Middle East HEALTH
Serving the region for 40 years
March-April 2016
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Zika virus

WHO declares international public health emergency

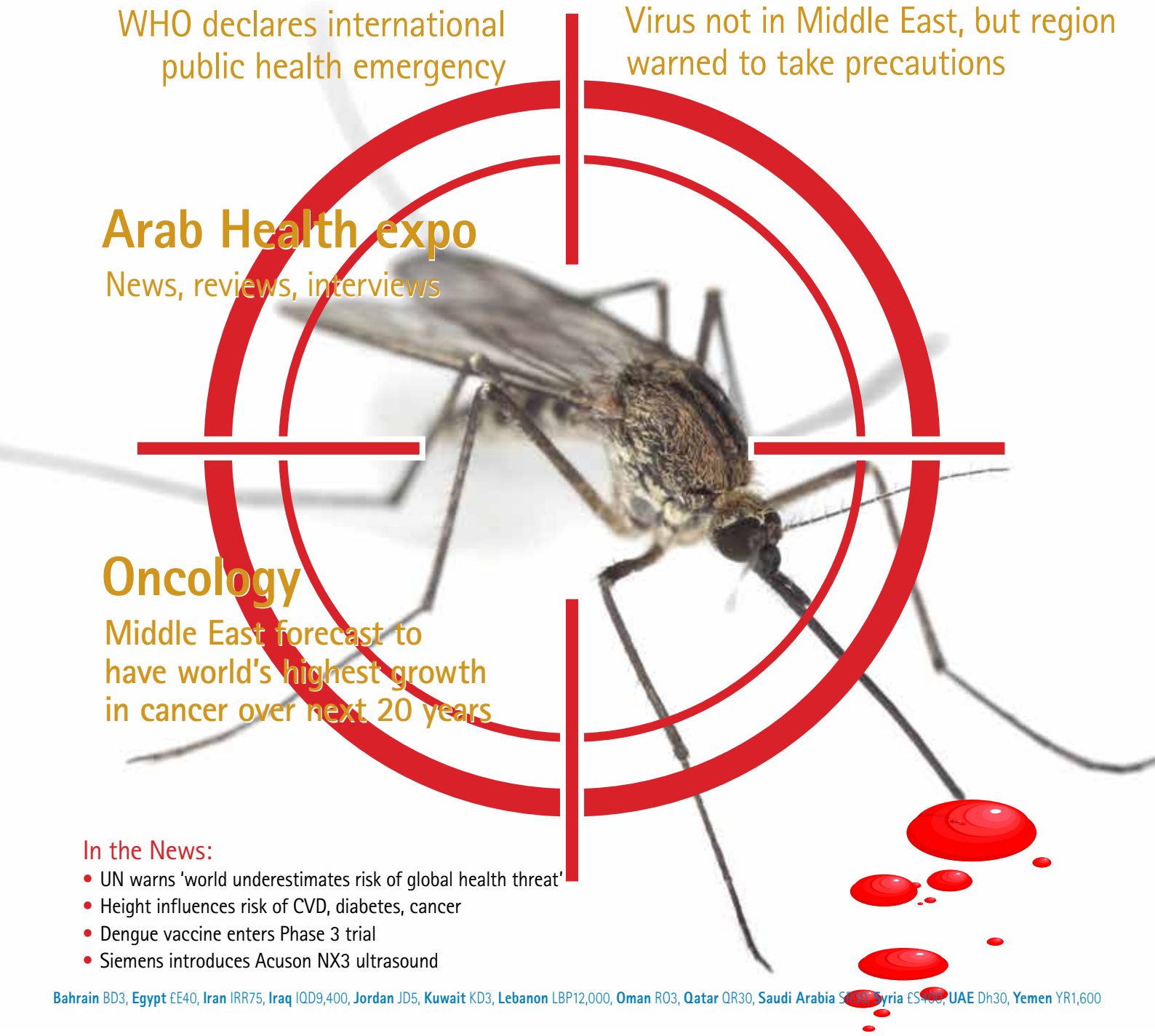
Virus not in Middle East, but region warned to take precautions

Arab Health expo

News, reviews, interviews

Oncology

Middle East forecast to have world's highest growth in cancer over next 20 years



In the News:

- UN warns 'world underestimates risk of global health threat'
- Height influences risk of CVD, diabetes, cancer
- Dengue vaccine enters Phase 3 trial
- Siemens introduces Acuson NX3 ultrasound

Bahrain BD3, **Egypt** £E40, **Iran** IRR75, **Iraq** IQD9,400, **Jordan** JD5, **Kuwait** KD3, **Lebanon** LBP12,000, **Oman** RO3, **Qatar** QR30, **Saudi Arabia** SR35, **Syria** £S450, **UAE** Dh30, **Yemen** YR1,600

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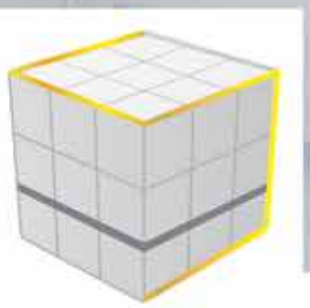

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Prognosis

The next emerging infectious disease

The WHO has declared the Zika virus a Public Health Emergency of International Concern following a surge in the number of cases of babies born with microcephaly in South and Central America which appear to be linked to Zika virus infection during pregnancy. The Zika virus is transmitted by the *Aedes aegypti* mosquito. The declaration will help free up funds for urgent research initiatives to find out more about the virus and develop a vaccine. There have been no cases of Zika virus infection in the Middle East, but countries in the region have been warned to take precautions as the *Aedes aegypti* mosquito, also responsible for transmitting dengue, is found in some countries in the region.

Another large Arab Heath exhibition has come and gone in Dubai. The 41st Arab Health Exhibition and Congress saw more than 4000 companies exhibiting their products. We spoke to some of them. Most were very upbeat about future prospects for business in the region saying the region was still experiencing rapid growth because of the continued expansion of healthcare infrastructure.

To mark World Cancer Day on 4 February, the WHO Eastern Mediterranean Regional office issued a plea for people to stop smoking, eat healthy food and keep active.

The WHO said the Middle East region is projected to have the highest growth in cancer in the world over the next 20 years.

Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, noted that the rise in cancer rates regionally was due to unhealthy lifestyles, but also limited access to treatment. He said there are serious gaps in access to treatment and quality cancer care in many countries of this Region. "Health systems need to be strengthened by moving towards universal health coverage which means ensuring health care services to all people at affordable costs."

In this issue you'll find reports on the above, along with medical news, research reports and new product reviews.

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Better Communication, Better Healthcare

Transforming the Patient Experience with Telehealth Solutions

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12 DAYS AFTER BYPASS SURGERY, ROCKY COOPER HAD TO BE RUSHED TO A GOLF COURSE.

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International Programs

middle east monitor

Update from around the region

WHO and Iraqi MOH endorse joint action to meet health needs of the country

In early February, Dr Ala Alwan, WHO's Regional Director for the Eastern Mediterranean, met senior health officials from the Ministry of Health in Baghdad and local and international health partners to discuss a number of emerging health needs and challenges in the country. Dr Alwan and Dr Adila Hammoud, the Iraqi Minister of Health, endorsed a joint WHO/Ministry of Health biennial cooperation plan for 2016–2017.

"The health needs in Iraq are enormous. WHO has been working closely with the Ministry of Health to implement strategic health objectives and reach more people with better health care and more life-saving services," said Dr Alwan. "In 2016, WHO and the Ministry of Health will focus on the rehabilitation of health services in the newly liberated areas in Anbar, Salah-El-Din and Ninawa in addition to addressing a number of public health issues in Iraq and ensuring availability of an essential health services package to returnees in these areas."

The current fiscal, security and humanitarian crisis has overwhelmed the health system in the country and compromised accessibility to and quality of health services in a number of areas. An estimated 84% of health facilities are either partially or totally non-functional in security-compromised governorates like Anbar, Ninawa, Salah-El-Din, Diyala and Kirkuk, making it a necessity to rehabilitate these facilities in the newly liberated areas, in particular, to reach returnees with guaranteed access to essential health services.

In 2015, WHO supported the Ministry of Health to improve health systems governance and resilience and respond to the emergency health needs of the most vulnerable populations, such as internally displaced persons (IDPs), refugees, and host communities. The support has also included among other key achievements, the provision of curative and preventive public healthcare centre services and implementation of 5 national polio and measles immunization campaigns administering 5.4 million polio vaccines alone to 5.8 million children under 5 years of age. Similarly, WHO, UNICEF and other partners, have supported the Government of Iraq in successively bringing an end to a massive cholera outbreak and in protecting vulnerable populations through a cholera vaccination campaign, during which a total of 510,000 doses of cholera vaccine were administered to 255,000 IDPs and Syrian refugees in 62 camps in 2 vaccination rounds carried out in October and December last year.

Egypt, World Bank partner to improve primary health care in the country

President Abdel Fattah Al Sisi issued a decree in January approving amendments to the cooperation project signed between Egypt and the World Bank in the healthcare sector, to support an initiative to improve the quality of primary healthcare across the country.

The project, previously known as the Medical Insurance Development project, will be now titled the "Healthcare Quality Improvement Project (HQIP)".

The cooperation project was agreed upon between the two sides in May last year.

Sisi also approved amending the loan agreement signed between the two sides to fund this project.

The HQIP aims to assist primary healthcare facilities in Egypt's poorest 1,000 villages to meet national healthcare quality standards by improving the quality of service delivery through accreditation and enhanced operations and maintenance of publicly owned primary healthcare facilities in targeted areas.

The project supports Egypt's vision to achieve universal health coverage for an essential package of health services by 2030, and takes the first steps in a multi-year program to help provide Egyptians with access to more equitable, affordable, quality healthcare.

Indonesian Hospital opens in northern Gaza

The Palestinian Health Ministry officially opened the Indonesian Hospital on 27 December last year. The hospital is located just outside Jabalya, Gaza's largest refugee camp, and is serving around 250 patients a day from northern Gaza, after the closure of Kamel Odwan Hospital.

Indonesia's Medical Emergency Rescue Committee took five years to build the hospital.

The hospital has 110 beds, four operating rooms, 10 ICU beds and 10 emergency beds. It has comprehensive medical support facilities, such as 24-hour clinic, CT scanner and other devices.

Spokesman for the Ministry Ashraf Qudra said that the new hospital will serve as the main hospital for the 300,000 people in northern Gaza. The hospital has been named Rumah Sakit Indonesia

According to Reuters, a Qatar-funded centre for prosthetics, is expected to open in Gaza this year. Prosthetics are much in demand in Gaza where repeated conflicts with Israel have left thousands of people with missing limbs.

Turkey is also building health facilities in Gaza and the West Bank.

WHO sets up regional centre for health emergencies and polio eradication

As part of efforts to strengthen its response to emergencies in the Region and to continue the fight against polio, the World Health Organization (WHO) has established a regional centre for health emergencies and polio eradication in Amman, Jordan. The centre was inaugurated 17 January this year in an opening ceremony held under the patronage of HRH Princess Muna Al-Hussein of Jordan.

"In our Region, the number of people in need of basic health services as a result of emergencies is unprecedented, and the pressures placed on WHO to respond is greater than ever. Around two-thirds of countries in the Region are either experiencing conflict or affected by conflict. More than half the world's refugees come from our Region, and we also host the world's largest number of internally displaced populations," Dr Alwan, WHO Regional Director for the Eastern Mediterranean, noted. "Iraq, Syria, and Yemen are just three in a list of countries in the Region requiring large-scale, ongo-

ing humanitarian health assistance," said Dr Alwan. "As we scale up our regional capacity to respond to emergencies, the emergency team based here in Amman will have a key role in ensuring that in all 22 countries of the Region, WHO is better prepared to respond to current and new crises," Dr Alwan added.

WHO's Eastern Mediterranean Region is faced with an extremely complex humanitarian situation, with several countries in emergency situations due to protracted conflict, insecurity, and associated mass population movement. WHO has been active in supporting emergency health interventions in these settings and in coordinating health sector support with governments and partners. The reorganization of the regional emergency programme is intended to provide increased support from both Amman and Cairo.

In addition to humanitarian emergencies, the Region also continues to battle for the final eradication of polio, which the World Health Assembly has declared a public health emergency of international concern. Pakistan and Afghanistan, both in the Eastern Mediterranean Region, are the only two countries in the world where the disease remains endemic. In 2015, substantial success was achieved towards realizing the goal of eradication, as outbreaks that occurred in the Middle East and Horn of Africa were contained following massive multi-country immunization responses, carried out effectively despite conflict and population displacement. Wild poliovirus was also substantially reduced in Pakistan, to 52 cases in 2015 compared to 306 in 2014.

"Now, the key to finally eradicating polio from the whole world is the intense work being carried out to interrupt transmission in Pakistan and Afghanistan," said Chris Maher, Manager of WHO's polio eradication programme. "We are in a very hopeful situation but a great deal of work still needs to be done if we are to succeed," he added.

GE Healthcare to equip new Al Kafeel Super Specialty Hospital in Karbala

GE Healthcare has underlined its commitment to Iraq's healthcare infrastructure by fully equipping a state-of-the-art new hospital in Karbala with cutting edge healthcare equipment and services. The new Al Kafeel Super Specialty Hospital, a privately owned facility managed by the Holy Attaba Abbasiah, is the first of its kind to open in the country in the past 15 years, which provides comprehensive care across all disciplines for the local community.

Al Kafeel Super Specialty Hospital, Karbala, Iraq

GE Healthcare has provided an entire suite of modern technologies for the 200-bed, 25,000 sqm hospital, to help provide better access and outcomes for inpatients and outpatients. GE's technologies include CT, MRI, ultrasound and monitoring solutions to support multiple disciplines, from maternity and neonatal care to cardiology and surgery. GE will also provide equipment training to Iraqi professionals – both onsite and remote.

The city of Karbala has a population of over 900,000 residents and more than 10 million visitors travel there every year for pilgrimage to Al-Abbas Holy Shrine. Its healthcare facilities have been deteriorating for the past few years due to war and hospitals and clinics have lacked the basic equipment and supplies to meet demand. Some Iraqis are able to travel abroad for medical care; however, most cannot afford to seek services from private providers within Iraq's borders.

Dubai Healthcare City Authority, Dubai Health Authority form partnership to improve health services

Dubai Healthcare City Authority (DHCA) and Dubai Health Authority (DHA) have formed a partnership to strengthen the health sector in the emirate.

The authorities signed a Memorandum of Understanding (MoU) to this effect on 18 January 2016.

The MoU will see the authorities enhancing healthcare services for local and foreign patients. DHCA and DHA will work together to integrate health policies and procedures towards health provision and collaborate on increasing access to services such as medical fitness centers, and mandatory health insurance.

The partnership will create synergy in licensing standards for healthcare professionals and healthcare operators.

"Dubai Health Authority is keen on strategic partnerships and is ready to open its doors to collaborate with stakeholders and other organizations to develop Dubai's health system," said Humaid Al Qatami, Chairman of the Board and Director-General of DHA.

The agreement focuses on maximizing benefits for both and fostering knowledge exchange from policies and regulations to harnessing healthcare expertise, he explained. "Our combined objective represents a unified vision and our aspirations to make Dubai and its health system a globally recognized model."

The partnership will advance medical education and develop a qualified healthcare workforce through cooperation in programs for Continuing Professional Development (CPD) and medical research.

Dr Raja Al Gurg, Vice-Chairperson and Executive Director of DHCA, said: "Shaping the future of the emirate's health system is a commitment we have as Dubai Healthcare City Authority. Developing the right mechanism for a health system requires planning and foresight as well as sound policymaking. The health agenda for the emirate of Dubai has to move beyond the provision of specialized healthcare, and include measures towards

influencing the health status of each and every individual who calls Dubai their home."

Saudi seeks foreign investment in health sector

According to a report in the *International Business Times*, Saudi Arabia made a pitch to foreign investors at the recent Wold Economic Forum in Davos, saying the kingdom was open for foreign direct investment in its healthcare sector.

Khalid al-Falih, Saudi Health Minister and Chairman of the board of Saudi Aramco, said: "We're literally opening the door wide open for foreign direct investment."

He said that the kingdom is seeking investors "who are willing to come to Saudi Arabia and take advantage of the next phase of development, which is going to be significant".

According to the report, the Saudi Government is facing mounting pressure to diversify the oil-rich economy. With the price of crude having fallen sharply in recent months, Saudi Arabia's revenues from oil exports are rapidly diminishing. The Saudi government said it expected to post a budget deficit of $87 billion this year – about 13.3% of its gross domestic product – on top of last year's deficit of $98 billion.

WHO sends mission to Saudi to assess fight against MERS

A joint mission led by the World Health Organization (WHO) to assess Saudi Arabia's efforts against MERS-CoV said 26 January that the country has made progress and is ready to take the next proactive steps, such as better surveillance in camels.

The WHO joint mission to Saudi Arabia took place from Jan 11 through 14 and included visits to health and agriculture ministries, hospitals in Riyadh and Hofuf, labs, a camel research facility, and a camel slaughterhouse and market in Hofuf, according to a report posted by the WHO Eastern Mediterranean regional office.

The event marked the third recent joint MERS mission to the country. The previous one came in August in the wake of a large hospital outbreak in Riyadh.

Some of the group's goals were to observe Saudi Arabia's surveillance for the disease, its latest hospital infection and prevention protocols, case investigation capabilities, and research priorities.

The experts gave Saudi Arabia good marks for getting its MERS-CoV command center up and running, which has laid good groundwork for an effective public health response, they said. They added, however, that the system's full potential is not yet being met.

The mission found that surveillance for detecting and monitoring suspected and confirmed MERS-CoV cases has improved, now that an electronic Web-based system is up and running. They noted, though, that the systems are mainly "responsive" and that the next step would be a sentinel surveillance system to look for severe acute respiratory infections to help flag problems earlier and reduce the risk of missed cases.

Camel surveillance, however, is still in planning stages, with few resources for implementing monitoring of the disease in the animals before infections occur in humans, the team found. They also pointed out that health and agriculture ministries are collaborating more on primary case investigations, though they are still conducting their probes separately.

Hospital outbreaks have declined at health ministry hospitals, but challenges remain at other hospitals, according to the group. Lessons learned from a large outbreak at a National Guard hospital led to infection prevention and control improvements at other National Guard hospitals, but so far such experiences are being shared only within health systems, and not between them.

Saudi Arabia has set up a committee to identify and fund research priorities, but it's not clear how sharp the focus will be on epidemiologic research that can help answer key public health questions, the experts said.

For the country's next priorities to step-up the response to MERS-CoV, the joint mission group had five main recommendations. They included appointing a leader with the necessary authority to fully implement and expand the nation's strategy for controlling the disease.

The recommendations also included increasing collaboration between health and agriculture ministries, addressing research priorities flagged by earlier MERS-CoV expert groups, documenting and sharing infection prevention and control lessons, and making the control centre a multisector body to deliver a coordinated, consistent approach.

Following months of blocked access, WHO medical supplies reach Taiz City, Yemen

Following months of blocked access to Taiz City, Yemen, and in response to mounting emergency health needs, the World Health Organization (WHO) managed to deliver more than 20 tonnes of medicines and medical supplies. These medical supplies are critical to meet the most urgent needs in a city where more than 200,000 people have been living under siege with limited access to humanitarian aid.

The health supplies, which had been blocked from entering the city since early December, were finally delivered to Al-Thawra, Al-Jumhoori, Al-Rawdha and Al-Ta'aon hospitals as of 31 January. The supplies include trauma kits, interagency emergency health kits, diarrhoeal disease kits and 170 oxygen cylinders, enough for around 35,000 beneficiaries. Additionally, dialysis solutions were facilitated to Al-Thawra Hospital for 30,000 dialysis sessions for one year.

"Hospital staff in Taiz City are desperate for medicines and medical supplies so that they can continue to offer the most basic medical care. The delivery of these WHO supplies is a huge step that we are hoping will pave the way for the provision of more medical support to the city," said Dr Ahmed Shadoul, WHO Representative in Yemen.

Since April 2015, the ongoing violence and insecurity continues to limit the delivery of aid in Taiz City. Three districts in Taiz City – Al Mudhaffar, Al Qahirah and Salah – still remain inaccessible and people are in urgent need of food, safe water and life-saving health services. Many hospitals have been forced to close their intensive care units due to a lack of fuel, medicines and health staff. Patients with chronic diseases such as diabetes, kidney disease and cancer are struggling to access essential medicines and dialysis centres. MEH

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- *Surgical Specialty Facility complete in May 2016*
- *First bed tower will be complete Fall 2017*
- *650-bed replacement hospital and second bed tower complete early 2019*

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worldwide monitor

Update from around the globe

HIV-HIV organ transplants approved in US

Johns Hopkins recently has received approval from the United Network for Organ Sharing to be the first hospital in the United States to perform HIV-positive to HIV-positive organ transplants. The institution will be the first in the nation to do an HIV-positive to HIV-positive kidney transplant and the first in the world to execute an HIV-positive to HIV-positive liver transplant.

