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January-February 2016
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Child of War

Study looks at the long-term effects of warfare on the health of Syrian children

Healthcare in Danger

Red Cross, Red Crescent initiative aims to ensure safe access to healthcare in armed conflict

ACUSON P500 portable ultrasound

And other device developments in the expanded product news section

Climate Change and Health

Paris Agreement is also a key public health treaty

In the News:

- Yemen's health system collapses: WHO appeals for funds
- Eastern Mediterranean has 3rd highest burden of foodborne diseases
- Survey reveals widespread misunderstanding of antibiotic resistance
- Study shows men have better sense of direction than women

Bahrain BD3, **Egypt** £E40, **Iran** IRR75, **Iraq** IQD9,400, **Jordan** JD5, **Kuwait** KD3, **Lebanon** LBP12,000, **Oman** RO3, **Qatar** QR30, **Saudi Arabia** SR30, **Syria** £S400, **UAE** Dh30, **Yemen** YR1,600

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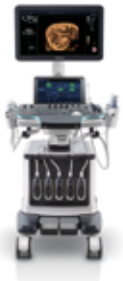

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Hopeful, but mindful of the challenges

Welcome to a new and exciting year of continued growth in healthcare development in the region and scientific innovation from the labs around the world. As each year dawns it gives us time to wonder what new medical breakthroughs we will see in the year ahead. Looking at the rate of bioscience development over the past years, the pace of future innovation must now surely verge on the exponential. These are exciting times.

In this expanded issue we report in "the laboratory" section – as we do in every issue – on the results of some of the latest medical research emanating from bioscience labs around the world. Of interest in this issue is research that shows a biochemical mechanism underlying the formation of long-term memories. Another report looks at research on the activation of brain receptors that trigger the hunger hormone ghrelin, which could have implications for the treatment of obesity. In Europe and the US, there is now a lot of money being poured into research of the brain specifically, so we can expect many more interesting discoveries in this field in the near future.

Also in the issue we publish an important report which looks at the tragic consequences of war on children – specifically the long-lasting effects of warfare on the health of Syrian children – devastating psychological effects that can last a lifetime. Let's hope that this year will see an end to this horrendous war in Syria.

The climate change conference in Paris in December resulted in an historic accord with the Paris Agreement, which will see countries around the world aiming to cut their greenhouse gas emissions in an effort to halt the potentially disastrous effects of global warming. In a Climate Change and Health report, we look at the effects of climate change on public health and note that, as Margaret Chan, WHO director-general, puts it, the climate change agreement is also a significant public health treaty. We must all – individuals, communities, nations – now make a concerted effort to fulfil the obligations of the Agreement.

At the close of last year, the WHO released a number of reports indicating the positive progress we have made in a number of fields – TB mortality has been halved since 1990; measles vaccinations have saved 17 million lives since 2000 – which bodes well for the future. Yet, at the same time, the Red Cross and Red Crescent societies set up the Health Care in Danger project, an initiative to address the issue of violence against patients and health workers following a number of attacks on healthcare facilities in Syria, Yemen, Afghanistan and other countries. (You will find reports on all of this in this issue.)

So as we forge ahead in the healthcare arena in 2016 there is a lot of positive news to be hopeful about, but we must also keep in mind the many difficult challenges we face, which need resolution.

Wishing you prosperity, good health and happiness.

Callan Emery
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Rocky Cooper is so passionate about golf that he didn't want to take the time to get his failing heart fixed. But when his condition started getting worse, he went to a local medical center where he was told he needed open-heart surgery. After further research, Rocky discovered that Dr. Husam Balkhy, Director of Robotic Cardiac Surgery at the University of Chicago Medicine, and his colleague, Dr. Sandeep Nathan, Co-Director, Cardiac Catheterization Laboratory, could achieve the same results with two minimally invasive procedures that didn't require his chest to be opened. He checked in for surgery – and checked out just two days later, needing nothing more than aspirin for pain. Within a week Rocky was on a plane back to Florida, and a couple of days later he was once again teeing off. To learn more or make an appointment, call +1-773-702-0506 or email international.services@uchospitals.edu.

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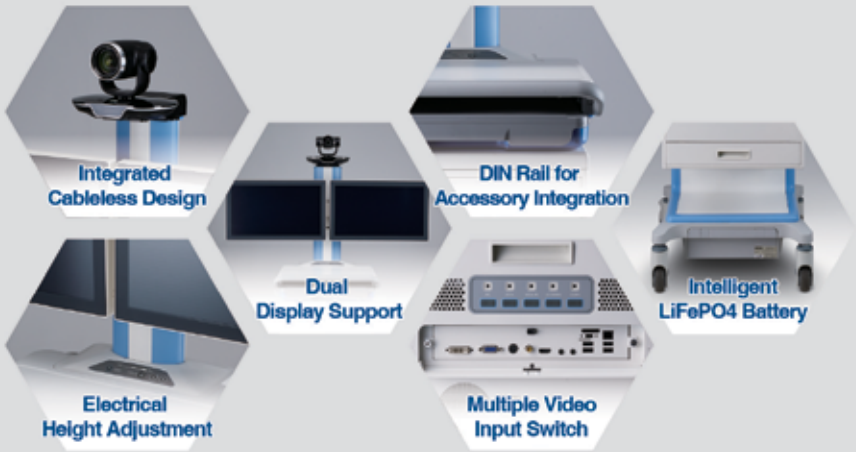

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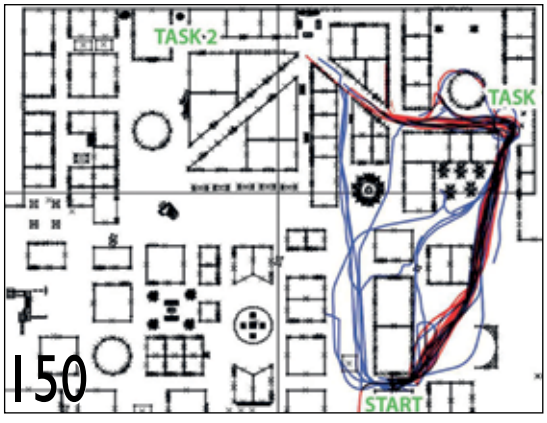

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Update from around the region

WHO EMR agrees regional mechanism to implement International Health Regulations

The World Health Organization Regional Committee for the Eastern Mediterranean concluded its 62nd session on 8 October with the adoption of important resolutions and decisions to advance the health agenda in the Region. The resolutions outline joint work expected from Member States and WHO in the areas of health security, prevention and control of emerging infections, prevention of cardiovascular diseases, diabetes, cancer, medical education, mental health, and assessment and monitoring of the implementation of the International Health Regulations (IHR 2005), among others.

Acknowledging progress made and ongoing challenges and gaps in relation to regional strategic priorities, the Regional Committee adopted the Annual Report of the Regional Director Dr Ala Alwan on the work of WHO in the Eastern Mediterranean during 2014.

Member States agreed on the establishment of a regional mechanism to assess implementation of the International Health Regulations (IHR) and to advise Member States on reinforcement of their national core capacities. This resolution is of major importance as under the obligations of the IHR, countries are collectively accountable for protecting their own populations, as well as global health security.

Noncommunicable diseases, the world's biggest killers and a leading cause of death in the Region, were high on this year's agenda. People are dying too young from heart disease, cancers and diabetes. Participants endorsed a resolution that welcomed the efforts of the Regional Director to raise global and regional awareness of the magnitude of the problem and to strengthen action in the prevention and control of these diseases. The resolution urged Member States to take the necessary actions to reduce premature mortality from Noncommunicable diseases.

For the first time ever, the Regional Committee endorsed a framework for action on strengthening medical education. Health professions education is an important area in promoting public health, strengthening health systems and advancing country progress towards universal health coverage.

The mental health treatment gap in some countries of the Region is as high as 90% in some countries despite the availability of cost-effective and evidence-based interventions. The fact that a large number of countries in the Region are facing complex emergencies is contributing to increasing rates of mental disorders. To address this, Member States agreed to scale up mental health care and implement four strategic interventions related to governance, prevention, health care and surveillance.

Doha's cancer research centre installs region's first CyberKnife

The region's first CyberKnife M6 FIM Suite was officially opened 1 December in the Department of Radiation Oncology at the National Center for Cancer Care and Research (NCCCR) in Doha.

It was opened by HE Abdullah Bin Khalid Al Qahtani, Qatar's Minister for Public Health, along with HE Sheikh Abdullah Bin Saoud Al Thani, Governor of Qatar Central Bank and Chairman of the Board of Directors of the Sports and Social Activities Support Fund (Daam), Sheikh Faisal Bin Qassim Al Thani, Chairman and CEO of Al Faisal Holdings, Hanan Al Kuwari, PhD, Managing Director of Hamad Medical Corporation and Abdul Aziz Nasser Al Ansari, Secretary and Acting Executive Director of the Fund, Ahmed Salem Al Ali, Director of Programs for the Fund, both from Daam, Sports and Social Activities Support Fund.

CyberKnife is a state-of-the-art, treatment technology for cancer – effectively a compact radiotherapy linear accelerator mounted on a computer-controlled robot that can move in three dimensions around the patient. It is able to treat tumours anywhere in the body more accurately than any other treatment machine so that higher doses can be delivered with less effect on surrounding tissue.

Hanan Al Kuwari, PhD, explained how being the only organization to have this particular piece of equipment very much strengthened the cancer services

offered in Qatar. "We are very proud to have the new CyberKnife Suite at Hamad Medical Corporation. This adds to our already comprehensive range of radiation treatments for cancer and will mean a speedier recovery with fewer side effects for our patients. Our mission is to continually ensure that cancer patients in Qatar have access to the most advanced radiotherapy treatments, in line with those offered within the best cancer centres in the world. The implementation of this new service will have many benefits for patients and is a major boost for the NCCCR as an international centre for medical excellence."

According to Dr Noora Al Hammadi, Senior Consultant Radiation Oncologist and Chair of Radiation Oncology, the treatment technology gives cancer specialists new options for treating difficult tumours. "CyberKnife allows us to treat tumours that were previously difficult or sometimes dangerous to treat with conventional radiotherapy or surgery, such as tumours close to the spine," she explained. "By targeting the tumour from many different directions, the correct dose can be delivered without damaging the surrounding organs at risk. This a major advance in cancer treatment and we are pleased to be able to offer the service to our patients."

CyberKnife will work in conjunction with state-of-the-art CT, MRI and PET machines that provide three dimensional imaging technology and are available at the NCCCR, to accurately map the location and extent of the tumours. This imaging is used by radiation oncologists precisely map the tumour in three dimensions and determine the dose required. This information is then fed into the CyberKnife

computer to program the robotic arm so that it delivers radiotherapy doses from many directions, always with a laser focus on the tumour site. During the treatment procedure, a separate integrated image guidance system works with the robotic arm so that it moves in synchronization with the patient's breathing, ensuring sub-millimetre accuracy of treatment delivery.

"Because the machine is continually recording images throughout the treatment and moves with the patient's breathing, any movement changes will be recorded and the system can correct itself," explained Dr Al Hammadi. "This means tumours can be targeted with greater accuracy than was previously possible."

The CyberKnife M6 FIM system at the NCCCR is the first in the region and one of the few worldwide to be equipped with the M6 Incise Multileaf Collimator – tiny computer-controlled leaves that allow for precise radiation beam shaping, further increasing the ability to target the dose distribution closely to the tumour and spare normal tissue.

Al Zahra Hospital opens waterbirth unit

Al Zahra Hospital has inaugurated of the first water birth department in Dubai. The initiative is part of the hospital's aim to enhance awareness of healthy lifestyles, including natural birth.

The world is currently experiencing a powerful return of water birth due to its positive healthy impacts on both the mother and the child. As a global medical destination, Dubai has recently witnessed a high turnout for water birth, where a call for using this technique has widely emerged, aiming to reduce caesarean sections and alleviate labour pains. Studies conducted in this field have shown that water birth reduces labour pain by 60%-70%.

Dr Yamini Dhar, Head of Obstetrics and Gynecology department in Al Zahra Hospital, praised this approach where partial anaesthesia will no longer be necessary or might be used in a limited amount, if required. In addition, the mother gets to experience a new way of delivery that psychologically makes her feel better, since water birth provides an easy delivery process. Dhar also pointed out that the hospital provides state of the art equipment used to perform this procedure as well as employing confident midwifery staff and doctors who can respect women's choice and allow labour to progress at its own pace without active intervention when all aspects present low risk.

Women choose water birth as it reduces the need for opioid and regional analgesia and gives them the freedom to adopt the birth position of their choice. Water supports 70% of their body weight and therefore provides a natural option for labour. It reduces the pressure on her stomach and back, giving her a sense of relaxation.

The water birth unit at Al Zahra Hospital Dubai provides an excellent environment for the mother and the staff assisting her. Its water pool is equipped with a cutting-edge technology including a built in Bluetooth and lighting system designed to create the ideal mood for a smooth birth. It offers a very calming atmosphere with positive and motivational quotes, stools, ropes and birthing balls to facilitate the entire procedure.

The water birth procedure has preconditions that have to be met before the medical team can agree to go with this option for the delivery. These preconditions state that the mother should be between the ages of 17-35 with a normal full-term pregnancy and she should have no history of gynaecological complications in order to avoid any potential distress to the baby.

Cholera vaccination campaign success in Iraq

In November WHO reported that the the Government of Iraq, with the support of WHO and UNICEF, completed the first round of the oral cholera vaccination (OCV) campaign. The campaign has vaccinated 91% of the targeted population the targeted 255 000 Syrian refugees and internally displaced Iraqis across 62 refugee and IDP camps in 13 governorates. The turnout was very high with no refusals or concerns raised regarding the vaccine. A second round was due to begin in December to administer a second dose to ensure protection against cholera for 5 years or more.

The OCV campaign was discussed and agreed by stakeholders in September 2015. This was followed by planning and training sessions for governorate-level managers of the expanded programme on immunization in Baghdad on 26 and 27 October. On 28 October, training was provided to 1302 vaccinators and 651 social mobilizers in preparation for the first round of the mass vaccination campaign.

The Shanchol vaccine used in the campaign is a WHO prequalified vaccine. To achieve the required protection among high-risk groups, 2 doses of OCV Shanchol vaccine need to be administered with an interval of 2 to 6 weeks.

The first round of the campaign, lasting an initial 5 days, began on 31 October and the second round was due to take place in early December 2015. The administration of a second dose is needed to extend the duration of protection for 5 years or more. The vaccine was administered to all persons over one year of age living in the target camps.

Cholera vaccination is an additional preventive measure that supplements but does not replace other traditional cholera control measures. "We need to intensify health promotion and education activities to help communities protect themselves and their families from cholera and other communicable diseases," said acting WHO Representative Altaf Musani.

King's College Hospital London to open hospital in Dubai

King's College Hospital London and Ashmore Group will launch a multi-disciplinary hospital and several day care clinics in Dubai. Al Tayer Group, a diversified regional business, and Dubai Investments PJSC, are local equity partners in the project.

After the successful launch of King's College Hospital's flagship Abu Dhabi clinic, which recently celebrated its first anniversary, Dubai is set to become home to an 80-100 bed world-class hospital facility and several clinics which will all be fully integrated with King's College Hospital's

facilities in London. King's College Hospital Dubai will be located in 'Dubai Hills' (being developed by Emaar and Meraas) UK-based Ashmore Group will act as the investment manager for the project.

The first facilities – a number of clinics – are expected to open their doors towards the end of 2016 and in 2017, in locations across Dubai. This will be followed by the 80-100-bed multi-specialty King's College Hospital Dubai scheduled to open in 2018. The hospital will offer four specialties – Paediatrics, Endocrinology, Orthopaedics and Obstetrics & Gynaecology – as well as other acute and general medical services. In line with the existing operating model of the Abu Dhabi clinic, all staff and services will be fully integrated with King's College Hospital London to ensure provision of quality, evidence-based healthcare to UAE and regional consumers, with a significant proportion of experienced clinicians joining Kings College Hospital Dubai from the UK.

Commenting on the announcement HE Humaid Al Qutami, Chairman of the Board and Director-General of the Dubai Health Authority said: "The UAE's relationship with King's College Hospital London has been strong for more than 30 years and we welcome the addition of this world class brand to our ever-expanding offering of healthcare providers in line with the UAE's 2021 vision of achieving a world-class healthcare system."

AUBMC's Dr Nagi El Saghir wins award for breast cancer research

Dr Nagi El Saghir, professor of clinical medicine and hematology-oncology at the American University of Beirut Medical Center (AUBMC), has been awarded the 2015 CNRS Research Excellence Award for "his outstanding contribution to the understanding of breast cancer in young women, genetic mutations, downstaging and improving outcome of breast cancer patients in Lebanon." The award ceremony was held at the Grand Serail in Beirut in November.

The annual award by the Centre National de Recherche Scientifique (National Center for Scientific Research) recognizes scientists who excel in conducting research

Lebanese Prime Minister Tamam Salam stands with Dr Naji El Saghir on receipt of his award for breast cancer research

in different scientific disciplines in Lebanon. The award is meant to reinforce scientific research and innovation and to direct research to respond to national needs.

"It is a great honour for me to be recognized by the CNRS for the cancer research I am doing in Lebanon," said Dr El Saghir. "Such recognition is a great stimulus for me and our group to continue our research and to advance it further. Without research, we could not have documented nor known that half of breast cancer cases in Lebanon occur in women below the age of 50 and that most women in Lebanon and Arab countries with breast cancer were diagnosed at an advanced stage; and we would not have known what to do to lower these rates. It is because of such research data that we have embarked on studies to learn of the causes of cancer in young women, and we have launched large-scale awareness campaigns that helped reduce the number of cases of advanced breast cancer by detecting the disease at early stages.

"Our 2014 study showed that there is a recent decrease in advanced breast cancer, with more than 60% of patients now diagnosed as early stage I and stage II. We showed that we are performing less total mastectomies and more partial mastectomies that conserve women's breasts; and more than 90% of women with stage I, and more than 80% of women with stage II are alive and free of disease after 10 years. Those are excellent results and show that we have changed the face and outcome of breast cancer in Lebanon," said Dr El Saghir.

Spreading the word that early breast cancer has become curable, have reduced the fear of cancer and more women are enrolling in screening and early detection campaigns. However, Dr El Saghir notes that there is still lots of work to do to reach all women. He also organizes fundraising campaigns throughout the year to help breast cancer patients in need for financial support at AUBMC, and started breast cancer patient support groups at the Naef K. Basile Cancer Institute at AUBMC.

Qatar's organ donors honoured

Qatar's Hamad Medical Corporation's (HMC) Organ Donation Center (Hiba) in November honoured 41 organ donors and their families for giving the gift of life at the annual "Celebration of Life" event, held at Sharq Village and Spa.

The event was attended by His Excellency Abdullah bin Khalid al Qahtani, Minister for Public Health and Hanan Al Kuwari Phd, HMC's Managing Director and honoured 33 living organ donors and the families of the eight deceased donors, for their contribution to the health of the nation and the organ donation program.

Seven Qatari organ transplant recipients who chose to have their transplant surgery in Qatar rather than going abroad during 2015 were also honoured. Supporters of the program were also thanked for their contribution including Qatar Red Crescent and representatives of the 12 shopping malls who donated space for the organ donation campaign to share their message with the public.

Dr Yousef Al Maslamani, Director of HMC's Qatar Center for Organ Transplantation said the organ donation program has seen remarkable success in the past few years.

"Through awareness programs, especially the ongoing public awareness campaign about organ donation has managed to bring about a large shift in public understanding and perspective of this im-

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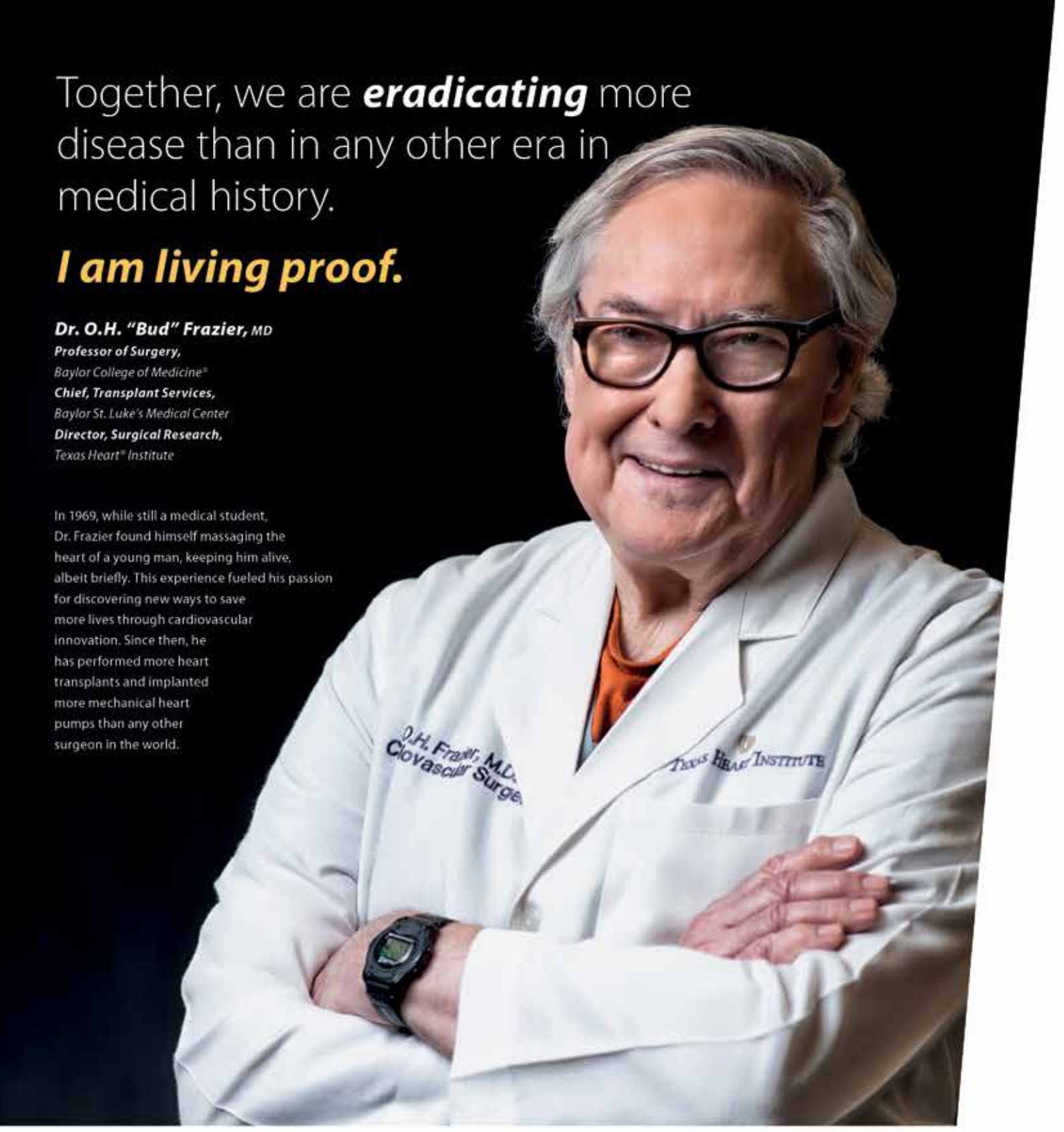

Dr. O.H. "Bud" Frazier, *MD*
Professor of Surgery,
Baylor College of Medicine®
Chief, Transplant Services,
Baylor St. Luke's Medical Center
Director, Surgical Research,
Texas Heart® Institute

In 1969, while still a medical student, Dr. Frazier found himself massaging the heart of a young man, keeping him alive, albeit briefly. This experience fueled his passion for discovering new ways to save more lives through cardiovascular innovation. Since then, he has performed more heart transplants and implanted more mechanical heart pumps than any other surgeon in the world.

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portant topic," he said. "It is important to thank those who contributed to the program, especially our living donors and deceased donors and their families. They have truly given the gift of life.

"The greater number of organ donors has led to an increase in kidney transplant procedures as well as enabling new procedures to take place, such as liver transplants and paediatric kidney transplants."

Mohammad Saad Al Rumaihi, a kidney transplant patient who received care at HGH, commended HMC's efforts in the area of organ donation.

He said HMC has succeeded in changing the views and perceptions of many Qatari patients who previously opted to travel overseas for their treatment and transplants.

Qatar Organ Donation Center (Hiba) Director Dr Riadh Fadhil said the Center had achieved its goal of doubling donor registrations to 100,000 in 2015.

"Organ donation saves lives and enables opportunities to develop the organ transplantation program," Dr Fadhil said. "HMC's full commitment to the Doha Donation Accord has seen the number of registered donors increase significantly over the last four years from 2000 to more than 100,000."

"These advances have been achieved through strict implementation of the ethical principles of the Doha Donation Accord, excellent infrastructure, and the unwavering support of HMC's leadership, especially our Managing Director, Hanan Al Kuwari PhD and the highly motivated and dedicated medical, nursing and support staff of Qatar Organ Donation Center and Qatar Center for Organ Transplantation."

Polio outbreak stopped in Middle East, but experts remain cautious

Despite continuing conflict, declining immunization rates in conflict-affected areas and mass population displacement, no new polio cases have been reported in the Middle East for over 18 months, and experts believe the extensive multi-country outbreak response has been effective in stopping the outbreak.

The outbreak, which was detected when a case of polio was confirmed in northern Syria, paralysed 36 children in Syria and 2 in Iraq between October 2013 and April 2014, prompting fears of a major epidemic. In what has become the largest ever immunization response in the history of the Middle East, more than 70 mass immunization campaigns were implemented in 8 countries, aimed at reaching 27 million children with vaccine multiple times, and more than 200 million doses of vaccine were given.

"The response in the Middle East is one of the most well-coordinated and intensely focused outbreak response efforts we've seen in the history of eradication programmes," said Chris Maher, Manager Polio Eradication and Emergency, WHO. "We congratulate governments, health partners and communities around the Region for the role they've played in preventing a major epidemic."

The swift and collaborative intervention and effective partnerships between the governments of countries dealing with the outbreak, World Health Organization (WHO), UNICEF, other global Polio Eradication Initiative partners, international organizations and nongovernmental organizations has been given credit for the successes of the response and the lessons learned have been shared globally.

"In such a complex environment, teams were working round the clock to reach missed children and engage in social mobilization with communities and raise awareness about the vaccination" says SM Moazzem Hossain, regional Chief of Child Survival for UNICEF.

Representatives from governments and the Global Polio Eradication Initiative met in Beirut late October to review the outbreak response and discuss next steps to maintain the gains made. Experts strongly encouraged governments to continue working with partners to strengthen the basic delivery of routine immunization and focus on further strengthening surveillance so that the virus will be detected should it reappear.

Despite the positive news for the Region, the risks and factors that led to the outbreak remain and complacency at this time could be disastrous. In the Region, up to 700,000 children under the age of 5 are not reached on a regular basis by polio vaccinators.

"Across a number of countries in the Region, insecurity and displacement of communities is making it difficult to reach all children with vaccines," WHO's Maher said, "the job of our partnership is far from done, over the coming months we will continue to work together to reach children to be able to sustain the achievements and keep the Region polio free."

Meanwhile in Yemen, Inactivated Polio Vaccine (IPV) was formally introduced into the routine immunization programme in November in Sana'a, Yemen for all children under the age of one. The introduction, which is supported by GAVI - the Vaccine Alliance, WHO and UNICEF, came as a significant step towards eradicating polio and enhancing Yemen's immunization programme. Currently, there are no cases of polio in Yemen.

"This is a significant step in eradicating polio as part of the Global Polio Endgame strategic Plan," says Dr Ahmed Shadoul, WHO Representative for Yemen. "It's a huge achievement to introduce this vaccine, given the major security, political and economic challenges facing Yemen today."

The planned introduction of IPV for polio eradication represents the fastest global introduction of any new vaccine in low- and middle-income countries in recent history. Yemen is one of 126 countries that are introducing the vaccine in 2014–2015.

"Yemen is committed to eradicating polio so the national immunization programme has made every effort to introduce the vaccine," said Dr Ghada Al-Haboob, Director of the Expanded Programme on Immunization. "We are doing our best to ensure that every child receives this vaccine in order to maintain the advances made in the field of immunization."

The new vaccine does not replace oral polio vaccine (OPV) doses. The IPV and OPV doses will together further boost the immunity of children against polio. The formal introduction of IPV was preceded by intensive training for health workers and vaccinators in all governorates in Yemen. MEH

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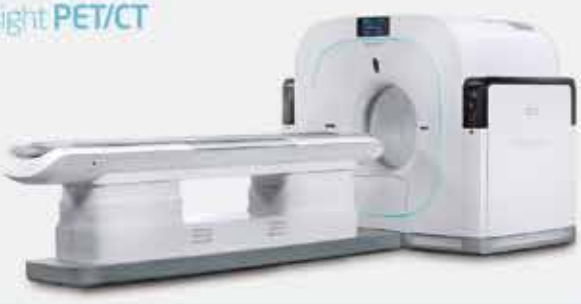

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Update from around the globe

International study prompts rethink on rise of diabetes in cities

International research led by University College London (UCL) as part of the 'Cities Changing Diabetes' partnership programme challenges current scientific understanding of the rapid rise of diabetes in cities. The findings suggest that in cities around the world, social and cultural factors play a far more important role in the spread of the epidemic than previously thought.

More than two thirds of the world's 400 million people with diabetes live in urban areas. The year-long study for Cities Changing Diabetes, a unique public-private-academic partnership, sought to better understand what makes people vulnerable to type 2 diabetes in cities in order to inform solutions for one of the most pressing modern-day public health challenges. To explore this complex issue, more than 550 interviews were undertaken with at-risk and diagnosed people in five major cities – Copenhagen, Houston, Mexico City, Shanghai and Tianjin.

"By largely focusing on biomedical risk factors for diabetes, traditional research has not adequately accounted for the impact of social and cultural drivers of disease," says David Napier, Professor of Medical Anthropology, UCL. "Our pioneering research will enable cities worldwide to help populations adapt to lifestyles that make them less vulnerable to diabetes."

The study found that diabetes vulnerability in cities is linked to a complex mix of social and cultural factors – responsible for both putting people at greater initial risk and subsequently making them less likely to be diagnosed, receive treatment and maintain good health. The identified social factors included financial, geographical, resource and time constraints while cultural determinants included the perception of body size and health and deep-seated traditions.

"The insights we have gained from the Cities Changing Diabetes research have fundamentally changed the way we think about diabetes in our city," said Dr Armando Ahued Ortega, Minister of Health of Mexico City. "This new understanding of sociocultural risk factors will guide the development of increasingly efficient and targeted public health policies to support the health and wellbeing of our citizens."

