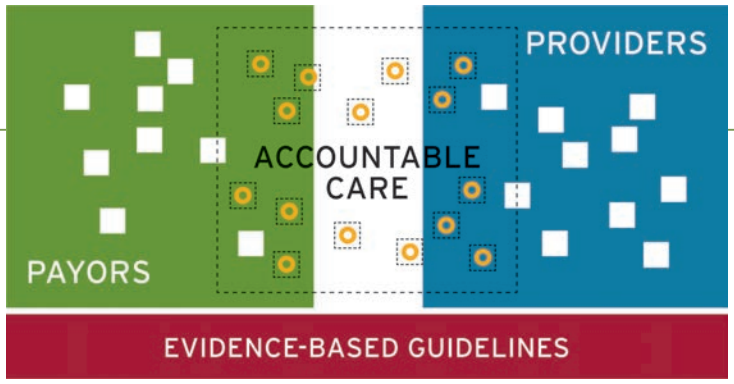
MCG Care Guidelines
Ambulatory Care
Inpatient & Surgical Care
General Recovery Care
Home Care
Recovery Facility Care
Behavioral Health Care
Chronic Care
Patient Information

MCG also offers 29 distinct General Recovery Care guidelines to support the care management of complex cases or when no acute care guideline seems applicable. General Recovery Guidelines are organized by problem area and body system and feature benchmark patient care and recovery data.

Evidence-based interactive solutions drive quality and consistency of care while reducing costs of its delivery

MCG makes its evidence-based care guidelines available through both a password-protected website and its interactive solutions, which include an additional layer of powerful medical management capabilities. **CareWebQI**, licensed by both hospitals and health plans, and **Indicia for Case Management**, designed primarily for hospital case managers, offer similar capabilities:

- Immediate access to the care guidelines, including thorough bibliographies of supporting evidence
- Ability to review individual patient cases against the latest evidence and electronically document the medical necessity of clinical decisions
- Tools for building care plans, identifying appropriate levels of care, optimizing length of stay, planning discharges, and reducing readmission risk
- Case-load management features that enhance workflow efficiencies and improve productivity



- Standardized reports to help organizations review and address patterns of avoidable variances from optimal care pathways

Both providers and payors have realized remarkable improvements using MCG's interactive solutions. San Diego-based Sharp Rees-Stealy Medical Centers increased its rate of patient engagement in its disease management program from 28% to 67%. Higher patient engagement reduced both unnecessary hospitalizations and 30-day readmissions.

Taking a similar approach in its emergency department (ED), Advocate Good Shepherd Hospital in Barrington, Illinois leveraged MCG's guidelines and CareWebQI to decrease preventable hospital readmissions with individualized care planning. The hospital's efforts reduced its acute care readmission rate from 12.4% in Q1 2011 to 7.5% in Q1 2013, an impressive decline of 40%. Over two years, Advocate Good Shepherd estimates that it saved $2.3 million by reducing 30-day readmissions and another $2.6 million from curbing over-utilization of the ED.

Automated Prior Authorization improves UM efficiencies, reduces delays, and increases patient and physician satisfaction

Phone and fax-based prior authorization can reduce over-utilization of specialty referrals and high-cost interventions, such as genetic medicine, advanced imaging, and durable medical equipment. However, such programs often add administrative burdens, introducing delays and frustrating everyone involved.

Cite AutoAuth Module, MCG's automated prior authorization solution, offers evidence-based utilization decisions combined with self-service simplicity. Authorizations that once took hours or days are often made in seconds. With MCG's industry standard guidelines built in, Cite AutoAuth Module helps payors respond instantly to routine authorization requests while maintaining decision quality. This ensures the appropriate and timely utilization of resources, improves the productivity of payor staff, and increases the satisfaction of patients and physicians.

A study published in the September 2013 edition of the *Journal of Managed Care Medicine* suggested that Cite AutoAuth Module can reduce overutilization of advanced imaging services by 39%. ADVANTAGE Health Solutions, Inc. (AHS), an Indiana-based health plan, performed the research as part of a larger study that evaluated the impact of physician engagement on accountable care.

- For more information: Mazen Sobh, Regional Commercial Director, *msobh@fdbhealth.com* MEH

A rendering of the Al Jalila Foundation Research Centre

Al Jalila Foundation – elevating medical research in the UAE

By **Dr Abdulkareem Sultan Al Olama**
CEO of Al Jalila Foundation

Medical research has paved the way for human advancement throughout history. From the development of the germ theory of disease in the 19th century, which led to cures for many infectious diseases, to the ground-breaking discovery of antibiotics in the mid-20th century, it has played a fundamental role in fostering a healthy and secure society for generations. In today's world, medical research plays an important role in supporting economic development in advanced and developing countries.

So why is medical research so important to the United Arab Emirates (UAE), a country that has achieved more growth and prosperity in several decades than some countries have in a century, without many natural resources and against all the odds?

The UAE's outstanding economic success cannot be enjoyed without the good health of its people and their families. To develop a healthcare system which generates solutions and treatments that are relevant to the region and to foster a society where preventative medicine is a part of everyday life would be a priceless achievement, and one that will benefit families in the UAE for generations to come. The greatest gift that we can offer our children is the security of a world-class healthcare sector.

Al Jalila Foundation was founded on 1 April 2013 by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, to position the UAE at the forefront of medical innovation. As a healthcare philanthropic organisation, we are committed to transforming lives through pioneering advancements in medical education, research and treatment.

The Foundation was named after Her Highness Sheikha Al Jalila Bint Mohammed Bin Rashid Al Maktoum, the daughter of His Highness Sheikh Mohammed and Her Royal Highness Princess Haya Bint Al Hussein, Chairperson of Dubai Healthcare City Authority. Sheikha Al Jalila acts as a reminder of the important role young people play in shaping the UAE's future. The development of a world-class medical research sector with home-grown leaders will help foster this ambition. Moreover, to attract future generations into the world of medical research, it is important that we cultivate the right infrastructure for them to prosper in.

In May 2014, on the first anniversary of Al Jalila Foundation, we announced

HH Sheikh Mohammed and HE Raja Al Gurg during the launch of the Al Jalila Foundation Research Centre

the Al Jalila Foundation Research Centre, the UAE's first independent multi-disciplinary medical research centre, dedicated to developing cutting-edge research to tackle five health priorities prevalent in the UAE: diabetes, obesity, cardiovascular diseases, cancer and mental health. The Centre, located at Dubai Healthcare City, is set to open in 2016 and will provide young people with a platform to learn from leading international and local scientists. This will be the first example of biomedical research in Dubai, which will bring about collaborations nationally and internationally. Hence, it will act as a beacon for regionally-relevant medical innovation produced by home-grown biomedical researchers.

HH Sheikh Ahmed Bin Saeed Al Maktoum at the launch of Majlis Al Ata'a

Fellowship and seed grants

To spur an interest in medical research, we have assigned an AED 8 million (US$2.18 million) fund for fellowship and seed grants this year. The seed grants are available to all nationalities (provided that they conduct their research in the UAE) and will give researchers the opportunity to investigate regional health issues through basic science, translational or clinical research projects.

The fellowships are available exclusively to Emirati biomedical professionals, offering them the opportunity to study at world-renowned institutions on either a three-month Student Research Elective, or a year-long Research Training Support programme, with the aim of migrating global best practice to the UAE.

Dr Al Olama with international scientists who spoke at the Foundation's Medical Research Symposium

At Al Jalila Foundation we believe that science has no borders and will flourish through global collaboration, knowledge transfer and continuous innovation. Our vision is to develop a world-class medical research sector in the UAE, and to do so we need to model ourselves on international best practice.

In conjunction with the launch of the Al Jalila Foundation Research Centre in May 2014, we hosted an international sci-

entific symposium that brought together a group of renowned international and local biomedical scientists to discuss their latest research findings. The symposium included scientists from the Stony Brook Cancer Center in the US, and the Ulsan National Institute of Science and Technology (UNIST) in Korea, and UAE University.

Despite its potential to deliver life-transforming results, it is no secret that medical research is a long-term commitment that requires huge investments in infrastructure, people and research programmes. If we look at global benchmarks such Harvard Medical School, we find medical research budgets that are beyond $2 billion. For us to reach that level of support that will enable a thriving research environment, we are conscious that we will need nation-wide support, particularly from influential visionaries who are keen on achieving a sustainable future for the nation. Luckily, we live in one of the most generous societies in the world and we believe that the support we are seeking is within reach.

Majlis Al Ata'a

Building on that observation, we launched one of the most exciting, collective philanthropic movements in the UAE and the wider region. *Majlis Al Ata'a*, meaning the Majlis of Giving, which aims to marshal the goodwill, influence and financial capability of a circle of prominent business professionals, philanthropists and organisations towards medical research in the UAE as a common national goal.

Majlis Al Ata'a is designed to encourage sustainable investment into medical research. It was launched by His Highness Sheikh Ahmed Bin Saeed Al Maktoum, Chairperson of the Board of Trustees of Al Jalila Foundation. To be part of the circle of visionaries, a minimum contribution of AED 1 million to Al Jalila Foundation's medical research programmes is required, indicating long-term commitment to the nation's prosperity.

We are proud to have already welcomed a number of distinguished members to *Majlis Al Ata'a*, including Khalaf Ahmad Al Habtoor, Raja Easa Al Gurg, Abdul Ghaffar Hussein, Riyadh Sadek, Mohamed Al Ansari, Siddharth Balachandran, Dubai Holding and INDEX Holding. These medical research patrons will not only provide financial support to medical research, but they will also promote it as a culture through their networks, so it becomes the nation-wide dialogue it deserves to be.

In our commitment to excellence in healthcare, our medical research aspirations are complemented by our support for medical education and treatment.

In education, we support Emirati nationals wishing to pursue postgraduate studies through scholarships in a range of medical sciences – from healthcare management to dentistry. We have committed an annual budget of AED 4 million to build national medical capacities through our scholarships programme. Many of our current 17 scholarship recipients are Emirati mothers who are unable to travel abroad and continue their studies due to family commitments. Providing them with the opportunity to further their education at world-class local universities has had a hugely positive impact on their lives. We are nurturing a home-grown generation of medical professionals who will one day be the leaders in their respective fields in the UAE.

In October 2013 we launched *Ta'alouf* ('harmony' in Arabic), our flagship community programme to support carers of children with special needs to enhance their quality of life and their families. As the first carer, advocate and educator, a parent plays a significant role in the development of a child. With this in mind, we launched our parents training and the first in a series of *Ta'alouf* programmes, developed to empower parents with life-changing skills. The course, in partnership with The British University in Dubai (BUiD), aims to enable parents to complement the efforts of educators and caregivers to ensure a continuum of care between the child's home and school.

Over 140 parents from 19 different nationalities have already benefited from this programme. Our aim is to grow that number to 800 parents over the coming five to seven years.

To complement the support we are providing to children with special needs at home, we are launching our teachers training in September this year. In partnership with Zayed University, the programme will include classroom-based practical sessions and mentoring phases and will take place across more than 20 private and governmental schools across the UAE, targeting 128 teachers at the first level.

Support

We are also directly addressing medical challenges faced in today's world. To complement the work we do with medical education and research, we developed *A'awen* ('support' in Arabic), a programme which offers practical assistance and financial aid to those under-served in society. We work directly with healthcare partners in the UAE on specific treatment programmes which cater to UAE-based patients without access to quality healthcare. So far, we have helped more than 20 patients to receive advanced medical care for their complex health issues.

It is worth mentioning that 100% of funds raised by Al Jalila Foundation go directly towards our programmes and with the generous support of leaders, businesses, and members of the public, we have already made great strides in advancing medical innovation in the UAE.

The UAE is a nation whose ambition for success has driven rapid growth and prosperity. From construction and aviation, to retail and finance, we have become world leaders in many industries and secured a bright future for our children. Al Jalila Foundation has big dreams for the future of medical research in the UAE. Members of the public are realising that medical research is the backbone of the future and that investment in our future health is fundamental to our quality of life.

- For more information about our programmes and how to support our work please email Al Jalila Foundation: *info@aljalilafoundation.ae* or visit the website: *www.aljalilafoundation.ae*

About the author

Dr Abdulkareem Sultan Al Olama is the Chief Executive Officer of Al Jalila Foundation. He is a graduate of United Arab Emirates University with a Bachelor's degree in General Medicine and holds a Master's degree in Healthcare Management from the Royal College of Surgeons in Ireland. MEH

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Dubai healthcare sector growth continues

Despite the global financial crisis, the Dubai healthcare sector continues to witness rapid growth and continues to attract international healthcare players into the market, according to Colliers International.

In their Dubai Healthcare Overview report released in June they analysed the key demand and supply, risk and success factors shaping the healthcare sector in Dubai.

Mansoor Ahmed, Director at Colliers International MENA Region for Healthcare, Education and PPP said: "The healthcare market in the UAE and in Dubai continues to grow, primarily due to an increase in demand from population base, urbanisation and in particular the constantly fluctuating lifestyle which contributes to an increase in chronic diseases uncommon to the region. With the introduction of compulsory health insurance, and the promotion of Dubai as a regional medical hub, the healthcare sector is expected to witness further growth in demand."

The report revealed that Dubai has experienced a significant medical construction boom in the past decade, driven by the need for new hospitals to "catch up" with population growth. Private hospital bed occupancy rates were 32% in 2005, and increased to 64% in 2007. With new facilities being added occupancy rates dropped to 45% in 2009. Increasing population levels and maturity in the sector, the bed occupancy rate has maintained at around 56% during 2011 and 2012. The total number of available beds in 2012 in the private sector reached 1,468, compared to 793 in 2005, a CARG of 9.2%.

"Based on the growth in the number of beds, by the year 2020, the number is expected to reach approximately 2,900, however, the occupancy levels in Dubai presently stand at 56%, comparatively, based on international standards a hospital can operate efficiently up to 80% occupancy levels. Colliers estimate that if the private sector achieved 80% occupancy by 2020, the total number of beds required in Dubai is expected to be 2,100 beds instead of over 2,900 beds based on current occupancy levels," Ahmed said.

The report also concluded that the total number of outpatients in the private healthcare sector (both private hospitals

Small clinics take load off emergency departments

Misuse of the emergency departments – such as the improper use of the emergency department's resources – occurs at some of UAE hospitals and exerts a detrimental impact on the healthcare system and its end-users, according to Dr Firas Jafar Kareem Annajjar, Consultant of Emergency Medicine and Program Director of Emergency Medicine Residency Program, Rashid Hospital Trauma Centre, Dubai.

Speaking at the 1st Emergency Medicine Exhibition & Congress which took place in June in Dubai, Dr Annajjar said: "Rashid Hospital in Dubai receives approximately 450-500 patients per day, however, many of the cases that arrive at the emergency department could easily be diverted to the ambulatory care unit or peripheral health centres.

"Much research has been done since the early 1980s to determine why such unnecessary visits were taking place. Many reasons were identified. Amongst them, one of the biggest misconceptions among patients who come to the ED is that they will be seen on a first-come, first-served basis however, the very nature of emergency care makes such routine customer service impossible."

The Rashid Hospital Trauma Centre was established in 2006 and is one of the largest of its kind worldwide. It houses a state-of-the-art 57-bed fully integrated emergency department.

"Small clinics providing ambulatory care services could be one of the options that help reduce emergency department misuse, and this has already been implemented in Dubai over the last year consequently aiding in reducing an unnecessary influx of inappropriate patients to our Emergency Department," he said.

The Emergency Department at the Trauma Centre provides a wide variety of services for all ages, and both genders such as emergency services 24 hours a day, seven days a week for traumas, acute medical emergencies, surgical emergencies, psychiatric emergencies, cardiac emergencies, infectious diseases, and disaster management. MEH

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and private clinics) reached 5.6 million in 2012, representing a CAGR of 12.3% from 2005 to 2012. The number of out-patients is projected to reach 14 million in 2020.

"In 2012, inpatients in the private healthcare sector reached almost 132,000, representing a CAGR of 26.4% from 2005 to 2012. The number of inpatients is expected to reach over 800,000 in 2020," said Ahmed.

HAAD aligns strategy to Abu Dhabi 2030 Economic Vision

The Health Authority – Abu Dhabi (HAAD) has aligned its strategy to the Abu Dhabi 2030 Economic Vision to provide the highest levels of health insurance services and to offer an excellent business model for healthcare services in the region. The establishment of Abu Dhabi Quality and Conformity Council in 2009 was an important step to build a quality national infrastructure that can facilitate and enable all sectors, including healthcare, to achieve their goals in terms of quality.