"This is an unbelievably exciting day for our hospital and our team, but more importantly for patients living with HIV and end-stage organ disease. For these individuals, this means a new chance at life," says Dorry L. Segev, MD, PhD, associate professor of surgery at the Johns Hopkins University School of Medicine.

This announcement brings to fruition the exhausting two-year effort Segev put into helping draft and push through the 2013 HOPE Act —a bill signed by President Obama that made it possible for HIV-positive individuals to donate organs.

Approximately 122,000 people are on the transplant waiting list in the US at any one time. Thousands die each year, many of whom may have lived had they been provided the organ they needed. Meanwhile, Segev estimates that each year, about 500 to 600 HIV-positive, would-be organ donors had organs that could have saved more than 1,000 people – if only the medical community was allowed to use the organs for transplant.

The antiquated law, which the HOPE Act reversed, prevented doctors from using organs from HIV-positive donors, even if they were intended to be given to an HIV-positive patient desperately in need of the organ. Despite very positive outcomes in non-HIV transplants in HIV-positive recipients and proven results of HIV-positive to HIV-positive kidney transplants in South Africa, HIV-positive to HIV-positive transplant in the US was not a possibility until now.

"Organ transplantation is actually even more important for patients with HIV, since they die on the waiting list even faster than their HIV-negative counterparts. We are very thankful to Congress, Obama and the entire transplant community for letting us use organs from HIV-positive patients to save lives, instead of throwing them away, as we had to do for so many years," says Segev.

The first approved HIV-positive to HIV-positive transplant could take place as soon as a suitable organ should become available and a recipient is successfully identified and prepared.

MSF launches vaccination campaign for 222,000 Central African children

Médecins Sans Frontières (MSF) has launched a vaccination campaign of unprecedented scale targeting some 220,000 Central African children. Initiated last July in cooperation with the Ministry of Health in the north of the country, the campaign in January moved to sub-préfecture Berberati in southwest CAR and will gradually be extended to all 13 sub-prefectures where MSF runs medical programmes. It is set for completion by the end of 2016.

In addition to this large-scale vaccination campaign, MSF is to enhance and scale-up vaccination services in the health facilities where it works. These two strategies will enable the organisation to provide under five-year olds not yet fully immunised with up to nine antigens. Furthermore, preventive measures such as distributions of Vitamin A, bed nets and anti-parasite treatment and malnutrition screening will be implemented according to each sub-prefecture's specific needs.

Official Ministry of Health figures show that the political and military crisis that began in 2013 is the cause of the collapse in immunisation coverage rates. Between 2012 and 2014, the number of Central African children vaccinated against measles fell from 64% to 25% and against acute respiratory infections from 52% to 20%. By the end of 2013, only 13% of one-year olds had been fully immunised.

"This preventive vaccination campaign is the biggest ever undertaken by MSF in CAR and one of the first aimed at protecting under five-year olds against so many diseases," explained MSF vaccination advisor Dr Pauline Lechevalier. "Given the situation in CAR right now, the risk of epidemics and therefore deaths from vaccine-preventable diseases is extremely high. It is vital that as many children as possible be provided protection against these illnesses."

As part of its campaign, MSF is administering pneumococcal conjugate vaccine (PCV), which, because of its prohibitive cost, humanitarian aid agencies have not yet been able to use on a large-scale.

"For the time being we are benefiting from a donation made by pharmaceutical laboratory Pfizer, one of the two manufacturers of PCV. Without it, we would have to spend several million dollars just to purchase the vaccine," continues Lechevalier. "But donations aren't a viable solution. The vaccine has to be made available at a fair price so that it can be used when and where health professionals consider it necessary."

Since December 2013, MSF has doubled its medical relief operations in order to respond to the continuing crisis in CAR. Operating in CAR since 1996, MSF now has over 300 international and more than 2,000 Central African staff deployed in the country. The organisation currently runs 15 programmes, some of which provide assistance to Central African refugees in neighbouring countries Chad, Cameroun and Democratic Republic of Congo.

WHO, OIE launch new global framework to eliminate rabies

A new framework to eliminate human rabies and save tens of thousands of lives each year has been launched in December by WHO, the World Organization for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO) and the Global Alliance for the Control of Rabies (GARC).

The framework calls for three key actions – making human vaccines and antibodies affordable, ensuring people who get bitten receive prompt treatment, and mass dog vaccinations to tackle the disease at its source.

"Rabies is 100% preventable through

vaccination and timely immunization after exposure, but access to post-bite treatment is expensive and is not affordable in many Asian and African countries. If we follow this more comprehensive approach, we can consign rabies to the history books," said Dr Margaret Chan, WHO Director-General.

Tens of thousands of people die from rabies each year and, worldwide, 4 out of every 10 people bitten by suspected rabid dogs are children aged under 15 years. One person dies every 10 minutes, with the greatest burden in Asia and Africa.

The cost of vaccines to protect humans from rabies is, however, beyond the reach of many of those who may need it. And treatment for people who are bitten can cost US$40-50, representing an average of 40 days of wages in some of the affected countries. Recognizing that human vaccination is currently not always affordable, the new framework emphasizes prevention through vaccinating dogs – whose bites cause 99% of all human rabies cases. A dog vaccine costs less than US$1.

"Vaccinating 70% of dogs regularly in zones where rabies is present can reduce human cases to zero. Eliminating canine rabies through dog vaccination is the most cost-effective and only long-term solution," states OIE Director-General Dr Bernard Vallat. "Human deaths can be prevented when mass dog vaccination is combined with responsible pet ownership and stray dog population management, both complying with OIE intergovernmental standards, as well as with bite treatment, as recommended by WHO."

Whilst vaccinating dogs will be key in the new approach, the elimination of rabies – and saving the lives of those who are bitten – will not be possible without more widely-available human vaccines.

Currently, about 80% of people exposed to rabies live in poor, rural areas of Africa and Asia with no access to prompt treatment should they be bitten. Bringing treatment closer to victims and providing wider access to affordable vaccines and potent rabies immunoglobulins, which neutralize the rabies virus before it can get a hold in the body, are vital to achieving zero rabies deaths.

Bringing down the cost of human rabies vaccines and treatments will require strong international collaboration to make quality-assured vaccines and rabies immunoglobulin available to health centres in regions where rabies is endemic.

As of 2015, WHO and the OIE Vaccine Bank have delivered more than 15 million doses of canine rabies vaccines in many countries.

Oral cholera vaccines to double to 6 million doses after UN health agency approves new supplier

Faced with a global shortage of oral cholera vaccines (OCV), the United Nations health agency announced in January that supply should double this year to six million doses, with further increases later, after it approved a third producer to fight a disease that kills up to 142,000 people annually.

Last year, Sudan and Haiti asked the WHO for supplies to conduct pre-emptive vaccination campaigns, but the requests could not be filled because of the global shortfall.

The new producer, a company in the Republic of Korea, was approved under the WHO's pre-qualification programme, which ensures that drugs and vaccines bought by countries and international agencies such as the UN Children's Fund (UNICEF) meet acceptable standards of quality, safety and efficacy.

The additional capacity will help reverse a vicious cycle of low demand, low production, high price and inequitable distribution, to a virtuous cycle of increased demand, increased production, reduced price and greater equity of access, WHO said in a statement.

Cholera is an acute diarrhoeal disease that can kill within hours if left untreated. There are between 1.4 million and 4.3 million cases a year, with up to 142,000 deaths. Cholera is endemic in over 50 countries, but usually only gains international attention during emergencies, such as the outbreak among refugees in Goma, Democratic Republic of the Congo, in 1994 that killed tens of thousands.

Climate change and the El Niño weather phenomenon that causes droughts or flood in various parts of the world, may also be contributing to more frequent cholera outbreaks.

OCVs have been used in mass campaigns in emergencies since 1997. But because the disease disproportionately affects poor communities who are often unaware that the vaccines exist, there has historically been little demand for the products. In 2013 the WHO created the world's first stockpile, pledging to buy and use two million doses a year to create demand.

Vaccination requires two doses, meaning the stockpile is sufficient to cover one million people.

Access to OCV has been further improved by a five-year, US$115-million commitment from Gavi, the public-private vaccine alliance, to expand availability and use in countries with endemic cholera.

Since the stockpile was created more vaccines have been distributed and used than in the previous 15 years. A total of 21 OCV deployments of about 4 million doses to 11 countries have been used in various contexts: humanitarian crises in Cameroon, Haiti, Iraq, Nepal, South Sudan, and Tanzania; outbreaks in Guinea and Malawi; and endemic hotspots such as Bangladesh and Democratic Republic of the Congo.

Insulin remains out of reach for many people living with diabetes worldwide

More than 90 years after it was first discovered, and despite being listed as an essential medicine by the WHO since 2007, the life-saving diabetes drug, insulin, remains very expensive and beyond the reach of many people with type 1 and 2 diabetes who need it globally, say leading experts writing in *The Lancet Diabetes & Endocrinology* journal.

"Insulin access is a complex challenge," explains author Dr David Beran from the Geneva University Hospitals and University of Geneva in Switzerland. "A wide variety of issues affect access including the global insulin market being dominated by three multinational manufacturers; import duties and taxes affecting the price at which insulin enters different counties;

and mark ups in the public and private sectors that also make insulin expensive."

The Review is the first stage of the study, 'Addressing the Challenge and Constraints of Insulin Sources and Supply (ACCISS)', being led by Health Action International in collaboration with Boston University's School of Public Health and the Geneva University Hospitals and University of Geneva [2]. The ACCISS Study is a comprehensive and pioneering approach to gain a greater understanding of the complexity and challenges of poor access to insulin and enable countries to develop a tailored solution to address the challenge.

Insulin is essential for people with type 1 diabetes to stay alive and is needed by around a quarter of people with type 2 diabetes to control blood sugar.

With just three multinational companies having a near monopoly on the market, competition has been limited and impacted the price of insulin. Access and affordability to insulin is a challenge in both high-income settings, such as the US, where the medicine can cost up to US$400 a month, as well as in sub-Saharan Africa, where the life expectancy of a child with type 1 diabetes is just 1 year because of poor access to affordable insulin.

Over the past decade, there has also been a record rise in the use of analogue (synthetic) insulin which now makes up two-thirds of all insulin used in high-income countries, adding to rises in cost.

"We have seen a trend in the insulin market with animal insulin disappearing and being replaced by human insulin. A concern is whether a similar trend in which human insulin is replaced by analogue will occur," explains Beran. The authors note that this trend exists despite a 2011 report by the WHO's 17th Expert Committee on the Selection and Use of Essential Medicines that found no evidence that the more costly analogue forms work better than the cheaper, older insulin.

Increased costs of insulin for health systems are due to this increasing use of analogue insulin as well as increasing numbers of people using insulin. In the UK, for example, the number of people using insulin trebled between 1991 and 2010, mainly due to a large increase in the number of people with type 2 diabetes using the drug. Between 2000 and 2010, the UK NHS paid out an astounding £2732 million on insulin. The key driver of this expenditure was the spiraling use of analogue insulin that rose from £18.2 million, or 12% of the total in 2000, to £305 million or 85% of the total in 2010.

According to the authors, over half of active patents on insulin are linked to the delivery pen devices and not the insulin itself, so intellectual property is not a barrier to entry in the market. "Although patents on the first analogue insulin expired in 2014, these newer forms are harder to copy. Unlike antiretrovirals and other chemical drugs, lengthy approval processes and the numerous procedures involved in making an exact copy of the biological product drive up the costs of making generic or biosilmilar versions of insulin. It can cost hundreds of millions of pounds to bring a new drug to market," explains Richard Laing, co-author and Professor of international health at Boston University's School of Public Health in the US.

"Addressing the challenges and constraints of insulin supply will require interventions to be tailored to individual countries. Some lower-income countries, like Nicaragua, are doing very well at providing insulin for free for its population, while other countries, such as Mali are charging high prices for it even in the public sector," says Beran.

The authors hope that this Review will raise awareness of the issue and inspire action. Co-author Margaret Ewen from Health Action International in Amsterdam, The Netherlands, explains: "The issue of access to insulin lacks a global voice and global mobilization of resources. Over the past three decades, HIV/AIDS has attracted global attention with civil society truly getting behind the issue of universal access to antiretrovirals. The lessons from the successful treatment of HIV/AIDS need to be applied to ensure universal access to insulin."

US NIH funds new research in antibiotic alternatives in face of drug-resistant bacteria

The National Institute of Allergy and Infectious Diseases (NIAID), part of the US National Institutes of Health, has awarded approximately US$5 million in funding for 24 research projects seeking to develop non-traditional therapeutics for bacterial infections to help address the growing health threat of antibiotic resistance. Advancing new therapeutic options to combat drug-resistant bacteria is a key goal of the US President's National Action Plan for Combating Antibiotic-Resistant Bacteria.

"The discovery, development and deployment of antibiotics have transformed medicine; however, microbes continually evolve and become resistant to these lifesaving drugs," said NIAID Director Anthony S. Fauci, M.D. "New strategies are desperately needed to treat patients with antibiotic-resistant infections that often are deadly. These new NIAID grants will provide funding to researchers developing unique, non-traditional therapies that could complement or even replace currently available antibiotics that are losing effectiveness."

Increasing resistance to antibiotics coupled with the slow pace of new antibiotic development threatens to erode the past 70 years of progress in fighting life-threatening bacterial infections. The overuse and abuse of antibiotics drives this issue and, as a consequence, bacteria adapt to antibiotics designed to destroy them, making the drugs less effective and allowing antibiotic-resistant strains to survive and multiply.

A non-traditional therapeutic is an antibacterial treatment that works differently than traditional antibiotics, which typically target one or more essential pathways, such as those involved in cell-wall and protein synthesis, to directly kill or inhibit the growth of many types of bacteria. One non-traditional approach, called therapeutic bacteria, uses good bacteria found in or added to the human microbiome to target or control the growth of harmful bacteria. Another alternative approach is bacteriophage or phage therapy, which uses viruses that only affect bacteria to reduce or eliminate those bacteria in humans. Other examples of non-traditional approaches include adding decoy targets to prevent bacterial patho-

gens from producing disease, enhancing human immune responses to pathogens, and developing drugs that incapacitate the pathogen's ability to adapt and compete.

The 24 phased innovation awards were made to 18 academic institutions and three industrial organizations. The awards provide support for two years with the possibility of three additional years of funding for the most accomplished projects.

MSF speaks out against current strategies to combat disease outbreaks

Five diseases with the potential to become epidemics in 2016 were highlighted by international aid organisation Médecins Sans Frontières/Doctors Without Borders (MSF), when the World Health Organization's executive board met in Geneva in January. Without proper investment in preventing and responding to outbreaks of cholera, malaria, measles, meningitis and a group of often-overlooked diseases spread by viruses and parasites, they are likely to pose an ever greater threat to people's health in the year ahead.

Current strategies to prevent major outbreaks of disease show only limited success. Epidemics continue to occur, often with devastating consequences for some less developed countries. Epidemics open up cracks in national health systems, exhaust available resources and, in many cases, kill large numbers of people.

"We know that thousands of lives will be at risk in the year to come, although the means exist to prevent these deaths," said Dr Monica Rull, operational health advisor for MSF. "Epidemics of cholera, malaria, measles and meningitis take place every year, incapacitating and killing many – and this needs to stop. At the same time, the threat posed by emerging and re-emerging virus and parasite-spread diseases – such as dengue fever, Zika, Ebola and Kala Azar – needs to be faced."

Along with prevention measures, resources must be provided to build effective emergency response systems. This must be part of a broader effort to help countries strengthen their health infrastructure and capabilities and provide health education to local communities.

Rapid alert mechanisms must be accompanied by rapid response activities once a disease breaks out, with free and quality medical care provided to all those affected.

The research and development agenda must be reoriented towards the greater public good, with a recognition that market forces cannot be counted on to deliver effective, accessible and affordable tools for under-served population groups.

MSF emphasises that the first step to global health security is individual health security, including for the sickest and most vulnerable people.

"Current outbreak response strategies are failing the very people they are designed to help," said Dr Rull. "If we don't make significant changes, we will be doomed to repeat past mistakes, and must take responsibility for the consequences."

UN warns world underestimates risk of global health threat

The world underestimates the risk of a health threat worse than Ebola, and its capacity to prepare and respond is "woefully insufficient," according to a high-level panel appointed by United Nations Secretary-General Ban Ki-moon to look at improvements based on lessons learned during the recent outbreak.

The scope of West Africa's Ebola outbreak in September 2014 led to the UN's first-ever special mission to address a public health crisis. Appointed in April 2015, the six-member group was led by Tanzanian President Jakaya Mrisho Kikwete.

Before making its findings and recommendations, the full panel met six times last year and held six roundtable meetings. The group's unedited, 95-page advance report, dated 25 January, is posted on the United Nations' Web site.

In the foreword to the report, the panel emphasized that its review isn't a critique of the Ebola response, but rather a wake-up call that comes with a set of critical recommendations designed to improve the global response to the next crisis.

The authors noted that recent outbreaks of 2009 H1N1, H5N1, SARS (severe acute respiratory syndrome), and Middle East respiratory syndrome coronavirus (MERS-CoV) show that emerging diseases can be a challenge even for sophisticated healthcare systems in developed countries.

Based on what it learned during its fact-finding, the panel said the emergence of a highly pathogenic flu strain that could kill millions isn't an unlikely scenario. It noted that because Ebola is transmitted by infected body fluids, though devastating, it would be easier to contain than an airborne disease such as pandemic flu.

"The greatest concern is the emergence of a virulent strain of a highly communicable pathogen – such s influenza virus – that could result in millions of deaths," the report says, noting that the impact could far outweigh the 1918 flu pandemic.

To avert the devastating toll of a future pandemic, the authors made 27 recommendations, including several that cut across different governance levels and require input and action from all sectors of society.

However, they recommended three top-priority steps that can be taken immediately and require global cooperation. The first is creation by the World Health Organization of a new "Centre for Emergency Preparedness and Response" that has real command and control capacity and can access the personnel and resources it needs to respond.

Also, countries should meet their required International Health Regulations capacities, and those that aren't able should receive global support to implement them, the panel advised. The third key recommendation covers financing in three areas: helping countries meet their IHR obligations, funding the proposed new WHO emergency centre, and supporting the research and development of vaccines, drugs, and diagnostics.

To oversee progress in meeting the recommended measures and implementing reforms, the group proposed that the United Nations establish a high-level council on global health crises within its General Assembly and help prepare to convene a summit meeting on such crises in 2018.

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Medical research news from around the world

Dengue vaccine enters Phase 3 trial in Brazil

A large-scale clinical trial to evaluate whether a candidate vaccine can prevent the mosquito-borne illness dengue fever has been launched in Brazil. The vaccine, TV003, was developed by scientists in the laboratory of Stephen Whitehead, Ph.D., at the USNIH's National Institute of Allergy and Infectious Diseases (NIAID). The Butantan Institute, a non-profit producer of immunobiologic products for Brazil, licensed the NIAID dengue vaccine technology and is sponsoring the placebo-controlled, multi-centre Phase 3 trial using test vaccine produced in Sao Paulo.

Dengue fever is common in many parts of the tropics and subtropics and about half the world's population is at risk of infection. The World Health Organization estimates that up to 400 million dengue infections occur annually, resulting in 500,000 hospitalizations. More than 1.5 million cases of dengue were reported in Brazil in 2015.

Dengue is caused by any of four related viruses, termed serotypes DEN-1, DEN-2, DEN-3 and DEN-4, which are transmitted to people by *Aedes aegypti* mosquitoes. A person exposed to one dengue virus type gains immunity to that type, but not to the other three. In fact, a second infection with a virus type that differs from the first can lead to a more severe course of disease.

"Researchers in NIAID's Laboratory of Infectious Diseases spent many years developing and testing dengue vaccine candidates designed to elicit antibodies against all four dengue virus serotypes," said NIAID Director Anthony S. Fauci, M.D.

"Earlier clinical trials of this candidate conducted in the United States by NIAID showed that it could elicit a robust antibody and cellular immune response after just one dose," he added. "Because the impact of dengue fever in Brazil is especially large and the country has an excellent health infrastructure, it is an ideal location to test the vaccine candidate."

The new trial aims to enrol almost 17,000 healthy people aged 2 to 59 years in 13 cities, beginning in Sao Paulo. Two-thirds of the volunteers will receive a single dose of the candidate vaccine, while one-third will receive an inactive placebo injection. Neither participants nor study staff will know which of the two groups a volunteer is in. All volunteers will be monitored for five years through a combination of in-person visits to the health clinic and telephone or text communications from the investigators. The goal of the trial is determine if the candidate vaccine prevents dengue fever and to provide additional information about its safety. Although the trial is scheduled to last five years, the investigators hope to have early indications of the potential efficacy of the vaccine in less than two years.