Key finding from the study:

- In Houston, the traditional notion of disadvantage being equal to vulnerability is no longer the rule and both people with and without financial constraints may be vulnerable to diabetes
- In Mexico City, gender roles may contribute to increased vulnerability as women neglect their own health to avoid being seen as burdensome
- In Copenhagen, diabetes is often not highest in a person's hierarchy of need, given many other social and health issues such as unemployment, financial difficulties and loneliness
- In Shanghai, the cultural trend for the denial of hardship was seen to prevent people with diabetes from seeking help from friends, family and healthcare professionals
- In Tianjin, people with diabetes reported a wide range of causes of the condition including poor food choices, overworking and poor mental health

Prompted by the findings, Novo Nordisk has pledged to support the fight against urban diabetes via the investment of US$20 million of expert resource and research funds by 2020. Commenting on the promise, Lars Rebien Sorensen, president and chief executive, Novo Nordisk said: "We have a longstanding commitment to provide more than just pharmaceuticals to the fight against diabetes. Research of this nature illustrates precisely why we initiated Cities Changing Diabetes - to fundamentally change the trajectory of the disease through targeted actions informed by new understanding."

The Cities Changing Diabetes partnership has three distinct but interconnecting phases - mapping, sharing and action. With the initial mapping phase now complete, the Copenhagen Summit meeting will see 250 expert delegates from around the world come together to discuss the learnings and discuss solutions to tackle diabetes in cities.

In the longer-term, the partnership aims to tackle the rise of diabetes in cities around the world via the sharing of insights and knowledge of participants. In 2016, Vancouver and Johannesburg will become the latest cities to join the programme and contribute to the international pool of evidence.

on the WEB Cities Changing Diabetes
www.citieschangingdiabetes.com

WHO releases first global estimates of herpes type 1 infection

More than 3.7 billion people under the age of 50 – or 67% of the population – are infected with herpes simplex virus type 1 (HSV-1), according to the World Health Organization's first global estimates of HSV-1 infection published 28 October 2015 in the journal PLOS ONE.

Herpes simplex virus is categorized into two types: herpes simplex virus type 1 (HSV-1) and herpes simplex virus type 2 (HSV-2). Both HSV-1 and HSV-2 are highly infectious and incurable. HSV-1 is primarily transmitted by oral-oral contact and in most cases causes orolabial herpes or "cold sores" around the mouth. HSV-2 is almost entirely sexually transmitted through skin-to-skin contact, causing genital herpes.

The new estimates highlight, however, that HSV-1 is also an important cause of genital herpes. Some 140 million people aged 15-49 years are infected with genital HSV-1 infection, primarily in the Americas, Europe and Western Pacific. Fewer people in high-income countries are becoming infected with HSV-1 as children, likely due to better hygiene and living conditions, and instead are at risk of contracting it genitally through oral sex after they become sexually active.

"Access to education and information on both types of herpes and sexually transmitted infections is critical to protect young people's health before they become sexually active," says Dr Marleen Temmerman, Director of WHO's Department of Reproductive Health and Research.

In January, WHO estimated that 417

million people aged 15-49 years have HSV-2 infection, which causes genital herpes. Taken together, the estimates reveal that over half a billion people between the ages of 15-49 years have genital infection caused by either HSV-1 or HSV-2.

"The new estimates highlight the crucial need for countries to improve data collection for both HSV types and sexually transmitted infections in general," says Dr Temmerman.

Given the lack of a permanent and curative treatment for both HSV-1 and HSV-2, WHO and partners are working to accelerate development of HSV vaccines and topical microbicides, which will have a crucial role in preventing these infections in the future. Several candidate vaccines and microbicides are currently being studied.

Regional infection estimates:
Estimates for HSV-1 prevalence by region among people aged 0-49 in 2012

- Americas: 178 million women (49%), 142 million men (39%)
- Africa: 350 million women (87%), 355 million men (87%)
- Eastern Mediterranean: 188 million women (75%), 202 million men (75%)
- Europe: 207 million women (69%), 187 million men (61%)
- South-East Asia: 432 million women (59%), 458 million men (58%)
- Western Pacific: 488 million women (74%), 521 million men (73%)

Estimates of new HSV-1 infections among people aged 0-49 in 2012

- Americas: 6 million women, 5 million men
- Africa: 17 million women, 18 million men
- Eastern Mediterranean: 6 million women, 7 million men
- Europe: 5 million women, 5 million men
- South-East Asia: 13 million women, 14 million men
- Western Pacific: 11 million women, 12 million men

Symptoms: Herpes is a lifelong infection, which often has mild or no symptoms but can be detected by the presence of antibodies for HSV-1 or HSV-2 in the blood. It is difficult to determine the proportion of HSV-infected people worldwide who have symptomatic disease, as symptoms may be mild or simply not recognized as herpes. In the United States of America, about 15% of people with HSV-2 infection report a prior diagnosis of genital herpes.

When genital herpes symptoms do occur, they take the form of one or more painful genital or anal blisters or ulcers. Herpes symptoms can be treated with antivirals, but after an initial episode, symptoms can recur. Recurrences of genital herpes due to HSV-1 are generally much less frequent than for HSV-2.

Transmission of HSV most often occurs without symptoms. The virus can have a significant negative impact upon an infected person's mental wellness and personal relationships.

People with orolabial herpes symptoms may face social stigma, and can experience psychological distress as a result. In people with weak immune systems, such as those with advanced HIV infection, HSV-1 can have more severe symptoms and more frequent recurrences. Rarely, HSV-1 infection can also lead to more serious complications such as encephalitis or ocular disease.

WHO is currently working on the development of a global health sector strategy for sexually transmitted infections (STIs), including for HSV-1 and HSV-2, to be finalized for consideration at the 69th World Health Assembly in 2016.

HIV scientists launch 23-million euro project to develop vaccine

A new 23-million euro initiative to accelerate the search for an effective HIV vaccine was launched in November.

Financed by the European Commission, the European AIDS Vaccine Initiative (EAVI2020) brings together leading HIV researchers from public organisations and biotech companies from across Europe, Australia, Canada and the USA in a focused effort to develop protective and therapeutic HIV vaccines.

According to the World Health Organisation, around 35 million people were living with HIV at the end of 2013. Over two million people are newly infected every year, and it is estimated that around 22 billion US dollars is spent yearly on HIV treatment and care. An effective vaccine remains the best hope of ending the epidemic.

Although researchers have been working on developing a vaccine for 30 years, recent advances are helping to speed up their quest. Scientists have isolated antibodies that are able to block HIV infection in preclinical models, and there have been new developments in using synthetic biology to design better vaccines.

The EAVI2020 consortium, which is led by Imperial College London, unites scientists from 22 institutions, pooling their knowledge and expertise to develop novel candidate vaccines that can be taken through to human trials within five years. EAVI2020 is funded with an EU grant under the health program of Horizon 2020 for research and innovation.

Professor Robin Shattock, Coordinator of EAVI2020, from the Department of Medicine at Imperial College London, said: "Creating an effective vaccine against HIV represents one of the greatest biological challenges of a generation. This project creates a unique opportunity for us to build on the enormous scientific progress gleaned over the last few years, providing an unprecedented insight into the nature of protective antibodies and antiviral cellular response that will be needed for an effective vaccine. We now understand much more about how humans make protective immune responses and how to structure vaccine candidates. We have a level of understanding at a molecular level that was not previously available.

"But it is impossible for one group or institution to create an HIV vaccine on its own. This new project should enable us to move much more quickly. It brings together a multidisciplinary team of molecular biologists, immunologists, virologists, biotechnologists and clinicians, providing the breadth of expertise needed to take the latest discoveries in the lab and rapidly advance them through preclinical testing and manufacture, into early human trials."

At Imperial, researchers will be looking at how healthy human volunteers' immune systems respond to potential vaccines, studying the antibodies that the volunteers produce. The researchers will explore the pathways in the body that make these antibodies, in order to fine-tune candidate vaccines.

Dr Ruxandra Draghia-Akli, Director of the Health Directorate at the Directorate General for Research and Innovation of the European Commission said: "In its dual role of policy maker and research funder, the European Commission has played an essential part for over thirty years in supporting HIV vaccine research. Despite major global investments in the field and the promising progress, several scientific obstacles have to be overcome to develop novel promising HIV vaccine candidates. It is with this in mind that the European Commission is providing an almost 23 million Euro grant to the EAVI2020 consortium from which we have high hopes for success. This will allow European scientists to work together and in collaboration with researchers from outside Europe to successfully develop predictive tools and better vaccine candidates to be tested at an early stage of the process."

Maternal mortality falls by 44% since 1990

Maternal mortality has fallen by 44% since 1990, United Nations agencies and the World Bank Group reported in November.

Maternal deaths around the world dropped from about 532,000 in 1990 to an estimated 303,000 this year, according to the report, the last in a series that has looked at progress under the Millennium Development Goals (MDGs). This equates to an estimated global maternal mortality ratio (MMR) of 216 maternal deaths per 100,000 live births, down from 385 in 1990.

Maternal mortality is defined as the death of a woman during pregnancy, childbirth or within 6 weeks after birth.

"The MDGs triggered unprecedented efforts to reduce maternal mortality," said Dr Flavia Bustreo, WHO Assistant Director-General, Family, Women's and Children's Health. "Over the past 25 years, a woman's risk of dying from pregnancy-related causes has nearly halved. That's real progress, although it is not enough. We know that we can virtually end these deaths by 2030 and this is what we are committing to work towards."

Achieving that goal will require much more effort, according to Dr Babatunde Osotimehin, the Executive Director of UNFPA, the United Nations' Population Fund. "Many countries with high maternal death rates will make little progress, or will even fall behind, over the next 15 years if we don't improve the current number of available midwives and other health workers with midwifery skills," he said. "If we don't make a big push now, in 2030 we'll be faced, once again, with a missed target for reducing maternal deaths."

The analyses contained in *Trends in Maternal Mortality: 1990 to 2015 – Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division* are also published in the The Lancet.

Ensuring access to high-quality health services during pregnancy and child birth is helping to save lives. Essential health interventions include: practising good hygiene to reduce the risk of infection; injecting oxytocin immediately after childbirth to reduce the risk of severe bleeding; identifying and addressing potentially fatal conditions like pregnancy-induced hypertension; and ensuring access to sexual and reproductive health services and family planning for women.

Despite global improvements, only 9 countries achieved the MDG 5 target of reducing the maternal mortality ratio by at least 75% between 1990 and 2015. Those countries are Bhutan, Cabo Verde, Cambodia, Iran, Lao People's Democratic Republic, Maldives, Mongolia, Rwanda and Timor-Leste. Despite this important progress, the MMR in some of these countries remains higher than the global average.

"As we have seen with all of the health-related MDGs, health system strengthening needs to be supplemented with attention to other issues to reduce maternal deaths," said UNICEF Deputy Executive Director Geeta Rao Gupta. "The education of women and girls, in particular the most marginalized, is key to their survival and that of their children. Education pro-

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vides them with the knowledge to challenge traditional practices that endanger them and their children."

By the end of 2105, about 99% of the world's maternal deaths will have occurred in developing regions, with Sub-Saharan Africa alone accounting for 2 in 3 (66%) deaths. But that represents a major improvement: Sub-Saharan Africa saw nearly 45% decrease in MMR, from 987 to 546 per 100,000 live births between 1990 and 2015.

The greatest improvement of any region was recorded in Eastern Asia, where the maternal mortality ratio fell from approximately 95 to 27 per 100,000 live births (a reduction of 72%).

In developed regions, maternal mortality fell 48% between 1990 and 2015, from 23 to 12 per 100,000 live births.

A new *Global Strategy for Women's, Children's and Adolescents' Health*, launched by the UN Secretary General in September 2015, aims to help achieve the ambitious target of reducing maternal deaths to fewer than 70 per 100,000 live births globally, as included in the Sustainable Development Goals (SDGs). Reaching that goal will require more than tripling the pace of progress – from the 2.3% annual improvement in MMR that was recorded between 1990 and 2015 to 7.5% per year beginning next year.

The *Global Strategy* highlights the need to reinforce country leadership by mobilizing domestic and international resources for women's, children's and adolescents' health. It will be important to strengthen health systems so they can provide good quality care in all settings, promote collaboration across sectors, and support individuals and communities to make informed decisions about their health and demand the quality care they need. The strategy emphasizes that special attention is imperative during humanitarian crises and in fragile settings, since maternal deaths tend to rise in these contexts.

"The SDG goal of ending maternal deaths by 2030 is ambitious and achievable provided we redouble our efforts," said Dr Tim Evans, Senior Director of Health, Nutrition and Population at the World Bank Group. "The recently launched Global Financing Facility in Support of Every Woman Every Child, which focuses on smarter, scaled and sustainable financing, will help countries deliver essential health services to women and children."

The 2015 maternal mortality estimates present the tremendous progress achieved towards the Millennium Development Goal 5 on maternal mortality reduction. They show a strong trend of reduction over the years. At the same time, we have seen more and better data coming from various countries, enhancing the accuracy of the absolute numbers reported.

Efforts to strengthen data and accountability especially over the past years have helped fuel this improvement. However, much more needs to be done to develop complete and accurate civil and vital registration systems that include births, deaths and causes of death.

Maternal death audits and reviews also need to be implemented to understand why, where and when women die and what can be done to prevent similar deaths.

The global diet is getting sweeter

A Personal View, published 1 December 2015 in *The Lancet Diabetes & Endocrinology* journal, highlights that the global diet is getting sweeter, particularly when it comes to beverages. This Personal View paper is written by Professor Barry M Popkin, School of Public Health, Carolina Population Center, University of North Carolina, Chapel Hill, NC, USA, and Dr Corinna Hawkes, City University London, UK.

Previous research has shown that consuming foods and beverages with added caloric sweeteners is linked to an increased risk of weight gain, heart disease, diabetes and stroke. Currently, 68% of packaged foods and beverages in the USA contain caloric sweeteners, 74% include both caloric and low-calorie sweeteners, and just 5% are made with low-calorie sweeteners only. The added sugar comes from hundreds of different versions of sugar, all of which have the same equal health effect, says Professor Popkin.

He expects that in the absence of intervention, the rest of the world will move towards a similar pervasiveness of added sugars in the entire packaged food and beverage supply, with added sugars of all kinds increasing rapidly in the diets of people living in developing countries, while many high-income countries, despite being among the highest sugar consumers, are beginning to see a slight decline in sugar consumption.

After analysing nutritional datasets from around the world, the authors found that trends in sales of sugar-sweetened beverages around the world are increasing in terms of calories sold per person per day and volume sold per person per day.

They say: "Consumption is rising fastest in low- and middle-income countries in Latin America, the Caribbean, Africa, the Middle East, Asia and Oceania. The four regions with the current highest consumption are Latin America, North America, Australasia and Western Europe, though intakes are beginning to decline in the latter three."

Because of the major health risks, particularly weight gain and increased risk of diabetes, hypertension and many cardiovascular problems associated with added caloric sweetener consumption, the World Health Organization is promoting major initiatives to reduce intake. Many governments have already implemented policies with this goal, including taxation, reduction of availability in schools, restrictions on marketing of sugary foods to children, public awareness campaigns and front-of-pack labeling.

Evidence of the effectiveness of these actions shows they are moving in the right direction, but the authors suggest governments should view them as a learning process and improve their design over time.

For example, one current challenge for policy makers is the absence of a consensus on the healthiness of fruit juices and beverages containing low-calorie sweeteners. Future research may better inform decisions about whether these are good substitutes for sugar-sweetened beverages, as the literature suggests fruit juice consumption may have adverse health effects; and while there are well-conducted studies suggesting low-calorie diet sweeteners have positive effects, no global consensus exists strongly in favour of either of these potential substitutes.

While the latest data show that many countries consume high levels of sugar-sweetened beverages, and other countries

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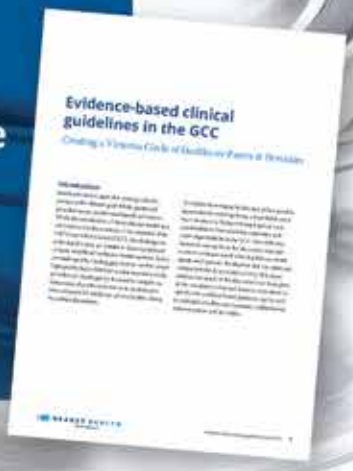

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with lower intakes are seeing steep increases, the authors did find that consumption seems to be decreasing in countries with taxes on such products (e.g., Mexico, Finland, Hungary and France).

The authors conclude: "We have…shown from trends data that consumption seems to be decreasing in countries with taxes on sugar-sweetened beverages (eg, Mexico, Finland, Hungary, and France). WHO, major scientific bodies, and most countries recognise the importance of reducing consumption of sugar-sweetened beverages to improve public health. The evaluation of not only sugar taxes, but also new marketing controls and front-of-pack labelling, is important and represents one of the next frontiers – namely, can these policies effectively reduce consumption of sugar-sweetened beverages and intake of total added sugars?"

US NIH to develop robots for healthcare

As part of the National Robotics Initiative (NRI), the US National Institutes of Health announced that it will fund the development of three innovative co-robots – robots that work cooperatively with people. Two of the robots will improve health and quality of life for individuals with disabilities, and the third will serve as a social companion for children that inspires curiosity and teaches the importance of hard work and determination. Funding for the NIH projects will total approximately US$2.2 million over the next five years, subject to the availability of funds.

"When the general public thinks about the research that NIH supports, they don't usually imagine robots. But robots have a tremendous potential to contribute to the health and well-being of our society, whether they are helping an elderly person engage in physical activity or promoting the curiosity of a child," said Grace Peng, Ph.D., program director of Rehabilitation Engineering at the National Institute of Biomedical Imaging and Bioengineering, part of NIH. "These three highly innovative projects demonstrate the power of encouraging leaders in the field of robotics to focus their attention on solving issues that pertain to health."

- Smart-walker to increase mobility for elderly

Xiangrong Shen, Ph.D. University of Alabama, Tuscaloosa

As individuals age, their ability to walk without assistance diminishes, leading to a decrease in physical activity and quality of life. To stay in their homes, elderly with mobility issues often require costly home modifications such as replacing steps with ramps or installing wheelchair lifts. The goal of this project is to develop a four-legged robot that enhances mobility, so that the elderly can remain physically active and enjoy a healthier life with reduced reliance on the assistance of caregivers or expensive home renovations.

The robot has two modes: smart power-assist walker and smart mule. In the smart power-assist walker mode, the user is situated within the robot and chooses the amount of powered assistance that is needed. In the smart mule mode, the robot walks alongside the user while carrying a load, for example groceries. The robot uses a 3-D computer vision-based sensing system to detect the user's motion and the environment. With its smart legs, the robot is able to easily overcome environmental obstacles in ways that powered wheelchairs cannot.

This project is funded jointly by the National Institute of Biomedical Imaging and Bioengineering, the National Institute of Nursing Research, and the Eunice Kennedy Shriver National Institute of Child Health & Human Development grant NR016151.

- Hand-worn device to help visually impaired grasp objects

Cang Ye, Ph.D. University of Arkansas at Little Rock

This project proposes to create a hand-worn assistive device that uses computer vision to identify target objects in a user's environment, determine misalignment between the user's hand and the object, and then convey -- via natural human-device interfaces -- the hand motion needed to grasp the object. The device will contribute to the independent lives of the visually impaired in two major ways: It will enhance the individual's ability to travel independently by helping the user identify moveable obstacles and manipulate them so that they can pass, and it will assist in object grasping for non-navigational purposes such as identifying and correctly manoeuvring a specific door handle.

- A social-robot companion for kids

Cynthia Breazeal, Ph.D. Massachusetts Institute of Technology, Cambridge

Curiosity, resilience to challenging environments, and a growth mindset – the belief that one's basic abilities can be improved through dedication and hard work – are important factors that influence a child's mental health, academic achievement, and general well-being. The goal of this project is to create an autonomous, long-term social robotic companion for children that will promote and assess curiosity and a growth mindset through various interactions. After developing the robot, the researchers plan to evaluate its influence by conducting a six-month longitudinal study in which children learn and play while interacting with the robot companion.

Johns Hopkins Children's Center successfully treats child for XDR TB

Johns Hopkins Children's Center specialists report they have successfully treated and put in remission a 2-year-old, now age 5, with a highly virulent form of tuberculosis known as XDR TB, or extensively drug-resistant TB. The case, researchers say, provides the first detailed account of a young child in the United States diagnosed and treated for XDR TB.

The bug's resistance to most known TB drugs render it particularly challenging to treat in anyone but even more so in children, the Johns Hopkins team says, with only a handful of cases of children younger than 5 described in the medical literature worldwide.

Despite the successful outcome, the Johns Hopkins experts say the child's case underscores the shape-shifting nature of a bacterium increasingly resistant to drugs, and the serious challenges of monitoring and treating paediatric TB.

"We are thrilled that our patient is doing so well," says Johns Hopkins Children's Center paediatrician and TB expert Sanjay Jain, M.D. "But at the same time, this is a wake-up call to the realities of TB."

An account of the case is published online 16 November in *The Lancet Infectious Diseases*. MEH

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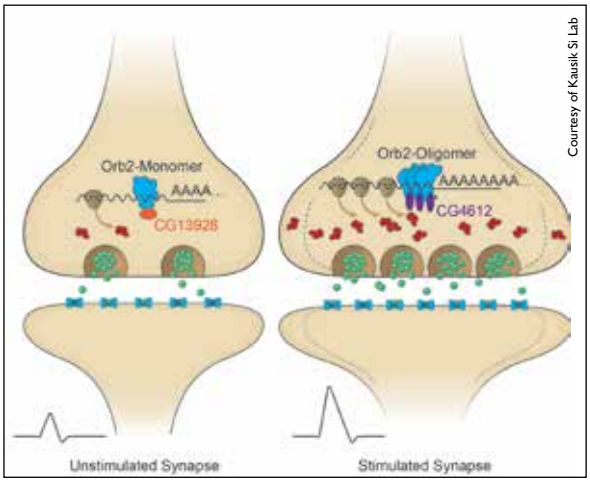

Courtesy of Kausik Si Lab

Unstimulated Synapse vs. Stimulated Synapse

Potential biochemical mechanism underlying long-term memories identified

During the holidays, we often remember the past and create new memories. But, why do some memories fade away while others last forever? Scientists at the Stowers Institute for Medical Research have identified a possible biochemical mechanism by which neurons create and maintain a long-term memory from a fleeting experience.

The research, conducted by Stowers Associate Investigator Kausik Si, Ph.D., and his team, is published in the current issue of the journal *Cell*. Their research builds upon previous studies by Si and Eric Kandel, M.D., of Columbia University and other scientists. These studies revealed that both short-term and long-term memories are created in synapses, the tiny junctions between neurons. A transient experience – one source of our memories – is capable of producing an enduring change in the strength of the synaptic connection, says Si.

For a memory to endure, and not fade away, the synaptic connections must be kept strong. In a previous study, Kandel and Si identified CPEB as a synaptic protein that is responsible for maintaining the strength of these connections in the sea slug, a model organism used in memory research. In subsequent research at the Stowers Institute, Si and his team identified Orb2 as the fruit fly version of the CPEB synaptic protein.

In their latest study, Mohammed 'Repon' Khan, a predoctoral researcher in the Si Lab and first author of the *Cell* paper, determined that Orb2 exists in two distinct physical states, monomeric and oligomeric. Monomeric Orb2 is a single molecule capable of binding to other molecules. Like CPEB, oligomeric Orb2 is prion-like – that is, it's a self-copying cluster. However, unlike disease-causing prions, oligomeric Orb2 and CPEB are not toxic.

The paper describes how monomeric Orb2 represses while oligomeric or prion-like Orb2 activates a crucial step in the complex cellular process that leads to protein synthesis. During this crucial step, messenger RNA (mRNA), which is a RNA copy of a gene's recipe for a protein, is translated by the cell's ribosome into the sequence of amino acids that will make up a newly synthesized protein.

"We propose that the monomeric form of Orb2 binds to the target mRNA, and the bound mRNA is kept in a repressed state," explains Khan.

The Stowers scientists also determined that prion-like Orb2 not only activates translation but imparts its translational state to nearby monomer forms of Orb2. As a result, monomeric Orb2 is transformed into prion-like Orb2, and its role in translation switches from repression to activation. Si thinks this switch is the possible mechanism by which fleeting experiences create an enduring memory.

"Because of the self-sustaining nature of the prion-like state, this creates a local and self-sustaining translation activation of Orb2-target mRNA, which maintains the changed state of synaptic activity over time," says Si.

The discovery that the two distinct states of Orb2 have opposing roles in the translation process provides "for the first time a biochemical mechanism of synapse-specific persistent translation and long-lasting memory," he states.

"To our knowledge, this is the first example of a prion-based protein switch that turns a repressor into an activator," Si adds. "The recruitment of distinct protein complexes at the non-prion and prion-like forms to create altered activity states indicates the prion-like behaviour is in essence a protein conformation-based switch. Through this switch, a protein can lose or gain a function that can be maintained over time in the absence of the original stimuli. Although such a possibility has been anticipated prior to this study, there was no direct evidence."

Brain receptors for hunger hormone control food intake

Activating receptors in the brain for the body's hunger hormone increases food-related behaviors, such as gathering, storing and consuming food, a finding that has implications for the treatment of obesity, according to researchers at Georgia State University.

Their study suggests that stimulating brain receptors for ghrelin, a hormone that increases appetite, by injecting ghrelin into the brain is necessary and adequate to increase appetitive and consummatory behaviours in Siberian hamsters. However, activating ghrelin receptors in other parts of the body isn't required to achieve these food-related behaviours.

The researchers also found that blocking brain receptors for grehlin neutralizes the hormone's effect on food intake.

The findings, published in *The American Journal of Physiology – Regulatory, Integrative and Comparative Physiology*, have important implications for treating obesity, a major public health concern worldwide.

"We've shown for the first time that blocking ghrelin receptors in the brain prevents an increase in both short-term and long-term food foraging, food hoarding and food intake following an injection of ghrelin in peripheral areas of the body," said Michael A. Thomas, lead author and a graduate student in biology at Georgia State.

Levels of ghrelin circulation in the body fluctuate in response to the time elapsed since a person's last meal, falling immediately after food consumption. Grehlin receptors are in the brain (central area) and the vagus nerve leading to the stomach (periphery).

Appetitive behaviours include driving to or shopping for food, also known as foraging, and storing food in cupboards, refrigerators, freezers and pantries, also called hoarding. Consummatory behaviours, or food intake, involve the consumption of food.

Factors such as genetics contribute to obesity, but the main cause is taking in more energy than is burned, in addition to the easy access of high-calorie, cheap food (foraging) and the ability to store these items for longer periods of time (hoarding). While research has focused on consummatory behavior, few studies have explored appetitive behaviors.

"Understanding the complex relationship between central and peripheral satiety signals is an important step in the development of clinically useful obesity treatment options," said Vitaly Ryu, corresponding author and senior research scientist in the Department of Biology and Center for Obesity Reversal at Georgia State.

In previous work, the researchers found injecting ghrelin into the peripheral area stimulates food foraging, food hoarding and food intake in Siberian hamsters. However, it was unknown if ghrelin must stimulate receptors in the brain in order to increase these behaviors, regardless of peripheral stimulation of ghrelin receptors.

In this study, the researchers injected ghrelin into the third ventricle, or brain cavity, of Siberian hamsters and measured changes in food foraging, food hoarding and food intake. To test the effect of blocking ghrelin receptors in the brain, they used the potent antagonist JMV2959 to block the receptor in response to food deprivation and injection of ghrelin in the peripheral area. Then, they examined neuronal activation in the arcuate nucleus (Arc) and paraventricular hypothalamic nucleus (PVH) in the brain.

The antagonist successfully blocked ghrelin-induced increases in food foraging, food hoarding and food intake at all times and food deprivation-induced increases in food foraging, food hoarding and food intake up to four hours. This indicates that food-related behaviors are regulated by the ghrelin receptors in the brain.

The study also found for the first time that blocking ghrelin receptors prevented neuronal activation of the PVH, but not the Arc, suggesting that PVH activity is essential in driving both appetitive and consummatory behaviors.

Whole exome screening for cancer

A powerful new test that can reveal untapped therapies for patients with advanced cancers by scanning thousands of their genes will soon be available for patients at Weill Cornell Medicine and NewYork-Presbyterian/Weill Cornell Medical Center. The test, EXaCT-1, identifies alterations within tumours – some of which drive cancerous growth – on a magnitude up to hundreds of times greater than similar technologies designed to pinpoint the most precise ways of treating the disease.

Weill Cornell Medicine recently received approval for EXaCT-1 by the New York State Department of Health. The test was developed by the institutions' precision medicine team. In May, the team published findings on its first 97 patients who underwent the test and found that scanning a patient's tumour to look for any genomic mutations – rather than limiting the screen to mutations commonly associated with a given patient's tumour type – worked. In 92% of cases in the pilot program, the precision medicine team was able to recommend new treatment options based on the test's findings. Now that the state has approved the test, precision medicine leaders will begin the process to implement it for large-scale clinical use for oncology patients treated at NewYork-Presbyterian/Weill Cornell. Until that time, patients with advanced cancers will be able to access EXaCT-1 through the Caryl and Israel Englander Institute for Precision Medicine at Weill Cornell Medicine, the research enterprise of the two institutions' joint precision medicine efforts.

"Since President Obama announced his precision medicine initiative in January, there has been a huge push from institutions across the country to establish themselves as leaders in this field," said Dr Mark Rubin, director of the Englander Institute and the Homer T. Hirst III Professor of Oncology in Pathology at Weill Cornell Medicine, vice chair for molecular and genomic pathology at NewYork-Presbyterian/Weill Cornell, and head of the precision medicine program at both institutions. Dr Rubin was at the White House when the president announced the initiative, which dedicates $215 million from his proposed 2016 budget to expand data sharing between institutions; develop new tests, like EXaCT-1, that identify genomic drivers in cancer; and calls for more research on how to apply findings in precision medicine to more effective therapies.

Most institutions offer sequencing tests that examine anywhere from 50 to 400 genes within a sample of a patient's tumour to look for disease characteristics that physicians know can be effectively treated with particular drugs or other technologies.

Unlike these focused tests, typically called panel sequencing, the EXaCT-1 assay takes an unbiased, exploratory look at more than 21,000 genes in cells both healthy and malignant, allowing researchers to find alterations in the cancer-development process in unexpected regions of the exome, where DNA is transcribed into RNA. This type of test, known as whole exome sequencing, can be effective in advanced-stage patients for whom other treatments have failed because it uncovers mutations that the less comprehensive tests miss. In practice, this means, for example, that a patient with bladder cancer whom EXaCT-1 shows to share a mutation associated with breast cancer might benefit from a drug typically prescribed to fight the latter type of tumour.