Speaking at the Hospital Build & Infrastructure Exhibition & Congress in Dubai in June, Dr Rehab Al Ameri, Senior Specialist of Conformity Assessment Body Services, Abu Dhabi Quality and Conformity Council, Abu Dhabi, UAE, discussed the Abu Dhabi Economic Vision 2030 and its role in creating an environment for making the private sector the main driver of economic growth in the healthcare sector together with creating employment opportunities for Emirati Nationals in the public and private sectors.

"Due to the UAE's ageing population, it is anticipated that more healthcare facilities will be required to fill the rise in demand," says Dr Al Ameri. "The latest advancement in the Abu Dhabi healthcare sector is the efforts taken by HAAD in cooperation with SEHA to enhance the availability of specialty care provided by the government and private hospitals and healthcare centres such as the Sheikh Khalifa Medical City (SKMC) Paediatric Kidney Transplantation Service; Tawam Hospital and Lifeline Hospital providing mobile breast cancer screening services; and specialist cancer treatment at the Gulf International Cancer Centre."

According to Dr Al Ameri, the Abu Dhabi Government quickly recognised the need for mandatory access to healthcare via mandatory health insurance and that this would become the nucleus of the database for the healthcare system. The Emirate of Abu Dhabi was the first to implement such a system covering the all national and expatriate communities within one year of commencing the project. MEH

> One of the biggest misconceptions among patients who come to the ED is that they will be seen on a first-come, first-served basis however, the very nature of emergency care makes such routine customer service impossible.

Medical errors may go unreported as some healthcare workers fear consequences

Experts believe that medical errors in hospitals in the UAE are often hidden by staff, especially those lower in the professional hierarchy who are in fear of losing their jobs.

Sankaranarayanan, Senior Safety Officer, Quality Assurance – Performance, Performance Innovation, Tawam Hospital, UAE, says "a 'no blame' culture gives room for lack of accountability and what we need here in the UAE is a 'fair and just culture' that is coupled with human behaviour. There has to be transparency in error investigation; it needs to look at behavioural patterns such human error/negligence, at risk and reckless behaviour. Parallel to that are system failures and human factors that need to be monitored – this is important as errors can be hidden by staff if they perceive retaliation."

Experts believe that functions and systems must be built around people to make it difficult to commit a serious error; and facilitate doing the right thing, either by rectifying the error or reporting the incidence so action can be taken. Developing functions that will help implement a system that ensures patient safety is of paramount importance in healthcare in the UAE.

The concept of patient safety is relatively new for healthcare organisations in the Middle East and consequently there is no cohesive research agenda focused on capturing data on patients affected by medical errors.

In an effort to resolve this situation, Tawam Hospital – in affiliation with Johns Hopkins Medicine – began a pilot project in 2008 at Tawam which has now expanded to include seven additional units. Tawam Hospital now has 10 actively functioning CUSP (Comprehensive Unit-based Safety Programme) units representing critical care, paediatrics, and general medical surgical services and recently, Obstetrics and Gynaecology services.

"Today, the pilot units have completed five years of CUSP implementation and six out of the seven new CUSP units have completed one year of implementation. The culture of safety is a never-ending journey," says Sankaranarayanan.

Sankaranarayanan will be speaking about best practices in patient information, drug information, patient education, quality process, risk management and staff competency at the Patient Safety Exhibition & Congress taking place from 16-18 September 2014 at the Dubai International Convention and Exhibition Centre, UAE. MEH

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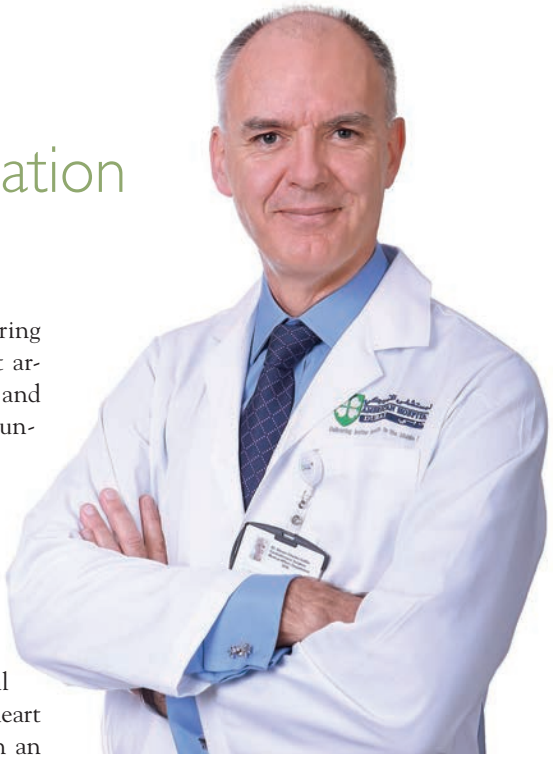
Thoracoscopic atrial fibrillation ablation procedure performed in Dubai



Dr Stephen Griffin, Heart Surgeon, American Hospital Dubai

A new surgical treatment is now available in Dubai to treat heart arrhythmia, which occurs when the heart beats irregularly and cannot pump blood effectively. The causes of arrhythmia are not clearly understood and it is common amongst many populations but only a small number of heart surgeons are able to carry out the new surgical procedure.

The new cardiac surgical procedure – called 'thoracoscopic atrial fibrillation ablation – in which heart tissue is burned using a catheter to leave scar tissue that creates new pathways for electrical impulses, restores the normal sequence of electrical impulses that trigger each heart beat and is undertaken using minimally invasive surgery techniques, lowering risk and speeding up recovery. Heart arrhythmia, which can affect children and adults had always been considered untreatable until recently.

There are many kinds of abnormal heart rhythms that can occur in children and adults. The electrical impulses may happen too fast, too slowly, or erratically – causing the heart to beat too fast, too slowly, or erratically. As long as the electrical impulse is transmitted normally, the heart pumps and beats at a regular pace. In an adult, a normal heart beats 60 to 100 times a minute but this can rise to 200 beats per minute due to arrhythmia. This means oxygenated blood can't get to the areas that need it, causing symptoms such as dizziness and breathlessness, and blood may pool in the heart causing blood clots that can lead to heart attack or stroke.

The thoracoscopic atrial fibrillation ablation surgical procedure involves deflating the lungs, to access the heart. Two small incisions are made between the ribs and a telescope-like device with a camera (endoscope) inserted into the lung to enable the surgeon to see what he is doing, on a screen in front of him. The wand (catheter) that burns the heart tissue on the veins to scar them is inserted through the other incision. The surgeon then inserts a special tool, which looks like a hair grip, to clip the left atrial appendage closed, so it's separated off from the heart. The clip stays inside permanently. The lung is then re-inflated and the procedure repeated on the other side of the heart so that more of the problem area can be covered and allowing the surgeon to create a thick barrier of scar tissue.

Dr Stephen Griffin, a British heart surgeon who recently joined the American Hospital Dubai, and who has performed the procedure hundreds of times in the UK, explains: "Heart arrhythmia was considered untreatable surgically until recently when the catheter ablation procedure was first developed but this was unsuccessful in around 40% of patients, who would need a further procedure. This latest surgical procedure – thoracoscopic atrial fibrillation ablation – can cure the problem with one surgical intervention. Perhaps just as importantly, during the surgery we also remove the biggest risk factor for clots, the area of the heart called the left atrial appendage; by closing off this part of the heart, you reduce the risk of stroke. The operation takes around two hours. Arrhythmia is a common problem in the UK affecting around one per cent of the population – and there are only around 10 surgeons performing this procedure in the UK." MEH

Interview

Allscripts healthcare IT expands to the Middle East

Middle East Health speaks to **Rich Berner**, President of International at Allscripts, about the Allscripts Population Health Management tool. The company is expanding its operations to the Middle East.

Rich Berner

***Middle East Health*: I understand you are planning to launch Allscripts Population Health Management tool in the Middle East. Can you explain what Allscripts is?**

Rich Berner: Allscripts provides innovative healthcare IT solutions that enable governments and healthcare providers to improve their clinical, financial and operational results as well as the overall health of the populations they manage. Our software is designed to help organizations achieve world-class quality by implementing state of the art decision support that emphasizes best practices and ease of use.

In the Middle East we offer our full range of electronic medical record, community wellness, and population health solutions, along with a commitment to world-class support.

Our solutions are built on a flexible, open platform that connects information and optimizes workflows. With Allscripts solutions care givers can see harmonized patient data from disparate sources, help engage patients in their own care, and use risk stratification to segment populations and prioritize care interventions. Our leading analytics provide physicians with dashboards to monitor patient care proactively. Our solutions help healthcare providers move from reactive care to predictive care.

MEH: How does it work?

RB: Our electronic health record solutions work by providing clinicians the patient information they need at the time they need it, even on a mobile device. We offer advanced clinical decision support and eliminate the need for paper records.

Our population health management solutions work by aggregating and harmonizing patient data from disparate sources to provide a single view of the patient record – no matter where the patient was treated.

Our population health analytics solutions analyse the harmonised patient data to assist with chronic disease management and risk stratification.

MEH: Who should use it?

RB: Caregivers, IT staff and finance employees in healthcare organisations who are interested in improving their clinical, financial and operational outcomes.

MEH: Where is it currently being used?

RB: Currently our products are used by over 180,000 physicians and more than 13,000 healthcare organisations in the United Kingdom, Australia, Singapore, Guam, Canada, and the United States.

MEH: What benefits can these organisations, the community and individuals expect to reap from this tool?

RB: Allscripts has five key solutions that can help Middle East healthcare providers proactively and predictively improve the health of the populations they manage as well as improve their clinical, financial and operational results:

- Allscripts Population Health Management, which facilitates performance management, risk stratification and cost control. It makes data accessible and actionable within native workflows.
- Sunrise Acute Care, which is our interdisciplinary clinical solution that improves quality scores and patient safety, integrated on a single platform across all departments in the acute, outpatient and primary care setting.
- Allscripts Clinical Performance Management, which helps monitor and improve clinical performance to improve outcome quality and clinical decision-making.
- Allscripts EPSi, which brings together all the major components of financial management to optimize spending and cost control.
- Allscripts Patient Flow, which automate complex labor and operational processes to save costs and reduce wait times for beds.

MEH: How much does it cost?

RB: Costs vary by solution, by organisation size, and by number of users on each system. Since our platforms are customisable, it's hard to state one cost for the system, as it depends on the needs of each individual organisation.

MEH: When are you planning to launch the product in the Middle East? In which countries?

RB: Allscripts is committed to being a local company with a leading, local presence. We're investing heavily in the region and plan to open our Middle East headquarters in Riyadh this year. We had a successful show at HIMSS Middle East in April and have been meeting with the many providers who were excited to learn Allscripts is entering the market and wanted to learn more about our solutions. We are confident Allscripts can help the government of the Kingdom of Saudi Arabia and caregivers improve the overall health of the population like no other provider and look forward to collaborating to do so. MEH

Phase contrast improves mammography

Phase contrast X-ray imaging has enabled researchers at ETH Zurich, the Paul Scherrer Institute (PSI) and the Kantonsspital Baden to perform mammographic imaging that allows greater precision in the assessment of breast cancer and its precursors. The technique could improve biopsy diagnostics and follow-up.

The researchers have succeeded in advancing an emerging imaging technique for breast investigations: the X-ray phase-contrast mammography. The new developments enable distinguishing between the different types of microcalcifications observed in breast tissue and help assigning them to malignant lesions. The study is published in "*Nature Communications*".

One of the advantages of the phase contrast technique is its ability to provide images of high contrast. In the future, this technique can aid physicians to determine in a non-invasive way where premalignant and malignant breast lesions are most likely located. One goal of breast cancer screening is to detect (groups of) microcalcifications in the breast, because these may be associated with early stages of breast cancer since they often occur in connection with cancer cell death. Mammographic screening does not allow definite conclusions regarding the underlining conditions that cause calcifications. Only tissue biopsies that are examined under the microscope by pathologists can determine which lesions have caused the calcareous deposits.

Clinical equipment could be used for phase contrast imaging

At the PSI, the use of phase contrast for medical X-ray imaging has been investigated for several years. X-ray radiation as used in conventional mammography was long considered not suitable for phase contrast procedures because of its incoherence and mixture of multiple wavelengths.

"The fact that we have now managed to use these X-ray sources for the phase contrast method in order to develop a new and improved imaging method is a considerable step towards application in daily clinical practice," says Marco Stampanoni, Professor at the Institute for Biomedical Engineering at ETH Zurich and Head of the X-ray Tomography Group at the PSI. He received an ERC Consolidator Grant in 2012 to advance the clinical use of X-ray phase contrast.

In X-ray phase contrast, the extent in which tissue absorbs X-rays is not the only quantity that is being measured but also how tissue deflects radiation laterally (refraction) and consequently how it influences the sequence of oscillation peaks and valleys of X-ray waves – the so-called phase. Depending on the tissue type, the overall scattering also varies. To be able to measure the phase shift, researchers use three very fine grids. The first one is located directly at the source. It ensures that the object is illuminated with the required coherence. Another grid is placed behind the object and generates an interference signal that is analysed by a third grid downstream. Using suitable algorithms, the researchers calculate the absorption, phase and scattering properties of the object from the interference signal. This information can be used to generate sharp and high-contrast images that show very detailed soft tissue properties.

A discovery by Zhentian Wang, PostDoc in Prof. Stampanoni's team, initiated this development: "During my trials with the phase contrast method, I noticed that there

New simple setup for X-ray phase contrast

Imaging method improved by scrambling X-rays from a new source

X-ray phase-contrast imaging can provide high-quality images of objects with lower radiation dose. But until now these images have been hard to obtain and required special X-ray sources whose properties are typically only found at large particle accelerator facilities. Using a laboratory source with unprecedented brightness, scientists from the Technische Universität München (TUM), the Royal Institute of Technology in Stockholm (KTH) and University College London (UCL) have demonstrated a new approach to get reliable phase contrast with an extremely simple setup.

X-ray phase-contrast imaging is a method that uses the refraction of X-rays through a specimen instead of attenuation resulting from absorption. The images produced with this method are often of much higher quality than those based on absorption. The scientists in the team of Prof. Franz Pfeiffer, who is Head of Chair of Biomedical Physics at TUM, are particularly interested in developing new approaches for biomedical X-ray imaging and therapy – including X-ray phase-contrast imaging. One main goal is to make this method available for clinical applications such as diagnosis of cancer or osteoporosis in the future.

In their new study, the scientists have now developed an extremely simple setup to produce X-ray phase-contrast images. The solution to many of their difficulties may seem counter-intuitive: Scramble the X-rays to give them a random structure. These speckles, as they are called in the field, encode a wealth of information on the sample as they travel through it. The scrambled X-rays are collected with a high-resolution X-ray camera, and the information is then extracted in a post-measurement analysis step.

are microcalcifications with different absorption and scattering signals. That indicated that the new method might identify different types of calcifications," he says. Wang subsequently reviewed medical literature and found studies that showed that a certain type of calcification is more frequently associated with breast cancer precursors.

"I was persuaded that my observation could be very interesting for breast cancer diagnosis, since it could distinguish between the different types of microcalcifications," says Wang.

Clinically relevant

The relevance of the new method was also confirmed by the physicians who participated in the study: "We are hopeful that the new technique, in comparison to standard mammography, will help to better indicate where a biopsy must be carried out in the breast," says Rahel Kubik, Head of the Institute of Radiology at the Kantonsspital Baden.

"Still, it is not ready for clinical use as it needs to be validated in a larger number of cases," says the radiologist.

Gad Singer, Head of the Institute of Pathology at the Kantonsspital Baden, added: "It is very encouraging that the new method enables a distinction between the different well-known microscopic types of calcifications."

Whether the technology will make it to clinical use also depends on the radiation dose.

"The aim will be to significantly improve quality, resolution and diagnosis with the same radiation dose as for a standard mammography so that breasts can be better examined," says Nik Hauser, Head of Gynaecology and of the Interdisciplinary Breast Center at the Kantonsspital Baden.

"If we can significantly improve imaging, this would enable better assessments of tumour extent prior to surgery. Then the new method will quickly become important."

The foundation for a new imaging device has been laid, says Hauser. "We are optimistic that we soon will be able to present further results."

> The fact that we have now managed to use these X-ray sources for the phase contrast method in order to develop a new and improved imaging method is a considerable step towards application in daily clinical practice.

To date, the researchers have worked with a prototype. They examined breast tissue samples, but no patients have been involved yet.

"One of our next aims will be to develop a device for clinical use," says Stampanoni.