Freezing nerves prior to knee replacement improves outcomes

The first study of its kind has found that freezing nerves before knee replacement surgery combined with traditional pain management approaches significantly improves patient outcomes. The results of the preliminary retrospective study led by Vinod Dasa, MD, Associate Professor of Clinical Orthopaedics at LSU Health New Orleans School of Medicine, were published online 10 February 2016 in the journal, *The Knee*.

The study investigated the cases of 100 patients with advanced osteoarthritis requiring total knee replacement in Dr Dasa's LSU Health New Orleans orthopaedic practice. Half of them were treated with standard multiple pain management options, before cryoneurolysis (nerve freezing) was introduced to the practice. The first 50 patients to undergo cryneurolysis in addition to multimodal pain management comprised the treatment group, which was compared to the control group who had standard therapy alone. The treatment and control groups were similar in terms of gender, age and body mass index. The only difference is that the treatment group received cryoneurolysis via an FDA-approved handheld device five days prior to surgery. The KOOS (Knee Injury and Osteoarthritis Outcome Score), PROMS (Patient-reported Outcomes Measurement Information System), WOMAC (Western Ontario and McMaster Universities Arthritis Index) and Oxford Knee Score were used to measure outcomes.

"Patients in the treatment group had significantly shorter hospital stays, were prescribed significantly fewer opioids during the first 12 weeks post-operatively and had significantly fewer knee symptoms," notes Dr Vinod Dasa, Associate Professor of Clinical Orthopaedics at LSU Health New Orleans School of Medicine.

The ability to decrease hospital length of stay following total knee replacement should substantially reduce costs for hospitals and payers. In the present study, only 6% of patients treated with cryoneurolysis prior to surgery stayed in the hospital for two or more days compared to 67% of patients who did not receive this treatment. Similarly, almost half of patients treated with cryoneurolysis were discharged on the same day of surgery compared with only 14% in the control group. The shorter length of stay of the patients in the treatment group may be due to better local control of pain and a reduced need for nerve blocks that can impair motor function, as well as reduced use of opioids for pain control, which allows patients to walk and function well enough to go home sooner.

- **doi:** 10.1016/j.knee.2016.01.011

Height influences risk of cardiovascular disease, diabetes, cancer

Height is largely genetically determined, but in recent decades the height of children and adults has steadily increased throughout the world: In adulthood the children are almost always significantly taller than their parents. The largest increase in height in recent decades is found in the Netherlands. Dutch men are now 20 cm taller than they were 150 years ago. Interestingly, in the Netherlands the per capita consumption of milk and dairy products is the highest in the world.

These observations led the German Center for Diabetes Research (DZD) scientists Professor Norbert Stefan and Professor Hans-Ulrich Häring of the Department of Internal Medicine IV in Tübingen and the Institute for Diabetes Research and Metabolic Diseases of Helmholtz Zentrum München at the University of Tübingen (IDM). Also part of the research collabo-

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ration was Professor Matthias Schulze of the German Institute of Human Nutrition in Potsdam (DIfE) and Professor Frank Hu of the Harvard School of Public Health and Medical School in Boston, US. Their research? – To analyse the causes and medical effects of an increase in height.

Their study shows that height has an important impact on mortality from certain common diseases, irrespective of body fat mass and other modulating factors. Previous studies have shown clearly that tall people, in comparison to short people, have a lower risk of cardiovascular disease and type 2 diabetes, but have a higher cancer risk.

"Epidemiological data show that per 6.5cm in height the risk of cardiovascular mortality decreases by six percent, but cancer mortality, by contrast, increases by four percent," Professor Schulze said.

The authors suspect that the increase in body height is a marker of overnutrition of high-calorie food rich in animal protein during different stages of growth. Thus, already in utero, lifelong programming might take place that until now has mainly been established for the insulin-like growth factor 1 and 2 and the IGF-1/2 system.

Among other consequences, activation of this system causes the body to become more sensitive to insulin action, thus positively influencing the lipid metabolism.

"Accordingly, our new data show that tall people are more sensitive to insulin and have lower fat content in the liver, which may explain their lower risk for cardiovascular disease and type 2 diabetes," Professor Stefan added. These findings fit in with published data that suggest that tall people have relative protection against disorders of the lipid metabolism. However, this activation of the IGF-1/2 system and other signalling pathways may be related to an increased risk of certain cancers, especially breast cancer, colon cancer, and melanoma because cell growth is permanently activated, the authors suspect. The result is an inverse association with the risk of cardiovascular disease and type 2 diabetes, but a positive association with the risk of cancer.

The scientists advocate considering the factor growth and adult height more than hitherto in the prevention of the above-mentioned major diseases. In particular, physicians should be made more aware of the fact that tall people – although less often affected by cardiovascular disease or type 2 diabetes – have an increased risk of cancer. Hitherto, the importance of diet has been underestimated, especially during pregnancy and in children and adolescents.

- **doi:** 10.1016/S2213-8587(15)00474-X

New study highlights effectiveness of herpesvirus vaccine against Ebola

As the latest in a series of studies, researchers at Plymouth University, National Institutes of Health and University of California, Riverside, have shown the ability of a vaccine vector based on a common herpesvirus called cytomegalovirus (CMV) expressing Ebola virus glycoprotein (GP), to provide protection against Ebola virus in the experimental rhesus macaque, non-human primate (NHP) model. Demonstration of protection in the NHP model is regarded as a critical step before translation of Ebola virus vaccines into humans and other great apes.

The study is published online 15 February 2016 in *Scientific Reports*.

In addition to establishing the potential for CMV-based vaccines against Ebola virus, these results are exciting from the potential insight they give into the mechanism of protection. Herpesvirus-based vaccines can theoretically be made to produce their targeted protein (in this case, Ebola virus GP) at different times following vaccination. The current CMV vaccine was designed to make the Ebola virus GP at later times. This resulted in the surprising production of high levels of antibodies against Ebola virus with no detectable Ebola-specific T cells. This immunological shift towards antibodies has never been seen before for such primate herpesvirus-based vaccines, where responses are always associated with large T cell responses and poor to no antibodies.

"This finding was complete serendipity," says Dr Michael Jarvis who is leading the project at Plymouth University. "Although we will definitely need to explore this finding further, it suggests that we may be able to bias immunity towards either antibodies or T cells based on the time of target antigen production. This is exciting not just for Ebola, but for vaccination against other infectious as well as non-infectious diseases".

A largely untold story is the devastating effect Ebola virus is having on wild great ape populations in Africa. Although the present study administered the vaccine by direct inoculation, a CMV-based vaccine that can spread from animal to animal may be one approach to protect such inaccessible wild animal populations that are not amenable to vaccination by conventional approaches. The current study is a step forward, not only for conventional Ebola virus vaccines for use in humans, but also in the development of such 'self-disseminating vaccines' to target Ebola in great apes, and other emerging infectious diseases in their wild animal host before they fully establish themselves in humans.

- **doi:** 10.1038/srep21674

New MRI technique offers faster diagnosis of multiple sclerosis

A new way of using MRI scanners to look for evidence of multiple sclerosis in the brain has been successfully tested by researchers at The University of Nottingham and Nottingham University Hospitals NHS Trust.

Multiple sclerosis (MS) is a neurological condition which is notoriously difficult to diagnose as it has many symptoms. Not all sufferers experience all of them and the disease can progress at different rates. MRI scans have been used as a diagnostic tool to detect white matter lesions in the brain but these are not always an indicator of the disease.

Now a research team at Nottingham has found a way to use clinical MRI to distinguish between MS lesions and other brain white spots which are found in MS. The study is published in the *Multiple Sclerosis Journal*.

They have used a clinical MRI scanner of the type all neuroscience centres have to carry out a special type of scan called a T2-weighted imaging process which is able to reveal lesions in the brain's white matter that are centred on a vein – a known indicator of MS.

Leading the work, Dr Nikos Evangelou, said: "We already knew that large research MRI scanners could detect the proportion of lesions with a vein in the brain's

white matter, but these scanners are not clinically available. So we wanted to find out whether a single brain scan in an NHS hospital scanner could also be effective in distinguishing between patients known to have MS and patients known to have non-MS brain lesions. We are excited to reveal that our results show that clinical application of this technique could supplement existing diagnostic methods for MS."

A total of 40 patients were recruited from the neurology outpatients' department of Nottingham University Hospitals NHS Trust. Initially a test cohort of 10 patients with MS and 10 patients with non-MS white brain matter lesions were scanned. Anonymised scans were analysed blinded to clinical data and simple diagnostic rules were devised. The same rules were applied to a validation cohort of 20 patients (13 with MS and 7 with other lesions) by a blinded observer.

Within the test cohort, all patients with MS had central veins in more than 45% of brain lesions, while the rest had central veins visible in less than 45% of lesions. Then, by applying the same diagnostic rules to the second cohort, all the remaining patients were correctly categorised into MS or non-MS, by the blinded observer, taking less than two minutes per scan.

The new study is significant because currently among patients referred to MS treatment centres with suspected MS, fewer than 50% are found to have it. This shows that diagnosing MS in a significant minority of cases can be challenging.

The Nottingham University team has now started a new study examining patients with real uncertainty about the diagnosis and aim to extend the study in other UK towns so more patients can participate in this important research.

Migraines worsen as women approach menopause

Migraine headaches heat up as women approach menopause, according to a new study from researchers at the University of Cincinnati (UC), Montefiore Headache Center, Albert Einstein College of Medicine and Vedanta Research.

The findings were published online this week in *Headache: The Journal of Head and Face Pain*, a publication of the American Headache Society.

"Women have been telling doctors that their migraine headaches worsen around menopause and now we have proof they were right," said Vincent Martin, M.D., professor of internal medicine in UC's Division of General Internal Medicine and co-director of the Headache and Facial Pain Program at the UC Neuroscience Institute.

The risk of high frequency headaches, with 10 days of headache per month, increased by 60% in middle-aged women with migraine during the perimenopause – the transitional period into menopause marked by irregular menstrual cycles – as compared to normally cycling women, said Dr Martin, the study's lead author.

Dr Martin and his teamed studied 3,664 women who experienced migraine before and during their menopausal years.

The menopausal years include both the perimenopause and menopause. Menopause begins when women have not had a menstrual period for one year. Symptoms such as hot flashes, irritability, depression and insomnia are common during both.

"Changes in female hormones such as oestrogen and progesterone that occur during the perimenopause might trigger increased headaches during this time," said Richard Lipton, M.D., director, Montefiore Headache Center and professor and vice chair of neurology, and the Edwin S. Lowe Chair in Neurology, Albert Einstein College of Medicine.

The risk of headache was most apparent during the later stage of the perimenopause, which is a time during which women first begin skipping menstrual periods and experience low levels of oestrogen.

Dr Martin said women who participated in the study also reported that high frequency headaches increased by 76% during menopause. However, researchers think that it may not necessarily be the direct result of hormonal changes, but rather due to medication overuse that occurs commonly during this time.

"Women as they get older develop lots of aches and pains, joints and back pain and it is possible their overuse of pain medications for headache and other conditions might actually drive an increase in headaches for the menopause group," said Dr Martin. MEH

WHO declares Zika virus a Public Health Emergency of International Concern

On 1 February the Zika virus was declared a Public Health Emergency of International Concern (PHEIC) by the WHO Director-General, Dr Margaret Chan. The declaration was made on the advice of the Emergency Committee (EC) convened by the Director-General under the International Health Regulations.

The advice was given after clusters of microcephaly and Guillain-Barré Syndrome (GBS) were associated with Zika virus transmission in some settings, particularly in Brazil and a number of other countries in south and central America. The *Aedes aegypti* mosquito is responsible for transmitting the virus.

On 18 February this year the WHO issued an 'interim guidance' for the general public and healthcare practitioners on the 'Prevention of potential sexual transmission of Zika virus' following reports

No cases of Zika virus in WHO EMR, but countries warned to take precautions

As the Zika virus outbreak continues to spread reaching 24 countries in the Americas (as of 27 January), Dr Ala Alwan, WHO's Regional Director for the Eastern Mediterranean Region (EMR), called on governments to work together to keep the Region protected.

"Zika virus is spread by the *Aedes* mosquito, the same type of mosquito that transmits dengue, yellow fever and chikungunya," said Dr Ala Alwan. "No cases of the virus have been reported so far in this Region, but this type of mosquito exists in several countries here, so it is essential that government leaders take steps to prevent the virus from spreading if travellers returning from affected countries are infected with the virus."

Because no specific treatment or vaccine is currently available, the best form of prevention is protection against mosquito bites. To protect people living in the Eastern Mediterranean Region, Dr Alwan urges all countries to:

- enhance surveillance for early detection of Zika virus infection, particularly among travellers returning from countries where the virus is currently circulating;
- be vigilant for any increase in the number of babies recently born with birth defects or neurological syndromes, where this is not a clear medical cause;
- bolster surveillance in countries where the *Aedes aegypti* mosquitoes are present, to detect high density of mosquito populations;
- scale up activities to reduce the source of mosquito populations, especially breeding sites like standing water, through indoor spraying and engage communities;
- raise awareness among people living in high-risk countries where dengue, chikungunya and yellow fever are present, emphasizing personal protection measures to prevent mosquito bites, especially during day time when these types of mosquitoes tend to bite.

As agreed by international law, all countries must work together by reporting to WHO any suspected case of the disease so necessary actions can be taken to help prevent spread of the virus.

of the sexual transmission of Zika virus in two cases – in Senegal in 2008 and in Texas, US, in February 2016 – and the presence of the Zika virus in semen in one additional case.

Over the past several months there have been hundreds of reports in Brazil of microcephaly and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant. However, according the US Centers for Disease Control and Prevention, more studies are needed to learn more about the risks of Zika virus infection during pregnancy,

Currently, there is no vaccine to prevent or medicine to treat Zika.

Four in five people who acquire Zika infection may have no symptoms and illness from Zika is usually mild and does not require hospitalization.

Dr Ed Wright, Senior lecturer in Medical Microbiology, University of Westminster, said: "With [many] countries in the Americas now reporting human cases of Zika virus infection, a prediction of 3-4 million cases in the next 12 months and the WHO's announcement that it considers this outbreak a 'public health emergency of international concern' due

Guillain-Barre syndrome

Guillain-Barré syndrome is a rare condition where, the body's immune system attacks part of the peripheral nervous system. The syndrome can affect the nerves that control muscle movement as well as those that transmit feelings of pain, temperature and touch. This can result in muscle weakness and loss of sensation in the legs and/or arms.

Around 3%-5% of GBS patients die from complications, which can include paralysis of the muscles that control breathing, blood infection, lung clots or cardiac arrest.

Symptoms

Symptoms typically last a few weeks and most individuals recover without long-term, severe neurological complications.

The first symptoms of Guillain-Barré syndrome include weakness or tingling sensations. They usually start in the legs, and can spread to the arms and face.

Severe cases of Guillain-Barré syndrome are rare, but can result in near-total paralysis. These cases are considered life-threatening, and affected individuals are typically treated in intensive-care units.

Causes

The cause of Guillain-Barré cannot always be determined, but it is often triggered by an infection (such as HIV, dengue, or influenza) and less commonly by immunization, surgery, or trauma.

Researchers are studying a potential, but unproven, link between the surge in GBS cases and Zika virus infection.

Treatment

GBS patients are usually hospitalised so that they can be monitored closely.

There is no known cure for GBS. But treatments can help improve symptoms of GBS and shorten its duration.

Given the autoimmune nature of the disease, its acute phase is typically treated with immunotherapy, such as plasma exchange to remove antibodies from the blood or intravenous immunoglobulin.

to the possible link to microcephaly in newborns, this gives some indication of the potential devastating impact this virus could have. This is especially alarming with the outbreak of Ebola in West Africa so fresh in our minds. However, it is important to note some key points.

"Towards the end of 2014 it was predicted that the number of Ebola cases could rise to over one million by 2015, but the true number was only a tiny fraction of that. Hopefully the prediction regarding the number of Zika virus cases will be an over estimation too.

"Further to this, the scientific evidence to-date suggest that the virus is only being transmitted by one type of mosquito. This not only naturally limits where the virus can circulate but for people living in these areas, simple strategies such as repellents, clothing that covers all exposed skin and sleeping under bed nets can greatly reduce their chances of becoming infected.

"Finally, the link between Zika virus infection of pregnant women and neurological and physiological development in a small proportion of their babies, is serious but so far unproven. The announcement by the WHO will enable more funding and resources to be used to answer this vital question.

"The fast reaction of global public health organisations to this outbreak and observation that pregnant women could be at greater risk of complications, and therefore given additional advice and support, should minimise the burden Zika virus has on populations where it has been found."

Professor Trudie Lang, Director of the Global Health Network, University of Oxford, said: "It is excellent news that the WHO have taken this step to make this announcement. There are many key research questions that must now be addressed in order to understand, manage and ultimately treat and prevent this apparent effect that the Zika virus is having on foetal development during pregnancy. This essential research needs to be coordinated, supported and prioritised and this will require rapid international collaboration and strong leadership from a neutral organisation, and this surely must be the WHO rather than any one country? MEH

Global scientific community commits to sharing data on Zika

Leading global health bodies including academic journals, NGOs, research funders and institutes, have committed to sharing data and results relevant to the current Zika crisis and future public health emergencies as rapidly and openly as possible.

Organisations including the Bill and Melinda Gates Foundation, Médecins Sans Frontières, the US National Institute of Health and the Wellcome Trust, along with leading academic journals including *Nature*, *Science* and the *New England Journal of Medicine*, have signed a joint declaration and hope that other bodies will come on board.

The statement is intended to ensure that any information that might have value in combatting the Zika outbreak is made available to the international community, free of charge, as soon as is feasibly possible. Journal signatories provide assurance that doing so will not preclude researchers from subsequently publishing papers in their titles.

It follows a consensus statement arising from a WHO consultation in September 2015, in which leading international stakeholders from multiple sectors affirmed that timely and transparent prepublication sharing of data and results during public health emergencies must become the global norm.

Lack of knowledge presents challenge to vaccine development

The development of a vaccine for the Zika virus faces a series of challenges because of the relatively poor knowledge of the virus. Because of this it's estimated that large-scale vaccine trials are at least 18 months away. These remarks were made at a press conference in Geneva 12 February by Dr Marie-Paule Kieny, Assistant Director- General, Health Systems and Innovation at WHO. She was speaking about Research and Development (R&D) for the Zika virus.

However, despite these challenges she said that, based on WHO's experience with R&D during the West Africa Ebola epidemic, WHO's R&D response is proceeding very quickly for Zika.

"After Ebola, WHO began to draw up a master plan for R&D to both prepare for health emergencies and to be able to mount a fast R&D response in case of need. The R&D Blueprint – as the initiative is called – aims to accelerate the availability of medical countermeasures during epidemics and limit damage as much as possible. We now have established critical paths for coordinated action, and industry interest in providing platform technologies for the development of medical products," Dr Kieny said.

"We have already identified a large number of manufacturers and research institutions either involved in the development of medical tools for Zika, or interested in embarking on such research."

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Scale of attacks on medical neutrality unprecedented

Leaders of the Syrian-American Medical Society describe their efforts to support what remains of the Syrian healthcare system and the healthcare context in which those efforts take place in their article: "War is the Enemy of Health: Pulmonary, Critical Care and Sleep Medicine in War-torn Syria." *Middle East Heath* reports.

"The Syrian conflict is unprecedented in the scale and gravity of the attacks on medical neutrality, which was something that was agreed upon 150 years ago in Geneva," says Mohammed Z Sahloul, MD. "Nearly 700 medical workers have been killed in this war, and more than 300 hospitals attacked, according to Physicians for Human Rights."

Dr Sahloul, a pulmonologist and critical care physician in Oak Lawn, Illinois, US, served as president of the Syrian-American Medical Society for four years. He is the lead author of the article: "War is the Enemy of Health: Pulmonary, Critical Care and Sleep Medicine in War-torn Syria" published in the *Annals of the American Thoracic Society*.

The Syrian-American Medical Society, formed shortly after the war began to help Syrian refugees in Turkey, has grown into a $25-million enterprise which now provides 24/7 telemedicine consulting to nine Syrian ICUs and is estimated to have helped more than two million people. It also conducts "train-the-trainer" webinars and has done so for 850 doctors, nurses, paramedics and technicians on such topics as how to resuscitate trauma patients, the fundamentals of critical care and triaging surgery patients.

And in classrooms in Turkey and Lebanon, it has trained Syrian doctors in the use of, and equipped them with, portable ultrasound to diagnose bodily injuries. Powered by rechargeable batteries, this technology has proved especially helpful in the war-torn region prone to power outages.