"That's the nice thing about sequencing the entire tumour genome – we cover genes that other tests will miss," said Dr Olivier Elemento, head of the Englander Institute for Precision Medicine's computational biology group, an associate professor of physiology and biophysics and head of the laboratory of cancer systems biology in the HRH Prince Alwaleed Bin Talal Bin Abdulaziz Al-Saud Institute for Computational Biomedicine at Weill Cornell. "This test is ideal for patients with advanced cancer because it allows us to identify mutations that

may be related to the resistance of their disease, and helps us to pinpoint the best way to treat them."

The screen requires a blood sample and a sample of the patient's tumour. Computational biologists at the Englander Institute analyze the data and generate patient-and physician-friendly reports that summarize the key clinical and genetic findings. Once the precision medicine team has reviewed the results, it consults with the patient's oncologist at NewYork-Presbyterian/Weill Cornell to help decide which treatment options and clinical trials may best target the patient's disease.

Clinical workstations a reservoir for bad bugs

Clinical workstations within hospital intensive care units (ICUs) may get overlooked during routine cleanings and could therefore harbour more dangerous bacteria than regularly cleaned objects in patient areas, according to a pilot study published in the December issue of the *American Journal of Infection Control*, the official publication of the Association for Professionals in Infection Control and Epidemiology (APIC).

Researchers from Western Sydney University in Australia conducted a pilot study using three different sampling methods in a busy ICU in an attempt to discover if and where multidrug-resistant organisms (MDROs) might still be lurking in spite of routine environmental cleaning. Investigators traced the steps of healthcare workers (HCW) in between their workstations and patient bedsides and sampled commonly touched objects along the way for MDROs. Nine of thirteen confirmed MDROs from any area came from clinical workstations (on chairs, clipboards, keyboards, telephones, and a computer mouse).

As a secondary finding of the study, combined ATP testing on environmental surfaces was more than seven times as likely to positively identify MDROs as microbial swabbing (33.3% vs 4.3%). ATP testing is a process of rapidly measuring actively growing microorganisms through detection of adenosine triphosphate (ATP) – a marker of bio-contamination.

"In this pilot study, we found that many of the high touch objects from which MDROs were recovered were not items included in cleaning protocols," said the study authors. "The findings of this study suggest the need to review the hygiene standards adopted in the clinical workspace, away from the immediate patient zones in busy ICUs, and indicate that ATP testing may help identify high touch objects with less than optimal cleanliness."

- **doi:** 10.1016/j.ajic.2015.07.013

Eating more fruits, veggies in youth linked to healthy heart decades later

Eating more fruits and vegetables as a young adult may keep your arteries free of heart disease 20 years later, according to research in the American Heart Association journal *Circulation*.

Researchers found that eating more fruits and vegetables as young adults was associated with less calcified coronary artery plaque 20 years later. Coronary artery calcium can be measured by a CT scan to detect the presence and amount of atherosclerosis, a disease that hardens arteries and underlies many types of heart disease.

The researchers divided data from 2,506 study participants into three groups, based on their daily consumption of fruits and vegetables. Women in the top third ate an average of nearly nine servings of daily fruits and vegetables and men averaged more than seven daily servings. In the bottom third, women consumed an average 3.3 daily servings and men 2.6 daily servings. All servings were based on a 2,000-calorie-a-day diet.

Researchers found that people who ate the most fruit and vegetable at the study's start had 26% lower odds of developing calcified plaque 20 years later, compared to those who ate the least amount of fruits and vegetables.

Previous studies have shown a strong association between eating more fruits and vegetables and reduction in heart disease risk among middle-age adults. However, this is the first study to examine whether eating more fruits and vegetables as young adults could produce a measurable improvement in the health of their heart and blood vessels years later.

"People shouldn't assume that they can wait until they're older to eat healthy – our study suggests that what you eat as a young adult may be as important as what you eat as an older adult, " said lead author Michael D. Miedema, M.D., senior consulting cardiologist and clinical investigator at the Minneapolis Heart Institute, Minneapolis, Minnesota.

Researchers studied health information from adults in the Coronary Artery Risk Development in Young Adults (CARDIA) study, a government-funded study of black and white young adults, which started in 1985. At the study's start, participants provided a detailed diet history, information on other lifestyle variables and cardiovascular risk factors such as blood pressure, whether or not they smoked cigarettes, weight and others. Twenty years later, participants underwent a CT scan to check for buildup of calcium on the walls of the arteries of the heart, which is calculated as a coronary artery calcium score. Higher coronary calcium scores are associated with a higher risk for heart attacks and other coronary heart disease events.

"Our findings support public health initiatives aimed at increasing fruit and vegetable intake as part of a healthy dietary pattern," Miedema said. "Further research is needed to determine what other foods impact cardiovascular health in young adults."

- **doi:** 10.1161/CIRCULATIONAHA.114.012562

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Study of gene therapy treatment for cystic fibrosis shows positive results

A study presented by the Laboratory for Molecular Virology and Gene Therapy at KU Leuven, Belgium, shows that an improved gene therapy treatment can cure mice with cystic fibrosis (CF). Cell cultures from CF patients, too, respond well to the treatment.

Cystic fibrosis or mucoviscidosis is a genetic disorder that makes the mucus in the body thick and sticky, which in turn causes clogging in, for instance, the airways and the gastrointestinal tract. The symptoms can be treated, but there is no cure for the disorder.

Cystic fibrosis is caused by mutations in the CFTR gene. This gene contains the production code for a protein that functions as a channel through which chloride ions and water flow out of cells. In the cells of CF patients, these chloride channels are dysfunctional or even absent, so that thick mucus starts building up.

"A few years ago, a new drug was launched that can repair dysfunctional chloride channels," Professor Zeger Debyser explains. "Unfortunately, this medicine only works in a minority of CF patients. As for the impact of gene therapy, previous studies suggested that the treatment is safe, but largely ineffective for cystic fibrosis patients. However, as gene therapy has recently proven successful for disorders such as haemophilia and congenital blindness, we wanted to re-examine its potential for cystic fibrosis."

That is why lead authors Dragana Vidović and Marianne Carlon examined an improved gene therapy treatment based on inserting the genetic material for chloride channels – coded by the CFTR gene – into the genome of a recombinant AAV viral vector, which is derived from the relatively innocent AAV virus. The researchers then used this vector to 'smuggle' a healthy copy of the CFTR gene into the affected cells.

Both in mice with cystic fibrosis and in gut cell cultures from CF patients, this approach yielded positive results. "We administered the rAAV to the mice via their airways. Most of the CF mice recovered. In the patient-derived cell cultures, chloride and fluid transport were restored."

There is still a long way to go before gene therapy can be used to treat cystic fibrosis patients, Debyser clarifies: "We must not give CF patients false hope. Developing a treatment based on gene therapy will take years of work. For one thing, our study did not involve actual human beings, only mice and patient-derived cell cultures. Furthermore, we still have to examine how long the therapy works. Repeated doses might be necessary. But gene therapy clearly is a promising candidate for further research towards a cure for cystic fibrosis."

Fingerprinting of surface receptor will aid drug development

For the first time, scientists from the Florida campus of The Scripps Research Institute (TSRI) have created detailed "fingerprints" of a class of surface receptors that have proven highly useful for drug development.

These detailed "fingerprints" show the surprising complexity of how these receptors activate their binding partners to produce a wide range of signalling actions.

The study, which was published recently in the journal *Science Signaling*, focuses on interactions of G protein-coupled receptors (GPCRs) with their signalling mediators known as G proteins. GPCRs – currently accounting for about 40% of all prescription pharmaceuticals on the market – play roles in many physiological functions because they transmit signals from outside the cell to the interior. When an outside substance binds to a GPCR, it activates a G protein inside the cell to release components and create a specific cellular response.

"Until now, it was generally believed that GPCRs are very selective, activating only a few G proteins they were designed to work with," said TSRI Associate Professor Kirill Martemyanov, who led the study. "It turns out the reality is much more complex."

Ikuo Masuho, a senior research associate in the Martemyanov lab, added: "Our imaging technology opens a unique avenue of developing drugs that would precisely control complex GPCR-G protein coupling, maximizing therapeutic potency by activating G proteins that contribute to therapeutic efficacy while inhibiting other G proteins that cause adverse side effects."

The study found that individual GPCRs engage multiple G proteins with varying efficacy and rates, much like a dance where the most desirable partner, the GPCR, is surrounded by 14 suitors all vying for attention. The results, as in any dance, depend on which G proteins bind to the receptor – and for how long. The same receptor changes G protein partners – and the signalling outcome – depending on the action of the signal received from outside of the cell.

This finding was made possible by novel imaging technology used by the Martemyanov lab to monitor G protein activation in live cells. Using a pair of light-emitting proteins, one attached to the G protein, the other attached to what's known as a reporter molecule, Martemyanov and his colleagues were able to measure simultaneously both the signal and activation rates of most G proteins present in the body.

"Our approach looks at 14 different types of G proteins at once – and we only have 16 in our bodies," he said. "This is as close as it can get to what is actually happening in real time."

In the accompanying commentary in *Science Signaling*, Alan Smrcka, a professor at University of Rochester Medical School and a prominent GPCR researcher, wrote: "[The findings] suggest the power of the GPCR fingerprinting approach, in that it could predict the G protein coupling specificity of a GPCR in a native system, which was previously undetected by conventional analysis. This could be very helpful for identifying previously unappreciated signalling pathways downstream of individual GPCRs that could be useful therapeutically or identified as potential side effects of GPCRs."

- **doi:** 10.1126/scisignal.aad8140

Micro-map of hippocampus a great new tool for brain research

A new detailed map of the hippocampal region of the brain, compiled by researchers at the Montreal Neurological Institute and Hospital-The Neuro at McGill Uni-

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versity, is helping the scientific community accelerate research and develop better treatments for patients suffering from epilepsy and other neurological and psychiatric disorders.

The team of researchers, led by Dr Neda Bernasconi, a neuroscientist specializing in the neuroimaging of epilepsy and co-founder of the Neuroimaging of Epilepsy Laboratory (NOEL) at The Neuro, set out to build and share a detailed model of the substructures making up one of the key centres of the brain involved in epilepsy: the hippocampus. The goal of their project, published on November 10 in *Scientific Data*, is to improve the tools available to researchers and clinicians working in the field around the globe.

Epilepsy is a neurological disorder characterized by a sudden, brief change in the brain, expressed as a seizure. According to Epilepsy Canada, approximately one percent of Canadians suffer from the condition and more than 30% of patients with epilepsy do not respond to anti-epileptic drugs. For these individuals, the surgical removal of the brain tissue causing seizures is the only known effective treatment for controlling the condition and improving quality of life.

In order to compile this hippocampal atlas, researchers used MRI imagery from a sample of 25 healthy individuals. They then used their expertise in brain anatomy to label all the substructures composing the region, providing a model of an average, healthy hippocampus. The end result is analogous to a Google street view of this particular part of the brain. With this tool, researchers will be better able to assess the pathology of their patients by comparing their data to the atlas and will more clearly be able to locate the areas in need of surgical intervention.

"Our primary purpose was epilepsy. We wanted to be able to detect and identify different substructures in the hippocampus to enable us to be a lot more precise in our diagnosis and to pinpoint the affected region to better target treatments", said Dr Bernasconi. "With this new submillimetric dataset, made available through open science, we are not just sharing MRI images, we are also transferring anatomical knowledge and providing a statistical map that can be used by researchers and clinicians of different levels of expertise anywhere in the world."

These tools hold promising therapeutic implications for epilepsy, but also for other neurological and psychiatric disorders such as Alzheimer's disease, schizophrenia and depression. Crucially, the atlas provides researchers with a non-invasive way to assess the impact of therapies targeting this region of the brain and to thus develop better treatments to improve the quality of life for their patients.

Patient mood impacts outcome of interventional procedures

Feeling high levels of distress, fear and hostility prior to undergoing an angioplasty or other interventional radiology procedure may lead to a poor outcome, according to new research presented at the annual meeting of the Radiological Society of North America (RSNA) early December.

"I was surprised by this result," said study author Nadja Kadom, M.D., currently acting associate professor of radiology at Emory University School of Medicine and Children's Healthcare of Atlanta. "Prior to this study, I did not believe patient mood could have an effect on outcome."

In the study, researchers analyzed the results of 230 patients, including 120 women and 110 men (mean age 55 years) who underwent image-guided interventional radiology procedures including vascular and kidney interventions. The minimally invasive procedures involved the use of a catheter, which is inserted through a blood vessel and threaded to an area of the body, such as a blocked artery, for treatment.

Upon arriving for their procedure, patients were asked to complete a questionnaire called the Positive Affect Negative Affect Schedule (PANAS) to assess their mood. Using a five-point rating scale, the patients reported to what extent they felt strong, alert, determined and other positive feeling states and to what degree they were experiencing negative feelings, such as guilt, nervousness or irritability.

Dr Kadom and fellow researchers Elvira V. Lang, M.D., Ph.D., and Gheorghe Doros, Ph.D., grouped the patients based on high and low scores for positive affect and high and low scores for negative affect. Those groups were then correlated with the occurrence of adverse events during the procedures, such as a prolonged lack of oxygen, low or high blood pressure, post-operative bleeding or an abnormally slow heart rate.

A statistical analysis of the data revealed that patients with a high negative affect experienced significantly more adverse events than patients with low negative affect. Of the 104 patients with high negative affect, 23 (22%) had an adverse event, compared to 15 (12%) of the 126 patients with low negative affect. The degree of positive affect did not make a significant difference in the incidence of adverse events.

"Our study shows that mood matters," noted Dr Lang, an interventional radiologist in Boston. "You don't need to have a chipper, cheery attitude prior to your procedure. You just have to overcome negative emotions and get to a neutral level."

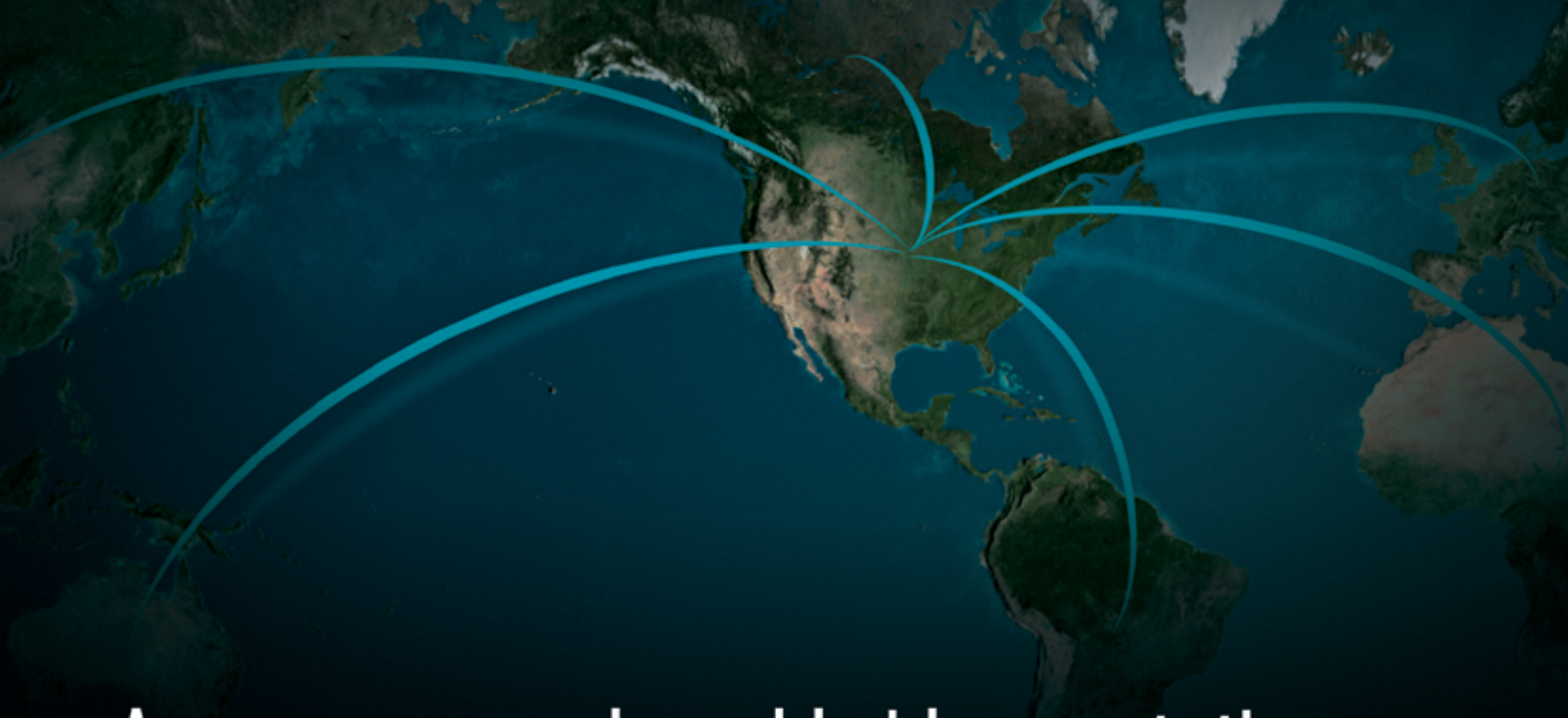
Unlike surgical procedures in which patients are not conscious, interventional radiology procedures are often performed on patients who are sedated but awake and able to talk with the physician and healthcare team.

"This is a real issue," Dr Lang said. "The procedure room is a two-way street in which the patient can affect the healthcare professional and vice versa. Any time the team must manage an adverse event, it takes attention away from the procedure."

Dr Kadom said that although the tendency in radiology is to focus on improving equipment and techniques to minimize adverse outcomes, there is a growing awareness of what patients bring to the table.

Dr Lang suggested that healthcare teams should be trained in resilience and techniques to create their own positive emotional states, as well as coping strategies to help patients modify negative emotions and reframe their mindset prior to undergoing a procedure.

"We need to help staff show patients how to manage their own emotions to help create an environment for a better outcome," she said. MEH



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Expand antiretroviral therapy to all people living with HIV: WHO

To mark World AIDS Day on 1 December, WHO called for the expansion of antiretroviral therapy to all people living with HIV and said this is key to ending the AIDS epidemic within a generation.

"The Millennium Development Goal of reversing the HIV epidemic was reached ahead of the 2015 deadline – an incredible achievement that testifies to the power of national action and international solidarity," said Margaret Chan, WHO Director-General.

Expansion of antiretroviral therapy (ART) has resulted in a stark reduction of AIDS-related deaths. At the same time, increasingly effective prevention efforts have reduced numbers of new HIV infections. Since the epidemic's peak in 2004, the number of deaths has fallen by 42% with some 7.8 million lives being saved over the last 15 years, according to a new WHO report. The number of new infections has fallen by 35% since the turn of the century.

Over the last 15 years, scale-up of ART has been most dramatic in the WHO African Region where now more than 11 million people are receiving HIV treatment, up from 11,000 at the turn of the century. People living with HIV in Africa are now more likely to receive treatment than people living in most other parts of the world. Globally, in June 2015 close to 16 million people out of a total of 37 million people living with HIV were taking ART.

Doubling access

At the UN General Assembly in September, world leaders endorsed a new set of Sustainable Development Goals and milestones, including a call for ending the AIDS epidemic by 2030. Reducing the number of new infections by 75% and doubling the number of people on ART by 2020 are the first milestones towards achieving this goal.

Trial results published earlier this year have confirmed that people living with HIV who begin antiretroviral therapy soon after acquiring the virus – before the virus has weakened their immune systems – are more likely to stay healthy and less likely to transmit the virus to their partners. Those findings led WHO in September to recommend that everyone living with HIV be offered treatment.

In the effort to help countries implement the "treat all" recommendation, WHO is now presenting an additional set of recommendations on how to expand ART to all – in a rapid, focused, and efficient manner.

These recommendations include using innovative testing approaches such as community or self-testing to help increase the number of people who know their HIV status; starting treatment faster in those people who are diagnosed with HIV; bringing ART to the community; and allowing for greater intervals between clinic visits for people who have been stable on ART for some time. They also highlight the importance of improving access to viral load testing and new classes of antiretroviral drugs.

"WHO applauds governments, civil society, and organizations that have made availability of life-saving antiretroviral therapy possible in the most trying circumstances. The new recommendation to expand ART to all people living with HIV is a call to further step up the pace," said Dr Winnie Mpanju-Shumbusho, Assistant Director General at WHO.

Preventing new infections

Reducing the number of new HIV infections remains a major focus for the vision of ending AIDS. There is increasing concern about a slowdown – or even reversal – in the decrease of new infections in some countries and among some of the most affected population groups.

Already, over the last 5 years in Africa some 10 million men have undergone voluntary medical circumcision, a procedure that reduces their risk of acquiring HIV by 60%. New approaches to prevention are also emerging, including the use of antiretroviral drugs to help people at substantial risk from acquiring HIV. WHO now recommends this practice, called "pre-exposure prophylaxis", or PrEP, as an additional option to augment comprehensive prevention for people at heightened risk of HIV infection. Other elements of this package include behaviour-change communication, the consistent use of male and female condoms and prevention programmes for key populations, including harm reduction for people who use drugs.

The same drugs that keep people living with HIV from becoming sick also prevent transmission of the virus from pregnant women to their infants. Among the 22 countries that account for 90% of new HIV infections, 8 have reduced new infections among children by more than 50% since 2009, based on 2013 data, and another 4 are close to that mark.

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WHO commends Sierra Leone for stopping Ebola virus transmission

On 7 November, the World Health Organization declared that Ebola virus transmission had been stopped in Sierra Leone. Forty-two days, that is two Ebola virus incubation cycles, have passed since the last person confirmed to have Ebola virus disease had a second negative blood test.

"Since Sierra Leone recorded the first Ebola case in May 2014, a total number of 8,704 people were infected and 3,589 have died, 221 of them healthcare workers, all of whom we remember on this day," said Dr Anders Nordström, WHO Representative in Sierra Leone.

The country now enters a 90-day period of enhanced surveillance which will run until 5 February 2016 and WHO will continue to support Sierra Leone during this period. This new phase is critical for ensuring early detection of any possible new cases of Ebola virus disease.

The World Health Organization commended the Government of Sierra Leone and her people on achieving this significant milestone in the country's fight against Ebola.

"Sierra Leone achieved this milestone through tremendous hard work and commitment while battling the most unprecedented Ebola virus disease outbreak in human history," the organisation said in statement.

The strong leadership of the Sierra Leone Government, working with partners from around the globe, mobilized the necessary expertise needed to contain the outbreak. Sierra Leone experienced a massive rise in cases in September and October 2014 which was curbed by putting in place treatment facilities, setting up safe and dignified burial teams and working with communities to identify and stop Ebola.

The use of rapid response teams and strong community involvement became the cornerstone of the national response strategy. International partners supported the government to maintain a rapid response capacity to detect, identify and shut down any new transmission chains, and also contributed technical assistance, personnel, food, supplies and equipment.

The Ebola outbreak has decimated families, the health system, the economy and social structures. All need to recover. It has also left an estimated 4,000 survivors who have ongoing health problems who need medical care and social support.

WHO will maintain an enhanced staff presence in Sierra Leone during this transition from outbreak control, to enhanced vigilance, to the recovery of essential health services.

"We now have a unique opportunity to support Sierra Leone to build a strong and resilient public health system ready to detect and respond to the next outbreak of disease, or any other public health threat," said Dr Nordström.

Sierra Leone achieved this milestone through tremendous hard work and commitment while battling the most unprecedented Ebola virus disease outbreak in human history.

Liberia

Meanwhile, Liberia's status as Ebola free has been withdrawn following 3 confirmed Ebola cases in November. On 2 December the WHO reported that investigations were ongoing into the origin of infection of the cluster of 3 confirmed cases of Ebola virus disease (EVD) in Liberia in the week to 22 November. The first-reported case in that cluster was a 15-year-old boy who tested positive for EVD after admission to a health facility in the Greater Monrovia area on 19 November. He was then transferred to an Ebola treatment centre along with the 5 other members of his family. Two other members of the family – the boy's 8-year old brother and his 40-year-old father – subsequently tested positive for EVD whilst in isolation. The 15-year-old boy died on 23 November. In addition to the family of the first-reported case, 165 contacts have been identified, including 34 high-risk contacts. Liberia was previously declared free of Ebola transmission on 3 September 2015.

WHO warns that the recent cases in Liberia underscore the importance of robust surveillance measures to ensure the rapid detection of any reintroduction or re-emergence of EVD in currently unaffected areas. In order to achieve objective 2 of the phase 3 response framework – to manage and respond to the consequences of residual Ebola risks – Guinea, Liberia, and Sierra Leone have each put surveillance systems in place to enable health workers and members of the public to report any case of illness or death that they suspect may be related to EVD to the relevant authorities. MEH

Copper used to prevent spread of respiratory viruses

New research from the University of Southampton has found that copper can effectively help to prevent the spread of respiratory viruses, which are linked to severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS).

Animal coronaviruses that 'host jump' to humans, such as SARS and MERS, result in severe infections with high mortality. The Southampton researchers found that a closely-related human coronavirus - 229E - can remain infectious on common surface materials for several days, but is rapidly destroyed on copper.

A newly-published paper in mBio – a journal of the American Society for Microbiology – reports that human coronavirus 229E, which produces a range of respiratory symptoms from the common cold to more lethal outcomes such as pneumonia, can survive on surface materials including ceramic tiles, glass, rubber and stainless steel for at least five days. While human-to-human transmission is important, infections can be contracted by touching surfaces contaminated by respiratory droplets from infected individuals, or hand touching, leading to a wider and more rapid spread

On copper, and a range of copper alloys – collectively termed 'antimicrobial copper' – the coronavirus was rapidly inactivated (within a few minutes, for simulated fingertip contamination). Exposure to copper destroyed the virus completely and irreversibly, leading the researchers to conclude that antimicrobial copper surfaces could be employed in communal areas and at any mass gatherings to help reduce the spread of respiratory viruses and protect public health.

Lead researcher Dr Sarah Warnes said: "Transmission of infectious diseases via contaminated surfaces is far more important than was originally thought, and this includes viruses that cause respiratory infections. This is especially important when the infectious dose is low and just a few virus particles can initiate an infection.

"Human coronavirus, which also has ancestral links with bat-like viruses responsible for SARS and MERS, was found to be permanently and rapidly deactivated upon contact with copper. What's more, the viral genome and structure of the viral particles were destroyed, so nothing remained that could pass on an infection. With the lack of antiviral treatments, copper offers a measure that can help reduce the risk of these infections spreading."

Speaking on the importance of the study, Professor Bill Keevil, co-author and Chair in Environmental Healthcare at the University of Southampton, said: "Respiratory viruses are responsible for more deaths, globally, than any other infectious agent. The evolution of new respiratory viruses, and the re-emergence of historic virulent strains, poses a significant threat to human health.

"The rapid inactivation and irreversible destruction of the virus observed on copper and copper alloy surfaces suggests that the incorporation of copper alloy surfaces - in conjunction with effective cleaning regimes and good clinical practice - could help control transmission of these viruses."

Previous research by Professor Keevil and Dr Warnes has proved copper's efficacy against norovirus, influenza and hospital superbugs, such as MRSA and Klebsiella, plus stopping the transfer of antibiotic resistance genes to other bacteria to create new superbugs.

- For more information on antimicrobial copper, visit: *www.antimicrobialcopper.org*

Study suggests short incubation increases risk of death

In a study published in *Emerging Infectious Diseases* online in December ahead of print, researchers analysed data for 170 patients in South Korea who had laboratory-confirmed infection with Middle East respiratory syndrome coronavirus. They found that a longer incubation period for MERS was associated with a reduction in the risk for death. They suggest closer monitoring of patients who have a shorter incubation period could be considered during such outbreaks.

The incubation period of an infectious disease is the time from the moment of exposure to an infectious agent until signs and symptoms of the disease appear. The researchers found that during the recent MERS outbreak in South Korea that patients who died had a shorter incubation period than patients who survived.

They note that MERS-CoV also has higher replication rates and shows broader cell tropism in the lower human respiratory tract than severe acute respiratory syndrome coronavirus. "These results suggest that a shorter incubation period could be related to a higher initial infective dose and consequently to faster or greater pathogen replication. This finding could lead to a more severe disease induced by more aggressive and damaging inflammatory responses."

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Tuberculosis mortality nearly halved since 1990

The fight against tuberculosis is paying off, with this year's death rate nearly half of what it was in 1990. Nevertheless, 1.5 million people died from TB in 2014. Most of these deaths could have been prevented, according to WHO's *Global tuberculosis report 2015*, which was released 28 October 2015 in Washington.

To reduce TB's overall burden, detection and treatment gaps need to be closed, funding shortfalls filled and new diagnostics, drugs and vaccines developed, according to the report.

Most of the improvement has come since 2000, the year the Millennium Development Goals (MDGs) were established. In all, effective diagnosis and treatment saved 43 million lives between 2000 and 2015, according to the report, the 20th in a series of annual evaluations produced by WHO.

"The report shows that TB control has had a tremendous impact in terms of lives saved and patients cured," said WHO Director-General Margaret Chan. "These advances are heartening, but if the world is to end this epidemic, it needs to scale up services and, critically, invest in research."

Those advances include the achievement of the MDG that called for halting and reversing TB incidence by 2015. The goal was reached globally and in 16 of the 22 high-burden countries that collectively account for 80% of cases.

Worldwide, TB incidence has fallen 1.5% per year since 2000, for a total reduction of 18%.

"Despite the gains, the progress made against TB is far from sufficient," according to Dr Mario Raviglione, Director of WHO's Global TB Programme. "We are still facing a burden of 4,400 people dying every day, which is unacceptable in an era when you can diagnose and cure nearly every person with TB."

In 2014, TB killed 890,000 men, 480,000 women and 140,000 children. The disease ranks alongside HIV as a leading killer worldwide. Of the 1.5 million people killed by TB in 2014, 400,000 were HIV-positive. HIV's total death toll in 2014 was estimated at 1.2 million, which included the 400,000 TB deaths among HIV-positive people.

This year's report describes higher global totals for new TB cases (9.6. million) than in previous years. However, these figures reflect increased and improved national data and in-depth studies rather than any increase in the spread of the disease. More than half of the world's TB cases (54%) occurred in China, India, Indonesia, Nigeria and Pakistan. Among new cases, an estimated 3.3% have multidrug-resistant TB (MDR-TB), a level that has remained unchanged in recent years.

Action needed to close diagnostic and treatment gaps

The report highlights the need to close detection and treatment gaps, fill funding shortfalls, and develop new diagnostics, drugs and vaccines.

The detection gap is significant. Of the 9.6 million people who fell ill with TB in 2014, 6 million (62.5%) were reported to national authorities. That means that, worldwide, more than a third (37.5%) of the cases went undiagnosed or were not reported to national authorities. The quality of care for people in the latter category is unknown.