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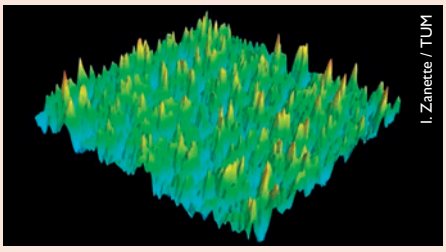
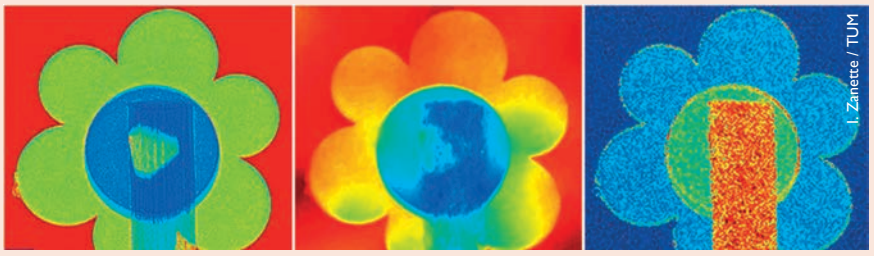
doi: 10.1038/ncomms4797



The intensity "landscape" of the scrambled X-rays has a multitude of random bright and dark spots called speckles. These speckles are here rendered as the height of a surface. A sample placed in the beam changes slightly the position, height and depth of the hills and valleys of this landscape. These changes are analyzed to form the images of the sample.



With the new experimental setup for X-ray phase contrast imaging, three pictures can be produced at once: attenuation (left), phase contrast (center) and dark-field (right). The scientists used a plastic toy flower on a wooden support as microscopic object.

High accuracy and new X-ray source

Using their new technique, the researchers have demonstrated the efficiency and versatility of their approach.

"From a single measurement, we obtain an attenuation image, the phase image, but also a dark-field image," explains Dr. Irene Zanette, lead author of the publication. "The phase image can be used to measure accurately the specimen's projected thickness. The dark-field image can be just as important because it maps structures in the specimen too small to be resolved, such as cracks or fibres in materials," she adds.

The source's high brightness is also key to these results.

"In the source we used a liquid metal jet as the X-ray-producing target instead of the solid targets normally used in laboratory X-ray sources," says Tunhe Zhou from KTH Stockholm, project partner of the TUM. "This makes it possible to gain the high intensity needed for phase-contrast imaging without damaging the X-ray-producing target."

To obtain all images at once, an algorithm scans the speckles and analyses the minute changes in their shape and position caused by the specimen.

But not all components of the new instrument are products of the latest cutting-edge technology. To scramble the X-rays, "we have found that a simple piece of sandpaper did the job perfectly well", adds Dr. Zanette.

The researchers are already working toward the next steps.

"As a single-shot technique, speckle imaging is a perfect candidate for an efficient extension to phase-contrast tomography, which would give a three-dimensional insight into the microstructure of the investigated object," Zanette explains.

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doi: 10.1103/PhysRevLett.112.253903 MEH

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The global health concept of the German government: strengths, weaknesses, and opportunities

By Kayvan Bozorgmehr, Walter Bruchhausen, Wolfgang Hein, Michael Knipper, Rolf Korte, Oliver Razum and Peter Tinnemann

Abstract

Recognising global health as a rapidly emerging policy field, the German federal government recently released a national concept note for global health politics (July 10, 2013). As the German government could have a significant impact on health globally by making a coherent, evidence-informed, and long-term commitment in this field, we offer an initial appraisal of the strengths, weaknesses, and opportunities for development recognised in this document. We conclude that the national concept is an important first step towards the implementation of a coherent global health policy. However, important gaps were identified in the areas of intellectual property rights and access to medicines. In addition, global health determinants such as trade, economic crises, and liberalisation as well as European Union issues such as the health of migrants, refugees, and asylum seekers are not adequately addressed. Furthermore, little information is provided about the establishment of instruments to ensure an effective inter-ministerial cooperation. Finally, because implementation aspects for the national concept are critical for the success of this initiative, we call upon the newly elected 2013 German government to formulate a global health strategy, which includes a concrete plan of action, a time scale, and measurable goals.

To date, German governmental institutions have paid little attention to the concept of global health, which is an emerging policy field[1]. The country's involvement in the field[2] has been referred to as literally invisible[3] and in a stage of infancy[4]. For this reason, the authors welcome the launch of a first national concept document for global health politics entitled *Globale Gesundheitspolitik gestalten – Gemeinsam handeln – Verantwortung wahrnehmen* (Shaping Global Health – Taking Joint Action – Embracing Responsibility – 10 July 2013)[5].

In line with other countries that have already launched national global health strategies – such as Switzerland (2006), the United Kingdom (2008), Norway and Japan (2010), Sweden (2011), as well as the European Union[6] (EU) – with the release of this document, the German federal government also expresses its commitment to advancing health and wellbeing on a global scale.

The primary goal stated in the government's national concept[5] is to make an active and consolidated contribution to solving pressing global health challenges of our time. It defines five key areas of action where Germany can play a vital role in improving health on a global level: 1) tackling cross-border threats to health; 2) strengthening health systems worldwide (by enhancing systems of social health protection and improving public access to health care services); 3) ensuring intersectoral cooperation for health; 4) promoting/strengthening health research and the health care industry; and 5) strengthening the global health architecture[5].

We maintain that as an important voice in the international community, Germany has a special responsibility towards global health both at the European and the global level. The government has traditionally embraced its responsibility for health in developing countries primarily via bilateral (and to a lesser extent multilateral) aid. Health policy at the European level, in contrast, has been mainly embraced via legal frameworks within the EU. Presenting a coherent, evidence-informed, and far-sighted global health concept that overcomes these North–South binaries and draws upon the strengths of other countries' recent strategies could thus have a significant impact on health globally.

The effort of the German government to prepare the presented global health concept is highly valued and its release has already initiated debate about gaps and ambitions[4,7]. In order to provide a rationale for proposals for further improvement related to the concept, the strengths, weaknesses, opportunities, and

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threats identified in the national concept have been analysed and are detailed in this paper. Four authors (KB, WB, MK, OR) independently read the concept of the federal government with the task to evaluate the major strengths and weaknesses in the document. Common issues identified by more than one author were fed into a preliminary list of items considered to be most important. This list was reviewed and scrutinised until all authors reached consensus.

We identified three major strengths relating to important issues on the global health agenda: Firstly, a clear and unequivocal commitment to Universal Health Coverage (UHC)[8] based on the 'human right to health' (HR2H)[9] approach, including health systems strengthening; equality and equity in access to quality health care; protection against catastrophic health expenditure[10]; and the acknowledgement of the regulatory role of states in this context.

Secondly, there was an equally clear and unequivocal commitment to strengthen the leadership role of WHO as the sole coordinating agency for global health policy. This includes, in line with the Paris Declaration on Aid Effectiveness, a clear commitment to counter attempts to create new organisations and initiatives in the (global) health sector duplicating existing mandates and tasks. Noteworthy is particularly the commitment to strengthen the 'core mandate' of the WHO in setting *binding* norms and standards for its member countries and all other actors in global health – an issue widely discussed in the context of a Framework Convention on Global Health[11].

Thirdly, the national concept aims to strengthen intersectoral cooperation[12] in order to improve population health by adopting a public health approach instead of an individual, exclusively biomedical approach.

On the contrary, the national concept contains some important gaps and weaknesses. For example, no reference is made to the important debates on the impact of intellectual property rights on access to medicines and innovation in health. In particular, policy coherence with regard to the WHO General Strategy and Plan of Action on Public Health, Innovation and Intellectual Property (GSPoA) and its follow-up, which are central for the problem of adequate incentives for medical research, remains unaddressed[13]. In this particular context, the government's concept falls short of the EU council conclusions[6]. With the elaborations on falsified medicinal products, ignoring the role of generics and compulsory licenses, the government's concept (consciously or unconsciously) adopts lines of arguments of private pharmaceutical industries[13]. A progressive IPR policy, coherent with international resolutions[14], would resolve that 1) no trade or investment treaty initiates intellectual property rights that go beyond those articulated under the multilateral TRIPS agreement, and that 2) the specific wording of the 2001 Doha Declaration on the right to issue compulsory licences be written into all future trade and investment treaties.

Given that strengthening the German health care industry is an explicit primary goal of the concept, the above discrepancy with international policy recommendations[6, 13, 14] might not be surprising. The national concept places a particular emphasis on the promotion of the 'Export Initiative [for the German] Health Industry' and the 'German Healthcare Partnership'. Given that poor health in low-income countries is a problem mostly driven by inequity and social determinants[12] rather than by a lack of technology, there is a risk that the aim of utilising 'the strengths of the German health care industry for the benefit of global health' diverts scarce resources in

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low- and middle-income countries to costly technologies from urgently needed social interventions promoting equity.

Significantly, the national concept provides an extensive inventory of past and on-going conventional approaches to international health[15], reflecting a 'sending culture' of resources, competencies and experts to 'developing' countries with an over-emphasis on bilateral agreements[4]. This lens tends to neglect the rise and importance of truly 'global'[16] issues such as economic crises[17], international trade[18] and liberalisation[19], as well as the political economy of health[20], including global inequity[12]. Addressing the health impacts of these global determinants[16] should be considered a primary motive or 'leading thought' of any global health concept.

A comprehensive, systemic approach – which acknowledges that global health starts 'at home' – would move towards coherence with ratified UN resolutions on UHC[21] and HR2H[22] and address the serious limitations related to the right to the highest attainable state of health for migrants, refugees and asylum seekers in the EU, including Germany[23]. It would also outline a far-sighted strategy to stimulate global health research and education in Germany beyond isolated programs.

Importantly, the government's commitment to strengthen WHO details several measures to improve the organisation's efficiency (by improving budget setting-procedures, goal-orientation and financial management, transparency, internal control mechanisms, and implementation of regular external evaluation measures) but remains vague as far as other important organisational aspects are concerned. While efficiency is important, the organisation's effectiveness depends, not least, on financial independence as far as goal and priority setting is concerned. Thus, any serious commitment to strengthening WHO should – in line with the EU council's conclusions[6] – declare a willingness to increase non-earmarked financial contributions in support of the institution. Attempts of internal structural reform should be based on solid evidence that this is an adequate strategy to strengthen the institution's capacity of effectively fulfilling its mandate in contemporary complex-adaptive systems.

Finally, the concept of the federal government would greatly benefit from a transparent, operational and binding strategy on how to organise the all-important inter-ministerial cooperation[1] in the national context, particularly between the Ministries of Health (BMG), Development and Economic Cooperation (BMZ), Foreign Affairs (AA), Finances (BMF), Economy (BMWi), Justice (BMJ), and Research and Education (BMBF). Within a commitment to 'achieve the greatest possible degree of consistency among the policymakers responsible for questions related to global health', the federal government explicitly refers to foreign and development policies only, but not to economic policies. A clear strategy is needed on how to interweave global health within interrelated national German policies.

The Swiss *'Gesundheitsaußenpolitik'* (Health Foreign Policy) already provides several instruments designed for this task: the establishment of a coordinating office for health foreign policy, implementation of bi-annual meetings of inter-ministerial working groups, an annual inter-ministerial conference on health foreign policy, establishment of a coordinating office for global health policy, and the creation of an interdepartmental information platform for global health. Without institutional innovations the laudable commitment to UHC and HR2H might remain mere rhetoric, since major powerful determinants of health[17] are outside the scope of development politics or health politics.

Conclusions

The national concept of the German federal government is an important first step towards a coherent national global health policy. Based on our appraisal, we are concerned that the current strategy might fail to achieve its overarching goal of making a consolidated contribution to solving the pressing global health challenges of our time because of the described gaps and weaknesses related to conceptual and implementation issues. We urge the new German government to develop a concrete plan of action to support global health, including a time scale and measurable goals.

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Citation: Glob Health Action 2014, 7: 23445 - *http://dx.doi.org/10.3402/gha.v7.23445*

The Authors

Kayvan Bozorgmehr – Department of General Practice & Health Services Research, University of Heidelberg, Heidelberg, Germany

Correspondence to: Kayvan Bozorgmehr, Department of General Practice and Health Services Research, University of Heidelberg, Voßstr.2, Geb. 37, DE-69115 Heidelberg, Germany, Email: *kayvan.bozorgmehr@med.uni-heidelberg.de*

Walter Bruchhausen – Institute of History, Theory and Ethics in Medicine, Aachen University, Aachen, Germany

Wolfgang Hein – Institute of Latin American Studies, German Institute of Global and Area Studies (GIGA), Hamburg, Germany

Michael Knipper – Faculty of Medicine, Institute of the History of Medicine, University Giessen, Giessen, Germany

Rolf Korte – Faculty of Medicine, Institute of Hygiene and Environmental Health, University Giessen, Giessen, Germany

Oliver Razum – Department of Epidemiology & International Public Health, School of Public Health, Bielefeld University, Bielefeld, Germany

Peter Tinnemann – Department of International Health Sciences, Institute for Social Medicine, Epidemiology and Health Economics, Charité-University Medical Centre Berlin, Berlin, Germany

Author contributions

KB, WB, MK, and OR performed the initial SWOT analysis and jointly drafted a first version of the manuscript. WH, RK, and PT revised the manuscript for important intellectual content. KB revised subsequent versions and drafted the final version of the manuscript. All authors made substantial contributions to the final version.

Financial disclosure

We acknowledge financial support by Deutsche Forschungsgemeinschaft and Ruprecht-Karls-Universität Heidelberg within the funding programme Open Access Publishing.

Acknowledgements

The authors acknowledge the comments of Albrecht Jahn (Institute of Public Health, Heidelberg University, Germany) and Sarah Berger (Dept. of General Practice and Health Services Research, Heidelberg University, Germany) to previous versions of the manuscript. We

thank the two anonymous reviewers for their helpful comments.

Conflict of interest and funding

KB, WB, MK and PT are founding members of the 'Global Health Alliance', a network of academics and students promoting education in global health. WB, PT, RK and WH were invited participants of an official 'public dialogue' event between civil-society and the Federal Ministries of Health (BMG), Foreign Affairs (AA) and Development Cooperation (BMZ) prior to the formulation of the strategy. RK is an external consultant to specific programs of the 'Gesellschaft für Internationale Zusammenarbeit' (GIZ). The authors declare that they have no conflict of interest and funding. MEH

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The famous Blue Mosque in Istanbul is on the top of any tourist's itinerary.

Strategically positioned for medical tourists

Over the past few years Turkey has been making a major global push to promote medical tourism to the country. And why not? The country is advantageously situated between Europe and Asia. It has some of the leading specialist hospitals in the region. The expertise is there. The costs for private medical treatment are low relative to economically advanced countries. The infrastructure is there to facilitate international patient services and to top it all it is a magnificent country to visit with a staggering choice of must-see sites, many that should rightfully be on anyone's bucket list.

In June the country hosted the Istanbul Medical Tourism Fair and Congress. *Middle East Health* was an official media partner and attended the event. There were numerous B2B workshops and conferences where a wide range of issues were discussed – such as the role of government in medical tourism, how to segment social media and healthcare, the impact of medical insurance companies on emerging medical tourism destinations and many other interesting topics.

Turkey is now attracting medical tourists from neighbouring countries as well as European, Asian and Arab countries with similar religions and cultures. According to a spokesperson for the Florence Nightingale Group, patients who had previously gone to the US for treatment are now choosing Turkey after the US tightened visa restrictions following the 9/11 attack in New York. Turkey's lower costs for treatment and excellent quality of healthcare are also a major drawcards.

We spoke to several of the country's leading hospitals at the event to find out what they have to offer with regards to medical tourism in particular. Following is a brief overview from a few select hospitals.

Florence Nightingale

The Florence Nightingale Group, established in 1989, comprises 4 general hospitals, including a Hi-Tech 'Smart and Green Hospital' opened in January 2013, a medical centre, teaching hospital and a clinical research centre.

It is renowned for a number of 'firsts' including the first stent operation in the region (1991); the first robotic surgery operation in the region (2004); the first liver transplantation in the region as a private hospital (2004); the first Stroke Center in the region as a private hospital (2005); and the first Comprehensive Cancer Center in the region (2007).

The Group is active in every major area of medical specialization. It is the only organ transplant centre in the Middle East region, licensed to operate in five organ transplant areas.

Florence Nightingale Hospitals have been accredited by "Joint Commission International" (JCI) ensuring its service quality, patient care and patient safety is a top priority.

They use some of the most advanced technology available, such as sophisticated surgical robotics and wireless 24-hour monitoring right down to smart patient beds. They provide a regulated environment designed to give their international patients a holistic treatment and care package which goes beyond international standards.