By all accounts, the healthcare situation in Syria is grim. The authors cite statistics that they and other organizations have compiled:

The bombed M-1 Hospital in Aleppo

Mohammed Z. Salhoul, MD | www.sams-usa.net

An underground hospital in Hama Province.

- In the first four years of the conflict, 75,000 civilians died from war injuries; 25% of those killed were women and children.
- More than twice that number have died from chronic and infectious disease because of inadequate medical care.
- There is growing incidence of TB among Syrian refugees in Lebanon. A 2014 *British Medical Journal* article found a 27% increase in TB.
- By 2013, 70% of the healthcare workforce had left the country. In Syria's largest city, Aleppo, only 70 of the 6,000 physicians who once practiced there remain.
- Syrian life expectancy has plummeted by 20 years since war broke out.

Responding to this healthcare crisis has been made much more difficult by the targeting of hospitals and healthcare workers, primarily by the Government, but also by

Tele-ICU program saves lives

Life-saving medical treatment can be readily deployed using modern cost-free social media applications in regions devastated by war, according to clinicians who launched the Syria Tele-ICU program in December 2012. In a report published online ahead of print in the American Thoracic Society journal , the researchers detail their experience in providing critical care services using telemedicine to civilians in an active war zone.

In the paper "Rapid Deployment of International Tele-ICU Services in War-torn Syria," Craig Weinert, MD, associate professor of medicine in the Division of Pulmonary, Allergy, Critical Care and Sleep Medicine at the University of Minnesota Medical School, and Anas Moughrabieh, MD, fellow in the Pulmonary and Critical Care Fellowship Training Program at the University of Minnesota, argue that while intensive care services typically take place at the bedside, threats to the safety of health professionals as well as the lack of cooperation of government forces are significant barriers that require a less direct but effective method of healthcare delivery. Approximately a year after the conflict in Syria began in 2011, only 35 physicians were left to care for 2.5 million people in Aleppo, the largest city in Syria.

With his knowledge of tele-ICU programs in the US, Dr Moughrabieh recruited a network of Arabic-speaking clinicians in North America to develop and staff the program. Nurses working in ICUs in conflict areas in Syria were trained to use technology such as WhatsApp, Viber and Google applications to communicate and take medical orders from clinicians 6000 miles away. Their findings show that "social media applications that many people in the West regard as something frivolous that teenagers use can be easily adapted for creating a life-saving international network that can deliver care where it is too dangerous to be present on site," said Dr Weinert.

Without the financial resources and physical security of hospitals on which US telemedicine programs can rely, the Syrian program was managed at minimal cost using volunteer clinicians, obtaining capital from humanitarian organizations such as the Syrian American Medical Society and diverting most of their budget towards satellite internet expenses.

"Effective telemedicine programs do not have to take years to develop or need massive financial support. This was the accepted paradigm for tele-ICU programs in the US – years to plan and build with million dollar budgets. This study shows it doesn't have to be that way," added Dr Weinert. The annual operating budget for the Syria Tele-ICU program is approximately $1000 per year.

While the researchers are hopeful that tele-ICU programs like theirs can be replicated in other war-torn regions, they acknowledge that "there is a lower limit of civil functioning below which even a telemedicine program cannot be effective. One of the reasons that the tele-ICU works in Syria is that Syria has a modern middle-class with prior experience in using computers and social media and has at least some remaining medical facilities that can provide ICU-level therapies like ventilator support."

Nearly a year after its start, the Syria Tele-ICU Program was providing care to approximately 90 patients per month in Aleppo. It currently supports five ICUs with plans to support an additional 10 at some point this year.

• **doi:** 10.1513/AnnalsATS.201509-589OT

the rebels, according to the authors.

Dr Sahloul decried the absence of a forceful response to these war crimes by physicians and international medical organizations. Medical neutrality, which is designed to protect civilians and the healthcare professionals who treat them during a war, is something "sacred among medical professionals", he added.

"The medical community is very late in responding to the situation in Syria," Dr Sahloul said. "As physicians, we not only have an obligation, we have a powerful voice to insist that policy makers ensure that populations under siege have access to care."

Chemical weapons

The Syrian-American Medical Society has also documented the use of chemical weapons, another war crime, by the Syrian armed forces. Although most people have only heard of the 2013 sarin attack that killed 1,400 people and injured 10,000 others, since December 2012, the group reports that there have been 152 documented attacks using toxic gases, including 8 using sarin, which paralyzes respiratory muscles, and 92 with chlorine gas, which dissolves lung tissue.

He said the Syrian-American Medical Society has trained Syrian healthcare workers in how to treat patients exposed to chemical agents.

Despite the makeshift conditions under which medical care is provided in Syria, the authors argue that the efforts of the Syrian-American Medical Society and other groups supporting the healthcare workers remaining in the country should be subject to evaluation and measurement.

"A retrospective survey of 527 healthcare workers trained in portable ultrasound found that 87% had incorporated the technology into the daily management of violent conflict," Dr Sahloul said. "This technology should be studied in areas of war. It has the potential to save thousands of lives."

SAMS

The Syrian American Medical Society (SAMS) is a nonprofit, professional and nonpolitical organization that represents over 5,000 Syrian American physicians in the United States. SAMS is working at the front lines of crisis relief in Syria and its neighbors to alleviate suffering and save lives. Please donate to: *www.sams-usa.net*

Dr Sahloul's observation captures the principle of the Syrian-American Medical Society implicit in the journal article: even in humankind's darkest moments, caring and rational people can provide light.

on the WEB War is the Enemy of Health: Pulmonary, Critical Care and Sleep Medicine in War-torn Syria (PDF) *http://tinyurl.com/z4ebeea*

It's huge – 4000 exhibitors and 130,000 healthcare professionals from 163 countries

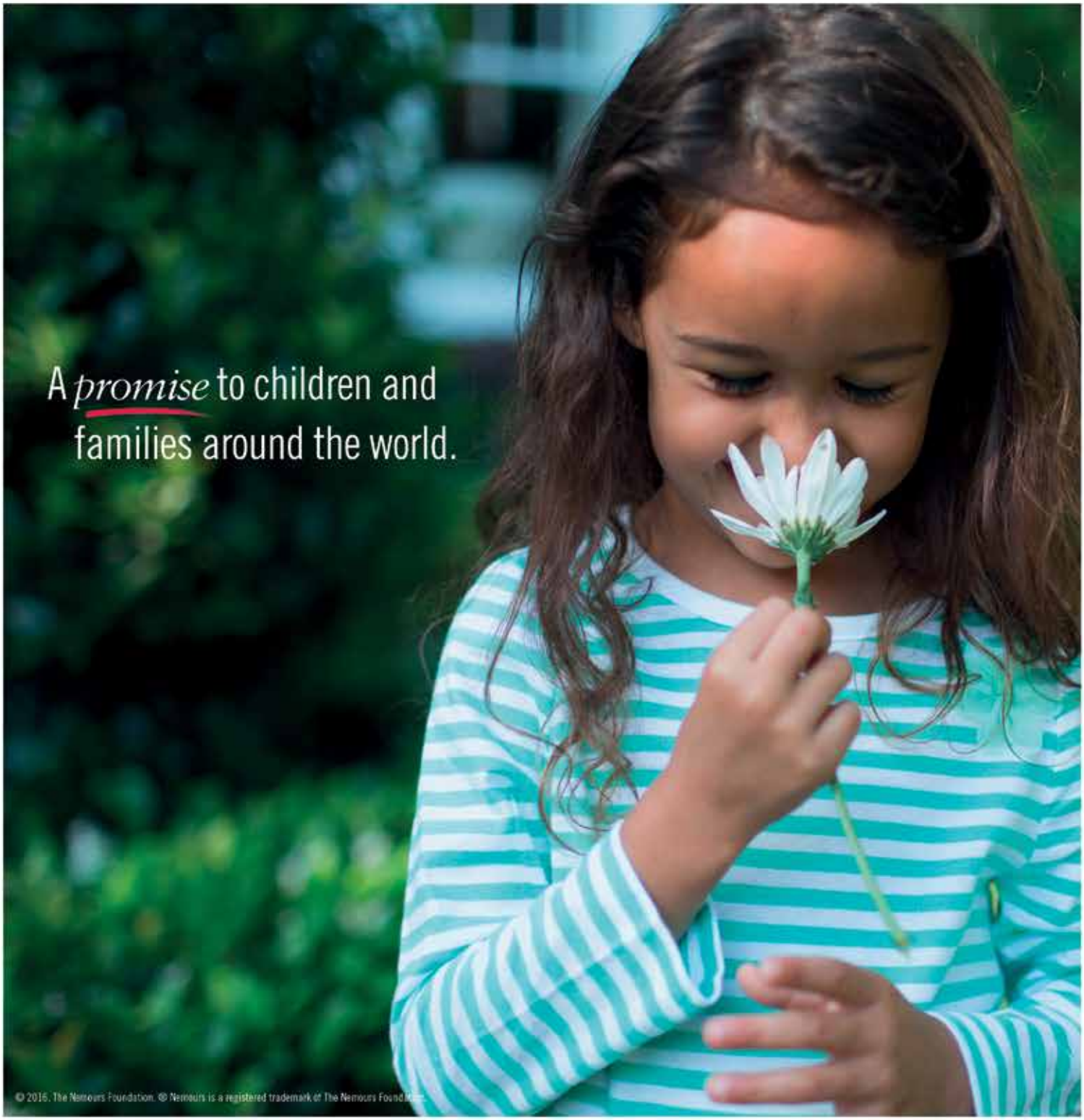
The 41st Arab Health Exhibition and Congress took place from 25-28 January at Dubai International Convention & Exhibition Centre. It is the largest and most prestigious medical trade fair in the Middle East with more than 4,000 companies exhibiting their latest innovations to more than 130,000 healthcare professionals from 163 countries.

As the Middle East healthcare industry continues its trend of rapid growth on the back of continued investment in healthcare infrastructure, Arab Health provides an ideal platform for the world's leading healthcare manufacturers, wholesalers and distributors to meet the medical and scientific community in the Middle East and subcontinent.

In addition to the exhibition, the Arab Health Congress is renowned for delivering

RoboDocs

To coincide with Arab Health, Dubai Health Authority (DHA) announced the pilot launch of a telehealth project, to extend the use of RoboDocs to ICUs, and NICUs. The telehealth project will enhance the way in which healthcare is delivered in the Emirate. Amani Al Jassmi, Director of Information Technology at the DHA, said: "The DHA is the first government health organization in the region to implement telehealth. This project is in line with the vision of Dubai Smart City and it is one of the core projects for the DHA because telehealth can ensure consistent high quality of care, anytime, anywhere and any place due to the remote robot systems."



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National Reference Laboratory and LabCorp pave the way for personalized medicine in the region

National Reference Laboratory, part of Mubadala's network of healthcare providers, introduced several world-class assays in the domain of hereditary genetics and therapeutic oncology, available through its partner LabCorp and the members of the LabCorp Specialty Testing Group during MEDLAB 2016, as part of the Arab Health 2016 Exhibition & Congress that took place from 25-28 January at Dubai International Convention & Exhibition Centre.

Over the past few years, the region has seen an increased need for specialized healthcare services, including oncology and genetics, resulting in the rapid development of *in vitro* diagnostics and personalized medicine. Specialized facilities such as National Reference Laboratory are closely following and supporting the development of healthcare infrastructure in the country and the region by offering tests used as diagnostic and prognostic tools for monitoring and treating a variety of acquired and hereditary diseases, including cancers.

"The advancement in Polymerase Chain Reaction (PCR) techniques combined with the introduction of Next Generation Sequencing (NGS), has led to a noticeable increase in laboratory testing in the domains of genetics, pharmacogenetics, and oncology. Based on the unique genetic profile of each individual, we are able to make medical decisions for the specific patient in order to predict risk of disease as well as failure and/or response to treatment," said Abdul Hamid Oubeisi, CEO of National Reference Laboratory. "Similarly, these new methodologies have lowered the costs and therefore made the tests more accessible. We are pleased that through our partnership with LabCorp USA, we are able to provide this type of sophisticated testing to patients in the region."

Assays promoted during MedLab 2016 included the **VistaSeq** Hereditary Cancer Panel; **IntelliGEN**℠ Oncology Therapeutic Panel NGS Assay and **BRCAssure** - genetic testing for the presence of BRCA1/2 mutations which can help provide information about the risk for developing breast cancer, ovarian or other cancers. MEH

About National Reference Laboratory

National Reference Laboratory is a Mubadala Company created in partnership with Laboratory Corporation of America Holdings (LabCorp), the world's leading healthcare diagnostics company and operator of one of the world's largest and most experienced clinical laboratory networks.

National Reference Laboratory's vision is to increase the spectrum, coverage and overall efficiency of laboratory testing in the region, to implement international best practice reference laboratory processes and to set the benchmark for quality standards in the region. Together with the significant resources of LabCorp, National Reference Laboratory offers a comprehensive menu of more than 5,000 tests, providing a complete solution for all clinical testing needs in an efficient and high-quality environment that reduces both turnaround time and logistics-related costs, compared with other referral laboratories. Through its commitment to a comprehensive Quality Management System (QMS), investment in state-of-the-art technologies, superior connectivity solutions, advanced logistics systems and the engagement of highly-skilled and experienced employees National Reference Laboratory has attained and maintained a position as a trusted resource for all healthcare providers and patients in the region.

NRL owns two laboratories in Abu Dhabi and Dubai and manages the laboratory of Healthpoint Hospital in Abu Dhabi as well as the laboratories of Imperial College London Diabetes Centre in Abu Dhabi and Al Ain. In partnership with Cleveland Clinic Abu Dhabi, NRL manages the technical component of the joint Anatomic Pathology laboratory and is responsible for all CCAD laboratory referral testing.

Building on the current laboratory management model, National Reference Laboratory continues to grow the network of managed facilities with plans to become the largest network of CAP-accredited laboratories in the region.

HMC showcases Hamad Healthcare Quality Institute

Qatar's Hamad Medical Corporation (HMC) showcased the Hamad Healthcare Quality Institute (HHQI) at the Arab Health exhibition with the aim of building a network of regional healthcare providers in order to better understand and act on challenges faced by caregivers in the GCC.

HMC established HHQI with the purpose of improving the quality of healthcare within HMC, the State of Qatar and the greater region.

Nasser Saeed Al Naimi, Deputy Chief Quality Officer and Co-Director for Hamad Healthcare Quality Institute (HHQI), said that HMC was committed to continuing its journey of quality improvement: "The Institute was created to introduce the latest innovations and evidence-based healthcare solutions. HHQI embraces the roles of innovation, design, improvement, research, training and implementation, to create a first-of-its kind resource in the region that enables sustainable healthcare improvement."

In addition to expanding its regional network of healthcare providers, HHQI used the exhibition as a platform to announce the fourth Middle East Forum on Quality and Safety in Healthcare (ME Forum), the leading healthcare quality improvement conference in the region.

Led by HMC's Hamad Healthcare Quality Institute (HHQI), the annual conference will be held from 13-15 May 2016 at Qatar National Convention Centre in Doha, and reinforces the partnership between HMC and the US-based Institute for Healthcare Improvement, a not-for-profit organization that is a leading innovator in health and healthcare improvement worldwide.

KEF-TAHPI shows modular hospital concept

KEF-TAHPI showcased its 'Catalogue Hospitals' concept at the Arab Health Exhibition. It featured a realistic modular display of three standard hospital room types including an inpatient bedroom, bathroom and utility room that builds on the company's effective modular design and construction model.

The KEF-TAHPI Design Studio, a joint venture of KEF Holdings, a UAE-based holdings group and Australia-based TAHPI noted that this modular hospital concept provides quick turnaround, cost-effective construction and quality control which are key to reducing the healthcare infrastructure gap in the region an increasing access to healthcare.

Aladin Niazmand, CEO, KEF-TAHPI, said: "Access to good hospitals and healthcare facilities is a basic human right that countries are seeking to provide to citizens. However, demand from increasing populations in the Middle East and India far outstrips supply of durable, affordable, quality infrastructure. KEF-TAHPI Design Studio's cost and time-effective modular solutions cater to this supply gap for smart infrastructure offerings in the healthcare industry."

Offering an 'assemble rather than build' solution, KEF-TAHPI seeks to bring about a disruptive paradigm change in healthcare infrastructure development. The company's revolutionary industrialized approach to healthcare design and modular construction offers clients the convenience of choosing design options from a design catalogue with a view to reducing project costs and timeframe of implementation by almost 50%.

The KEF-TAHPI Design Studio is currently overseeing the construction of its pilot project – a 500-bed tertiary hospital in Calicut. The PMHP Hospital, India's first healthcare facility designed and built completely offsite. The project is scheduled for completion in Q3 of 2016, less than two years since construction began compared to the four- to five-year industry average that it takes to build a healthcare facility using conventional construction methods.

Highlighting KEF's use of advanced robotic technology, the stand also featured one of the robots to be used at KEF's upcoming $100-million Jebel Ali manufacturing facility. The KEF-TAHPI Design Studio is located in Dubai Healthcare City. MEH

In Brief

Drive Group of companies come together to showcase products

The Drive Group of companies from across the UK and Europe joined together on one stand for the first time at Arab Health 2016. This was the eighth consecutive year that Drive Medical has exhibited at the show.

They launched a number of new products at the show. Specialised Orthotic Services launched the Digi Seat and the Flexi Seat, which offers all the postural and practical features required to manage complex seating needs. Park House Healthcare launched the Hybrid Air Mattress.

The stand also featured a range of wheelchairs, beds, specialist seating, bathing aids and paediatric equipment from across the Drive Group.

Harly Street's united presence

World-leading clinics from the renowned Harley Street Medical Area united at Arab Health 2016 to showcase London's medical excellence.

The Harley Street Medical Area is home to over 2000 practitioners, small clinics and full-scale hospitals, covering most medical specialties and related professions.

This is the first time that competing clinics from the Harley Street Medical Area have joined forces as a collective stand to represent what is the largest concentration of medical excellence in one location, anywhere in the world. More than 16 specialist clinics exhibited including: The London Clinic, Isokinetic, Royal Brompton, London Claremont Clinic, The Harley Street Clinic, The London Orthopaedic Clinic, Harley Street Dental Studio, Optegra and Fortius Clinic, among others.

Hill-Rom exhibits products from 5 clinical areas

Global medical technology company Hill-Rom showcased solutions from its key product brands – Trumpf

Philips connects the dots

Middle East Health's **Kathryn Hansbro** speaks to Arjen Radder, Philips CEO Middle East and Turkey about their healthcare continuum.

It was all about empowering people and making health personal at the Philips booth this year.

The company showcased its range of range of connected solutions across the 'health continuum' – healthy living, prevention, diagnosis, treatment and care at home.

The aim is to provide more predictive and more personalised care to enable people to take charge of their own health, as well as first-time-right diagnoses and more effective treatments.

Arjen Radder, Philips CEO Middle East and Turkey, told *Middle East Health*: "There is an increasingly ageing population, we are going from acute diseases to chronic diseases, and home care is becoming more and more important. At the other end of the spectrum you also have to make sure you invest in healthy living and also in prevention.

"With more people ageing there will be pressure on the health system; we have to provide better health care at a lower cost. The health continuum is our way of dealing with all these challenges.

"One of the key things recently was an agreement with the Ministry of Health here in the UAE, where we are monitoring patients in Intensive Care Units (ICU) around the clock, this is very important. It's easier in terms of care, as we can monitor them from a remote location. We still have access to all the important data and therefore we can move people from intensive care to the ward to their homes much faster; it's a better outcome at a lower cost."

Philips is working with the Ministry to expand the programme across a number of

medical facilities in the coming months; it is currently fully operational in two hospitals in the UAE.

Radder added: "We also have the per-

Connected solutions on show

Telehealth programmes
The Philips Tele-ICU programme aims to clinically transform the ICU by using a proactive care model that provides a solution to growing physician and nurse shortages while dramatically improving quality of care. This model is aimed at leveraging clinical expertise, patented processes, and cutting-edge technologies to improve critical care delivery 24/7.

Philips Personal Health Programmes
These app-based solutions help people establish and maintain healthier habits. They are designed with a unique combination of professional healthcare and consumer insights. The Philips health watch, for example, empowers individuals to live a healthier life by tracking heart rate and other metrics of their cardio condition, as well as activity, sleep and more.

The solutions are enabled by the Philips Health Suite Digital Platform, an open, secure, cloud-based platform that pulls together the vast amounts of data produced by digital solutions, including third party devices, traditional medical data sources and medical images.

IntelliSpace Portal 8.o.
The advanced data sharing, analytics and visualisation platform helps radiologists detect, diagnose and follow-up on cancer treatment. IntelliSpace Portal 8.0 helps address the changing demands in radiology that result from an increasing prevalence of cancer and its economic toll.