Detection and treatment gaps are especially serious among people with MDR-TB, which remains a public health crisis. Of the 480,000 cases estimated to have occurred in 2014, only about a quarter – 123,000 – were detected and reported to national authorities. The 3 countries with the largest numbers of cases are China, India and the Russian Federation.

Treatment initiation for those diagnosed with MDR-TB substantially increased and almost all cases detected in 2014 started treatment. Forty-three countries reported cure rates for MDR-TB patients of more than 75%. Nevertheless, globally, data shows an average cure rate of only 50% for treated MDR-TB patients.

Treatment is improving, with 77% of patients known to be co-infected with HIV and TB getting antiretroviral medicines in 2014.

> We are still facing a burden of 4,400 people dying every day, which is unacceptable in an era when you can diagnose and cure nearly every person with TB.

The number of people living with HIV who were given TB preventive therapy was nearly 1 million in 2014, an increase of about 60% compared with 2013. More than half (59%) of these people were in South Africa.

Financing shortfalls

"A primary reason for detection and treatment gaps is a major shortfall in funding," said Dr Winnie Mpanju-Shumbusho, WHO Assistant Director-General for HIV, TB, Malaria and Neglected Tropical Diseases. This shortfall amounted this year to US$1.4 billion of the $8 billion needed to fully implement interventions. In addition, an annual funding gap of at least $1.3 billion must be filled for research that would include the development of new diagnostics, drugs and vaccines.

From 2016, the global goal will shift from controlling TB to ending the global TB epidemic. The End TB Strategy, adopted by all WHO Member States, serves as a blueprint for countries to reduce TB incidence by 80% and TB deaths by 90% and to eliminate catastrophic costs for TB-affected households by 2030.

"Ending the TB epidemic is now part of the Sustainable Development Goal agenda" said Dr Eric Goosby, UN Special Envoy on Tuberculosis. "If we want to achieve it, we'll need far more investment – at a level befitting such a global threat. We'll also need progress on universal health coverage and poverty alleviation. We want the most vulnerable communities worldwide to gain first, not last, in our efforts." MEH

A new approach to predict evolution of influenza viruses can enhance vaccine efficacy

New results from a study performed at the University of Helsinki suggest that genomic information from circulating influenza viruses can help in producing more efficient seasonal vaccines. The researchers were able to develop a simple approach for reliable real-time tracking and prediction of viral evolution based on whole-genome sequences of influenza viruses.

Influenza vaccines have been developed to prevent the yearly outbreaks of this respiratory illness and to protect people at risk from developing severe disease. In contrast to many other vaccines, influenza vaccines need to be reformulated each year because circulating influenza viruses continuously evolve. This evolution is due to the ability of viruses to accumulate new mutations in their genome. Especially critical are those genomic regions that encode viral proteins recognized by the human immune system.

The World Health Organization (WHO) is responsible for predicting the influenza strains that will be most common during the next season and for giving recommendations on the particular virus strains that should be used for producing the vaccines for the next influenza season. The effectiveness of the vaccines varies from year to year and was modest for the previous season. This could be due to antigenic mismatch between the circulating influenza viruses and the vaccine strains recommended by the WHO.

Researchers from the Institute for Molecular Medicine Finland, FIMM, the University of Helsinki, have now analysed thousands of complete genome sequences of influenza A(H1N1) and A(H3N2) strains representing different geographic regions. The study was done in collaboration with researchers from Singapore and United Kingdom. By utilizing biostatistical methods, the team was able to identify several genetic variants that changed the structure of the influenza proteins and that were present in surprisingly many of the strains studied.

"We named these characteristic variants as evolutionary markers as they seemed to contain valuable information regarding the viral evolution," explains Denis Kainov, the leader of the research team.

Furthermore, the group was able to show that both influenza subtypes acquired their own sets of these evolutionary markers. Importantly, many of these markers were not present in the virus strains used for the vaccine development during the last season.

"We believe that our results and methodology could further improve vaccine strain selection process and, thereby, enhance vaccine efficacy. Each year a substantial number of Finns gets influenza. We estimated that if the vaccination efficacy increases by 50%, this would save up to 8,000 people from getting the disease in Finland alone. Our team proposes using the strains containing all the identified evolutionary markers as vaccine candidates for upcoming influenza seasons," Kainov continues. MEH

Measles vaccination has saved an estimated 17.1 million lives since 2000

The number of measles-related deaths has decreased 79% from 546,800 at the beginning of the century to 114,900 in 2014. New data released by WHO for the Measles & Rubella Initiative, estimates that 17.1 million lives have been saved since 2000, largely due to increased vaccination coverage against this highly contagious viral disease. Measles vaccination has played a key role in reducing child mortality and in progress towards Millennium Development Goal 4.

However, the new data published in November in the the Centers for Disease Control and Prevention's (CDC), "Morbidity and Mortality Weekly Report" and WHO's "Weekly Epidemiological Record", shows that overall progress towards increasing global immunization coverage has recently stagnated. While coverage with the first dose of the measles vaccine increased globally from 72% to 85% between 2000 and 2010, it has remained unchanged the past 4 years.

"We cannot afford to drop our guard," says Dr Jean-Marie Okwo-Bele, Director of WHO's Department of Immunization, Vaccines and Biologicals. "If children miss routine vaccination and are not reached by national immunization campaigns, we will not close the immunization gap."

Not all countries on target

Based on current trends of measles vaccination coverage and incidence, the 2015 global milestones and measles elimination goals set by WHO's Member States will not be achieved on time.

Although all countries include at least 1 dose of measles-containing vaccine in their routine vaccination schedule, only 122 (63%) have met the target of at least 90% of children vaccinated with a first dose. Additionally, only half of the world's children are receiving the recommended second dose of the vaccine.

In 2014, mass vaccination campaigns led by country governments with support from the Measles & Rubella Initiative and Gavi, the Vaccine Alliance, reached approximately 221 million children. Twenty-nine countries supplemented their routine vaccination programmes with mass immunization campaigns, helping to reduce measles incidence in 4 out of 6 WHO regions last year. Overall, since 2000, these campaigns have enabled 2 billion children to receive a supplemental dose of measles vaccine.

In the African Region, cases dropped from over 171,000 in 2013 to under 74,000 in 2014, likely due to campaigns in Democratic Republic of the Congo (DRC) and Nigeria.

WHO's Eastern Mediterranean, European and the South-East Asia regions also saw decreases in measles incidence in 2014.

Large-scale campaigns in 2014 included:


EPA/MORWAN ALI

- Bangladesh – more than 53.6 million children vaccinated
- DRC – more than 18.5 million children vaccinated
- Pakistan - more than 25 million children vaccinated
- United Republic of Tanzania – more than 20.5 million children vaccinated
- Yemen – more than 11.3 million children vaccinated
- Viet Nam – more than 15.1 children vaccinated

"Last year, the Measles and Rubella Initiative supported campaigns in 29 high-risk countries to stop measles, including in Liberia where a serious outbreak occurred following the Ebola epidemic. Funding for many of the largest campaigns came from Gavi, the Vaccine Alliance. Gavi's support for measles campaigns in large countries like DRC and Pakistan, and measles-rubella vaccine introduction through campaigns targeting children under 15 years of age, is providing a strong boost to measles control and elimination in those countries," says Dr Robert Linkins, Chief, Accelerated Disease Control and Surveillance Branch at the U.S. Centers for Disease Control and Prevention.

"Despite our success in these countries, globally over 100,000 children needlessly died from measles last year. That's a tragedy which can be easily prevented if we intensify our measles surveillance and vaccination efforts," Dr Linkins concluded.

Measles outbreaks remain an issue

Measles outbreaks, which happen when there are gaps in vaccination programmes, continue to pose a serious challenge to meeting global targets. The Americas and Western Pacific regions saw increased numbers of cases in 2014, mostly due to large outbreaks in China, the Philippines, and Viet Nam. In other regions, although the overall number of cases fell, some individual countries still had large outbreaks, including Angola, Ethiopia, India, the Russian Federation and Somalia.

Accelerating progress

Measles is highly infectious and strong, sustained efforts are needed to maintain the current level of control. Together with changes in policies and practices in high-burden countries, vaccination and surveillance efforts need to be funded, maintained and strengthened, WHO and its partners say.

"Despite the welcome reduction in measles deaths, this highly-infectious disease continues to take a terrible toll on the lives of children around the world," said Dr Seth Berkley, CEO of Gavi, the Vaccine Alliance. "A coordinated approach that puts stronger routine immunization at its core will be central to getting measles under control and securing further reductions in mortality from this vaccine-preventable disease." MEH

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The human cost of contaminated food

Almost one third (30%) of all deaths from foodborne diseases are in children under the age of five years, despite the fact that they make up only 9% of the global population. This is among the findings of the World Health Organization's (WHO) *Estimates of the Global Burden of Foodborne Diseases* – the most comprehensive report to date on the impact of contaminated food on health and wellbeing.

The report, which estimates the burden of foodborne diseases caused by 31 agents – bacteria viruses, parasites, toxins and chemicals – states that each year as many as 600 million, or almost 1 in 10 people in the world, fall ill after consuming contaminated food. Of these, 420,000 people die, including 125,000 children under the age of five years.

"Until now, estimates of foodborne diseases were vague and imprecise. This concealed the true human costs of contaminated food. This report sets the record straight," says Dr Margaret Chan, Director-General of WHO. "Knowing which foodborne pathogens are causing the biggest problems in which parts of the world can generate targeted action by the public, governments, and the food industry."

While the burden of foodborne diseases is a public health concern globally, the WHO African and South-East Asia Regions have the highest incidence and highest death rates, including among children under the age of five years.

"These estimates are the result of a decade of work, including input from more than 100 experts from around the world. They are conservative, and more needs to be done to improve the availability of data on the burden of foodborne diseases. But based on what we know now, it is apparent that the global burden of foodborne diseases is considerable, affecting people all over the world – particularly children under five years of age and people in low-income areas," says Dr Kazuaki Miyagishima, Director of WHO's Department of Food Safety and Zoonoses.

Diarrhoeal diseases are responsible for more than half of the global burden of foodborne diseases, causing 550 million people to fall ill and 230,000 deaths every year. Children are at particular risk of foodborne diarrhoeal diseases, with 220 million falling ill and 96,000 dying every year. Diarrhoea is often caused by eating raw or undercooked meat, eggs, fresh produce and dairy products contaminated by norovirus, *Campylobacter*, non-typhoidal *Salmonella* and pathogenic *E. coli*.

> Knowing which foodborne pathogens are causing the biggest problems in which parts of the world can generate targeted action by the public, governments, and the food industry.

Other major contributors to the global burden of foodborne diseases are typhoid fever, hepatitis A, *Taenia solium* (a tapeworm), and aflatoxin (produced by mould on grain that is stored inappropriately).

Certain diseases, such as those caused by non-typhoidal *Salmonella*, are a public health concern across all regions of the world, in high- and low-income countries alike. Other diseases, such as typhoid fever, foodborne cholera, and those caused by pathogenic E. coli, are much more common to low-income countries, while *Campylobacter* is an important pathogen in high-income countries.

The risk of foodborne diseases is most severe in low- and middle-income countries, linked to preparing food with unsafe water; poor hygiene and inadequate conditions in food production and storage; lower levels of literacy and education; and insufficient food safety legislation or implementation of such legislation.

Foodborne diseases can cause short-term symptoms, such as nausea, vomiting and diarrhoea (commonly referred to as food poisoning), but can also cause longer-term illnesses, such as cancer, kidney or liver failure, brain and neural disorders. These diseases may be more serious in children, pregnant women, and those who are older or have a weakened immune system. Children who survive some of the more serious foodborne diseases may suffer from delayed physical and mental development, impacting their quality of life permanently.

Food safety is a shared responsibility, says WHO. The report's findings underscore the global threat posed by foodborne diseases and reinforce the need for governments, the food industry and individuals to do more to make food safe and prevent foodborne diseases. There remains a significant need for education and training on the prevention of foodborne diseases among food producers, suppliers, handlers and the general public. WHO is working closely with national governments to help set and implement food safety strategies and policies that will in turn have a positive impact on the safety of food in the global marketplace. MEH

Foodborne diseases in the Eastern Mediterranean Region

The Eastern Mediterranean Region has the third highest estimated burden of foodborne diseases per population, after the African and South-East Asia Regions. More than 100 million people living in the Eastern Mediterranean Region are estimated to become ill with a foodborne disease every year and 32 million of those affected are children under five years.

Diarrhoeal diseases (caused by *E. coli*, Norovirus, *Campylobacter* and non-typhoidal *Salmonella*) account for 70% of the burden of foodborne disease.

An estimated 37,000 people in the Eastern Mediterranean Region die each year from unsafe food, caused primarily by diarrhoeal diseases, typhoid fever, hepatitis A, and brucellosis. Both typhoid fever and hepatitis A are contracted from food contaminated by the faeces of an infected person and *brucellosis* is commonly caused by unpasteurized milk or cheese of infected goats or sheep. Half of the global cases of *Brucellosis* are in people living in this Region, with more than 195,000 people infected every year, causing fever, muscle pain or more severe arthritis, chronic fatigue, neurologic symptoms and depression.

1.25 million people die each year in road traffic crashes

Some 1.25 million people die each year as a result of road traffic crashes, according to the World Health Organization's *Global status report on road safety 2015*, despite improvements in road safety.

"Road traffic fatalities take an unacceptable toll – particularly on poor people in poor countries," says Dr Margaret Chan, Director-General of WHO.

However, the number of road traffic deaths is stabilizing even though the number of motor vehicles worldwide has increased rapidly, as has the global population. In the last three years, 79 countries have seen a decrease in the absolute number of fatalities while 68 countries have seen an increase.

Countries that have had the most success in reducing the number of road traffic deaths have achieved this by improving legislation, enforcement, and making roads and vehicles safer.

"We're moving in the right direction," adds Dr Chan. "The report shows that road safety strategies are saving lives. But it also tells us that the pace of change is too slow."

The WHO report highlights that road users around the world are unequally protected. The risk of dying in a road traffic crash still depends, in great part, on where people live and how they move around. A big gap still separates high-income countries from low- and middle-income ones where 90% of road traffic deaths occur in spite of having just 54% of the world's vehicles. Europe, in particular the region's wealthier countries, has the lowest death rates per capita; Africa the highest.

Acting on road safety

But more countries are taking action to make roads safer. In the last three years, 17 countries have aligned at least one of their laws with best practice on seat-belts, drink–driving, speed, motorcycle helmet or child restraints.

Michael R. Bloomberg, founder of Bloomberg Philanthropies and three-term Mayor of New York said: "Thanks to stronger laws and smarter infrastructure, nearly half a billion people in the world are better protected from road crashes than were just a few years ago – and we have the opportunity to do much more, especially when it comes to enforcing laws. Every life lost in a road crash is an avoidable tragedy, and this report can prevent more of them by helping policy-makers focus their efforts where they'll make the biggest difference." The report was funded by Bloomberg Philanthropies.

The report reveals that globally:

- 105 countries have good seat-belt laws that apply to all occupants;
- 47 countries have good speed laws defining a national urban maximum speed limit of 50 km/h and empowering local authorities to further reduce speed limits;
- 34 countries have a good drink-driving law with a blood alcohol concentration (BAC) limit of less than or equal to 0.05 g/dl as well as lower limits of less than or equal to 0.02 g/dl for young and novice drivers;
- 44 countries have helmet laws that apply to all drivers, passengers, roads and engine types; require the helmet to be fastened and refer to a particular helmet standard;
- 53 countries have a child restraint law for occupants of vehicles based on age, height or weight, and apply an age or height restriction on children sitting in the front seat.

Vulnerable road users

Motorcyclists are particularly vulnerable, making up 23% of all road traffic deaths. In many regions this problem is increasing; in the region of the Americas, for example, the proportion of motorcycle deaths out of all road traffic fatalities rose from 15% to 20% between 2010 and 2013. In the South-East Asia and Western Pacific regions a third of all road traffic deaths are among motorcyclists.

> Every life lost in a road crash is an avoidable tragedy, and this report can prevent more of them by helping policy-makers focus their efforts where they'll make the biggest difference.

Pedestrians and cyclists are also among the groups with the least protection, making up 22% and 4% of global deaths respectively.

"Decision-makers need to rethink transport policies," said Dr Etienne Krug, Director of WHO's Department for Management of Noncommunicable Diseases, Disability, Violence and Injury Prevention. "Improving public transport as well as making walking and cycling safer requires us to refocus our attention on how vehicles and people share the road. The lack of policies aimed at vulnerable road users is killing people and harming our cities. If we make walking and cycling safer there will be fewer deaths, more physical activity, better air quality, and more pleasant cities."

The report also found that some vehicles sold in 80% of all countries worldwide fail to meet basic safety standards, particularly in low- and middle-income countries where nearly 50% of the 67 million new passenger cars were produced in 2014.

The *Global status report on road safety 2015* comprises a narrative text combining evidence, facts and best practices with conclusions drawn following the analysis of the data collected for 180 countries. In addition it offers one-page profiles for each participating country and statistical annexes. An interactive online data visualization of the report is also available.

on the WEB *Global status report on road safety 2015*
http://tinyurl.com/oxk5ruv

WHO multi-country survey reveals widespread public misunderstanding about antibiotic resistance

As the World Health Organization (WHO) ramps up its fight against antibiotic resistance, a new multi-country survey shows people are confused about this major threat to public health and do not understand how to prevent it from growing.

Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause. Over-use and misuse of antibiotics increase the development of resistant bacteria, and this survey points out some of the practices, gaps in understanding and misconceptions which contribute to this phenomenon.

Almost two thirds (64%) of some 10,000 people who were surveyed across 12 countries say they know antibiotic resistance is an issue that could affect them and their families, but how it affects them and what they can do to address it are not well understood. For example, 64% of respondents believe antibiotics can be used to treat colds and flu, despite the fact that antibiotics have no impact on viruses. Close to one third (32%) of people surveyed believe they should stop taking antibiotics when they feel better, rather than completing the prescribed course of treatment.

"The rise of antibiotic resistance is a global health crisis, and governments now recognize it as one of the greatest challenges for public health today. It is reaching dangerously high levels in all parts of the world," says Dr Margaret Chan, WHO Director-General, in launching the survey findings. "Antibiotic resistance is compromising our ability to treat infectious diseases and undermining many advances in medicine."

The survey findings coincide with the launch of a new WHO campaign 'Antibiotics: Handle with care' – a global initiative to improve understanding of the problem and change the way antibiotics are used.

"The findings of this survey point to the urgent need to improve understanding around antibiotic resistance," says Dr Keiji Fukuda, Special Representative of the Director-General for Antimicrobial Resistance. "This campaign is just one of the ways we are working with governments, health authorities and other partners to reduce antibiotic resistance. One of the biggest health challenges of the 21st century will require global behaviour change by individuals and societies."

The multi-country survey included 14 questions on the use of antibiotics, knowledge of antibiotics and of antibiotic resistance, and used a mix of online and face-to-face interviews. It was conducted in 12 countries: Barbados, China, Egypt, India, Indonesia, Mexico, Nigeria, the Russian Federation, Serbia, South Africa, Sudan and Viet Nam. While not claiming to be exhaustive, this and other surveys will help WHO and partners to determine the

key gaps in public understanding of this problem and misconceptions about how to use antibiotics to be addressed through the campaign.

Common misconceptions

Some common misconceptions revealed by the survey include:

- Three quarters (76%) of respondents think that antibiotic resistance happens when the body becomes resistant to antibiotics. In fact, bacteria – not humans or animals – become resistant to antibiotics and their spread causes hard-to-treat infections.
- Two thirds (66%) of respondents believe that individuals are not at risk of a drug-resistant infection if they personally take their antibiotics as prescribed. Nearly half (44%) of people surveyed think antibiotic resistance is only a problem for people who take antibiotics regularly. In fact, anyone, of any age, in any country can get an antibiotic-resistant infection.
- More than half (57%) of respondents feel there is not much they can do to stop antibiotic resistance, while nearly two thirds (64%) believe medical experts will solve the problem before it becomes too serious.

Another key finding of the survey was that almost three quarters (73%) of respondents say farmers should give fewer antibiotics to food-producing animals.

To address this growing problem, a global action plan to tackle antimicrobial resistance was endorsed at the World Health Assembly in May 2015. One of the plan's five objectives is to improve awareness and understanding of antibiotic resistance through effective communication, education and training. MEH

> The rise of antibiotic resistance is a global health crisis, and governments now recognize it as one of the greatest challenges for public health today. It is reaching dangerously high levels in all parts of the world.

Key findings of the survey by country

Barbados (507 face-to-face interviews)

Only 35% of respondents say they have taken antibiotics within the past six months – the lowest proportion of any country included in the survey; of those who have taken antibiotics, 91% say they were prescribed or provided by a doctor or nurse.

Fewer than half of respondents (43%) have heard of the term 'antibiotic resistance'; and fewer than half (46%) – less than any other country in the survey – believe that many infections are becoming increasingly resistant to treatment by antibiotics.

Only 27% of respondents agree with the statements 'Antibiotic resistance is one of the biggest problems the world faces' and that 'Experts will solve the problem' – the lowest proportion of all participating countries for both questions.

China (1,002 online interviews)

57% of respondents report taking antibiotics within the past six months; 74% say they were prescribed or provided by a doctor or nurse; 5% say they purchased them on the internet.

More than half (53%) of respondents wrongly believe that they should stop taking antibiotics when they feel better, rather than taking the full course as directed.

61% of respondents think, incorrectly, that colds and flu can be treated by antibiotics.

Two thirds (67%) of respondents are familiar with the term 'antibiotic resistance' and three quarters (75%) say it is 'one of the biggest problems in the world'.

83% of respondents say that farmers should give fewer antibiotics to animals – the highest proportion of any country in the survey.

Egypt (511 face-to-face interviews)

More than three quarters (76%) of respondents say they have taken antibiotics within the past six months, and 72% say they were prescribed or provided by a doctor or nurse.

55% of respondents incorrectly think that they should stop taking antibiotics when they feel better, rather than taking the full course; and more than three quarters (76%) wrongly believe that antibiotics can be used to treat colds and flu.

Less than one quarter (22%) of respondents have heard of the term 'antibiotic resistance' – the lowest proportion of any country included in the survey.

India (1,023 online interviews)

More than three quarters (76%) of respondents report having taken antibiotics within the past six months; 90% say they were prescribed or provided by a doctor or nurse.

Three quarters (75%) of respondents think, incorrectly, that colds and flu can be treated with antibiotics; and only 58% know that they should stop taking antibiotics only when they finish the course as directed.

While 75% agree that antibiotic resistance is one of the biggest problems in the world, 72% of respondents believe experts will solve the problem before it becomes too serious.

Indonesia (1,027 online interviews)

Two thirds (66%) of respondents report having taken antibiotics in the past six months; 83% of respondents say they

were prescribed or provided by a doctor or nurse.

More than three quarters (76%) of respondents know that they should only stop taking antibiotics when they have taken all of them as directed, but 63% incorrectly think they can be used to treat colds and flu.

84% of respondents are familiar with the term 'antibiotic resistance' and two thirds (67%) believe that many infections are becoming increasingly resistant to treatment by antibiotics.

Mexico (1,001 online interviews)

Three quarters (75%) of respondents report having taken antibiotics within the past six months; 92% say they were prescribed by a doctor or nurse; and 97% say they got them from a pharmacy or medical store.

The majority of respondents (83%) accurately identify that bladder/urinary tract infections (UTIs) can be treated with antibiotics, but 61% wrongly believe that colds and flu can be treated with antibiotics.

89% of respondents in Mexico say they have heard of the term 'antibiotic resistance' and 84% believe many infections are becoming increasingly resistant to treatment by antibiotics – a higher proportion than any other country included in the survey on both questions.

Nigeria (664 face-to-face interviews)

Almost three quarters (73%) of respondents report taking antibiotics within the past six months; 75% of respondents state they were prescribed or provided by a doctor or nurse; 5% say they bought them from a stall or hawker.

More respondents in Nigeria than any other country included in the survey correctly identify that antibiotics do not work for colds and flu (47%), however 44% of respondents think they do.

Only 38% of respondents have heard of the term 'antibiotic resistance' – the second lowest proportion of all the countries surveyed.

Russian Federation (1,007 online interviews)

A little more than half of respondents (56%) report having taken antibiotics within the past six months; the same proportion (56%) say their most recent course of antibiotics was prescribed or provided by a doctor or nurse – the lowest proportion of any country included in the survey.

Two thirds (67%) of respondents incorrectly think colds and flu can be treated with antibiotics, and more than one quarter (26%) think they should stop taking antibiotics when they feel better rather than taking the full course as directed.

Awareness of the term 'antibiotic resistance' was high among respondents at 82%.

71% think antibiotics are widely used in agriculture in their country and 81% say that farmers should give fewer antibiotics to animals.

Serbia (510 face-to-face interviews)

Fewer than half (48%) of respondents say they have taken antibiotics within the past six months; 81% say they were prescribed or provided by a doctor or nurse.

The majority of respondents (83%) accurately identify that bladder infections/UTIs can be treated with antibiotics, but more than two thirds (68%) wrongly believe that colds and flu can be treated with antibiotics.

Only 60% of respondents in Serbia have heard of the term 'antibiotic resistance' and only one third (33%) think it is one of the biggest problems the world faces.

81% of respondents say that farmers should give fewer antibiotics to animals.

South Africa (1,002 online interviews)

65% of respondents say they have taken antibiotics within the past six months; a higher proportion of people than any other country included in the survey (93%) say their last course of antibiotics was prescribed or provided by a doctor or nurse, and 95% say they had advice from a medical professional on how to take them.

87% of respondents know they should only stop taking antibiotics when they finish the course of treatment – a higher proportion than any other country included in the survey.

The same proportion (87%) of respondents – and again more than any other country in the survey – recognize that the statement 'It's OK to use antibiotics that were given to a friend or family member, as long as they were used to treat the same illness' is false. It is a practice which can encourage the development of resistance.

Sudan (518 face-to-face interviews)

More than three quarters (76%) of respondents report having taken antibiotics within the past six months; 91% say they were prescribed or provided by a doctor or nurse.

62% of respondents incorrectly think they should stop taking antibiotics when they feel better – more than any other country included in the survey – and 80% think antibiotics can be used to treat colds and flu. Both of these statements are incorrect. These are practices which encourage the development of antibiotic resistance.

94% of respondents agree that people should use antibiotics only when prescribed, and 79% believe that antibiotic resistance is one of the biggest problems the world faces – the highest percentages on both questions of any of the countries where the survey was undertaken.

Viet Nam (1,000 online interviews)

71% of respondents state they have taken antibiotics within the past six months; three quarters (75%) report they were prescribed or provided by a doctor or nurse.

86% of respondents think that the body becomes resistant to antibiotics (whereas in fact it is bacteria) – a higher proportion than any other country included in the survey.

83% think that many infections are becoming increasingly resistant to antibiotics.

70% of respondents think that antibiotics are widely used in agriculture in their country and almost three quarters (74%) agree that 'antibiotic resistance is one of the biggest problems the world faces'. MEH

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Call to stop violence against healthcare workers and facilities

The Health Care in Danger project is an initiative of the International Red Cross and Red Crescent Movement aimed at addressing the issue of violence against patients, healthcare workers, facilities and vehicles, and ensuring safe access to and delivery of health care in armed conflict and other emergencies.

They recently issued this statement: In the last few months, a number of attacks against healthcare workers, medical transports and facilities have taken place in several countries, like Afghanistan, Syria and Yemen to mention a few. These incidents are taking place in countries with fragile healthcare systems that are already struggling to treat the numbers of people affected by the ongoing conflicts there. In some cases, the situation is made yet worse by the restrictions placed on aid workers, preventing them from getting to the people who need them.

Both the attacks themselves and their consequences are of serious concern. These were attacks on medical personnel and facilities protected under international humanitarian law, leaving death and destruction in their wake and disrupting vital health-care services. All those involved with the Health Care in Danger initiative are alarmed by the long-term impact these attacks may have on people's health.

These are not isolated incidents. The International Committee of the Red Cross, through the Health Care in Danger project, has been gathering data in 11 countries since January 2012. By December 2014, 2,398 attacks against healthcare personnel, facilities and vehicles had been recorded. This alarming situation highlights the urgent need for measures to prevent future violence.

The Health Care in Danger initiative, with the support of experts and professionals from different backgrounds, including from governments, the armed forces, humanitarian agencies, international professional associations and healthcare services, as well as the International Red Cross and Red Crescent Movement, has formulated a substantive body of recommendations and identified practical measures that, if implemented by all those concerned, would increase the protection of healthcare services in armed conflict or other emergencies.

Recommendations

As members and partners of the Health Care in Danger initiative, we call on States, weapon bearers, international and national humanitarian agencies and health organizations to give urgent attention to the recommendations resulting from the Health Care in Danger initiative.

In particular, we urge States:

- to make every effort to investigate and condemn attacks against healthcare personnel, facilities and medical transports that violate international law, including international humanitarian law;
- to revise their domestic legislation and its implementation to ensure that it is in line with their obligations under international law, including international humanitarian law;
- to ensure that the military are properly trained to know, abide by and respect the applicable legal framework for the protection of health care as well as ethical duties of healthcare personnel;
- to cooperate with health and humanitarian organizations to ensure that health personnel are specially trained to know, apply and uphold their legal and ethical duties;
- to actively seek to raise awareness of the proper use of the red cross/red crescent/red crystal emblems by armed forces and by the population at large;
- to take the opportunity of the forthcoming International Conference of the Red Cross and Red Crescent to further their commitment to implementing recommendations and measures on protecting health care in armed conflict and other emergencies and to consider submitting specific voluntary pledges on this issue.

We urge State armed forces:

- to respect in all circumstances, in particular in situations of armed conflict or other emergencies, health care workers, facilities and medical transports and to allow patients to receive adequate care, regardless of their affiliation;

- to revise military rules of engagement and operational practice and procedures to ensure that recommendations and measures for the protection of the delivery of health care are included therein and that military personnel are adequately trained in them.

We urge all non-state actors:

- to respect in all circumstances, in particular in situations of armed conflict or other emergencies, healthcare workers, facilities and medical transports and to allow patients to receive adequate care, regardless of their affiliation;

We encourage international and national humanitarian and health organizations:

- to continue to advocate for the preservation of principled humanitarian action, the respect of the "Ethical Principles of Health Care in Times of Armed Conflict and Other Emergencies" endorsed by civilian and military healthcare organizations in June 2015, and the protection of patients, healthcare personnel, facilities and medical transport in armed conflict or other emergencies and to join ongoing efforts or to start their own initiatives to those ends.
- To ensure that health facilities they gov-

ern are taking necessary actions to reduce the risk of violence within the facilities' premises.