The Group collaborates with world-renowned hospitals and medical schools to offer its patients state-of-the-art diagnostics and treatment methods, including: Memorial Sloan-Kettering Cancer Center, New York; Methodist Hospital, Houston; Columbia University Medical Center, New York; Weill Medical College of Cornell University, New York; Barbara Ann Karmanos Cancer Institute, Detroit; Baylor College of Medicine, Houston; Center for Cell Therapy and Cancer Immunotherapy, Tel Aviv; Detroit Medical Center, Detroit; and Wayne State University School of Medicine, Detroit

Center for International Patients

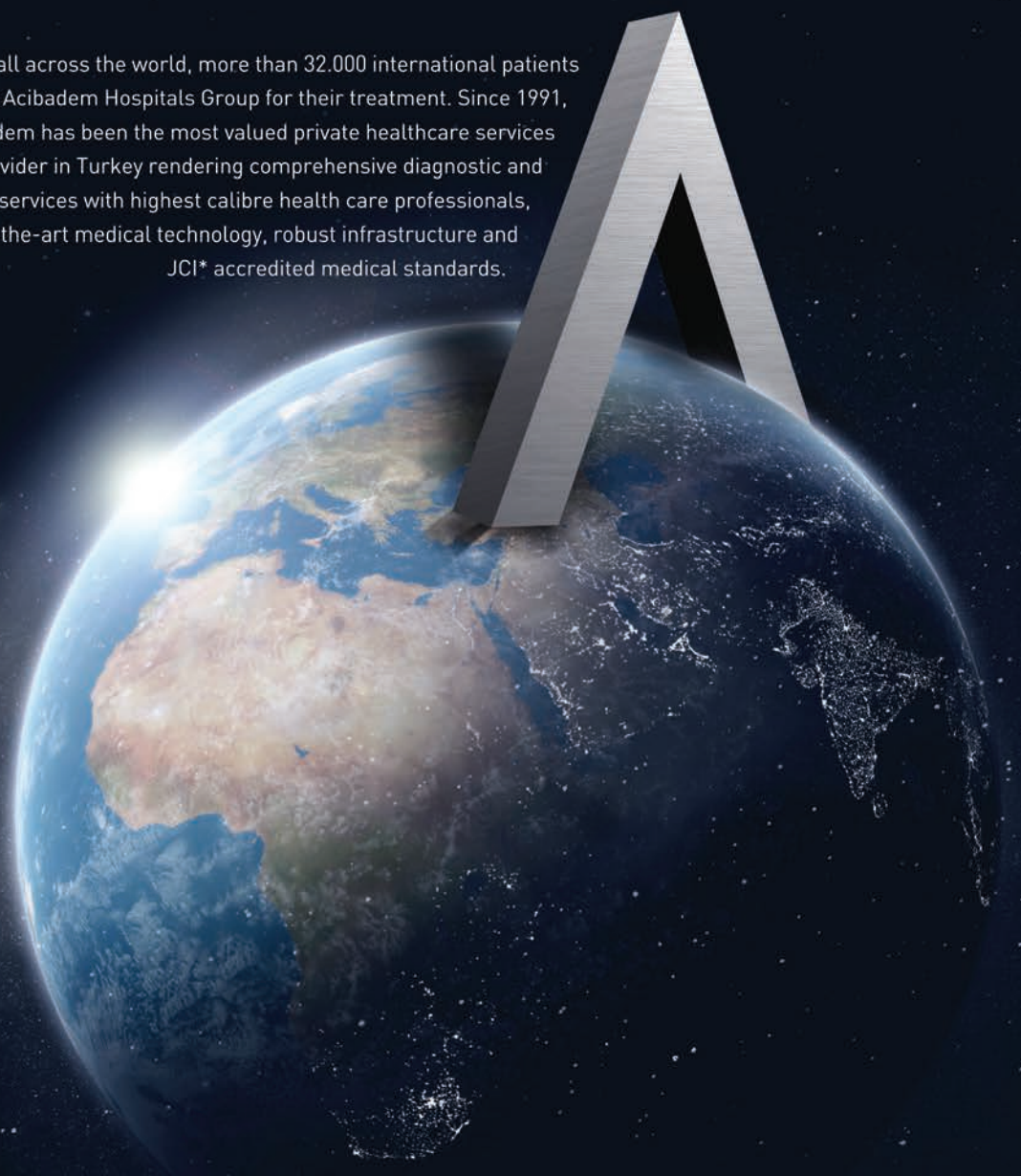
The Center for International Patients at Florence Nightingale serves patients from around the world, starting at the initial inquiry through their follow-up care at home. Their multilingual consultants provide direct assistance to patients and their families

Florence Nightingale Group in figures

- **30.000** patients treated every year
- **900** beds, **41** operations theatres, **143** intensive care and emergency beds.
- **41.000** Heart Surgeries (an average of **30-35** patients every week in 2010)
- The lowest mortality rate in cardiology in Europe - **1,53%** in 2010, and annual General Infection Definition of **1,53%**)
- **8** Vertebral & Scoliosis Surgeries per week
- **105.000** Angiographies & Angioplasties
- **2-3** Liver Transplants per week (**11** Operations in January 2011 and **84** only Liver Transplantation Surgeries during 2010 – **64** from alive, **24** from cadavers)
- **7** Stem Cell Transplantation cases per month
- **20.000** Orthopedic Surgeries
- **300** Robotic Surgeries in Urology
- **600** Liver Transplantations
- **8.000** Angiographies a year
- **2.000** invasive Cardiac interventions a year
- **2.000** Heart Surgeries a year

Excellence in Healthcare

Every year, all across the world, more than 32.000 international patients visit Acibadem Hospitals Group for their treatment. Since 1991, Acıbadem has been the most valued private healthcare services provider in Turkey rendering comprehensive diagnostic and treatment services with highest calibre health care professionals, state-of-the-art medical technology, robust infrastructure and JCI* accredited medical standards.



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by personalizing Medical and Concierge Services according to the needs and expectations of each patient and their families.

The specialists provide one-to-one assistance to patients and their families through

- scheduling appointments,
- travel and accommodation arrangements,
- interpreting services,
- air and ground ambulance services,
- financial transactions,
- discharge process,
- follow-up care.

The Group has "Centre of Excellence" status in the following specialization centres:

- Center for Cardiology and Cardiovascular Surgery – Angiography and Rhythm Disorders
- Center for Organ Transplantation (Liver, Kidney, Pancreas)
- Comprehensive Cancer Center
- Center for Plastic and Reconstructive Surgery & Hair Implantation
- IVF Center
- Istanbul Center for Robotic Surgery (Urology & Cardiovascular Surgery)
- Center for Orthopedics & Istanbul Spine Center
- Obesity Center
- Autism Center
- Macular Degeneration Center

on the WEB Group Florence Nightingale
www.groupflorence.com

Acibadem

The Acibadem Group of Hospitals is JCI accredited and operates 17 full-service general hospitals and 13 outpatient clinics.

Acıbadem is a reference centre for many complex treatments that require advanced technology and experience. Their 7 Cancer (surgery, radiotherapy/radiosurgery, chemotherapy), 12 Heart care (paediatric and adult), 9 Fertility (IVF), 5 Transplant (liver, kidney, bone-marrow), 4 Spine and Joints, 1 Sports Medicine, 8 Nuclear Medicine and 5 Robotic Surgery centres are all nationally and internationally renowned reference centres with the latest technology and highly regarded physicians.

In 2012 Acibadem joined a large global network – International Healthcare Holdings (IHH). IHH, is a joint investment of the Malaysian Khazanah, Japanese Mitsui and Turkish Aydinlar Family. It operates a wide network of hospitals and clinics in Malaysia, Singapore, India, China and Brunei, under the Parkway, Pantai and Apollo brands, and also runs IMU, the International Medical University of Malaysia.

International Patient Services Center

The International Patient Services Center at Acıbadem Hospitals Group offers a comprehensive range of services for international patients and visitors. Their staff is dedicated to providing services including consultations, diagnostic services, billing and insurance, travel and lodging arrangements and language interpretation services.

Acıbadem International Patient Services Center, designed as a "one-stop" service centre, offers healthcare services from the day of the patient request until the time the patient returns to their home country. It is the initial point of contact for acquiring medical information, orientation and registration.

Acibadem has some of the most advanced technology available including in diagnostics PET CT, whole body MRI, digital mammography with tomosynthesis; in treatment, gamma knife, cyberknife, the da Vinci surgical robot, among others.

Acibadem uses Pyxis, an automated medication management system, which is designed to increase patient safety and efficiency. Automating medication use not only helps solve problems of traditional medication, but also improves clinical and operational results.

on the WEB Acibadem
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Medipol Mega Hospitals Complex

The Medipol Mega University Hospital is located in Istanbul. The hospital complex houses an Oncology Hospital which carries out various oncological procedures including oncological surgery, medical oncology and radiation oncology; a Cardiology Hospital specializing in both paediatric and adult cardiology; a Dental Hospital; and a General Hospital with a large number of specialties.

The hospital has over 470 inpatient beds, 25 operating theatres, 246 polyclinic examination rooms and space for over 133 intensive care patients in General, Coronary, CVS and Neonatal ICUs.

Since 2012 the Medipol Mega University Hospital has been providing a range of healthcare treatments and services at their complex in Istanbul. The hospital has recently received JCI accreditation as an academic centre.

Over 500 procedures are available at the Medipol Mega University Hospital, across all medical specialties. These include cardiology, neurology, ophthalmology, plastic, reconstructive, and aesthetic medicine, fertility treatment and oncology.

The hospital provides endoscopic, arthroscopic, bariatric, laparoscopic and general surgical procedures in 25 operating theatres. The hospital complex houses some of the most advanced medical equipment and technology including PET CT, SPECT/CT, 256-slice CT, 3T MRI, panoramic x-ray, 4D ultrasound, and more.

Their International Patient Services provide a full spectrum of services including online doctor consultation, translations services, airport transfers, flight booking, religious facilities, family accommodation, a concierge service, etc.

Medical Park

Medical Park Hospitals Group provides service in various cities in Turkey with 15 hospitals, 2 hospital complexes and 2 medical centres.

In addition to providing world-renowned health care, Medical Park Hospitals Group is experienced in meeting the special needs of international patients.

International Patient Center

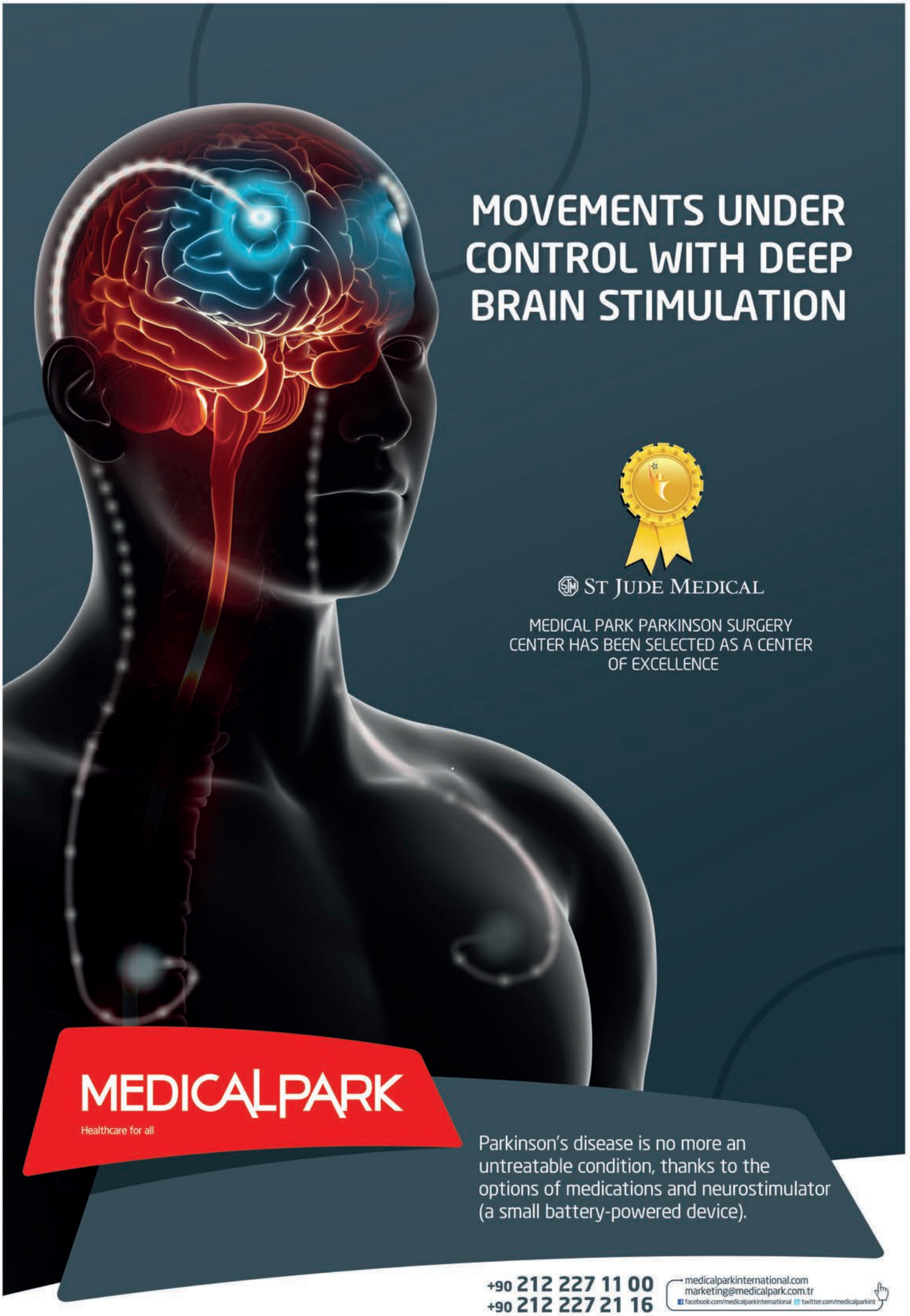
Medical Park Hospitals Group, International Patient Center provides assistance to patients before, during, and after their stay in Turkey.

From the time the patient contacts the hospital a specially trained international patient representative will act as the patient's main liaison with Medical Park throughout their healthcare journey and ensure effective communication.

The multicultural staff at the International Patient Center offers numerous special services and amenities to make the patient's – and their family – stay as comfortable as possible. The International team also focuses on their cultural needs with individual attention.

Medical Park provides the following personalized liaison and concierge services:

- Coordination of hospital, physician and diagnostic appointments
- 24-hour translation services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Parkinson's disease is no more an untreatable condition, thanks to the options of medications and neurostimulator (a small battery-powered device).
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- 24-hour emergency services, including air ambulance transfer coordination
- Travel arrangement assistance, such as letters for travel visas and pick-up services, etc.

Assistance with financial concerns:

- Coordination with primary insurance and travel assistance companies
- Estimates and discounted package pricing for uninsured, self-paying patients
- Coordination of advanced deposit payments
- Transfer of medical records
- Assistance with any pending concerns after patient discharge from the hospital

Importantly, the hospital abides by a Patient Rights manifesto as set out in the 'Declaration on the Promotion of Patients' Rights in Europe'.

on the WEB Medical Park
www.medicalpark.com.tr

Interview

A health tourism role model for the world

The number of patients travelling abroad for medical treatments is increasing continuously around the world. Aysun Ucar, the International Patient Center Group Director at Medical Park Healthcare Group, one of the biggest healthcare providers in Turkey, speaks to *Middle East Health* about 'medical tourism'.

***Middle East Health*: Can you please explain the term 'medical tourism'?**

Aysun Ucar: Medical tourism implies travel of people to another country to protect and improve health, obtain medical treatment and stay at the destination for a minimum of 24 hours in order to benefit from the foreign country's health and tourism facilities.

MEH: Why do patients prefer a foreign country?

AU: There are several reasons. Some of these include:

- Inadequate healthcare system in their home country
- They are looking for more affordable prices
- They seek specialists, experienced medical staff and state-of-the-art medical technology not available in their country
- They see that medical tourism patients are satisfied with treatment in the foreign country
- The foreign country serves as a reference country in medical specialties such as organ transplantation, bone marrow transplantation and neurosurgery, for example
- The foreign destination has JCI accredited hospitals

MEH: Do you think Turkey has gone the distance in the field of medical tourism?

AU: Turkey serves as a role model for the world with respect to medical tourism and its recognition is accelerating. The country offers high quality healthcare services combined with low prices, and this is a major attraction for international patients. Examination, diagnosis and treatment times are substantially shortened. The Turkish health tourism setup is qualified to serve as model worldwide. In addition, the number of international patients, who visit Turkey, has increased significantly.

MEH: From which countries do most of your international patients come?