Lumify
The smart device solution is set to make ultrasound technology more accessible to licensed healthcare providers or organisations. It comprises two advanced ultrasound transducers, an app-based online portal and a subscription platform as part of a comprehensive portable, connected digital solution.

Philips Minicare system
In the area of cardiac care, the Philips Minicare system, a handheld testing platform, is able to show blood test results on the reader display within minutes, potentially speeding up cardiovascular disease diagnosis. The system offers multiplexing capabilities, making it possible to improve diagnostic and provide multiple marker results, simultaneously, from the same sample.

sonal health solutions, this is where you can invest in your own health, healthy living and also in prevention. If you look at what's happening in the region, apart from ageing and the vast increase of chronic diseases, people are taking more care of their own health; they are wearing devices that measure something relating to their personal health, such as glucose levels, blood pressure or weight. You can make data meaningful and you can motivate people. And of course you can start to combine that with medical data. It's a strong enabler for connecting the five different steps on the health continuum.

"The other thing is our smart ultrasound device (Lumify), where previously you had to go to a hospital and there was quite a sizeable system standing next to you checking your baby this portable cloud-based real-time device actually brings ultrasound anywhere – to places it's never been before, it can come into the home, a GP can use this small device.

"I view 2016 as an area of excitement and opportunity in the region. However, awareness is more limited than it should be. Some 45% of women are obese in Oman, Qatar and the UAE. There are 35 million diabetes patients in MENA (Middle East and North Africa region) and over the next 20 years the figure is expected to be 70 million. Data shows demand for healthcare over the next two decades will increase by 240%. This is an excellent region to be talking about the health continuum, and an excellent opportunity to talk about better care." MEH

Shedding light on the future of personalised cancer care

Philips held a roundtable discussion during Arab Health to address the challenges of cancer care in the region as well as raise awareness around the need to have an earlier cancer diagnosis.

Cancer accounts for more than ten per cent of all deaths in most Middle Eastern countries, and currently one in three women and one in two men are diagnosed globally with the disease in their lifetime. The region's ageing and growing population will result in an increasing incidence of cancer by 2030.

Arjen Radder, Philips CEO Middle East and Turkey, said: "Philips is addressing the growing need for a new approach to cancer care. We strive to deliver better, more personalised care to patients while reducing healthcare costs. This is done by constantly looking at better ways to locate cancers earlier, diagnosing them more precisely, making therapies more accurate with minimal invasive and taking a personalised approach in giving the patient the best possible care.

"Not only are we providing integrated ways to collect and analyse information but our clinical and biological expertise enables clinicians to interpret this data and choose the optimal treatment for the individual patient," added Radder.

While the vast majority of cancer diagnoses are made or confirmed by a pathologist, the increased demand for pathology services continues to grow. Philips IntelliSite Pathology Solution and advanced visualisation helps care providers reach informed decisions through enhanced productivity with high resolution digital images, collaboration features and case management tools.

The roundtable included the signing of a memorandum of understanding (MoU) between Philips and the King Hussein Cancer Centre to collaborate more closely on fighting cancer in the Middle East. The MoU will see the two partners working together to implement cancer awareness campaigns, setting up continual medical education programmes relating to the practice oncology, and helping to improve quality assurances throughout the field.

In Brief

Medical, Welch Allyn and the rest of the Hill-Rom portfolio. Hill-Rom's core brands work together in five clinical focus areas for the company – advancing mobility, wound care and prevention, clinical workflow, surgical safety and efficiency and respiratory health.

The company exhibited a range of ICU and medical/surgical bed systems designed to maximise patient safety and caregiver efficiency, along with operating room innovations from Trumpf Medical such as the user-friendly operating table TruSystem 7000, and the Connex Spot Monitor from Welch Allyn.

"Leveraging the extensive portfolio of Hill-Rom across the healthcare spectrum, from the doctor's office to the operating room through to acute care, allows institutions across the region to optimise their facilities to meet the growing demands stemming from the local healthcare trends and enhance outcomes for both patients and caregivers," said Carlos Alonso, Senior Vice-President and President, International at Hill-Rom.

Luxurious, private rehabilitation centre launched in Dubai

At Arab Health, JCI reaccredited, Canadian Specialist Hospital (CSH) launched the first private in-patient rehabilitation centre in Dubai in partnership with Wagner Health & Care, a leading provider of rehabilitation services from Austria. The AED 35 million (US$10 million) centre will provide 48 beds in super luxurious rooms for its medium and long term in-patient services in addition to its outpatient and day services.

"We realized that there was a huge gap in the country and the region with regard to world class rehabilitation centres. For this reason, many patients from UAE travel to Europe and Asian countries for such treatments. We wanted to bring the best to the UAE. and tied-up with Austria's Wagner

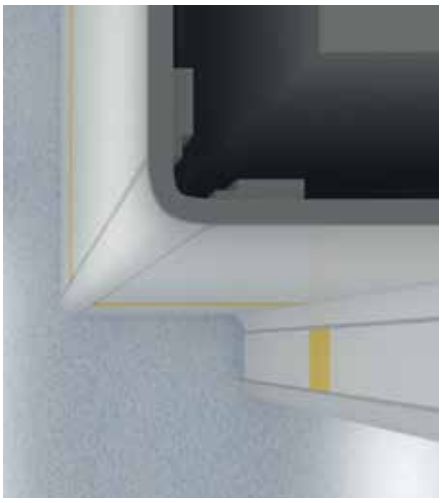
"S-Cube" Operating Room by Starkstrom

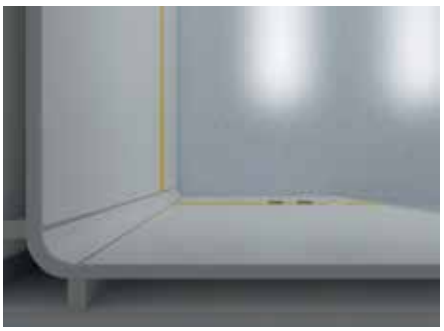
Starkstrom officially launched its latest invention "the no corner modular operation room" during Arab Health. Starkstrom has been a pioneer in manufacturing medical infrastructure equipment for operation theaters for over 40 years. Combining technologies that create efficiency and utilizing the latest innovative technology is a key focus to Starkstrom. The creation of an operating room without angled 90 degree corners is the start of what will be a series of innovative designs and products that will launched in the coming years. The design will ultimately change the way operation theaters are made throughout the world and set a new standard in design.

After Starkstrom was acquired by Progility and as a result of the international expansion plan, the UK based company opened its first regional office in the Middle East in 2015 after opening 5 offices in India and Australia in an effort to further support the medical markets of the Middle East and Africa and to provide assistance to their existing customers in the region. Starkstrom believes that the launch of their new and innovative operation room could not have come at a better time. It is the only operation room that has been crafted using only one material: stainless steel: the panels, the ceiling, the edges, the cabinets and everything else are made out of 100% medical grade stainless steel.

The new no corner operation room is made of continuous stainless steel without any change of material in the corner making it extremely efficient and significantly improving infection control. Starkstrom's latest innovation accompanied with its state of the art S-Cube modular panels has set a new standard in hospital operating theatre modular rooms. The S-Cube is a four panel system with each panel engineered to serve a specific purpose enabling users fast modifications at minimal costs. The S Cubes modular approach allows customer to continually adapt to the changing operating room environment.

Starkstrom's commitment of continuously striving to improve the medical company that built the UK's first control panel will continue to innovate for the years to come. MEH





Siemens launches ultrasound, X-ray systems

Siemens Healthcare presented a range of diagnostic imaging and therapy solutions at Arab Health 2016, also launching the company's latest innovations – the Acuson NX3 Ultrasound system (see the Ultrasound section in this issue) and the Multitom Rax X-ray scanner.

The Healthcare industry globally is undergoing a drastic change, the Middle East being no exception. With a rapidly growing population, the demand for accessible and quality medical care has become more important than ever before. Under the motto 'Making Healthcare Pay Off' Siemens Healthcare demonstrates how its varied product portfolio supports healthcare providers in the Middle East, enabling them to overcome challenges and to achieve the goals and benchmarks set forth.

First Twin Robotic X-Ray system: Multitom Rax

The Multitom Rax (Robotic Advanced X-ray) system enables a wide variety of examinations in a range of clinical areas to be performed using only a single X-ray system for the first time. The operator is always in full control of the system's movement. By the push of a button, both robotic arms are positioned fully automatically around the patient, improving both safety and convenience. There is no need to move the patient on the system or to change rooms for further imaging procedures, which makes examinations less painful and less time-consuming.

MRI systems

The new 1.5-tesla scanner Magnetom Amira 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. 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.

Computed Tomography

The Somatom Force, third generation of Dual Source computed tomography (CT scanners each with two radiation tubes and detectors) enables considerably quicker and more precise diagnoses at reduced doses. This high-end CT offers individualized diagnoses now especially also for challenging patients, e.g. for very young patients or people suffering from renal insufficiency, the seriously ill, and obese patients.

Cloud-based healthcare network teamplay

With the vision of helping healthcare experts connect and utilize the wealth of medical imaging data, Siemens Healthcare presented teamplay. This cloud-based network helps link hospitals and healthcare experts to provide them with the ability to exchange data and pool their knowledge. MEH

Record UK presence at Arab Health

Arab Health 2016 attracted the biggest ever UK presence of clinicians, medical technology companies and hospitals. Over 200 UK companies from England, Scotland, Wales and Northern Ireland exhibited at the UK Pavilion, organised by the Association of British Healthcare Industries (ABHI).

The Pavilion was officially opened by Rt Hon Alistair Burt MP. The Minister of State for Community and Social Care commended the world-class innovators and renowned clinics from the UK who are working closely with countries across the Middle East to improve healthcare outcomes and efficiency.

The Minister also launched a state-of-the-art surgical simulation programme. The 'surgical stage' was specially constructed on-site to showcase cutting-edge collaborations between healthcare providers, clinicians and healthcare technology companies. Leading surgeons demonstrated complex surgical operations such as shoulder arthroscopy, external aortic root support and minimally invasive interventional cardiac procedures.

Burt, said: "The Middle Eastern healthcare market is benefiting from a rapid growth in investment, expected to be worth $60 billion by 2025. Arab Health provides UK exhibitors, including representatives from the NHS, a gateway to this industry and is an important event for them to promote their products, develop relationships and strengthen ties with countries in the Middle East." MEH

In Brief

Health & Care to cater to the immediate needs of patients in UAE," said Dr Yashar Ali, Acting CEO & Chief Medical Officer of CSH.

The centre will provide rehabilitation services for the following fields orthopedics, metabolic diseases, cardiology, neurology and oncology. A multi-disciplinary team of physiotherapists, occupational therapists, speech therapists, nutritionist and medical psychologists will offer various therapies, such as back school, vocational counseling, electrotherapy, thermal therapy, nutrition counseling and different types of massages.

Full range of pressure mattress solutions

UK pressure ulcer specialist Rober, showcased their full range of mattress solutions which cater to a variety of patients' needs from everyday nursing environments to acute care facilities.

The pioneering range of mattresses and overlays – which includes solutions for immobile, critically ill and bariatric patients – have been developed in conjunction with clinicians and feature clinically proven technology that prevents pressure injuries from developing. They also promote the healing of established ulcers. The mattresses are fully automatic and patients nursed upon them require less manual repositioning. Designed to mechanically replicate the body's natural spontaneous movement in response to unrelieved pressure, they provide regular and complete pressure elimination to all parts of the body in contact with the mattress.

The company has focused on four key areas – microclimate control, patient safety and comfort, maximising infection control and offering additional nursing support. Two mattress ranges are available from Rober, the premium 'NoDec' range and the cot-effective 'AirFlex'. MEH

Advantech: 'Distance no longer a barrier to healthcare'

James Fan, Solution Architect Team Supervisor, Smart City Solutions Group, Advantech

Advantech showcased its latest telemedicine solutions at Arab Health 2016.

James Fan, Solution Architect Team Supervisor, Smart City Solutions Group, Advantech said they were heavily promoting the 'AMiS' series medical carts at the show and they had attracted a lot of interest.

Telemedicine is set to be one of the main healthcare industry trends this year.

"With telemedicine solutions, distance is no longer a barrier to healthcare. New devices and platforms that connect patients and doctors, as well as other involved parties including specialists, family members, insurers, and health and wellness coaches, to a vast array of information sources that extend their clinical reach are continually being created," said Fan.

He added that in the GCC they had been focused on business in Qatar but hoped to develop business in Kuwait in 2016.

Advantech's AMiS telemedicine carts support dual displays and multiple video inputs. Featuring a point-of-care (POC) medical computer and secondary display, they provide the ideal platform for virtual applications such as tele-consultation, tele-monitoring, and tele-visitation.

Fan said: "We are well established (the company was founded in 1983) and well known in critical care with our point-of-care terminals, while we are relative newcomers in nursing. About two years ago, we released our trolleys, the difference being that we offer computerised trolleys – the computer is inside the cover or on top as a panel PC – giving hospitals the ability to have the same type hospital-wide. Our trolleys are set up specifically to accommodate multiple accessories, such as panels. So if a hospital is seeking a complete workstation, we are well positioned because that is our target end user: the caregiver who needs to bring multiple accessories to the patient.

"In the past we had a tablet, the MICA, which was developed together with Intel. This was too heavy and we now see a need for a pocketable tablet with Windows. The third aspect is patient infotainment – another area that involves bringing care to the patient's bedside."

Fan added: "The nursing cart supports Microsoft and has a high-definition camera for consultations. Most competing trolleys are too big, too wide and are stationed in the hallway, increasing the likelihood of mistakes. We want to bring the medication dispenser, all other accessories and the computer to the patient's bedside so their health and medication can be safely monitored and electronically recorded.

"Mobile devices that support patient monitoring, data transfer, and wireless transmission are becoming increasingly common. Institutions are becoming increasingly interested in ideas about the technology of future healthcare, which include: increased connectivity, patient self-monitoring devices, cloud technologies, adoption of electronic health records (EHR), and more."

Advantech's AMiS cart and POC computers are designed to meet strict safety and reliability regulations and have secured UL60601-1 and EN60601-1 certifications. This ensures Advantech's telemedicine carts can be employed in even the most critical environments, such as operating rooms, intensive care units, and emergency wards. Boasting a state-of-the-art design, the system features internally routed cables and DIN rails for accessories to facilitate intelligent upgrades and customisation in the future. Advantech's AMiS telemedicine carts are also equipped with a long-lasting LiFePO4 battery that delivers stable, high-performance, and cost-effective power.

"Many hospitals are currently integrating telemedicine systems with existing medical carts to provide mobile telemedicine stations. However, this process involves numerous challenges related to cable routing, power supply, application requirements, etc. To address these issues, Advantech aims to develop an open platform that can satisfy hospitals' current and future requirements," said Harry Wang, Product Manager of AMiS, Advantech Medical Computing Group.

Advantech also showcased its clinical mobility, critical care, emergency fleet management, patient services, and hospital public spaces solutions developed together with its channel partners, IT solution providers UAE-based Al Minhaj Computers and Emitac Healthcare and the Taiwan Institute for Information Industry.

Medical tablets

Advantech medical tablets range between 5, 7, and 10 inches in size. The tablets demonstrated included MIT-W101 and MICA-071. In addition to meeting strict industry regulations, the MIT-W101 is compatible with diverse accessories and module options, allowing customers to customise the system according to their needs. The MICA-071 7" tablet with 1D/2D barcode scanner and Microsoft 10 is specifically designed to support clinical environments, healthcare applications, and hospital procedures. MEH

Roche Diagnostics Middle East; an unrivaled leader at Arab Health 2016

Once again, Roche Diagnostics Middle East was front and centre at the 41st edition of Arab Health Exhibition and Congress with an impressive booth and lounge displaying powerful solutions highlighting the look and feel of a future laboratory. Roche's booth was the talk of the exhibition as it raised the bar for corporate branding. Under the theme of "Innovation, Automation and Patient Care", the level of detail to communicating these key messages at every corner of the booth was unmatched. With over 10,000 delegates in participation, the stream of traffic on the booth showed no signs of slowing down from opening day until the concluding afternoon. Its unique elements sparked the interest of all to stop by and experience what everyone was talking about.

Commenting on RDME's participation in the Arab Health Exhibition & Congress 2016, Moritz Hartmann, General Manager of RDME said: "Arab Health provides the perfect launch pad for these innovative instruments, as diagnostics have become one of the most influential elements in healthcare provision. That's why we strive through our continuous innovation to constantly increase testing efficiency, workflow integration, and breadth of diagnosis – enabling labs to provide test results while increasing accuracy and speed, thus empowering healthcare professionals and their patients to make informed decisions that are appropriate for them and their treatment journey."

Moritz Hartmann, General Manager Roche Diagnostics Middle East (second from left) at the inauguration of Arab Health with Sheikh Hamdan bin Rashid Al Maktoum, Deputy Ruler of Dubai and UAE Minister of Finance (first from right)

Doing now what patients need next

Innovation is at the core of what we do at Roche. Curiosity and openness to unconventional ideas are the building blocks of our intense activity in the field of advanced technology. In fact, we envision continuous progress as an opportunity to ultimately benefit patients. Roche Diagnostics seized the opportunity to showcase the latest technologies on opening day of the exhibition by displaying the newly unveiled cobas e 801 module for immunology testing is a platform capable of carrying out double the number of tests compared with the previous versions e 601 and e 602, within the same laboratory space. The system requires smaller blood samples, making it particularly suitable for the diagnosis of vulnerable patients such as newborn babies, those with cancer, and the elderly.

The star of the show was the cobas c 513 – a high-throughput HbA1c analyzer – which can assess sugar levels for the last three months, making it suitable for diagnosis and monitoring of diabetes patients. Recent figures from the International Diabetes Federation show that almost 37 million people in the MENA region have diabetes, which if left unchecked could more than double by 2035.

"The increasing number of people with diabetes is challenging healthcare providers and is putting a significant strain on healthcare systems," Hartmann said. "With the cobas c 513, Roche Diagnostics is meeting the growing testing needs of our customers in the Middle East and ultimately improving patient care," he added. MEH

Revolutionary new cardiac procedure for Marfan Syndrome debuts in Middle East

During February's Arab Health conference held in Dubai, Mr Ulrich Rosendahl, Cardiac Surgeon at Royal Brompton & Harefield Hospitals (RB&HH), London performed a live simulation of the innovative ExoVasc Personalised External Aortic Root Support (PEARS) procedure – a less invasive method of preventing dilatation, dissection and rupture of the aortic root and ascending aorta.

The surgery was developed to assist patients with Marfan syndrome, a genetic disorder that affects the body's connective tissue and therefore a person's ability to grow and develop properly. This PEARS simulation was the first to be seen anywhere in the Middle East.

Globally, around one in 5,000 people are affected by Marfan syndrome and this figure is consistent in the Middle East, highlighting the importance and impact of such innovative treatments being introduced into the Middle East, and across the world.

In a move to drive awareness of life-saving cardiac surgeries and share expertise of its treatments, Royal Brompton & Harefield Hospitals has performed cardiac procedures for the last two years during the Arab Health conference, the most recent being the less invasive surgery for patients with an enlarged aortic root and ascending aorta.

The hospital's goal is to have trained surgeons across the Middle East so that PEARS can be performed and given to those suffering with the disease in the most efficient manner. As part of its drive to raise awareness in the Middle East and across the world, the hospital is looking to find centres where the procedure can be exported.

Mr Ulrich Rosendahl, Cardiac Surgeon at Royal Brompton & Harefield Hospitals (RB&HH), in the new hybrid theatre.

Once a patient is confirmed suitable for the procedure, a 3D printed physical model is produced based on the dimensions of their aorta. A mesh sleeve is then tailored to these exact dimensions.

In the PEARS procedure the aortic valve is not removed or repaired, which avoids the need for lifelong anticoagulation therapy. Instead, the mesh sleeve is placed around the ascending aorta where it provides support to the patient's own aorta and aortic valve and is designed to prevent enlargement and rupture. It takes a relatively short time to implant, around two hours for the full surgery – a conventional aortic root replacement, usually takes around 4 to 7 hours. Using PEARS, a cardiopulmonary bypass is not usually necessary as the procedure is carried out on the beating heart.

Mr Rosendahl said: "The PEARS procedure is currently performed in the UK for those in the Middle East, and will continue to be. By visiting the region, we are working to share our information and expertise to bring the Middle East one step closer to offering the procedure for those with Marfan syndrome at home.

"This knowledge sharing and training is with the aim of vastly improving the life of those with the syndrome. The procedure provides an exciting, less intrusive and viable option for those in the Middle East with the disease." MEH

King's College Hospital Dubai unveils core specialties

At Arab Health Exhibition & Congress the latest details of Kings College Hospital, Dubai were shared in a high-level discussion between the Dubai Health Authority (DHA), the UK Minister of State for Health, King's College Hospital London (KCH) and its Dubai and UK investors including Ashmore Group, Al Tayer and Dubai Investments.