Signatory organisations:
International Committee of Military Medicine; International Committee of the Red Cross; International Council of Nurses; International Federation of Medical Students' Associations; International Federation of Red Cross and Red Crescent Societies; International Hospital Federation; World Federation for Medical Education; World Health Organization; World Medical Association

on the WEB Healthcare in Danger
http://healthcareindanger.org

on the WEB Ethical Principles of Health Care in Times of Armed Conflict and Other Emergencies
http://tinyurl.com/odzt6kj

Tracking attacks on health workers

In the early hours of 3 October, rockets slammed into a Médecins Sans Frontières (MSF) hospital in Kunduz, Afghanistan, killing at least 14 health workers and injuring 37. An MSF clinic in the southern Yemen city of Taiz was bombed on 2 December, injuring 9 people, including 2 MSF staff. Since 2012, almost 60% of hospitals in Syria have been partially or completely destroyed, and more than half of the country's health workers have fled or been killed.

From Ukraine to Afghanistan, healthcare workers are in the line of fire. In 2014 alone, 603 health workers were killed and 958 injured in such attacks in 32 countries, according to data compiled by the WHO from a range of sources.

The attacks and deaths are tragic enough, but the loss of health workers, services and facilities results in less care for people, compounding the suffering caused by conflicts and other emergencies.

"Protecting health care workers is one of the most pressing responsibilities of the international community," said Jim Campbell, director of WHO's Health Workforce department. "Without health workers, there is no health care."

Until now, data on attacks against health workers has been piecemeal and there has been no standard way of reporting them.


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Staff inspect the Military Hospital in Sana'a after it was hit by an airstrike by the Saudi Arabia-led coalition.

A new tracking system

To address that need WHO developed a new system for collecting data that is being tested in Central African Republic, Syrian Arab Republic and West Bank and Gaza Strip. It will be available for use early 2016. But the project doesn't only aim to collect data. It also plans to use the information to identify patterns and find ways to avoid attacks or mitigate their consequences.

"Every time a doctor is too afraid to come to work, or a hospital is bombed, or supplies are looted, it impedes access to health care," said Erin Kenney, who manages the WHO project that has developed the new system.

In Pakistan, where 32 health care workers and other personnel involved in polio eradication have been killed since 2012, there have been fewer incidents since vaccinators switched from four-day campaigns to one-day campaigns, and studied the safest times to dispatch vaccinators.

"It's being clever about the way we do things," Kenney said. "We're negotiating access routes so we can get people in and out, evacuate hospitals, and preposition supplies so hospitals can be resilient."

Protecting health workers

Attacks on hospitals and clinics in conflict situations are just one of the threats health workers face. During West Africa's Ebola epidemic, a team of 8 people trying to raise awareness about the outbreak were killed in Guinea amid a climate of fear and suspicion. More than 400 health workers lost their lives after becoming infected while treating Ebola patients.

The WHO's first global report on attacks against health will be published in 2016.

In December 2014, the United Nations General Assembly agreed to strengthen international efforts to ensure the safety of health personnel and to collect data on threats and attacks against health workers.

Health system collapsed: WHO calls for funds

Following a ceasefire in Yemen on 15 December to usher in multiparty talks, the World Health Organization and health partners issued an urgent appeal for funds to continue providing healthcare in the country devastated by war.

"US$31 million [is required] to ensure the continuity of health services for nearly 15 million people in Yemen affected by the ongoing conflict. Funding is urgently needed as the Yemeni health system has collapsed, leaving millions of vulnerable people without the care and medications they urgently need," WHO said in statement.

"WHO is appealing to donors to help us meet the urgent, immediate humanitarian needs of the injured, pregnant women, malnourished children and elderly who are bearing the brunt of a collapsing health system," says Dr Ala Alwan, WHO Regional Director for the WHO Eastern Mediterranean. "We should not allow this to continue. With sufficient funds, we can reduce the risk of disease outbreaks, provide life-saving medications and vaccinate children to reduce avoidable deaths."

Currently, WHO and health partners are providing essential medicines, supporting health services and providing mental health psychosocial support in hard-to-reach areas through mobile clinics and primary health care centres. However, more funding is required to ensure that disrupted services are restored.

"The funding requested will help WHO and our partners support vital health services in 3 major areas: casualty management for those injured due to the conflict, treatment for patients with chronic diseases, and disease surveillance and vaccination activities to prevent outbreaks," says Dr Ahmed Shadoul, WHO Representative to Yemen.

The health and humanitarian situation for the civilian population in Yemen has reached catastrophic levels. The situation in some governorates is especially critical: 100% of the population of the Aden governorate and more than three quarters in the Taiz governorate are in need of humanitarian assistance. Since September, fighting has intensified in Taiz, and almost 240,000 vulnerable civilians are living under a virtual state of siege. In other parts of the country, the conflict has crippled the health system, making the delivery of health services and supplies extremely challenging. Almost 70 health facilities and 27 ambulances have been damaged, and there is a shortage of health workers, limiting access to health care.

Children at the Al-Astagbal camp for internally displaced people in Amran City, Yemen

Compounding the situation, fuel shortages have made it impossible for many major hospitals and health facilities to function optimally, while lack of fuel for ambulances has crippled the referral process. Surgical operations, including caesarian sections, have been disrupted. Patients whose treatment requires constant power supply are also at risk. Fuel shortages are also creating severe challenges for the transportation of food, water, and medical supplies, and the operation of water pumps and generators. In response to this, WHO has supplied over one million litres of fuel to health facilities and ambulances to keep them functional. Support has also been provided for the delivery of water purification tablets and over 19 million litres of water to camps and areas hosting internally displaced persons.

> Funding is urgently needed as the Yemeni health system has collapsed, leaving millions of vulnerable people without the care and medications they urgently need.

Over the past 9 months, WHO has distributed over 250 tonnes of life-saving medical supplies to Yemeni health authorities and international, and local nongovernmental organizations, serving more than 7 million beneficiaries. Together with health partners, WHO has vaccinated 4.6 million children against polio and 1.8 million against measles in high-risk areas.

"WHO and health partners call on all donors to urgently fill this funding gap and ensure continuity of life-saving and essential health services," says Dr Shadoul. MEH

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Review

A young Syrian refugee child in al Marj village in Lebanon's Beka'a Valley peers out of his makeshift window

Child health in Syria: recognising the lasting effects of warfare on health

By Delan Devakumar, Marion Birch, Leonard S. Rubenstein, David Osrin, Egbert Sondorp and Jonathan C. K. Wells

Abstract

The war in Syria, now in its fourth year, is one of the bloodiest in recent times. The legacy of war includes damage to the health of children that can last for decades and affect future generations. In this article we discuss the effects of the war on Syria's children, highlighting the less documented longer-term effects. In addition to their present suffering, these children, and their own children, are likely to face further challenges as a result of the current conflict. This is essential to understand both for effective interventions and for ethical reasons.

Introduction

Civilian populations are increasingly exposed to contemporary conflicts. That children are amongst the worst affected by war is widely known, but the full extent of their suffering is still not clearly understood. This article discusses the effects of the war in Syria on the health of children, with a focus on the less documented longer-term health effects.

The Syrian war is one of the bloodiest in recent times, with no end in sight and has been described by the United Nations High Commissioner for Refugees as the "worst humanitarian crisis of our time"[1]. It began in January 2011 as a civil uprising on the back of the 'Arab Spring' movements throughout the Middle-East and North Africa. The government responded to pro-democracy demonstrators with violence, a flashpoint which ultimately led to armed opposition. A civil war between the Syrian government and opposition groups, each with their own supporters, ensued. The conflict has since evolved into a larger, more complex war, merging with other regional conflicts involving the Islamic State and multiple factions across several countries.

Review

Immediate effects on child health

Numerous violations of child rights have been reported by the United Nations in Syria. Data from August 2013 showed that approximately 11,500 children had been killed, with "exponential increases in killing and maiming" over the previous year[2, 3]. By May 2015 it was estimated that 5.6 million children were in need of assistance[4]. As of August 2015, 7.6 mil-

lion Syrians (approximately half of whom were children) were internally displaced and a further 2.1 million children were refugees in nearby countries[4]–[6].

In addition to death and displacement, the immediate costs of war are numerous and include injuries, increases in food insecurity (potentially leading to malnutrition) and communicable diseases in poorly equipped and crowded camps for internally displaced persons and refugees. An assessment from 2013 highlighted the level of food insecurity,[7] but data quantifying the prevalence of malnutrition are generally lacking. Some studies have assessed nutritional status in refugee camps. A survey from a camp in Jordan showed a higher prevalence of anaemia in the occupants than in the host population (48 % (95 % CI 42, 55 %) compared to 26 % (95 % CI 21, 31 %)), although the rates of wasting were no different[8]. In refugee camps in Lebanon, an increase in global acute malnutrition (GAM) was shown between 2012 and 2013 from 4 % (95 % CI 3, 7 %) to 6 % (95 % CI 5, 7 %) in children aged 6–29 months; although this was a non-significant increase, under the World Health Organization (WHO) classification of GAM, the nutritional status of the Syrian camp population is considered "poor" (GAM between 5 and 10 %[9].

Children are affected through direct attacks (sometimes even deliberate homicide or execution), as victims of "collateral" damage (for example, indiscriminate use of aerial barrel bombs in densely populated cities such as Aleppo), and as a result of the systematic breakdown of societal structures[10]. Approximately 1,000,000 Syrian children are currently living under siege or in areas hard to reach due to violence[6]. Whereas Syria's public health indicators were improving before the war, and the country was experiencing an increase in life expectancy and changing disease patterns from communicable to non-communicable diseases, its health system has now collapsed[11], [12]. In 2014 the WHO reported that nearly three-quarters of hospitals and one-third of primary health care facilities were unable to function, and that hospitals (and also schools) were being used as military bases, exposing them to opposition attack[10], [13]. Water supplies have been targeted deliberately; those of Aleppo, for example, failed after the Al-Khafsah pumping station was attacked and sewage is no longer treated[6], [14]. Increased prevalence of vectors and pathogens, lack of a surveillance system, preventative programs and infrastructure, and likely impaired levels of immunity (as a presumptive consequence of malnutrition and reduced immunization rates, and possibly of stress) have led to a greater overall burden of disease - including vaccine-preventable diseases - illustrated by the reemergence of polio and outbreaks of measles[6], [15].

Long-term health effects

The above rightly focuses attention on the immediate plight of Syria's children, but evidence increasingly suggests that the stresses of war can have less visible effects that last for years or decades. Children who survive trauma may be left with lasting disability and mental scars, with consequences for their future health and social and economic life skills[16], [17]. Rates of trauma can remain high after conflict, and longer-term psychological and psychosocial effects may be aggravated by a combination of the increased presence of weapons and normalization of violence within society[18]. Acute exposure to violence can lead to mental illness, such as post-traumatic stress disorder (PTSD) and anxiety, which can persist well beyond the conflict[19], [20]. A systematic review of mental health in refugees and displaced people in Syria and surrounding countries (including 13 studies) found high and rising levels of mental distress but also highlighted methodological difficulties in obtaining accurate prevalence figures for mental illness. In children the symptoms included nightmares, bedwetting and changes of behaviour (aggressiveness or being withdrawn). One study of children in Lebanon for example, showed an unusually high prevalence of PTSD of 76 %[21].

In 2013, 2,000,000 children were estimated to be undernourished in both macro- and micronutrients in Syria,[22] which in early life alters growth trajectories, propagating effects over the life-course and affecting adult stature, risk of illness and potential earning capacity[23].

Societal changes can also be long-lasting. Breakdown of community structure results in children taking on roles reserved for adults at the expense of education and loss of future earnings,[24]–[26] an extreme example being their use as child soldiers[27], [28]. War can provoke family breakdown through death and displacement, and can also change the roles of remaining family members[29]. Half of school-age children within Syria and two-thirds of Syrian refugee children are not in school[30]. It is estimated that this will cost the country up to 5.4 % of its Gross Domestic Product if in the long term the 2.8 children this represents never return to school[31]. This is compounded by an exodus of the educated population that is likely to delay post-conflict recovery[10].

Inter-generational health effects

In addition, the effects of conflict are likely to be felt by children yet to be born. As previously described, war is a pervasive environment in which trauma, infectious disease, mental illness, and poor nutrition can affect maternal physiology sufficiently to propagate biological effects across generations. We discuss the evidence for this in a related article on this topic[32].

Based on information from other conflicts, increases in rates of preterm birth, fetal growth restriction, and maternal infections leading to congenital abnormalities are highly likely to increase[32]. Data from the Syrian conflict are currently sparse, but a study of 452 Syrian refugee women in Lebanon highlighted some of the problems. It found barriers to antenatal care, common exposure to violence (31 %) and a high rate of preterm births (24 %)[33]. Rates of Caesarean sections, with their associated morbidity, were also high (45 % of deliveries) as women were afraid of giving birth at unpredictable times in insecure environments[15]. There is similar evidence from Syrian refugees in Lebanon, where rates of Caesarian sections were 35 % (of 6366 deliveries assessed) compared to approximately 15 % previously recorded in Syria and

Lebanon[34], [35]. Though relatively small studies, similar outcomes would be expected in the nearly 40,000 babies already born as Syrian refugees, where coverage of adequate antenatal care and skilled healthcare workers at the time of birth is lacking[6], [36]. The mechanisms by which intergenerational adverse effects occur are complex. Increases in maternal trauma (including rape and intimate-partner violence), infections, lack of medication, illicit drug use, poor diets and stressful experiences all play a role and are all seen during conflict[32], [37].

Future Syrian children may be affected by the current conflict through inadequate nutrition. Reports from Syria exist of reductions in breastfeeding and the increased use of breastmilk substitutes[37]. This can be as a result of maternal stress and malnutrition that leads to inadequate nutrition and an impaired immune status for the infant. Increases in food insecurity after reduced crop production, breaks in the supply chain, and the breakdown of the economy can lead to lasting changes in food supply[22]. Sieges are an extreme example, imposing mass starvation. Examples include the siege of Homs, a 3-year battle between the Syrian military and opposition forces during which a lack of food led to reports of people being forced to eat grass and weeds,[38], [39] and amongst Palestinian refugees in the Yarmouk refugee camp[40]. Studies of the Dutch Hunger famine (World War II) and the Biafran conflict (1968–70) have shown that maternal famine can increase the risk of chronic diseases such as diabetes, hypertension and cardiovascular disease in adult offspring[32]. Increases in maternal stress and mental illness, common in war even among those not directly exposed to violence, are associated with changes to the child's hypothalamic-pituitary-adrenal system (via epigenetic changes to glucocorticoid genes), leading to an increased susceptibility to mental illness[41]. Changes to germline cells may also propagate transgenerational effects to the grandchildren of those affected[42]. In long-lasting conflicts, a combination of direct exposure to acute trauma and a reduced capacity to cope with stress due to intergenerational effects may lead to an exacerbation of symptoms[32].

> Acute exposure to violence can lead to mental illness, such as post-traumatic stress disorder (PTSD) and anxiety, which can persist well beyond the conflict

Conclusions

Warfare affects both today's children and those yet to be born in ways that can last a lifetime. The war in Syria may seem an extreme example, but has much in common with previous and other ongoing wars. While our understanding of the longer-term and inter-generational effects remains limited, these issues are important for many reasons, including a need to project future public health burdens and their implications for long-term support, as well as for their ethical implications. An appreciation of the full health and inter-generational consequences of war also has implications if parties to the conflict are to be held accountable under international human rights law, including the right to the highest attainable standard of health.

At this point in the war in Syria, at which there appears to be increasing fighting, we need to focus on the needs of vulnerable populations (including those yet to be born) who have already suffered and continue to do so and, in addition to providing immediate humanitarian aid, provide a coherent strategy for the future. An example would be ensuring adequate coverage of the 'Minimum Initial Services Package for Reproductive Health' for women and girls, which has the potential to reduce the harm caused both to them and their children[43].

While much work has been done to improve the accuracy of data collection during conflict in recent decades, the challenges of obtaining accurate data are still acknowledged[44]–[46]. These include a lack of security, rapid population movements, breakdown in health information and surveillance systems, and the manipulation of health information by parties to the conflict. However the information that does exist about the effects of war on child health in Syria, and the information that is known about child health in conflict more generally, makes a strong case for this to be a consideration in the planning of services post-conflict. It is also a clear indication that parties to conflict urgently need to take the full impact of conflict on children into account in their actions. The existing information presented here is a basis for further research to strengthen these arguments and we would encourage the collection of systematic data on health from the early stages in a conflict to enable a more appropriate humanitarian response and longer-term planning.

The tragic harms experienced by Syrian children in the current conflict are only some of the difficulties that they and their future siblings and children may face. Children are undoubtedly resilient to multiple stresses, but this capacity is limited and every effort must be made to mitigate harm where possible. An end to war must be given top priority by the international community and all parties within the conflict. In addition, the children who have suffered so much from the conflict in Syria must be followed and health data collected, both to understand the intermediate and long-term effects of the conflict, and to ensure that interventions are designed to ameliorate the harms that have befallen them.

Abbreviations

PTSD: Post-traumatic stress disorder
GAM: Global acute malnutrition
WHO: World Health Organization

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Competing interests

The authors declare that they have no competing interests.

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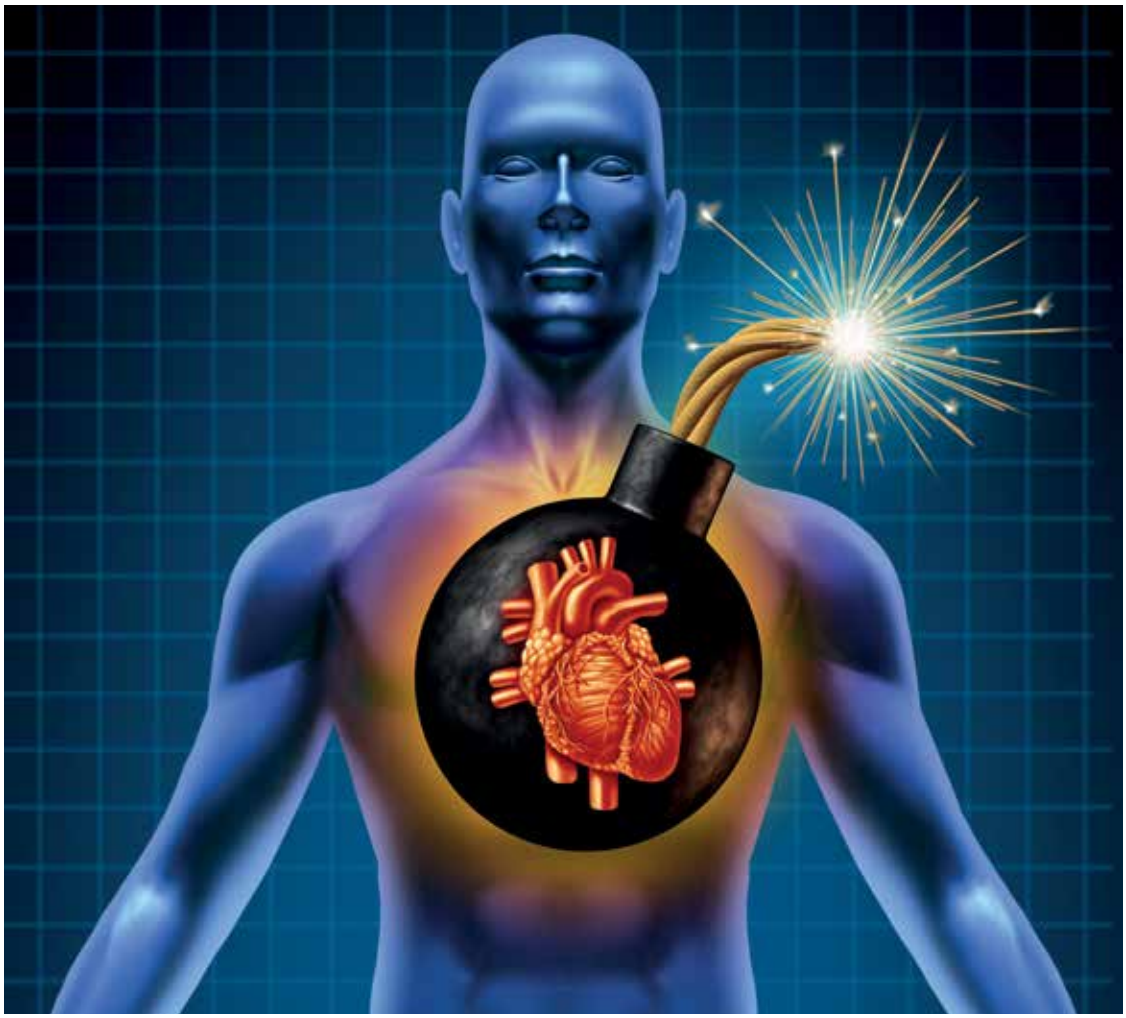
References

1. UN High Commissioner for Refugees: UNHCR Antonio Guterres - Written text of speech to the UN Security Counci. UN High Commissioner for Refugees, New York; 2015.
2. United Nations Security Council: Children and armed conflict. Report of the Secretary-General. In.: United Nations 2014
3. Oxford Research Group: Stolen futures: The hidden toll of child casualties in Syria. Oxford Research Group, London; 2013.
4. Syrian Arab Republic. http://www.unocha.org/syria webcite
5. Syrian Regional Refugee Response. *http://data.unhcr.org/syrianrefugees/regional.php webcite*
6. UNICEF: Under Siege. The devastating impact on children of three years of conflict in Syria. In.; 2014.
7. Food and Agricultural Organization and the World Food Programme: FAO/WFP Crop and Food Security Assessment Mission to the Syrian Arab Republic. 2013.
8. Bilukha OO, Jayasekaran D, Burton A, Faender G, King'ori J, Amiri M, Jessen D, Leidman E: Nutritional Status of Women and Child Refugees from Syria – Jordan, April–May 2014. MMWR Morb Mortal Wkly Rep. 2014, 63(29):638-639.
9. UNICEF: Joint Nutrition Assessment Syrian Refugees in LEBANON. 2014.
10. United Nations Human Rights Council: Report of the independent international commission of inquiry on the Syrian Arab Republic. In.: United Nations 2014.
11. Sen K, Al-Faisal W, AlSaleh Y: Syria: effects of conflict and sanctions on public health.
J. Public Health 2013, 35(2):195-199.
12. Ben Taleb Z, Bahelah R, Fouad FM, Coutts A, Wilcox M, Maziak W: Syria: health in a country undergoing tragic transition. Int. J. Public Health 2015, 60(Suppl 1):S63-72.
13. World Health Organisation: The Syrian Arab Republic. Fact sheet. Emergency Risk and Crisis Management. In.; 2014.
14. Shamout N: Syria Faces an Imminent Food and Water Crisis. Chatham House, London; 2014.
15. Syria Integrated Needs Assessment: Syrian Arab Republic. In.; 2013.
16. Bhutta ZA, Yousafzai AK, Zipursky A: Pediatrics, war, and children. Curr. Probl. Pediatr. Adolesc. Health Care 2010, 40(2):20-35.
17. Laor N, Wolmer L, Spirman S, Wiener Z: Facing war, terrorism, and disaster: toward a child-oriented comprehensive emergency care system. Child Adolesc Psychiatr Clin N Am 2003, 12(2):343-361.
18. International Action Network on Small Arms: Gun Violence: The Global Crisis;. In.; 2008.
19. de Jong JTVM, Komproe IH, Van Ommeren M, El Masri M, Araya M, Khaled N, van de Put W, Somasundaram D: Lifetime Events and Posttraumatic Stress Disorder in 4 Postconflict Settings. JAMA 2001, 286(5):555-562.
20. Summerfield D: The psychological legacy of war and atrocity: the question of long-term and transgenerational effects and the need for a broad view. J Nerv Ment Dis 1996, 184(6):375-377.
21. Quosh C, Eloul L, Ajlani R: Mental health of refugees and displaced persons in Syria and surrounding countries: a systematic review. Intervention 2013, 11(3):276-294.
22. Save the Children: Hunger in a war zone. The growing crisis behind the Syrian conflict. In.; 2013.
23. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R, et al.: Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet 2013, 382(9890):427-451.
24. ICRC: Children in War. ICRC, Geneva; 2009.
25. UNICEF: Machel study 10-year strategic review. Children and conflict in a changing world. In, New York; 2009.
26. Save the Children: Small hands heavy burden. How the Syria conflict is driving more children into the workforce. In.; 2015.
27. Grover S: Child soldiers as victims of 'genocidal forcible transfer': Darfur and Syria as case examples. The International Journal of Human Rights 2012, 17(3):411-427.
28. Human Rights Watch: "Maybe We Live and Maybe We Die". Recruitment and Use of Children by Armed Groups in Syria. In.; 2014.
29. Sharma M, Prasain D: Gender dimensions of the people's war: some reflections on the experiences of rural women. In: Himalayan people's war: Nepal's Maoist rebellion. edn. Edited by Hutt M. London Hurst & Co.; 2004: 152–165.
30. UNICEF: Syria Crisis: Education Interrupted. Global action to rescue the schooling of a generation. In.; 2013.
31. Save the Children: The Cost of War. Calculating the impact of the collapse of Syria's education system on Syria's future. In.; 2015.
32. Devakumar D, Birch M, Osrin D, Sondorp E, Wells JC: The intergenerational effects of war on the health of children. BMC Med 2014, 12:57.
33. Reese Masterson A, Usta J, Gupta J, Ettinger AS: Assessment of reproductive health and violence against women among displaced Syrians in Lebanon. BMC Womens Health 2014, 14:25.
34. Huster KM, Patterson N, Schilperoord M, Spiegel P: Cesarean sections among Syrian refugees in Lebanon from December 2012/January 2013 to June 2013: probable causes and recommendations. Yale J. Biol. Med. 2014, 87(3):269-288.
35. Jurdi R, Khawaja M: Caesarean section rates in the Arab region: a cross-national study. Health Policy Plan. 2004, 19(2):101-110.
36. Benage M, Greenough PG, Vinck P, Omeira N, Pham P: An assessment of antenatal care among Syrian refugees in Lebanon. Confl Health 2015, 9:8.
37. Save the Children: State of the World's Mothers 2014. Saving mothers and children in humanitarian crises. In.; 2014.
38. After fleeing 600 days of siege, a Syrian family has nowhere to go. *http://www.unicef.org/emergencies/syria_72722.html webcite*
39. Peace deal in peril as starving families refuse to leave Homs. *http://www.unhcr.org/cgi-bin/texis/vtx/refdaily?pass=52fc6fbd5&id=52e7616e5 webcite*
40. Lamb F: Syria: The Siege of Yarmouk. In: Foreign policy journal. 2014
41. Seckl JR, Holmes MC: Mechanisms of disease: glucocorticoids, their placental metabolism and fetal 'programming' of adult pathophysiology. Nat Clin Pract Endocrinol Metab 2007, 3(6):479-488.
42. Scharf M: Long-term effects of trauma: Psychosocial functioning of the second and third generation of Holocaust survivors. Dev Psychopathol 2007, 19(02):603-622.
43. Krause S, Williams H, Onyango MA, Sami S, Doedens W, Giga N, Stone E, Tomczyk B: Reproductive health services for Syrian refugees in Zaatri Camp and Irbid City, Hashemite Kingdom of Jordan: an evaluation of the Minimum Initial Services Package. Confl Health 2015, 9(Suppl 1 Taking Stock of Reproductive Health in Humanitarian):S4.
44. Checchi F, Roberts L: Documenting mortality in crises: what keeps us from doing better. PLoS Med 2008, 5(7):e146.
45. Woodruff BA, Duffield A: Anthropometric assessment of nutritional status in adolescent populations in humanitarian emergencies. Eur J Clin Nutr 2002, 56(11):1108-1118.
46. World Health Organisation: Outbreak Surveillance and Response in Humanitarian Emergencies. WHO Guidelines for EWARN Implementation. WHO, Geneva; 2012.



World's top heart failure doctors pledge united action

Members of the Heart Failure Association (HFA) Board and national Heart Failure Working Group Presidents signed a declaration designed to unanimously adopt a Call for Action in support of the HFA's Global Heart Failure Awareness Programme. Preventing heart failure must become a strategic health priority for each and every country, they noted.

Heart failure affects 26 million people worldwide. It is estimated that one in five people in developed countries will get heart failure. Survival rates for patients with heart failure are worse than those for bowel, breast or prostate cancer. Up to 45% of patients admitted to hospital with heart failure die within 1 year of admission and the majority die within 5 years. But the condition can be prevented with a healthy lifestyle.

"Preventing heart failure must be a strategic health priority in all countries," said HFA president Professor Gerasimos Filippatos. "The unanimous support for the declaration shows the widespread commitment of heart failure leaders to tackling heart failure."

The declaration calls on members of the HFA to:

- Raise global awareness about heart failure and make it a universal health priority
- Promote prevention by encouraging healthy lifestyles
- Train healthcare professionals to achieve earlier diagnosis and intervention
- Expand the specialisation of heart failure amongst cardiologists and nurses
- Clarify the patient pathway for earlier detection and structured follow-up
- Support strategic and political initiatives to improve heart failure care at national level

The document was signed at the 5th National Heart Failure Societies' Presidents' Summit on 24 October in Ljubljana, Slovenia.

"We need to have political backing for our campaign; this is essential to achieve the financial support and health policy legislation needed to implement strategies that address heart failure," said Professor Mitja Lainscak, coordinator of the declaration.

The statement supports the HFA's

Global Heart Failure Awareness Programme which seeks to engage politicians, regulators, health care professionals, patients and the public to improve awareness and prevention of the condition.

Professor Lainscak said: "We know how to prevent heart failure, and how to improve the quality of life and survival chances of patients with heart failure. As the world's largest heart failure organisation, the HFA will work with our partners to reduce unnecessary suffering and improve quality of life."

on the WEB Heart Failure Association Declaration
http://tinyurl.com/nm5hldw

First-line catheter ablation superior to drug therapy for reducing atrial fibrillation

First-line treatment with catheter ablation is superior to drug therapy for reducing atrial fibrillation, according to five year results from the MANTRA-PAF trial presented for the first time at ESC Congress 2015.

Atrial fibrillation (AF) is the most common heart rhythm problem that requires medical treatment. Atrial fibrillation reduces quality of life and is associated with increased risk of stroke and disability. Atrial fibrillation is more common with higher age, and is observed in 2% of people aged 60 years and at least 5% of the population older than 70 years.

"In clinical practice most doctors choose antiarrhythmic drug therapy for initial treatment of symptomatic atrial fibrillation and catheter ablation is used for patients who fail drug therapy," said principal investigator Professor Jens Cosedis Nielsen, consultant cardiologist at Aarhus University Hospital in Denmark. "We asked the question: is catheter ablation superior to antiarrhythmic drug therapy as first-line treatment?"

MANTRA-PAF (Medical ANtiarrhythmic Treatment or Radiofrequency Ablation in Paroxysmal Atrial Fibrillation) was an international multicentre trial conducted by heart rhythm specialists. A total of 294 patients with highly symptomatic paroxysmal atrial fibrillation were randomised to receive either catheter ablation or antiarrhythmic drug therapy as first-line treatment. The two-year results of the trial showed that both treatments reduced atrial fibrillation effectively, but none of the two treatment strategies were superior.

