

# Middle East HEALTH

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March-April 2015

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## Anaesthesia side effects

Survey shows poor awareness  
of risks of post-operative  
cognitive side effects

## Saudi time bomb

1 in 4 Saudis under 40  
face heart attack  
in next 10 years

## Quick and easy cancer diagnosis

A ground-breaking breathe test  
to detect lung cancer is  
set to start clinical trials

### In the News:

- Saudi Arabia sees surge in new MERS cases
- Gavi pledging conference raises record \$7.5bn for vaccines
- New resistance to artemisinin poses global malaria threat
- Global health leaders meet in Doha to find solutions to key healthcare challenges



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# Prognosis

## Research

We have a lot of healthcare news for you in this issue – from new research from leading laboratories to important goings on in the region and interviews from the Arab Health exhibition.

Interesting and rather shocking research coming out of Saudi Arabia shows that one in four adults under 40 years old is set to have a heart attack within the next 10 years. The lead author, Dr Muhammad Adil Soofi, points out that “most of the people we studied were between 20 and 40 years old and 26% were at high risk of a heart attack or death from a heart attack in 10 years. Unhealthy lifestyles start at a young age in the Gulf and people reap the consequences early in life.” Read the report on page 20.

The effects of climate change on health are not immediately apparent, but several studies indicate the increasing appearance of infectious diseases in new places and new hosts. We report on one such study where the lead researcher notes that it’s “not that there’s going to be one ‘Andromeda Strain’ that will wipe everybody out on the planet” – referring to the 1971 science fiction film about a deadly pathogen. “There are going to be a lot of localized outbreaks putting pressure on medical and veterinary health systems. It will be death by a thousand cuts.” The Ebola and MERS outbreaks are examples. Read more about this on page 26.

In our focus on anaesthesia we look at a survey of Swedish anaesthetists, which has implications for anaesthetists worldwide. It found that many anaesthesia professionals were not sufficiently aware of the risks of postoperative cognitive side effects, particularly in elderly and fragile patients. Postoperative cognitive impairments may arise early on after surgery, such as the short-lasting, but still distressful postoperative emergence agitation. Postoperative delirium usually makes its debut one or two days after surgery, sometimes giving rise to major concerns. The more subtle but longer lasting postoperative cognitive dysfunction generally starts during the first week after surgery, but may last for a month. The survey found that anaesthetists considered these of rather low importance and noted that there is a need to improve knowledge of postsurgical cognitive side effects of anaesthesia. Read about the survey on page 30.

Also in anaesthesia, but on a lighter note, researchers have found that prescribing liquorice to patients following surgery significantly reduces the side effects associated with anaesthesia, such as sore throats, coughs and hoarseness.

There is a lot more interesting news in this issue. Read on...

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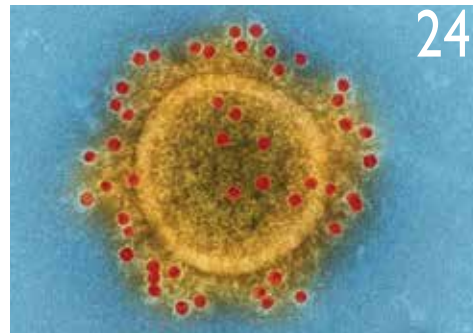
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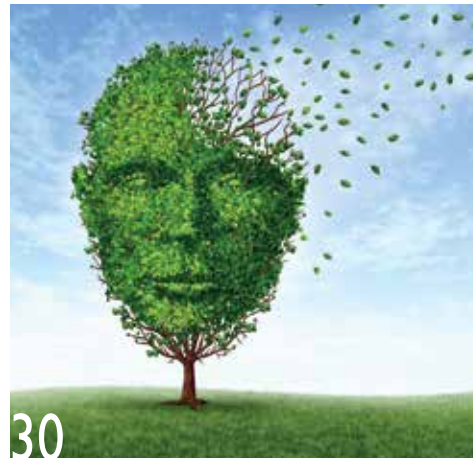
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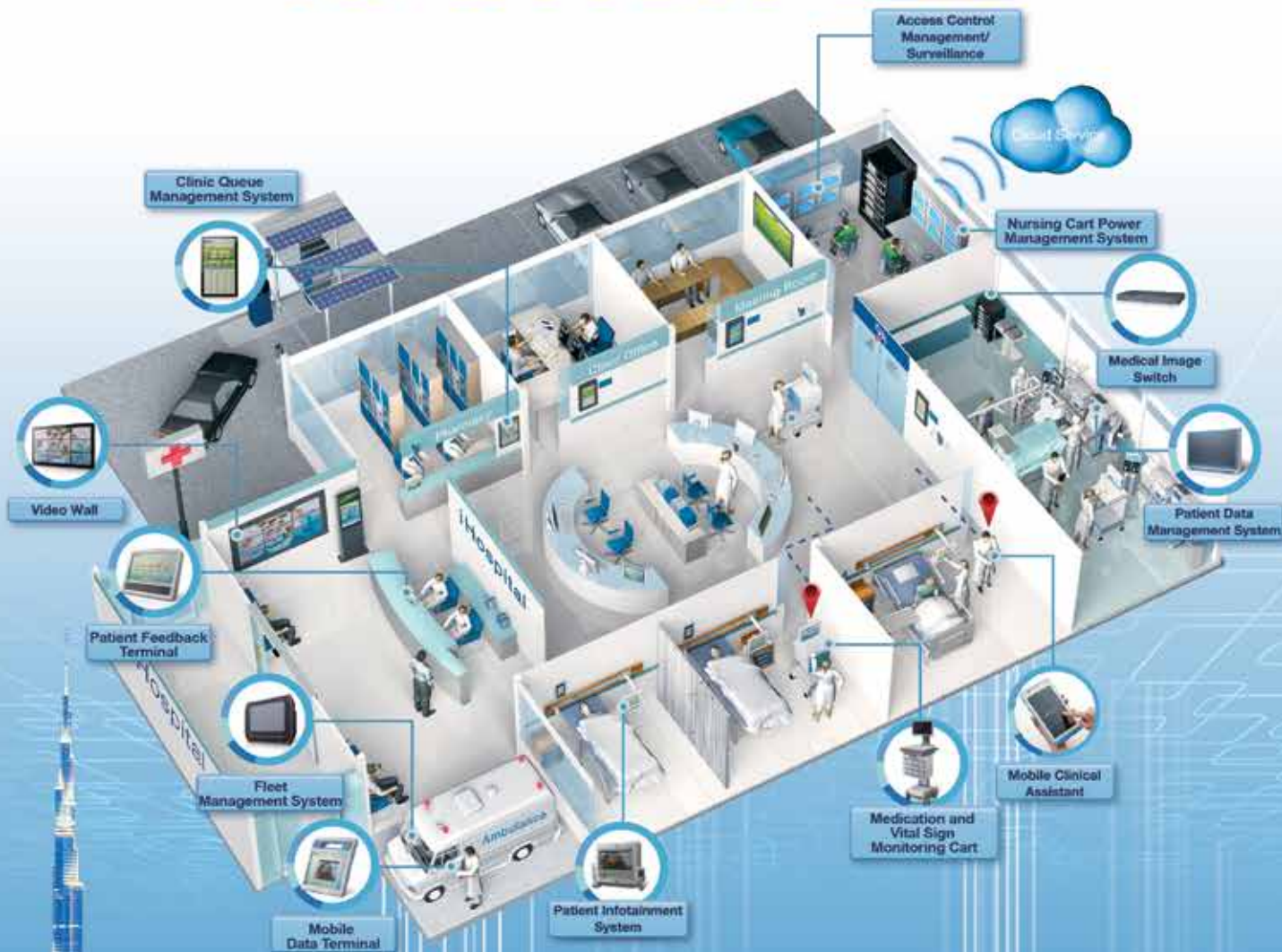


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# middle east monitor

Update from around the region

## WHO deplores attacks on health workers in Afghanistan, Sudan

The WHO issued a statement on 29 January deploring the recent attacks on health staff and health facilities in Afghanistan, Sudan and Yemen, and expressed deep concern about the serious implications of these attacks on patients, medical personnel and health infrastructure.

In countries where violence is ongoing, repeated and targeted attacks on health care workers and health facilities have severe immediate and long-term consequences on health systems and result in even larger numbers of people continuing to suffer illness or injury without access to medical care.

In the first month of 2015, incidents involving attacks on health care workers and health facilities continued to be reported.

In 2014, the International Committee of the Red Cross released a report documenting more than 2300 incidents involving serious acts or threats of violence against healthcare workers in 23 countries or regions between January 2012 and July 2014. More than 90% of these incidents involve local health care providers. Attacks on or inside healthcare facilities represented 40% of all confirmed incidents. In many cases, hospitals and health centres were bombed, shot at or looted, which often resulted in extensive damage.

“WHO reminds all parties in countries experiencing conflict of their ethical and legal obligations to protect medical services under international humanitarian law.

“The Organization calls on all parties and individuals to respect and protect the integrity of health systems, and assure the safety of patients, health workers and health care facilities,” the WHO said in the statement.

## Abed Sabra appointed Country Manager for Roche UAE

Roche has announced the appointment of Abed Al Rahman Sabra as the new Country Manager for its pharmaceutical business in UAE. Moving from his current position in Lebanon, Abed will report to



Abed Al Rahman Sabra

Ehab Yousef, Head of Middle East Sub-region 1. Effective from the 1 February, the new appointment underscores the company's efforts to drive strategic growth in the pharmaceutical market of UAE. Roche is currently the market leader in providing innovative solutions across therapies a range of diseases like cancer, hepatitis, rheumatoid arthritis, anemia and transplantation.

Commenting on his new responsibility, Abed Sabra said: “Roche's primary contribution to healthcare is to invent and develop medicines and diagnostic tools that significantly improve people's lives. Our aim in UAE is for every person who needs our medicines to be able to gain access to and benefit from them. I will be working closely with the healthcare providers and institutions to ensure that patients with unmet medical needs are benefiting from our medicines.”

## Al Jalila Foundation partners with Omniyat Dania to support children with cancer

The Dubai-based Al Jalila Foundation has formed a partnership with Omniyat Dania to support children with cancer.

Al Jalila Foundation is a global philanthropic organisation dedicated to transforming lives through medical education, research and treatment. Omniyat Dania was founded by Dana Al-Askari and Hasan Alami to honour the courage of their daughter who succumbed to childhood cancer at age 13. It is an ongoing

campaign which welcomes volunteers to support regular hospital visits and, through this partnership, will also raise money to fund medical research.

Speaking at the announcement of the partnership, Dr Abdulkareem Al Olama, CEO of Al Jalila Foundation, said: “Investing in medical research today will help find the cures of tomorrow. Particularly for our children and our children's children, medical research is essential in the sustainable development of healthcare in the UAE. Through the ‘Omniyat Dania’ campaign, Mr and Mrs Alami bring joy to suffering children while also benefiting future generations of children. We are humbled and grateful for their active involvement in making medical research in the UAE a reality.”

Dana Al-Askari commented: “The beautiful memory of our beloved daughter lives on through the work we are doing to support other children suffering from cancer. We can help make a difference now, with the help of selfless volunteers, by entertaining children in oncology units. We can all also transform the lives of children in future generations by supporting medical research today. We too are filled with gratitude to those who are helping – with their time or money – to help make the UAE a better place for our children.”



Donations can be made online through the ‘JustGiving’ website. [www.justgiving.com/omniyatdania](http://www.justgiving.com/omniyatdania)

## DHCC signs academic partnership with Queen's University Belfast

Dubai Healthcare City (DHCC) and Queen's University Belfast signed a partnership to develop the Mohammed Bin Rashid University of Medicine and Health Sciences (MBR-UMHS) and its College of Medicine.

The agreement will see Queen's University Belfast assist in the development of the MBR-UMHS and the College of Medicine, including curriculum development, recruitment and selection of staff, and student selection and admissions. The UK-based institution has significant academic and professional expertise in all aspects of



university management, governance and administration.

The College of Medicine is expected to open for applications in September 2015 with the first cohort of medical students to be welcomed in September 2016.

Leading up to the launch, Dubai Healthcare City and Queen's University Belfast will focus on course development, recruitment of high quality academic and professional service staff and the provision of the necessary infrastructure.

#### **New Saudi German Hospital for Ajman**

The Saudi German Hospital Group will build a new 300-bed hospital in Ajman, UAE. IHCC, a leading turnkey solutions provider that specializes in healthcare, education and mixed-use projects, announced the launch of the project in December last year.

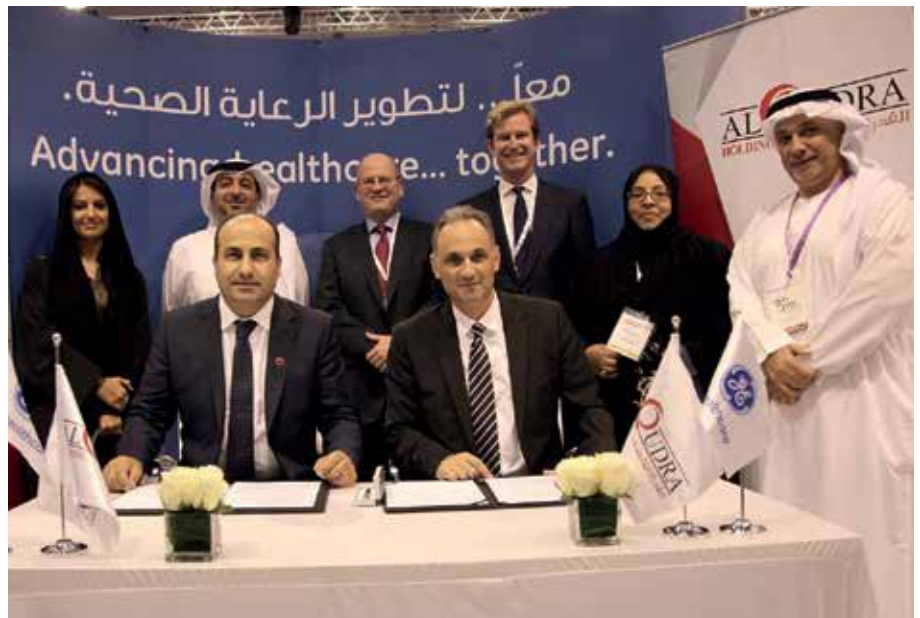
IHCC will oversee the process from the design stage to the fit out for the one million square feet hospital, which is scheduled to open doors in 2017.

Yehia Behrawi, Business Development Manager, IHCC, said: "IHCC has been involved in the design and delivery of all Saudi German Hospitals in the region and we are delighted to have been selected yet again for the construction of the new Saudi German Hospital in Ajman that will offer access to quality healthcare for the people of Ajman."

#### **GE Healthcare, Al Qudra sign co-operation agreement**

Al Qudra Holding, one of the leading investment companies in the Emirate of Abu Dhabi, and GE Healthcare signed a collaboration agreement for the development of healthcare projects in Abu Dhabi and the broader Middle East region.

The agreement, signed in January, covers the planning, development, delivery and sustainability of key projects to which each partner will bring their respective expertise in financing, technology design and integration, asset management, training and continuous improvement initiatives including clinical leadership and management program. GE will serve as the



Michel Y. Nassour Al Qudra CEO and Maher Abouzeid President CEO of GE Healthcare for Turkey and ME, sign co-operation agreement.

key technology and solutions provider to Al Qudra. Projects are subject to separate agreements that will be announced by the partners in due course.

Commenting on the agreement, Khalifa Khouri, Al Qudra Board Member, said: "In line with Al Qudra's commitment to driving sustainable growth of the healthcare sector, collaboration with reputed global players that can bring world-class know-how, scale and capabilities to the region is key. Complementing government efforts across the UAE and wider GCC for essential healthcare services to meet the growing population demands, we are proud to partner with GE Healthcare in the co-development of projects that will further expand access to quality and affordable healthcare in the UAE and across the Middle East."

Maher Abouzeid, President & CEO of GE Healthcare Turkey and Middle East, said: "Supporting public and private healthcare providers in strengthening healthcare services is central to GE Healthcare's strategy of localization. To that end, GE Healthcare is pleased to have reached this critical partnership milestone with Al Qudra Holding and in the coming months we will work closely

with our partner to further define the scope of these projects."

#### **India's Medanta to build 250-bed hospital in DHCC**

One of India's leading healthcare providers, Medanta, will build a 250-bed hospital in Dubai Healthcare City (DHCC), it was announced in January. The new hospital is expected to open early 2017.

Medanta – The Medicity, established in 2009 in Gurgaon, adjoining India's capital, New Delhi, holds the global distinction of performing the highest number of Living Donor Liver Transplants and the first Robotic Kidney Transplant.

Commenting on the initiative, Dr Raja Easa Al Gurg, Vice-Chairperson, Dubai Healthcare City Authority, said: "As Dubai steadily gains recognition for providing world-class healthcare and establishing itself as a medical tourism hub, we, at DHCC, have witnessed an increasing number of medical tourists year on year. Part of our strategy is the focus on high-quality, specialized healthcare. The establishment of Medanta at DHCC is an indicator of the strength of strategic partnerships and channeling of efforts to meet the demand for specialised medical treatments in the emirate and beyond."



Dr Naresh Trehan, the world-renowned cardiac surgeon and the force behind Medanta – The Medicity, will be setting up the Dubai-based hospital as a venture between its holding company, Global Health, and a company promoted by India-based industrialist Ravi Jaipuria and Dubai-based businessman, Murari Jalan.

**Philips Pathology Solution available in Middle East**

Philips Healthcare’s Digital Pathology Solution is available for diagnostic use in the Middle East, including the United Arab Emirates, Saudi Arabia, Qatar and Kuwait, the company announced in January.

Pathologists are now able to leverage the connected solution for primary diagnosis of pathology cases, simplifying the slide archiving process and enhancing collaboration.

By digitizing the images pathologists normally view through a microscope, Philips’ solution offers high-quality digital images that can be easily stored and accessed from virtually anywhere. Slide storage costs and the availability of secure, physical space has become a growing concern as pathologists in the Middle East have faced stringent requirements to maintain robust slide archives dating back 10-15 years. With larger labs in the region examining up to 75,000 slides a year, the possibility of moving toward a purely digital archive offers significant potential to reduce spend and streamline workflows.

“Digital pathology solution aims to improve the pathologist’s workflow and diagnosis, by making use of very high resolution images and facilitating enhanced collaboration,” said Perry van Rijsingen, General Manager of Philips Digital Pathology Solutions

**Harvard Medical School Center for Global Health Delivery set up in DHCC**

Harvard Medical School and Dubai Healthcare City Authority have signed an agreement to cooperate in establishing the Harvard Medical School Center for Global Health Delivery – Dubai.

The centre’s mission will be to increase local and regional health delivery research capacity in the UAE. The new health



Raja Al Gurg, Vice-Chairperson of Dubai Healthcare City Authority, and David E. Golan, Harvard Medical School Dean for Graduate Education, sign co-operation agreement in London.



Salmaan Keshavjee, Associate Professor of Global Health and Social Medicine at Harvard Medical School, is the new Director of Harvard Medical School Center for Global Health Delivery – Dubai.

research and training centre will address some of the most pressing health challenges in Dubai and the region, expanding Dubai’s role as a global hub for scientific and policy discussions related to health-care delivery.

Funding for the centre will be provided by a four-year grant from the Dubai Harvard Foundation for Medical Research.

The new centre, directed by Salmaan Keshavjee, Associate Professor of Global Health and Social Medicine at Harvard Medical School and director of the Program in Infectious Disease and Social Change in the Department of Global Health and Social Medicine, will be based at the Mohammed Bin Rashid Academic Medical Center in Dubai Healthcare City (DHCC).

Speaking at the signing of the agreement in London in January, Raja Al Gurg, Vice-Chairperson of DHCC, said: “The work of the centre will support our long-term commitment to improving the health of all communities within Dubai and enhance our opportunities to lead the region in advancing health care research and delivery.

“The work of the centre will support our long-term commitment to improving the health of all communities within Dubai and enhance our opportunities to lead the region in advancing health care research and delivery.”

Jeffrey S. Flier, Dean of the Faculty of Medicine of Harvard University, commented: “We are privileged to partner with our colleagues in Dubai to generate best practices in global health delivery and transform these practices into improved health outcomes in Dubai, the region and the world.

“It is our hope that the new centre will

catalyse health delivery research and spur innovative solutions that address significant health delivery obstacles.”

Alan Garber, Provost of Harvard University and the Mallinckrodt Professor of Health Care Policy at Harvard Medical School, said: “The scope of this project is broad, and its impact promises to be great. It will provide rigorous training for tomorrow’s scholars and practitioners. It will also conduct health delivery research, whose findings will influence global health practice as well as policy.”

The centre aims to strengthen the research environment in Dubai, the UAE and the region. It will also expand training capabilities for regional faculty and students.

**WHO delivers emergency health kits to Iraqis under siege**

To serve the Iraqi population that has been under siege for seven months and minimize the challenges they face in terms of limited access to health care and lack of life saving medicines, WHO delivered five basic units of Interagency Emergency Health Kits (IEHK) to Dhuluiya district in Salah Aldin governorate. The kits, delivered on Jan 8, contained medicines sufficient to cover the needs of 5000 people for three months.

These five WHO basic (IEHK) kits were part of the United Nations Interagency emergency response to the critical needs of Dhuluiya population who were inaccessible for seven months.

“The IEHK that WHO provided is part of the Joint UN response to an estimated population of 1200 families in Dhuluiya; WHO is here to save lives of people in critical humanitarian settings through delivering the much needed health technol-



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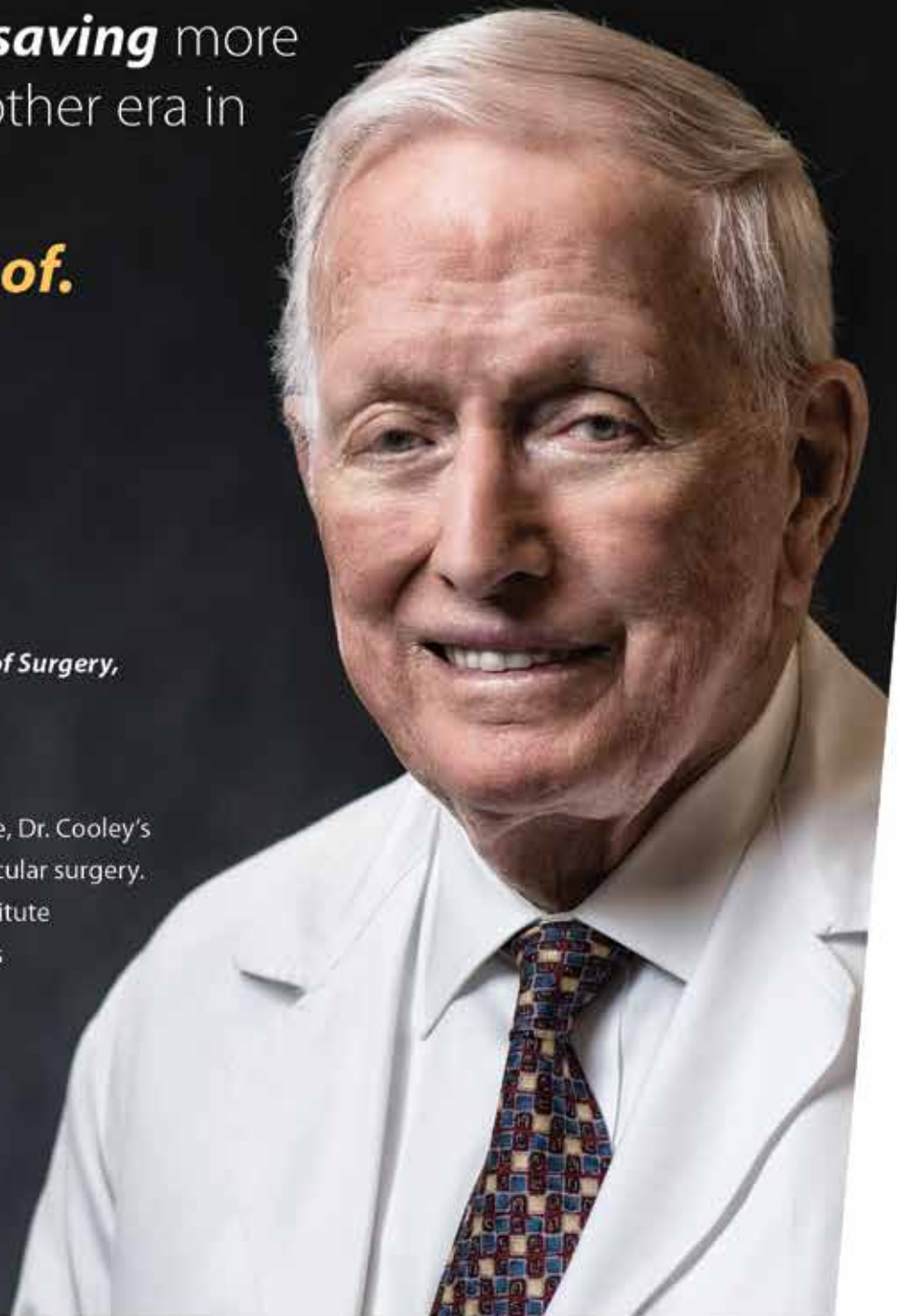
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ogies”, said Dr Jaffer Hussain, Representative and Head of Mission, WHO, Iraq.

Dr Jaffer added that, since August, 2014, WHO has delivered medical supplies for treating over 1.2 million people in Iraq, most of whom live in IDP camps and hard to reach areas.

### Prominent Islamic scholars call for acceptance of polio vaccination

Prominent representatives from different regions of Somalia and the wider Islamic region concluded two days of meetings in the Sudanese Capital Khartoum with an agreement to form action groups in their respective areas that will seek to encourage and support polio and other immunization programs and to tackle barriers and misconceptions obstructing such vaccinations and other critical public health interventions.

The meeting, organized by the Islamic Advisory Group for Polio Eradication (IAG) in cooperation with the Federal Ministry of Health in Sudan, called for strong support to national and global efforts for polio eradication and vaccinations against childhood illnesses in Somalia. The call was made in a statement issued at the end of the meeting that has brought together Muslim scholars, officials, civil and community leaders and health experts from regions of Somalia, Egypt, Saudi Arabia, Sudan and Pakistan.

The meeting’s Declaration urged Somali parents and community leaders to immunize their children against all vaccine-preventable diseases and reiterated that polio and other vaccines are safe, effective and fully conform to Islamic principles.

In his statement, Dr Ahmad Khaled Babiker, the Secretary General of the International Islamic Fiqh Academy, said: “Islamic scholars, Al-Azhar University, and the International Islamic University in Pakistan are united on the imperative of achieving polio eradication.” He urged Somali participants to build and spread awareness among their communities about immunizations.

Dr Hamed Abu Taleb, from Egypt’s leading Islamic institution Al Azhar said it was quite incomprehensible that some people “resist vaccination against a very grave disease like

polio and other illnesses although it is an undisputed Islamic duty”. The leading Islamic Sharia professor emphasized that benefits of polio and other vaccinations were abundantly proven and that they were therefore mandatory for all Muslims.

### WHO and partners develop regional plan to improve Ebola readiness measures

The third regional stakeholders’ meeting to review implementation of the International Health Regulations IHR (2005) concluded in Cairo, Egypt, on 13 January after over 130 participants from 17 countries in the region reviewed the progress countries are making in achieving the core capacities required under the IHR. The meeting also took into consideration recent findings of WHO assessment of countries’ preparedness and readiness measures for prevention and detection of importation of Ebola virus disease (EVD).