King's College Hospital, Dubai, a 100-bed multi-speciality hospital set to open in 2018 at the heart of the premium community 'Dubai Hills', and its several day-care clinics, set to open in 2017, will be a centre of excellence for four main specialities; Obstetrics & Gynaecology, Paediatrics, Orthopaedics and Endocrinology, leveraging King's College Hospital London's world-leading position in these therapeutic areas.

H.E. Ahmed H. Al Tayer, Chairman, said: "We are delighted to be bringing to Dubai a world class multi-speciality hospital. The hospital will contribute to the

UAE strategy and vision of becoming a health tourism destination. With the world leading capability of our partners King's College, patients will be able to receive the highest standards of treatment right here in Dubai, and we are proud to be part of bringing the 'Best of British' healthcare to the country."

Simon Taylor, Managing Director responsible for King's College Hospital international operations said: "King's College Hospital, Dubai will offer centres of excellence in four therapeutic areas with deep tertiary capabilities in addition to delivering first class general care as a full-service hospital. The hospital will be equipped with state-of-the-art technology and equipment, and some of the UK's leading physicians and speciality clinical staff will lead clinical delivery on site. The hospital will be fully integrated with our London facilities across all areas of clinical governance and capabilities, providing the full range of King's services and experience to UAE residents." MEH

130 French companies take part at exhibition

130 French companies took part in Arab Health 2016. With 1,440 sqm in exhibition space across two halls, one entirely dedicated to laboratory equipment and diagnostics, the trade show offered a prime venue from them to show off their know-how. Business France – the National Agency for the Internationalization of French Business which supports them, reported record-high registration levels for this year's event.

The French medical equipment industry is powered by cutting-edge companies, 94% of which are SMEs, or even VSEs.

French manufacturers are focused on diagnostic imaging tools, disposable systems, implants, prostheses and orthotics. Their innovative tools are used in two main growth markets: aging surgery and plastic surgery. They also enjoy wide recognition in the fields of technical assistance, minimally-invasive surgery and in-vitro diagnostics.

French companies came to the show with the help of regional partners such as CENTRECO, Lille Eurasanté, Biomédical Alliance and the Aquitaine Region

Highlights

- **BIOLABO** introduced SOLEA 100, an analyzer for haemostasis capable of performing over 100 tests per hour. Featuring an exclusive 8-channel cuvette system, it is fast, reliable and cost-effective.
- **Cosmosoft** presented ReduStim, a class IIa medical device for abdominal fat reduction. Its innovative approach aims to eliminate fat through biomagnetic field activation. The French company has been designing, manufacturing and distributing slimming equipment and professional medical devices for over 15 years.
- **Solsteo** manufactures industrial sterilizers and guarantees its sterilization chambers for 10 years. This guarantee is given in full confidence because their design has been independently validated by the TÜV. The manufacturing process is complex and requires in-depth-understanding of the sterilization process and safety standards governing their use. Only a handful of manufacturers prove reliable. Determined to succeed on the international scene, Solsteo is the only French manufacturer exporting their product.
- **Holtex** has specialised in the manufacturing and sale of medical equipment in France and overseas for more than 25 years. Holtex has a range of more than 15 medical products from medical furniture, diagnostic devices, medical wear, medical bags, consumables, etc.
- **Trading Point** showed off its two trademark products: Perfect'Slim and Ginseng Royal Jelly. It was this company's first appearance at the Arab Health Show. For almost 20 years, the specialist in food supplements has been offering items that are ready for use, in standard and customized forms, made exclusively in France. Private label development is its core business. MEH

Important questions to ask when purchasing a new ultrasound system

By Carolyn T. Coffin,
MPH, RDMS, RVT, RDCS
Sound Ergonomics, LLC

Occupational musculoskeletal disorders continue to plague the sonography profession. The financial impact of these disorders on business and industry in many countries is significant. Addressing the risks for these disorders requires a multifaceted approach, and an important component is the equipment used in the work environment.

Ergonomic equipment design is an integral part of the ultrasound workplace and should be considered when purchasing ultrasound systems for your exam rooms. An important reason to consider ergonomics when making purchasing decisions is that dollars spent on improving the ergonomic design of the workstation have an excellent return on investment. This investment leads to reduced risk of musculoskeletal injury in sonographers, allowing the most experienced workers to remain in the work force. Many risk factors can be reduced or eliminated by informed equipment purchases. An ergonomic workplace increases the efficiency and productivity of an operator while reducing fatigue, exertion, and musculoskeletal disorders.

Ultrasound systems should have multiple adjustable features in order to accommodate the majority of users and all work styles. The goals: to eliminate static or awkward postures; improve access to the control panel while eliminating excessive reach; have displays that are easy to read, especially in low-light levels; and to have controls that are intuitive to operate and that do not require excessive force. An ergonomic workstation promotes effective interaction between the sonographers and the technology with which they interact.

Choosing the appropriate workstation equipment is not just the responsibility of management, but should include consideration of the needs of the sonographers using the equipment in the exam rooms. Considering that sonographers spend the majority of their workday interacting with the ultrasound system, it is important for them to have significant input into the features they would prefer to have on that system. Purchasing the same type of system each time simply because it's what everyone is "used to", is not necessarily the best buying strategy.

To ensure that you have full knowledge of how the ultrasound system will fit into your department's work schedule, address all the exam needs of your department, provide diagnostic quality images and

support comfortable sonographer work posture, you should be prepared to ask questions beyond those related to image acquisition and quality.

1. Is the entire ultrasound system easily height adjustable? This feature addresses the heights of the various sonographers who will be using the system. The average height in the United States for men is 5'9", and for women it's 5'4". However, there are workers who may exceed 6' tall and those who are less than 5' tall. In addition, some sonographers prefer to sit to scan. Many exams require the sonographers to change from sitting to standing, especially when scanning the patient's left side, in order to reduce excessive reach. Changing the height of the ultrasound system should be quick and intuitive.

2. Is the height range adequate for the variety of exams performed in your lab? The range of height adjustability you will need depends on the types of exams you perform. The maximum height should be high enough so that workers over 6' tall can easily use the system without bending or reaching down. The minimum height range should be low enough so that workers who are less than 5' tall can position the control panel at approximately waist height when they are seated. This makes it easier for these sonographers to access the controls without reaching up. If your lab performs venous reflux studies, the minimum height should be even lower so that the sonographers can sit to scan the lower extremity without having to kneel on the floor and still be able to reach the control panel without reaching up.

3. Is the monitor mounted on a fully articulated arm? This is important for optimizing the sonographer's head & neck position. It should be easy to position the monitor so that the sonographer is looking straight ahead, regardless of how the control panel is positioned, and so that he or she is looking at the top of the monitor when his or her head is in a neutral position.

4. Does the monitor have a handle on the bottom? At first, you might not realize the value of this feature. A handle makes it very easy to reposition the monitor throughout exam using only one hand. Because this feature makes it easy to change the monitor position quickly, the sonographer is more likely to do it rather than use awkward neck positions to view the monitor throughout the exam.

Choosing the appropriate workstation equipment is not just the responsibility of management, but should include consideration of the needs of the sonographers using the equipment in the exam rooms.

5. Is the control panel fully articulated? A truly ergonomic control panel will move laterally from side to side, move horizontally toward and away and tilt. All those movements make it easier to position the control panel so that the sonographer's reach and arm abduction are minimized. This feature is invaluable when performing bedside exams since you can rarely get the entire ultrasound system close enough to the patient's bed. By moving the control panel laterally to one side, you can park the system wherever it will fit and then position the control panel so that the reach and abduction are reduced. Add this feature to the fully moveable monitor and you can achieve a comfortable work posture in the most challenging environments. Having the control panel tilt toward and/or away is also ideal since that can affect the sonographer's hand & wrist position.

6. Are some controls accessible on the transducers? If you can freeze your images with one button push on the transducer, you can significantly reduce the reach to the control panel. This feature has the benefit of reducing exam time and, thus, reducing the amount of time the sonographer's scanning arm and hand could potentially be in awkward or static postures. As with any "tools of the trade," an ultrasound system should not only help you produce high-quality, diagnostic images, but should have multiple adjustable features. You should learn to ask these important questions to ensure your ultrasound system is the best "fit" for you and your department. MEH

New method using ultrasound images improves pre-operative diagnosis of ovarian cancer

In a landmark study, investigators from Europe propose a new and simple method to assess the risk of malignancy of women with an adnexal mass. The method identified between 89-99% of patients with ovarian cancer using the results of ultrasound examination, which can be obtained in referral and non-referral centres. The work is based on the "Simple Rules", criteria developed by the International Ovarian Tumor Analysis (IOTA) group to improve accurate diagnosis of ovarian cancer before surgery. Published in the American Journal of Obstetrics and Gynecology, this new approach has the potential to level and raise the playing field and put expert interpretation and improved diagnostic capability within reach of all practitioners.

While ovarian cancer is a common and potentially lethal disease, early detection and treatment improve survival. However, adnexal masses, ovarian masses or cysts that persist and become enlarged, often pose a diagnostic dilemma because preoperative tests to determine if they are benign or malignant are often inconclusive. The IOTA group developed a set of "Simple Rules" based on ultrasound images of the adnexal masses, which allows them to be classified as either benign or malignant.

Although the Simple Rules have been well-received by clinicians, an important question from patients and physicians has been whether it is possible to calculate the individual risk of malignancy for a particular patient. In this study, the IOTA group led by Professor Dirk Timmerman, MD, PhD, of the Department of Obstetrics and Gynecology, University Hospitals Leuven, Belgium, sought to develop and validate a model to predict the risk of malignancy in adnexal masses using the ultrasound features derived from the Simple Rules. This study represents the culmination of multiple consecutive multi-centre studies involving 22 centres in 10 countries over 13 years (1999 to 2012) and approximately 5,000 patients with adnexal masses.

"The Simple Rules are intuitively attractive because of their ease of use, however, when used as originally suggested, they allow only a categorization of tumours into three groups: benign, malignant, or inconclusive," explained Dr Timmerman. "In this study we show that the Simple Rules can now be used to estimate the risk of malignancy in every adnexal mass and so can be used for individualised patient management."

In this study, the IOTA investigators examined patients before surgery, using a standardised examination technique and standardised terms and definitions to describe ultrasound findings. The predictions based on ultrasounds were subsequently compared with the histological findings after the tumour was examined by pathologists (gold standard to define if a tumour is benign or malignant). The risk of malignancy was calculated.

"We conclude that individual risk estimates can be derived from the five ultrasound features in the Simple Rules with performance similar to the best previously published algorithms," stated Dr Timmerman. "A simple classification based on these risk estimates may form the basis of a clinical management approach. This will hopefully facilitate choosing optimal treatment for all patients presenting with adnexal masses."

Roberto Romero, MD, DMedSci, Editor-in-Chief for Obstetrics of the American *Journal of Obstetrics and Gynecology*, stated that "this is a major breakthrough and the culmination of a major effort by multiple investigators in Europe over more than 10 years. The investigators have addressed an important clinical challenge and provided a method that was validated rigorously and urgently needed by patients and physicians."

Beryl Benacerraf, MD, President of the American Institute of Ultrasound in Medicine (AIUM) and Clinical Professor of Radiology and OB GYN at Brigham and Women's Hospital, Harvard Medical School, Boston, commented in an editorial that "although an earlier systematic review indicated that magnetic resonance imaging (MRI) gives better results than ultrasound, Dr Timmerman and his colleagues have shown that the IOTA Simple Rules provide better results than ever before and support the notion that ultrasound is at least as accurate and likely better than MRI in distinguishing benign from malignant masses. The investigators publishing in AJOG have shown here that if we use the Simple Rules with the scoring instrument developed by the IOTA group, we will make the correct diagnosis more readily than ever before and this offers the advantage that most practitioners could adopt this approach successfully."

"I applaud this group for grappling with the challenging problem of the variability of ultrasound diagnoses of adnexal masses depending on the expertise of acquisition and interpretation, and succeeding in developing a simple, standardised, and scalable solution. By at once levelling and elevating the playing field, application of this method places expert interpretation and improved diagnostic ability within reach of all practitioners."

doi: 10.1016/j.ajog.2015.12.045

Siemens introduces new mid-range Acuson NX3

At Arab Health 2016, Siemens Healthcare presented the Acuson NX3 and Acuson NX3 Elite, two new ultrasound systems designed specifically around the way clinicians work. Both mid-range systems offer a simple, intuitive interface combined with innovative imaging solutions for examinations primarily in general medicine, obstetrics/gynecology, pediatrics and neurology.

The Siemens Acuson NX3 features a new way of scanning with more customizable keys and faster workflow. The customizable control panel and touch screen combined with Siemens innovative workflow innovations make it possible to perform certain routine anatomical measurements faster than traditional solutions. The Acuson NX3 systems are equipped with a LED monitor (21.5") and a touch screen (10.4") which are among the largest in their class, improving time to report.

To make daily routine examinations easier, the Acuson NX3 systems feature advanced ultrasound innovations from Siemens, including Clarify Vascular Enhancement technology. This Siemens exclusive technology provides multiple levels of clarification to optimize tissue contrast resolution and definition of both tissue and vessel walls.

Higher image resolution is enabled with the 16 MHz transducer from Siemens, which is especially suitable for breast and musculoskeletal imaging. Another exclusive solution is the 220-degree endocavity transducer, which offers up to a 75% larger field of view than standard probes.

Siemens provides users of the Acuson NX3 ultrasound systems with a wide range of services, including access to Siemens' 24-hour remote service with its selection of online services. Optional add-on applications give healthcare providers more flexibility and safeguard their investment over the long term.

Ultrasound guidance lowers risks of thoracic nerve block technique for mastectomy

A regional anaesthesia technique called thoracic paravertebral nerve block (TPVB) is highly effective in controlling pain after breast cancer surgery, but concern about potential complications may limit its use. A new study, published in *Anesthesia & Analgesia*, provides evidence that using ultrasound to guide the nerve blocking procedure lowers the risk of complications.

In particular, ultrasound-guided nerve blocking avoids potentially serious complications related to inadvertent puncture of the tissue lining the lungs (pleura), according to the report by Dr Peter Stefanovich and colleagues of Massachusetts General Hospital, Boston.

The researchers analyzed their experience with this nerve blocking in 856 women undergoing mastectomy from 2010 through 2013. In this procedure, a small amount of local anaesthetic is injected around the thoracic nerve roots where they emerge from the spinal cord. This numbs the entire area of the chest, on one or both sides (if the nerves on both sides of the spinal cord are injected).

This regional nerve block provides excellent control of pain after breast cancer surgery. That's especially important because pain in the immediate postoperative period is a major risk factor for the development of chronic pain in women who have undergone mastectomy.

However, this nerve blocking isn't performed as often as it might be because of patient safety concerns – especially the risk of puncturing the pleura due to incorrect needle placement. This can lead to a serious complication called pneumothorax, where air enters the chest cavity, potentially causing collapse of the lung.

Dr Stefanovich and colleagues analyzed their experience with ultrasound guidance to make this nerve blocking safer. Using ultrasound, the anaesthesiologists performing nerve blocking were able to visualize the exact location of the thoracic spinal nerve roots. Ultrasound was used in addition to the conventional approach, using anatomical landmarks to guide the injection.

Following this procedure, anaesthesiologists were able to confirm correct needle placement before injecting the local anaesthetic. In the experience of more than 14,000 thoracic spinal nerve injections, there were no pleural punctures and no cases of pneumothorax.

Major complications related to this nerve blocking placement developed in six patients – a rate of 0.7%. Four patients had drops in blood pressure and heart rate, while two had suspected toxic effects of the local anaesthetic used for the procedure.

Previous reports have suggested that performing this nerve block under ultrasound guidance might make the procedure safer. The new study is the first to provide evidence that ultrasound-guided nerve blocking lowers the risks of pleural puncture and pneumothorax.

"Avoidance of these complications may be a consequence of improved safety using real-time visualization and imaging of the pleura with ultrasound," Dr Stefanovich and coauthors write. They hope their experience will encourage other hospitals to offer this highly effective regional anaesthesia technique – potentially reducing the common and difficult-to-treat problem of chronic pain after mastectomy.

Researchers identify gene signature shared by 5 types of cancer

Discovery could result in simple blood test for several cancers

Scientists have identified a striking signature in tumour DNA that occurs in five different types of cancer. They also found evidence that this methylation signature may be present in many more types of cancer. *Middle East Health* reports.

US National Institutes of Health researchers have found a specific gene signature in cancer tissue that results from a chemical modification of DNA called methylation, which can control the expression of genes like a dimmer on a light switch. Higher amounts of DNA methylation (hypermethylation), like that found by the researchers in some tumour DNA, decreases a gene's activity. Based on this advance, the researchers hope to spur development of a blood test that can be used to diagnose a variety of cancers at early stages, when treatments can be most effective. The study appeared in the 5 February 2016 issue of *The Journal of Molecular Diagnostics*.

"Finding a distinctive methylation-based signature is like looking for a spruce tree in a pine forest," said Laura Elnitski, Ph.D., a computational biologist in the Division of Intramural Research at NIH's National Human Genome Research Institute (NHGRI). "It's a technical challenge to identify, but we found an elevated methylation signature around the gene known as ZNF154 that is unique to tumours." Dr Elnitski is head of the Genomic Functional Analysis Section and senior investigator in the Translational and Functional Genomics Branch at NHGRI.

In 2013, her research group discovered a methylation mark (or signature) around ZNF154 in 15 tumour types in 13 different organs and deemed it a possible universal cancer biomarker. Biomarkers are biological molecules that indicate the presence of disease. Dr Elnitski's group identified the methylation mark using DNA taken from solid tumours.

"No one in my group slept the night after that discovery," Dr Elnitski said. "We were so excited when we found this candidate biomarker. It's the first of its kind to apply to so many types of cancer."

In this new study, they developed a series of steps that uncovered telltale methylation marks in colon, lung, breast, stomach and endometrial cancers. They showed that all the tumour types and subtypes consistently produced the same methylation mark around ZNF154.

"Finding the methylation signature was an incredibly arduous and valuable process," said NHGRI Scientific Director Dan Kastner, M.D., Ph.D. "These findings could be an important step in developing a test to identify early cancers through a blood test."

> No one in my group slept the night after that discovery. We were so excited when we found this candidate biomarker. It's the first of its kind to apply to so many types of cancer.

The NIH Intramural Sequencing Center sequenced the tumour DNA that had been amplified using a technique called polymerase chain reaction (PCR). Dr Elnitski and her group then analyzed the results, finding elevated levels of methylation at ZNF154 across the different tumour types.

To verify the connection between increased methylation and cancer, Dr Elnitski's group developed a computer program that looked at the methylation marks in the DNA of people with and without cancer. By feeding this information into the program, they were able to predict a threshold for detecting tumour DNA. Even when they reduced the amount of methylated molecules by 99%, the computer could still detect the cancer-related methylation marks in the mixture. Knowing that tumours often shed DNA into the bloodstream, they calculated the proportions of circulating tumour DNA that could be found in the blood.

Screening blood samples

Dr Elnitski will next begin screening blood samples from patients with bladder, breast, colon, pancreatic and prostate cancers to determine the accuracy of detection at low levels of circulating DNA. Tumour DNA in a person with cancer typically comprises between 1 and 10% of all DNA circulating in the bloodstream. The group noted that when 10% of the circulating DNA contains the tumour signature, their detection rate is quite good. Because the methylation could be detected at such low levels, it should be adequate to detect advanced cancer as well as some intermediate and early tumours, depending on the type.

Dr Elnitski's group will also collaborate with Christina Annunziata, M.D., Ph.D., an investigator in the Women's Malignancies Branch and head of the Translational Genomics Section at NIH's National Cancer Institute (NCI). They will test blood samples from women with ovarian cancer to validate the process over the course of treatment and to determine if this type of

US NIH researchers have identified a DNA methylation signature in tumour DNA common to five types of cancer. The signature results from a chemical modification of DNA called methylation, which can control the expression of genes like a dimmer on a light switch. They hope this finding will spur development of a blood test that can be used to diagnose a variety of cancers at early stages.

analysis leads to improved detection of a recurrence and, ultimately, improved outcomes.

"Ovarian cancer is difficult to detect in its early stages, and there are no proven early detection methods," said Dr Annunziata. "We need a reliable biomarker for detecting the disease when a cure is more likely. We are looking forward to testing Dr Elnitski's novel approach using DNA methylation signatures."

Current blood tests are specific to a known tumour type. In other words, clinicians must first find the tumour, remove a sample of it and determine its genome sequence. Once the tumour-specific mutations are known, they can be tracked for appearance in the blood. The potential of the new approach is that no prior knowledge of cancer is required, it would be less intrusive than other screening approaches like colonoscopies and mammograms and it could be used to follow individuals at high risk for cancer or to monitor the activity of a tumour during treatment. Once the blood test is developed, the scientific community must conduct studies to ensure that it does not indicate the presence of cancer when it is not there or miss cancer when it is there.