AU: Looking at the number of international patients admitted, the leading regions are the Middle East, North Africa, Turkic republics, the Balkans and Europe.

MEH: Which specialties are most in demand from international patients?

AU: Medical Park Healthcare Group treats approximately 70,000 to 77,000 international patients per year. We accept patients in almost all specialties including, but not limited to, organ transplantation, bone marrow transplantation, oncology, neurosurgery and general surgery.

MEH: How many international patient admissions are there each year in Turkey?

AU: Approximately 270,000 international patients visit Turkey each year, according to data issued by the Ministry of Health.

MEH: What services does Medical Park offer international patients?

AU: Our team is dedicated to assisting the patients before, during, and after their stay in Turkey and ensuring that their experience with Medical Park is a positive one. Our role is to help them be as comfortable as possible during their stay. In Turkey, Medical Park attracts the highest number of international patients by offering a complete service for them, from their arrival in Turkey until they return home to their countries. Medical Park cares for every detail, such as their transportation, transfers, accommodation, guidance to treatment and medications, cost estimates, second opinion, assistance during in-patient stay and after discharge, appointments, 24/7 interpreter services. We provide a seamless service tailored to their personal and cultural expectations. MEH

ACIBADEM
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Turkey, the rising star of health tourism


Atakent Hospital


Bodrum Hospital


Maslak Hospital

A world brand in health care: ACIBADEM

Turkey, which has increased the number of tourists visiting thanks to its cultural and natural heritage, is also a center of attraction in health tourism. Especially with the investments made in the health sector, Turkey has become the shining star around the world. Today, Turkey is preferred by many countries when it comes to health care. Fully equipped hospitals in Turkey, offer a high standard of service by means of internationally experienced experts and advanced medical equipment. Being among the leading health care institutions in Turkey, Acıbadem steps forward as a world brand with its featured medical services.

Most valued private healthcare services provider in Turkey since 1991

Acıbadem provides comprehensive diagnostic and treatment services by employing the highest calibre health care professionals, state-of-the-art medical technology, robust infrastructure and JCI* accredited medical standards. Acıbadem operates 17 full-service general hospitals and 13 outpatient clinics.

A Reference Center for many complex treatments that require advanced technology and experience

The 7 Cancer (surgery, radiotherapy/radiosurgery, chemotherapy), 12 Heartcare (pediatric and adult), 9 Fertility (IVF), 5 Transplant (liver, kidney, bone-marrow), 4 Spine and Joints, 1 Sports Medicine, 8 Nuclear Medicine and 5 Robotic Surgery centers of Acıbadem are all nationally and internationally reknowned reference centers serving with their latest technology assets and highly regarded physicians.

World's second largest healthcare chain

Acıbadem is a part of a larger global network known as International Healthcare Holdings (IHH). IHH, is a joint investment of the Malaysian Khazanah, Japanese Mitsui and Turkish Aydinlar Family. It operates a wide network of hospitals and clinics in Malaysia, Singapore, India, China and Brunei, under the Parkway, Pantai and Apollo brands, and also runs IMU, the International Medical University of Malaysia. Since July 2012, IHH is jointly listed on the Kuala Lumpur and Singapore Stock Exchanges and is, globally, the second largest healthcare company by its market capitalisation.

An integrated healthcare services network offering services beyond hospitals

Acıbadem Project Management designs, constructs and equips turn-key hospital projects in Turkey and abroad. **Acıbadem Insurance** provides health and life insurance and TPA** services. **Acıbadem Mobile** provides healthcare services on the road, at home, in the office, at remote industrial sites as well as conventional emergency evacuation, ambulance and tele-medicine services. **A-Plus** provides facility management services such as catering, laundry and cleaning to hospitals of all sizes. **Acıbadem Labs** provides the largest spectrum of laboratory services including genetics, pathology, stem cell, and cord-blood banking. Finally, **Acıbadem University** is dedicated to enriching the Group's medical sector expertise through the training and education of future generations of health care professionals, with its medical faculty, nursing and administrative schools.

Services for Overseas Patients

The International Patient Services Center at Acıbadem Hospitals Group offers a comprehensive range of services for international patients and visitors. Acıbadem International Patient Services Center, designed as a "one-stop" service center, offers healthcare services from the day of your request until the time you return to your home country. It is the initial point of contact for acquiring medical information, orientation and registration.

The rapidly growing team of International Patient Services comprised of patient service specialists and physicians. This team of dedicated professionals organizes the "Healthcare Journey" of international patients according to their needs and expectations. We can help you with the following services before, during and after your stay:

- Scheduling medical appointments
- Assisting with international insurance companies
- Making hotel arrangements
- Arranging ground transportation from the airport
- Estimating the cost of services
- Assisting with hospital admissions and physicians
- Assisting with interpretation services in your native language
- Ensuring that you understand the instructions from physicians
- Obtaining and delivering the copies of medical reports after consultations
- Assisting with the discharge and payment procedures
- Facilitating communication with the physicians of Acıbadem Hospitals Group after your departure

Contact Acibadem:
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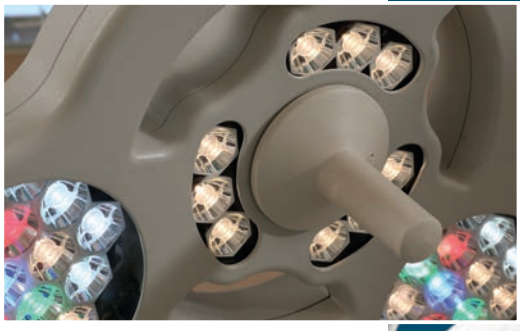
Phone: +90 216 544 4664



Head Specification	Values / Explanation
Illumination	160000 lux or 130000 lux
Adjustable Color Temperature	Yes
Color Temperature Range	3500 - 5000 K
Endoscopy Mode with Adjustable Intensity	Yes
CRI Ra	> 96
CRI R9	> 97
Illumination Depth (L1 + L2)	> 120 cm
LED Life	50000 hours

Interview

The story behind Turkey's leading manufacturer of LED operating lights

With its fast growth amid the competition, Etkin Medical Devices's LED operating lights continues to be the choice for hospital management teams and surgical staff who are looking for the balance between high quality and affordable price. Etkin Medical Devices, Turkey's only native manufacturer of LED-based operating lights, has been in business since 1996. It runs its operations from its headquarters in Izmir, Turkey. Hasan Kara, Founder and General Manager of the company, spoke to *Middle East Health* about Etkin Medical Devices' products and the organization.

MEH: Could you tell us about how Etkin Medical's ETC LED Operating Lights came into life?

Hasan Kara: Etkin Medical Devices (Etkin Tıbbi Cihazlar in Turkish language) was established in 1996 and since then we have been operating in technical service and sales and marketing of medical devices. Before taking the role of a manufacturing company, we were the first Turkish dealer to sell a LED-based operating theater light in Turkey. Relying on our years of experience of selling imported LED-based operating lights and trusting our knowledge of the operating lights market, we embraced the idea of a native LED-based operating light system that is manufactured in Turkey with the expertise of Turkish scientists and engineers.

In order to realize this idea in the real world, we went through a transition of restructuring our organization to be a manufacturing company. During the Research and Development stage, with the support of TUBITAK (The Scientific and Technological Research Council of Turkey) and with workmanship of a completely Turkish team of engineers, the finished product showed results and performance above world standards. We soon acquired a big market share in Turkey. Currently we are the only true manufacturer of LED-based operating lights in Turkey that competes with European brands.

MEH: Do you have other business fields besides manufacturing operating lights?

HK: Yes, in general we can group our operations in three areas. The first group is the operating light manufacturing and selling; the second group is the import and sales of equipment for radiology, anesthesia, surgery, intensive care, obstetrics and gynecology, pediatrics and sterilization in Turkey; the third group is the technical service, calibration of medical devices and laboratory services.

MEH: What is Etkin Medical's target market?

HK: Naturally the Turkish market is important to us. We would like to keep our dominance in the operating lights market and continue to be a technology developing company in Turkey. The international market is becoming more vital for our business. We believe that we will be successful with our product quality and our Turkish brand. We are working on the necessary steps and collaborations for this. Any country market that gives us a competitive advantage is our

At the award ceremony of Turkey's 100 Fastest Growing Companies...
From left to right: Barış Ünlü, Director of Corporate Development at Etkin Medical Devices; Rıfat Hisarcıklıoğlu, President of Turkish Union of Chambers and Commodity Exchanges; Hasan Kara, Owner and General Manager of Etkin Medical Devices.

target market. We will give priority to the Middle East market and to the neighboring regions surrounding Turkey.

MEH: What can you tell us about the competitors of ETC LED operating lights?

HK: Manufacturers of the top quality and best designed operating lights are our true competitors. As we know, most of these companies are from Europe, especially from Germany. Our high quality product and the low price of ETC operating lights provides us with a considerable competitive advantage over these elite companies of Europe.

MEH: You have achieved remarkable success in the Turkish market. What do you owe this success to?

HK: The ETC LED Operating Lights Project was completed in 2010 with goverment support we received from TUBITAK. During our R&D stages, we were able to develop the high quality product, which now helps us to rub shoulders with the best operating lights manufacturers in the world. After the two-year-long R&D process we were able to launch our highly competitive Turkish-made product into the market. The Turkish engineers and technicians are behind this success, and of course goverment support for local enterprise development helps as well.

MEH: What about reference points that were taken into account during the design and production of the ETC Operating Lights? What were they?

HK: Compliance with international requirements for the operating theaters, an innovative light head design that is ergonomic and that eliminates the effects of laminar flow were targeted. The most suitable LEDs that provide the best illumination, which can successfully fit in the light head were selected to provide the best combinations for the high performance. In addition, we did give plenty of consideration to simplicity and comfort for the surgical staff's benefit.

MEH: What are your plans for the next three years?

HK: We want better recognition in the international market and develop a strong export business in next three years. In addition, our R&D department is working on new and different projects other than operating lights. We want to deveop these projects into profitable businesses. We plan to offer operating room equipment and radiology equipment for the Turkish medical market and world markets. Our main objective is to provide high quality products and services to medical professionals and this encourages us to deliver better solutions to our customers as we grow each year.

Among the fastest 100 growing companies

MEH: What can you tell us about the growth of the Etkin Medical Devices?

HK: Our operating light manufacturing line and our R&D department are two main engines that triggered our fast growth through providing solutions for the demands and needs that come from the medical market. As you may know our company, Etkin Medical Devices, was selected as one of the fastest growing 100 companies in Turkey in 2013, with a growth rate of 109%. During an official ceremony we received our award from the Minister of Development of Republic of Turkey.

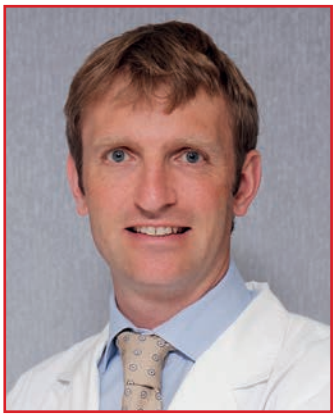
We have increasing demand from both state hospitals and private hospitals. In order to meet the increasing demand and to move to mass production to increase our manufacturing capacity we are looking forward to moving our facility into a larger space in the Ataturk Organized Industrial Zone in Izmir, which is one of the most well known industrial and technology production zones in Turkey. We plan to build a new facility with a $2 million investment. This new building will help us meet the manufacturing demand we are facing and be an environmently friendly, energy smart and waste management ready facility.

MEH: How are you able to develop the technical know-how that is required to support the success path you followed?

HK: We pay attention to the efficiency level of our personnel and we always have an adequate number of staff that are qualified and experienced in manufacturing, technical support, sales and customer service operations. We owe our success to our team of Biomedical Engineers, Medical Physicists, Chemical Engineers, Electrical Engineers, Mechanical Engineers, Quality Management Specialists, Biomedical Technicians and Electrical Technicians that work hard and support our company's growth as a family. In addition, we also operate a Biomedical Metrology Laboratory. Repair and maintenance of radiology equipment; and calibration, testing, inspection, quality assurance control, and system analysis of most medical devices are managed through our laboratory and its mobile staff. This is the only biomedical laboratory in Izmir and the surrounding region. These amenities allow Etkin Medical Devices to be one of the few trusted medical technology companies in Turkey that can provide its own technical and metrology application services.

- For more information, visit: *www.etkinmedical.com*
- For inquiries email Ibrahim Sulun: *sulun@etkintibbi.com.tr* MEH

Tackling the challenge of groin pain at Aspetar Sports Groin Pain Centre



By **Dr Adam Weir**, MBBS, PhD
Sports physician and deputy head of Aspetar Sports Groin Pain Centre

Aspetar Sports Groin Pain Centre is part of Aspetar Qatar Orthopaedic and Sports Medicine hospital in Doha, Qatar. The centre was founded after senior management recognised the groin as one of the most challenging areas in sports medicine. The centre is one of a number of specialist centres planned for the hospital and aims to improve clinical services and knowledge through clinical research.

Groin pain in athletes presents a major treatment challenge. To date there have only ever been two high quality studies on the non-operative treatment of groin pain and Aspetar has recruited the leads of both these studies to develop and run the Sports Groin Pain Centre.

Aspetar Sports Groin Pain Centre staff

The Sports Groin Pain Centre aims to become a world-class referral centre for the assessment, diagnosis and treatment of athletes with groin pain. The head is Dr Per Holmich (Denmark). His high quality study on the exercise-based treatment of groin injuries in athletes[1] was published in the prestigious medical journal, the *Lancet* in 1999. An active physical training programme cured 79% of the athletes who had had long-standing adductor muscle problems compared with only 14% in those treated with passive physiotherapy. This way of working in rehabilitation with active physical training as the cornerstone is one of the fundamental values of the centre.

Prevention of groin injuries

Dr Holmich has also performed extensive work with studies in the field of prevention of groin injury[2] showing that we do not yet have a proven effective prevention strategy for groin injuries. Currently Andrea Mosler (Australia) from the rehabilitation department is undertaking a series of studies into screening and risk factors in groin injuries in football players. For this project all the players in the Qatar Stars League have been screened pre-season with measures for pain, and hip strength and flexibility along with x-rays of the hip joint to examine the morphology. They are then followed throughout the season to see who develops groin injuries. This will give us a better understanding of the role of strength, morphology and flexibility as the cause of groin injuries. This data will be specific to the Middle Eastern sporting population and so help to improve care of athletes in the region.

This project has already led to the development of normal values for the strength and flexibility of football players in the region. This data will be presented for the first time this year at several conferences, including our yearly conference at Aspetar, which is discussed in more detail later. We plan to write a scientific article on the results thus sharing our new found knowledge for use throughout the region.

Dr Holmich and his team developed the first objective 'patient related outcome measure' (or PROM) for groin injuries[3]. This is important because without this it is impossible to compare different treatments being studied from around the world in an objective way. This questionnaire, which allows the patient to report their current symptoms and level of functioning, has already been translated into Arabic for use at Aspetar. This translation will soon be online to be used by all Arabic speakers as a resource throughout the Middle East via *www.koos.nu*

The deputy head of the SGPC is Adam Weir, who directed the second high quality trial on the treatment of chronic groin injuries[4]. After completing his PhD on this subject in 2011, Dr Weir was recruited to Aspetar to contribute as a physician authority and to guide research in this field. He will direct a new study to unravel the injury pattern of acute groin injuries in football and look at the role of clinical examination, ultrasound and MRI scans in predicting how long it takes for acute groin injuries to recover. Andreas Serner, a Danish physiotherapist, is performing this PhD. Until now there have been more than 100 athletes in-

cluded in the study. This knowledge will then be used to set up a trial to optimise the rehabilitation process.

Acute groin injuries

The project has shown that in kicking athletes kicking is the most common injury mechanism and that most injuries happen in the kicking leg. The adductor muscles in the groin are the most commonly injured structures. By using the imaging we have shown that when clinicians diagnose an adductor muscle injury this will often be confirmed on further imaging. When the muscles over the front of the hip like iliopsoas and rectus femoris are injured it is harder to make an accurate clinical diagnosis in the beginning. As the project develops and we gather more information we hope to be able to assist clinicians in providing an accurate prognosis at an early stage after the injury.

Multi-disciplinary clinic for athletes with groin pain

For athletes with groin pain we have a weekly multi-disciplinary clinic. They are seen by a sports medicine physician, general surgeon and sports physiotherapist, with special interest in groin injuries. In this way decisions as to whether the treatment should be conservative or operative are taken by all involved with the athlete present. We regularly see athletes from all over the Middle East at the clinic. The clinic will start new studies later in the year on the conservative management of inguinal-related groin pain (Sport's hernia). We have the clinical experience that this type of injury to the abdominal muscles and groin canal can often be successfully treated using a strengthening program aimed at improving the load bearing capacity of these structures. We aim to prove this with scientific research.