The WHO Regional Office for the Eastern Mediterranean, along with national health authorities, recently concluded, between November and December 2014, a rapid assessment of national health sector preparedness and readiness measures for EVD in 18 out of 22 countries in the region. The assessments were conducted in the six areas of: leadership and coordination; capacities to detect and isolate suspected cases at points of entry such as airport and sea ports; disease surveillance; infection prevention and control; laboratory; and risk communication. The findings were presented in the meeting and practical actions were proposed and suggested by countries on how gaps could be addressed in each of these functional areas.

“It is clear from the assessment that considerable work is required to improve the level of preparedness in the six areas. Countries have our full commitment of support to ensure that each country in the region is prepared and operationally ready for the detection, prevention and control of Ebola and any other emerging diseases,” commented Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean.

A short-term operational plan addressing the six major areas was drafted and key activities for the next 90 days were identified in the meeting. These activities are to:



develop/update national Ebola virus response plans; conduct a simulation drill to test the effectiveness of the national coordination, an event-based disease surveillance system; urgently procure and stockpile Ebola-specific personal protective equipment; establish and train an Ebola rapid response team improve safe collection, transportation and rapid shipment of samples for testing and diagnostic purpose; develop and drill a public health contingency plan for the designated points of entry; develop risk communications/social mobilization training curricula; and conduct training for stakeholders, journalists, community health workers, as well as volunteers.

The plan also highlighted the urgency of promoting awareness and ensuring high political commitment from countries for implementation of IHR core capacities in accordance with identified gaps, the strengthening of IHR national focal point capacity, and promoting cross-border collaboration for the sharing of best practices in the areas of managing and responding to acute and emerging health threats.

“Now that we have identified the important gaps in surveillance and response to the threat of Ebola, as well as in the core capacities required under the IHR, let us urgently move forward and rapidly address these gaps within the next 3 months. It is our collective and shared responsibility to prevent any threat to our health security,” said Dr Ala Alwan. The WHO Regional Director emphasized during the concluding session that implementation of the IHR should not be considered a health issue only. A comprehensive multisectoral approach is highly needed to strengthen linkages and tap synergies within and between countries to ensure preparedness for any possible importation of Ebola case in the Region. MCH





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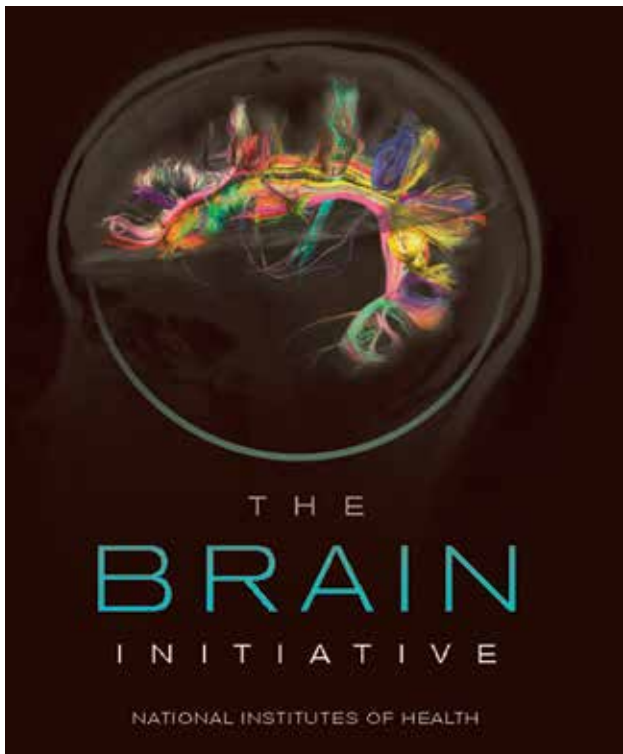
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# worldwide monitor

Update from around the globe



## Initial round of funding for BRAIN initiative

The US National Institutes of Health announced its first wave of investments totaling \$46 million this year to support the goals of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.

More than 100 investigators in 15 states and several countries will work to develop new tools and technologies to understand neural circuit function and capture a dynamic view of the brain in action. These new tools and this deeper understanding will ultimately catalyze new treatments and cures for devastating brain disorders and diseases that are estimated by the World Health Organization to affect more than one billion people worldwide.

Francis S. Collins, M.D., Ph.D, NIH director, said: "The human brain is the most complicated biological structure in the known universe. We've only just scratched the surface in understanding how it works – or, unfortunately, doesn't quite work when disorders and disease occur.

"There's a big gap between what we want

to do in brain research and the technologies available to make exploration possible. These initial awards are part of a 12-year scientific plan focused on developing the tools and technologies needed to make the next leap in understanding the brain. This is just the beginning of an ambitious journey and we're excited about the possibilities."

Creating a wearable scanner to image the human brain in motion, using lasers to guide nerve cell firing, recording the entire nervous system in action, stimulating specific circuits with radio waves, and identifying complex circuits with

DNA barcodes are among the 58 projects announced.

The majority of the grants focus on developing transformative technologies that will accelerate fundamental neuroscience research and include:

- classifying the myriad cell types in the brain
- producing tools and techniques for analyzing brain cells and circuits
- creating next-generation human brain imaging technology
- developing methods for large-scale recordings of brain activity
- integrating experiments with theories and models to understand the functions of specific brain circuits

"How do the billions of cells in our brain control our thoughts, feelings, and movements? That's ultimately what the BRAIN Initiative is about," said Thomas R. Insel, M.D., director of the NIH's National Institute of Mental Health. "Understanding this will greatly help us meet the rising challenges that brain disorders pose."



BRAIN initiative  
[www.braininitiative.nih.gov](http://www.braininitiative.nih.gov)

## Gavi pledging conference raises record \$7.5bn for vaccines

Hundreds of millions of children living in the world's poorest countries will receive life-saving vaccines as a result of record-breaking financial commitments – totalling some US\$7.5 billion – made at the Gavi Pledging Conference, hosted in Berlin by German Federal Chancellor Angela Merkel on 27 January.

The \$7.5bn in pledges will enable countries to immunise an additional 300 million children, leading to 5 to 6 million premature deaths being averted and economic benefits of between US\$80 and US\$100 billion for developing countries through productivity gains and savings in treatment and transportation costs and caretaker wages, according to a statement issued by GAVI, the Vaccine Alliance funded by numerous governments, philanthropists and the private sector.

The \$7.5bn pledged for Gavi's replenishment will be combined with US\$2bn in already assured resources for the 2016-2020 period to enable Gavi to meet the \$9.5bn cost of funding vaccine programmes in developing countries over the five year period.

Chancellor Merkel was joined in Berlin by Dr Jakaya Mrisho Kikwete, President of the United Republic of Tanzania, and Ibrahim Boubacar Keita, President of the Republic of Mali, Erna Solberg, Prime Minister of Norway, Donald Kaberuka, President of the African Development Bank, Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation, ministers from more than 20 implementing and donor countries, civil society groups, CEOs of vaccine manufacturing companies, UN agencies and others who came together to secure commitments to fully fund Gavi-supported immunisation programmes in developing countries between 2016 and 2020.

Speaking at the event, Chancellor Merkel said: "There is a long way still to go but today's conference is an important milestone in the work of Gavi for the next few years to come. Please let us not fail, let us not lose courage but continue to put all our efforts into this wonderful work and thank all of those who are committed to this goal."



Bill Gates said: “Today is a great day for children in the world’s poorest countries who will now receive the life-saving vaccines they need. We believe in the next 15 years, poor people’s lives will improve faster than any other period in history and that access to vaccines provided by Gavi are critical to making that happen.”

The Gavi Pledging Conference saw unprecedented engagement from donors, with many deciding to double or even triple their commitments to support Gavi in what will be its highest period of financial need.

Additionally, China, Oman, Qatar and Saudi Arabia made pledges to Gavi for the first time.

Ahead of the conference, vaccine manufacturers committed to maintaining affordable vaccine prices, a move that will not only help Gavi buy more doses with the money secured but also increase the sustainability of vaccine programmes. Countries whose economic status means they are no longer eligible for Gavi support will still have access to many vaccines at the same price Gavi pays for a number of years.

### Guinea worm disease nears total eradication

There has been a drastic reduction in the number of Guinea worm cases over the past three decades which points to the success in efforts to eradicate this neglected tropical disease and raises hope for the complete eradication of the disease over the next few years.

According to a recent statement issued by the Carter Center only 126 cases of Guinea worm were reported in 2014. These provisional numbers, reported by ministries of health in the remaining four endemic nations and compiled by the Center, show that cases of the debilitating disease were reduced by 15% in 2014 compared to 148 cases in 2013. When the Center began leading the first international campaign to eradicate this parasitic disease in 1986, there were an estimated 3.5 million Guinea worm cases occurring annually in Africa and Asia.

In 1991, there were 23,735 villages with endemic transmission of Guinea worm disease in 21 countries in Africa and Asia. As

of the end of 2014, there were only 30 endemic villages in four countries – all in Africa. South Sudan reported 70 cases, Chad (13), Mali (40), and Ethiopia (3).

Considered a neglected tropical disease, Guinea worm disease (*dracunculiasis*) is contracted when people consume water contaminated with Guinea worm larvae. After a year, a meter-long worm slowly emerges from the body through a painful blister in the skin. In the absence of a vaccine or medical treatment, the ancient disease is being wiped out mainly through community-based interventions to educate and change behavior, such as teaching people to filter all drinking water and preventing contamination by keeping anyone with an emerging worm from entering water sources.

Speaking at a New York press conference to open *Countdown to Zero: Defeating Disease*, a new exhibition on disease eradication created by the American Museum of Natural History in collaboration with The Carter Center, former US President Jimmy Carter, whose Carter Center leads the international campaign to eradicate this waterborne disease, said: The number of cases of Guinea worm disease continued decreasing in 2014, bringing Guinea worm eradication closer to the finish line.

“We believe eradication of Guinea worm disease is very possible in the next few years, but success will require the strong commitment and focus of the four remaining endemic countries and the many international partners in this public health initiative.”

### WHO calls for investment to tackle neglected tropical diseases

The World Health Organization (WHO) issued a report in February which urges affected countries to scale up their investment in tackling 17 neglected tropical diseases in order to improve the health and well-being of more than 1.5 billion people. This investment would represent as little as 0.1% of current domestic expenditure on health in affected low and middle income countries for the period 2015-2030.

Neglected tropical diseases cause blindness, disfigurement, permanent disability

and death, particularly among the poor. WHO’s new report, *Investing to Overcome the Impact of Neglected Tropical Diseases*, outlines an investment case and essential package of interventions for these diseases.

In the face of climate change countries need to strengthen their ability to anticipate and meet new challenges in terms of vector ecology and management. Diseases spread by insects are on the move because of rapid and unplanned urbanization, population movement and environmental change. Dengue is one of them: it is now present in more than 150 countries.

“Some of the neglected tropical diseases are no longer strictly tropical,” says Dr Dirk Engels, Director of the WHO Control of Neglected Tropical Diseases Department. “The potential for spread provides yet another strong argument for making the needed investments – while ramping up research and development efforts – to bring all these diseases under control and eliminate as many of them as rapidly as possible.”

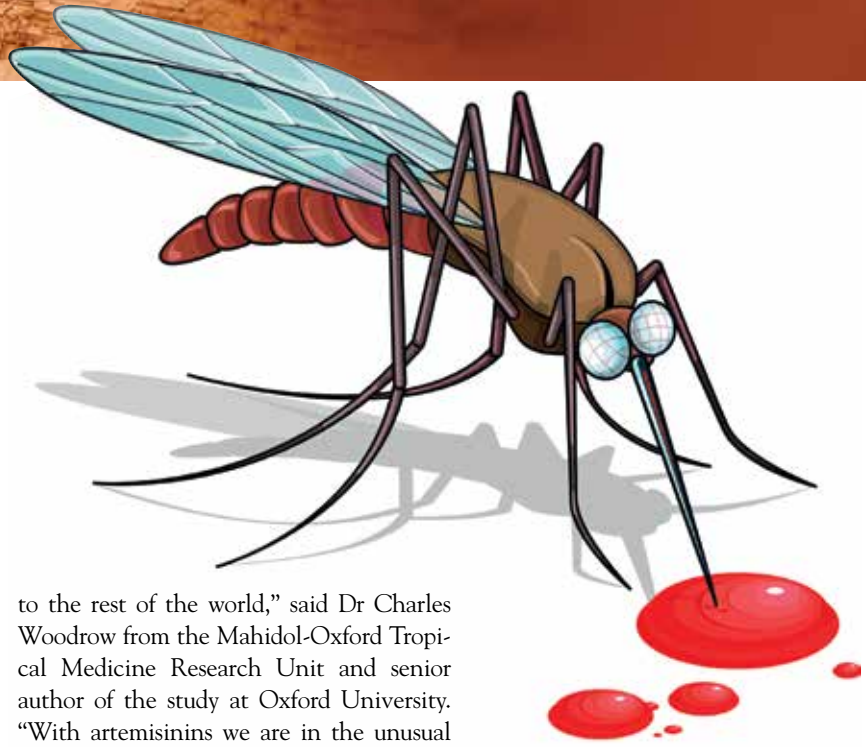
Dr Margaret Chan, WHO Director-General, says: “Increased investments by national governments can alleviate human misery, distribute economic gains more evenly and free masses of people long trapped in poverty.”

The report highlights progress made in recent years, largely attributed to a scale-up of control interventions in reaching the poorest. For example, in 2012 alone, more than 800 million people were treated for at least one neglected tropical disease. In 2014 there were just 126 cases reported of Dracunculiasis (guinea-worm disease), compared to almost 1800 in 2010 and 3.5 million in the mid-1980s. Eradication of this disease is achievable with continued effort and investment.

The report sets specific investment targets for many of the 17 diseases. It stresses that countries must make firm and sustainable budgetary commitments if they are to meet WHO targets and accelerate progress.



Investing to Overcome the Impact of Neglected Tropical Diseases  
<http://tinyurl.com/k26s6m2>



## New resistance to antimalarial drug artemisinin poses global threat

Resistance to the antimalarial drug artemisinin is established in Myanmar posing a serious threat to the global control and eradication of malaria.

Artemisinin resistance has reached within 25 km of the Indian border and threatens to follow the same historical trajectory from Southeast Asia to the Indian subcontinent seen in the past with other antimalarial medicines, says the Wellcome Trust.

Artemisinin is the frontline treatment against malaria infection. If drug resistance spreads from Asia to the African sub-continent, or emerges in Africa independently as we've seen several times before, millions of lives will be at risk.

Professor Mike Turner, Head of Infection and Immunobiology at the Wellcome Trust, said: "Drug-resistant malaria parasites in the 1960s originated in Southeast Asia and from there spread through Myanmar to India, and then to the rest of the world where it killed millions of people. The new research shows that history is repeating itself with parasites resistant to artemisinin drugs, the mainstay of modern malaria treatment, now widespread in Myanmar. We are facing the imminent threat of resistance spreading into India, with thousands of lives at risk."

The collection of samples from across Myanmar and its border regions was led by Dr Kyaw Myo Tun of the Defence Services Medical Research Centre, Napyitaw, Myanmar, and coordinated by the Mahidol-Oxford Tropical Medicine Research Unit (MORU) in Bangkok, Thailand – a collaboration between Mahidol University in Thailand and Oxford University and the Wellcome Trust in the UK.

The researchers examined whether parasite samples collected at 55 malaria treatment centres across Myanmar carried mutations in specific regions of the parasite's kelch gene (K13), a known genetic marker of artemisinin drug resistance. The team confirmed resistant parasites in Homalin, Sagaing Region, located only 25 km from the Indian border.

"Myanmar is considered the frontline in the battle against artemisinin resistance as it forms a gateway for resistance to spread

to the rest of the world," said Dr Charles Woodrow from the Mahidol-Oxford Tropical Medicine Research Unit and senior author of the study at Oxford University. "With artemisinins we are in the unusual position of having molecular markers for resistance before resistance has spread globally. The more we understand about the current situation in the border regions, the better prepared we are to adapt and implement strategies to overcome the spread of further drug resistance."

Professor Philippe Guerin, Director of the Worldwide Antimalarial Resistance Network (WWARN) and coauthor of the study, said: "This study highlights that the pace at which artemisinin resistance is spreading or emerging is alarming."

Gathering near 'real-time' information on malaria drug resistance is crucial to help predict the geographic routes of drug resistance and inform national and regional patient treatment strategies. Mapping the spread together with a more systematic review and revision of medicine dosing strategies, especially for vulnerable groups such as children and pregnant women, will help to preserve and ultimately prolong the lifespan of these life-saving medicines.

It is only through researchers, policy makers, doctors and funding partners working collaboratively that the global health community can minimise the threat of resistance and safeguard the vital public health gains we have made in malaria control and elimination.

### WHO calls for worldwide adoption of 'smart' syringes

Use of the same syringe or needle to give injections to more than one person is driv-

ing the spread of a number of deadly infectious diseases worldwide. Millions of people could be protected from infections acquired through unsafe injections if all healthcare programmes switched to syringes that cannot be used more than once. For these reasons, the WHO is launching a new policy on injection safety to help all countries tackle the pervasive issue of unsafe injections.

A 2014 study sponsored by WHO, which focused on the most recent available data, estimated that in 2010, up to 1.7 million people were infected with hepatitis B virus, up to 315,000 with hepatitis C virus and as many as 33,800 with HIV through an unsafe injection. New WHO injection safety guidelines and policy released in February provide detailed recommendations highlighting the value of safety features for syringes, including devices that protect health workers against accidental needle injury and consequent exposure to infection.

The WHO also stresses the need to reduce the number of unnecessary injections as a critical way of reducing risk. There are 16 billion injections administered every year. Around 5% of these injections are for immunizing children and adults, and 5% are for other procedures like blood transfusions and injectable contraceptives. The remaining 90% of injections are given into muscle (intramuscular route) or skin (sub-



cutaneous or intradermal route) to administer medicines. In many cases these injections are unnecessary or could be replaced by oral medication.

“We know the reasons why this is happening,” says Dr Edward Kelley, Director of the WHO Service Delivery and Safety Department. One reason is that people in many countries expect to receive injections, believing they represent the most effective treatment. Another is that for many health workers in developing countries, giving injections in private practice supplements salaries that may be inadequate to support their families.”

Transmission of infection through an unsafe injection occurs all over the world. For example, a 2007 hepatitis C outbreak in the state of Nevada, US, was traced to the practices of a single physician who injected an anaesthetic to a patient who had hepatitis C. The doctor then used the same syringe to withdraw additional doses of the anaesthetic from the same vial – which had become contaminated with hepatitis C virus – and gave injections to a number of other patients. In Cambodia, a group of more than 200 children and adults living near the country’s second largest city, Battambang, tested positive for HIV in December 2014. The outbreak has been since been attributed to unsafe injection practices.

The new “smart” syringes WHO recommends for injections into the muscle or skin have features that prevent re-use. Some models include a weak spot in the plunger that causes it to break if the user attempts to pull back on the plunger after the injection. Others have a metal clip that blocks the plunger so it cannot be moved back, while in others the needle retracts into the syringe barrel at the end of the injection.

The WHO is urging countries to transition, by 2020, to the exclusive use of the new “smart” syringes, except in a few circumstances in which a syringe that blocks after a single use would interfere with the procedure. One example is when a person is on an intravenous pump that uses a syringe.

### **Pamela Paulk appointed head of Johns Hopkins Medicine International**

Pamela Paulk, M.S.W., M.B.A., has been named president of Johns Hopkins Medicine International, the division of Johns Hopkins Medicine that develops international health care collaborations and provides medical concierge services for patients who travel from other regions to receive care at Johns Hopkins. Paulk was due to assume the role on March 1.

Throughout her 40-year career, including her most recent role as senior vice president of human resources for Johns Hopkins Medicine and the Johns Hopkins Health System, Paulk has distinguished herself through her exceptional ability to lead in complex environments, integrate large-scale operations and develop constructive business relationships across diverse groups.

Over the past 17 years, the organization has entered into more



Pamela Paulk

than 50 collaborations in nearly every region in the world, including a recent joint venture in Saudi Arabia designed to strengthen the health care delivery system for Saudi Aramco’s 350,000 employees, beneficiaries and retirees. These collaborations are designed to leverage Johns Hopkins’ extensive expertise in medicine, nursing, public health, medical education, research and health care administration while tailoring this knowledge to local needs and culture in a way that advances health care in the region.

“For the last 17 years, Johns Hopkins Medicine International has been a pioneer in improving health care around the world by tapping into Johns Hopkins’ leading-edge patient care and vast knowledge base,” says Christopher W. Kersey, M.D., M.B.A., chairman of the board of Johns Hopkins Medicine International. “Pamela possesses a truly unique combination of skills – a stellar operational track record and outstanding leadership skills – that will be necessary to take Johns Hopkins Medicine International to the next level.” **MEH**

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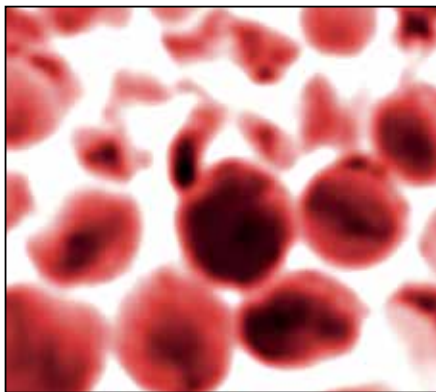
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## Platelet transfusions increase mortality for some blood cell disorders

People hospitalized with certain rare blood cell disorders frequently receive a treatment that is associated with a two- to fivefold increase in death, according to a new study that reviewed hospital records across the United States. The study authors recommend that for these rare disorders, doctors should administer the treatment, a platelet transfusion, only in exceptional circumstances.

The Johns Hopkins-led study, published 14 January 2015 in *Blood*, the journal of the American Society of Hematology, is the first US-wide review of nearly 100,000 combined hospital admissions for three rare blood cell disorders: thrombotic thrombocytopenic purpura (TTP), heparin-induced thrombocytopenia (HIT) and immune thrombocytopenic purpura (ITP).

“Because these conditions are so rare, they’re difficult to study,” says Aaron Tobian, M.D., Ph.D., an associate professor of pathology at the Johns Hopkins University School of Medicine and an expert in transfusion medicine. “There was some suggestion that transfusion may be harmful in these conditions, but it really was not known until now. Our study is the first one to show that platelet transfusions are frequently administered to patients with ITP, HIT and TTP, and that they’re associated with higher odds of arterial blood clots and mortality in TTP and HIT.”

All three conditions are immune system

disorders marked by low levels of platelets that help seal up damaged blood vessels. TTP is a life-threatening condition in which clots form in small blood vessels, resulting in a low overall platelet count. It occurs in less than one out of every 100,000 people per year. ITP is a less serious tendency to bleeding, seen in about one in every 20,000 children and one in every 50,000 adults, which often clears up on its own. HIT is a life-threatening reaction to the drug heparin, given to patients to prevent the formation of blood clots. For unknown reasons, in about 1% to 5% of patients given heparin, the immune system responds by producing clots rather than suppressing them.

Because the disorders are rare, haematologists have little to go on when deciding how to treat them. When a panel of experts convened by the AABB — formerly known as the American Association of Blood Banks — issued guidelines for platelet transfusions in November 2014, it made no recommendation on treatments for ITP, TTP and HIT.

To fill the data gap, Tobian, who served on that expert panel, and several Johns Hopkins colleagues turned to the Nationwide Inpatient Sample, a US federal database that contains billing records for about 20% of all patients treated and discharged at about 1,000 US community hospitals in 47 states. The database, which does not reveal patients’ identities, contains information on about 8 million inpatient hospitalizations per year nationwide. The Johns Hopkins-led study covered the years 2007 to 2011.

“The Nationwide Inpatient Sample is an incredible resource, especially for studying uncommon diseases,” says Ruchika Goel, M.D., M.P.H., a clinical fellow in paediatric haematology oncology at The Johns Hopkins Hospital and the study’s lead author.

“Our analysis found no significantly increased risks from platelet transfusions in ITP,” Goel says. “But in TTP, a platelet transfusion increased the odds of a potentially lethal arterial blood clot more than fivefold and doubled the odds of a heart

attack.” In HIT, platelet transfusions increased the risk of bleeding fivefold and the risk of an arterial clot more than threefold.

In TTP, the odds of dying in the hospital doubled when the patient was given a platelet transfusion. In HIT, the odds of dying were five times greater with a platelet transfusion.

● doi: blood-2014-10-605493

## Locking mechanism found for ‘scissors’ that cut DNA

Researchers at Johns Hopkins have discovered what keeps an enzyme from becoming overzealous in its clipping of DNA. Since controlled clipping is required for the production of specialized immune system proteins, an understanding of what keeps the enzyme in check should help explain why its mutant forms can lead to immunodeficiency and cancer. A summary of the results are published in the journal *Cell Reports* on 24 December 2014.

The immune system relies on the formation of specialized proteins — antibodies — that can recognize and immobilize foreign invaders like viruses and bacteria. Since storing individual blueprints for each of these proteins would require huge amounts of DNA, the body instead mixes and matches different chunks of sequence to produce roughly 300 trillion possibilities. This mixing and matching, called recombination, requires that DNA be clipped by the enzyme RAG.

“Recombination is essential for the immune system’s ability to recognize and fight new enemies, but too much clipping can cause harmful chromosome rearrangements,” says Stephen Desiderio, M.D., Ph.D., director of the Institute for Basic Biomedical Sciences and the senior researcher for the study. “We now know that RAG has a built-in lock that prevents it from getting out of hand as it clips DNA.”

To keep the system efficient, each immune cell makes only a single antibody and only does so after being activated. Several years ago, Desiderio’s group found that this level of control is enforced by a segment of RAG called the PHD. The PHD binds to a chemical tag called H3K-





4me3, which is only found on DNA that is actively being rewritten as RNA. This prevents RAG from recombining DNA that is not active.

When the PHD segment was mutated and nonfunctional, RAG couldn't cut, suggesting that the binding of the PHD to H3K4me3 was required for RAG's function. But when the PHD was deleted entirely, RAG was just fine. To understand what was happening, Desiderio's team looked for mutations that would bring function back to the mutant PHD. They found that when 13 amino acids were deleted in front of the mutant PHD segment, RAG cut even better than it normally does.

Alyssa Ward, a graduate student in Desiderio's laboratory, says that the system works like the bolt on a door. The PHD piece is the lock, H3K4me3 is the key and the deleted piece is the actual bolt. When all of the pieces are normal, H3K4me3 unlocks the PHD segment, which moves the bolt so that the door can open – i.e., so that RAG can cut. If there is a mutation in the PHD, the key won't fit the lock, so the door remains bolted. But, if the lock or bolt is removed entirely, the door can open and close freely.

Desiderio says that these results have implications for many other proteins that interact with DNA. "It was previously thought that H3K4me3 was simply a docking site for proteins," he says. "This study shows that it is also a key that activates them."

The team is now making a line of mice with the overactive RAG so they can see what effects it has in an animal. They hope that the overactive RAG will give them clues to how the enzyme is normally controlled, and to what goes wrong in those immunodeficiencies and cancers linked to mutations in RAG.

### **Added fructose is a principal driver of type 2 diabetes**

Recent studies have shown that added sugars, particularly those containing fructose, are a principal driver of diabetes and pre-diabetes, even more so than other carbohydrates. Clinical experts writing

in *Mayo Clinic Proceedings* challenge current US dietary guidelines that allow up to 25% of total daily calories as added sugars, and propose drastic reductions in the amount of added sugar, and especially added fructose, people consume.