The five-year outcomes of MANTRA-PAF are presented at the ESC Congress. The primary endpoint was the burden of atrial fibrillation assessed by seven-day Holter recording. Secondary endpoints were burden of symptomatic atrial fibrillation, quality of life (using physical and mental component scores of the SF-36 questionnaire), and need for additional catheter ablation procedures since the two year follow up. Analysis was by intention-to-treat and imputation was used to compensate for missing Holter data.

Five-year follow up was achieved in 245 out of 294 patients (83%), of which 125 had been randomised to catheter ablation and 120 to antiarrhythmic drug therapy as first-line treatment. Holter recording was available for 227 patients. More patients in the catheter ablation group were free from any atrial fibrillation (126/146 versus 105/148, p=0.001) and symptomatic atrial fibril-

lation (137/146 versus 126/148, p=0.015) than those in the antiarrhythmic drug therapy group.3 Atrial fibrillation burden was significantly lower in the catheter ablation group (any AF: p=0.003, symptomatic AF: p=0.02) compared to the antiarrhythmic drug therapy group. The results were similar when not compensating for missing Holter recordings.

"At five-year follow-up less atrial fibrillation was observed with catheter ablation as first line treatment," said Professor Nielsen. "The findings indicate that first-line treatment with catheter ablation is superior to drug therapy for reducing atrial fibrillation. The different outcomes observed at two and five years may be because the two treatments have different modes of action."

There was no difference between the two groups in the number of additional catheter ablation procedures since the two-year follow up. Quality of life scores at five years did not differ between groups (physical component score p=0.88, mental component score p=0.94), but remained improved from baseline (both components p<0.001) and did not differ from the two-year scores.

"Quality of life scores remained improved from before treatment initiation with either of the two treatments," said Professor Nielsen. "This indicates that quality of life can be improved long-term by treatment aiming to withhold normal heart rhythm, either by antiarrhythmic drug therapy or catheter ablation."

He concluded: "The results indicate that first-line catheter ablation is superior to drug therapy for suppressing atrial fibrillation in patients with paroxysmal AF. The choice of first-line treatment strategy still needs to be discussed with individual patients taking into account their disease burden and risks associated with the different treatment strategies."

Changes in foetal hearts found in pregnant women with diabetes or obesity

Changes in foetal hearts have been found in pregnant women with diabetes or obesity, in research presented 3 December at EuroEcho-Imaging 2015 in Seville, Spain, by Dr Aparna Kulkarni, paediatric cardiologist from New York.

Dr Kulkarni said: "The main concept behind this study is of foetal programming. This refers to changes that occur in the structure and physiology of tissues in the

Central Sleep Apnoea device increases mortality in heart failure

Adaptive servo-ventilation (ASV) therapy increases mortality and should not be used to treat central sleep apnoea in heart failure patients with reduced ejection fraction, the SERVE-HF trial shows.

The Hot Line study, presented at ESC Congress 2015, and published simultaneously in the *New England Journal of Medicine*, "provides practice-changing guidance for the treatment of chronic heart failure (CHF)," said Martin Cowie, MD, co-principal investigator of the study, from Imperial College London.

"This study has changed our understanding of sleep-disordered breathing in systolic heart failure – the text books will have to be rewritten," he commented. "Doctors now know that treatment of central sleep-disordered breathing by mask therapy is not helpful for these patients and might be harmful. Lives will be saved by the findings of this new study."

Professor Cowie emphasized that patients in the study had reduced ejection fraction and predominantly central sleep apnoea, and therefore the results cannot be generalized to patients with preserved ejection fraction or obstructive sleep apnoea.

Unlike obstructive sleep apnoea, central sleep apnoea (CSA) is caused by the brain failing to trigger breathing during sleep.

ASV is designed to detect significant variation in breathing and deliver pressure through a face mask in order to maintain a normal breathing pattern.

In SERVE-HF (which stands for The Treatment of Sleep-Disordered Breathing With Predominant Central Sleep Apnoea by Adaptive Servo Ventilation in Patients With Heart Failure) 1,325 chronic heart failure patients with a reduced ejection fraction who were randomised to receive either guideline-based medical management alone (control group), or with the addition ASV for a recommended 5 hours per night, 7 days a week.

After a median follow-up of 31 months ASV effectively treated central sleep apnoea but had no effect on the primary end point, which was a combination of all-cause death, life-saving cardiovascular intervention, or unplanned hospitalisation for worsening heart failure.

The event rate for the primary outcome was 54.1% in the ASV group compared to 50.8% in the control group (hazard ratio [HR] 1.13; P=0.10).

Moreover, the addition of ASV to standard care had no beneficial effect on functional measures, including quality-of-life, six-minute walk distance, or symptoms.

However, all-cause mortality and cardiovascular mortality were higher in the ASV group than in the control group (34.8% versus 29.3%; HR 1.28; P=0.01 and 29.9% versus 24.0%; HR 1.34; P=0.006).

"The early and sustained increase in cardiovascular mortality seen with ASV was unexpected, and the reasons for this effect remain unclear," said Professor Cowie, noting that the SERVE-HF results are contrary to findings from some previous studies.

One possible explanation for this is that central sleep apnoea may actually be a compensatory mechanism in some heart failure patients, he suggested.

"Potentially beneficial consequences of central sleep apnoea in these patients could be that it rests respiratory muscles, and modulates excessive sympathetic nervous system activity, and by diminishing this effect ASV may be detrimental for patients with heart failure."

Although SERVE-HF did not meet its primary endpoint, "it was a well-designed and executed study", concluded Professor Cowie, "and because of it we now know that ASV therapy is contraindicated in this subset of chronic heart failure patients."

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foetus as a result of the mother's health."

She continued: "Diabetes and obesity are major epidemics of the present century. I see a lot of mothers with one or both conditions in my clinical practice and wanted to investigate if these maternal conditions had any effect on the foetal hearts."

In 2014 there were 387 million people in the world with diabetes and this is expected to increase to nearly 600 million by 2035. Worldwide obesity has more than doubled since 1980 and in 2014 more than 600 million adults were obese.

> The researchers found subclinical changes in the myocardium of foetuses of mothers with diabetes and also foetuses of mothers with obesity, compared to the foetuses of healthy women.

In the United States, pregnant women with diabetes and some with obesity are routinely referred for standard of care foetal echocardiograms, which show a picture of the baby's heart. During 2012 to 2015, the study prospectively enrolled 82 pregnant women with diabetes and 26

pregnant obese women with a body mass index (BMI) of more than 30 kg/m2. A control group of 70 healthy pregnant women who volunteered to have a foetal echocardiogram was used for comparison.

The researchers examined the echocardiograms to see how well the heart muscle of each foetus was contracting and relaxing. Next they processed the pictures using a method called speckle tracking to generate more detailed information on heart muscle function by evaluating the heart muscle motion.

"Speckle tracking echocardiography can detect heart abnormalities at the subclinical level, in other words before standard echocardiographic techniques may detect an abnormality." said Dr Kulkarni. "In our study, it highlights abnormalities without obvious functional heart problems in the foetus."

The researchers found subclinical changes in the myocardium (heart muscle) of foetuses of mothers with diabetes and also foetuses of mothers with obesity, compared to the foetuses of healthy women. The changes were not apparent by routine echocardiographic techniques.

Dr Kulkarni said: "On routine standard echocardiographic images, it did not seem like these hearts were significantly affected. But with speckle tracking we had evidence that the myocardial function was unfavourably altered in the hearts of foetuses of mothers with diabetes and obesity.

"Our findings potentially have implications in a world where both diabetes and obesity are skyrocketing," said Dr Kulkarni.

Further research

But she added that further studies were needed to find out if these foetal changes affect the cardiovascular health as a child or an adult, when during pregnancy the hearts are affected and whether anything can be done to alter this course. As an extension of the current study, Dr Kulkarni will examine the babies' hearts at one year of age to see if the abnormalities are still present, get worse, or have disappeared.

Dr Kulkarni said: "These are important results but I don't want pregnant women with diabetes or obesity to think that something will definitely go wrong with their pregnancy. We need more answers about what impact diabetes and obesity in the mother may have on the child after birth, before coming to firm conclusions about implications for the health of the baby."

SKMC cardiac surgeons use 3D printing to deliver patient-specific treatments

Abu Dhabi's Sheikh Khalifa Medical City (SKMC) hospital is using 3D printing based on 3D medical images to rehearse complex operations. This makes surgical time faster and helps save more lives, says one of its top heart doctors.

The SKMC Paediatric Cardiac Program works seamlessly with a Belgian-based technology provider who provides 3D printed models, which greatly aids the diagnostics of surgery to deliver patient-specific treatments.

Preoperative planning sessions typically involve several medical professionals consulting with one another, often by telephone from Abu Dhabi, Brussels, and Kuala Lumpur.

"Preoperative planning will never be the same," said Dr Laszlo Kiraly, Consultant and Division Head, Paediatric Cardiac Surgery at SKMC which is managed by Cleveland Clinic and is a part of the SEHA health system.

"We now completely rehearse what we want to do, and we do it in a pressure-free environment that allows us to draw on global experience from around the world. This 3D engineering has made our team not only more confident but more effective, as we are now speeding surgical times and saving lives."

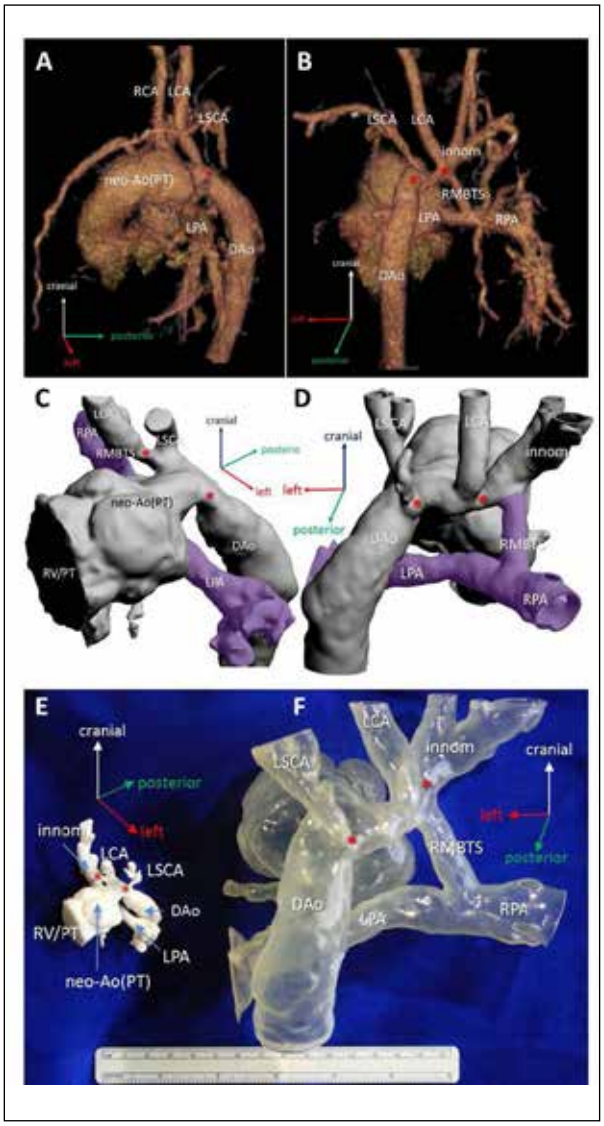

Fig 1.
A: 3D reconstruction of the aortic arch, its branches and the pulmonary arteries from the CT-angio; left-lateral view. B: posterior view. C: Digital 3D model of the aortic arch, its branches and the pulmonary arteries; left anterior oblique lateral view. D: posterior view. E: 3D-printed prototype of the aortic arch, its branches and the pulmonary arteries, life-size, solid model; left anterior oblique lateral view. F: 3D-printed prototype of the aortic arch, its branches and the pulmonary arteries, 3x-magnified size, hollow model; posterior view. Sites of obstruction are denoted by *.

Abbreviations
DAo: descending aorta, innom: innominate artery, LCA: left common carotid artery, LPA: left pulmonary artery, LSCA: left subclavian artery, neo-Ao(PT): neo-aorta, RCA: right common carotid artery, RMBTS: right modified Blalock-Taussig shunt, RPA: right pulmonary artery, RV/PT: right ventricle to pulmonary trunk junction

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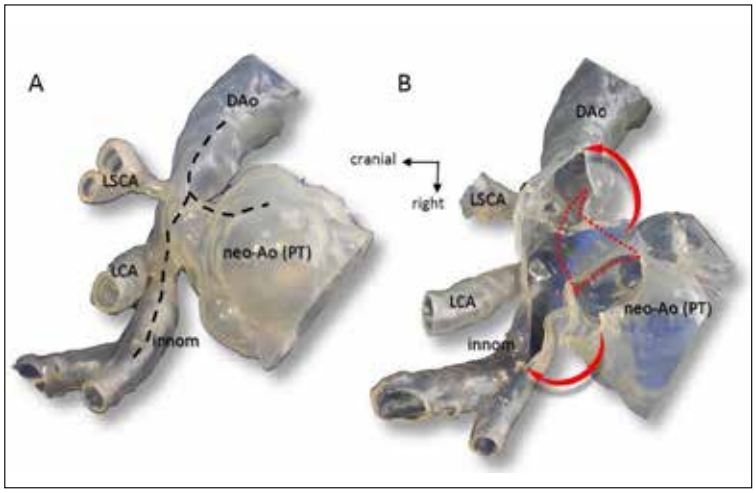

Fig 2.
A: The hollow prototype from the surgeon's perspective. Black dotted lines represent the intended incisions. B: the specimen is opened and internal obstructive ridge is resected (red dotted lines). "Autologous" flaps are created and turned over as arch augmentation (arrows).

Abbreviations

A: arterial perfusion port, AAo: native ascending aorta, CPL: cardioplegia line, DAo: descending aorta, innom: innominate artery, LCA: left common carotid artery, LPA: left pulmonary artery, LSCA: left subclavian artery, LSVC: left superior vena cava, neo-Ao(PT): neo-aorta, PT: pulmonary trunk, RV: right ventricle, V: venous cannula

Dr Alawi Alsheikh-Ali, Consultant Cardiologist and Cardiac Electrophysiologist at SKMC, added: "The first paediatric cardiac surgery assisted by 3D printed models in the UAE was performed by our team in June 2015, and it has become an important modality in our profession."

The patient was born with hypoplastic left heart syndrome (HLHS), where the left ventricle of the heart is very underdeveloped and unable to pump blood to the body. Without surgical intervention, HLHS is fatal. After an initial surgery in the girl's first weeks of life, she underwent a second stage of surgery at five months old, with surgeons using the lifesaving 3D technology in preparation.

Complex congenital heart diseases such as HLHS demand the best quality of medical imaging for the planning of paediatric open-heart surgery, Dr Alsheikh-Ali, who is the Chair of the Cardiac Sciences Institute at the hospital, said.

"The life-size, 3D-printed true model of the heart is used to plan intricate, detailed steps of the operation, and this translates into improved patient safety and outcomes. This novel technology has additional potential for teaching of young doctors and medical students."

The Institute of Cardiac Sciences at SKMC offers cardiac care to patients from the neonatal stage to adulthood. SKMC's paediatric cardiology program, which was rolled out in April 2007, is a referral centre for the region. For the paediatric patient population, it provides a paediatric cardiac operating room, an intensive care unit, and a high dependency unit, among other services. MEH

Absorbable stents perform similar to metal in STEMI study

A drug-eluting coronary stent made of absorbable material performed similarly to the gold-standard metal one in a non-inferiority trial among patients with the more serious type of heart attack known as ST-segment elevation myocardial infarction (STEMI), according to results of the ABSORB STEMI TROFI II trial.

"This is the first randomised controlled trial to compare the stent coverage between these two types of stents in the STEMI setting," said senior investigator Patrick W Serruys, MD, PhD, who presented the findings at ESC Congress 2015, with simultaneous publication in the *European Heart Journal*.

Unlike metallic stents which remain permanently in place, absorbable stents also known as "bioresorbable vascular scaffolds" (BVS) eventually biodegrade restoring the natural physiology of coronary vessels – "a factor which may be more important in STEMI patients, who tend to have delayed arterial healing as compared to patients with stable coronary artery disease," explained Professor Serruys, from the International Centre for Circulatory Health, Imperial College, London, UK.

The study included 191 STEMI patients (mean age 58.6 years) undergoing primary percutaneous coronary intervention at 8 medical centres.

Patients were randomised to receive either a BVS (n=95) or metallic stent (n=96), both types being "drug-eluting", meaning coated in everolimus, a drug to reduce the risk of vessel reblockage.

The primary endpoint of the study was a 6-month score assessing stent coverage and restenosis of the vessel using coronary optical coherence tomography (OCT) imaging.

Given the chosen criteria for non-inferiority, the score was similar (1.74 in the BVS arm and 2.80 in the metallic stent arm), indicating almost complete arterial healing in both groups and meeting the criteria for non-inferiority ($P<0.001$).

Clinical events measured as a composite of cardiac death, target vessel myocardial infarction (MI), or clinically-driven target lesion revascularisation, were 1.1% in the BVS arm compared to 0.0% in the metallic stent arm (P=ns), with one case of definite subacute thrombosis in the BVS arm.

"This trial provides the basis for further exploration in clinical outcomes trials," noted Dr Serruys.

Disclosures

- ABSORB STEMI TROFI II was sponsored by the European Cardiovascular Research Institute and received grants from Abbott Vascular and Terumo.
- Dr Serruys reports being a member of the international advisory board of Abbott Vascular. MEH

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Giving Shape to Ideas

The destination for highly specialized cardiovascular care

The Northwestern Medicine Bluhm Cardiovascular Institute is a nationally recognized program that is a destination for those requiring highly specialized cardiac and vascular care.

Patients benefit from the expertise of physicians, nurses and a range of multidisciplinary specialists working together in a variety of areas including cardiology, cardiac surgery, vascular medicine, vascular surgery and cardiac behavioral medicine.

Clinical centers

The Bluhm Cardiovascular Institute is comprised of six highly specialized clinical centers:

- Center for Coronary Disease
- Center for Heart Failure
- Center for Heart Rhythm Disorders
- Center for Heart Valve Disease
- Center for Preventive Cardiology
- Center for Vascular Disease

Physicians in these Centers are addressing the prevention and treatment of cardiac and vascular disease through the investigation of new technologies, drugs, techniques and devices that ultimately translate into the best patient care.

Rankings and accomplishments

Since the inception of the Bluhm Cardiovascular Institute we have achieved among the best survival in the country from the most commonly occurring cardiovascular conditions to the most complex – a reason why the Bluhm Cardiovascular Institute is a leading destination for both initial diagnoses and second opinions.

The Bluhm Cardiovascular Institute has ascended from unranked by *U.S. News & World Report* in 2005 to 9th in the nation in 2015. In addition, we have the largest heart valve surgery volume and the largest transcatheter aortic valve replacement (TAVR) program in Illinois. From 2004-15, the number of complex cardiac surgeries at Bluhm Cardiovascular Institute has increased by over 600 percent.

Niche clinical programs

What sets us apart is that we continue to evolve and create niche clinical programs for patients with complex diagnoses and disorders such as those with atrial fibrillation, high-risk aneurysms, congenital heart disease, chronically occluded coronary arteries, heart failure, pulmonary vascular disease and advanced valvular heart disease. These niche programs include dedicated nurse coordinators who work with physicians and patients to navigate the complex health care system, ensuring continuity of care and a seamless shift from inpatient to outpatient services and ultimately home

Research and clinical trials

The many benefits that our patients receive are in large part due to the shared commitment between the Northwestern University Feinberg School of Medicine and the Bluhm Cardiovascular Institute. The partnership has led to the creation of the Clinical Trials Unit of Northwestern. This unique facility is dedicated specifically to innovative research and the evaluation of clinical outcomes in order to provide the most advanced treatment options and improve the quality of care for the cardiovascular patient. Our research efforts include multicenter clinical trials studying the multiple applications of 4D MRI, transcatheter valve replacement therapy, endovascular stent grafting for aneurysms and dissections and advanced heart failure therapies including ventricular assist devices.

Referring physician relationships

It goes without saying that the strength of the relationship that we have with referring physicians is imperative to a positive patient outcome and experience. This collaboration is a critical component of eliminating the challenges that come with providing complex cardiovascular care. We are extremely grateful for the trust that referring physicians have in our team as we strive to benefit patients with the treatments and services available at the Bluhm Cardiovascular Institute.

Targeted recruitment

A targeted physician recruitment effort, along with the retention and development of existing team members, has been a successful catalyst to advancing the exceptional care we offer our patients. Our staff features nationally renowned and highly recognized leaders. We are proud to have two past presidents of the American Heart Association on staff and a number of our physicians have authored national guidelines that guide clinical care across the United States.

- For more information, visit *internationalhealth.nm.org* or call +1 312-926-1089. MEH

Preventing expansion in the aortic root

In 2004, Royal Brompton Hospital (RBH) led the way as the first to perform the ExoVasc Personalised External Aortic Root Support (PEARS) procedure, a novel treatment to manage dilation of the aortic root. PEARS has now been successfully applied in over 50 cases and patients at RBH are continuing to benefit from this innovative procedure in the hands of Cardiac Surgeon, Mr Ulrich Rosendahl.

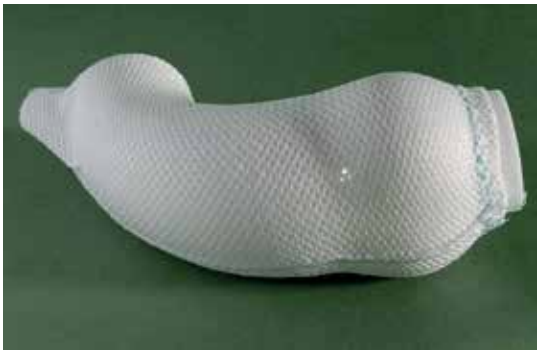
Three forms of surgery are now available to treat patients with Marfan and other syndromes: total root replacement (TRR) with a valved conduit, valve sparing root replacement (VSRR) and personalised external aortic root support (PEARS) with a macroporous mesh sleeve, manufactured and tailored to the patient's own aortic dimensions.

PEARS provides some key benefits over the other procedures:

- It takes a relatively short time to implant, around two hours for the full surgery. This is considerably less time than the conventional aortic root replacement, which takes around 4 to 7 hours.
- Cardiopulmonary bypass is not usually necessary as the procedure is carried out on the beating heart.
- Additionally, it offers freedom from anticoagulation post-surgery as the aorta and aortic valve remain intact.

Once confirmed suitable for the procedure, the dimensions of the individual patient's aorta are taken from the preoperative CT digital images. These are used to make a three-dimensional model of the patient's aorta in CAD and utilising 3D printing, a physical model is then produced. On this physical model an external support of a medical grade polymer fabric mesh with 0.7 mm pore size is made.

Via open chest surgery the ExoVasc support is placed around the aortic root and ascending aorta where it provides support to the patient's own aorta and aortic valve and is designed to prevent enlargement and rupture.



- Prospective patients can be referred by their consultant or general practitioner to Mr Ulrich Rosendahl by phoning 00 44 (0) 2031 315 749 or emailing: *privatepatients@rbht.nhs.uk*

Research shows high success rate of robotic mitral valve repair

Rakesh M. Suri, MD, DPhil, Chief of Staff and Chief of Thoracic and Cardiovascular Surgery at Cleveland Clinic Abu Dhabi

New research published by a US multidisciplinary research team lends support to the benefits of one type of minimally invasive heart surgery – robot-assisted mitral valve repair (RAMVR) – in which surgeons create very small incisions in the chest to repair a heart valve that does not function properly due to valve disease. Treatment has traditionally been delivered very effectively by open heart surgery. Prior studies have shown minimally invasive surgical techniques can benefit patients in many ways, including smaller incisions, decreased risk of complications, shorter hospital stays and faster recovery times.

The seven year-long clinical study, published October 2015 in the journal *Circulation*, a leading peer-reviewed clinical heart journal, focused on the outcomes of RAMVR in 487 patients with severe non-ischemic, degenerative mitral regurgitation, who underwent robotic mitral valve repair between January 2008 and January 2015. The mean age of the patient group, 360 of which were men, was 56 years.

The study shows excellent quality outcomes after RAMVR, with survival of 99.5% at five-year follow-up and infrequent complications. 94% of patients did not have mitral regurgitations after five years. Furthermore, only 2.3%, or seven patients, had to undergo reoperation within five years of the surgery.

The study's lead author, Rakesh M. Suri, MD, DPhil, Chief of Staff and Chief of Thoracic and Cardiovascular Surgery at Cleveland Clinic Abu Dhabi, commented: "This study shows for the first time the high success rate and long-lasting effectiveness of robotic mitral valve repair for all patients with degenerative mitral valve disease. We observed a five-year survival rate of nearly 100%, plus excellent durability, in some cases exceeding the standards established for mitral valve repair performed via open chest procedures."

The minimally invasive nature of RAMVR means that very small incisions are required during surgery, often less than two inches versus a six to eight-inch incision with open chest surgery. The procedure is available at Cleveland Clinic Abu Dhabi.

There are two main causes of mitral valve disease – valve stenosis, which is a narrowed valve that requires the heart to pump harder, leading to a strained heart and reduced blood flow to the body, and valve regurgitation, which occurs when the mitral valve does not close properly, causing blood to leak back towards the lungs. Mitral valve disease is a serious condition that can put patients at risk of heart failure and even death.

> The study suggests that, in the right setting, less invasive alternatives to conventional and percutaneous mitral repair like RAMVR may result in optimal outcomes regardless of repair complexity.

Several treatment options exist, such as mitral valve repair through an open chest median sternotomy approach, which although invasive is considered highly effective, along with thoracoscopic and RAMVR.

The study suggests that, in the right setting, less invasive alternatives to conventional and percutaneous mitral repair like RAMVR may result in optimal outcomes regardless of repair complexity.

Dr Suri added that "the experience of high-volume mitral valve surgeons, paired with the expertise of multidisciplinary teams that include cardiologists, surgeons, anesthesiologists and nurses, helps ensure excellent patient outcomes, including a quicker return to daily activities and a sustained recovery". MEH

A new life, a good life

Left ventricular assist device (LVAD) gives heart failure patient a new chance at life after fearing all hope was lost

Roy Sammons, 74, went into cardiac arrest three times after being hospitalized for complications from heart failure in early June. His wife and children thought it was the end.

"The doctors told us that it was time to let him go," said Carol Sammons, Roy's wife of 54 years and his high school sweetheart. "I responded with, 'Well, I can't do that.'"

Roy was airlifted to the University of Chicago Medicine, one of just a few hospitals in the Chicago area offering a heart failure, mechanical circulatory support and heart transplant program. Nir Uriel, MD, an expert in the treatment of advanced heart failure, leads the multidisciplinary team.

"When Roy arrived, his heart was not pumping enough blood to meet the needs of his body," Uriel said. "He was near death."

Due to his age and condition, Roy was not a candidate for heart transplant. But Uriel and Valluvan Jeevanandam, MD, chief of cardiac and thoracic surgery, offered the family an alternative: a surgically implanted portable pump, called a left ventricular assist device, or LVAD (pronounced el-vad), to support Roy's heart and restore its function.

"It's a new direction for us, thanks to Dr Uriel and the University of Chicago Medicine."

The mechanical pump of an LVAD rests inside the chest or in the abdomen and is connected directly to the heart. The device pumps blood from the left side of the heart into the aorta – the large vessel that circulates blood to the rest of the body. A small external computer, or controller, runs the pump. Batteries or electricity from an outlet powers the device.

When LVADs were first introduced, they were designed to keep critically ill patients alive until they could get new hearts. But today's more advanced and smaller devices are increasingly used as a long-term alternative to transplant.

"Today we are in a different time with this disease," Uriel said. "Many more advanced heart failure patients are now benefitting from mechanical circulatory support." But, he cautioned, the technology has limitations and requires care, attention and commitment from the patient and the family. "Life on a LVAD is a life on batteries, gadgets and alarms. There is no going back."

Valluvan Jeevanandam, MD

Nir Uriel, MD

Roy's family didn't hesitate to choose the LVAD surgery. "The kids and I looked at this as a life-saving choice for their dad, my husband," Carol said. "Dr Uriel and the surgical team were like knights in shining armor to us."

On June 10, 2014, Jeevenandam implanted Roy's mechanical device. Roy spent two weeks recovering in the hospital, followed by three weeks in a rehabilitation facility.

Now back in his Braidwood, Illinois, home, he is improving every day.

Carol tends to the details of her husband's daily life on a LVAD without complaint. "It is not the life we had, but it is a good life," Carol said. "It's a new direction for us, thanks to Dr. Uriel and the University of Chicago Medicine. People need to know there is help out there and not to give up." MEH

Nuclear cardiology examinations

By **Sungjune Jang**, MD, MMSc

There are many diagnostic examinations available to the cardiologist, such as electrocardiography, echocardiogram, computed tomography coronary angiography (CTA), magnetic resonance imaging (MRI) cardiac perfusion study.

For the evaluation of physiological, functional and metabolic parameters, nuclear cardiac examinations have unique value. Those examinations are noninvasive, and accurate in the diagnosis of cardiac disease, and in the prediction of prognosis and risk. Therefore, nuclear cardiology could be used widely as an imaging modality in the care of patients with known or suspected cardiac disease.

There is a misunderstanding that MRI, echocardiogram, or CT are superior to nuclear cardiology imaging because of their superior spatial resolution. For the identifying perfusion abnormalities, the contrast resolution is needed. Nuclear cardiology provides superior contrast resolution to allow differentiation between normal and hypoperfused areas in the myocardium. Advanced computer algorithms have been developed to totally, automatically, and objectively process and quantify images – a feat yet to be successfully performed by other modalities.

Myocardial perfusion scintigraphy

Technetium-99m (Tc-99m) sestamibi, Tc-99m tetrafosmin, and thallium-201 (Tl-201) chloride are the most widely used radiopharmaceuticals in myocardial perfusion studies. Tc-99m-labelled radiopharmaceuticals has superior image quality and lower effective radiation dose for the patient. But physiologically, Tl-201 chloride behaves similarly to potassium, although it is not a true K+ analog in a chemical sense.

Single-Photon Emission Computed Tomography (SPECT) is the standard method for myocardial perfusion scintigraphy. The cross-sectional images provide high-contrast resolution and three-dimensional views of the myocardium with good delineation of the various regional myocardial perfusions by their coronary arteries.

ECG-gated SPECT provides cinematic three-dimensional images of contracting myocardial slices from summed beats over the acquisition time. The left ventricular ejection fraction (LVEF) is automatically calculated, and wall motion and thickening analysis are also available.