Aspetar Sports Medicine Journal – Groin Pain Edition

Making sure that research results are shared to assist clinicians is a top priority of the centre. The *Aspetar Sports Medicine Journal* recently dedicated its special targeted topic to the subject of groin pain. This edition was guest edited by Per Holmich and Adam Weir. The issue and its contents are available free online via the website – *www.aspetar.com/journal* – and those who are interested can take out a free subscription via the site. The front cover shows the ex-England striker Michel Owen who shares his thoughts on his glittering career and his own groin injuries with the readers. There are plans to provide an Arabic version in the future thus increasing the availability throughout the Middle East. Aspetar has an active Twitter account through which regular updates on activities of the centre and other interesting information is shared. If you are on Twitter make sure you follow @AspetarQatar.

Groin Pain talks on YouTube

The contents of the journal edition are based around lectures given at the third Aspetar Sports Groin Pain centre annual conference, which was held in 2013. The subject of the conference was "Getting into the groin" and it was themed around the topic of additional investigations in groin pain. Imaging modalities, clinical testing, patient related outcome scores, the role of the hip joint were all topics discussed. Most of the talks given at this conference and previous ones are available online via the Aspetar YouTube site: *www.aspetar.com/YouTube* - click on playlist for the various conferences.

1st World Conference on Groin Pain in Athletes

This year Aspetar will host the 1st World Conference on Groin Pain in athletes on 1–3 November in the Aspire dome in Doha. For more information please visit the site as it promises to be a great event with more than 30 keynote lectures over 3 days. *www.aspetar.com/WCGP2014*

The Aspetar Sports Groin Pain Centre brings together several of the world's leading researchers in the field, in the unique environment of Aspetar, to provide both high quality treatment and innovative clinically-relevant research. MEH

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Osteotomy: A new approach using learnings from the past

By Adrian Wilson
Consultant and Specialist Orthopaedic Knee Surgeon at 9 Harley Street, London

In orthopaedic surgery we have three operations, which we can do. The first is to replace joints – Arthroplasty. The second is to fuse joints – Arthrodesis surgery. The third type of operation we can do is Osteotomy surgery, which means realignment of joints. This procedure has been around since the time of Hippocrates when patients were "straightened up" using straps and pulleys on what really looked like torture chamber tables. We moved on with more sophisticated methods of carrying out this surgery. In the late nineteenth century surgeons were carrying out osteotomy surgery on a relatively regular basis.

In the 1950's and 1960's it became a very popular procedure before the introduction of joint replacement. At this time the selection of patients was based on anyone who had bad arthritis regardless of their age or activity levels and the surgical techniques were relatively primitive. The fixation devices were either simple plaster of Paris or large staples which held the bone together, but the risk of the bone moving was high. Because of long periods of immobilisation and rehabilitation, patients were very stiff afterwards and it got a very bad reputation.

In the 1990's there was a resurgence and renaissance of this procedure led by the Italians who came up with a new way of carrying out the procedure, which involved making a precise saw cut in the upper shin bone and opening this to create a wedge which moved the alignment of the knee. We have progressed more and more over the past 20 years and now we have a very sophisticated way in which we select patients, assess them for their alignment and carry out the surgery. The fixation devices that we have are extremely strong and allow immediate weight bearing so there is no need for prolonged periods of immobilisation with either plaster of Paris or braces.

Broadly speaking we carry out two main forms of osteotomy or realignment surgery. The most common is High Tibial Osteotomy or HTO surgery. This procedure is done in the upper shin and this is for patients who are bow legged and have pain on the inside of their knees, the inner aspect or medial side. More often than not these patients present with a long history of pain and discomfort and have previously had arthroscopic or keyhole procedures to tidy up their knee and deal with damaged cartilage. If they have a bow-legged posture, then the forces going through that damaged area on the inner aspect of the knee are much higher than if the limb was straight or very, very slightly knock kneed. What we do with the surgery is plan out to within a millimetre what size of wedge we want to create. We do this with specialised long leg x-rays which we put through a software programme which allows us to plan where to start and where to stop the osteotomy cut. It also allows us to plan out on the computer how we want to realign the limb.

The surgery takes approximately 45 minutes and has become really a very routine procedure. Through a 4-5 cm incision over the upper part of the shin, a very careful dissection is made down to the bone and the starting point identified. We have specialised instruments that allow us to cut the bone in a very precise way and this is done under x-ray control. Once we are happy we have made the appropriate cut, we gently open the bone and create a wedge which shifts the alignment of the knee to a straighter or very slightly knock kneed position. When I say knock kneed, you can only really tell this by looking at the x-ray as the limb looks to the naked eye to be straight.

Once we are happy that we are in the correct position, we fix the osteotomy with a metal plate, which acts as a scaffold. Once the osteotomy has healed the plate is redundant and can be removed. As mentioned above, the plates are very strong and allow immediate weight bearing which is something we encourage.

Patients stay in hospital for one to two nights on average and are discharged with crutches. Physiotherapy is required to help strengthen and get the knee moving and we frequently make use of electrical muscle stimulators to help maintain the muscle bulk in the early post-operative period.

The surgery is carried out in a very minimally invasive way. At the end of the procedure we infiltrate local anaesthetic around the operative field. This means that when an osteotomy patient wakes up in the anaesthetic room they have very little discomfort. Some patients report absolutely no pain. The day following surgery the local anaesthetic tends to wear off and there is some discomfort, which of course we manage with appropriate painkillers.

We advise that patients keep their leg elevated for two weeks and do minimal walking to minimise swelling. During this time it is possible to fully weight bear. After that two-week period patients begin to wean off their crutches and become more active. By six weeks most patients return to a desk job and between nine and twelve weeks to physical work.

Although it is uncommon, a number of elite athletes have been able to return to sport after the surgery.

The other type of osteotomy that we carry out (Distal Femoral Osteotomy Surgery) is for patients who are knock kneed and have problems on the outer aspect of their knee, or what we call the lateral compartment. In these patients again there is joint surface damage or arthritis and wear and tear to the shock absorber or lateral meniscus. The inner compartment is in good shape, as is the patellofemoral joint, or the area between the kneecap and the end of

Adrian Wilson, Consultant and Specialist Orthopaedic Knee Surgeon performs osteotomy surgery on a patient

the thighbone. Here, rather than making the osteotomy in the upper shin, the osteotomy is carried out in the lower thigh.

Again very sophisticated surgical techniques have been developed to allow to remove a very thin slice of bone by making two saw cuts and closing the gap and this again changes the alignment of the limb from being slightly knock kneed (what we call Valgus) to being very slightly bow legged. The procedure takes approximately forty-five minutes and patients only have to spend one night in hospital. We do take patients slightly more slowly with this procedure and keep them partially weight bearing for the first four weeks.

These procedures are often done in isolation but are also frequently done when we carry out other sophisticated keyhole procedures, such as meniscal transplantation, meniscal repair, meniscal replacement or cartilage transplantation surgery. We know that the key to any successful procedure on the joint is to get the alignment right first and it is therefore becoming more and more common that we carry out osteotomy surgery to allow our other procedures to heal up and function well.

The final place in which osteotomy plays a very large role is in a severely injured knee where there has been major ligament damage. Here we can change the alignment of the limb to tighten up either the central cruciate ligaments that control rotation or the ligaments to the inside or outside of the joint, the so-called collateral ligaments. Here osteotomy plays a key role and if we are carrying out a complex reconstruction, say of the lateral aspect or outer aspect of the knee, it is essential to do an osteotomy first to protect that reconstruction.

● For further information on osteotomy surgery, please contact Adrian Wilson at 9 Harley Street *www.9harleystreet.com* or *www.hampshireknee.co.uk* MEH

Bio-enhanced ACL repair: a game changer?

By Lisa Fratt

The anterior cruciate ligament (ACL) is a powerhouse and the perplexing nexus of a sports injury epidemic.

Providing primary stability across the knee joint, the ACL is remarkably susceptible to rupture or tear, with more than 400,000 surgical reconstructions performed annually in the U.S.

In the 2013 US National Football training camps, more than a dozen players were sidelined with ACL injuries. This spate of ACL tears is sure to ripple through high school and college football and soccer fields this fall.

A complete ACL tear is a devastating injury for athletes, typically ending the player's season and requiring surgical reconstruction. Although many athletes return to the field after reconstruction and physical therapy, studies suggest as many as 80% will develop arthritis within 14 years of the injury.

Moreover, children and adolescents are not considered good candidates for ACL reconstruction. The conventional procedure requires surgeons to drill tunnels through the growth plates – the developing cartilage near the end of long bones – but this can disrupt bone growth.

Boston Children's Hospital orthopaedic surgeon Martha M. Murray, MD, wants to change the game plan for ACL injuries. Her research focuses on 'bio-enhanced ACL repair' – *http://tinyurl.com/lpw6c9y* – that uses a bio-engineered scaffold saturated with the patient's own blood to stimulate healing and to promote clotting, which is essential for ligament repair.

Regrowing torn ligaments

The technique, which has been applied in animal models, is straightforward: During a minimally invasive procedure, the surgeon inserts the bio-engineered scaffold between the two torn ligament ends, threading sutures through a tunnel drilled in the femur, then through the scaffold and finally through a tunnel in the tibia. The torn ends of the ACL grow into the scaffold and the ligament reforms.

In other words, the ligament is repaired, not just replaced or reconstructed. Current surgical techniques, including advanced techniques performed at Boston Children's Hospital, are limited to ACL reconstruction, which requires a tendon graft. That's because the ACL is fairly unique among ligaments: It lacks the ability to heal itself.

What's truly exciting, says Murray, is that bio-enhanced repair may minimize patients' risk of arthritis, if results in a pig model hold true in humans.

The results of Murray's study involving pigs were published in the August 2013 edition of *The American Journal of Sports Medicine* (doi: 10.1177/0363546513483446) – *http://tinyurl.com/ofbdf2q*. – She and Braden C. Fleming, MD, compared four approaches: no treatment, standard ACL reconstruction, bio-enhanced ACL repair using the bioactive scaffold and bio-enhanced ACL reconstruction (combining the bioactive scaffold and a tendon graft).

As expected, the no-treatment group had miserable outcomes. The other groups fared better than no treatment and had similar outcomes for the mechanical performance of the ACL or graft in terms of stiffness, maximum load and anterior-posterior stiffness.

The bio-enhanced repair group, however, demonstrated one key difference: These animals lacked the typical pattern of cartilage loss associated with osteoarthritis.

"We never dreamed of seeing results this promising," Murray says. "The bioscaffold was equal to the current standard – ACL reconstruction – in terms of mechanics and better in terms of long-term outcomes."

The second half

Murray's game plan has now turned to humans. As a first step in a series of regulatory hurdles, the researchers have established a Good Laboratory Practices (GLP)-compliant facility in the orthopaedic research lab to construct a scaffold suitable for human use.

The first batch of bio-engineered scaffolds has been submitted for sterility testing, and all reports indicate it will pass and proceed to the next stage – biocompatibility testing. A biocompatibility pass, followed by data submission and a green light from the FDA, will allow the team to begin testing the scaffold in humans.

Like many of the athletes she treats, Murray is wholeheartedly bent on success. "If the FDA says the scaffold is ready for human use, we'll start clinical trials. If not, we'll keep working on it until we get there."

The end game

Currently, physicians recommend that children and adolescents wait until their growth plates have closed (as late as age 17 for boys) to undergo ACL surgery.

But the consequences of postponing ACL reconstruction can be devastating, as even everyday activities pose a risk for cartilage injuries and meniscus tears. Plus, requiring a young athlete to avoid sports can have negative psychosocial consequences.

Lyle Micheli, MD, and Mininder S. Kocher, MD, MPH, at Boston Children's Hospital pioneered the development of a specialized ACL surgery which can safely be performed on patients with open growth plates, but not all orthopaedic surgeons are comfortable with the techniques. "In many regions of the country, kids with open growth plates are told they have no surgical options," Murray notes.

In contrast, because the bioscaffold repair technique resembles a straightforward fracture repair, orthopaedic surgeons without an arsenal of sub-specialized skills would be able to complete the procedure. Youth with ACL tears would have a new, less invasive choice, and their arthritis risk might be lower. So if the model succeeds in humans, the Murray team will have hurled a game-changing pass.

● For more information on Boston Children's Sports Medicine ACL program visit *bostonchildrens.org/ACL* or call our international services at +1-617-355-5209. In addition, several members of Boston Children's Hospital's expert orthopaedic team will attend the Pediatric Orthopedic Surgery Conference (*www.posc-me.com*) in Dubai in October. Contact Muna Al-Saffar to schedule a meeting: *Muna.Al-Saffar@childrens.harvard.edu*. MEH

Survey shows orthopaedic surgeons need to screen more patents for anxiety and depression

In a report published in the April edition of the *Journal of Spinal Disorders and Techniques*, a Johns Hopkins team says that only 10% of orthopaedic surgeons and neurosurgeons follow professional guidelines recommending routine psychological screenings of patients prior to major surgery for severe back and leg pain.

The oversight, researchers say, may pose a serious risk to patients' surgical recovery. Previous reports have tied bouts of depression to longer recuperations, delayed returns to work, more postsurgical complications and failures to comply with medication schedules after patients leave the hospital.

More than 600,000 major spine surgeries are performed each year across the United States, where specialized surgeons straighten and strengthen damaged or narrowed spines with bone grafts and metal plates. Such problems in the lumbar, or lower, portion of the spine can often leave people unable to perform routine tasks, including lifting groceries, walking long distances and climbing stairs.

The Johns Hopkins report, based on a survey of spine surgeons, is believed to be the first gauge of how many actually use a two-part, presurgical psychological screening test, known as PPS. The U.S. Preventive Services Task Force, a national group of experts in best clinical practices, recommends such screenings, which involve a 20- to 25-minute questionnaire, and a follow-up, as needed, with a longer assessment by a trained psychologist.

"Our survey results show that surgeons and patients still have a long way to go in recognizing and appreciating how much psychological factors and mental health can impact the success of their back surgeries," says health services researcher and senior study investigator Richard Skolasky, Sc.D. "It may be necessary to delay surgery in order to first treat a patient's depression or anxiety to minimize the likelihood of prolonged recuperation after their operation.

"This study should serve as an important reminder to all clinicians to adopt presurgical psychological screening guidelines, and to establish protocols to ensure they are followed," he adds.

Skolasky, who directs the Johns Hopkins Spine Outcomes Research Center and is an associate professor in orthopaedic surgery at the Johns Hopkins University School of Medicine, says: "Ideally, patients should also be asking their surgeons for such assessments prior to surgery as part of their own personal presurgical checklist."

Ideally, patients should also be asking their surgeons for such assessments prior to surgery as part of their own personal presurgical checklist.

For the survey, conducted from December 2010 to January 2011, Skolasky's team e-mailed a 20-minute questionnaire to 340 licensed spine surgeons across the United States. Some 110, mostly men, responded. Almost half had more than 15 years of experience, and just over half were based at university hospitals.

Among other key findings was that highly experienced spine surgeons were more likely to use the assessment tools than those with less than 15 years of experience in the field. Orthopaedic and neurosurgeons with a higher volume of patients, more than 200 a year, also favoured the screening compared to colleagues who performed fewer procedures.

Researchers say they were surprised to discover that spine surgeons in private practice or in community hospitals carried out more psychological screening tests than their counterparts in larger, university-affiliated hospitals.

Skolasky says that this is counterintuitive – academic medical centres have ready access to psychologists and other testing resources that community hospitals usually lack. He says some surgeons may view psychological screening as an unnecessary surgical delay, during which time a patient's condition can deteriorate quickly, or surgeons simply may not be well-enough aware of the important role played by mental health in postsurgical recovery.

Ultimately, Skolasky says, it all comes down to training, understanding why surgeons don't use the recommended screening tests and how testing needs to be highlighted during surgical education so it is better adopted into practice.

He says a better job needs to be done explaining the benefits of presurgical psychological screening to both surgeons and patients. Skolasky and his research team are planning further research to better assess how screening and treatment for anxiety and depression before any back surgery speed up or prolong a patient's recovery. MEH

Bold new alliance among Houston's leading healthcare providers to transform healthcare delivery in Texas and the United States

Three of the Houston's leading medical institutions – Baylor College of Medicine, CHI St. Luke's Health and Texas Heart® Institute (THI) – have significantly expanded and enhanced their long-standing educational, clinical and research affiliations in conjunction with Englewood, Colorado-based Catholic Health Initiatives (CHI), which CHI St. Luke's Health is now a member.