"At current [US guideline] levels, added-sugar consumption, and added-fructose consumption in particular, are fuelling a worsening epidemic of type 2 diabetes," said lead author James J. DiNicolantonio, PharmD, a cardiovascular research scientist at Saint Luke's Mid America Heart Institute, Kansas City.

The net result of excess consumption of added fructose is derangement of both overall metabolism and global insulin resistance say the authors. Other dietary sugars not containing fructose seem to be less detrimental in these respects. Indeed, several clinical trials have shown that compared to glucose or starch, isocaloric exchange with fructose or sucrose leads to increases in fasting insulin, fasting glucose, and the insulin/glucose responses to a sucrose load. "This suggests that sucrose (in particular the fructose component) is more harmful compared to other carbohydrates," added Dr DiNicolantonio.

Dr DiNicolantonio and his co-authors, James H O'Keefe, MD, Saint Luke's Mid America Heart Institute, Kansas City, and Sean C. Lucan, MD, MPH, MS, a family physician at Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY, examined animal experiments and human studies to come to their conclusions.

Data from recent trials suggest that replacing glucose-only starch with fructose-containing table sugar (sucrose) results in significant adverse metabolic effects. Adverse effects are broader with increasing baseline insulin resistance and more profound with greater proportions of added fructose in the diet.

The totality of the evidence is compelling to suggest that added sugar, and especially added fructose (usually in the form of high-fructose corn syrup and table sugar), are a serious and growing public health problem, according to the authors.

While fructose is found naturally in some whole foods like fruits and vegetables, consuming these foods poses no problem for human health. Indeed, consuming fruits and vegetables is likely protective against diabetes and broader cardiometabolic dysfunction, explained DiNicolantonio and colleagues. The authors propose that dietary guidelines should be modified to encourage individuals to replace processed foods, laden with added sugars and fructose, with whole foods like fruits and vegetables.

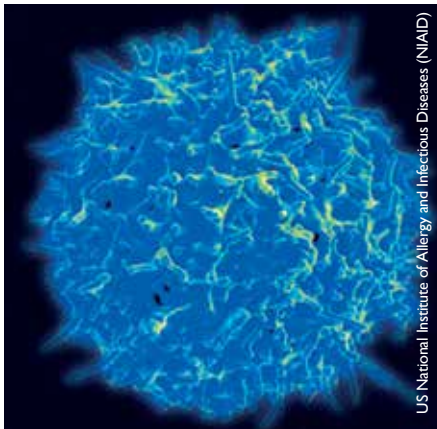
The World Health Organization recommends that added sugars should make up no more than 10% of an entire day's caloric intake, with a proposal to lower this level to 5% or less for optimal health. Such levels are more in line with what the authors would recommend.

### **Researchers show link between gene switches and autoimmune diseases**

Investigators with the US National Institutes of Health have discovered the genomic switches of a blood cell key to regulating the human immune system. The findings, published in *Nature* (16 Feb 2015), open the door to new research and development in drugs and personalized medicine to help those with autoimmune disorders such as inflammatory bowel disease or rheumatoid arthritis.

Autoimmune diseases occur when the immune system mistakenly attacks its own cells, causing inflammation. Different tissues are affected in different diseases, for example, the joints become swollen and inflamed in rheumatoid arthritis, and the brain and spinal cord are damaged in multiple sclerosis. The causes of these diseases are not well understood, but scientists believe that they have a genetic component because they often run in families.

"We now know more about the genetics of autoimmune diseases," said US National Institute of Allergy and Infectious Diseases (NIAMS) Director Stephen I. Katz, M.D., Ph.D. "Knowledge of the genetic risk factors helps us assess a person's susceptibility to disease. With further research on the associated biological mechanisms, it could



US National Institute of Allergy and Infectious Diseases (NIAID)

Scanning electron micrograph of a human T lymphocyte (also called a T cell) from the immune system of a healthy donor

eventually enable physicians to tailor treatments to each individual.”

Identifying autoimmune disease susceptibility genes can be a challenge because in most cases a complex mix of genetic and environmental factors is involved. Genetic studies have shown that people with autoimmune diseases possess unique genetic variants, but most of the alterations are found in regions of the DNA that do not carry genes. Scientists have suspected that the variants are in DNA elements called enhancers, which act like switches to control gene activities.

The senior author of the paper, John J. O’Shea, M.D., is the scientific director at NIH’s National Institute of Arthritis and Musculoskeletal and Skin Diseases. His lab team wondered if the alterations might lie in a newly discovered type of enhancer called a super-enhancer (SE). Earlier work in the laboratory of NIH Director, Francis S. Collins, M.D., Ph.D., in the Medical Genomics and Metabolic Genetics Branch at the National Human Genome Research Institute, and others had shown that SEs are especially powerful switches, and that they control genes important for the function and identity of each individual cell type. In addition, a large number of disease-associated genetic alterations were found to fall within SEs, suggesting that disease occurs when these switches malfunction.

Dr. O’Shea’s team began by searching for SEs in T cells, immune cells known to play an important role in rheumatoid arthritis. They reasoned that SEs could serve as signposts to steer them toward potential genetic risk factors for the disease.

“Rather than starting off by looking at

genes that we already knew were important in T cells, we took an unbiased approach,” said Dr. O’Shea. “From the locations of their super-enhancers, T cells are telling us where in the genome these cells invest their assets – their key proteins – and thereby where we are most likely to find genetic alterations that confer disease susceptibility.”

Using genomic techniques, the researchers combed the T cell genome for regions that are particularly accessible to proteins, a hallmark of DNA segments that carry SEs. They identified several hundred, and further analysis showed that they largely control the activities of genes that encode cytokine and cytokine receptors. These types of molecules are important for T cell function because they enable them to communicate with other cells and to mount an immune response.

But the researchers’ most striking observation was that a large fraction of previously identified alterations associated with rheumatoid arthritis and other autoimmune diseases localized to these T cell SEs. Additional experiments provided further evidence for a central role for SEs in rheumatoid arthritis. When the scientists exposed human T cells to a drug used to treat the disease, tofacitinib, the activities of genes controlled by SEs were profoundly affected compared to other genes without SEs. This result suggests that tofacitinib may bring about its therapeutic effects in part by acting on SEs to alter the activities of important T cell genes.

“Three types of data – the genetics of rheumatoid arthritis, a genomic feature of T cells, and the pharmacological effects of a rheumatoid arthritis drug – are all pointing to the importance of super-enhancers,” said lead author, Golnaz Vahedi, Ph.D., a postdoctoral fellow in Dr. O’Shea’s lab. “These regions are where we plan to search for insights into the mechanisms that underlie rheumatoid arthritis and other autoimmune diseases, and for novel therapeutic targets for these conditions.”

● doi: 10.1038/nature14154

### Study shows adult neurogenesis helps maintain proper connections in brain

For decades, scientists thought that neu-

rons in the brain were born only during the early development period and could not be replenished. More recently, however, they discovered cells with the ability to divide and turn into new neurons in specific brain regions. The function of these neuroprogenitor cells remains an intense area of research. Scientists at the US National Institutes of Health (NIH) report that newly formed brain cells in the mouse olfactory system play a critical role in maintaining proper connections. The results were published in the 8 October 2014 issue of the *Journal of Neuroscience*.

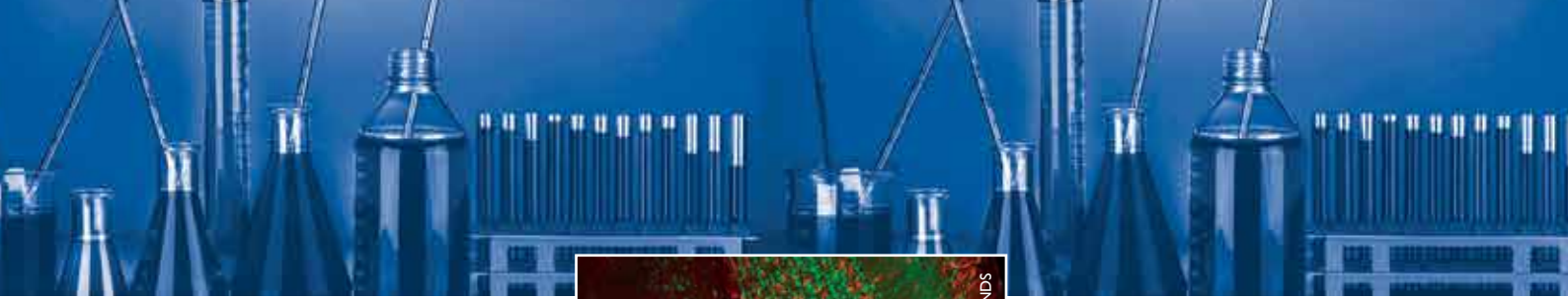
“This is a surprising new role for brain stem cells and changes the way we view them,” said Leonardo Belluscio, Ph.D., a scientist at NIH’s National Institute of Neurological Disorders and Stroke (NINDS) and lead author of the study.

The olfactory bulb is located in the front of the brain and receives information directly from the nose about odours in the environment. Neurons in the olfactory bulb sort that information and relay the signals to the rest of the brain, at which point we become aware of the smells we are experiencing. Olfactory loss is often an early symptom in a variety of neurological disorders, including Alzheimer’s and Parkinson’s diseases.

In a process known as neurogenesis, adult-born neuroprogenitor cells are generated in the subventricular zone deep in the brain and migrate to the olfactory bulb where they assume their final positions. Once in place, they form connections with existing cells and are incorporated into the circuitry.

Dr. Belluscio, who studies the olfactory system, teamed up with Heather Cameron, Ph.D., a neurogenesis researcher at the NIH’s National Institute of Mental Health, to better understand how the continuous addition of new neurons influences the circuit organization of the olfactory bulb. Using two types of specially engineered mice, they were able to specifically target and eliminate the stem cells that give rise to these new neurons in adults, while leaving other olfactory bulb cells intact. This level of specificity had not been achieved previously.





According to Dr Belluscio, it is generally assumed that the circuits of the adult brain are quite stable and that introducing new neurons alters the existing circuitry, causing it to re-organize. “However, in this case, the circuitry appears to be inherently unstable requiring a constant supply of new neurons not only to recover its organization following disruption but also to maintain or stabilize its mature structure. It’s actually quite amazing that despite the continuous replacement of cells within this olfactory bulb circuit, under normal circumstances its organization does not change,” he said.

Dr Cameron added: “It’s very exciting to find that new neurons affect the precise connections between neurons in the olfactory bulb. Because new neurons throughout the brain share many features,

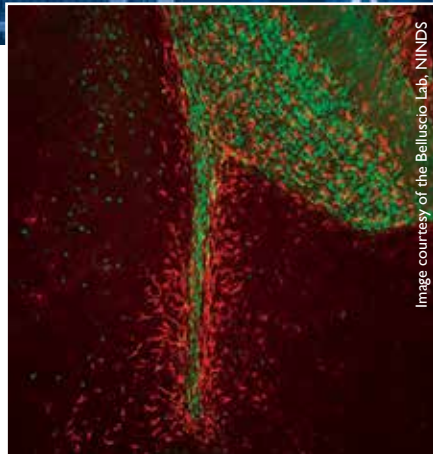


Image courtesy of the Belluscio Lab, NINDS

Making “scents” of new cells in the brain’s odour-processing area. Adult-born cells travel through the thin rostral migratory stream before settling into the olfactory bulb, the large structure in the upper right of the image.

it seems likely that neurogenesis in other regions, such as the hippocampus, which is involved in memory, also produce similar changes in connectivity.”

● doi: 10.1523/JNEUROSCI.2463-14.2014

It’s very exciting to find that new neurons affect the precise connections between neurons in the olfactory bulb. Because new neurons throughout the brain share many features, it seems likely that neurogenesis in other regions, such as the hippocampus, which is involved in memory, also produce similar changes in connectivity.



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# One in four Saudis under 40 heading for heart attack in 10 years

One in four adults in Saudi Arabia is set to have a heart attack within the next 10 years, reveals research presented at the 26th Annual Conference of the Saudi Heart Association (SHA), held 13 to 16 February in Riyadh, Saudi Arabia. The conference features sessions from the European Society of Cardiology (ESC).

Dr Muhammad Adil Soofi, first author of the research and assistant consultant in adult cardiology at Prince Salman Heart Centre, King Fahad Medical City in Riyadh, said: "The majority of people we studied were between 20 and 40 years old and 26% were at high risk of a heart attack or death from a heart attack in 10 years. Unhealthy lifestyles start at a young age in the Gulf and people reap the consequences early in life."

Dr Soofi's study investigated the prevalence of risk factors for heart disease in more than 4,900 Saudis living in urban areas who were over 20 years old and had no history of heart disease. Their 10-year risk of a heart attack or death from a heart attack was calculated using the Framingham Risk Score.

Most people in the study (85%) were less than 40 years old and 55% were women. The researchers found that 25% had diabetes, 34% had hypertension, 25% were smokers, 27% were obese, 86% were not involved in any physical exercise and 19% had dyslipidemia. As a result of the high level of risk factors, 26% of participants were at high risk of having a heart attack or dying from a heart attack in 10 years.

Diabetes had a major impact on risk. When diabetes was excluded as a risk factor, the proportion at high risk of a heart attack or death from a heart attack fell

to just over 4%. Dr Soofi said: "Diabetes doesn't occur in isolation. Diabetic individuals had a significantly increased prevalence of other risk factors such as obesity, hypertension, smoking and dyslipidemia."

He added: "Diabetes and other risk factors start at an early age in Saudi Arabia. When we looked just at people under the age of 30, we found that 14% were diabetic, 27% were obese, 31% were smokers and 77% were not physically active. So it's a whole package that will lead to heart disease in a decade."

Dr Soofi said that urbanisation, lack of education and Westernisation could be to blame for the unhealthy lifestyles of young Saudis. He said: "They eat more fast food and deep fried items and on top of that do not exercise. Atherosclerosis, obesity and other risk factors set in at a very early stage and ultimately lead to heart attacks and even death at a young age."


He continued: "We need to educate the public on their doorstep. That means using radio, television and the internet to communicate how to eat healthily, exercise and quit smoking. If the situation remains as it is now, today's 30 year olds will be a burden on society rather than active contributors by age 50."

Professor Hani Najm, SHA vice president, past president and head of international affairs, said: "Most Gulf countries have young populations. In Saudi Arabia 50% of people are less than 25 years old and their unhealthy lifestyles mean we are facing a serious epidemic of heart disease in 15 to 20 years. One in four people are diabetic and many will be heart disease patients in 10 years."

He added: "Healthy lifestyles are a rare

We need to educate the public on their doorstep. That means using radio, television and the internet to communicate how to eat healthily, exercise and quit smoking. If the situation remains as it is now, today's 30 year olds will be a burden on society rather than active contributors by age 50.

occurrence in the Gulf region and bad habits start early. Nearly one-third of teenagers smoke in some areas and the levels are even higher in others. Young people's addiction to smart phones and social media has turned them into electronic potatoes, today's version of the couch potato but no longer confined to one room as with television. They have zero intention of being physically active. Governments should have a responsibility to provide free indoor gyms and green spaces for exercise."

Dr Khalid Al Habib, SHA president, said: "The Gulf States have sophisticated tertiary care for heart disease patients but, alarmingly, we lack primary prevention programmes. These need to start today so that children and young people do not spend their adult life with diabetes and heart disease." 





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# Adolescents falling through the cracks



By **Anthony Lake** UNICEF Executive Director and **Michel Sidibé** UNAIDS Executive Director

When you are an adolescent, you are supposed to feel as if you could live forever. And, indeed, adolescents are less vulnerable to disease and more resilient. Their survival rates are as high as their youthful spirits.

But HIV changes everything. It is shocking that more adolescents die every year from AIDS-related illnesses than from any other cause except road accidents. In 2013 alone, 120,000 adolescents died from AIDS-related causes: more than 300 every day.

It is even more shocking that the number of adolescents dying of AIDS is not decreasing when AIDS-related deaths have dropped in every other age group. And it is shameful that this is happening when we have the knowledge and tools to keep adolescents living with HIV alive and well and to prevent new HIV infections.

What can we do to bring back the invincibility of youth? We must begin at the beginning – and stay with adolescents throughout their lives.

The vast majority of adolescents who died of AIDS-related illnesses in 2013 acquired HIV during pregnancy, delivery, or in the first months of life – because their mothers were not receiving the antiretroviral medicines that greatly reduce the possibility of HIV transmission. Although we have made great strides, far too many mothers and their infants are still not getting the HIV services they need to survive and thrive.

The remaining 20% of adolescents living with HIV were infected as adolescents – an uncomfortable fact whose causes we need to honestly confront.

## Adolescent girls at risk

More than 250,000 15 to 19-year-olds were newly infected with HIV in 2013 – and they are overwhelmingly girls. In that age group, girls account for two out of three new HIV infections globally. In sub-Saharan Africa, that number jumps to nearly eight out of ten. In South Africa, more than 800 girls in this age group are infected with HIV every week.

Girls are more vulnerable to HIV because they are more vulnerable generally – to violence, including sexual violence, forced marriage and trafficking. They are far less likely than boys to have the information they need to protect themselves, but even if they have that information, they may not be empowered to use it.

The remainder of young people who acquire HIV during adolescence are often gay and bisexual boys, and boys and girls engaged in using drugs or selling sex. Many are never diagnosed, let alone treated – because they fear repercussion if they seek information, enter prevention programmes, or get tested.

## Health systems failing adolescents

Many adolescents feel misunderstood, but when it comes to HIV and adolescents, it is not just a passing phase. National health plans and health systems in the most affected countries do not track or focus on adolescents – and there is precious little data monitoring their health and development over the age of five. Too old for paediatrics and often deemed too young for adult health services, many adolescents

fall through the cracks at a time they most need our attention.

We must do more to protect all adolescents and empower them to protect themselves and their health. In fact, we cannot end the epidemic without a global movement to end AIDS-related deaths and new HIV infections among adolescents.

There are promising signs that such a movement is gathering force. More programmes are reaching out to adolescents, many steered by young people themselves. More countries are including adolescents in national AIDS agendas.

The United States recently announced a new investment of US\$210 million to prevent new HIV infections among adolescent girls and young women. The Global Fund to Fight AIDS, Tuberculosis and Malaria recently announced \$14 billion in grant money, with a commitment to include a focus on the adolescents at greatest risk.

## A new platform for action

We need to build on this momentum. In late February, leaders working to end the AIDS epidemic came together in Kenya to call for a new global target of reducing AIDS-related deaths among adolescents by 65% and cutting new HIV infections among adolescents by 75% in the next five years.

This ambitious goal is the centrepiece of 'All In', a new platform for action to end adolescent AIDS. It concentrates on the areas where we need to accelerate progress: from improving data to identify the young people we are missing and provide a sharper focus on adolescents in national AIDS programmes ... to fostering innovation in developing new technologies and approaches to engage adolescents more effectively ... to advocating for more resources to reach every adolescent living with, or at risk of acquiring, HIV, before it is too late.

Most of all, young people themselves need to be 'all in' to end adolescent AIDS. Already, they are helping steer this movement, calling for positive change. The more we engage them and support their leadership, the more successful our common efforts will be to end this epidemic together.



All In

<http://AllInToEndAdolescentAIDS.org>



# WHO approves rapid Ebola test

The WHO announced on 20 February that it has approved for use a rapid diagnostic test kit for Ebola that can provide results in 15 minutes and correctly identify 92% of patients infected by the disease that has killed more than 9,400 people, mainly in West Africa.

Earlier in Geneva, the UN health agency announced that it had “assessed and listed the ReEBOV Antigen Rapid Test Kit [manufactured by Corgenix Medical Corp of the United States] as eligible for procurement to Ebola affected countries”.

The test was evaluated under WHO’s Emergency Assessment and Use, a procedure established to provide minimum quality, safety and performance assurance for diagnostic products in the context of the Ebola emergency.

According to WHO, the new test, which can provide results within 15 minutes, “is able to correctly identify about 92% of Ebola infected patients and 85% of those not infected with the virus”.

In comparison, the turn-around time of current tests for Ebola can vary between 12 and 24 hours, it said.

WHO Spokesman Tarik Jašarević told reporters in Geneva that the new test was a little bit less accurate than the test that WHO was currently using, but it was easy to perform, it did not require electricity and it could be used in lower level healthcare facilities or in mobile units for patients in remote settings.

The WHO spokesman also said that a number of agencies, such as the Médecins Sans Frontières (MSF), have expressed interest in purchasing it.

The current Ebola outbreak in West Africa has affected more than 23,000 people with over 9,400 deaths, mostly in Guinea, Liberia and Sierra Leone.

Meanwhile at UN headquarters, Dr Bruce Aylward, who leads WHO’s response on Ebola, and Dr David Nabarro, the UN Secretary-General’s Special Envoy on Ebola, briefed Member States on the need to maintain the robust response to get the number of cases to zero.

“As long as there is even one case of Ebola active in the human population, it’s a danger for everybody – it’s a problem for West Africa, it’s a problem for Africa and it’s a problem for the world, Dr Nabarro told reporters after their briefing. “We must be fully engaged, all of us, until the last person with Ebola is treated and is cured.”

The two doctors expressed their concerns about the recent slowdown in the pattern of decline in cases in January and February in the three most affected countries of Guinea, Liberia and Sierra Leone.

Referring to a graph showing that the four weeks prior to February 18 has seen more than 120 Ebola cases a week, Dr Aylward said “this is not what you want to see” and described the trend as “a very bumpy road” on the way to zero cases.

They also told reporters that the upcoming rainy season starting in April-May would complicate the situation as it could give the virus a chance to get ahead of the response. MEH

## Getting to zero

Dr David Nabarro, the Secretary-General’s Special Envoy on Ebola, told the United Nations General Assembly on 18 February that the final phase of “getting to zero” cases may well be the hardest, saying the hunt to track down the virus is “like looking for needles in haystacks”.

Dr Nabarro told reporters that having strong surveillance capabilities on the ground to identify people with Ebola, to confirm diagnosis, to quickly arrangement effective treatment, to identify people that are their contacts and to keep those people under review for 21 days “is a really difficult task”, especially as these tasks must be coordinated through 63 different government structures in an area the size of France.

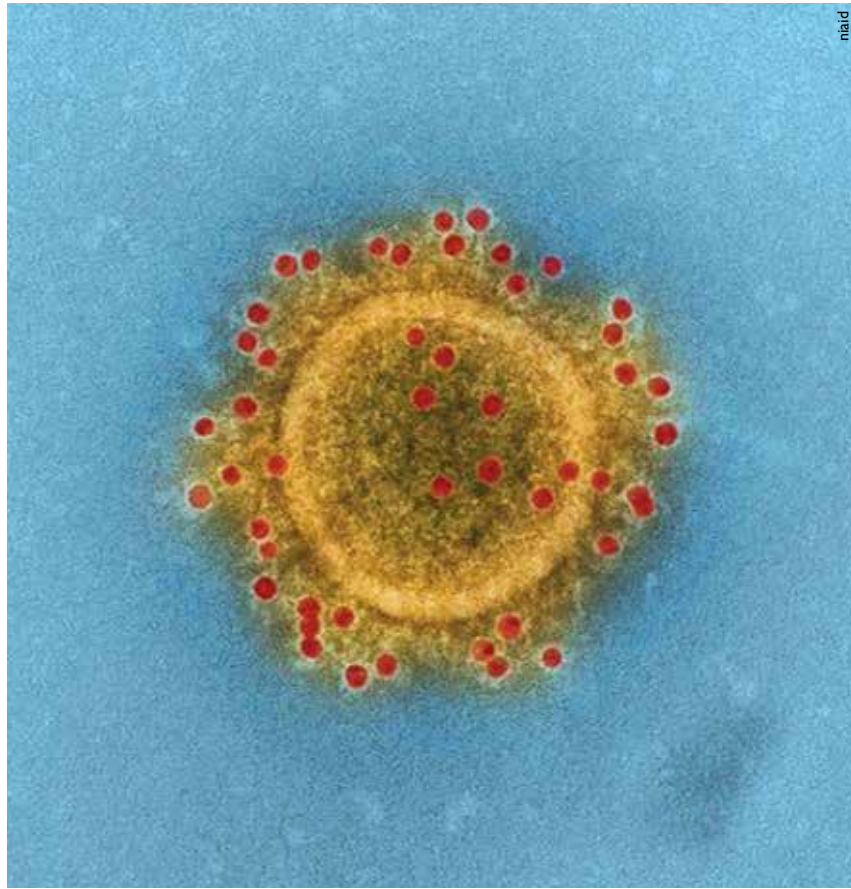
Ban Ki-moon, UN Secretary-General, said: “Today, we face a critical turning point. The pattern of the Ebola outbreak

has changed. 2015 has seen a significant decline in the number of new Ebola cases in the three affected countries.

“Let us provide the resources needed to get to zero.

“We are accelerating our work to reach the targets set by the Presidents of the Mano River Union on 15 February – zero cases in 60 days, by mid-April,” Ban said.

Sam Kutesa, Assembly President, said that while the international community should feel heartened by the progress that has been made against the virus in the most affected countries – Guinea, Sierra Leone and Liberia – “we cannot yet claim triumph over Ebola”. With the rainy season quickly approaching, efforts must be redoubled in order to ensure a final, successful push for eliminating this epidemic but also, begin to direct attention to the region’s long-term recovery effort.



MERS-CoV single virus

# Saudi Arabia sees surge in new MERS cases

Expert mission visits Saudi, raises concern over gaps in knowledge

**T**here has been a surge in the number of Middle East Respiratory Syndrome (MERS-CoV) cases in the Kingdom of Saudi Arabia with more than 60 new cases reported in the first few weeks of February. Some of these are nosocomial infections, which is particularly worrying.

This escalation in MERS cases prompted a team of experts from the WHO, the UN's Food and Agriculture Organization (FAO), the World Organization for Animal Health (OIE) and Institut Pasteur, France to visit the Kingdom to assess the current situation and to make recommendations for improving the surveillance,

prevention and control of the virus.

They came away saying although data collection and surveillance have improved globally in recent months, critical gaps in knowledge remain, and several challenges in the country will require further work.

Infections have been reported in several locations in the Kingdom, including infections acquired in health facilities in Riyadh, Qassim Region and Damman City, Eastern region.

Members of the joint mission held discussions with high-level representatives from the Ministry of Health, visited the

The fact that infections are still occurring in some healthcare settings, but not in others, indicates that current infection control measures are effective but not implemented.

Command and Control Centre that has been leading all activities related to the control of the MERS-CoV, and toured the emergency and isolation facilities



## Key areas of concern

The mission, along with the Saudi Arabian health authorities, identified several key areas that should be urgently addressed:

- Understanding the animal/human interface, that is, modes of infection and transmission;
- Filling critical knowledge gaps in the science and epidemiology of MERS-CoV by conducting further research studies and by sharing the findings widely and rapidly;
- Improving disease prevention, especially in health facilities that continue to experience avoidable infections;
- Intensifying social mobilisation, community engagement activities and communications.
- The mission also stressed the need for intersectoral cooperation and coordination, especially between health, agriculture, and other sectors.

Additional information from research studies is also required to better understand the risk factors for infection and transmission. Results from case-control studies from affected countries are urgently needed, in particular, from the most affected one, the Kingdom of Saudi Arabia. Understanding the evolution of the virus is needed, through studies to address the knowledge gaps at the human/animal interface environment.

of the Prince Mohammed Bin Abdulaziz Hospital.