The myocardial SPECT with stress can provide valuable information on the extent and severity of coronary artery disease useful for risk evaluation, prognosis, and patient management. For cardiac stress, exercise, or pharmacologic stress can be used. Due to the universal phenomena of population ageing and obesity, the pattern of stress imaging and the expected future trend indicates that pharmacologic stress imaging will grow in clinical importance. Adenosine, dipyridamole, or dobutamine have been used for pharmacologic stress. Regadenoson was approved by the FDA in 2009. Several comparative studies have reported similar accuracy for detection of significant coronary disease for adenosine, dipyridamole, and regadenoson compared to exercise-stress SPECT.

These cardiac images help to identify coronary heart disease, the severity of prior heart attacks, and the risk of future heart attacks. These highly accurate measurements of heart size and function and amount of heart muscle at risk of damage enable cardiologists to better prescribe medications and select further testing like a coronary angiogram, the need for angioplasty and bypass surgery, or devices to optimize treatment outcomes.

Positron Emission Tomography of the heart

Positron Emission Tomography (PET) affords superior spatial resolution and superior attenuation correction compared to SPECT, and the radiation exposure received from the examinations with available cardiac PET tracers is substantially lower than that of SPECT. Among the cardiac positron-emitting radiopharmaceuticals, Nitrogen-13 (N-13) ammonia, Rubidium-82 (Rb-82) chloride, or Oxygen-15 (O-15) water can be used for perfusion imaging. And, for evaluation

> Nuclear cardiology provides superior contrast resolution to allow differentiation between normal and hypoperfused areas in the myocardium. Advanced computer algorithms have been developed to totally, automatically, and objectively process and quantify images – a feat yet to be successfully performed by other modalities.

of myocardial glucose metabolism, Fluorine-18 fluorodeoxyglucose (F-18 FDG) is available. Carbon-11 (C-11) acetate, and C-11 palmitate would be preferred PET tracer for fatty acid metabolism imaging.

Radionuclide ventriculography

Radio-labelled red blood cell radionuclide ventriculography (RVG), also known as multigated acquisition (MUGA) study, has been used since the 1970s to evaluate global and regional ventricular function. There are two methods, the first-pass method, and the equilibrium method. The gated equilibrium study has become the standard method. A major benefit of the radionuclide method is that estimation of LVEF is not dependent on mathematical assumptions of ventricular shape. Emitted counts in the ventricle are proportional to its volume directly. The MUGA study is most commonly used to calculate a LVEF in patients receiving cardiotoxic drug (i.e., doxorubicin).

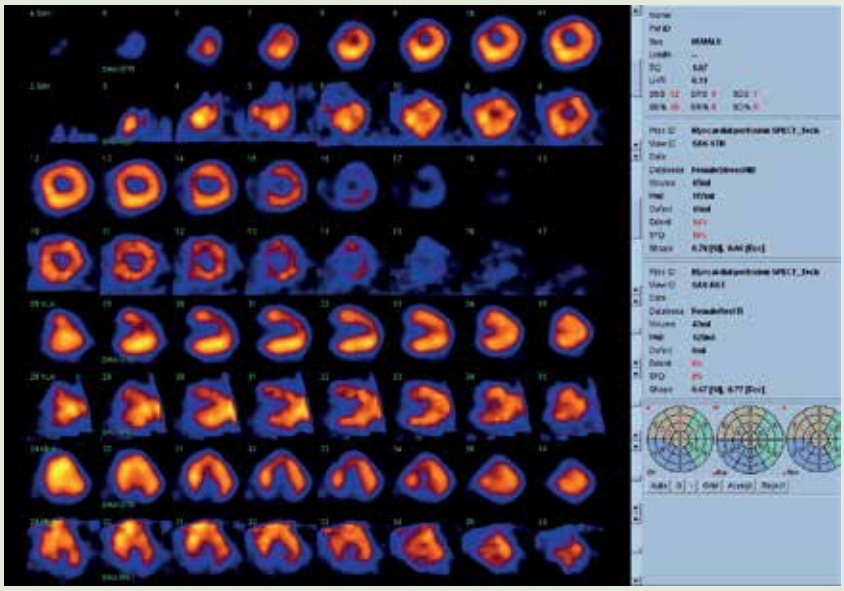
The author

Sungjune Jang, MD, MMSc, is a consultant physician in the department of nuclear medicine, Sheikh Khalifa Specialty Hospital, Ras al Khaimah, UAE. MEH

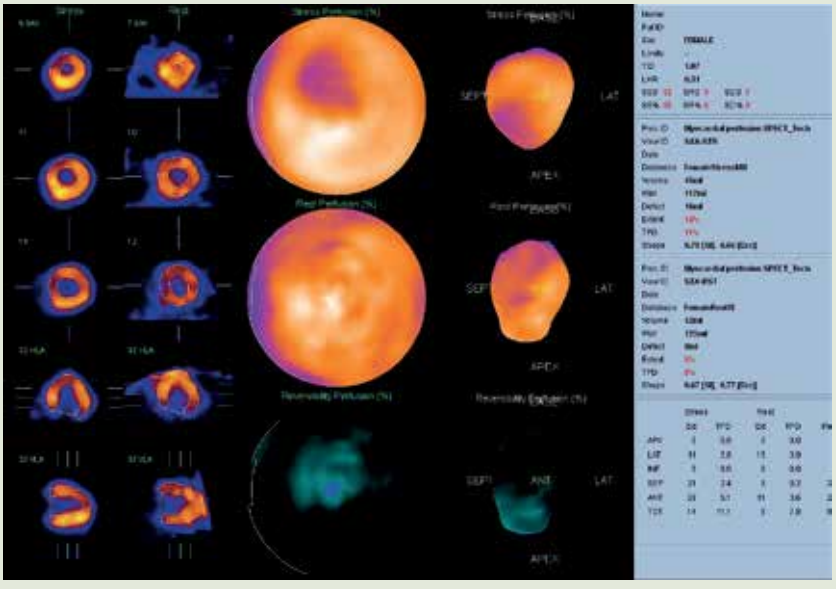
Case report

A 58-year-old female with known coronary artery disease had suffered chest pain for two months presents to a cardiologist. The previous coronary angiography revealed 50% narrowing of proximal LAD. But electrocardiography, echocardiography, cardiac enzyme studies did not reveal any abnormality in this time. Afterward, myocardial perfusion SPECT with pharmacologic stress (using regadenoson) revealed reversible large, moderate perfusion defect at LAD territory (Tl-201 for rest, Tc-99m MIBI for stress, dual isotope, one-day protocol).

The following coronary angiography identified 95% obstruction at LAD, then PCI was successfully done.



Three dimensional display of myocardial perfusion



Reversibility on QPS analysis

Forgoing partnerships that foster the exchange of healthcare professionals

Renowned as a leader in health care delivery in the United States and internationally recognized for excellence, The University of Nebraska Medical Center/ Nebraska Medicine's International Healthcare Services (UNMC) has established a unique model for world-class clinical experts in patient care, research, education, training, management and advanced technology to enhance patient-care delivery around the world. UNMC leverages the academic and medical hospital's core competencies, intellectual capital and management expertise to create innovative services and collaborative partnerships and to provide "No-Cost" training and research opportunities to healthcare providers around the world.

UNMC's achievements reach far beyond the boundaries of the heartland in North America. Its leadership and excellence in health care has extended internationally with its footprints in 122 collaborative partnerships in 44 countries. The diverse array of global partnerships touch patients in Delhi, Jeddah, Cairo, Kuwait, Nairobi, Cape Town, Madrid, Mexico, Beijing, Tokyo and Rio. This is a clear affirmation of UNMC's strong commitment to create and nurture outstanding sustainable relationships and programs throughout the world.

U.S. News and World Report named UNMC as one of Best Hospitals in North America. UNMC attracts the best US and international healthcare professionals and researchers to work in a global environment that promotes the best patient care and treatment options that can leap over geographical boundaries to reach global patients in need.

Medical expertise shared around the world

Established international presence and research driven experiences have allowed UNMC the ability to leverage and successfully operate under changing and challenging international healthcare delivery systems. UNMC continues to successfully grow, collaborate and expand its international programs.

Fifteen years ago, Nizar Mamdani, Executive Director of the International Healthcare Services, experienced first hand how extraordinary and world-renowned the healthcare delivery in cancer care and bone marrow transplantation is at UNMC, as his wife, Nancy, was a Non-Hodgkin's patient at UNMC.

"I realized the importance for international patients to be the ultimate beneficiaries from UNMC's advanced treatment programs in cancer care and transplantation. I wanted to start a global "No-Cost" healthcare training program for healthcare professionals" says Mamdani. "Today, our selfless programs provide healthcare professionals the unique opportunity to learn from world-renowned doctors and nurses in cancer care, transplantation, neurology, cardiology and 36 other subspecialties."

During his first overseas visit fifteen years ago, it became clear to Mamdani that most international physicians were very well educated and trained, but the support staff needed training in specialized treatment programs. His No-Cost training programs have focused on that basic premise of providing allied health and nursing staff with customized training

Healthcare professionals participate in a 15 to 21-day, No-Cost collegial observership and become familiar with US and internationally renowned physicians. UNMC's training programs work fairly simply. A partner institution sends specialists, nurses and other allied health professional team for training. While at UNMC, they receive free housing, meals, local transportation, and priceless training. It's an investment, Mamdani says, that is returned many times over, because the international patients, in their own countries, are the ultimate beneficiaries of these training programs. 187 healthcare professionals from 28 countries have participated in No-Cost programs at UNMC and 52 UNMC specialists have visited 23 international partner institutions to provide training.

"The relationships Nizar describes are having a strong impact, according to Dr. James Armitage, a world-renowned hematologist at UNMC. "I think anytime you can interact with colleagues around the world to the betterment of patients is excellent."

Dr. Grande from Spain stated "UNMC's clinical floors are run like a caring and innovative enterprise, every international doctor will immensely benefit from this collaborative experience. This is the best education and life-changing experience in the world, with the free tuition and paid living expenses".

Nizar Mamdani, Exec. Director, International Healthcare, Nebraska Medicine

Borderless medicine delivery

UNMC's individualized Tele-Medicine programs provide global healthcare solutions to cross geographic limitations and high costs in travel. Patients are touched through individualized Tele-Health, Tele-Pathology and Tele-Educational programs. These programs provide a collegial opportunity to electronically access and collaborate with UNMC's experiences and proven treatment options for their patients. UNMC utilizes state-of-the art technology, web based software, "real-time" interactive diagnosis, tele-pathology and electronic consultation.

"On-line uploading of patient's reports and past medical history, pathology slides x-rays and other radiological images also provide a medium for statistical data and the exchange of medical research, educational information and patient outcomes", says Mamdani.

UNMC is inviting healthcare and research institutions as well as healthcare professionals and researchers to collaborate in its international research and patient care programs to help improve treatment options in cancer, heart and other life-threatening illnesses.

■ For more information, visit: *www.unmc.edu/international* and contact *oihs@nebraskamed.com*

Great Ormond Street Hospital for Children

Great Ormond Street Hospital for Children (GOSH) in London is a world-class centre of excellence with **over 50 different paediatric specialities and 300 world-leading consultants under one roof**. Through pioneering translational research, GOSH provides cutting-edge treatment for the rarest and most complex paediatric conditions. **GOSH is rated as one of the top five children's hospitals in the world**.

While breakthroughs and medical expertise are essential to the treatment of patients, GOSH also places great emphasis on the support and care provided for children by nurturing an open and supportive atmosphere, ensuring that parents and patients are well informed and closely involved in the treatment process. Children receive the highest standards of care and attention from the expert team of medical and support staff during their stay at GOSH, and are always treated with respect, trust, concern and openness.

The International and Private Patients Service at GOSH treats over 5,000 children from over 80 different countries each year. The service is tailored to the referral and treatment of international patients and our dedicated, multi-lingual team ensure a smooth and efficient patient experience.

Find GOSH at Arab Health

GOSH will be exhibiting at Arab Health in the Dubai International Convention & Exhibition Centre on the 25th – 28th January 2016. Find them at stand Z1C14 in the UK Pavilion where you can chat with staff about the range of services they offer.

For more information or to refer a patient to Great Ormond Street Hospital for Children, please contact our Gulf Office.

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Minimally invasive tool uses light for beating-heart repairs

By Erin Horan,
Boston Children's Hospital

Last year, cardiologists at Boston Children's Hospital reported developing a groundbreaking adhesive patch for sealing holes in the heart. The patch guides the heart's own tissue to grow over it, forming an organic bridge. Once the hole is sealed, the biodegradable patch dissolves, leaving no foreign material in the body.

As revolutionary as this device was, it still had one major drawback: implanting the patch required highly invasive open-heart surgery. But that may be about to change.

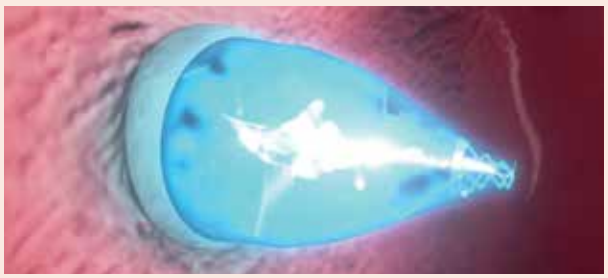
Researchers from the Wyss Institute, Brigham and Women's Hospital, Harvard's John A. Paulson School of Engineering and Applied Sciences (SEAS) and Boston Children's have jointly designed a radically different way to implant the patch without having to stop the heart, place patients on bypass or cut open their chests.

They created a flexible, UV light-guided catheter that can be inserted through a vein in the rib cage, and from there directed to the defect within the beating heart. Two positioning balloons, one on either side of the hole, open when the catheter is fully in place. One of the balloon's surfaces has a mirror-reflecting quality that reveals areas of the heart that would otherwise be difficult to see without more invasive tactics.

After releasing the patch, the surgeon turns on the catheter's UV light, which activates the patch's adhesive coating. The two balloons are then deflated and withdrawn.

The new catheter/patch combo has been successfully used to close ventricular septal defects in animals both large and small. In the September 23rd issue of *Science Translational Medicine*, the research team reported successful patch placement in a live pig model – a major step towards demonstrating that the tool may work on a beating human heart without requiring bypass and open-heart surgery.

The Wyss Institute's Ellen Roche, PhD, co-first author on the paper, explains that the animal studies were "proof of concept." "We are looking forward to more animal studies that focus on a particular application," she says.



Pedro del Nido, MD, chief of Cardiac Surgery at Boston Children's, says the device would radically change how these kinds of cardiac defects are repaired. "In addition to avoiding open-heart surgery, this method also avoids suturing into the heart tissue, because we're just attaching something to it," he says.

Roche adds that the device was designed to be customizable. For instance, the rate at which the patch biodegrades within the body can be slowed or accelerated depending on how quickly the tissue around it grows. Further studies will reveal the appropriate length of time for different circumstances.

The glue's unique ability to cure on cue – it only becomes sticky once the UV light is turned on – opens up a wide range of possible uses. "There are more applications than correcting heart defects," says Roche. "The patch and the catheter can be used in a variety of situations, such as abdominal hernia repair or peptic ulcer closure."

Cardiac Surgery Research at Boston Children's Hospital

The Cardiac Surgery Research Laboratory comprises a multidisciplinary team of investigators involved in basic and applied research who are studying mechanisms of heart disease and new treatments for children with congenital heart defects.

The principal areas of active research are:

- Surgical robotics and ultrasound-guided intracardiac surgery. The department is pioneering the use of 3-D ultrasound and laparoscopic techniques to operate on the beating heart.
- Myocardial metabolism and myocardial hypertrophy and heart failure. Researchers are exploring new methods of myocardial preservation during heart surgery and the role of angiogenic growth factors in heart failure.
- Tissue engineering to stimulate the growth of new tissue to repair congenital defects, including valve abnormalities, right ventricular defects, and arrhythmias.

The division is also developing a fetal cardiac surgery laboratory that will be conducting several clinical research projects including those to evaluate techniques to remodel the right ventricle after repair of tetralogy of Fallot, and to determine optimal hematocrit levels to prevent neurologic injury during cardiopulmonary bypass.

Featured researchers in the Cardiac Surgery Research Laboratory hold faculty appointments at Harvard Medical School.

● Learn more at: *www.childrenshospital.org/research-and-innovation*

nature
الطبعة العربية

رائدة العلوم في العالم العربي
متـاحـةٌ الآن للجمـيــع ..

لقد كانت مهمتنا دومًا إيجاد سُبُل جديدة ومبتكرة لمشاركة أحدث الاكتشافات في مجال العلوم، وتطوير النقاش بين المجتمع العلمي العالمي. وتُعَدّ دوريّة *Nature* الطبعة العربية سواء النسخة الورقية المطبوعة، أو الإلكترونية، أو تطبيق الهواتف الذكية بمنزلة مُنْتَدَاك الخاص لقراءة الأبحاث الرئيسة، ومشاهدتها، والاستماع إليها، والمشاركة فيها.

مدينة الملك عبدالعزيز للعلوم والتقنية KACST

nature publishing group npg

Treatment of patients suffering from constipation with Eucarbon herbal tablets

Open, multicenter, prospective, non-interventional study

By Wolf D Hübner

Abstract:

In an open, multicenter, prospective, non-interventional study (NIS) efficacy and safety of Eucarbon® *herbal* tablets, containing senna leaf, rhubarb extract, and wood charcoal, were investigated in 50 patients suffering from constipation. After two weeks' treatment, all 50 patients were available for evaluation, whereby the following questionnaires and criteria were used: Number of complete spontaneous bowel movements (CSBM) per week [main efficacy criterion], modified Clinical Global Impressions (CGI), improvement of problems and complaints with bowel movements (regarding to Rome-III criteria), global assessment of efficacy / therapeutic effect by physician and patient, body weight. Visits took place before treatment, after one week and after two weeks of treatment. The majority of patients took 3 x 2 tablets. The mean number of CSBM was nearly doubled. All major symptoms and complaints, like abdominal pain, bloating, feeling of incomplete evacuation, straining necessary decreased significantly during treatment. The medication was tolerated very well.

In conclusion the efficacy and safety of the natural product Eucarbon® *herbal* tablets in the indication constipation could be confirmed.

Introduction:

Constipation refers to bowel movements that are infrequent or hard to pass. Constipation is a common cause of painful defecation. The normal frequency of evacuations varies individually from three times daily to three times a week. Constipation per se is diagnosed if no bowel movements occur for three days or more, and if this irregularity persists for longer than six days. Constipation is not an illness, but a symptom with many causes, which are of two types: obstructed defecation and colonic slow transit (or hypomobility). Acute constipation starts suddenly and lasts for a few days.

Chronic constipation is one of the most common complaints in clinical medicine. It is a rising problem in modern society affecting approximately one of five adults in industrialized countries. Chronic constipation is defined as the delayed evacuation of dry, hard stools [MUTSCHLER] or the passage of small hard faeces infrequently and with difficulty [FALLON]. Because constipation is a symptom, not a disease, effective treatment of constipation may require first determining the cause.

The most common causes are associated with nutritional factors such as the consumption of food with poor dietary fibre content, which results in insufficient filling of the intestine. Furthermore, intake of readily absorbed food with a reduced water-binding capacity or the lack of exercise may lead to constipation. Other causes include factors related to organ dysfunction or organ damage, metabolic and endocrine disorders (diabetes mellitus e.g.), functional and organic disturbances of the nervous system, such as Parkinson's disease, or may be caused by the side-effects of drugs such as analgesics, antidepressants, antispasmodics or sedatives [WALD].

The Rome Criteria for chronic constipation [DROSSMAN] require at least two of the following symptoms for 12 weeks or more over the period of six months:

- Straining with more than one-fourth of defecations
- Hard stool with more than one-fourth of defecations
- Feeling of incomplete evacuation with more than one-fourth of defecations
- Sensation of anorectal obstruction with more than one-fourth of defecations
- Manual maneuvers to facilitate more than one-fourth of defecations
- Fewer than three bowel movements per week

The management of constipation extends well beyond the use of laxatives. There is a general agreement in selecting therapeutic strategies for treatment of constipation. Non-surgical treatment can be separated into: dietary approaches such as fibre supplementation, behavioural approaches such as habit training, contingency management, and biofeedback, exercise as well as pharmacological approaches.

The aim of laxative therapy is to achieve

comfortable defecation, rather than any particular frequency of evacuation. Although most laxatives are not very palatable, oral laxatives should be used whenever possible. The choice of laxative depends on the nature of the stools, the cause of the constipation, and acceptability of the patient.

When choosing laxatives, knowledge of the main mechanism of their action is needed. Many of the softeners increase stool bulk and lead to reflex stimulation of peristalsis, and, similarly, the peristalsis stimulators enhance intestinal fluid secretion and therefore improve stool consistency [WALD].

For decades Eucarbon® has been used internationally for constipation. It is a charcoal-sennosides combination which is indicated for the relief of the symptoms of constipation and general gastrointestinal disorders.

The original composition contains also purified sulphur. Eucarbon® *herbal* has the same unchanged composition, but without sulphur.

Eucarbon® *herbal* stimulates the entire digestive system, increases colonic motility, has a mild laxative and spasmolytic effect, relieves gas pain and can also be regarded as a detoxifying agent (mild adsorbent). In the unique combination of this preparation the proven and generally accepted effects of the single ingredients have additional beneficial effects – presented in a standardized dosage form.

The aim of this study was to gain further knowledge on the daily use and safety of Eucarbon® *herbal* tablets in patients suffering from constipation. As it is known that eating and living habits as well as traditions are different all over the world and vary from country to country it is important to evaluate and understand if a "European composition" for a herbal drug known and established for more than 100 years will have the same profile of efficacy and tolerance in an Asian country, where the population has quite different nutritional behaviour and culture.

The study design was a non-interventional, open, perspective, multicenter study (NIS) which was planned, conducted and evaluated by the current state of scientific knowledge. The patients were informed and asked for written consent by the treating physician. National laws and regulations regarding patient information, data protection, and documentation were respected and obeyed. An Institutional Review Board has been consulted which has approved the study.

Method:

This study aimed to prove the well-known safety profile of an approved drug under daily practice conditions. Main efficacy criterion was the increase of the frequency of complete spontaneous bowel movements (CSBM) per week compared to base-line [anamnestic data] with a minimum of seven days' treatment. Secondary end-points included course and intensity of specific symptoms like abdominal complaints, hard stool, feeling of incomplete evacuation, bloating. All data of the examinations and treatment were documented in prepared case report forms (CRFs). Physicians who participated in this study had to be well versed in diagnostics and treatment of gastro-intestinal diseases.

Generally, the individual time of treatment and observation of a patient was two weeks. In particular, it depended on the decision of the treating physician regarding the course of treatment, and the individual situation of the patient.

The planned observation time for the whole study population was from May 2013 to October 2014. Included in this study were men and women with the diagnosis "constipation" (acute as well as chronic constipation) in the age of 18 to 70 years, who were out-patients in practices of general practitioners or specialists for internal medicine or were treated in hospitals for internal medicine in Malaysia.

Parameters for the assessment of a successful treatment with Eucarbon® *herbal* were: number of complete spontaneous bowel movements (CSBM) per week, clinical findings, problems and complaints with bowel movements (regarding Rome-III criteria), modified Clinical Global Impressions Scale (CGI)[GUY] regarding the severity of disease, global assessment of the efficacy / therapeutically effect by the treating physician and patient. Each patient received Eucarbon *herbal* tablets, where the recommended dosage was 3 x 2 tablets/day. Active ingredients in Eucarbon® *herbal* tablets (Manufacturer: F. TRENKA, Vienna, Austria) are: Fol. sennae (Senna Leaf) 105,00 mg; Extractum Rhei (Rhubarb Extract) 25,00 mg; Carbo Ligni (Wood Charcoal/Vegetable charcoal) 180,00 mg, and two additional relevant excipients: Peppermint oil 0.50 mg, and Fennel oil 0.50 mg.

Results

During the time period of July 2013 to February 2015 the study was performed in eight gastroenterological specialist clinics in Malaysia, where 1 to 18 out-patients were treated per center with Eucarbon® *herbal* tablets. 25 patients suffered from acute constipation (50%), 19 from chronic constipation (38%), 4 from abdominal colics, and 2 from abdominal discomfort / colics. Completely documented case report forms are available for 50 patients: male: 26, female: 24 in the age of 7 – 82 years (mean: 37.34; median: 38 years), a body-height of 110 – 176 cm (mean: 167.69; median: 160 cm), and a body-weight at the inclusion day of 45 – 95 kg (mean: 63.24; median: 62 kg).

The mean number of spontaneous bowel movements/defecations in the week before inclusion in the study was 2,8 (with a range of 0 to 7 spontaneous defecations). The mean "complaints with bowel movements" (regarding Rome-III criteria) before treatment (assessed by a scale from "0 = no complaints or seldom"; "1 = minor, easy to resist"; "2 = affecting"; "3 = strongly affecting" to "4 = heavily") was 1.98.

A total of 17 patients took different kinds of laxatives before entering the Eucarbon® *herbal* study: most frequently: Dulcolax, Senekot, "herbal treatment", Buscopan, and "enema". Most commonly reported comorbidities / risks were piles/hemorrhoids (10 pats), smoker (8), alcohol (2), diabetes mellitus (2 pats). 20 pats. (40%) lamented occasionally bloating, 14 (28%) seldom, and 12 (24%) frequent bloating.

All patients completed the study; there was no premature interruption of treatment or drop-out. Most patients (n = 21, 42%) finished the study as recommended after 2 weeks (mean: 15,1; median; 15 days). In none of the 50 patients any clinical findings / abnormalities / drug related complaints were reported.

At the beginning of the study in 34 pats. (68%) the tablet dosage of Eucarbon® *herbal* recommended by the Investigator was 6 (3 x 2) per day, in 8 pats. (16%) 3 tabs. (3 x 1) per day. The dosage of Eucarbon® *herbal* during the two-week treatment was increased in 4 pats. (from 4 to 6 tabs/day), decreased in 3 pats. from 6 to 4 and 3 resp., and unchanged in 43 pats (86%).

Fig. 1 shows the mean values of spontaneous bowel movements during the course of the treatment. The mean values increased from 2.8 before to 4.37 (1.7 – fold) after one and 5.28 (1.9 – fold) after two weeks of treatment.

Additionally, the quality of different symptoms of defecations was assessed by a scale system from zero to four ["0 = never/ seldom"; "1 = sometimes"; "2 = often"; "3 = mostly" to "4 = always"] before and after treatment.

As result in fact all five typical symptoms were improved: more "subjective symptoms" like "feeling of incomplete evacuation" (by 78%), "sensation of anorectal obstruction" (by 71% as well as more "objective symptoms" as "hard stool" (by 69%), "straining necessary" (by 77%).

The complaints with bowel movements (regarding Rome-III criteria), before and after treatment assessed by a scale [from "0 = no complaints or seldom"; "1 = minor, easy to resist"; "2 = affecting"; "3 = strongly affecting" to "4 = heavily"] decreased by 73,2% from 1,98 to 0,53.

Furthermore one very distressing symptom – bloating – could be very clearly improved: from a mean value of 1.91 before treatment to 0-28 after two weeks treatment – a decrease of 85.34%.

The final global assessment of the therapy with Eucarbon® *herbal* by the investigator after the two weeks treatment regarding efficacy and tolerance/safety was "very good" (see Fig. 2).

In 41 pats (82%) the investigator gave the recommendation for the continuation of Eucarbon® *herbal* intake after the two weeks' treatment, in 8 of them (16%) in a reduced dosage.

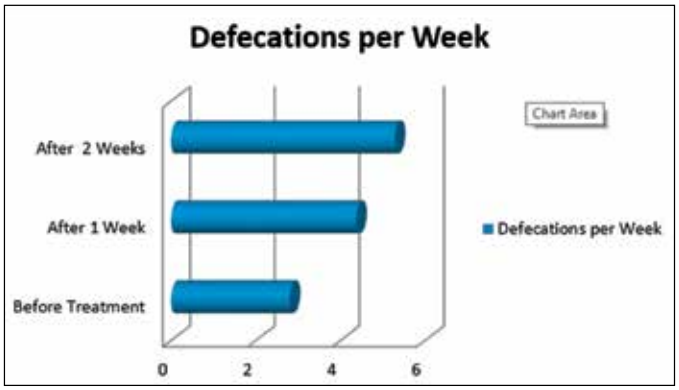


Fig 1: Quantity of spontaneous defecations (CSBM) before and under treatment

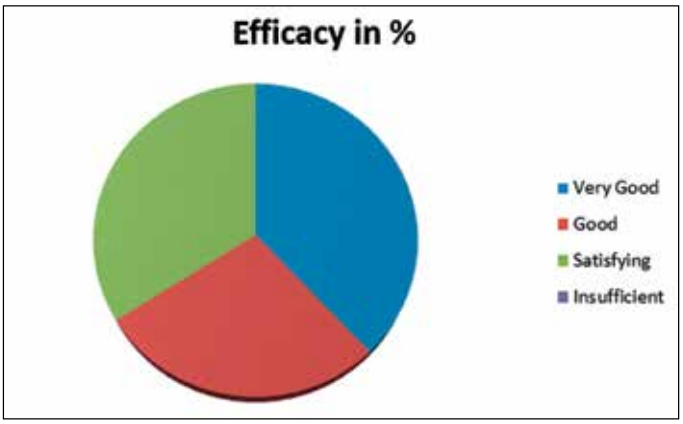


Fig. 2: Final global assessment of the efficacy of the therapy by the investigator after two weeks' treatment

Discussion

Eucarbon® was developed in 1909 by the pharmacist Mag. F. Trenka and by Prof. Dr. W. Pauli who composed a unique medicine out of natural components known since centuries. Eucarbon® tablets contain only vegetable and natural active ingredients and are produced with up-to-date production methods in accordance with GMP-standards. Eucarbon® stimulates the entire digestive system, increases colonic motility, has a mild laxative and spasmolytic effect, relieves gas pain and can also be regarded as a detoxifying agent (mild adsorbent). The overall tolerability and safety of Eucarbon® is known and documented for more than one century. Using Eucarbon® as a drug of choice in constipation has never been associated with severe or even life-threatening adverse reactions. In the usual dosage regime, i.e. at the recommended doses, Eucarbon® does not even show preparation-related side effects, neither in the daily practice nor in the studies performed. There are no preparation-specific contra-indications known neither findings on drug interactions nor any restrictions on the ability to drive or to operate machinery.

Eucarbon® belongs to the group of medicines possessing mild laxative and purgative properties and having a wide spectrum of pharmacological effects. It is not only a mild laxative but also a digestive regulator. At low dosage of 1 to 3 tablets per day, Eucarbon® exhibits its adsorption power, at higher dosages of 4 to 6 tablets per day Eucarbon® acts as an adsorbent and mild laxative.