Dr Elnitski does not yet understand the connection between tumours and elevated DNA methylation. It may represent derailment of normal processes in the cell, or it may have something to do with the fact that tumours consume a lot of energy and circumvent the cellular processes that keep growth in check. Researchers also don't know exactly what the gene ZNF154 does.

"We have laid the groundwork for developing a diagnostic test, which offers the hope of catching cancer earlier and dramatically improving the survival rate of people with many types of cancer," Dr Elnitski said. MEH

World Cancer Day

Middle East forecast to have highest growth of cancer in the world over next 20 years

To mark World Cancer Day on 4 February, the WHO Eastern Mediterranean Regional office issued a statement saying 400,000 people, young and old, die every year in the Region due to cancer.

On World Cancer Day, under the slogan "We Can. I Can.", WHO called on governments to provide and improve access to quality cancer care and on communities and individuals to quit smoking, eat healthy food and keep active.

Cancer is one of the world's biggest killers and ranks among the top 4 leading causes of death in the Region, yet is a preventable disease.

"Regrettably," says Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, "evidence shows that cancer rates continue to rise globally and regionally because of unhealthy lifestyles and limited access to treatment and quality cancer care."

In the next 20 years, cancer rates in the Region are expected to almost double, from an estimated 555,318 new cases in 2012 to nearly 961,098 in 2030 – the highest relative increase among all WHO regions. "There is a pressing need to take action to reverse this trend," said Dr Ala Alwan.

More than 30% of cancers can be prevented through the adoption of healthy lifestyles. Raising people's awareness of the links between lifestyle and cancer will empower people to make healthy lifestyle choices, such as quitting smoking, keeping physically active and eating healthy food and can also reduce the cancer burden.

There are serious gaps in access to treatment and quality cancer care in many countries of this Region. "Health systems need to be strengthened by moving towards universal health coverage which means ensuring health care services to all people at affordable costs," explains Dr Alwan.

Cancer is one of the main noncommunicable diseases that kill more than 2.2 million people in the Region every year. Cancer prevention and control are possible but require action on all fronts.

The regional framework for action, a road map for countries of the Region to implement the United Nations Political Declaration on Prevention and Control of Noncommunicable Diseases, is central to accelerating action on cancer prevention and control. It sets out some of the strategic milestones that countries need to reach if they are to achieve the 9 voluntary targets to reduce the number of premature deaths from noncommunicable diseases by 25% by 2025. The targets address risk behaviours, such as tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity.

AUBMC facility leads the way in cancer treatment

The Naef K. Basile Cancer Institute (NKBCI) at American University of Beirut Medical Center (AUBMC) is a state-of-the-art adult cancer facility that provides comprehensive cancer treatment and research.

This Center of Excellence became operational through a generous contribution by the Naef K. Basile Foundation (NBF) established in 1995 following the death of Dr. Naef Basile, a Lebanese-American obstetrician-gynecologist whose lifelong wish was to give back to his country of birth through the establishment of the NKBCI. He wanted to establish an institute with a vision to be the leading institute for cancer prevention and treatment through promoting excellence in patient care, research, and education, enhancing the effectiveness and collaboration among cancer programs and health care providers.

NKBCI is dedicated to the treatment of adult cancer patients (over 2500 new patients annually). It is the first in Lebanon to develop subspecialized programs for the management of brain, breast, gastrointestinal, genitourinary, head and neck and lung cancers, in addition to lymphoma, hematological malignancies, bleeding and thrombotic disorders, and Stem Cell Transplantation. At NKBCI we performed the first unrelated donor stem cell transplant in Lebanon, and over 100 stem cell transplants are done annually. The Radiation Therapy team at NKBCI at AUBMC has also performed the first radiofrequency ablation of a breast mass in Lebanon. NKBCI established the first Cancer Prevention and Control Program in Lebanon in addition to the Palliative Care Service. It is the first in Lebanon to have specialized oncology nurses (AUBMC is the first healthcare facility with MAGNET designation in the Middle East Region), case managers, social workers and dedicated oncology pharmacists as part of the multidisciplinary team. NKBCI has a leading fellowship training Program with strong affiliations with regional and international institutions including King Faisal Specialist Hospital and Research Center, King Hussein Cancer Center, MD Anderson Cancer Center, Memorial Sloan Kettering Cancer Center, and the Winship Cancer Institute. NKBCI has established the first structured Data Management and Clinical Research Unit in Lebanon with a prospective database for several cancer disease sites. Our faculty are national, regional, and international leaders in clinical and translational research with ongoing clinical trials and more than 70 major publications annually. MEH

Physician group issues advice, raises questions about Best Practices for evaluating blood in the urine as a sign of cancer

In some patients, blood in the urine, or hematuria, may be the only warning sign of cancer in the urinary tract. A new report from the American College of Physicians' High Value Care Task Force issues advice for physicians on how to detect and evaluate hematuria. The report, which was first-authored by a UNC Lineberger Comprehensive Cancer Center member, also raises questions around potential harms associated with diagnostic tests that are commonly employed to evaluate this condition.

"Blood in the urine can have many causes, and may be associated with urinary tract cancers including bladder cancer and cancer of the upper urinary tract," said Matt Nielsen, MD, MS, a UNC Lineberger member, co-director of the Multidisciplinary Urologic Oncology Program and associate professor of urology in the UNC School of Medicine. "But, given how common this finding is in clinical practice, we need to ensure that follow-up testing is done in a way that properly balances all of the potential harms and benefits of testing."

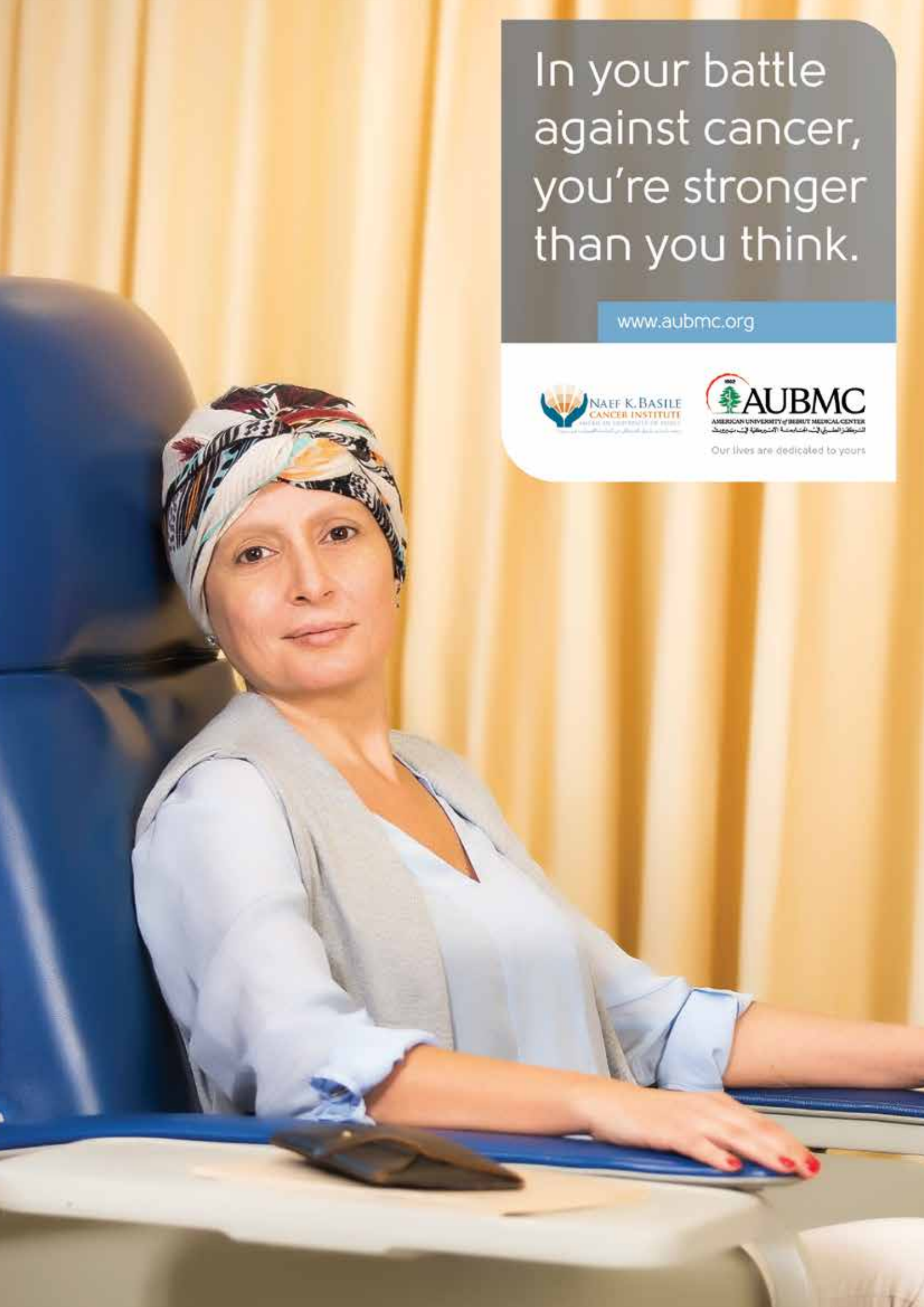
There is little controversy surrounding evaluation of patients with gross hematuria, which is blood in the urine visible to the naked eye, the paper reports. The ACP advises that all adults with gross hematuria should be referred for further urologic evaluation, even if the symptoms have stopped, given the relatively high risk this symptom has for underlying cancer.

More commonly, patients may have a small amount of blood in the urine that is discovered only through testing. The cancer risk is lower for microscopic hematuria than that associated with gross hematuria, and there is a lack of clarity regarding indications for specific diagnostic testing strategies for individual patients, Nielsen said.

For suspicion of hematuria raised based on the findings of what is known as a "dipstick" test, the ACP advises that physicians confirm that finding using a microscope before further evaluation.

Physicians should consider referring adults with microscopically confirmed hematuria for evaluation by a urologist using cystoscopy and imaging in the absence of another possible, demonstrable and benign cause for it, the report suggests. However, they also pointed to the potential harms associated with cystoscopy – anxiety, discomfort and possible infection from endoscopic evaluation of the bladder – as well as potential harms linked to CT imaging.

They point to the increasing recognition of potential longer-term harms of imaging given the evidence linking radiation doses associated with CT scans to increased cancer risk. Acknowledging that the association between radiation exposure from CT imaging and lifetime cancer risk has only been indirectly estimated, they call for further scrutiny of the issue. MEH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University of Chicago Medicine offers minimally invasive surgery to successfully treat lung cancer

In the treatment of lung cancer, an experienced hand coupled with the help of technology can greatly improve patient outcomes

At the University of Chicago Medicine, several minimally invasive options are offered for treatment, overseen by experienced and dedicated thoracic surgeons. Despite tremendous advances in cancer care, lung cancer remains one of the deadliest forms of cancer in the world. Lung cancer, including non-small cell lung cancer (NSCLC), is the leading cause of cancer-related death. In fact, more people die from lung cancer than from colon, breast and prostate cancers combined, according to the American Cancer Society.

At the University of Chicago Medicine, Dr Christopher H. Wigfield, Associate Professor of Surgery, is an expert in adult thoracic surgery and lung transplantation. As Surgical Director of the Lung Transplant Program, Dr Wigfield cares for patients with a wide range of cardiothoracic diseases, including lung cancer. In addition, his clinical research focuses on lung transplantation and robotic assisted thoracic innovation.

"Innovation in minimally invasive surgery has allowed for an easier patient recovery process. Whenever possible, it is preferred to use minimally invasive techniques to prevent excessive bleeding and pain post-surgery," said Dr Wigfield. "At the University of Chicago Medicine, we offer a well-trained team with experience to perform such procedures when appropriate. Our first priority is the safety and comfort of our patients that come to us."

Dr Christopher H. Wigfield, Associate Professor of Surgery at the University of Chicago Medicine

Dr Mark Ferguson, MD, thoracic surgeon at the University of Chicago Medicine

Innovations in minimally invasive surgery

Almost two decades ago, the initiation of minimally invasive surgery *(http://www.uchospitals.edu/specialties/minisurgery/index.html)* has revolutionized the surgical care experience. Patients experience less bleeding and pain as well as shorter hospital stays and can return to their lives after just a few days, a welcome improvement compared to open procedures that require long recovery periods in the hospital. All of the following procedures are primarily available only at leading academic hospitals – such as the University of Chicago Medicine.

In surgical lung oncology, surgeons commonly utilize video-assisted thoracic surgery (VATS) to perform resections, lobectomies or other types of surgeries.

This minimally invasive technique requires only three small incisions. During the procedure, a surgeon can remove a cancerous part of the lung through an incision less than two inches long.

Due to rapidly evolving technological advances in robotic surgery, thoracic surgeons at the University of Chicago Medicine now perform robot-assisted lung resection and other thoracic procedures. This approach uses computer-aided technology and robotics to provide surgeons a greater range of motion, high-definition three-dimensional views and fine precision while operating within the chest cavity. Like the VATS procedure, robotic surgery requires only a few small incisions.

And, finally, the latest treatments for lung cancer are medicines that interfere with the growth and spread of cancer cells. Called targeted therapies, these medicines are used along with chemotherapy and radiation.

Breathing easy

Barbara Arvia is grateful for the bunion on her foot. Preparation for foot surgery led to a surprising diagnosis of lung cancer – and

to state-of-the-art treatment at the University of Chicago Medicine.

Barbara considers herself lucky because her cancer was found early. Early detection and early treatment offer the best opportunity to fully eliminate any cancer. In addition, given that her lung cancer was at an early stage, she was an ideal patient for VATS.

"VATS is an option for most small or peripheral lung tumours," says Dr Mark Ferguson, MD, a University of Chicago thoracic surgeon who specializes in surgery of the lung and oesophagus, including minimally invasive surgery for lung cancer.

It offers the best results with patients who have not undergone pre-operative chemotherapy or radiation therapy.

Barbara looks back: "Learning I had lung cancer, I was terrified. But Dr Ferguson's team and everyone I had contact with at the University of Chicago Medicine were wonderful and tried to make me feel comfortable." She adds: "I feel blessed. I think sometimes you're guided to the right people and I was."

Dr Mark Ferguson, MD, performs surgery

Dr Mark Ferguson, MD, performs surgery at the University of Chicago Medicine

UCM brings robots into the surgical room

Experts have different opinions on whether one minimally invasive technique is superior to other traditional methods, and it will be a point of contention for some time.

Improvements in technology have offered more versatile and precise systems. For example, the da Vinci robotic-assisted surgery system provides a 3-D view of the patient's anatomy and ergonomic "wristed" instruments for improved magnification, allowing greater freedom of movement and precision. Although robotic surgery has found widespread utility across many surgical specialties, robot-assisted thoracic surgery is still considered a novel approach.

In a study recently published in the *Annals of Thoracic Surgery*, researchers compared the outcomes of more than 33,000 lung cancer patients. As part of their study, the researchers conducted a propensity-matched analysis to compare the outcomes of patients undergoing open, video-assisted or robotic-assisted lobectomy by a high-volume surgeon. Results showed mortality, hospital length of stay and complications after robotic surgery were far less frequent compared to open lobectomy. In addition, the researchers found a significant drop in mortality among robotic lobectomy patients compared to video-assisted lobectomy patients.

At the University of Chicago Medicine, all of the thoracic surgeons are skilled robotic surgeons with extensive experience in lung cancer removal, providing added benefits for patient recovery. The leading-edge technology at the University of Chicago Medicine not only serves as a platform to perform robotic lung cancer surgery, but to develop and refine these surgical techniques for more and more indications in thoracic surgery, not just lobectomies and resections.

- For more information, please visit: *www.uchospitals.edu/specialties/cancer/lung/*

Baylor St. Luke's unveils design for first-of-its-kind medical campus

Convergence of translational research, world-renowned cardiovascular care, and leading-edge treatments enhance healthcare delivery

CHI St. Luke's Health–Baylor St. Luke's Medical Center (Baylor St. Luke's) has unveiled the design for its US$1.1 billion medical campus featuring one of the country's top medical schools, a world-renowned cardiovascular research institute, and a nationally recognized care hospital that cares for the most complex cases.

The 27.5-acre McNair Campus will become home to the collaboration between Baylor College of Medicine and Catholic Health Initiatives, and will also be the future site of the Texas Heart Institute (THI). The campus will feature a $916.8 million, 650-bed hospital built across two bed towers, a medical office building and ambulatory care complex, and new facilities for basic science and translational research. Expected completion of hospital construction is early 2019. All clinical services currently provided at the Texas Medical Center location of Baylor St. Luke's will be moved to the new campus.

"Physicians and scientists will work together on one integrated campus that creates a state-of-the-art infrastructure for advanced patient care, basic and translational science, and education. This establishes a unique and best-in-class environment unlike any other institution in the Texas Medical Center," said Wayne Keathley, President, Baylor St. Luke's.

New standard of academic & medical excellence

Guiding principles of this project include exceeding current healthcare industry standards, from scientific research and education to the implementation of innovative treatment and care.

"The relationship among Baylor College Medicine, Baylor St. Luke's, and Texas Heart Institute represents an important collaboration in academic medicine with the opportunity of accelerating

Tower One: Existing Facility

- Earlier this year, a new state-of-the-art endoscopy suite and outpatient radiology services opened in the current McNair facility. The endoscopy suite features procedure rooms, which accommodate routine ambulatory procedures as well as endoscopic retrograde cholangiopancreatography and bronchoscopy.
- An ambulatory surgical suite (for procedures such as orthopedics, plastics, urology, and ENT) will be commissioned in March 2016.
- The first stage of surgical specialty inpatient beds will be completed by September 2016.

Tower Two: New Construction

- In mid-January, construction crews will begin utilities relocation and foundation preparation for the building of Tower 2, a 420-patient bed tower.
- Excavation for the 26-foot deep foundation for Tower 2 is scheduled to begin February 2016.
- Completion of the 650-bed replacement hospital, including Tower 2 and a Medical Office Building is slated for completion in early 2019.
- Situated on the border of TMC, the location of the McNair Campus is anticipated to become a significant corridor for future healthcare services. The Campus provides easy access from locations inside and outside the TMC as well as convenient, accessible parking for patients, visitors, and staff.

translational research to patient care," said Paul Klotman, MD, President, CEO, and Executive Dean of Baylor College of Medicine.

The care environment at the McNair Campus is designed around the human experience – modeled on evidence-based practices for the safety of patients, visitors, staff, and physicians. The hospital's operating room suites are influenced by Six Sigma and Lean principles, which follow a linear, logical, and efficient design. The patient can be moved directly from the waiting area to surgery and to a post- operative care unit to recover with their family members. The proximity of the pre- and post-operative care unit will allow surgeons and nurses to more effectively attend to all their patients.

In addition to the partnership between Baylor College of Medicine and Baylor St. Luke's, Texas Heart Institute will also relocate to the McNair campus to a dedicated heart hospital within the new facility.

"Texas Heart Institute and Baylor St. Luke's have shared a unique relationship for more than 50 years that now will continue into the next era of medicine," said Denton A. Cooley, MD, THI Founder and President Emeritus. "With the move of Texas Heart Institute to the McNair Campus, we will continue our legacy of transforming the delivery of cardiovascular care through the creation of new technologies, medical devices, research, and education."

James Willerson, MD, Texas Heart Institute President, Director of Cardiology Research, and Co-Director of the Cullen Cardiovascular Research Laboratories, went on to say, "This campus will be a place where THI physicians and scientists can work directly with Baylor College of Medicine physicians and scientists to ultimately eliminate heart and vascular disease as major threats to human life and well-being in our country and abroad. It also provides the Texas Medical Center, the largest medical center in the world, with a heart hospital dedicated to that goal."

"The combined team from Catholic Health Initiatives, Baylor St. Luke's, Baylor College of Medicine, and Texas Heart® Institute shares a passion for making healthcare affordable and accessible while remaining at the forefront of medicine and research," said Michael H. Covert, FACHE, Chief Executive Officer, CHI St. Luke's Health. "This new hospital is a testament to our commitment of ushering in a new era of healthcare. Together, we are committed to building an exceptional, innovative model for healthcare delivery that will serve our communities for generations to come."

> Physicians and scientists will work together on one integrated campus that creates a state-of-the-art infrastructure for advanced patient care, basic and translational science, and education. This establishes a unique and best-in-class environment unlike any other institution in the Texas Medical Center.

● For more information, contact CHI St Luke's Health International Services at:
international@stlukeshealth.org
or call +1 832 355 3350
or visit *StLukesInternational.org*

Excellence in healthcare planning

Excellence in healthcare is about having the right mix of services, perfectly executed so that they work together seamlessly, says **Aladin Niazmand**, Managing Director at TAHPI.