Government officials and the WHO-led mission shared their concern about the rising number of MERS-CoV cases in recent weeks and in particular in healthcare facilities.

Ahmed Bin Aqeel Al Khateeb, the Saudi Arabian Health Minister said: “The Kingdom has done a lot to control MERS-CoV. We want to hear WHO experts’ feedback on the Kingdom’s progress and also where we can improve. The government is fully committed to implementing the right control and prevention measures and also to funding any activities needed to control this disease.”

The Minister also stressed the need to enable any hospital, whether government-run or private to handle a MERS-CoV case.

### Stopping the outbreak

The mission questioned how and why infections occur in the community adding that this is not yet understood and is critical for stopping the outbreak.

In addition, cases that occur in healthcare settings require further analysis to fully understand what steps are needed to ensure infection prevention and control measures are adequately implemented. The fact that infections are still occurring in some healthcare settings, but not in others, indicates that current infection control measures are effective but not implemented.

Dr Keiji Fukuda, WHO Assistant-Director General, who led the mission to the Kingdom of Saudi Arabia, said: “When health workers are infected at work, this puts other healthcare workers at risk, but




Dr Keiji Fukuda, WHO Assistant-Director General

also can be a risk to all other patients who seek care for other health conditions. Understanding where the breach in these measures is occurring and taking the steps needed to fully implement infection prevention and control measures can put an end to these nosocomial infections.”

Dr Ghazi Yehia, Regional Representative, OIE, said: “The OIE is encouraging close collaboration between public health and animal health at national and international levels. OIE is ready to help achieve this.”

Besides implementing good infection control and prevention measures, efforts to educate professionals and the public are urgently needed, the mission said in a statement. There are also significant gaps in community engagement to fully understand routes of infection and the preventive steps that should be taken. Defining groups that are most at risk, such as the elderly and those with underlying medical conditions, and how to target these groups with the right health messages remains a challenge.

Dr Berhe Tekola, Director of Animal Production and Health Division, FAO, said: “There are so many aspects of the virus that are still unknown. FAO is determined to use its expertise to better understand the human and animal interface of this virus.” 

## Case count

Between 1-23 Feb (at the time of going to press) 62 new cases had been reported by the Saudi MoH.

The MoH’s cumulative MERS count was 907 cases, including 388 deaths, 498 recoveries, and 21 active cases. One of the 21 patients was in home isolation.

WHO says, globally, since the emergence of the virus in April 2012, the organisation has been notified of 1026 laboratory-confirmed cases of infection with MERS-CoV, including at least 376 related deaths. The discrepancy in mortality figures between the Saudi MoH and WHO is probably due to deaths from the latest surge of MERS infections in Saudi not being accounted for in the WHO figures that were made public.

In some areas of Costa Rica, howler monkeys like this one are infected with parasites once limited to capuchin and spider monkeys. After humans hunted capuchins and spider monkeys out of existence in the region, the parasites immediately switched to howler monkeys, where they persist today.



## Infectious diseases emerging in new hosts, new places

The appearance of infectious diseases in new places and new hosts, such as West Nile virus and Ebola, is a predictable result of climate change, says a noted zoologist affiliated with the Harold W. Manter Laboratory of Parasitology at the University of Nebraska-Lincoln.

In an article published online 15 February 2015 in conjunction with a special issue of the *Philosophical Transactions of the Royal Society B*, Daniel Brooks warns that humans can expect more such illnesses to emerge in the future, as climate change shifts habitats and brings wildlife, crops, livestock, and humans into contact with pathogens to which they are susceptible but to which they have never been exposed before.

"It's not that there's going to be one 'An-

dromeda Strain' that will wipe everybody out on the planet," Brooks said, referring to the 1971 science fiction film about a deadly pathogen. "There are going to be a lot of localized outbreaks putting pressure on medical and veterinary health systems. It will be death by a thousand cuts."

Brooks and his co-author, Eric Hoberg, a zoologist with the U.S. National Parasite Collection of the USDA's Agricultural Research Service, have personally observed how climate change has affected very different ecosystems. During his career, Brooks has focused primarily on parasites in the tropics, while Hoberg has worked primarily in Arctic regions.

Each has observed the arrival of species that hadn't previously lived in that area and the departure of others, Brooks said.

"Over the past 30 years, the places we've been working have been heavily impacted by climate change," Brooks said in an interview in February. "Even though I was in the tropics and he was in the Arctic, we could see something was happening." Changes in habitat mean animals are exposed to new parasites and pathogens.

For example, Brooks said, after humans hunted capuchin and spider monkeys out of existence in some regions of Costa Rica, their parasites immediately switched to howler monkeys, where they persist today. Some lungworms in recent years have moved northward and shifted hosts from caribou to muskoxen in the Canadian Arctic.

But for more than 100 years, scientists have assumed parasites don't quickly jump



from one species to another because of the way parasites and hosts co-evolve.

Brooks calls it the “parasite paradox”. Over time, hosts and pathogens become more tightly adapted to one another. According to previous theories, this should make emerging diseases rare, because they have to wait for the right random mutation to occur.

However, such jumps happen more quickly than anticipated. Even pathogens that are highly adapted to one host are able to shift to new ones under the right circumstances.

Brooks and Hoberg call for a “fundamental conceptual shift” recognizing that pathogens retain ancestral genetic capabilities allowing them to acquire new hosts quickly.

“Even though a parasite might have a very specialized relationship with one particular host in one particular place, there are other hosts that may be as susceptible,” Brooks said.

In fact, the new hosts are more susceptible to infection and get sicker from it, Brooks said, because they haven’t yet developed resistance.

Though resistance can evolve fairly rapidly, this only changes the emergent pathogen from an acute to a chronic disease problem, Brooks adds.

“West Nile Virus is a good example – no longer an acute problem for humans or wildlife in North America, it nonetheless is here to stay,” he said.

#### Call for collaboration

The answer, Brooks said, is for greater collaboration between the public and veterinary health communities and the “museum” community – the biologists who study and classify life forms and how they evolve.


In addition to treating human cases of an emerging disease and developing a vaccine for it, he said, scientists need to learn which non-human species carry the pathogen.

Knowing the geographic distribution and the behaviour of the non-human reservoirs of the pathogen could lead to public health strategies based on reducing risk of infection by minimizing human contact with infected animals, much like those that reduced the incidence of malaria and yellow fever by reducing human contact with mosquitos.

Museum scientists versed in understanding the evolutionary relationships among species could use this knowledge to anticipate the risk of the pathogen becoming established outside of its native range.

There are going to be a lot of localized outbreaks putting pressure on medical and veterinary health systems. It will be death by a thousand cuts.

Brooks’ and Hoberg’s article, “Evolution in action: climate change, biodiversity dynamics and emerging infectious disease,” is part of a Philosophical Transactions of the Royal Society B issue on “Climate change and vector-borne diseases of humans,” edited by Paul Parham, a specialist in infectious disease epidemiology at Imperial College in London.

“We have to admit we’re not winning the war against emerging diseases,” Brooks said. “We’re not anticipating them. We’re not paying attention to their basic biology, where they might come from and the potential for new pathogens to be introduced.” 

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# Mobile clinics increase access to primary healthcare

In December, 2014, WHO handed over 12 mobile medical clinics to the Federal Ministry of Health of Iraq and the Ministry of Health of the Kurdistan region to support the provision of primary health care services in underserved areas housing populations in need. Funding for the clinics was provided by Saudi Arabia. The project forms part of WHO's broader objective of providing a timely basic package of primary and secondary health care services, including reproductive and mental health services, care for people with physical disabilities and patients with chronic diseases, and nutrition services.

Four of the clinics were deployed to the Dohuk governorate, which hosts 576,846 (26%) of the internally displaced population (IDP). This has put enormous pressure on the health system and its ability to deliver healthcare services. The mobile clinics were donated to the governorate to ensure greater access for IDPs to health care. WHO visited one of the sites where a clinic is located and spoke to the medical team.

"We used to offer health services in a tent located in Kebirto IDP camp 2. Although it had adequate space, the heat was unbearable in the summer. In this new clinic we have a cool, safe and clean environment to store the required essential medicines," said Dr Yousif Mohammed Ali, Medical Officer.

WHO is supporting four mobile clinics in the Sumel, Shakhan, Sinjar and Zakho districts in Dohuk providing primary health care services for a large population, particularly for vulnerable groups, such as children, adolescents, women and the elderly.

In Kebirto 1 and 2 IDP camps, WHO, with funding from Saudi Arabia, sponsors a mobile clinic serving an estimated 28,000 people in the two camps alone; in which a doctor and paramedic are delivering health



Patients line up outside the mobile clinic.

services for the community in the newly established camps.

A mobile team of health workers, supported by WHO, offer health services in two shifts; 6 days a week, 6 hours a day in different locations within the camp.

"We see an estimated 300 patients per day in the morning and afternoon shift," Dr Yousif explains. "The common diseases that we treat in this clinic include acute respiratory infections, urinary tract infections, acute diarrhoea and noncommunicable diseases, including hypertension, diabetes, and heart and skin diseases." The majority of people accessing health services at the clinic are children (40%), women and the elderly.

Dr Yousif noted, however, that it was difficult for the elderly to climb the stairs to get inside to access services and so they

were served outside. "The space inside is also limited so doctors, patients, nurses and paramedics cannot all be in the clinic at the same time."

The mobile clinic is the only facility serving IDPs in Kebirto 1 and 2 camps. However, plans are under way by the Directorate of Health to construct two primary healthcare centres, but until that happens, the clinics continue to offer health services to the 28,000 IDPs in the two camps.

Mobile medical clinics offer a selected range of primary care interventions, these include: routine ante and post-natal care; family planning advice and supplies; routine immunizations; diagnosis and treatment of noncommunicable diseases, such as hypertension and diabetes. The clinics in Dohuk have been operating since 22 January, 2015. MEH





# WHO responds to increasing health needs in Yemen

WHO is working with the Ministry of Public Health and Population (MoPH) and health partners in Yemen to respond to the health needs of populations affected by the ongoing conflict, as well as ensure that adequate health services are in place for populations in potential conflict areas around the country, according to a statement issued by the organisation in February.

Since the beginning of the year, the capital city of Sana'a and other major cities in Yemen have witnessed an escalation of armed conflict. According to the MoPH more than 8.4 million people are estimated to be in need of healthcare services across the country, including almost 334,000 internally displaced people who are mainly located in the north.

Limited access to essential healthcare services have increased the risk of higher morbidity and mortality from mass casualty events and other common diseases (diarrhoea, respiratory infections and vaccine-preventable diseases) in areas such as Al-Baidha, Marib, Taiz and Aden. With additional waves of population displacement expected as the conflict continues, there is an urgent need for the provision of basic life-saving services, essential medicines, and the deployment of mobile health teams.

"Humanitarian access to conflict areas is one of the key challenges faced by humanitarian partners in Yemen, impeding the provision of healthcare service delivery in the current situation," said Dr Ahmed Shadoul, WHO Representative in Yemen. "This has highlighted the urgent need for enhancing and strengthening local health actors to respond to mass casualties and ensure the availability of life-saving services and referral mechanisms in newly inaccessible geographical areas, including reproductive health services and immunization activities."

WHO, along with MoPH and local health authorities in Al-Baidah governorate, has identified urgent health needs in Rada'a district, and worked closely with the health office in Marib and health part-



© Juan Herrero/IRIN

Aisha Mohammadiya, in her house in Bayt al-Faqir in Yemen. An estimated 8.4 million people are in need of healthcare services across the country.

ners to prepare a rapid response contingency plan for Marib governorate as a potential conflict area due to its oil resources and strategic location next to Sana'a.


The contingency plan includes preparedness and deployment of surgical and mobile teams for internally displaced persons and isolated host communities; stockpiling of essential medicines and emergency supplies; and arrangement for standby ambulances as part of referral mechanisms in the capital and major potential conflict areas (Sana'a, Marib, Aden, Al-Baidha and Abyan). Additional health kits containing trauma medicines, essential medicines and medical supplies for one million people are being procured from WHO's humanitarian hub in Dubai for contingency stockpiling.

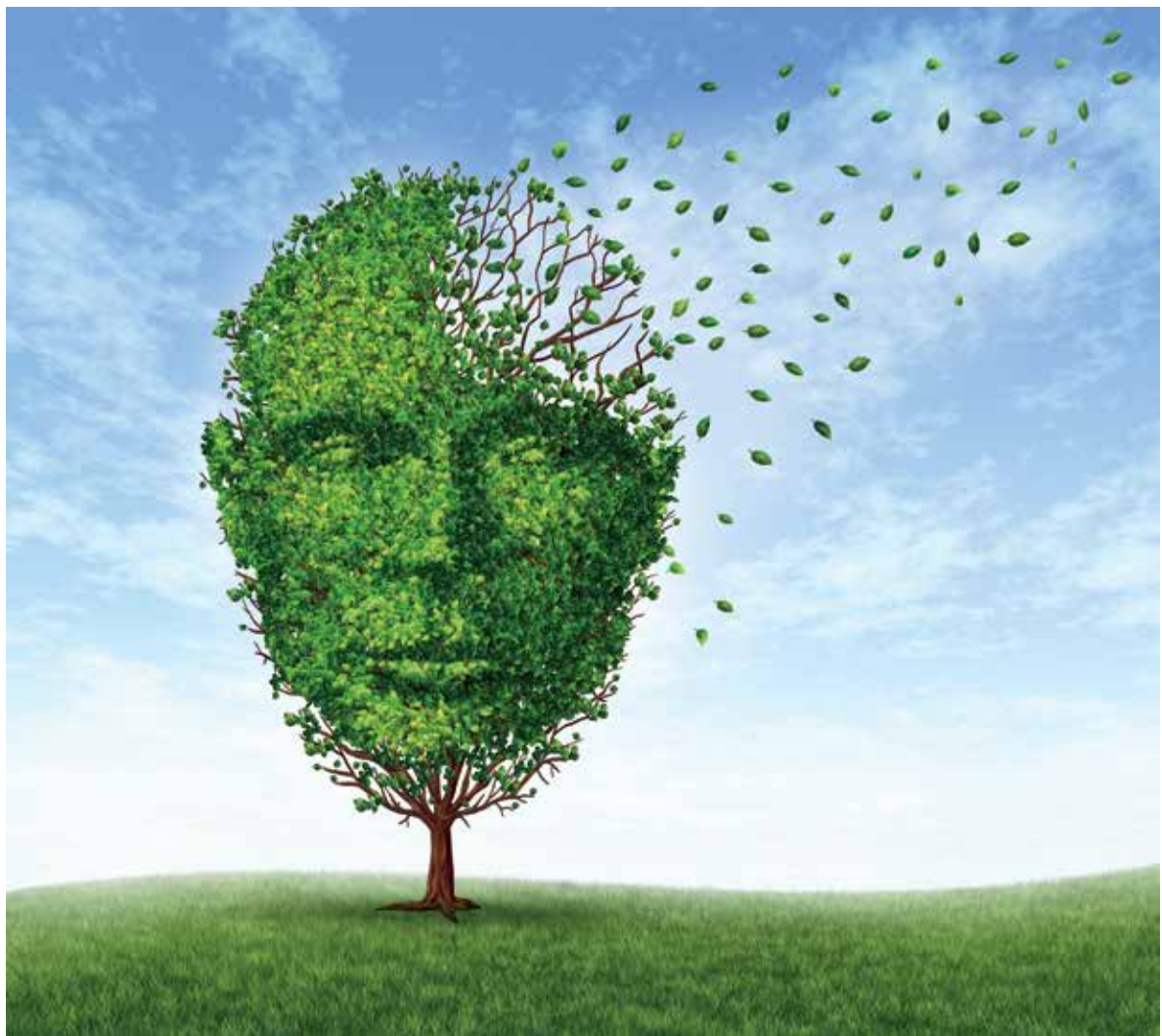
Priority health facilities in key areas have been rehabilitated and equipped with life-saving equipment, including Haradh Hospital and Abs Hospital in Hajjah, Amran Hospital in Amran, Al-Thowra Hospital and the Burn Centre in Al-Hodeidah, and Jedir Health Centre in Sana'a.

## Capacity-building

Capacity-building activities for health workers and community health volunteers have been conducted, including training on topics such as mass casualty management, reproductive health, immunization, and maternal and child health.

Parallel to these response activities, the health cluster is also preparing the health system to cope with long-term service-provision under early recovery and resilience-building of government institutions, as well as affected communities returning home post-conflict. WHO is taking the lead in supporting these activities comprising the transition of the health system from an emergency phase to development phase.

According to the health cluster plan for year 2015, total funding required to cover health needs in Yemen was projected at around US\$61 million, of which WHO requested US\$25 million. WHO has so far received funding or pledges for almost US\$6.5 million for 2015. 



## Anaesthesia professionals not sufficiently aware of risks of postoperative cognitive side effects

A survey of Swedish anaesthesia personnel published in *Annals of Medicine and Surgery* reveals the need to improve knowledge of postsurgical cognitive side effects of anaesthesia, particularly in elderly and fragile patients. *Middle East Health* reports.

Postsurgical cognitive side effects can have major implications for the level of care, length of hospital stay, and the patient's perceived quality of care, especially in elderly and fragile patients. A nationwide survey of Swedish anaesthesiologists and nurse anaesthetists has found there is low awareness of the risks of cognitive side effects following surgery. Furthermore, only around half of the respondents used depth-of-anaesthesia

monitors. The results are published in *Annals of Medicine and Surgery*.

Patients generally expect to make a rapid recovery from anaesthesia with a minimum of side effects. The main focus by anaesthesia personnel centres around how to minimize cardiovascular and pulmonary risks and on the management of postoperative pain, nausea, and vomiting. According to the survey results, less

attention is being paid to cognitive side effects following surgery, yet these complications can have major implications for the patient.

"We found that Swedish anaesthesia personnel viewed risk assessment, prevention, and handling of postoperative delirium and postoperative cognitive dysfunction of rather low importance. Protocol and/or standardized routines were

only rarely implemented,” observes senior investigator Professor Jan G. Jakobsson, MD, PhD, of the Department of Anesthesia & Intensive Care, Institute for Physical Science, Karolinska Institute, Stockholm, Sweden.

Postoperative cognitive impairments may arise early on after surgery, such as the short-lasting, but still distressful postoperative emergence agitation (EA). Postoperative delirium (POD) usually makes its debut one or two days after surgery, sometimes giving rise to major concerns. The more subtle but longer lasting postoperative cognitive dysfunction (POCD) generally starts during the first week after surgery, but may last for a month. Although these side effects are of major concern for both hospitals and patients, they have received less attention from anaesthesia personnel.

To gain insight regarding routines and practice for risk assessment, diagnosis, and management of postoperative cognitive side effects, and the use of EEG-based depth-of-anaesthesia monitoring (DOA), investigators sent a web-based validated questionnaire to over 2,500 Swedish anaesthesiologists and nurse anaesthetists. The questionnaire consisted of three sections covering subjective preferences, routines, and practices related to the perioperative handling of EA, POD, POCD, and awareness. The response rate was 52%.

In general the respondents considered the risk for neurocognitive side effects to be the least important during the preoperative assessment, while the risk of awareness with recall (when patients are able to recall the surgery) as well as traditional cardiac and pulmonary risk was considered of high importance.

It has been suggested that the use of EEG-based DOA monitoring to fine-tune and tailor anaesthetic delivery can reduce the risk of postoperative cognitive side effects. Previous surveys of anaesthetic practice in Sweden showed a high degree of standardization and that structured protocols for the perioperative management are in place. However, the results of this survey were more diverse. EEG-based DOA monitors were used in half of all departments, but the frequency and indication for their use varied. ▶



## Liquorice alleviates troublesome post-operative symptoms

In Traditional Chinese Medicine (TCM), liquorice is regarded as a “panacea”. A recent study by the University Department of Anaesthetics, General Intensive Care Medicine and Pain Therapy at the MedUni Vienna has, for the first time, scientifically confirmed the healing properties of this natural substance.

In their study, researchers investigated patients who require a particularly thick tube (a double-lumen tube) following lung surgery and who consequently suffer frequent sore throats, hoarseness and coughs. The prescription of liquorice markedly reduced the frequency of post-operative symptoms. Even more importantly, patients were extremely happy and complained of significantly fewer side effects associated with anaesthesia, such as sore throats, coughs and hoarseness.

Study leader Kurt Rützler from the University Department of Anaesthetics, General Intensive Care Medicine and Pain Therapy at the MedUni Vienna cites another important advantage: “The side effects that normally occur are not only subjectively unpleasant for patients, but they can also have a negative impact on the success of their surgery. If a patient develops a cough after a lung operation with severe pain leading to reduced inspiration and expiration, this can cause an entire section of the lung to collapse.”


### **Inexpensive medicine**

As a result of the study, which is pub-

lished in the science journal *Anesthesia & Analgesia*, liquorice is already being offered to all pre-operative patients at three European hospitals. One of the key advantages of liquorice lies in how simple it is to use. Liquorice is available in its pure form without a prescription from any pharmacy. “Patients can however also buy liquorice sticks or liquorice lozenges and achieve very similar beneficial effects to pure liquorice,” says Rützler.

### **Further research**

Exactly how liquorice works is not yet fully understood. The team of researchers at the MedUni Vienna has managed to identify 17 sub-substances in liquorice, however. Some of these are believed in TCM to have particular effects. Researchers are now working on investigating these TCM beliefs on a more scientific basis. According to Rützler, of particular importance in this context is liquorice’s anti-inflammatory effect and its positive impact on local wound healing, for example in maxillofacial surgery.


● Reference: “A Randomized, Double-Blind Comparison of Licorice Versus Sugar-Water Gargle for Prevention of Postoperative Sore Throat and Postextubation Coughing”. Kurt Ruetzler, Michael Fleck, Sabine Nabecker, Kristina Pinter, Gordian Landskron, Andrea Lassnigg, Jing You and Daniel I. Sessler. DOI: 10.1213/ANE.0b013e318299a650. 



“Respondents were overall quite sceptical about the value of EEG-based DOA monitors, however their use in patients at risk for awareness was more positive among the nurse anaesthetists than the anaesthesiologists,” notes Professor Jakobsson. “This attitude to DOA monitoring may be due to the rather negative stance of the Swedish Council on Health Technology Assessment regarding these de-

vices. This is in contrast to the national guidelines in the UK, which support the use of DOA monitoring in at-risk patients.”

“The results show there is a need to improve the knowledge of anaesthesia personnel about risk factors, prevention and management of postoperative cognitive side effects,” concludes Professor Jakobsson.

● **Reference:** “Postoperative management in order to minimise postoperative delirium and postoperative cognitive dysfunction: Results from a Swedish web-based survey,” by Pether Jildenstål, CRNA, PhD; Narinder Rawal, MD, PhD, FRCA (Hon), EDRA; Jan Hallén, MD; Lars Berggren, MD, PhD; and Jan G. Jakobsson, MD, PhD. DOI: <http://dx.doi.org/10.1016/j.amsu.2014.07.001>, *Annals of Medicine and Surgery*, Volume 3, Issue 3. 



## Researchers find optimum ventilation strategy during general anaesthesia in abdominal operations

A multi-centre study at 30 centres across Europe, North and South America involving a total of 900 test subjects has investigated various ventilation strategies used during anaesthesia given for surgical procedures involving the abdomen to see just how effective they are. The MedUni Vienna's Clinical Department of Cardiothoracic and Vascular Anaesthesia and Intensive Care (HTG) was involved in the study.

In Austria, Werner Schmid and Christian Weiss from the Clinical Department of Cardiothoracic and Vascular Anaesthesia and Intensive Care (HTG) at the MedUni Vienna, led by Prof. Hiesmayr, were involved in carrying out the study. As members of the management committee, Jörg Hiesmayr and Edda Tschernko from the University Department of Anaesthesia, Intensive Care and Pain Ther-

apy at the MedUni Vienna played a key role in planning this largest randomised controlled study ever carried out in patients receiving mechanical ventilation while under general anaesthetic.

“We have been able to demonstrate for the first time that a form of ventilation with high pressure ratios does not lead to an improvement in the patient's postoperative progress,” said Werner Schmid

The PROVILHO study has the magnitude and potential to have a major influence on future guidelines for mechanical ventilation during surgical procedures and is an example of how cooperation can work on a large and small scale.

from the University Department of Anaesthesia, Intensive Care and Pain Therapy, summing up the findings of the study. The study has been published in *The Lancet*.

During procedures involving the abdominal cavity, mechanical ventilation of the lungs under general anaesthesia is controlled using the positive end-expiratory pressure (PEEP). PEEP keeps the lungs and alveoli open at the end of each respiratory cycle. The influence of different PEEP levels on the patient's post-operative progress has so far been unknown. Until now, it was assumed that a high PEEP prevents the alveoli from collapsing and therefore would reduce the occurrence of post-operative lung complications.

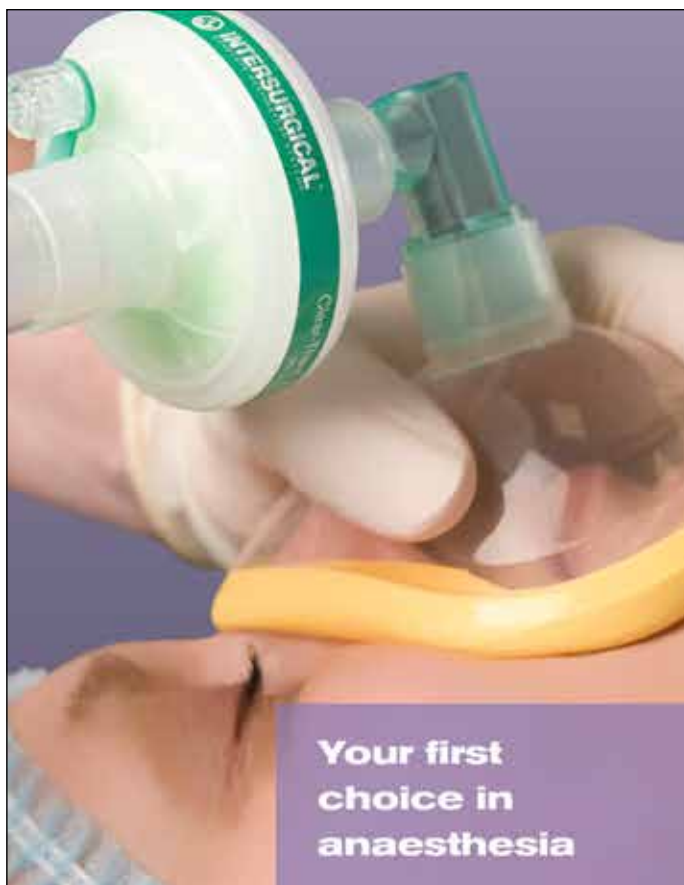
The study investigated the influence that a high PEEP level of 12 cm of H<sub>2</sub>O has compared to a low PEEP of less than 2 cm of H<sub>2</sub>O on the frequency of post-operative complications and therefore the progress of the condition following surgery to the abdomen.

The result: "An increase in pressure is not expedient," said Schmid. "During procedures carried out with a higher ventilation pressure, patients more frequently had drops in blood pressure and therefore also required blood pressure-raising medications. It was also not possible to achieve the reduced risk of post-operative lung complications that we had actually hoped for." Additional measures aimed at re-opening alveoli during surgery also failed to yield the desired improvement.

A reduction in the ventilation pressure to 2 cm H<sub>2</sub>O, on the other hand, is gentler on patients – the risk of complications is just as high as with high PEEP, although there is a less marked effect on the cardiovascular system. Schmid said: "Optimum ventilation that protects the lungs should therefore include a low breath volume with low PEEP without additional measures to open the alveoli."