St. Luke's Episcopal Health System, now the newly named CHI St. Luke's Health, which includes six hospitals, outpatient clinics and emergency centers throughout Greater Houston, joined Catholic Health Initiatives in 2013.

Catholic Health Initiatives, formed in 1996, operates in 18 states and includes 89 hospitals; including four academic medical centers; 23 critical-access facilities; community health services organizations; accredited nursing colleges; home-health agencies; and other facilities that span the inpatient and outpatient continuum of care. Throughout the United States, CHI serves more than four million people each year through acute care hospital; long-term care, assisted- and residential-living facilities, community-based health services; home care research and development and reference laboratory services.

"These agreements will bring to bear new capabilities and resources in an alliance that doesn't exist anywhere else in the region," said Kevin E. Lofton, FACHE, President and Chief Executive Officer, Catholic Health Initiatives. "This is a clinical, educational and research-focused enterprise that we think will be capable of creating miracles."

CHI St. Luke's Health and Baylor signed a joint-venture agreement to open a new, acute care, open-staff hospital on Baylor's McNair Campus in the Texas Medical Center, which is currently home to two outpatient facilities owned by the college – the Baylor College of Medicine Medical Center, and the Lee and Joe Jamail Specialty Care Center. Baylor and CHI St. Luke's Health will jointly operate the new hospital. Wayne Keathley, former President of the Baylor College of Medicine Medical Center and Health Network, now serves as president of CHI St. Luke's Health Baylor St. Luke's Medical Center.

The joint-venture acute care hospital, which is part of CHI St. Luke's Health, named CHI St. Luke's Health Baylor St. Luke's Medical Center will eventually replace the existing, 850-bed St. Luke's Medical Center in the Texas Medical Center. The first phase of the project – a 250-bed inpatient facility – is expected to open by spring 2015. The second phase, adding up to 400 additional acute care beds, is expected to be completed in 2018.

"This is a relationship unique in academic medicine. We will be in this together, with joint governance, sharing the rewards and the risks," said Paul Klotman, MD, Baylor President and CEO, Baylor College of Medicine. "It is a novel approach to create an alignment that brings in the most cost-effective, high quality care."

CHI also has established a new, strengthened affiliation with Texas Heart Institute that calls for a significant, 10-year investment in the renowned institution to expand education and research into cardiovascular diseases. James T. Willerson, MD, Texas Heart Institute President, which was created by THI Founder and President Emeritus Denton A. Cooley, MD, said: "Our mission is to prevent cardiovascular disease, and these affiliations will help the kind of life-changing advancements THI has pioneered for more than 50 years come even more rapidly."

The affiliation agreement with THI represents a dramatic expansion of CHI St. Luke's historic research affiliation with THI, which has been ranked for 23 consecutive years by U.S. News & World Report as one of the nation's top 10 for cardiology and heart surgery, and is one of the world's most renowned centers for education and research of cardiovascular diseases.

CHI will work in concert with THI in its mission of reducing the devastating toll of cardiovascular disease. In addition to working closely with CHI's Institute for Research and Innovation to help further that broad mission, CHI St. Luke's Health, Baylor, and THI will work to develop a state-of-the-art cardiovascular program that will be capable of transforming cardiovascular medicine through leadership in areas such as regenerative medicine and the development of next-generation medical devices.

"This is a wonderful fit, a perfect collaboration for all of our organizations," said Lofton. "We share a common vision of clinical and operational excellence and innovation and a firm commitment to lead the way in an entirely new healthcare environment that focuses on value-driven, high-quality care."

● For more information contact St Luke's International Patient Center, at *stlukesinternational@stlukeshealth.org* or call +1- 832-355-3350 or visit *StLukesInternational.com* Texas Medical Center, Houston, Texas, USA MEH

IMAGINE

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CHI St. Luke's Health is now part of Catholic Health Initiatives, one of the largest and most influential health systems in the United States.

Our shared vision is to find new and better ways to keep you healthy. That's why we are building on our affiliation with Texas Heart® Institute, one of the world's leading cardiovascular research institutes, and have forged a new alliance with Baylor College of Medicine®, one of the top medical schools in the United States.

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For more information about our International services, visit www.StLukesInternational.com.

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Texas Medical Center | Houston, TX

Should you fast while on medication?

By **Leslie Morgan**, OBE
CEO, Durbin PLC
Leslie Morgan is a Fellow of the Royal Pharmaceutical Society of Great Britain

As I write, many Muslims around the world are fasting during the holy month of Ramadan. Patients that are taking medicines or indeed even those who are pregnant are exempt from fasting. However, doctors around the world are increasingly voicing their concerns over the numbers of people who fast while on medication.

The degree to which patients are prepared to delay treatment or cancel medical appointments during Ramadan does of course vary from person to person. In the UK doctors have warned that we have some patients who are putting their lives at risk by delaying or stopping vital medication, including cancer treatments, in order to focus on their religious obligations.

Many campaigns by community groups and organisations have been aimed at educating those with chronic health problems such as diabetes, heart disease and high blood pressure – all of which are highly prevalent in the Middle East – about the risks associated with fasting. Other awareness programmes have focused on pregnant women, advising against fasting because of the risk of hypoglycaemia, ketosis and dehydration. Whatever the campaign, the fundamental message is always the same: patients should always speak to a physician about how to stay safe and healthy as possible during Ramadan.

We must remember that fasting is a personal decision, and if somebody with a medical condition wishes to fast, doctors are unable to stop them. I have written about the high rate of diabetes in the Middle East before, and a large number of campaigns in the region have focused on providing those with the disease all the information and medical advice necessary to ensure they do not suffer from complications as a result of fasting.

Diabetics who face a high risk of complications if they fast include pregnant women, patients who need insulin injections and those whose blood sugar levels severely fluctuate. Fasting diabetics are advised to see their doctor a month before Ramadan to arrange a plan of how it can be achieved without harm. A drop or rise in sugar level can cause symptoms such as shivering, cold sweats, heart palpitations and slurred speech.

Medical experts have advised that diabetics should not overeat when they break their fast as this can cause blood sugar levels to rise dangerously. Eating a few smaller meals as opposed to one large one after sunset is a much safer option. They are also advised to wake up before dawn to eat their second meal so that the period of fasting is shortened as much as possible, thereby reducing the risk of hypoglycaemia and dehydration. Finally, diabetics should test their blood sugar levels in the middle of the day and before they break their fast. This is particularly important in the first few days of Ramadan. Exercise is also encouraged, especially after the fast has been broken.

It is a common misconception that exercise should be reduced during the holy month, when in reality it is still important to keep healthy, maintain energy levels and keep active. Furthermore, many people gain weight during Ramadan as large amounts of food are consumed late at night followed by sleep, causing the body to slow down. With obesity a growing concern in the region this is another factor that individuals should consider when planning their meals after breaking the fast.

Most Muslims believe that fasting is one of the basic tenets of Islam and that they have to fast whether they have a medical condition or not. A little bit of care and attention to diet, as well as discussing your medication programme with your doctor a month before Ramadan begins, is all it will take to ensure that you have a safe and healthy month. MEH

Durbin PLC is a British company based in South Harrow, London. Established in 1963, the company specialises in supplying quality assured pharmaceuticals, medical equipment and consumable supplies to healthcare professionals and aid agencies in over 180 countries. As well as reacting rapidly to emergency situations, Durbin PLC responds to healthcare supply needs from local project level to national scale programmes.
Web address: *www.durbin.co.uk*
Email: *L.morgan@durbin.co.uk*

NT-proBNP: An aid to diagnosing heart failure

Nearly 25 million people suffer globally from heart failure[1], and out of every five patients, one will die within a year of being diagnosed[2]. The risk for ventricular dysfunction, or heart failure, increases with age and its diagnosis carries a high morbidity rate and high mortality rate that exceeds many cancers. Chronic conditions of heart failure is among the greatest economic burdens to healthcare systems, but novel diagnostic solutions can provide healthcare professionals with the methods needed to improve a patient's outcome and life expectancy with early detection.

Reliability is essential to diagnosis

The symptoms for heart failure are not distinct and can be linked to a number of other morbidities and physical conditions, limiting the accuracy in diagnosis, according to the European Society of Cardiology (ESC) Heart Failure Guidelines 2012[3]. Early diagnosis of cardiovascular cases is key to a patient's survival; thus fast intervention is an invaluable part of the healthcare cycle.

Measured by immunology methods, normal levels of BNP or NT-proBNP can rule out acute heart failure in the emergency setting. While elevated levels BNP or NT-proBNP cannot indicate heart failure alone, both can be used to screen and predict cardiac cases. In a risk prediction study, the Cardiovascular Health Study showed that elevated levels of NT-proBNP correlated to an increased risk of heart failure and confirmed that the biomarker could divide patients into lower and higher-risk groups[5]. In the primary care setting, NT-proBNP is an ideal biomarker for heart failure setting due to its ability to detect subtle preclinical cardiac changes. Approved by the FDA[4], NT-proBNP can aid in the diagnosis of heart failure, assessing its severity, and detecting mild forms of cardiac dysfunction. The strong prognostic value of NT-proBNP with its sample stability at room temperature, delivers greater reliability in both outpatient settings and primary care settings. Healthcare professionals can use reliable measurements of the NT-proBNP, from assays such as Roche's NT-proBNP laboratory or point of care assays, for patients who display signs of heart failure, to stratify and identify those at high risk of cardiovascular hospitalization and death.

International guideline recommendations

The importance of NT-proBNP in aiding the diagnosis, risk stratification and treatment monitoring is evident in heart failure patients due to its improved sample stability, longer circulating half-life[6], and lower biological variability[7]. A number of international guidelines recommend the measurement of NPs for the diagnosis and management of heart failure. The ESC states that a normal NP level in untreated patients practically excludes significant cardiac disease and that the measurement of NPs should be considered for more prognosis details. Both the American College of Cardiology/American Heart Association and the Heart Failure Society of America, recommends testing NP levels in patients with dyspnea as well, especially if symptoms are related to heart failure[8]. At the same time, the National Institute for Health Clinical Excellence recommends NP measurements before an echocardiogram is done for a patient with suspected heart failure, who has not suffered any prior myocardial infarction.

Alongside other diagnostic tools available to evaluate high-risk patients for heart failure, NT-proBNP is a vital, useful and recommended additional test that can provide general practitioners, specialists or lab physicians with the reliability and precision needed to determine which patients can benefit from aggressive treatment. The NT-proBNP level is an independent and long-term predictor of new-onset heart failure and cardiovascular death that can improve clinical decision making with its strong negative predictive value and accurate results. MEH

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Advanced medical manufacturing ability on show at Medicare Taiwan

Middle East Health was invited to the 5th edition of Medicare Taiwan in Taipei in June. We have attended this event twice previously and it is interesting to see the how the show has grown in stature over the years, a sure sign of the increasingly important role that the Taiwanese medical device and technology manufacturing industry is playing in the global medical equipment market.

The 5th edition of Medicare Taiwan (Taiwan Int'l Medical & Healthcare Exhibition), organized by the Ministry of Economic Affairs; Bureau of Foreign Trade and implemented by the Taiwan External Trade Development Council (TAITRA), was held at Taipei World Trade Center from 19-22 June. Medicare Taiwan was held in conjunction with SenCare (Taiwan International Senior Lifestyle and Health Care Show), TaiHerbs (Taiwan International Herbs & Functional Foods Expo), and P&B Taiwan (Taiwan International Parent & Baby Industry Show).

This year the event saw record-breaking numbers of 541 exhibitors occupying 963 booths. It attracted some 69,800 visitors and is estimated to have generated more than US$100 million in business opportunities. TAITRA invited 13 major buyers from Germany, Japan, India, Turkey, Romania, Nicaragua, Spain, Indonesia and Bulgaria, and arranged 103 one-on-one procurement meetings.

In the opening ceremony, Dr. Ming-Neng Shiu, Vice Minister, the Ministry of Health and Welfare, Chen-Fu Wang, Chief of Secretary, Bureau of Foreign Trade, and Peter W.J. Huang, President & CEO of the Taiwan External Trade Development Council (TAITRA), all noted that by making good use of the comparative advantage Taiwan enjoys in integrating medical devices with medical services, Taiwan not only offers its people better care, but is also making inroads into the growing global medical market.

Dr. Ming-Neng Shiu said: "Taiwan Medicare serves as an important platform for traders and buyers."

He noted that the global medical instruments industry is forecast to grow to US$300 billion over the next three years.

"The Taiwanese manufacturing industry has grasped this and expecting to increase exports in this industry.

"We face some challenges such as restrictions in some countries countries. The government is developing the relevant certification processes to help manufacturers complete these processes."

Middle East Health spoke to several exhibitors at Taiwan Medicare. Following is a summary of what some of these key manufacturers have to offer. MEH

Aelite

At the exhibition, Taiwanese company Aelite launched their innovative Aelite Walker line of underarm crutches in four colours (blue, red, gold, and gray) and 2 sizes (regular, large). The Walker is the first and only crutch designed around the most personal issue regular crutch users' encounter: the stigma of using crutches.

Irving Chen, director of global sales, Aelite, explained: "These crutches are designed for long-term use. They are lightweight and strong – made from anodised aluminium – and are retractable to make them compact.

"They are aesthetically designed so that the curvature of the crutch aligns with the body so it does not appear like a crutch, but rather an acceptable accessory."

These novel and beautiful crutches are designed so they can easily be retracted and hung up when not in use. Once the desired height of the crutch is chosen they can be easily extended and will lock in that same height setting each time it is used.

The Walker features one button that allows the Walker to stow away comfortably in a car or underneath an airplane seat. The underside of each arm rest features a slip-resistant pattern and integrated magnets, so that in stowed form, the Walker can hang accessibly from a coffee or dining table.

It has a unique flexible rubber foot which bends from the angle of the crutch to the floor to ensure a firm grip on the ground.

The Aelite Walker weighs less than a kilogram.

It is also suited to children.

It retails for around NT$6800 (US$225).

on the WEB Aelite

www.aelite.com.tw

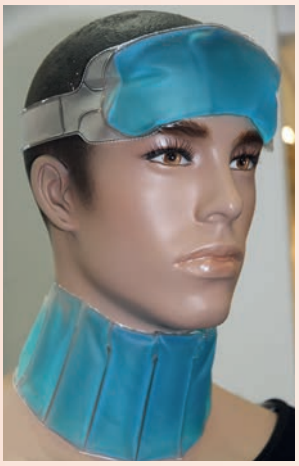
Taiwan Stanch

The vivacious Grace Wang is the President of the super successful 30-year-old family business Taiwan Stanch. They specialise in thermo-gels and plastics (to hold the gels) with a variety of applications including medical therapeutics such as cooling packs for strained muscles in sports medicine and in logistics, for example, the storage of temperature sensitive pharmaceuticals.

"All our gels are medical grade and nontoxic," Wang explained. The proprietary gels are unique in that they can hold their temperature for a long time – in excess of half an hour.

The product is wholly manufactured in Taiwan and exported worldwide including the UAE and Saudi Arabia.

The products are mostly for home use, but the company also has a market in rehabilitation and sports medicine facilities.



Grace Wang, President of Taiwan Stanch holds up one of the company's thermo gel packs.

The gel products are designed to cover all parts of the body and provide either cooling or heating, whatever the need may be.

"We also have products designed for paediatric patients," Wang confirmed, "Such as our cooling patch that can be applied to the forehead during fever and high body temperature."

on the WEB Taiwan Stanch
www.taiwanstanch.com

Karma

Karma specialise in the design and manufacture of wheelchairs. The company has a good range of wheelchairs to suits all budgets and a wide variety of applications from super light, highly mobile sports wheelchairs to technologically sophisticated motorised wheelchairs, as well as ones that can elevate the occupant into a supported standing positon.

Karma's Susan Huang shows off Karma's motorised Ergo Stand wheelchair

All their wheelchairs take into account: lifestyle; body measurement; ergonomics; and budget requirements.

Their Ergo Lite wheelchair is one of their best sellers. It won the 2014 Taiwan Excellence Award. It has an ergonomic design, is lightweight and is foldable into a very small package for portability. It will easily fit in the trunk of a car. Its seat is specially designed to relieve pressure on the buttocks from prolonged sitting.

The Ergo Stand is one of their newer products. It is fully motorised and has electric stand-up and power control. The controller can simply be pushed to the side to enable the user to get close to a desk, for example. It has a very tight turning radius of 67cm, making it good for manoeuvrability in a work environment.

on the WEB Karma wheelchairs
www.KarmaMedical.com

Apex

Taiwanese company Apex specialises in manufacturing therapeutic support mattresses designed to provide pressure relief to patients and home users.