Aladin Niazmand

Few are capable of delivering what TAHPI can. Established in Australia more than 20 years ago, the multi-award winning group is recognized by the global medical industry for their exceptional healthcare planning and design as well as standards, guidelines and software.

Today, TAHPI's international branch network spans major cities of the work, from Delhi, Kuala Lumpur, and Hong Kong, to Shanghai, Singapore, and London. In the Middle East, the group maintains a presence in the UAE, Saudi Arabia, Lebanon and Algeria.

"The first project that brought us to the UAE was winning the master-planning and needs analysis tender for Al Wasl Hospital, now known as Latifa Hospital. That was in 2008," recalls Niazmand.

Since then, TAHPI has worked on the design of several projects in the country, including the 13-storey Bright Point Hospitals in Abu Dhabi, a private hospital for GMC, Majid Al Futtaim's first medical centre in Deira City Centre, and Etihad Airways Medical Centre.

Healthcare strategies

In healthcare service planning, TAHPI was notably responsible for creating the Dubai Capacity Planning in partnership with the Dubai Health Authority. The strategy determined expected supply and demand for healthcare facilities and services in the emirates between 2013 and 2025.

"It's a big time period and in every five-year interval, the strategy defines what clinical services are needed and provided sector by sector. We're currently completing the Abu Dhabi Capacity Plan, together with the Health Authority of Abu Dhabi, extending until 2035."

Hundreds of facilities are considered in these long-term projections. In Dubai, alone, there are 1,200 healthcare facilities including 26 hospitals, while Abu Dhabi has more than 900 facilities, including 51 hospitals.

Medical Cities

"Our work within the UAE is actually small compared to the work we do from the UAE for the region," says Niazmand. "For example, we're working on the Security Forces Medical City in Riyadh which will cover 1.2 million square metres as well as the King Abdullah Medical City in Bahrain. These are examples of the largest medical cities in the region".

TAHPI initially faced challenges in getting their regional clients to understand the difference between healthcare services and real estate. "We cannot confuse the size of a seven-storey lobby with polished granite and equate that to excellence in healthcare – this is excellence in hotel construction. Many clients are now very wise and alert to the difference between both.

"In healthcare, excellence is about having the right mix of services, perfectly executed so that they work together seamlessly to deliver good outcomes; ensuring the patients' journey through the system is smooth and predictable, and that they leave, feeling they've been well cared for."

Knowledge transfer

As a hands-on professional currently responsible for the design of seven hospitals in four countries, Niazmand discovered that professionals in his field were lacking, not only in the UAE, but worldwide.

"One of the foundations we're laying is the knowledge transfer for healthcare planning and design. The UAE has so far relied on fly-in fly-out consultants, which led to a lack of indigenous scientific knowledge that we want to pass on."

After years of planning and preparation, Niazmand reveals that TAHPI will be starting certificate courses in healthcare planning and design from February 2015. These courses are designed for healthcare professionals and middle management in collaboration with the University of Wollongong Dubai, and will be held four times a year at the Mohammed Bin Rashid Academic Medical Centre in Dubai Healthcare City.

Looking ahead, Niazmand expresses his optimism for Dubai Expo 2020. "It's going to be a magnificent showcase of Dubai's healthcare, and we have to prepare it for this. When millions visit, they're going to discover Dubai as a destination for medical tourism." MEH

OUR EXCELLENCE YOUR GUARANTEE

The Medical City has been re-accredited by the Joint Commission International for the fourth time.

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- Care of Patients (COP)
- Governance, Leadership, and Directions (GLD)
- Staff Qualifications and Education (SQE)

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Memorial, providing service to 1.8 million of outpatients every year and performing 60.000 surgeries, is the home of trust in healthcare with its specialist physicians and healthcare staff who combine their knowledge and experience with tender care to the patients, its patient-oriented service approach, quality policy, its diagnosis and treatment facilities equipped with advanced medical technology, its modern spaces and comfortable patient rooms.

Memorial, having internationally known departments such as IVF Unit-Genetics-Cardiovascular Surgery and Organ Transplantation, is a Reference Centre in branches such as Orthopedics, Cardiology, Neurological Sciences, Urology, Gynecology, Hematology, Gastroenterology, Oncology, Children's Health and Robotic Surgery.

Pioneering in the improvement of healthcare services standards with many first practices in Turkey, Memorial also successfully represents our country abroad with its international diagnostic and treatment methods. This is one of the reasons why Memorial Hospitals Group was selected as one of the best healthcare institutions abroad by US News & World Report.

Renowned worldwide Organ Transplantation Centers have been annually performing 234 liver transplantations, 352 kidney transplantations and 156 bone marrow transplantations; Cardiovascular Surgery Unit has been annually performing 1900 heart surgeries, 7000 angiographies (TAVI, Mitra Clip, Lead Extraction) and IVF center has been performing 7.000 applications annually.

Admitting 32.532 international patients from 92 countries throughout the world, Memorial is a world-class hospital that brings comfort of being treated in a safe environment to more and more persons each year.

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SKIN CARE OPTIMIZED

Education is key to preventing cancer fatalities

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

As a leading global distributor of pharmaceuticals many of the drugs that Durbin regularly source and supply are treatments for cancers. According to the UAE Cancer Registry, the top five cancers that affect people are breast, colorectal, gastric, thyroid and lung. Breast cancer however is one of the most common forms of female cancer in the Middle East. One in 900 women in Jordan is diagnosed with breast cancer annually, making it the most common type among women in the country. In neighbouring Lebanon, the numbers are significantly higher, with approximately 1,750 women being diagnosed each year, or about five per day.

According to The World Heath Organisation (WHO) mortality rates from breast cancer in the Arab world are much higher in comparison to the rest of the world. In addition to this, it also affects a large proportion of women at a younger age, for example 50% of cancer patients in Lebanon are under the age of 50. The *Asian Pacific Journal of Cancer Prevention* has further identified that many of the affected women are only diagnosed when their cancer is at advanced stage. This is largely due to a delay in presenting symptoms. If the disease is diagnosed early, the resulting treatment is usually less invasive, more effective and can increase the chances of survival. Therefore, the main concern is why some women wait so long to seek medical advice.

There are many factors that hinder early screening. Three common reasons relate to fear, misinformation and costs. According to *HealthyWomen.org*, there is a danger that some women are so overwhelmed by anxiety that they postpone or avoid screenings. They may be fearful to seek medical help as they identify how serious and frightening actually hearing the word 'cancer' can be. To add to this, as most women know someone who has been diagnosed with breast cancer, they may know how difficult it can be to undergo surgery and treatment.

On the other hand, there are many who know very little about the disease and consequently might not recognise typical symptoms or warning signs. If they have not been educated about the disease, they are likely to disregard the benefits of early screening and treatment. In Jordan, Egypt and Syria more than 65% of breast cancer cases are detected at advanced stages, indicating a lack of information provided to the public. By educating people, it is possible to change the attitudes and behaviour of those women who are most at risk and hopefully early screening can become common practice. The Jordan Breast Cancer Program (JBCP) has a mission to advise people on and encourage earlier screening to catch the disease 'where it is most curable, survival rates are highest, and treatment costs are lowest'. This is done by improving the accessibility of screening services, especially to remote or underprivileged areas where there is little access to healthcare.

Many effective forms of preventative care such as mammograms and physical examinations are not covered by insurance companies and so come at an extra cost. This, along with the treatment that follows can add up to be a huge financial burden, especially if a long course of treatment is needed. Some governments, such as those in Lebanon and Jordan, do however have programmes that fund aspects of cancer care. The Breast Cancer Arabia Foundation helps by financially sponsoring women who need their help, to undergo treatment and provide support throughout.

A lack of knowledge seems to be a major barrier for many women, so education about the subject is an essential first step. However, it is clear that there are also other factors which need to be addressed. Accessibility in all forms is largely accountable for the lack of early screening. If these women cannot afford to undergo preventative care, or do not know how or where to go for screenings, the number of breast cancer fatalities will continue to increase. It is important to instil confidence that breast cancer is not necessarily fatal if it is diagnosed early enough. When needed, companies like Durbin can source and supply the latest treatments, but put simply 'education and early detection is the best protection'. MEH

Durbin PLC is a British company in 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 nine 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 and so can provide US, UK and European products directly from source.

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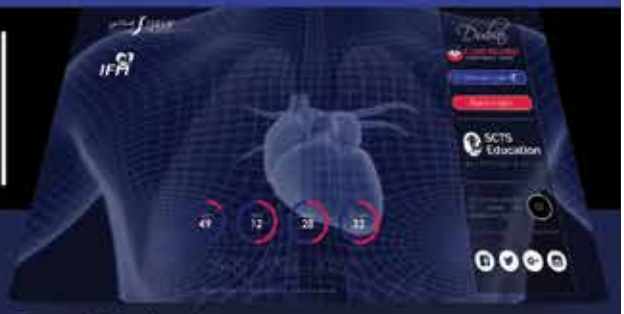

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A futuristic light for the OR

The cool light of the Aurinio LED OR light protects the tissue of patients from dehydration and ensures ideal work conditions for doctors and personnel. The power LEDs feature extremely low maintenance, are reliable and despite maximum luminous efficacy have a longer service life than other light sources. The design is futuristic, and the form compact, flat and streamlined. The ideal OR light for surgeons who demand a great deal. Aurinio LED OR light for maximum performance with minimum consumption.

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Timesco Callisto Flare preloaded LED single-use handles are market leaders

Over the past decade Timesco has become market leader in the field of Laryngoscopy with an unrivalled range of quality brands; reusable: fibre Optima, Sirius, standard Orion, and single-use: fibre Callisto and standard Europa light.

Timesco's range of laryngoscopes have been further upgraded with the addition of the LED light for the reusable and single use handles and standard blades.

The single-use Callisto range has been expanded with the addition of Callisto Flare LED single-use dry cell and preloaded handles which are supplied complete with batteries. The Callisto Flare LED handles are available individually and also paired with the Callisto blades as handle and blade packs, ready to use.

Timesco's Callisto single-use laryngoscopes offer control of cross contamination, no reprocessing or autoclaving costs and convenience. In a recent study in the USA, comparing costs of the reprocessing of reusable and single use laryngoscopes, it was found that the reprocessing cycle cost for reusable blades and handles was $17 and if there was a Hospital Acquired Infection the cost would increase to $27!

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

Timesco Callisto Laryngoscopes, your no: 1 inexpensive, cross contamination prevention and convenient choice.

- For more information, please visit: *www.timesco.com*

Smart pillbox reminds patients when to take medication

'Smart' pillboxes track medication intake and send reminders to patients via text messages, phone calls, or e-mails. Some can automatically order prescription refills, send alerts when medication is missed, and update care teams and healthcare providers with data on patient compliance.

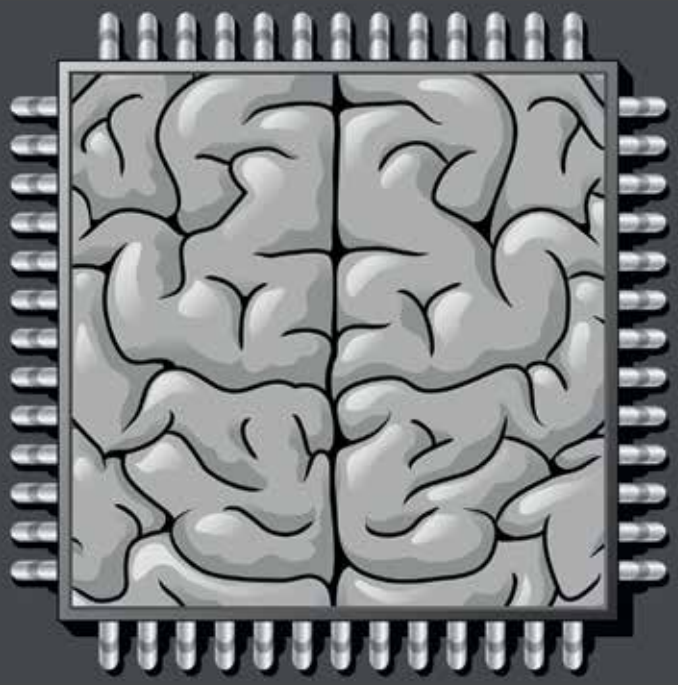
And how does this work? Special sensors are installed in medicine dispensers that record important data regarding intake-time, dosage, and application method. These devices then transmit automated messages to caregivers about usage and to pharmacies alerting them when medicines run low.

"The Internet of Things can be viewed as one of the strongest enablers of patient-centred healthcare, where healthcare systems are being urged to shift away from the 'diagnose and cure' model, to the 'sense and prevent' model," said Sherry Zameer, Senior Vice President Telecommunication Solutions at Gemalto.

The smart pill dispenser is developed by MedMinder, with secure connectivity enabled by Gemalto's M2M technology and backed by its advanced digital security solutions.

"This advanced mHealth (mobile health) device reminds patients to take their medication on time through visual, auditory, or SMS alerts. It also tracks medication intake, sends medical alerts to caregivers, and can be used to line up refills. The dispenser's wireless connectivity feature safeguards the independence of patients, while providing relatives and caregivers peace of mind via remote monitoring tools," said Zameer.

- For more information, visit: *www.medminder.com*



The Neural Engineering System Design program aims to develop an implantable neural interface able to provide unprecedented signal resolution and data-transfer bandwidth between the human brain and the digital world.

Bridging the bio-electronic divide

A new DARPA program aims to develop an implantable neural interface able to provide unprecedented signal resolution and data-transfer bandwidth between the human brain and the digital world. The interface would serve as a translator, converting between the electrochemical language used by neurons in the brain and the ones and zeros that constitute the language of information technology. The goal is to achieve this communications link in a biocompatible device no larger than one cubic centimetre in size, roughly the volume of two nickels stacked back to back.

DARPA is the sci-fi-sounding acronym for the US military's Defense Advanced Research Projects Agency. The unclassified stuff they're working on is really ground-breaking. Who knows how futuristic the classified projects must be?

The program, Neural Engineering System Design (NESD), stands to dramatically enhance research capabilities in neurotechnology and provide a foundation for new therapies.

"Today's best brain-computer interface systems are like two supercomputers trying to talk to each other using an old 300-baud modem," said Phillip Alvelda, the NESD program manager. "Imagine what will become possible when we upgrade our tools to really open the channel between the human brain and modern electronics."

Among the program's potential applications are devices that could compensate for deficits in sight or hearing by feeding digital auditory or visual information into the brain at a resolution and experiential quality far higher than is possible with current technology.

Neural interfaces currently approved for human use squeeze a tremendous amount of information through just 100 channels, with each channel aggregating signals from tens of thousands of neurons at a time. The result is noisy and imprecise. In contrast, the NESD program aims to develop systems that can communicate clearly and individually with any of up to one million neurons in a given region of the brain.

Achieving the program's ambitious goals and ensuring that the envisioned devices will have the potential to be practical outside of a research setting will require integrated breakthroughs across numerous disciplines including neuroscience, synthetic biology, low-power electronics, photonics, medical device packaging and manufacturing, systems engineering, and clinical testing. In addition to the program's hardware challenges, NESD researchers will be required to develop advanced mathematical and neuro-computation techniques to first transcode high-definition sensory information between electronic and cortical neuron representations and then compress and represent those data with minimal loss of fidelity and functionality.

To accelerate that integrative process, the NESD program aims to recruit a diverse roster of leading industry stakeholders willing to offer state-of-the-art prototyping and manufacturing services and intellectual property to NESD researchers on a pre-competitive basis. In later phases of the program, these partners could help transition the resulting technologies into research and commercial application spaces.

DARPA anticipates investing up to $60 million in the NESD program over four years.

NESD is part of a broader portfolio of programs within DARPA that support President Obama's brain initiative.

- For more information about DARPA's work on the brain, visit: *www.darpa.mil/program/our-research/darpa-and-the-brain-initiative* MEH

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
March 2016		
5th International Conference on Recent Trends in Medical and Health Sciences	26 – 27 March, 2016 Dubai, UAE	*www.icrtmhs2016.org*
OBS-GYNE Exhibition & Congress	27 – 29 March, 2016 Dubai, UAE	*www.obs-gyne.com*
IMTEC Oman 2016	28 – 30 March, 2016 Muscat, Oman	*info@imtec-oman.com* *www.imtec-oman.com*
April 2016		
1st American Society of Nephrology Highlights and SEHA Nephroprevention Conference	1 – 2 April, 2016 Dubai, UAE	*contact@diaedu.com* *www.asnhighlightsuae.com/*
32nd International Conference on Recent Advances in Medical and Health Sciences (ICRAMHS)	1 April, 2016 Dubai, UAE	*www.academicsworld.org/Conference/DubaiUAE/ICRAMHS*
Mediconex 2016	5 – 7 April, 2016 Cairo, Egypt	*info@mediconex.net* *www.mediconex.org/en*
MENA Health Insurance Conference	5 – 8 April, 2016 Dubai, UAE	*info@healthinsurancecongress.com* *www.healthinsurancecongress.com/*
The 12th Emirates Critical Care Conference	7 – 9 April 2016 Dubai, UAE	*www.eccc-dubai.com*
2016 Global Spine Congress & World Forum for Spine Research	13 – 16 April, 2016 Dubai, UAE	*gsc@aospine.org* *www.gsc2016.org/*
MENA Ophthalmology Congress 2016	14 – 16 April, 2016 Dubai, UAE	*info@maarefah-management.org* *www.maarefah-management.com*
IDEX 2016 The 13th edition of Istanbul Dental Equipment and Material Exhibition	14 – 17 April, 2016 Istanbul, Turkey	*chandana@eigroup.in* *www.comnetexhibitions.com*
IFM 2016 The International Family Medicine Conference & Exhibition	17 – 19 April, 2016 Dubai, UAE	*sindhu.harikrishnan@index.ae* *www.ifm.ae*
World Congress on Nursing & Healthcare	18 – 20 April, 2016 Dubai, UAE	*www.scientificfederation.com/nursing-conference*
2nd International Conference on Sport Medicine & Fitness	18 – 20 April, 2016 Dubai, UAE	*editor.sportsmed@omicsinc.com* *www.sports.conferenceseries.com*
4th Regional Conference on Child Protection against Violence	18 – 20 April, 2016 Kuwait City, Kuwait	*cyrou@diaedu.com* *www.arabcan2016.com*
Iraqi Orthopedic Society & Kurdistan Orthopedic Society Conference 2016	20 – 22 April, 2016 Kurdistan, Iraq	*toc@theorganizers-iraq.com* *www.arab-organizers.com/future-conferences*

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
4th Emirates Orthopaedic Congress	21 – 23 April, 2016 Dubai, UAE	*Ortho@InfoPlusEvents.com* *www.uaeortho.com/4thEIOC/*
3rd International Conference and Exhibition on Rhinology & Otology	25 – 27 April, 2016 Dubai, UAE	*http://otolaryngology.conferenceseries.net/*
Annual Congress and Medicare Expo on Primary Healthcare	25 – 27 April, 2016 Dubai, UAE	*www.primaryhealthcare.annualcongress.com*
May 2016		
13th International Congress of the Middle East Africa Council of Ophthalmology	4 – 8 May, 2016 Manama, Bahrain	*nadia.ansari@mci-group.com* *www.meaco.org*
MENA Nephrology Congress	5 – 7 May, 2016 Dubai, UAE	*yvette.aldeguer@maarefah-management.org*
EgyMedica 2016 16th International Medical Exhibition and Conference	5 – 7 May, 2016 Cairo, Egypt	*adel@egymedica.com* *www.egymedica.com*
GCC Healthcare Innovation Congress	15 – 18 May, 2016 Dubai, UAE	*info@gcchealthcareinnovation.com*
Saudi Health 2016 The 4th edition of Saudi Health Exhibition & Conference	16 – 18 May, 2016 Riyadh, Saudi Arabia	*info@saudihealthexhibition.com* *www.saudihealthexhibition.com*
Arab African API Congress	17 – 18 May, 2016 Cairo, Egypt	*www.aaapci.com*
4th Biennial International Congress of Iranian Society of Knee Surgery, Arthroscopy & Sports Traumatology	17 – 20 May, 2016	*iskast@infoplusevents.com* *www.iskast2016.com*
5th Physio Dubai 2016	19 – 20 May, 2016 Dubai, UAE	*www.physiodubai.com*
The Middle East Otolaryngology Conference and Exhibition 2016	24 – 26 May, 2016 Dubai, UAE	*me-oto@informa.com* *www.me-oto.com*
3rd International Advanced Orthopaedic Congress (IAOC)	26 – 28 May, 2016 Dubai, UAE	*conference@uae.messefrankfurt.com* *www.aocongress.com/676/new-node.aspx*

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

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