Hiesmayr added: "The PROVILHO study has the magnitude and potential to have a major influence on future guidelines for mechanical ventilation during surgical procedures and is an example of how cooperation can work on a large and small scale; without the support of the entire HTG team, this work would not have been possible."

• doi: [http://dx.doi.org/10.1016/S0140-6736\(14\)60416-5](http://dx.doi.org/10.1016/S0140-6736(14)60416-5)



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# Cancer leaves a common fingerprint on DNA

Regardless of their stage or type, cancers appear to share a tell-tale signature of widespread changes to the so-called epigenome, according to a team of researchers. In a study published online in *Genome Medicine* on 26 August 2014, the investigators say they have found widespread and distinctive changes in a broad variety of cancers to chemical marks known as methyl groups attached to DNA, which help govern whether genes are turned “on” or “off”, and ultimately how the cell behaves. Such reversible chemical marks on DNA are known as epigenetic, and together they make up the epigenome.

“Regardless of the type of solid tumour, the pattern of methylation is much different on the genomes of cancerous cells than in healthy cells,” says Andrew Feinberg, M.D., M.P.H., a professor of medicine, molecular biology and genetics, oncology, and biostatistics at the Johns Hopkins University School of Medicine. Feinberg led the new study along with Rafael Irizarry, Ph.D., a professor of biostatistics at Harvard University and the Dana-Farber Cancer Institute. “These changes happen very early in tumour formation, and we think they enable tumour cells to adapt to changes in their environment and thrive by quickly turning their genes on or off,” Feinberg says.

Feinberg, along with Johns Hopkins University School of Medicine oncology professor Bert Vogelstein, M.D., first identified abnormal methylation in some cancers in 1983. Since then, Feinberg’s and other research groups have found other cancer-associated changes in epigenetic marks. But only recently, says Feinberg, did researchers gain the tools needed to find out just how widespread these changes are.

For their study, the research team took DNA samples from breast, colon, lung, thyroid and pancreas tumours, and from healthy tissue, and analysed methylation patterns on the DNA. “All of the tumours had big blocks of DNA where the methylation was randomized in cancer, leading to loss of methylation over big chunks and gain of methylation in smaller regions,” says Winston Timp, Ph.D., an assistant professor of biomedical engineering at Johns Hopkins. “The changes arise early in cancer development, suggesting that they could conspire with genetic mutations to aid cancer development,” he says.

The overall effect, Feinberg says, appears to be that cancers can easily turn genes “on” or “off” as needed.

For example, they often switch off genes that cause dangerous cells to self-destruct while switching on genes that are normally only used very early in development and that enable cancers to spread and invade healthy tissue. “They have a toolbox that their healthy neighbours lack, and that gives them a competitive advantage,” Feinberg says.

“These insights into the cancer epigenome could provide a foundation for development of early screening or preventive treatment for cancer,”

Timp says, suggesting that the distinctive methylation “fingerprint” could potentially be used to tell early-stage cancers apart from other, harmless growths. Even better, he says, would be to find a way to prevent the transition to a cancerous fingerprint from happening at all.

Other authors on the paper are Hector Corrada Bravo of the University of Maryland, College Park, and Oliver G. McDonald, Michael Goggins, Chris Umbricht and Martha Zeiger, all of The Johns Hopkins University. MEH







Danielle Touroungi, Owlstone

The Owlstone Breath Analyzer which is being tested to detect lung cancer.

# Ground-breaking lung cancer breath test in clinical trial

A clinical trial led by University of Leicester respiratory experts into a potentially ground-breaking 'breath test' to detect lung cancer is set to get underway at the Glenfield Hospital in Leicester.

It is hoped that the LuCID (Lung Cancer Indicator Detection) programme will lead to a non-invasive method of diagnosing lung cancer in the early stages. The company behind the device, Cambridge-based Owlstone Nanotech, carried out a health economic analysis and determined

that detection of early-stage lung cancer could be increased from the current 14.5% to 25% by 2020, it is estimated this could save 10,000 lives and £250 million (about US\$384m) of NHS money.

The device works by measuring volatile organic compounds (VOCs) at low concentrations in a patient's breath and offers a cheaper and smaller alternative to existing detection technologies.

Supported by the University of Leicester's enterprise and business development

team and Leicester's Hospitals, Owlstone was awarded £1m by the NHS Small Business Research Initiative (SBRI) towards the second phase of the LuCID project – the clinical trials. The aim is to further evaluate Owlstone's GC-FAIMS (Gas Chromatography – Field Asymmetric Ion Mobility Spectrometry) sensor in a rapid access lung cancer clinic at Glenfield Hospital, Leicester starting later this year. If successful, the project will pave the way to evaluate the technology

in GPs' surgeries and other hospitals.

Billy Boyle, co-founder of Owlstone, said: "If you could change only one thing in the fight against cancer, it would be to detect the disease earlier where existing treatments are already proven to save lives. FAIMS technology has the potential to bring a quick and easy-to-use breath test to a GP's office."

The clinical study is being led by Dr Salman Siddiqui, a clinical senior lecturer and adult chest physician at the Uni-

versity of Leicester and Glenfield Hospital with results of the trial expected in early 2016.

The study will be delivered by a number of key members of the lung cancer clinical team including Dr Jonathan Bennett, senior lung cancer clinician.

Dr Siddiqui added: "Lung cancer has one of the lowest 5-year survival rates of all cancers, however early diagnosis can greatly improve a patient's prognosis. Current diagnostic procedures such as a

chest X-ray, CT scan and bronchoscopy are costly and not without risks so the benefits of a non-invasive, cheaper alternative are clear.

"This project will seek to identify and evaluate biomarkers in order to improve the accuracy and reliability of breath diagnostic methods. We will also be aiming to establish FAIMS as a faster, less expensive and more portable alternative to gas chromatography-mass spectrometry (GC-MS) for breath diagnosis applications." MEH

## Detecting cell-free DNA in bloodstream set to transform cancer diagnostics

Vanderbilt University researcher William Mitchell, M.D., Ph.D., and colleagues in Germany and Canada have demonstrated a method for detecting "cell-free" tumour DNA in the bloodstream.

Mitchell believes the technique will be transformative in providing improved cancer diagnostics that can both predict treatment outcomes and monitor patient responses to therapy.

In a large retrospective study of blood samples, the researchers showed that the method, called a "liquid biopsy", could accurately distinguish prostate cancer from normal controls without prior knowledge of the genetic "signature" of the tumours, and with over three times the sensitivity of current prostate-specific antigen (PSA) screening.

The study appears in the January issue of *Clinical Chemistry* (volume 61, page 239), which is dedicated to "Molecular Diagnostics: A Revolution in Progress".

"Based on the reported data and work in progress, I believe the 'liquid biopsy' will revolutionize cancer diagnostics, not only before a patient begins therapy but also following patient responses to therapy," said Mitchell, the paper's corresponding author and professor of Pathology, Microbiology and Immunology.

The study collected serum from more than 200 patients with prostate cancer and more than 200 controls. The samples included PSA levels and prostate tissue biopsy grading, called the Gleason score.

The researchers reported that the technique distinguished prostate cancer from normal controls with 84% accuracy, and cancer from benign hyperplasia and prostatitis with an accuracy of 91%.

Because the method quantifies the inherent chromosomal instability of cancer and can be followed as a function of time without having to do an invasive tissue biopsy, it is called a "liquid biopsy".

It's been known for many years that dying cells, including tumour cells, shed DNA into the bloodstream.

But only recently has technology, notably "next-generation sequencing", made it possible to reliably distinguish and quantify cancer-specific DNA from normal controls by the identification and chromosomal location of billions of specific DNA fragments present in blood as cell-free DNA.

The prostate cancer study identified 20 "hotspots" of greatest chromosomal instability as additions or deletions in less than 0.5% of the total DNA present in human chromosomes.

While researchers around the world are working on their own "liquid biopsies",

Mitchell said the group's technique takes a broader approach. It examines the entire genome rather than known specific gene point mutations.

Robust mutation panels vastly improve monitoring since cancer cells are constantly deleting chromosomal DNA and liquid biopsies with only one or two mutations will allow cancer cell escape variants to go undetected, he said.

Since the entire genome was surveyed, the researchers were able to identify a non-coding region of the genome as a "hotspot", which may be generating previously unrecognized chromosomal control elements in prostate cancer.

The other 19 "hotspots" were rich in genes involved in replication and cell control processes that are highly relevant to cancer.

"Since cell-free DNA has a relatively short half-life in the circulation, sequencing of cell-free DNA soon after therapy may be used to detect minimal residual disease in solid tumours," Mitchell said.

The researchers reported similar results in a study of breast cancer at the 2013 annual meeting of the American Society of Clinical Oncology (ASCO) in Chicago. Mitchell further predicted that liquid biopsies will quantify immediate tumour responses to therapy. MEH



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# Radiation therapy for prostate cancer



The Cancer Care Program at CHI St. Luke's Health-Baylor St. Luke's Medical Center was established in an effort to bring high-quality, personalized education, effective, and efficient treatments to our community. Today, we remain equally committed to providing education, early detection through the highest quality diagnostic technologies, and state-of-the-art treatment options to patients with all cancer subtypes. The efforts of our physicians, nurses, and staff for more than two decades of service resulted in recognition as a high-performance cancer center by *U.S. News and World Report*.

Evidence-based care is at the foundation of care for oncology patients at Baylor St. Luke's Medical. The following study is just one example of the life-saving treatments being performed at Baylor St. Luke's.

## Intensity Modulated Radiation Therapy (IMRT) for Localized Prostate Cancer with a Policy of Uniform Dose Escalation: The Baylor St. Luke's Medical Center Experience

■ **Clinical Background:** Prostate cancer (Pca) is the most common cancer in men with more than 200,000 diagnoses and 30,000 deaths per year in the United States. Previous studies show that higher radiation doses (78-79 Gy) compared with lower doses (68-70 Gy) lead to significantly reduced freedom from recurrence of Pca, with increased morbidities in patients receiving the higher doses. Dose escalated radiation therapy has become the standard of care for radiation treatment of Pca. Intensity Modulated Radiation Therapy (IMRT) has largely replaced 3-dimensional conformal radiation therapy (CRT) as the primary form of RT for Pca. The potential advantage of IMRT compared with CRT is its ability to deliver high radiation doses to

the prostate while minimizing doses to surrounding organs. A few recent studies have shown that patients treated with IMRT had less morbidity and were less likely to receive additional cancer treatment according to CRT. Given the near-complete adoption of IMRT, it is unlikely that a randomized trial of IMRT versus conformal radiation therapy could ever be performed. Physicians and patients will likely rely upon the use of institutional retrospective studies to compare treatment results.

■ **Methods:** The records of localized Pca patients treated with dose escalation RT were reviewed, regardless of a prognostic group, to study acute and late toxicities and treatment outcome. Patients, who received palliative radiation, did not have localized disease, or did not have long-term follow-up, were excluded.

■ **Conclusion:** Presently, there is no evidence to prove that surgery to remove a prostate gland is superior to radiation as a primary treatment for prostate cancer. If the patient makes a choice of radiation, the current "gold standard" type of radiation is Intensity Modulated Radiation Therapy (IMRT). The first application of IMRT was administered by Steve Carpenter, MD, at Baylor St. Luke's Medical Center. Multiple high-quality randomized studies (randomized) prove that using higher doses of radiation results in more cures for higher risk cases. At Baylor St. Luke's, we adopted a policy of using these higher doses for all patients and studied the results of this policy for a group of 159 men who were all from a single medical clinic. All of these men were followed for a minimum of three years to a maximum of nine years. Success of the radiation was evaluated by the blood test, prostate specific antigen (PSA). The total PSA recurrence was 6.5%, but all of



these failures were from high-risk patients. We had no PSA failures in patients with low risk and intermediate risk prostate cancer. These results were accomplished with extremely rare toxicity. The rectum is attached to the prostate so the primary type of toxicity is rectal bleeding. We found only one case of temporary rectal bleeding.

Proton beam radiation is rarely used for prostate cancer since very few proton beam facilities exist. No evidence exists regarding the superiority of proton beam for prostate cancer. Reviews suggest that proton radiation results in increased side effects. Proton beam radiation has a smaller spread of low doses (clinically of unknown value) of radiation, but high doses of radiation don't closely fit the shape of the prostate compared to IMRT or CyberKnife radiation.

● For more information, contact CHI St. Luke's Health International Services

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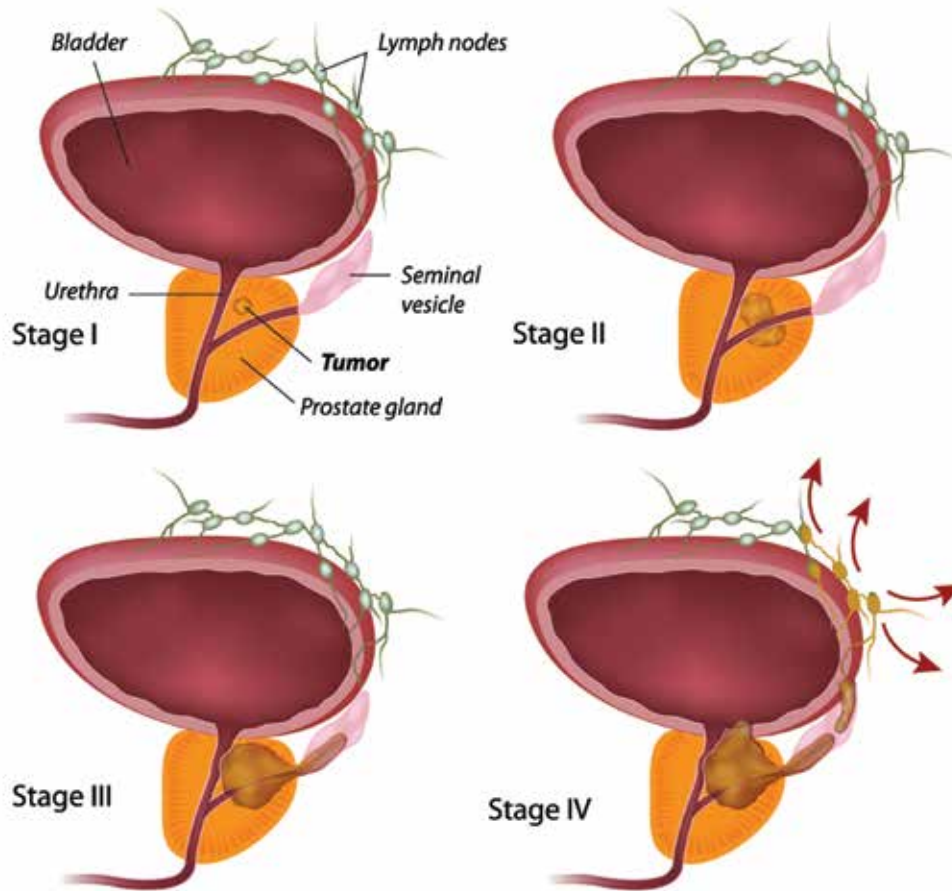
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### Stages of Prostate Cancer



## Targeted MRI/ultrasound beats standard biopsy to detect high-risk prostate cancer

Targeted biopsy using new fusion technology that combines magnetic resonance imaging (MRI) with ultrasound is more effective than standard biopsy in detecting high-risk prostate cancer. *Middle East Health* reports.

In a large-scale study, researchers found that 30% more high-risk prostate cancers were diagnosed with targeted fusion-guided biopsy than with standard biopsy. In addition, 17% fewer low-risk cancers were diagnosed with the new approach, compared to the older method. In a targeted biopsy, MRIs of the suspected cancer are fused with real-time ultrasound images, creating a map of the prostate that enables doctors to pinpoint and test suspicious areas. In a standard biopsy, doctors use ultrasound guidance to take multiple random tissue samples from throughout the gland. Unlike other cancers, such as breast cancer, which can be detected through mam-

mograms, prostate cancer is not generally diagnosed using advanced imaging.

More than 1,000 men participated in the research at the US National Institutes of Health (NIH) over a seven-year period. The study was published 27 January 2015 in *JAMA*.

“This study demonstrates that targeted fusion-guided biopsy could significantly enhance our ability to identify patients with high-risk prostate cancers that need more aggressive treatment,” says lead author Mohammad Minhaj Siddiqui, MD, assistant professor of surgery at the University of Maryland School of Medicine and director of urologic robotic surgery at

the University of Maryland Marlene and Stewart Greenebaum Cancer Center. Dr Siddiqui was a fellow at NIH when the study was conducted.

“With fusion technology, we now have a tool to help us differentiate high-risk cancers from low-risk ones that may require minimal or no treatment,” Dr Siddiqui says. “There is a concern that we over-diagnose and over-treat low-risk cancers that are unlikely to be terminal, and this technology enables us to make a more reliable diagnosis than the current standard practice.”

But he adds; “While these findings could translate into substantial benefit

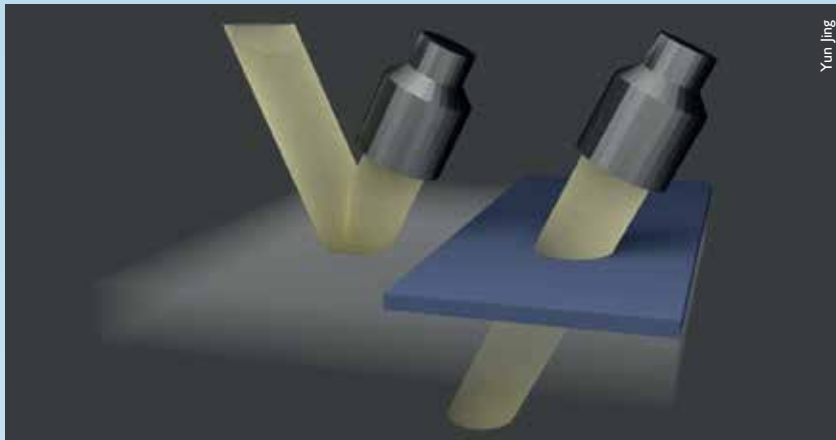


to patients, this study is preliminary with regard to clinical endpoints such as recurrence of disease and prostate cancer-specific mortality.” Dr Siddiqui says randomized clinical trials will be needed to determine the impact of targeted biopsy on clinical outcomes.

E. Albert Reece, MD, PhD, MBA, vice president for medical affairs at the University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and dean of the University of Maryland School of Medicine, says: “This study demonstrates that the MRI/ultrasound fusion biopsy technique offers benefits when compared to the current standard of care to diagnose clinically significant prostate cancer. Although further research is needed, this method holds promise, especially for diagnosing men with high-grade, aggressive cancers that may go undetected. Dr Siddiqui is actively pursuing new research initiatives to bring fusion-guided biopsy into the clinical setting.”

Dr Siddiqui plans to use MRI/ultrasound fusion in a clinical trial to identify and biopsy questionable areas within the prostate. In cases where treatment can be deferred, he will use this technology to perform more reliable active surveillance of prostate cancer requiring fewer biopsies. If the disease requires treatment and isn’t widespread, he will use focal brachytherapy – implanted radioactive seeds – to irradiate only the tumour, sparing the surrounding tissue. For patients with early-stage cancer, this option avoids many of the side effects associated with removing the prostate or irradiating the entire gland. In more severe cases, the MRI can help guide more aggressive options such as robotic surgery.

Prostate cancer is highly curable, with a 94% 15-year relative survival rate for early stages. It is often diagnosed after blood tests show elevated prostate-specific antigen (PSA), but the PSA test has come increasingly under fire for being unreliable. Due to an inability to differentiate aggressive cancers from nonaggressive types, physicians treat the majority of cases, which may lead to side effects such as impotence and/or incontinence. Treatments include surgery to remove the prostate, radiation therapy ▶



Yun Jing

Researchers from North Carolina State University have developed a technique that allows ultrasound to penetrate bone or metal, using customized structures that offset the distortion usually caused by these so-called aberrating layers. ‘In effect, it’s as if the aberrating layer isn’t even there,’ says Dr. Yun Jing, an assistant professor of mechanical and aerospace engineering at NC State University and senior author of a paper describing the work.

## New technique allows ultrasound to penetrate bone

Researchers from North Carolina State University have developed a technique that allows ultrasound to penetrate bone or metal, using customized structures that offset the distortion usually caused by these so-called “aberrating layers”.

“We’ve designed complementary metamaterials that will make it easier for medical professionals to use ultrasound for diagnostic or therapeutic applications, such as monitoring blood flow in the brain or to treat brain tumours,” says Tarry Chen Shen, a Ph.D. student at NC State and lead author of a paper on the work. “This has been difficult in the past because the skull distorts the ultrasound’s acoustic field.”

“These metamaterials could also be used in industrial settings,” says Dr Yun Jing, an assistant professor of mechanical and aerospace engineering at NC State and senior author of the paper. “For example, it would allow you to use ultrasound to detect cracks in airplane wings under the wing’s metal ‘skin.’”

Ultrasound imaging works by emitting high frequency acoustic waves. When those waves bounce off an object, they return to the ultrasound equipment, which translates the waves into an image.

But some materials, such as bone or metal, have physical characteristics that block or distort ultrasound’s acoustic waves. These materials are called aberrating layers.

The researchers addressed this problem by designing customized metamaterial structures that take into account the acoustic properties of the aberrating layer and offsetting them. The metamaterial structure uses a series of membranes and small tubes to achieve the desired acoustic characteristics.

The researchers have tested the technique using computer simulations and are in the process of developing and testing a physical prototype.

In simulations, only 28 percent of ultrasound wave energy makes it past an aberrating layer of bone when the metamaterial structure is not in place. But with the metamaterial structure, the simulation shows that 88% of ultrasound wave energy passes through the aberrating layer.

“In effect, it’s as if the aberrating layer isn’t even there,” Jing says.

The technique can be used for ultrasound imaging, as well as therapeutically - such as using ultrasound to apply energy to brain tumours, in order to burn them. **MEH**

and active surveillance during which patients are continuously monitored. Most men diagnosed with prostate cancer have a nonaggressive form of the disease, with tumours that grow very slowly – so slowly that the men may never experience any cancer-related complications and die from other causes.

The study of 1,003 men was conducted at the NIH in Bethesda, Maryland, from 2007-2014, with Peter A. Pinto, MD, the head of the prostate cancer section of the urologic oncology branch, serving as the senior investigator. The participants were referred for biopsy because of elevated PSA or an abnormal digital


rectal exam. They received targeted and concurrent standard biopsies.

Researchers noted that 461 prostate cancer cases were diagnosed with targeted biopsy vs. 469 cases with standard biopsy. Targeted and standard biopsies produced the same results in 69% of the cases. But the scientists found that 30% more high-risk cancers – those that doctors want to detect – were diagnosed through targeted biopsy than standard biopsy (173 vs. 122 cases) and 17% fewer low-risk cancers – those that are often over-diagnosed and over-treated (213 vs. 258). Adding standard biopsy to targeted biopsy led to a 22% increase in cancer

diagnoses, the vast majority of them for low-risk cancers.

Researchers also found that targeted biopsy was better able to predict whether the disease was low- or intermediate risk than standard biopsy or the two approaches combined. They were able to make that determination by comparing biopsied tissue with tissue taken from a patient's prostate after it was later surgically removed.

**Reference:**

Comparison of MRI-Ultrasound Fusion-Guided Biopsy with Ultrasound-Guided Biopsy for the Diagnosis of Prostate Cancer. doi:10.1001/jama.2014.17942. 

## Study: ultrasound can identify pregnant women at risk for respiratory failure

An ultrasound of the lungs could help doctors quickly determine if a pregnant woman with preeclampsia is at risk for respiratory failure, suggests preliminary research published in the April 2014 issue of *Anesthesiology*.

About 60,000 women worldwide die as a result of preeclampsia, which causes severely high blood pressure. Potential complications include stroke, bleeding and excess fluid in the lungs – pulmonary edema – which can lead to respiratory failure. The study suggests a lung ultrasound can help doctors easily learn whether a woman with preeclampsia is suffering from pulmonary edema and ensure she receives the correct treatment.

“Lung Ultrasound is fast, safe, noninvasive and easy to use,” said Marc Leone, M.D., Ph.D., lead author of the study and vice chair of the department of anesthesiology and critical care medicine, Hopital Nord, Marseille, France. “We found it allowed us to quickly assess whether a woman with preeclampsia had pulmonary edema and confirm the severity of the condition.”

Doctors often measure urine output to determine if a woman needs fluid administration, but the results are wrong about half of the time. “Lung ultrasound enables the medical team to identify which women really need the fluid treatment,” noted Dr. Zieleskiewicz, the study’s first author.


Pulmonary edema is typically caused



by heart failure, but also can be caused by lung inflammation. Researchers analyzed the use of lung ultrasounds, which can assess lung edema, are easier to use than cardiac ultrasound and can be performed with devices commonly found in maternity wards. Lung ultrasound highlights white lines mimicking comet tails, irradiating from the border of the lungs. These lines are the reflection of water in the lungs. The detection of three or more lines strongly suggests the diagnosis of pulmonary edema.

Researchers performed both cardiac and lung ultrasounds before and after delivery in 20 women with severe preeclampsia. Five of the 20 women had pulmonary

edema prior to delivery according to lung ultrasound, while four had the condition according to the cardiac ultrasound. The lung ultrasound identified a patient with non-cardiac pulmonary edema, which the cardiac ultrasound did not detect.

The test results could help ensure that pregnant women with pulmonary edema not be given intravenous or excess fluids, which worsens the condition and can lead to respiratory failure. Typically, women with pulmonary edema are treated with oxygen and medication to lower the blood pressure or rid the body of excess fluid. In real time, lung ultrasound also serves to observe improvement or worsening of pulmonary edema. 

# New technique to diagnose atherosclerosis shows promise

A new technique developed at Sweden's KTH Royal Institute of Technology shows promise for early diagnosis and treatment of cardiovascular disease.

Hardening of the arteries, or atherosclerosis, is a common disorder that occurs when fat, cholesterol, and other substances build up in the walls of arteries and form hard structures called plaques. The condition can lead to heart attacks and strokes.

To diagnose atherosclerosis, doctors rely on ultrasonic grayscale images to visually assess vascular function and how very large arteries move. The less mobility, the more developed the case of atherosclerosis.

But it is an indirect measurement. Better diagnoses can be made when the stiffness of the blood vessels can be analysed, explains Elira Maksuti, a researcher at the Department of Medical Imaging Technology at KTH.

"You need a doctor who is an expert and has extensive experience in order to get a

good diagnosis," she says.

But by combining the technologies of shear wave elastography and ultrasound, Maksuti and researcher Erik Widman, have developed an inexpensive and non-invasive method not only for checking the stiffness of blood vessels, but for analysing the type of plaque present in the artery.

Maksuti says their method not only offers a potentially more effective way to diagnose atherosclerosis, but the ultrasound technology that it relies on is less expensive – and safer – than other imaging alternatives, such as magnetic resonance imaging (MRI) or computed tomography (CT).

The technique was tested on artificial blood vessels, or "phantom" vessels, which allowed the researchers to experiment with not only vascular stiffness, but also pressure and flow.

Maksuti says that with the success of tests on these phantoms, the next step is testing the

technique with blood vessels from pigs. "These tests also look very promising," she says.

## Future applications

"We see two major future applications before us," she says. "The first is to determine when a patient's blood vessels are becoming rigid, that is, when the atherosclerosis process begins.