Jason Chen, the General Manager, explained that the company launched two new series of the mattresses in 2013 – the Domus series for home care and the Pro-Care series for medical facilities.

Jason Chen shows off one of Apex's pressure redistribution mattresses.

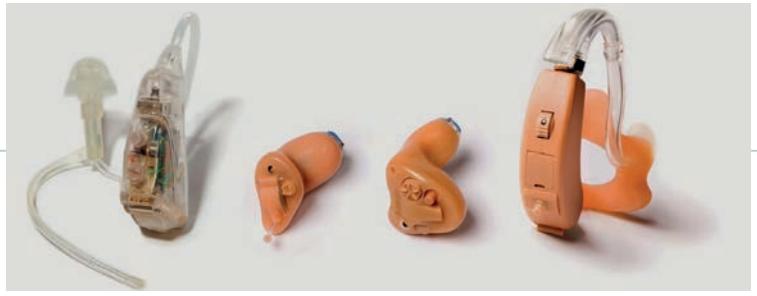
The mattresses are embedded with separate elongated air cushions which can be individually adjusted to relieve pressure and thus the mattress can be easily customised to suit pressure relief specific to each user.

It has a fabric cover with silver ions embedded to ensure it is anti-bacterial.

The electronic air pump that comes with the mattress is extremely quiet to ensure no disturbance for the patient.

The Domus series has sophisticated technology embedded in the product. Each Domus series is verified by Dynamic Pressure Mapping to trace real-time internal pressure between the mattress and the body to ensure the effectiveness of pressure redistribution to offload the pressure occurring in the deep tissue.

on the WEB Apex
www.apexmedicalcorp.com



Discover how to control stuttering and start speaking smoothly with SpeechEasy!

SpeechEasy is a fluency-enhancing device that fits in or behind the ear inconspicuously and can help people who stutter to speak fluently. SpeechEasy devices emulate a natural phenomenon known as the "choral effect" which occurs when a person's stutter is dramatically reduced or even eliminated while speaking or singing in unison with others. This effect has been well documented for decades and now has been successfully re-created in small, virtually undetectable devices that can be worn every day.

The Technology is the difference

SpeechEasy combines Delayed Auditory Feedback (DAF) and Frequency Altered Feedback (FAF), which create a slight delay and change in pitch to digitally produce the choral effect. The devices are the perfect synthesis of both miniaturized hardware and cutting edge digital technology designed to provide clients greater fluency enhancing performance. Each device is custom fit to the client's ear to provide greater listening comfort.

What SpeechEasy clients say?

"As a speech pathologist who stutters, I am in a unique position to assess SpeechEasy's life-changing effects. For more than 20 years, I used conventional forms of fluency therapy to help control my speech, but for a variety of reasons, the effectiveness of such therapy began to diminish over the past couple of years.

"When I first heard about SpeechEasy device I was so impressed that I flew to Greenville, North Carolina to learn first-hand from the inventors how the device works. Within a few seconds of having the device in my ear, my fluency surged. I was speaking fluently without having to monitor my speech. If I experienced a block, I would momentarily hold the sound, and SpeechEasy's acoustic inhibition would kick in to enable me to release the word," says - Cliff G., M.S., CCC-SLP, ASHA Recognized Fluency Specialist

- For more information,

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One-hour charging – TIMESCO introduces revolutionary Lithium Ion rechargers and batteries

Timesco have introduced a new concept in recharging laryngoscopes and diagnostic handles – super-fast one-hour charging!

The Timesco Ion R chargers are modular and have been designed as single chargers which can be added to with as many additional chargers as required. This enables cost saving advantages as multiple additional rechargers can be purchased only as required.

Timesco Ion R batteries are designed to power both 2.5v Xenon and 3.5v LED small AA and medium C handles and are guaranteed for a minimum of 1,000 cycles or 7 years of use; best of all, with the one-hour charging time, overnight charging times are eliminated.

The Ion R batteries have been designed to be directly charged in the Ion R rechargers, this eliminates any contamination and cross infection issues with laryngoscopes as in the older rechargeable systems.

Timesco existing laryngoscopes and diagnostic ranges: reusable Orion, Optima Xenon and LED and Single Use Skins handles can all be charged with the new Ion R chargers and Ion R batteries.

The Timesco R rechargers are CE and ISO approved, multi voltage and are supplied complete with mains adaptors for worldwide use.

- For more information,

visit: *www.timesco.com*
Email: *export@timesco.com*

Introducing Baggins the Bear collection – to ease the experience of a hospital stay

For most children and their families, the thought of having a general anaesthetic can be quite frightening. To ease the experience of a hospital stay, Intersurgical has introduced a number of paediatric products with a picture of their new friendly character, Baggins the Bear to assist in distracting and relaxing a child undergoing anaesthesia.

Intersurgical have also developed a Baggins the Bear collection:

- An activity booklet telling Baggins' story as he undergoes a general anaesthetic, which includes colouring and activity sections
- A large poster to play Spot the Baggins
- A bravery certificate

All the helpful tools can be downloaded from Intersurgical's dedicated landing page or you can contact the company directly for further information: *www.intersurgical.com/info/bagginsbear*

Vernacare launches VernaFem female urinal for Middle East hospitals

Vernacare has introduced an innovative single-use product designed specifically to meet the toileting needs of female patients. The new VernaFem female urinal bottle has been developed with healthcare specialists and evaluated extensively by patients and healthcare staff keen for alternatives to existing healthcare toileting options.

The ergonomic design promotes self-toileting, preserving patient dignity and empowering patients to toilet themselves with little or no assistance from healthcare staff. This is an extremely important factor to preserve patient dignity.

"The VernaFem design addresses the unique challenges that women face when being toileted in bed, and the product has been designed to work with the mattress to distribute weight more evenly, forming to the user's body, increasing confidence and minimizing the risk of spillage during use" said James Hardie, Regional Manager.

Vernacare has developed educational support materials to promote best practice, including complimentary 'Instructions for Use' posters and a training video, available to all customers upon request. These materials provide guidance in regards to product positioning, usage and disposal, helping to make sure staff are fully trained; increasing compliance and ensuring new products are easily adopted within hospitals.

The unique patented design makes use of a wider base and curved lip at the front, providing increased capacity and minimizing spillage during use and removal.

"We developed the product based on customer feedback that the biggest risk of spillage was during removal, when the product would be tilted" added Jane Kent, Market Research Manager. "This design overcomes that issue and provides women with a genuine alternative, which is fully disposable."

The new product comes at a time when healthcare organizations across the region are looking to implement interventions quickly to help prevent healthcare-acquired infections (HCAI).

- For more information or to arrange a free trial, contact James Hardie

UAE Tel: +971 505570301
Email: *james.hardie@vernacare.com*

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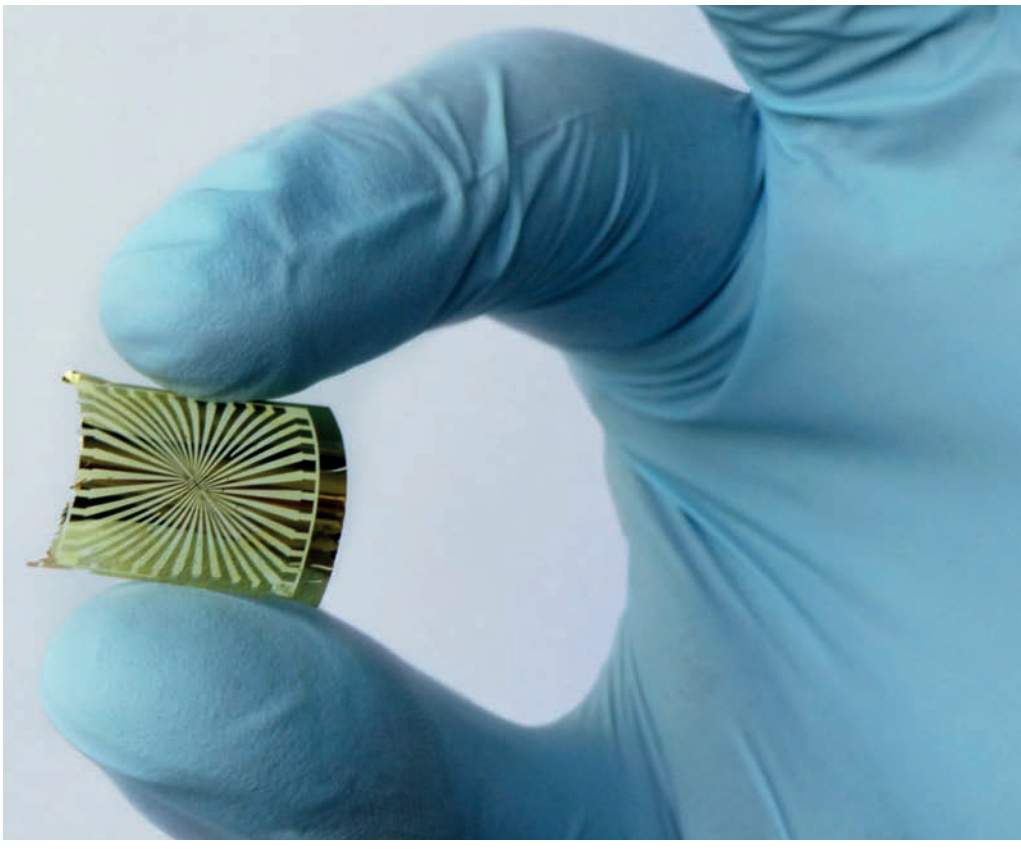
Physicists develop artificial retina – an interface to the optical nerve

Physicists at Technische Universität München (TUM) are using the special properties of graphene to produce key elements of an artificial retina. *Middle East Heath* reports.

Graphene is viewed as a kind of "miracle solution": It is thin, transparent and has a tensile strength greater than that of steel. In addition, it conducts electricity better than copper. Since it comprises only a single layer of carbon atoms it is considered two-dimensional. In 2010 the scientists Andre Geim and Konstantin Novoselov were awarded the Nobel Prize for their ground-breaking work on this material.

In October 2013, the "Graphene" project was selected alongside the "Human Brain Project" as a Flagship Project of the EU FET Initiative (Future and Emerging Technologies). Under the supervision of Chalmers University of Technology in Sweden, it bundles the research activities and will be funded with one billion euro over 10 years. In July 2014 the program took on 66 new partners, including the TUM.



Optical prostheses for blind people

Because of its unusual properties, graphene holds great potential for applications, especially in the field of medical technology. A team of researchers led by Dr. Jose A. Garrido at the Walter Schottky Institut of the TUM is taking advantage of these properties. In collaboration with partners from the Institut de la Vision of the Université Pierre et Marie Curie in Paris and the French company Pixium Vision, the physicists are developing key components of an artificial retina made of graphene.

Retina implants can serve as optical prostheses for blind people whose optical nerves are still intact. The implants convert incident light into electrical impulses that are transmitted to the brain via the optical nerve. There, the information is transformed into images. Although various approaches for implants exist today, the devices are often rejected by the body and the signals transmitted to the brain are generally not optimal.

Excellent biocompatibility

In contrast to the traditionally used materials, graphene has excellent biocompatibility thanks to its great flexibility and chemical durability. With its outstanding electronic properties, graphene provides an efficient interface for communication between the retina prosthesis and nerve tissue.

With their ambitious research project, the TUM researchers have now secured a place in the "Graphene" Flagship Program. The TUM is also involved in the second EU Flagship Program "The Human Brain Project" – coordinating the domain "Neurorobotics".

on the WEB Graphene Flagship
http://graphene-flagship.eu/

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
October 2014		
DHRC 2014	22 – 23 October, 2014 Dubai, UAE	www.dhrc.ae info@dhrc.ae
Clinical Congress and Gulf Chapter Annual Meeting	23 – 25 October 2014 Abu Dhabi, UAE	http://www.aacegulf.org
MED2020	26-27 October 2014 InterContinental Hotel Muscat, Oman	www.med2020.org
Middle East Healthcare Informatics Summit	26-28 October 2014 Shangri-la, Dubai, UAE	http://mehisummit.com/
The International Nursing Management Conference	27 – 29 October 2014 Bodrum, Turkey	http://www.inmc2014.org inmc@hacettepe.edu.tr
2014 Sheikh Khalifa Medical City Multispecialty Conference	28 Oct – 1 November, 2014 Abu Dhabi, UAE	bkadara@diaedu.com http://www.smc2014.ae
2014 UAE Cancer Congress	31 Oct – 1 November, 2014 Dubai, UAE	www.uaecancercongress.ae uaecancercongress@mci-group.com
Emirates Sports Medicine Summit	31 Oct – 1 November, 2014 Dubai, UAE	www.uaeortho.com
November 2014		
Healthcare Investment Summit	3 – 5 November, 2014 Dubai, UAE	www.informa-mea.com/ healthcareinvestment
Hospital Build & Infrastructure	4 – 6 November, 2014 Istanbul, Turkey	www.hospitalbuild-turkey.com
ASPED – Arab Society Paediatric Endocrinology and Diabetes Conference	6 – 8 November, 2014 Abu Dhabi, UAE	www.aspedconference.com
7th Medication Safety Conference	7 – 9 November, 2014	http://medicationsafetyconference.com
4th Saudi International Paediatric Neurology Conf.	9 – 11 November, 2014 Riyadh, KSA	cpd@kfmc.med.sa www.kfmc.med.sa
1st Conference on Adult Critical care – Medicine Update	12 – 13 November, 2014 Riyadh, KSA	mazfar@ksu.edu.sa
5th International Diabetic Foot Conference	13 – 14 November, 2014 Dubai, UAE	www.idfc.ae
Emirates International Urological Conference 2014	13 – 15 November, 2014 Dubai, UAE	www.atnd.it/12331-0
AMASICON 2014	14 – 16 November, 2014 Dubai, UAE	www.amasi.org amasi.india@gmail.com
Emirates Oncology Conf.	14 – 16 November, 2014 Abu Dhabi, UAE	www.asco.org/meetings www.asco.org/meetings
The Middle East Pharma Cold Chain Congress	17 – 20 November, 2014 Dubai, UAE	www.pharmacoldchainme.com
GCC Healthcare Innovation Congress	24 – 27 November, 2014 Abu Dhabi, UAE	www.gcchealthcareinnovation.com

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
December 2014		
International Congress in Aesthetics, Anti-Ageing Medicine & Medical Spa (ICAAM) Middle East	5 – 6 December, 2014 Dubai, UAE	*www.antiagingme.com*
12th Congress of the Arab Society of Nephrology and Renal Transplantation (ASNRT)	10 – 13 Dec 2014 Dubai, UAE	*http://www.nephrology.emanuae.com*
Istanbul Health Expo 2014	11 – 14 Dec, 2014 Turkey, Istanbul	*www.ifm.com.tr*
January 2014		
Congress of the International Academy of Legal Medicine & Exhibition	19 – 21 January, 2015 Dubai, UAE	*http://www.ialmdubai.ae*
9th Annual Healthcare Insurance Forum	25 – 28 January, 2015 Dubai, UAE	*www.healthcareinsurance.informa-mea.com*
Arab Health 2015	26 – 29 January, 2015 Dubai, UAE	*www.arabhealthonline.com*
March 2015		
Dubai Anaesthesia	5 – 7 March, 2015 Dubai, UAE	*www.dubaianaesthesia.com*
QMED 2015	9 – 11 March, 2015 Doha, Qatar	*www.qmedexpo.com* *national@qmedexpo.com* *international@qmedexpo.com*
2015 Gulf Thoracic	11 – 14 March, 2015 Dubai, UAE	*www.saudithoracic.com*
Kuwait Medica 2015	16 – 18 March, 2015 Kuwait City, Kuwait	*gracy@kuwaituniversal.com* *www.kuwaitmedica.com*
Dentistry 2015	18 – 20 March, 2015 Dubai, UAE	*contact@omicsgroup.com* *www.dentistry2015conferenceseries.net*
IECM Dubai 2015	24 – 26 March, 2015 Dubai, UAE	*osman.khalil@index.ae* *www.emergency.ae*
ABILITIESme 2015	24 – 26 March, 2015 Abu Dhabi, UAE	*jamesmeltz@dmgeventsme.com* *www.abilitiesme.com*
PACD19 – The 19th Pan Arab Conference on Diabetes	24 – 27 March, 2015 Cairo, Eqypt	*www.arab-diabetes.com*
IFM 2015	25 – 27 March, 2015 Dubai, UAE	*index@emirates.net.ae* *www.ifm.ae*
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Thuraya 2 Building, Dubai Media City
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