"The second application is to be able to diagnose the type of calcification – or plaque – present in the blood vessel." Not all plaque is the same: it ranges from hard to soft. If the plaque is soft and has a thin, hard shell, it is more likely to come loose inside the blood vessel.

It's a difficult distinction to determine. But the information is critical in deciding whether to open the artery surgically. "Today it is rather a matter of guessing. A doctor cannot know," she says. And to complicate matters, such operations can also generate strokes. **MEH**

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In his address, the Right Honourable Professor the Lord Darzi of Denham, Executive Chair of WISH, calls for more collaboration.

# World leaders meet in Doha in effort to find solutions to major healthcare challenges

More than 1000 world leaders, policy makers and healthcare experts gathered in Doha from 17-18 February to discuss new solutions to the most urgent global health challenges at the second World Innovation Summit for Health. *Middle East Health* reports.

With the outbreak of Ebola, the continuing rise in heart disease, the advancing wave of diabetes, the growing cost of cancer care and the growth of mental illness, there has never been a more pressing time to address these issues and identify solutions. The World Innovation Summit for Health (WISH) presented a unique opportunity for experts from around the world to do this by sharing and exploring the best evidence-based ideas in healthcare. The two-day summit served as a melting pot of ideas, innovations, solu-

tions and action – aimed at saving lives and saving money.

Over the course of the two-day summit eight major reports were published, examining research and case studies from around the world to provide new learnings and solutions to diverse and widespread health challenges. These papers offer workable, cost-effective and evidence-based solutions for governments to adopt and implement around the world.

WISH also showcased some of the newest and most ground-breaking health

innovations from around the world, including virtual surgery, 3D-printed prosthetics and mobile apps.

This year's event WISH hosted two special panels; one on Genomics, looking at the future of personalised medicine and the ethical dilemmas this new frontier in healthcare could bring; and one taking on Newborn and Maternal Health hosted alongside The Bill & Melinda Gates Foundation, Harvard University and Save the Children.

Speaking at the opening of the event,

In the face of growing health concerns, reducing budgets and increasingly fluid global borders we face a crossroads in world health that presents a unique dilemma for us all.

Engineer Saad Al Muhannadi, President of Qatar Foundation said: “WISH is a leading influence in global healthcare and I am very proud of the indispensable contribution it is making to healthcare systems worldwide. By bringing the world’s leading innovators to Doha, WISH is creating a truly unique opportunity for unprecedented collaboration, promoting innovations that will form the basis of the healthcare systems of the future. For me, it is one of the best examples of how Qatar Foundation’s global healthcare initiatives create real benefits for people both here in Qatar, and in countries around the globe.”

The Right Honourable Professor the Lord Darzi of Denham, Executive Chair of WISH, said: “In the face of growing health concerns, reducing budgets and increasingly fluid global borders we face a crossroads in world health that presents a unique dilemma for us all. We must act urgently to share our experiences, combine our insights and progress solutions together. Only through collaboration can we be sure to find the right answers and only with innovation can we deliver the outcomes needed. WISH provides the platform for such action and I am proud to be welcoming the world’s experts to Doha to create a healthier future for all.”



WISH reports and papers

[www.wish.org.qa](http://www.wish.org.qa)



Her Highness Sheikha Moza bint Nasser delivers the opening address at the World Innovation Summit for Health (WISH) 2015. Her Highness called for increased investments that link healthcare and education.

## Sheikha Moza welcomes delegates

Her Highness Sheikha Moza bint Nasser, Chairperson of Qatar Foundation and Founder of WISH welcomed attending dignitaries and delegates with this address:

I am pleased to welcome you back to Doha, and I applaud your continued commitment and contribution to the World Innovation Summit for Health (WISH).

I am happy to welcome representation from over 80 countries around the world and 19 governments. We are honoured by your presence here in Qatar and I hope that you will find three things from your stay here:

First, I hope that you will learn about

innovations that can improve your health systems when you get home. Second, I hope that you will build your networks of friends and colleagues in other health systems – a community of health system leaders. And third, I trust that you will leave here with the confidence that WISH remains a benchmark to use in the advancement of health care and health policy.

Today, as we convene again at WISH, our aim is to share a discussion on the health care issues that we can all agree are a priority.

We cannot overcome our healthcare challenges unless we begin to invest in solutions that link health and educa-

tion, as they are intrinsically connected. And innovation in education leads us to innovation in health.

It is our wish to promote the cause of both access to basic primary education and universal health coverage.

Ladies and gentlemen,

Statistics indicate that there are at least a billion people each year who have no access to the health services they need. Two hundred and fifty million of them are devastated by the financial consequences resulting from the fees they pay for such services.

Against the backdrop of such statistics, the WISH conference brings together decision-makers, partners, scientists and experts to help change our global health reality - one that works towards achieving a greater ambition of providing quality health coverage for all - wherever they may be.

Healthcare and healthcare access go to the heart of human rights.

Providing basic health care for all is not the only concern we share globally. Collective challenges include the emergence of new and serious epidemics such as Ebola.

These illnesses, stemming from unconventional origins, are outside our traditional healthcare concerns.

Does this mean that from time to time we are susceptible to the invasion of such epidemics?

Do we ignore the skeptical voices that question the origins of these diseases?

Ladies and gentlemen,

From the beginning, we wanted WISH to be a platform to test ideas, research, and the highest levels of scientific progress made in medical care around the world.

We also want it to be a venue to measure the absorption of innovation, to gather decision-makers, companies, academia and those who can and will influence policy change.

Innovation does not spur out of a political decision; it can only do so if it is embedded within the social and cultural fabric, as a natural outcome of development.

For Qatar, WISH makes an important contribution to improving our health system. After the first summit, we launched the WISH Implementation Taskforce, with the specific responsibility of translating evidence into policy and policy into action. The Taskforce includes representatives from health-care providers, policy makers, regulators and other partners.

We have applied the lessons from the work at WISH 2013 on patient experience through the launch of a programme called "Putting Patients First". An interactive patient experience app has been launched that measures the quality of the patient experience in the hospital in real time, enabling our doctors and hospital managers to respond rapidly to any issues - and to get the feedback from really great care.

This year, WISH has also established a network for youth and young innovators to support the future of innovation.

Recently, a new Bio-Bank building has been opened which will help support the Qatar Genome Project, which we announced at last year's summit. This will help move us towards personalised medicine in the future.

It is our belief that the people of Qatar deserve excellent care here at home. That is why we are investing in excellence in patient care and clinical research at Sidra, which will be a world-leading medical centre. Through the Hamad Medical Corporation and Primary Health Care, we are constantly striving to improve the quality of care available to all. We have adopted health insurance in Qatar, which aims to create competition between the public and private sectors, and raise the level of care for all citizens.

Conventional solutions will not work to address our current global health challenges.

So, perhaps the ultimate goal of our coming together at WISH is the need for innovative solutions to these challenges.

Be at the forefront of innovation. We will be with you, at the forefront of supporters.

May you succeed in your endeavours.

## Diabetes: Rising to the challenge

An expert report looking at the prevalence of type 2 diabetes around the world, highlights the rising rates of the disease and the "staggering" associated health and economic impacts.

The report, *Rising to the Challenge*, was published at the World Innovation Summit for Health in Doha, Qatar, and calls for policymakers to address the serious, urgent and universal diabetes challenge. It notes that an estimated 10% of the world's adult population - nearly 600 million people - will suffer with the condition by 2035.

Experts argue that diabetes currently lacks the public or political priority that it should have and proposes three clinical goals for policymakers; improve disease management for people with diabetes to reduce complication rates; establish effective surveillance to identify and support those at risk of type 2 diabetes; and deliver a range of interventions to help create an environment focused on prevention.

The report pulls together practical examples of initiatives that have been effective at combating diabetes prevalence around the world and concludes by outlining clear steps for addressing the diabetes challenge.

Professor Stephen Colagiuri, Professor of Metabolic Health at the University of Sydney, Australia, who led the team that published the report, said: "This report aims to equip policymakers around the world with tools to stem the tide of diabetes. Doing nothing is not an option, so it is vital that we share and learn from best practice examples from around the world and put interventions in place.

"The World Innovation Summit for Health has been a great platform for health leaders and policymakers to share ideas and expertise and I am confident that many of these initiatives will be taken forward."

Key facts from the report:

- Type 2 diabetes currently affects about 350 million people worldwide
- The cost of direct healthcare for diabetes and its complications was around 11% of total healthcare costs worldwide in 2014 - equivalent to \$612 billion, greater than the entire GDP of countries such as Nigeria or Sweden
- As a country's GDP grows, so does



## What is the one event in the Middle East you can't afford to miss?



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Dr Peter Pronovost presents a talk on Patient Safety at the World Innovation Summit for Health

Doing nothing is not an option, so it is vital that we share and learn from best practice examples from around the world and put interventions in place.

the prevalence of diabetes and the diabetes spend

- 80% of the world's diabetic population live in countries where only 20% of the global budget for healthcare is spent

But while shocking statistics give us a clear picture of the scale and urgency of the problem, how to tackle the issue is not so straightforward. The Forum report argues that diabetes lacks the public or political priority that it should have proportional to its health and social impact.

The report's focus is therefore on proposing actionable recommendations which enable policymakers to improve disease management, increase effective surveillance and implement prevention strategies, based on innovative approaches from around the world.

Both the health and economic consequences of diabetes are often underestimated and implementing changes to tackle

the global issue of type 2 diabetes is a complex area. The report considers the multiple interventions needed from a range of government departments and advocacy groups to tackle the issue – from treatment and screening, to prevention via both soft 'nudges' and tough legislation.

The Forum report identifies three key policy goals for policymakers, summarized as follows: improve disease management for people with diabetes to reduce complication rates; establish effective surveillance to identify and support those at risk of type 2 diabetes; and deliver a range of interventions to help create an environment focused on prevention. The report concludes with four steps to help address the diabetes challenge based on the innovative practices considered by the Forum Panel.

- Download the report: [www.wish.org.qa](http://www.wish.org.qa)

## Errors in patient safety claim 400,000 lives a year

It's the third biggest killer in the US and costs US\$1 trillion a year. Errors in patient

safety rank third only to heart disease and cancer claiming 400,000 lives each year – the equivalent to two jumbo jets every day<sup>1</sup>. Patient Safety is clearly a serious global public health issue and yet is often over-looked in national policy and global agendas.

A report published today by the World Innovation Summit for Health (WISH), a global initiative of Qatar Foundation for Education, Science and Community Development, aims to change this by identifying reasons for the ongoing heartbreak of preventable harm in healthcare and offering solutions to bridge the gaps prevalent in today's approach to Patient Safety.

Failure to address the growing concern of Patient Safety contributes to waste in the healthcare system and sky-rocketing costs, world leading experts said today. It is estimated that as much as one-third of all US healthcare spending was consumed by waste in 2011. WISH's global experts identified key issues such as a lack of regulation, understanding and integration as well as offering a range of innovative solutions that will provide recommendations to global policy makers.

Patient Safety has historically been recognised as a significant area for im-



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provement in healthcare systems around the world but despite decades of evolving practice and trillions of dollars in investment there are still too many incidents of harm and even deaths. Intensive care units, operating rooms, emergency rooms and clinics are packed with an ever-increasing number of devices that do not talk to each other. Now, more than ever, Patient Safety could truly benefit from a more holistic approach both in developed and less-developed regions; initiatives in the UK have reduced MRSA by 90% whilst the current Ebola outbreak required the new thinking around the challenge of waste disposal and protection of workers in under-resourced regions.

In an effort to improve patient safety through an holistic, sector-wide perspective, Dr Peter Pronovost, Senior Vice President for Patient Safety and Quality, and Director of the Armstrong Institute for Patient Safety and Quality at John Hopkins Medicine in the United States, oversaw a team of distinguished international experts, drawn from every field of patient safety to inform and produce today's unique report.

Dr Pronovost said: "For too long in healthcare, the mind-set has been that patient harms are inevitable, that silos are natural, and that heroism rather than thoughtful design keeps patients safe.

"Through the work undertaken behind the WISH report it is clear that what is missing is a systematic, sector-wide approach, underpinned by sound principles in safety science. In their current state, healthcare systems too often harm rather than help."

"In our WISH report we advocate for a holistic system solution to eliminate preventable harm in healthcare. Patient safety is – or should be – one of the fundamental building blocks of every healthcare system."

The issues addressed in WISH's Patient Safety report include an exploration of how a systems integration approach can improve patient safety; how health systems can be designed, procured and delivered to enhance patient safety, experience and outcomes; the human and economic costs of safety failings; and learning from other high-risk sectors such as aerospace and defence.

● Download the report: [www.wish.org.qa](http://www.wish.org.qa)

## Financial burden of dementia is unsustainable

A report aimed at tackling the global rise in dementia and identifying triggers for treatment, care and funding was published at WISH. Research shows that worldwide 44 million people live with dementia and this figure is set rise to 135 million by 2050.

The report notes that dementia is a major cause of disability and dependency among older people worldwide. In 2010 the global cost of care reached an estimated US\$604 billion worldwide, equivalent to one per cent of global gross domestic product – meaning if dementia care were a country, it would be the world's 18th largest economy.

With such huge social and financial burdens, WISH aims to lead the world's healthcare community in addressing this devastating and prevalent disease.

Global understanding of dementia lags behind other diseases, often mistaken as a normal part of aging. Whilst there continues to be a social stigma surrounding dementia, the level of necessary funding does not match the need – in the US funding for HIV/AIDS research is more than five times the level of that for dementia research, despite the fact there are five times as many Americans with dementia than with HIV.

To encourage global focus on this growing epidemic WISH chose dementia as a research theme and appointed Ellis Rubinstein, President and CEO of the New York Academy of Sciences, as Chair of the Dementia Forum. Over the past year Rubinstein has led a multidisciplinary team of distinguished experts, drawn from around the world to research and provide recommendations about the prevention and treatment of dementia focussing on three core themes; prevention, diagnosis and care, and cure.

The report explores a wide range of dementia-related issues, including the current barriers and challenges to addressing dementia, and innovative solutions; including raising public awareness, care innovations, new financial models and more effective regulatory frameworks. The report offers 10 key policy recommendations for governments to consider, aimed

at improving both outcomes for individuals living with dementia and for economies struggling to pay for the costs of caring for dementia.

Rubinstein said: "It's clear that there is not one simple panacea for dementia that lies just beyond our reach; rather, it will take the concerted and integrated efforts of leaders and innovators in all sectors to move the needle on this extraordinary social and economic challenge. This is why we are counting on WISH."

### Strain on healthcare systems

The report notes that dementia has severe effects on the quality of life of individuals and causes tremendous strain on both caregivers and healthcare systems. The costs of providing dementia care are substantial – and unsustainable – and a reliance on informal care in high-, middle- and low-income countries predominates.

There is therefore an increasing and urgent need to identify and disseminate innovative and cost-effective approaches to early diagnosis and disease management. The World Dementia Council and other organizations have called for the development of a cure or disease-modifying therapy by 2025. Alongside work to progress this ambition, there is also significant work being undertaken in prevention and risk reduction, as well as diagnosis and care.

The report provides 10 key policy recommendations for governments to consider. They are:

- i. develop a plan to address dementia nationally
- ii. increase awareness of dementia
- iii. expand healthy living to include brain health
- iv. improve the evidence base for dementia
- v. improve dementia care
- vi. strengthen integrated and co-ordinated health and social care systems
- vii. institute and fund longitudinal studies
- viii. reduce barriers to drug development
- ix. commit government investment of at least one percent of a country's cost of care
- x. facilitate innovative finance mechanisms

● Download the report: [www.wish.org.qa](http://www.wish.org.qa)



# Advantech, making healthcare faster, easier and more efficient

Taiwan-based Advantech, which is one of the world's leading providers of medical computing systems and services, showcased a selection of innovative new clinical technology at Arab Health 2015. It is the third year that Advantech had a pavilion at the show, with the company working with local partner ME Tech Solutions to explore new opportunities in the regional market. "There is a lot of potential in this region, and we are expanding through Saudi Arabia and the rest of the GCC," says Sarah Lin, marketing at Advantech. "As a gold sponsor for Arab Health, it is a great opportunity to meet potential customers from our target countries throughout the region, and our next focus will be to expand further through Africa, Europe, Russia and America." Currently, Advantech's medical technology solutions are used in a number of hospitals in the region, including Qatar's Hamad Medical Corporation.

The star product at the event was Advantech's 7" Pocket Pad, which recently won the prestigious Taiwan Excellence Award. The clinical grade device is a handheld mobile computing platform, designed for use by medical staff in mobile healthcare and medical equipment applications. Running Microsoft Windows 8.1 Industry Pro, the user-friendly interface features a seven-inch high definition LCD touchscreen, as well as a barcode scanner, 2MP front camera and 8MP rear camera.

"The idea is to save more time and save more lives," explains Lin. "Weighing just 400g, the Pocket Pad is very lightweight, and easily fits in a doctor's pocket. Instead of the usual paperwork, they can scan a patient's barcode directly, and it will link to the HIS system in the hospital. You can see their DICOM, their vital signs, and can get direct updates from other hospitals. It is an ideal solution if hospitals are moving towards a paper-less environment, or if they want patient records to be completely online and centralized."

Unlike other PDAs, the Pocket Pad has been developed especially for hospital environments: the enclosure is IP54-rated to

protect the unit against dust and water, it is easy to clean with water or alcohol for effective contamination control, and has been drop-tested at 90cm to ensure continuous operation.

Another innovation from Advantech shown at Arab Health was its advanced point-of-care touch computer range, designed for use in critical care. The highly sophisticated systems offer real-time monitoring of vital data, playing a vital role in tracking patients' vital signs and translating physiological data into clinical information. Advantech's POC line ranges from the 15.6" POC-W152 to the 23.8" POC-W242, with all POC terminals equipped with Intel Core i7 processors, and the latest CPUs, to ensure the highest performance. "The POC systems are amazing for doctors, making everything more visible," says Lin. "For the operating room, surgeons can view data in 2D and 3D during surgery, without the need for 3D glasses." The touch-screen interface uses IPS (In-Plane Switching) technology to achieve a crystal-clear image without distortion, and can even be used with a gloved hand.

"Our technology is about making medical professionals' life easier, and clinical processes faster and more efficient," says Lin. "We are trying to help hospitals become smarter; our computers save more time for doctors and nurses, so they can focus more on their daily jobs, and less on paperwork and admin." One such time-saving device at Arab Health was Advantech's Advantech Medical Intelligent Station (AMiS), a highly integrated, computerized nursing cart to optimize the patient care process and enable mobile point-of-care. With nurses and other health professionals spending a large percentage of their time moving from place to place as they provide care, Advantech is calling it 'a nurse's best friend'. Unlike other carts, which tend to be stacked with desktop computers or laptops on board, the AMiS system comes with a mini-ITX motherboard inside, allowing ease of use, flexibility and the option to upgrade the technology – minimizing the total cost of ownership. The computer features AMiS\_

The Pocket Pad is very lightweight, and easily fits in a doctor's pocket. It is an ideal solution if hospitals are moving towards a paper-less environment, or if they want patient records to be completely online and centralized.

Link, an application that provides software management settings for hospital IT staff, with remote monitoring to keep track on all units throughout a hospital. With a Windows operating system, the user-friendly, large display ensures accuracy of data entry, and also currently offers language support in English, German, Dutch and Chinese. The intelligent design ensures that it is stress-free to use, including front and rear handles, height control and no sharp edges. It can also adapt for a range of medical needs, such as converting into a medicine cart, enabling on-the-move digital medication management.

"Practicality lies at the heart of Advantech's key products," explains Lin. With applications outside of the medical industry (libraries, restaurants, hotels and airports, for example), the company's Flagship Ubiquitous Touch Terminals have also proved highly convenient in hospitals and clinics too. "The UTC-620 touch computer has proven very popular in Taiwan," says Lin. "There, national hospitals often have thousands of people waiting for treatment. When this system is implemented in waiting rooms, it offers flexibility, and people no longer need to wait in line – they are notified by their mobile phones when it is their turn. This means no queues, and a less stressful experience." MEH



# Swedish Pavilion brings leading healthcare companies to the Middle East

2015 is the third year that Sweden has participated in Arab Health, and it was also the largest Swedish Pavilion at the event to date. During the exhibition, the Embassy of Sweden in Abu Dhabi and Business Sweden in Dubai joined forces to showcase a record 21 leading Swedish life science companies, including Elekta, Global Health Partner and with a further eight large Swedish organizations presenting their own stands. The event was attended by Swedish State Secretary for Health Care, Public Health and Sport, Her Excellency Agneta Karlsson, and Jan Thesleff, Ambassador of Sweden to the UAE.

The presence of Swedish life science and healthcare companies in the Middle East and North Africa has grown significantly over the past few years. With key meetings at the conference including the Minister of Health for the UAE, H.E. Mr. Abdul Rahman Mohammed Al Oweis, and the State Secretary for Iraq, the sector has seen an increase of 33% for Swedish exports to the region. Karlsson explains: “We have had several bi-lateral meetings, and have a memorandum of understanding with both Saudi Arabia and Iraq, so we have intensified relationships between Sweden and this region over the last few years. We have created a platform for Swedish companies to be able to work with partners in the region, including products, services, training and turn-key solutions.”

As a country, Sweden is renowned for its innovative healthcare system, which is publicly financed with a number of private healthcare providers. 3.4% of the country’s GDP is allocated to research and development, which has placed Sweden at the very top of the Global Innovation Index. “Healthcare in Sweden is based on need, not money, and is almost free for patients,” says Karlsson. “It is a mixed responsibility between the state and the local authorities. We have legislation on a national level, but otherwise it is decentralized, organized and mostly financed by individual regions, which decide on healthcare policy, for example the num-

ber of doctors employed, the technology which is utilized.”

The home of the Nobel Prize since 1901, an accolade for groundbreaking research, Sweden’s healthcare system is technology intensive and innovation-based. “There is a long tradition of collaboration between research and the Swedish healthcare system,” says Karlsson. “We have very good patient registers, so we are very advanced when it comes to following up with certain diseases – asthma and diabetes, for example – so we can watch outcomes and use these as part of our ongoing research.”

Citing many similarities between the UAE and Sweden – a small country with

We have a good situation when it comes to public health, although we do face the same challenges as the Middle East region, with an increase of lifestyle diseases such as diabetes and obesity.


small population, a federal government, a public health system and smaller private system – the Swedish delegation believes that it has much to offer the UAE and the region as a whole. “We are not primarily here only to sell products,” says Cherif Sayed, Head of Region Middle East and Africa, Business Sweden. “We want to connect the whole value chain, to go from intellectual partnerships to the actual product partnerships. We would like to see the model of Sweden as a partner to the UAE, and other countries in the region, rather than just trying to sell the different projects in the region.”

Sweden already operates projects with local universities, such as Fatima College of Health Sciences, and an education campaign on infection control for nurses, and is in discussions with Sheikh Zayed Uni-

versity Hospital to provide educational programmes. Swedish companies currently bringing their extensive knowledge and expertise to the Middle East include Global Health Partner, which operates and manages the Rashid Centre for Diabetes and Research in Ajman, UAE, and Diaverum, which has partnered with the Kingdom of Saudi Arabia to treat renal patients in Riyadh, Jeddah and Dammam, with plans to run 93 kidney centres across the country, caring for approximately 5,000 patients.

Prevention, rather than aftercare, is a key focus for the Swedish delegation at Arab Health. “Her Excellency is responsible for Healthcare, Public Health and Sport, so the preventative aspect is actually covered by her portfolio, a new remit since the current Swedish government came into power last October,” explains Thesleff. “We would like to work more closely with the UAE with regards to prevention, to see more screenings and more pro-active care, not only with diabetes, but with a wide range of preventable diseases,” adds Karlsson.

Sweden’s advanced primary care facilities are an important part of the country’s healthcare system, taking some emphasis away from the much more expensive hospital care and advanced care. “We have a good situation when it comes to public health, although we do face the same challenges as the Middle East region, with an increase of lifestyle diseases such as diabetes and obesity,” says Karlsson. “Primary care is an important factor in managing this situation economically, and it is worth mentioning that Sweden is very cost-efficient when it comes to health care, with one of the world’s lowest expenditures in terms of GDP.”

During Arab Health, the Swedish delegation held a number of seminars highlighting the country’s areas of focus, including: Lifestyle Diseases; Patient Handling and Elderly Care; Telemedicine and E-Health; Upcoming Projects in Iraq; and Lifestyle-Related Diseases. 

# Global networking to enhance the future of medicine

Wayne Keathley, the inaugural president of the newly formed Baylor St. Luke's Medical Center was in the Middle East in January to develop new relationships in the GCC. **Liz Collins** spoke to him on the sidelines of the Arab Health expo.

January 2014 was a major turning point in the history of three internationally prominent healthcare institutions in the United States. That's the date in which St. Luke's Hospital and Health System, the Baylor College of Medicine, and the Texas Heart Institute – all in Houston, Texas – joined with Catholic Health Initiatives, a Denver-based national health system to create the Baylor St. Luke's Medical Center. This unique partnership formally connects one of America's top hospitals, a renowned medical school, an internationally prominent center of cardiovascular medicine and research, and one of the nation's largest health systems. The objective was to position these institutions for the challenges and opportunities ahead in reform of the American healthcare system.

Wayne Keathley was a leading member of the team that constructed and negotiated this relationship and became the inaugural president of the newly formed Baylor St. Luke's Medical Center. Previously, he had worked for the Baylor College of Medicine to oversee construction and commissioning of its new hospital which is now formally part of the newly formed enterprise. Prior to his work in Houston, Keathley served for a decade as President and Chief Operating Officer of The Mount Sinai Hospital in New York. He has a career in healthcare administration that stretches over three decades.

Keathley was recently in the Middle East to strengthen existing relationships and develop new ones between healthcare providers and leaders in the GCC with Baylor St. Luke's Medical Center, the Baylor College of Medicine, and the Texas Heart Institute. He travelled with a group of prominent physicians and leaders from those organiza-

tions including Dr. Bud Frazier, a prominent cardiac surgeon and pioneer in the field of ventricular assist devices (for heart failure patients) and artificial hearts. Dr. Frazier is a professor at the Baylor College of Medicine and a senior leader of the Texas Heart Institute.

Although the relationship between the Middle East and institutions in the Texas Medical Center has always been strong, he believes that it has the potential to develop even further and to leverage new opportunities created by telemedicine, video conferencing, and the emergence of the "digital age" of medicine. He pointed out that the reality of "personalized medicine" which relies on the understanding and application of genomics in diagnosis and treatment of disease – cancer, neuro-degenerative disease, and cardiovascular illness – positions us to collaborate and work with healthcare providers and institutions across wide geography. The Baylor College of Medicine is the top ranked genetics and cell biology programme in the United States and is a leader in advancing the understanding of genomics to "personalize" more effective treatments for many diseases. Since the information we gain from the genetic sequencing of tumours, tissue, and even infectious bacteria and viruses is "digital", it creates new opportunities to share diagnostic information, guide new therapy, and create a mechanism for collaboration between physicians and scientists across the world.

Each year tens of thousands of patients travel from the Middle East to the United States and the Texas Medical Center for medical care. Keathley anticipates the opportunity to strengthen the relationship between prominent leaders in healthcare



Wayne Keathley, president Baylor St. Luke's Medical Center

in the United States and partner institutions in the Middle East so that much of this travel can be avoided. He believes that we are entering a period of great transformation in the model of healthcare and that it will translate into better access for patients, more convenient care – often closer to home – and a level of coordination and communication with physicians and providers that is of better quality, more affordable, and of greater satisfaction to patients and their families.

Advances in technology, communication, and the science of medicine has the potential to transform healthcare. But Keathley believes that it all begins with the importance of relationships between institutions, physicians, scientists, and administrators. His hope for this trip to Dubai was to build on the valued relationships that exist today and to develop new ones for the future. These are exciting times for physicians and leaders in healthcare and most certainly for the patients they serve. **MEH**

## UK companies enjoy successful 40th Middle East exhibition

The 40th edition of Arab Health Exhibition & Congress which ran from 26 – 29 January in Dubai, was officially inaugurated by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai.

The Rt Hon Earl Howe, who is the UK's Parliamentary Under Secretary of State for Quality, and Lord Kakkar, who is a professor of surgery at University College London and a life peer at the House of Lords, visited the Yorkshire Pavilion during a tour of the wider UK Pavilion at the opening day of Arab Health. Both spoke to both the Yorkshire and Humber Academic Science Network (YHAHSN) and also GBUK Ltd, one of the UK's market leaders in enteral consumables.

Twenty Yorkshire companies exhibited on the Yorkshire Pavilion at Arab Health which was organised by Medilink Yorkshire and Humber.

Peter Wheeler, the Medilink International manager, said: "I've been really pleased with how the show has gone in this 40th year of Arab Health. All of our clients have been really happy – lots of business has been won and lots of leads have been



The GBUK team with Earl Howe

generated. The show has certainly come a long way in 40 years!

"For anyone thinking of exhibiting at Arab Health in the future, I would say that the Middle East is an important strategic growth market for companies in the healthcare sector. Markets across the region are investing heavily in developing their healthcare infrastructure and that creates great opportunities for UK companies.

"I would encourage all companies to consider the Middle East as an export destination."

Tom Lindley, Head of Commercial Development for the YHAHSN, said: "This is the second time we've been out to Arab Health, the first as an exhibitor. The event has been a great success, it has allowed us to not only meet with other UK-based

academic institutions, industry institutions and healthcare providers, it has also provided us with an opportunity to engage with international partners from across the Gulf and Emirate states.

"It's also created an opportunity for us to showcase internationally the success we're having in Yorkshire & Humber, with a view to generating income back into the region."

Kim Robinson, Marketing Manager for Sidhil Ltd, said: "It's our fifth time at Arab Health. This year has gone really well. We've launched our new range of dynamic and hybrid mattresses which have had a lot of interest, so hopefully these products will take off in the upcoming year. The show has also given us a really good opportunity to catch up with existing distributors in the UAE." MEH

## Timesco exhibits their single-use laryngoscopes

Timesco says once again they had an excellent show at the Arab Health exhibition and wishes to thank you to all their visitors for meeting them.

Timesco exhibited their market leading ranges of laryngoscopes, both single use and reusable, diagnostic sets, wall, pocket and desk and their expanded ranges of surgical instruments.

The spread of virulent diseases has been on the increase over past few years and cross contamination on instruments used in operating theatres is a major concern. Timesco exhibited their single-use la-

ryngoscopes systems Callisto and Europa blades and handles, with new additions with LED light, which are used extensively in the Middle East and throughout the world. Callisto and Europa are inexpensive laryngoscope systems which aid prevention of cross contamination.

The company also exhibited their revolutionary new rechargers and Lithium Ion battery systems, E.E.S., which allow laryngoscopes and diagnostic products to be inexpensively, efficiently and quickly charged.

Updated and expanded ranges of diag-

nostic sets Optima Neo, for wall, pocket and desk were also exhibited with improved fibre optics, superb white Xenon light and durable materials.

New instrumentation which was exhibited at Arab Health this year also included new additions to their cardiovascular ranges.

Timesco have a network of agents throughout the Middle East and a local office in Dubai from where they service our customers.

Timesco looks forward to seeing you at the next show! MEH



## Philips Healthtech

At Arab Health 2015, Philips showcased its commitment to Healthtech by delivering connected healthcare innovations that support the entire health continuum. “When you look at Dubai and the Middle East, you see growing populations, ageing populations, and certain predominant diseases, such as diabetes and obesity,” Diederik Zeven, Vice President and General Manager, ME & Turkey, Philips Healthcare, told *Middle East Health*. “If you look at the current need in the healthcare systems that need to be addressed, and the projected needs 10 years from now, there’s a huge challenge in front of us. For the first time, Philips is coming out as Philips Healthtech, which completes a journey that we have been on for many years – it’s not only about taking care of ill people or diagnosing certain diseases, it starts with healthy living.”

Philips has brought together its clinical breadth and depth of expertise, technology and services, actionable data, consultative new business models and partnerships, as well as its deep consumer understanding to deliver

connected healthcare to the Middle East.

Philips shared its vision of how the professional healthcare and consumer markets are converging into a single health continuum, enabled by connected health technology. This continuum starts with a focus on healthy living and prevention, which empowers consumers to take control over their own health. Next, it includes definitive diagnostics and minimally invasive treatments, of which the quality and cost are optimized. And finally, the continuum encompasses recovery and home care, which is both more comfortable and cost-effective.

“We have an amazing opportunity here in the Middle East to work together with consumers, our clinical partners, research institutions and governments to improve the lives of people in the Middle East,” said Roy Jakobs, Chief Executive Officer, Philips Middle East and Turkey. “The healthcare community here is dynamic, forward-thinking and most importantly ambitiously driving the agenda to improve care across the board, together we can build a truly connected and advanced healthcare system in the region.”

Philips used Arab Health to introduce several next generation diagnostic innovations for the first time in the Middle East. The Ingenia 1.5T S MRI complemented with the patient in-bore solution that creates an immersive experience, allowing the patient to relax through the exam. Alongside Ingenia 1.5T S is the Affiniti, the ultrasound system that provides innovative technology to help radiology and ultrasound departments facing more patients with fewer resources deliver high quality patient care, and IntelliSpace Portal 7.0, combining high quality images, advanced analysis, and a workflow efficiency tool into a single advanced analysis solution.

In the area of treatment, the Veradius Unity made its debut at Arab Health. Designed to improve the workflow and throughput by establishing exceptional communication between the physician, operator and C-arm, the Veradius Unity is an example of how Philips creates new clinical procedures for safe and effective adaptive therapies. **MEH**

## GE – Advancing Healthcare Together

GE Healthcare presented some of its latest medical technology at Arab Health under the theme of ‘Advancing Healthcare Together’. “When you look at the Gulf Region, Ministries of Health are facing an increased healthcare bill, due to the lifestyle diseases that we’ve seen an increase in over recent years,” Maher Abouzeid, President & CEO of GE Healthcare for Turkey and the Middle East, told *Middle East Health*. “What we are trying to do is work with governments to accommodate their healthcare needs. In practical terms, this means improving quality of care, reducing costs, and at the same time working on patient experience. As a technology provider, we feel we have a responsibility to develop innovative products that will allow both the ministries of health and the private sector, to see more patients, see them earlier, and at a reduced cost.”

At this year’s event, GE’s innova-

tions spanned multiple care settings from Radiology to Oncology and Cardiology, from Woman and Child Health to Critical Care and the Operating Room. Products presented at the event, including the Voluson E10, a new 4D high-performance ultrasound system, featuring the world’s first curved matrix electronic 4D probe designed specifically for obstetric and gynaecological applications. Aside from parent-pleasing spectacular detailed colour images of an unborn child, Voluson E10 allows clinicians to monitor a child’s brain and heart development from as early as the first trimester. The 4D probe uses more than 8,000 piezoelectric crystals to electronically steer the ultrasound beam and provide improved clarity and speed.

GE Healthcare also presented the SIGMA Pioneer with MAGiC, an MR system designed to enable clinicians to scan one more patient, every hour, every day. Developed in collaboration with SyntheticMR AB, MAG-

iC is engineered to help clinicians capture six image contrasts in a single scan in one-third of the time – an industry first in workflow efficiency. With MAGiC, clinicians can manipulate images and change contrasts post scan. That’s like changing the focus on an image you already took with your digital camera – meaning fewer re-scans, less time wasted and no more regrets when it comes to contrast use. Fewer, faster scans producing quality diagnostic images is good news for patients and clinicians alike.

Other innovations included the CARE-ESCAPE R860, an intuitive Critical Care ventilator which uses advanced lung protection tools and an innovative user interface, to help improve patient care; and the Discovery IGS 740, a mobile angiography system, specifically designed to improve clinical efficiency in the operating room, whilst also offering high quality imaging. **MEH**

## Siemens expands portfolio

At this year's Arab Health, Siemens Healthcare presented new offerings across its entire imaging and therapy portfolio – from a digital mobile X-ray system with interchangeable detectors to a new 1.5-tesla MRI scanner with reduced operating costs. In times of shrinking budgets, Siemens' showcased how its solutions are helping to provide high diagnostic confidence and efficient workflows. The innovations presented at the event put equal emphasis on helping to improve patient outcome and to reduce costs.

Siemens Healthcare has expanded its portfolio of magnetic resonance imaging (MRI) systems to include the 1.5-tesla scanner MAGNETOM Amira1, which offers the same technologies that are available on the Siemens flagship MRI systems. MAGNETOM Amira also stands out against other scanners on account of its lower operating costs, through its new Eco-Power technology that enables power savings of up to 30% in standby mode compared to when the feature is not activated. By combining high image quality with comparatively low costs per scan, MAGNETOM Amira meets the requirements of radiology practices, small and medium-sized hospitals and larger facilities that are looking for a system to complement their existing devices.

The digital mobile X-ray system Mobilett Mira Max2 has been developed for both versatile everyday use and for demanding clinical situations, where rapid image availability and high image quality are vital. Mobile X-ray systems are being used in a range of applications – from broken legs to lung examinations, from newborns to trauma patients.

With the new version of the Somatom Definition Edge, Siemens created the basis for establishing the dual energy procedure in clinical routine. The innovative X-ray tube concept in the new CT scanner enables simultaneous imaging at two different energy levels for the first time in single source computed tomography. Thanks to a novel user- and patient-friendly measurement method, information on tissue and other material can be obtained as well as traditional morphological data, even during examinations with high contrast media dynamics.

Siemens Healthcare presented two new clinical applications for angiography. Syngo Dyna4D enables time-resolved 3D imaging in angiography, making it possible to visualize not only the three-dimensional volume of the vessels but also the flow behavior of blood. Syngo DynaCT Smart removes metal artifacts and, for example, allows the physician to detect bleeds close to metallic objects.

The company also showcased its latest innovations in ultrasound: the new version of Siemens' premium cardiovascular ultrasound imaging system Acuson SC2000 Prime edition now features live volume 3D transesophageal echo (TEE) imaging. The new release for cardiovascular imaging is the first to offer live full-volume colour Doppler imaging of heart valve anatomy and blood-flow using the new Z6Ms true volume TEE probe. With this technology, physicians can obtain a more anatomically accurate view of the heart and dynamic blood flow in one view during interventional valve procedures, even in patients with ECG abnormalities.

Offering a broad range of clinical specialties at an excellent price-to-performance ratio, Siemens showed the new Acuson X600 ultrasound system, ideal for obstetrics and gynaecology. This latest addition to the Acuson X Family of mid-range ultrasound systems enhances image quality, reliability and performance in its price class. Engineered on robust system architecture, the Acuson X600 system is an affordable ultrasound solution with advanced, state-of-the-art technologies and workflow efficiencies migrated from premium systems. **MEH**

## Emitac Healthcare Solutions showcases turnkey solutions

EHS hosted 11 of its partners in its 415 sq.m booth during the Arab Health exhibition this year and saw many of its key partners and co-exhibitors showcase their latest products and technologies for the very first time. "Arab Health 2015 has been yet another successful event for Emitac Healthcare Solutions (EHS) and an amazing platform for us to showcase our excellent capabilities and the state-of-the-art solutions of our partners," says S. Raghavan, CEO EHS.



S. Raghavan – CEO, Emitac Healthcare Solutions

"Apart from showcasing its capabilities in medical equipment, healthcare informatics during AH this year, EHS also won a lot of recognition for its project management team that specializes in providing end-to-end solutions in 3-D design, conceptualization & visualization, planning, execution and support" says Raghavan proudly.

All projects are unique in their own ways as EHS has brought the best in quality and hi-end design concepts to them matching the high expectations of the end users and consultants in this market.

"EHS works with governmental and private hospitals and healthcare bodies [in the United Arab Emirates] like Abu Dhabi Health Services Company (SEHA), Ministry of Health, Dubai Health Authority, Ministry of Presidential Affairs, Dubai Healthcare City, Abu Dhabi Police (GHQ), Ambulatory Healthcare, Ministry of Public Works, Sheikh Khalifa Foundation, Mubadala, Musananda, etc. to deliver the best they need," says Raghavan.

As part of their extensive portfolio, EHS aims to offer a wide range of services and capabilities, encompassing Comprehensive Turnkey Project Management, Customized Clinical and Healthcare Solutions, Medical Equipment Planning & Procurement, Annual Maintenance Contracts and 24/7 Maintenance.

With their office established in the capital city of Riyadh, and their Saudi FDA Registration complete, Etqan Medical Healthcare Solutions is creating a new benchmark for service in the Kingdom. Their team includes a hand-picked group of committed and driven professionals from the local talent in KSA, with superior skills and knowledge of the Saudi healthcare market. Further plans to expand into other parts of GCC are under consideration.

EHS continues to bring the best of the healthcare solutions to the UAE and KSA markets and strives to live up to its motto: "Experience Excellence". **MEH**

# Does one Caesarean Section mean all subsequent births will go the same way?



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

I was reading with great interest recently about the high rates of Caesarean Sections (CS) in the UAE. While the WHO has a target of 15-20% for CS for any region, the UAE has more than double that.

A CS can save the lives of mothers and babies when performed in an emergency, however many women are electing to have this surgery even when it is medically unnecessary. A CS involves major abdominal surgery which weakens the uterine walls and increases the risk of uterine rupture, which can be life threatening for both mother and baby. Consequently, the risks increase with multiple Caesareans Sections.

Whatever the reason for electing to have a CS, it was often thought that once a woman had undergone a CS, all subsequent pregnancies would have to result in another – but not any more.

The concern was that the most commonly used agents for pre-induction of labour – prostaglandins (PG) – cause uter-

ine contraction. This could result in the previous CS scar rupturing. Prostaglandins also frequently result in a decrease in the fetal heart rate. As a result, women undergoing PG pre-induction need constant monitoring to ensure there are no problems for the baby.

The alternative to PG use for labour pre-induction is Dilapan-S. Dilapan-S is a totally synthetic polymer that functions as an osmotic cervical dilator. As it is synthetic, its dilatation is entirely predictable and it is guaranteed sterile – both features that the old seaweed-based laminaria could never aspire to.


The Dilapan-S rod is inserted into the cervical canal and absorbs the natural moisture therein. This causes the Dilapan-S to expand. This expansion initiates endogenous prostaglandin release causing collagen degradation which softens the cervix.

Dilapan-S is produced in the Czech Republic and several studies in large teaching hospitals there have shown that in labour pre-induction, Dilapan achieves the same improvement in the Bishop score as PG but without any of the PG adverse effects on uterine contractility nor on fetal heart rate. No monitoring is required and the women are usually sent home with the Dilapan-S in place overnight. Over 80% report that they were able to sleep comfortably whilst dilatation was taking place.

The majority of women went on to spontaneous vaginal delivery, including those who had undergone CS with an earlier pregnancy.

Dilapan-S can therefore avoid subsequent CS, reduce fetal distress, avoid uterine contractility and save costs by reducing the need for any monitoring or theatre-based interventions.

## References:

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**Durbin PLC** is a British company based in South Harrow, London. Established for over 50 years, Durbin is a global specialist distributor operating in niche areas of pharmaceutical and medical distribution. Comprising of eight specialist divisions, Durbin prides itself on being a trusted global partner to healthcare manufacturers. The company is fully licensed by the UK MHRA, USA Pharmacy Authorities and DEA. Durbin has offices in the UK and in the USA so can provide US, UK and European products directly from source.

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# Roche Diagnostics Middle East showcases RDME Academy at Arab Health 2015

## A one-stop learning platform for healthcare professionals

As part of Roche Diagnostics Middle East's continuous commitment to meeting medical needs, developing expertise and knowledge with highly qualified personnel and high standards of quality, the RDME Academy was created. The academy is a training platform where healthcare professionals can easily take advantage of top-notch training courses with the click of a button. Offering real-time laboratory and learning tools anytime, anywhere, RDME Academy allows healthcare professionals to directly tap into Roche Diagnostics' expertise and the newest industry developments.

Created in response to the region's growing demand for an updated source of diagnostic information, the comprehensive courses available through RDME Academy are designed to equip lab technicians with the necessary knowledge and information directly from Roche experts. The trainings cover a broad range of topics including: laboratory topics in quality, safety, accreditation, medical value, product knowledge topics, and advanced system operator trainings. As a reliable source of information, healthcare professionals can trust Roche's high-quality trainings to ensure optimization of Roche products, increasing testing efficiency and providing medical value.

### Flexibility with in-class and online training

Through the RDME Academy e-platform, healthcare professionals have the option of joining customized in-class sessions at training centers located across the region including the United Arab Emirates, Egypt and Saudi Arabia. With its user-friendly interface, the RDME Academy is updated regularly with new trainings in




new locations to cover the different and growing needs of lab technicians.

Designed to deliver clear and evident benefits, users also have the option of joining online trainings at their convenience by accessing their accounts on mobile, tablet and desktop. Online trainings consist of detailed presentations and videos with expert specialists, which users can refer to anytime. Through their personalized dashboard, users can easily browse through the upcoming online and in-class courses available, based on their interests and training history. Revealed in early 2014 and developed in just under a year, this flexible learning platform allows users to take control of where, how, and when their training takes place.

This January, healthcare professionals were able to experience the RDME Academy *Classroom of the Future* and witness the customized learning tool firsthand at the 40th Arab Health Exhibition.

Numerous training sessions were held continuously throughout the exhibition, where the 3D presentations and interactive discussions sparked the interest of many participants.

Continuous training is paramount for lab personnel, most importantly during the introduction of new systems and applications. The customized courses provided in Roche's Customer Training Academy not only ensure that new equipment is fully operational, but also that the medical value of tests and assays is fully understood, with higher testing efficiency. With the post-installation training, Roche Diagnostics Middle East aims for better optimization of the instruments, better diagnoses and, ultimately, better expertise and patient care in the region. And in spite of the relatively new presence of this knowledge hub, it has set a benchmark in the region that healthcare professionals can rely on to deliver full training experiences from start to finish. 



# 20 years of Innovation at the autopsy table

The company KUGEL medical from the city of Regensburg, Germany is one of the leading manufacturers of laboratory furniture. However, when Claudia and Robert Karl started their business 20 years ago, they met their first customers at exhibitions abroad instead of at home in the domestic market.

Claudia and Robert Karl remember very well exhibiting their autopsy and dissection tables at their first exhibition in Beirut, Lebanon. "On our way to the exhibition we passed shot-up houses," says Robert Karl, "and the exhibition itself took place in a poor steel hangar." The Karls established their first business contacts there and learned more about the Middle Eastern healthcare market – a market that turned out to be one of the most important markets for Kugel's laboratory furniture.

In 1995 and in cooperation with the stainless steel producer Kugel, from the city of Viechtach, Germany he decided to take the risk of becoming self-employed in a sector that was already dominated by some experts in the mid 1990s. This is why Robert and Claudia Karl decided to attend international exhibitions for medical equipment from Dubai through Malaysia. "We took a look at the markets for medical equipment all over the world and tried to gain a foothold in each country." And, in fact, they managed the rare feat of establishing a company abroad first – especially in the

Middle East and East Europe. Meanwhile, the company was able to produce good references in Germany too. "Entrepreneurial thinking and the attention to the needs of our customers were the basis of our success," explains Claudia Karl. Back at that time when everybody was selling standard products, Robert Karl decided to develop individual solutions for his customers.

## Entire planning of a laboratory

The product range is made of almost everything that is used in a modern laboratory and it has been continuously expanded according to the customer's requirements. Today Kugel's range of products includes a couple of standardized solutions with many individual details and a focus on dissection tables for any kind of diagnostic work. "Our specialties are the integrated exhaust units for dissection and autopsy tables. In addition to that we offer a complete range of stainless steel furniture, morgue refrigeration units and transport and storage equipment," explains Robert Karl. More and more often Robert Karl is being asked to take over the entire planning of a laboratory with the result that Kugel has not become only a supplier but also a planner.


Histo-pathological laboratories, forensic centers, universities, hospitals, anatomic institutes and pharmacy companies as well as veterinary pathologies count among Kugel's customers. The customers come



Claudia and Robert Karl

from Europe, Middle East, Russia, Asia and Australia. In total, Kugel exports to 72 countries with the help of approximately 130 business partners around the globe.

"We are always open to new ideas, products and markets," says Claudia Karl. At the moment, the entrepreneur couple is trying to gain a foothold on the Latin American market and in Brazil in particular. "On the technical side, exhaust and ventilation technology has never been more important than now, especially energy recovery and filtration of pollutants play a main role," adds Robert Karl.

"This year, Kugel medical celebrates its 20-year anniversary – an anniversary which we are very proud of and which motivates us even more to develop and manufacture state-of-the-art solutions for our customers around the world." 



# # 1 Hospital for 24 years straight

The Rehabilitation Institute of Chicago (RIC) has once again been named the #1 rehabilitation hospital by *U.S. News & World Report* – a recognition unmatched by any hospital of any kind anywhere in the United States. Each year they treat over 50,000 patients from more than 70 countries throughout the world.

## Experts say RIC is worth the trip

RIC pairs the world's finest minds in physical medicine and rehabilitation research with specialized care for a patient's best chance at a faster and more complete recovery.

For decades their approach has garnered top rankings from leading independent organizations across the country including:

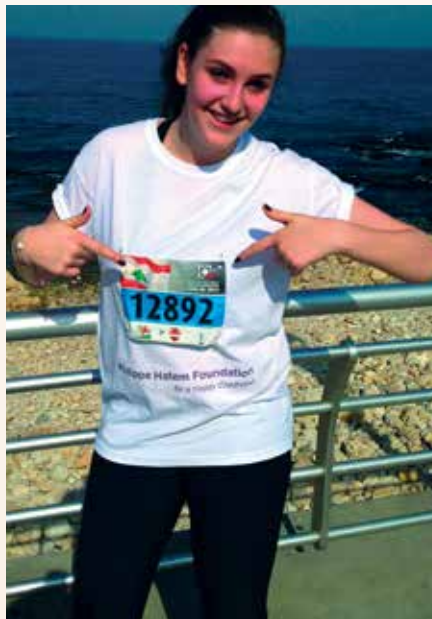
- #1 in Clinical Care
  - *U.S. News and World Report*
- #1 in Research
  - National Institutes of Health
- #1 in Academic Training
  - Northwestern University, Feinberg School of Medicine
- #1 in Nursing
  - Magnet Recognition, American Nurses Credentials Center

RIC holds an unparalleled research distinction with a record eight, multi-year, multi-million dollar federal research designations. Currently there are more than 350 clinical studies underway dedicated to improving treatments and creating better outcomes for patients.

## Rankings are nice. Successes are best. From Accident to Activist

Laetitia Hatem, a 17-year-old girl from Beirut, loved riding horses. One day, her ride ended in a frightening fall that damaged her spinal cord and left her paralyzed from the neck down.

After a devastating diagnosis from their doctor in Lebanon, Laetitia's father found RIC online. He was intrigued by



Laetitia Hatem, RIC patient

the deep scientific focus and interdisciplinary care and flew Laetitia and the family over 10,000 miles to get her admitted to RIC.

With the support of her family, RIC's care team, and the world's most advanced technology, Laetitia walked out of the hospital under her own power. Laetitia is now not only back to riding horses, but running marathons, attending university and is a spokesperson for physical medicine and rehabilitation in Lebanon.

## A Full Family Recovery

Roberto Rodriquez, one of Mexico's most successful businessmen, suffered a sudden debilitating stroke in July of 2014. His wife, Sandra emailed RIC seeking a more advanced rehabilitation and comprehensive stroke program than what was available for him at home. She was immediately connected to one of our Spanish-speaking Global Patient Services coordinators who assisted with all the details and logistics to get Roberto to RIC.

When he arrived at RIC, Roberto needed

RIC believes that no defeat is infinite, no accident is too debilitating and no amount of doubt can beat optimism.

assistance to stand, required a feeding tube for nutritional support and had a tracheostomy tube to protect his airway. His speech was slurred and he was weak, but still determined to start therapy to improve his condition. After just one month in the intensive stroke program, he was eating independently, breathing without the tube and ready to return to work.

"At RIC people are willing to give their time and life to help patients find their way back. They have the knowledge, patience, guidance and unwavering commitment to making Roberto who he used to be," Sandra Rodriquez said. MEH



Roberto Rodriquez, RIC patient





## EUCARBON® FOR IBS

# Evaluation of the PMS Eucarbon® 2005-2009

Countries: Hungary, Morocco, Albania

Number of patients: 802

Indication: IBS

### Introduction

For more than 100 years Eucarbon® has been an efficient worldwide used drug for regulating the activity of the intestinal bowel function. It works in a unique dual mode, which is depending on the dosage. At a dosage up to 3 pills per day it works mainly adsorbent. In a higher dosage the main effects are both laxative and carminative in a mild way.

Main symptoms of patients with IBS are

recurrent abdominal pain, which is very often improving after defecation, diarrhoea, constipation or alternating constipation and diarrhoea, as well as gassiness and meteorism.

According to the Rome-III-criteria patients with Irritable Bowel Syndrome (IBS) show recurrent abdominal pain or abdominal discomfort occurring for at least three days per month during the past three months in connection with at least two of the following symptoms:

- Improvement of the symptoms after defecation
- Start of the symptoms in connection with change of the frequency of stool
- Start of the symptoms in connection with change of the consistence of stool

To demonstrate the efficacy of Eucarbon® within patients with IBS, a big multicentre trial with 802 patients in three countries (Hungary, Morocco and Albania) was established between 2005 and 2009.

## Aim of the study

The aim of this multicentre PMS was to demonstrate the efficacy and tolerability of Eucarbon® within patients with IBS in a large number of patients treated over a period of 12 weeks.

## Patients

A total of 802 patients from three countries (Hungary, Morocco and Albania) participated in this PMS.

	Hungary	Morocco	Albania	Total
Number of patients	399	349	54	802
% of total number	49,8%	43,5%	6,7%	100%

From 796 patients (99,3%) data on sex are available. There have been 543 Patients (68,2%) female and 253 (31,8%) male. This allocation is correlating with the experience that the incidence of IBS in women is two to three times higher than in men.

## Data on Patients

	Age	Weight at the beginning (kg)	Weight at the end (kg)	Height (cm)
Total Number	789	594		
Average	46,1	69,1	68,4	164,1
Median	45,0	70,0	68,0	166,0
Range	2,0 – 92,0	10,0 – 162,0	12,0 – 162,0	70,0 – 190,0

## Diagnosis

IBS was diagnosed at the beginning of the PMS at 756 (95,5%) of 792 patients, of which 488 patients (59,9%) mentioned obstipation as a concomitant symptom. Diarrhoea was diagnosed within 90 patients (12,0%) and 148 Patients (19,8%) suffered alternating obstipation and diarrhoea. On average IBS in patients was evident for 36,8 months.

Main concomitant diseases were cardiovascular (high Blood pressure, CHD), Diabetes, Depression, Gastritis and Ulcus duodeni. 309 (40%) of 778 patients were on a diet, 23,2% of the patients were smoking and 99 (12,7%) consumed alcohol regularly.

## Dosage

The dosage regime was set by the attending physicians referring to the recommended daily dosage of 6 pills per day and was adapted within the 12-week-therapy step by step. The dosage was documented at the start of the trial, at week 6 and at the end of the trial at week 12.

On average at the beginning patients took 3,7 pills per day. Until week 6 the dosage could be reduced to 3,3 pills per day and at the end of the therapy at week 12 the average dosage was 3,1 pills per day. 31% of the patients were changing the dosage at week 6.

At 52 patients (7,5%) the therapy was stopped at week 6 due to the lack of symptoms.

	Start of the trial	Week 6	Ende Week 12
Average	3,7 (2 – 6) pills	3,3 (2 – 5) pills	3,1 (2 – 5) pills
Median	3	3	3

## Results of the PMS

Nearly 80% of the physicians as well as the patients were categorizing the therapy as very well or well at the end of the 12-week treatment and there were just minor differences between the assessment of medical doctors and patients.

## Evaluation of the efficacy by physicians and patients at the end of the PMS (Week 12):

	Very well	Well	Medium	Ineffektive	Total
Physicians	280 41,9%	253 37,9%	105 15,7%	30 4,5%	668 100%
Patients	250 37,4%	279 41,8%	102 15,3%	37 5,5%	668 100%

The efficacy was categorized as very well or well by the physicians in 533 cases (79,8%) and by 529 patients (79,2%). The tolerability was also referred to by physicians (90%) and patients (88%) as very well or well.

## Evaluation of the tolerability by physicians and patients:

	Very well	Well	Medium	Ineffektive	Total
Physicians	265 39,7%	337 50,4%	59 8,8%	7 1,1%	668 100%
Patients	243 36,4%	347 51,9%	65 9,7%	13 2,0%	668 100%

The tolerability was assessed as very well or well at 602 cases (90,1%) by the physicians and at 590 cases (88,3%) by the patients.

## Significant reduction of abdominal pain:

The reduction of abdominal pain was highly significant. Only 86 of 790 patients (10,9%) reported non-existing pain at the beginning of the therapy. After 6 weeks of therapy with Eucarbon® the number of patients without abdominal pain already increased to 387 (53,9%) and at the end of the PMS (Week 12) there were 511 (77,7%) without abdominal pain. This very clear reduction of abdominal pain is not only highly significant, but also of high clinical relevance. Before starting the therapy 155 patients (22,7%) reported pain at abdominal percussion, after 12 weeks of therapy only 20 patients (7,2%) reported pain at percussion.

Such a very clear reduction of abdominal pain indicates a vast improvement of quality of life for the patients suffering from IBS without any doubt. Pathological findings in the abdomen were reported in 87,5% of the patients at the beginning of the trial, whereas after 12 weeks of therapy only in 59% of the patients pathological findings occurred.

There also was a significant improvement in the severity of the illness, which was measured by the physicians. At the beginning only 63 patients (8,3%) were classified as not ill, whereas after 12 weeks of therapy with Eucarbon® 325 Patients (49,9%) were classified as not ill.



## Significant Improvement of symptoms, which are influencing also the quality of life:

The following symptoms, which were measured at the beginning and at the end of the PMS, showed a significant improvement ( $p=0,0001$ ), which also was clinically relevant:

- Obstipation
- Hard Stool
- Modified bowel movement and abdominal pressure
- Abrupt impulse to defecate
- Sense of incomplete defecation
- Flatulence
- Abdominal distension
- Pain

### Obstipation:

At the beginning 141 patients (18,3%) suffered severe obstipation. At week 6 only 7 patients (1,0%) reported this symptom and at the end (week 12) only 4 patients (0,6%). So there was a nearly complete recovery.

Also moderate obstipation (371 patients/48,2% at the beginning) improved very clearly after 6 weeks of treatment with Eucarbon® (130 patients/ 18,5%). After 12 weeks just 41 Patients (6,3%) reported moderate obstipation.

The mild laxative effect of Eucarbon® was impressively shown by a shift of the quality of obstipation from severe to moderate or mild. This development was underlined by an increase of mild obstipation from 20,3% at the beginning to 34,4% after 12 weeks. The shift from severe to moderate and mild obstipation can be seen as a clear improvement of the obstipation of patients.

382 patients (58,8%) after 12 weeks of therapy compared with 102 patients (13,3%) at the beginning had no obstipation.

The improvement of obstipation quality is highly significant!

### Hard Stool:

There is a very similar improvement of the symptom "Hard Stool". From 138 Patients (18,5%) at the beginning, only 7 (1,0%) patients after 6 weeks and 3 patients (0,5%) after 12 weeks reported "Hard Stool". Correlating the number of patients with "Normal Stool" significantly increased from 112 (15,0%) at the beginning to 363 (59,0%) after 12 weeks of therapy.

A highly significant improvement of the quality of obstipation hard stool was evident after 6 weeks.

### Modified bowel movement and abdominal pressure:

The severity of this symptom also reduce clearly after 6 weeks and went down further after 12 weeks.

At the beginning of the PMS 69 patients (9,5%) reported severe modified bowel movements and just one patient (0,2%) after 12 weeks of therapy.

### Flatulence:

Severe discomforting flatulence was mentioned by 91 patients (11,7%) at the beginning, but after 12 weeks just one patient (0,2%) had trouble. Regarding this symptom there also was a clear reduction of the severity after 6 weeks already (from severe to moderate to mild to non-existent). At the end of the therapy (week 12) there was a clear reduction concerning the discomfort of patients caused by flatulence. There also was a clear correlation between the improvement of the symptom and the increasing number of patients without flatulence, 351 (53,7%) up from 77 (9,9%).

### Abdominal distension:

Very similar was the improvement of abdominal distension. Before starting the therapy it was reported by 62 patients (7,9%) as severe and by 341 Patients (43,2%) as moderate. After 12 weeks there were only 3 (0,5%), respective 12 Patients (1,8%) reporting severe or moderate abdominal distension. The number of patients without the affliction increased from 86 (10,9%) at the beginning to 511 (77,7%) at the end of the therapy, which shows a significant improvement.

Therefore it can be concluded that a therapy with Eucarbon® is reducing both, flatulence and abdominal distension dra-

matically, which clearly underlines the carminative effect of this medication.

### Other symptoms:

Only diarrhoea, soft or liquid stool did not improve significantly, but there is a tendency of improvement (from severe to moderate and mild).

### Side-effects:

Only a few side-effects were reported. There were 21 reports (2,6%), the most frequent were diarrhoea (4 times) and headache (2 times).

### Conclusion

This multicentre PMS shows that after a 6 week treatment of IBS with Eucarbon® there is already a significant and clinical relevant reduction of abdominal pain. At the end of the therapy (Week 12) 77,7% of the patients had no abdominal pain compared to 10,9% at the beginning.

Also in most of the other symptoms like obstipation, hard stool, modified bowel movement and abdominal pressure, flatulence and abdominal distensions there were significant improvements after 6 to 12 weeks due to the therapy with Eucarbon®.

The severity of the illness was significantly reduced after 6, even more after 12 weeks and pathological findings were reduced at week 12.

As a conclusion it can be postulated that this highly significant and clinical relevant reduction of abdominal pain as well as the significant improvement of most of the other symptoms has a clear impact on the improvement of the quality of life within patients with IBS. Especially as the side effects were few and not relevant.

The efficacy and tolerability of Eucarbon® can therefore be described as very well.

● For more information, visit:

[www.eucarbon.com](http://www.eucarbon.com) 





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# Health Industry Summit in Shanghai

**Health Industry Summit**  
Shanghai, China  
May 15 to 18

## Medical technology potentials are enormous

Health Industry Summit (CMEF) in Shanghai opens path to Chinese market, features products for global distribution

Is China still a key driver for world economy? Some market observers underline that growth in 2014 was down to 7.4% – the lowest rate within 24 years. However, this change is well within the range of the central administration's policy aiming at sustainable dynamics. And what is even more important for the medical technology sector: As of 2013, the Chinese medical technology market was valued in excess of US\$24 billion and the world's highest sector growth rate – 25.9%. By 2020, the administration aims to increase spending in the sector to around \$1 trillion. These impressive figures provide the perfect backdrop for Reed Sinopharm's Health Industry Summit which will appeal to all medical technology stakeholders around the world this spring.

## China's healthcare reform

According to results presented at the State Council of the People's Republic on January 19, the envisaged basic healthcare system providing care to urban and rural regions has been established as planned. "The future target of the country's healthcare reform is to optimize healthcare resources enabling residents to receive more effective prevention and clinical treatment while paying less money out of pocket," explains the marketing manager of a large Chinese manufacturer who is active at a global level.

## Government budgets

As a priority, the central government will re-enforce the services capability of county-level hospitals, and support implementing

a standard of care for community healthcare institutions. Furthermore, the administration is placing additional emphasis on strengthening medical IT infrastructure and telemedicine services.

## Influences on the market

The strengthening of county-level hospitals and community healthcare institutions will lead to increased demand for medical devices. "Since the government aims to gradually implement a system in which community healthcare institutions act as the patients' first point of call for acute care, rehabilitation and nursing services – to reduce the number of outpatient cases in public hospitals – these institutions will need more diagnostic, rehabilitation, and hospital equipment," according to the marketing manager.

## Regions make a difference

Due to the unbalanced economic development in the various regions of China, healthcare resources mostly accumulate in the coastal areas, causing a large gap regarding medical technology and medical services skills between the coast, tier 1 cities, and the rural west of the country. In that rural area and parts of the underdeveloped provinces, medical equipment is generally used for a longer period without replacement. Much of the equipment is comparatively old, and penetration of high-end and value-added imported devices is low. With the continuous large investment from both central and local administrations at the basic level of care, a larger number of county-level hospitals and community healthcare institutions will refurbish their infrastructure and purchase new medical equipment.

"As far as middle and high-level equipment is concerned, for various reasons Chinese hospitals still prefer to buy imports. Both domestic and imported medical equipment will have an opportunity to grow by a large extent in China in the upcoming years," explains the manager.

High-end medical equipment used in China is mostly from foreign manufacturers; in the middle-high end range imports account for 80% of market share; in the middle to low end sector, imports account for 40%, and at the low-end of the market equipment is supplied by national manufacturers.

## Market information

From 15-18 May, the Health Industry Summit in Shanghai – previously the China International Medical Equipment Fair (CMEF) – will host more than 100 conference sessions, with more than half focusing on various fields of medical technology and market trends.

"The conference portfolio will include the China Integrated Medical Imaging Summit, the In-Vitro Diagnostics China Summit, and many more," explains James Wang, marketing director of the Summit. The China Healthcare Investment Summit – the key conference – will focus on topics such as China's Health Reform and Healthcare Service Development, New Trends in Health Industry Regulations, and the Creation of the Intelligent Healthcare Ecosystem. It is expected to attract the participation of top level business leaders and investors who will be watching the next big investment moves China's booming health market.

## Entering the market

CMEF has long been the leading medical equipment event in Asia, Wang says. "While sourcing and trading activities may attract the crowds, it is for companies wishing to enter the Chinese market that CMEF plays such a vital role. Finding the best partner and picking the right product suitable for the market makes all the difference between growing rapidly and losing out."

No other event in China provides such exposure to the thousands of hospital decision makers and end users where real trends are shaped, from medical institutions to R&D firms where the next big opportunities are defined. **MEH**





## Hygiene Handle helps prevent Hospital-Acquired Infections

Nowadays, perhaps more than ever, hand hygiene in hospitals across the Middle East is of prime focus. In the summer of 2014 the Arab Hygiene Council, a medical body consisting of experts from across the Middle East, acknowledged a number of common errors surrounding hand washing habits jeopardising the health of populations across the region. This was just one example of an increased focus on improving hand hygiene in the workplace, in industry and in healthcare across the greater Middle East region.

One example of heightened concern around hand hygiene in healthcare can be found with an installation of new hand hygiene products in a hospital in

Jeddah, Saudi Arabia. The hospital is the first facility in the region to install a ground-breaking new product in hand hygiene, the Pure Hold *Hygiene Handle*. Developed by a British company, Pure Hold, this unique concept combines two vital factors in infection control in hospitals- ensuring patients, staff and visitors have clean hands and that surfaces they come into contact with remain clean. The *Hygiene Handle* is fitted onto standard pull-doors and features an intelligent, tailored delivery system on a specialised handle which omits sanitising gel upon grip. Therefore each user has their hands cleaned through a compulsory system, making a significant difference in hospital hygiene.

Research on Hospital-Acquired Infections makes for surprising reading. According to the US agency, The Centers for Disease Control and Prevention (CDC) between 4-10% of all inpatients develop an HAI during a hospital stay.

The *Hygiene Handle* can prove to be invaluable as it is used by visitors as well as staff and patients. Whilst many hospital-led hygiene initiatives focus on patients and staff, installing a *Hygiene Handle* ensures use by all who pass through corridors.

Products such as these can make a real difference because they ensure hand hygiene compliance, rather than simply encouraging it.

- For more information, visit: [www.purehold.co.uk](http://www.purehold.co.uk)

## Intersurgical's i-gel supraglottic airway is quick, easy and reliable to insert




i-gel is a truly unique, single use, second generation supraglottic airway with a soft, gel-like non-inflatable cuff.

Quick, easy and reliable to insert, i-gel accurately positions itself over the laryngeal framework to provide a reliable perilaryngeal seal without the need for an inflatable cuff. It also incorporates a gastric channel for improved safety, an integral bite block to reduce the possibility of airway occlusion and a buccal cavity stabiliser to aid rapid insertion and eliminate the potential for rotation. i-gel is ideal for use in anaesthesia, and in adults for resuscitation and as a conduit for intubation with fibre optic guidance.

Popular in many hospitals in the Middle East, Europe and across the world, i-gel is currently available in seven sizes and is supplied sterile in an innovative, colour-coded protective cradle or cage pack.

- For more information visit: [www.i-gel.com](http://www.i-gel.com) or [www.intersurgical.com/products/airway-management/igel](http://www.intersurgical.com/products/airway-management/igel)





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# Get voice clarity with the TEO listening assistant's smart sound stereo amplifier and noise reduction

It is sometimes difficult to distinguish speech in difficult listening situations. With smart sound stereo amplifier TEO, find pleasure in moments shared with friends and family. TEO amplifies soft sounds up to 22 decibels. It protects you against loud noises up to 100 decibels. Its four microphones and its digital high-definition audio technology delivers crystal clear sound. Dynamic compression can amplify soft sounds more than loud sounds making listening to a conversation or a movie a more comfortable experience.

By adjusting treble boost for voice clarity and noise reduction, you understand better without really increasing the volume: Your hearing is preserved. Its technology features a digital limiter of loud sounds: a loud noise will not be amplified. Assistive listening TEO meets the standard volume of 100 decibels output.

### TEO First, hear the world

Personal sound amplifier TEO First does not require installation. Simply connect the headphones, press the dial, and you get a clearer and louder sound. The sound is picked up by the four microphones. Volume is controlled by pushing the wheel up (louder) or down.

Two preset options B (noisy environment) and C (quiet environment) allow you to adjust easily the sound of your smart sound amplifier TEO First depending on the situation. You understand better without turning up the volume. Your ears are therefore protected.

Use directional listening by pointing the device to the person you want to listen to. To turn off, simply unplug the headphones. Thanks to sound processing inside Teo First,



the vocals are clearer. No need to increase the volume to hear. Listening is more comfortable thanks to dynamic compression.

● For more information call Health Mart on: +97143383816 or email: [info@healthmart.ae](mailto:info@healthmart.ae)

## Thermasonic gel warmers designed with microprocessor control

Parker Laboratories, the world-leading manufacturer of ultrasound and electromedical contact media, announces three, completely re-designed THERMASONIC Gel Warmers; a single bottle gel warmer, a three-bottle gel warmer with preset temperature options and LED indicators; and a three-bottle gel warmer with LCD readout and temperature adjustment in one degree increments, in either Fahrenheit or Celsius.

The units have been completely redesigned with microprocessor control, a powerful heating element, and higher sidewall heat exchangers to rapidly heat gel and consistently monitor temperature. From basic, single bottle warming to degree-specific, three bottle temperature controls with JCAHO compliant temperature indicator, there is an option for almost any healthcare setting. All units contain hospital grade plug and power cords and are complete with a 2 year warranty.



THERMASONIC is a durable, self-contained unit, constructed to give years of trouble-free service. THERMASONIC is UL listed to Canadian Safety Standards and are available in 120v and 230v CE certified units.

● THERMASONIC Gel Warmer is available through medical supply distributors, or by contacting Parker Laboratories, Inc. in the US.

Tel: +1 973 276-9500, or visit: [www.parkerlabs.com](http://www.parkerlabs.com)

## Timesco's Callisto single-use laryngoscopes prevent cross contamination

Ebola, AIDS, Hepatitis C, Sepsis, MERS – with the proliferation of contagious diseases across the world, cross contamination between patients has become a major issue. Timesco's single-use Callisto laryngoscopes are leading the way in preventing the spread of microorganisms, infections, spores and prions.

In guidelines published in the association of anaesthetists of Great Britain magazine, "Anaesthesia", it was recommended that all laryngoscope blades and handles should be autoclaved and the use of single use devices encouraged. However, autoclaving does not guarantee the total elimination of prions on laryngoscopes.

Timesco's Callisto single-use laryngoscopes offer ready to use convenience and

cost savings compared to reusable laryngoscopes: Guaranteed control of cross contamination; no reprocessing or autoclaving costs; clinically clean, single-use pre-packed; will not bend / deform in use; can be used with fibre reusable handles: Optima, Sirius, Optima XLED and single-use handles Callisto S and Callisto LED.

The Callisto system is latex free, non-toxic and can be disposed in standard hospital waste. Timesco products are ISO, CE, FDA, SFDA approved.

● For more information, visit: [www.timesco.com](http://www.timesco.com)



## Ampronix releases new MODALIXX G202MDL LCD display



Ampronix, a world class manufacturer of innovative medical technology, has released the newest addition to its MODALIXX line of medical modality monitors, the G202MDL.

MODALIXX LCD displays were the world's first universal solution for the replacement of medical modality CRT monitors. Fully compatible with the industry's top manufacturers like GE, Siemens, Philips, Toshiba, and more MODALIXX offers the unique feature of enhancing legacy analog signals to vivid 2MP image quality on a 20.1" display. To further its flexibility, MODALIXX is compatible with a wide variety of mounting solutions to integrate seamlessly into any system.

MODALIXX G202MDL takes these classic MODALIXX features and enhances it by offering a clearer, brighter, LED lit image. MODALIXX G202MDL provides high 1200 cd/m<sup>2</sup> brightness, 1500:1 contrast ratio, and a wide viewing angle. Along with a user-friendly OSD and low power consumption MODALIXX G202MDL is the ideal solution for Cath Lab, MRI, CT, CR, PET Scanners, RF rooms, C-Arm, and portable X-Ray applications. The G202MDL comes with a complete set of inputs of 1 to 5 BNCs and DVI-D connectors for a broad range of connectivity.

● For more information, email: [info@ampronix.com](mailto:info@ampronix.com)

# Speeding up rehabilitation with neuroprosthetics

The HYPER research project has an ambitious aim – to speed up the recovery process of people who suffer motor disability. To do this the researchers are using neuro-robotics, neuroprosthetics and virtual reality to improve the life quality of patients whose mobility is limited.

The research is taking place in Spain with the participation of the IK4 Research Alliance under the coordination of the Spanish National Scientific Research Council (CSIC). It has a budget of 5 million euros.

The project has been up and running since 2010 and has led to the development of a suite of innovative systems that facilitate new rehabilitation therapies and new systems to compensate gait in patients who have had spinal cord injuries or cerebral strokes. So far, various prototypes have been developed and one of them is undergoing a preliminary clinical validation process with 10 patients with spinal cord injuries at the National Hospital for Paraplegics in Toledo.

These encouraging results have led to the project being extended for a further year with funding from the Spanish Government's Consolider-Ingenio programme.

## The prototype

Within the framework of the project IK4 has developed in collaboration with the HYPER partners a sophisticated rehabilitation prototype for patients with stroke or spinal cord injury; it is based on the use of an exoskeleton that monitors arm movements, makes a high-precision appraisal of the patient's posture in real time and uses virtual reality to recreate everyday life situations.

The main advantage of these tools lies in the fact that they will allow the rehabilitation processes to start earlier, are conducted more intensively and in a way that is more pleasant for the patient, and they contribute towards faster, more complete recovery.

The systems also facilitate a quantitative



analysis of the progress the patients make, which will be very useful in the clinical evaluation of the rehabilitation process.

“It has been possible to meet this challenge through the work of a multidisciplinary team with technical as well as clinical researchers from national centres of excellence,” said Eduardo Carrasco, head of the project at IK4.

One of the main challenges they will be facing in the future is “to validate the therapies developed in clinical trials with broad

populations of patients and to make use of these solutions commercially”, he added.

## The role of IK4

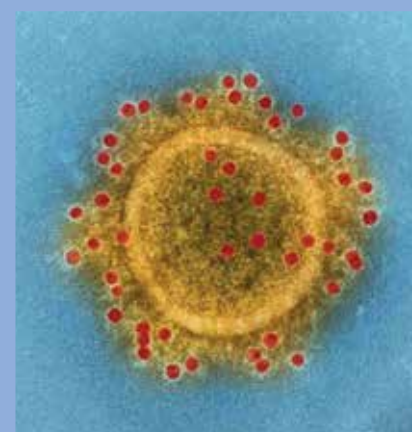
In the initiative the VICOMTECH-IK4 centre has been responsible for exploring the potential of virtual reality in the project, while IK4-CIDETEC has undertaken to develop the sensors that are inserted into the prostheses and measure the pressure in order to respond naturally to the movement ordered by the patient. MCH



# Agenda

## Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
<b>■ March 2015</b>		
IECM Dubai 2015	24 – 26 March, 2015 Dubai, UAE	<a href="mailto:osman.khalil@index.ae">osman.khalil@index.ae</a> <a href="http://www.emergency.ae">www.emergency.ae</a>
ABILITIESme 2015	24 – 26 March, 2015 Abu Dhabi, UAE	<a href="mailto:jamesmeltz@dmgeventsme.com">jamesmeltz@dmgeventsme.com</a> <a href="http://www.abilitiesme.com">www.abilitiesme.com</a>
PACD19 – The 19th Pan Arab Conference on Diabetes	24 – 27 March, 2015 Cairo, Egypt	<a href="http://www.arab-diabetes.com">www.arab-diabetes.com</a>
IFM 2015	25 – 27 March, 2015 Dubai, UAE	<a href="mailto:index@emirates.net.ae">index@emirates.net.ae</a> <a href="http://www.ifm.ae">www.ifm.ae</a>
ExpoMED Eurasia 2015	26 – 29 March, 2015 Istanbul, Turkey	<a href="http://www.expomedistanbul.com">www.expomedistanbul.com</a> <a href="mailto:expomed@reedtuyap.com.tr">expomed@reedtuyap.com.tr</a>
2nd Gulf Liver Summit	27 – 28 March, 2015 Dubai, UAE	<a href="http://2ndgulfliver.info-plusevents.com/">http://2ndgulfliver.info-plusevents.com/</a>
OBS-GYNE 2015	29 – 31 March, 2015 Dubai, UAE	<a href="mailto:obsgyne@informa.com">obsgyne@informa.com</a>
<b>■ April 2015</b>		
Dubai Derma	7 – 9 April, 2015 Dubai, UAE	<a href="http://www.dubaiderma.com">www.dubaiderma.com</a>
The 11th Emirates Critical Care Conference	9 – 11 April, 2015 Dubai, UAE	<a href="http://www.ecc-dubai.com">www.ecc-dubai.com</a>
The 8th Joint Pulmonary Hypertension Assembly & The 4th Pulmonary Hypertension in the Young	9 – 11 April, 2015 Abu Dhabi, UAE	<a href="http://saph2015.com/">http://saph2015.com/</a>
Burjeel Medicine Update Conference	16 – 17 April, 2015 Abu Dhabi, UAE	<a href="http://atnd.it/17542-0">http://atnd.it/17542-0</a>
MEDICONEX Egypt	18 – 20 April, 2015 Cairo, Egypt	<a href="http://www.mediconex.org">www.mediconex.org</a>
ME-OTO 2015	19 – 20 April, 2015 Dubai, UAE	<a href="http://www.informalifesciences.com">www.informalifesciences.com</a>
Arab Diabetes Medical Congress	23 – 25 April, 2015 Doha, Qatar	<a href="http://www.arabdiabetescongress.com">www.arabdiabetescongress.com</a>
2015 Asian Pacific Society of Cardiology Congress 2015	29 April – 2nd May, 2015 Abu Dhabi, UAE	<a href="http://www.apsc2015.com">www.apsc2015.com</a>
<b>■ May 2015</b>		
GCC Pharmaceutical Congress	3 – 5 May, 2015 Dubai, UAE	<a href="http://www.gccpharmacongress.com">www.gccpharmacongress.com</a>
2nd Istanbul Medical Tourism Fair	7 – 9 May, 2015 Istanbul, Turkey	<a href="http://www.imtfair.com">www.imtfair.com</a>



# Agenda

## Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
Egymedica & Hospital Build	7 – 9 May, 2015 Cairo, Egypt	<a href="http://www.egymedica.com">www.egymedica.com</a>
QMED 2015	9 – 11 March, 2015 Doha, Qatar	<a href="http://www.qmedexpo.com">www.qmedexpo.com</a> <a href="mailto:national@qmedexpo.com">national@qmedexpo.com</a> <a href="mailto:international@qmedexpo.com">international@qmedexpo.com</a>
GHIC – GCC Healthcare Innovation Congress	10 – 13 May, 2014 Dubai, UAE	<a href="http://www.gcchealthcareinnovation.com">www.gcchealthcareinnovation.com</a>
Iran Health 2015	16 – 19 May, 2015 Tehran, Iran	<a href="http://www.iranhealthexhibition.org">www.iranhealthexhibition.org</a>
Saudi Health 2015	18 – 20 May, 2015 Riyadh, KSA	<a href="http://www.saudihealthexhibition.org">www.saudihealthexhibition.org</a>
Pervasive Health Conference 9th International Conference on Pervasive Computing Technologies on HealthCare	20 – 23 May, 2015 Istanbul, Turkey	<a href="http://www.pervasivehealth.org/2015/show/cf-papers">www.pervasivehealth.org/2015/show/cf-papers</a>
2nd International Emirates Conference on Minimally Invasive Surgery	21 – 22 May, 2015 Abu Dhabi, UAE	<a href="http://www.menaconf.com">http://www.menaconf.com</a>
4th Annual UAE Epilepsy	22 – 23 May, 2015 Dubai, UAE	<a href="http://www.congress2015.elae.ae">www.congress2015.elae.ae</a>
Iraq Medicare	25 – 27 May, 2015 Erbil, Iraq	<a href="http://www.iraqmedicare.com">www.iraqmedicare.com</a>
Ain Shams Obstetrics and Gynecology International Conference (ASOGIC 19)	27 – 28 May, 2015 Cairo, Egypt	<a href="http://www.asogic.com">http://www.asogic.com</a>
<b>■ June 2015</b>		
2015 CARDIOALEX	2 – 5 June, 2015 Alexandria, Egypt	<a href="http://www.cardio-alex.com">www.cardio-alex.com</a>
Hospital Build & Infrastructure Middle East	8 – 10 June, 2015 Dubai, UAE	<a href="http://www.hospitalbuild-me.com">www.hospitalbuild-me.com</a>



### List your conference:

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

## Special features\* in the next issue of *Middle East Health:*

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