In case of constipation the herbal laxative has the effect, within six to eight hours, of softening the faeces, thereby facilitating defecation, as their action takes place in the colon.

The aim of this study, reported here, was to gain further knowledge on the daily use practice and safety of Eucarbon® *herbal* tablets in patients suffering from constipation in a setting which has not been not studied so far. Main efficacy criterion was the increase of the frequency of complete spontaneous bowel movements (CSBM) per week compared to base-line [anamnestic data] with a minimum of seven days' treatment. The secondary end-points included: clinical findings, problems and complaints with bowel movements (regarding Rome-III criteria), course and intensity of specific symptoms like abdominal complaints, hard stool, feeling of incomplete evacuation, bloating, as well as the modified Clinical Global Impressions Scale (CGI) regarding the severity of disease and the global assessment of the efficacy / therapeutically effect by the treating physician and patient.

As an overall result of this study the treatment with Eucarbon® *herbal* tablets

can be regarded as very successful as the main as well as the secondary efficacy criteria resulted in very good values.

The main efficacy criterion - increase of the frequency of CSBM per week – is successfully fulfilled by an increase of 1.7-fold after the first, and 1.9-fold after the second week of treatment [from 2.8 to 4.4 and 5.3 CSBM per week – which is nearly doubling]. Bloating as a particularly harmful symptom decreased dramatically from 1.9 ["occasionally"] to 0.28 [which is near to "0 = no"]. The complaints with bowel movements changed from a mean of 1.98 [on the scale from 0 to 3] to 0.53 – which is a decrease of more than 73%. Similar values are obtained with the modified Clinical Global Impression Scale: from a mean of 1.44 to 0.4, a decrease of about 72%. Regarding the quality of defecations an overall improvement between 70% and 78% was found concerning the symptoms hard stool, necessity of straining, feeling of incomplete evacuation and sensation of anorectal obstruction – all symptoms which affect the patients in their daily living heavily. In the criterion "manual maneuvers to facilitate" there was only an improvement of about 40% which is easily to explain by the very low initial value of only 0.28 scale points which is practically zero – thus can hardly be improved – but in fact could be to 0.17.

The overall final global assessment of the therapy by the investigator resulted in 66% good and very good for the efficacy [and 34% regarded as satisfying or sufficient] – which means that in all patients the treatment was judged as convincing. There were no side effect reports nor safety concerns, as the tolerance was described in 74% of the patients as good and very good and in the remaining 24% as satisfying or sufficient. Values which are corresponding to the patients' overall judgment [including efficacy and safety] which results in 98% for notable to very good effects.

Summing up - the treatment with Eucarbon® *herbal* tablets in the recommended dosage lead to the desired effects - increase of CSBM per week, a remarkable decrease in complaints and an improvements of the quality of defecations with a convincing safety profile - thus delivering the proof of being a successful therapeutically principle in the treatment of constipation also in an Asian population.

Conclusion:

The overall tolerability and safety of Eucarbon® is known worldwide and documented over one century. Using Eucarbon® as a drug of choice in constipation has never been associated with severe or even life-threatening adverse reactions. A combination of plant laxatives such as Eucarbon® *herbal* constitutes appropriate therapy in clinical practice for the treatment of constipation – not only in terms of principal efficacy and safety, but also as regards administration of treatment. One important point is that people very easily can modify and adapt their individual dose and therefore prevent potential stronger side effects that might be expected due to its content of anthraquinones. Eucarbon® *herbal* works as a natural intestinal regulator with a unique twofold action as an agent against mild forms of diarrhoea, an adsorbent and mild laxative as documented in this study. MEH

References

BREIER, H.: An Open Study in general practice of 102 patients: Klinische Untersuchungsergebnisse nach Verabreichung von Eucarbon. Biomed 5/81: 1-4 (1981)

DOBB, G.J., EDIS, R.H.: Coma and neuropathy after ingestion of herbal laxative containing podophyllin. Med J Aust . 1984;140(8):495-496.

DROSSMAN, D.A.: The Functional Gastrointestinal Disorders and the Rome III Process, GASTROENTEROLOGY 2006;130:1377–1390

DUNN, CH.J., GOA, K.L.: Mitoxantrone: A Review of its Pharmacological Properties and Use in Acute Nonlymphoblastic Leukaemia. Drugs & Aging 9 (2): 122-147 (1996)

El MRINI, M., ABOU TAIEB, R., BENJELLOUN, S.: Evaluation of the clinical efficacy of EUCARBON in the preparation of the intestine for urography and for enterocystoplastic surgery. Central Hospital, Casablanca, Morocco, Data on file (F. Trenka) (1994)

EMEA - HMPC Assessment Report on Cassia Senna, April 2007 (2007)

FALLON, M., O'NEILL, B.: ABC of palliative care: Constipation and diarrhoea. BMJ 315: 1293-1296 (1997)

FARR, CH., MOSER, E., FARR, L., SCHÖNBORN-BUCHHEIM, V.: Therapy for chronic constipation with plant laxatives. Modern Medicine 19: 54-60 (2002)

FERUGLIO, F.S.: Treatment of hospital in-patients with EUCARBON®. An open evaluation. A report on 31 hospital in-patients from the Clinica Medica Generale, University of Trieste. Data on file (F. Trenka) (1981)

FRANCIS, C.Y., MORRIS, J., WHORWELL, P.J.: The irritable bowel severity scoring system: a simple method of monitoring irritable bowel syndrome and its progress. Aliment Pharmacol Ther 11: 395-402 (1997)

GUY, W.: Clinical Global Impressions (CGI) Scale. Modified From: Rush J, et al.: Psychiatric Measures, APA, Washington DC, 2000.

HEINZ, R.: Evaluation of the Post Marketing Surveillance of Eucarbon® in 3 countries. Scientific report, Data on file (F. Trenka) (2009)

HÜBNER, W.D.: Clinical Expert Report on Eucarbon® Tablets 2014. Data on file (F. Trenka) (2014)

HÜBNER, W.D., ALKEN, R.G.: Treatment of Patients Suffering from Constipation with Eucarbon®. Modern Medicine 21: 36-40 (2004)

HÜBNER, W.D., MOSER, E.H.: Charcoal Tablets in the Treatment of Patients with Irritable Bowel Syndrome. Advances in Therapy 19(5): 245-252 (2002)

KREJS, G.J.: Efficacy of Eucarbon in Patients suffering from IBS, Data on file (F. Trenka) (2002)

LIVERTOX DATABASE, U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, National Institutes of Health, U.S. Department of Health & Human Services (2015)

MCA (MEDICINES CONTROL AGENCY) London: Report on Safety of Herbal Medicinal Products, July 2002 (2002)

MUTSCHLER, E.: Laxantien Arzneimittelwirkungen – Lehrbuch der Pharmakologie und Toxikologie, 7. Auflage, Stuttgart: 483-489 (1991)

NICOLOVA, P., JOTOVA, N., PESHEV, P., BOEVA, N., STOIKOVA, E.: Preparation with Eucarbon® for ultrasonic diagnosis and X-ray investigations of abdominal organs. Modern Medicine 2005; 22: 26 – 27 (2005)

NUSKO, G., SCHNEIDER, B., ERNST, H., WITTEKIND, C., HAHN, E.G.: Melanosis coli – a harmless pigmentation or a precancerous condition? Z. Gastroenterol. 35 (5): 313-318 (1997)

OKASHA, H.: A Phase IV, 3 Arms Interventional Study to Assess the Tolerability of Eucarbon in Abdominal Ultrasound Examination in Egyptian Patients. Alexandria Journal, 2012 Vol. IIX (III.) 33-38 (2012)

SCHMIDBAUER, C.P., SCHUSTER, F.X.: Darmreinigung vor Uroradiologie und Urosonographie. Eine klinische Prüfung mit Eucarbon. Data on file (F. Trenka) (1985)

SCHUMANN, C.: Laxative use not a risk for colorectal cancer: data from the Melbourne colorectal cancer study. Z Gastroenterol. 1993 Nov;31(11):690.

SIEGERS, C.P., VON HERTZBERG-LOTTIN, E., OTTE, M., SCHNEIDER, B.: Anthranoid laxative abuse a risk for colorectal cancer? Gut 34 (8): 1099-1101 (1993)

WALD, A.: Approach to the Patient With Constipation. Textbook of Gastroenterology, 2nd Edition, edited by Tadataka Yamada, JB Lippinott Company, Philadelphia: 864-880 (1995)

WISEMAN, L.R., SPENCER, C.M.: Mitoxantrone: A review of its pharmacology and clinical efficacy in the management of hormone-resistant advanced prostate cancer. Drugs & Aging 10 (6): 473-485 (1997)

A common sight in modern cities. A view of heavy air pollution in downtown Shanghai, China on 5 December 2013.

World's leaders reach historic accord, but climate change is already affecting our health

The agreement reached in Paris at the COP21 Climate Change talks in December provides hope and impetus for a new chapter in the fight against global warming and for human health and wellbeing on the planet.

The Paris Agreement on climate change is an historic accord for mankind. Bringing 195 countries together and achieving any mutual agreement, let alone one with relatively ambitious goals, is remarkable and speaks volumes for the new realisation by the leaders of nations of the desperate and dire future we face if nothing is done to curb emissions from fossil fuels. For 25 years, climate change campaigners have been trying to make their voices heard. The world's leaders have finally listened. We now trust they will fulfil their obligations.

Nonetheless, the negative impact of climate change is already being felt in many areas of people's lives, such as shelter, food and health.

According to WHO estimates, climate change is already causing tens of thousands of deaths every year – from shifting patterns of disease, from extreme weather events, such as heatwaves and floods, and from the degradation of air quality, food ►

Climate change agreement is also significant public health treaty – says Chan

At the Paris Climate Change talks in December – COP21 – Dr Margaret Chan, WHO Director-General, addressed a high-level event on 'Why the climate change agreement is critical to public health'. This is what she said.

Climate change is the defining issue for the 21st century.

In the run-up to COP-21, countries have made important commitments to cut greenhouse gas emissions and scale up adaptation to climate change. But more needs to be done. As many have noted, the world is recklessly late in agreeing to take action.

The stakes are high. WHO estimates that climate change is already causing tens of thousands of deaths every year. These deaths arise from more frequent epidemics of diseases like cholera, the vastly expanded geographical distribution of diseases like dengue, and from extreme weather events, like heatwaves and floods.

Climate change degrades air quality, reduces food security, and compromises water supplies and sanitation. These consequences are likewise deadly.

WHO estimates that more than 7 million people die each year from diseases related to air pollution, making it the world's largest single environmental risk to health.

Experts predict that, by 2030, climate change will be causing an additional 250,000 deaths each year from malaria, diarrhoeal disease, heat stress, and undernutrition alone. The heaviest burden will fall on children, women, and the poor, widening already unacceptable gaps in health outcomes.

Health has critical evidence, and positive arguments, to bring to the climate talks. The agreement under negotiation is not just a treaty for saving the planet from severe, pervasive, and irreversible damage. It is also a significant public health treaty, with a huge potential to save lives worldwide.

If the right commitments are made, efforts to combat climate change will produce an environment with cleaner air, more abundant and safer freshwater and food, and more effective and fair systems for social protection. Healthier people will be the result.

Dr Margaret Chan, WHO Director-General

Existing strategies that work well to combat climate change also bring important health gains. Investments in low-carbon development, clean renewable energy, and greater climate resilience are investments in better health.

Existing strategies that work well to combat climate change also bring important health gains. Investments in low-carbon development, clean renewable energy, and greater climate resilience are investments in better health.

Implementing and enforcing higher standards for vehicle emissions and engine efficiency can reduce emissions of short-lived climate pollutants, like black carbon and methane. Doing so could save around 2.4 million lives a year by 2030 and reduce global warming by about half a degree Celsius by 2050.

Researchers have estimated that reform of global energy subsidies could reduce carbon dioxide emissions by more than 20%, cut premature air pollution deaths by more than half, and raise government revenues by nearly $3 trillion.

Measures such as early-warning systems for heatwaves and the protection of water, sanitation, and hygiene services against floods and droughts strengthen the resilience of health systems to withstand the shocks of climate change. Doing so safeguards recent progress against climate-sensitive diseases.

WHO is doing its part. For example, WHO, in collaboration with the UNFCCC secretariat and other partners, launched the first set of climate change and health country profiles.

The aim is to empower ministers of health and other decision-makers to include health in the climate negotiations. Profiles provide a snapshot of up-to-date information about current and future impacts of climate change on human health, and current policy responses in individual countries.

They also illustrate, within the country context, the health benefits that arise from actions to mitigate climate change, like shifting to cleaner energy sources, using public transport, and promoting walking and biking.

Minimizing adverse effects on public health has been part of UNFCCC objectives since the first agreement in 1992. We hope that the current negotiations will fully exploit the opportunity to protect the planet's most valuable resource, its people.

A ruined planet cannot sustain human lives in good health. A healthy planet and healthy people are two sides of the same coin. MEH

and water supplies, and sanitation.

For example, extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. In the heat wave of summer 2003 in Europe, for example, more than 70,000 excess deaths were recorded, according to the WHO.

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60,000 deaths and many more injuries, mainly in developing countries.

Increasingly variable rainfall patterns are affecting the supply of fresh water. A lack of safe water compromises hygiene and increases the risk of diarrhoeal disease, which kills approximately 760,000 children aged under 5 every year.

Floods are also increasing in frequency and intensity. Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes. They also cause drownings and physical injuries, damage homes and disrupt the supply of medical services.

In 2012, WHO estimated 7 million people died from air pollution-related diseases, making it the world's largest single environmental health risk.

Not only are ways to combat climate change already known and well-documented, they can bring important health gains. As WHO's new series of climate change and health country profiles illustrate, investments in low-carbon development, clean renewable energy, and strengthening climate resilience, are also investments in health.

Strengthening health resilience to climate risks, including measures such as early-warning systems for more frequent and severe heatwaves, and protection of water, sanitation, and hygiene services against floods and droughts, would ensure that recent progress against climate-sensitive diseases, is not slowed or reversed, says the WHO. MEH

> Countries are at different stages of progress in their efforts to protect health from climate change. However, given the current climate concerns for human health, there is still a long way to go in all countries in terms of adaptation and mitigation opportunities and commitments.

The Lancet Commission on Climate Change

In 2015 *The Lancet* published a second series of articles looking at climate change and health, as part of The Lancet Commission on Climate Change. This important series makes connections between climate, health, economics, and energy decisions and provides recommendations for national Ministries of Health, and all health professionals, to consider.

The recommendations – some of which are now included in some form in the Paris Agreement – are particularly important as the Paris Agreement allows countries to combat climate change in their own way as long as they aim to meet specific targets. These recommendations should be considered by all nations.

The 2015 Commission on Health and Climate Change provides nine recommendations. They include:

1. scaling up financing for climate-resilient health systems worldwide;
2. ensuring a rapid phase out of coal from the global energy mix;
3. encouraging a transition to cities that support and promote healthy lifestyles for the individual and the planet;
4. establishing the framework for a strong, predictable, and international carbon pricing mechanism;
5. rapidly expanding access to renewable energy in low-income and middle-income countries;
6. ensuring adequate local capacity and political support to develop low-carbon healthy energy choices;
7. adopting mechanisms to facilitate collaboration between Ministries of Health and other government departments and empowering health professionals;
8. agreeing and implementing an international agreement which supports countries in transitioning to a low-carbon economy;
9. and investing in climate change and public health research.

The Commission noted that there is a widespread lack of awareness of climate change as a health issue. To overcome this gap in understanding, the Commission has developed an independent and international "Countdown to 2030: Global Health and Climate Action" coalition. Building on the success of the Commission, the 'Countdown' will report in *The Lancet* every two years, tracking, supporting and communicating progress across a range of indictors in global health and climate change.

The Commission points out that "health systems should act as anchors of community resilience, helping populations to adapt to climate change. Climate-ready health systems will need to be able to withstand extreme weather events and be responsive to new and emerging epidemics, which may threaten the viability of poorly prepared healthcare infrastructure".

"Health professionals have a vital part to play in tackling the health impacts of climate change. The Commission calls on health professionals to lead the response to the health threats of climate change," the Commission notes.

on the WEB The Lancet Commission on Climate Change
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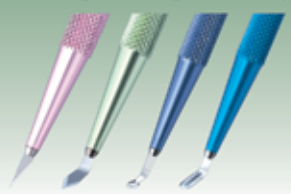

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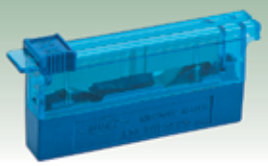

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Climate and health country profiles

WHO/UNFCCC climate and health country profiles provide evidence on the health impacts of climate change to empower governments to take action.

There is increasing evidence of both the direct effects of climate change on health, such as increased exposure to heat stress and extreme weather events, and the indirect effects, such as changes in the transmission cycles of infectious diseases.

The degree of climate change varies geographically, and its impacts on health are strongly influenced by, and interact with, environmental determinants of health (such as availability of water), and social determinants of health (including poverty, access to health-supporting services such as water and sanitation, and coverage of preventive and curative health services). The scale and nature of health vulnerability to climate change therefore differs dramatically between countries, and even within countries.

Climate change campaigners march through Olso, Norway, on 21 September 2014 to support action on global climate change.

Country-specific evidence

Recognising that countries need information that reflects their unique health risks and opportunities to protect health while mitigating climate change, World Health Organization (WHO) Director-General Margaret Chan and UNFCCC Executive Secretary Cristiana Figueres committed to support the development of country-specific evidence on climate change and health. The objective was to empower Ministers and negotiators to advocate and act on behalf of health in the lead-up to the critical COP21 agreement.

The Climate and Health Country Profile project responds to this commitment by bringing together leading experts in the climate and health communities to provide countries with reliable and relevant evidence in six main areas: current and future climate hazards; current and future health impacts due to climate change; current exposures and health risks due to air pollution; opportunities for health co-benefits from climate change mitigation; current levels of emissions; and the current status of national policy response.

Focus on opportunities

The Climate and Health Country Profiles focus not only on the health risks facing countries, but also on the opportunities that can be gained by taking decisive action against climate change. The health and climate projections presented in the profiles highlight the potential benefits to health of both strong global commitments to reduce greenhouse gas emissions and comprehensive national adaptation and mitigation policies, strategies and programmes. As such, the country profiles provide a tool for countries to reflect on the importance of commitments to low-carbon solutions, to evaluate the status of their policies and programmes at a national level and within a broader global context, and to scale up effective climate and health activities.

Beyond COP21

Countries are at different stages of progress in their efforts to protect health from climate change. However, given the current climate concerns for human health, there is still a long way to go in all countries in terms of adaptation and mitigation opportunities and commitments. The Climate and Health Country Profiles therefore aim to establish a set of core indicators that will support countries in tracking their future progress in reducing health vulnerability, strengthening climate resilience of health systems, and gaining health benefits from mitigation policies.

on the WEB Climate and Health Country Profiles
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Debate

Coincident polio and Ebola crises expose similar fault lines in the current global health regime

By Philippe Calain and Caroline Abu Sa'Da

Abstract

Background

In 2014, the World Health Organization (WHO) declared two "public health emergencies of international concern", in response to the worldwide polio situation and the Ebola epidemic in West Africa respectively. Both emergencies can be seen as testing moments, challenging the current model of epidemic governance, where two worldviews co-exist: global health security and humanitarian biomedicine.

Discussion

The resurgence of polio and the spread of Ebola in 2014 have not only exposed the weaknesses of national health systems, but also the shortcomings of the current global health regime in dealing with transnational epidemic threats. These shortcomings are of three sorts. Firstly, the global health regime is fragmented and dominated by the domestic security priorities of industrialised nations. Secondly, the WHO has been constrained by constitutional country allegiances, crippling reforms and the limited impact of the (2005) International Health Regulations (IHR) framework. Thirdly, the securitization of infectious diseases and the militarization of humanitarian aid undermine the establishment of credible public health surveillance networks and the capacity to control epidemic threats.

Summary

The securitization of communicable diseases has so far led foreign aid policies to sideline health systems. It has also been the source of ongoing misperceptions over the aims of global health initiatives. With its strict allegiance to Member States, the WHO mandate is problematic, particularly when it comes to controlling epidemic diseases. In this context, humanitarian medical organizations are expected to palliate the absence of public health services in the most destitute areas, particularly in conflict zones. The militarization of humanitarian aid itself threatens this fragile and imperfect equilibrium. None of the reforms announced by the WHO in the wake of the 68th World Health Assembly address these fundamental issues.

Background

Drawing from international relations theory, the concepts of international regime, hegemonic stability and collective security have been used by scholars to analyze trends in the governance of global health. Focusing on epidemic diseases, Hoffman[1] defines the "global health security regime" as "the implicit or explicit principles, norms, rules and decision-making procedures by which international actors (including both states and civil society organizations) aim to protect their constituencies from the transmission of diseases from one area to another". Rather than a mere description of the roles and responsibilities of global health actors, this approach provides a better understanding of the complexity of epidemic governance. Furthermore, Lakoff[2] opposes as distinct regimes "global health security" and "humanitarian biomedicine" for their different visions of global health priorities. In our view, both global health security and humanitarian biomedicine inevitably co-exist in a complex political landscape defining the current "global health regime". Significantly, this regime has been put to the test in two coincident epidemic events of international dimensions, caused respectively by poliovirus and ebolavirus. Twice in 2014 (on May 5th and August 8th respectively) Dr Margaret Chan, Director General of the World Health Organization (WHO), declared a public health emergency of international concern after consultation with an Emergency Committee of experts convened under the provisions of the revised (2005) International Health Regulations (IHR)[3]. Made in response to increasing alarms over the international spread of wild-type poliovirus, the first declaration was the latest sign that the success of polio eradication was still uncertain. The second announcement was a belated recognition that the Ebola epidemic in West Africa was unprecedented in magnitude and international spread.

According to Hoffman[1], the current global health regime has so far been characterised by expectations of international cooperation under the "hegemony" of the World Health Organization. It is being challenged by the limitations of the revised IHR (2005), the proliferation of global health security organizations, new instruments of foreign policy and new threats to health security. The IHR (2005) stand out as innovative among other health treaties. They oblige State Parties to notify defined public health threats and to limit unnecessary public health measures[4]. Yet, the temporary or standing recommendations issued by the WHO are not binding for State Parties,

In Unification Town, Liberia young men take on the grim job of burying the dead lost to the Ebola virus.

The mistrust of populations when public health actions are disconnected from local perspectives has been seen in recent circumstances, for example, the ongoing resistance to polio vaccination in Pakistan and the hostility of some communities towards measures to control Ebola in West Africa.

making the IHR (2005) weak instruments for outbreak response.

The mistrust of populations when public health actions are disconnected from local perspectives has been seen in recent circumstances, for example, the ongoing resistance to polio vaccination in Pakistan and the hostility of some communities towards measures to control Ebola in West Africa. Elsewhere, coincident political violence and civil wars are operational obstacles to polio eradication and other public health initiatives, which appear in a new geopolitical context, where public health is no longer seen as politically neutral. This is the case, for example, of ongoing conflicts in the Middle East. The current global health regime is poorly fit to meet such challenges, for at least three reasons, which we will further examine: (i) the encroachment of security policies on communicable diseases in general, and public health surveillance in particular, (ii) the constraining mandates of United Nations (UN) institutions, and (iii) the interference of security agendas with humanitarian action.

Discussion

Smallpox and polio eradication: different political epochs

The Global Polio Eradication Initiative launched in 1988 has been a remarkable endeavour prompted by the precedent of smallpox eradication. A public-private partnership endowed with considerable funding from private philanthropy, the initiative followed expected tracks until the early 2000s. This initial success led to the elimination of serotype 2 poliovirus in 1999, to the possible elimination of serotype 3 since November 2012[5], and to wild-type serotype 1 remaining endemic in only three countries (Pakistan, Afghanistan and Nigeria) since 2012. Unfortunately, vaccination campaigns continue to be rejected by some communities and their traditional leaders in specific regions of overt or latent unrest. In northern Nigeria for example, religious leaders and authorities concerned about the safety of vaccines[6] and by the precedent of the Trovan drug trial[7] boycotted polio immunization in 2003–2004, resulting in the spread of polio to 20 countries[8]. In 2013, wild poliovirus spread from Nigeria to Cameroon and Somalia, while strains from Pakistan reached Iraq, Syria, Israel and Afghanistan[9]. In 2015, the propagation of polio seems to be halted in Iraq and Syria, but the situation in Pakistan and Afghanistan remains a major public health concern[10].

Non-binding temporary recommendations issued under the IHR (2005) are unlikely to solve the fundamental problems of "the last mile" of the Global Polio Eradication Initiative, which are not essentially technical, programmatic or even financial. More fundamentally, threats to the success of the Initiative are rooted in socio-cultural and political issues undermining confidence in vaccination programs[11]. When considering the final stages of the smallpox eradication campaign, it is barely surprising that social and cultural clashes could compromise the completion of a worldwide eradication campaign. In the 1970s, resistance to vaccination teams in India and Bangladesh was witnessed by Euro-American epidemiologists, who ultimately resorted to coercing villagers and intimidating local health care staff to achieve universal coverage[12]. What is new nowadays is the fact that polio remains endemic in zones of civil conflicts, where health care services are seen as symbols of foreign agendas[13]. Ongoing political violence exposes teams of polio vaccinators to being deliberately targeted by local insurgents, notably in northwestern Pakistan[14]. Accordingly, WHO country plans for Pakistan, Afghanistan and Nigeria have been adjusted to include more comprehensive public health strategies, security components and new communication tactics[15]. Ultimately, misinformation by obscurantist leaders or intimidation by extremist militants are only partial explanations for the local rejection of polio vaccination campaigns[16]. A more fundamental problem is that the global health regime is currently defined by security policies, which compromise the credibility of important public health initiatives of international dimensions.

Securitization of infectious diseases

As a result of a prevailing focus on domestic security among industrialized countries, and in particular since the events in the USA on 9/11/2001, there has been a significant impact on the way global public health initiatives have been conceived.

Security interests in health became prominent in the 1990s with the recognition that communicable diseases (HIV/AIDS in particular) have far-reaching impact on trade and foreign affairs, beyond the strict realm of public health. In 2000, the UN Security Council passed Resolu-

tion 1308, concerned with the impact of HIV/AIDS on peacekeeping operations in Africa[17]. Following new concerns over bioterrorism, epidemic preparedness and response also became "securitized", i.e. framed in terms of domestic and international security[18]. When applied to public health, the word "security" therefore carries a fundamental ambiguity about the exact values at stake[19]. Health security can either be understood in terms of protection of health, protection of trade and economy or as a matter of non-proliferation of biological weapons and counterterrorism. This ambiguity has far reaching consequences, especially in the case of global public health surveillance.

Global public health surveillance is an essential activity promoted under the IHR (2005) agenda[23], as well as one of the pillars of the Global Polio Eradication Initiative. After 2001, the security community became increasingly associated with the development of global public health surveillance, recognizing that early outbreak detection could identify or mitigate both natural and deliberate epidemic threats. From the beginning of the revision process of the IHR, this "dual use" argument has been a source of controversy. Whether the scope of the IHR (2005) includes the investigation of man-made outbreaks and consequently non-proliferation issues, is still open to interpretation. In practice the securitization of global public health surveillance is now pervasive and can be illustrated in a number of programmes deployed under private, national, international or supra-national initiatives. Far from protecting global public health from securitization, the WHO Secretariat – through its partnerships and policies – has implicitly added support to the view that public health surveillance is primarily an instrument of national security instead of a foundation for outbreak prevention and control[24]. For example, Article VII 39 in the final document of the 7th review conference of the Biological Weapons Convention (BWC) makes it clear that the IHR (2005) are instrumental to building surveillance and detection capacities pertaining to the BWC[25]. In this example, where the WHO is expected to provide the technical capacity to investigate suspicious outbreaks, securitization is counterproductive to public health goals[26]. The blurring of lines between security, disarmament and public health surveillance also appears in new surveillance networks sponsored by non-proliferation lobbies, in dual use technologies or in multilateral alliances. Securitization underpins a subtle change of vocabulary, from the IHR (2005) "public health surveillance"[23] to "biosurveillance"[20]. The latter terminology not only reflects the increasing reliance on informal "event-based surveillance"[22] systems for outbreak detection, but also a shift from public health to domestic security concerns[21], [27]. For example, in 2004, the US National Biosurveillance Integration System was assigned to the Department of Homeland Security[28], while in 2008 the Biosurveillance Coordination Unit was established under the US CDC's Coordination Office for Terrorism Preparedness and Emergency Response (COTPER)[29]. The proliferation of national and global biosurveillance initiatives has created a new industry that brings together public health institutions, academia, private security companies and the intelligence community. Counter to the argument that the goals of public health and national security converge over matters of epidemic control, security agendas actually prevail over public health achievements in the new health security doctrine. The fake vaccination campaign organised by the US Central Intelligence Agency (CIA) to help track Osama bin Laden showed how domestic security priorities can compromise trust in public health initiatives. In May 2011, a Pakistani doctor hired by the CIA conducted a hepatitis B vaccination campaign and allegedly managed to collect DNA samples from vaccinated children to confirm the presence of the Bin Laden family in their compound in the town of Abbottabad. The plot was clearly condemned by prominent international experts as damaging the trust in the polio eradication campaign and compromising its final success [30], [31].

> In 2015, the propagation of polio seems to be halted in Iraq and Syria, but the situation in Pakistan and Afghanistan remains a major public health concern.

The paradox of UN mandates in civil conflict zones

The case of Syria is illustrative of the limitations imposed by UN mandates on the capacity of the WHO to ensure adequate public health responses in areas of civil conflicts[32]. UN agencies and the WHO in particular have been perceived taking sides with the Assad regime and disregarding the health needs of part of the Syrian population[33]. Polio vaccination activities have been very much at stake in this controversy. The Syrian Republic had not seen a case of polio since 1999. While polio probably reappeared as early as May 2013 in Deir al-Zour Province[34], an outbreak of acute flaccid paralysis was only confirmed as polio by Syrian authorities in October 2013. A controversy arose when the Syrian Government and the WHO country office were accused of delaying the confirmation of cases in areas sympathetic to the opposition [35], [36]. The outbreak seems to have been curbed in 2015, although the reliability of surveillance data is still disputed[34], [37]. Members of the new Islamic State insurgency support polio vaccination efforts[38], but it is doubtful if UN agencies alone can gain operational access and trust from all parties in conflicts. UN mandates and governance are indeed poorly adjusted to the fact that civil conflicts and public health crises are nowadays inevitably intertwined. The WHO is constitutionally constrained by its allegiance to Member States and cannot officially recognize opposition parties as operational partners. This is a problem in terms of neutrality, independence, legitimacy and access in situations of civil war. In contrast, some international humanitarian organizations have formal or informal legitimacy to operate regardless of political fractures and state funding. They cannot substitute for UN agencies, but their unequivocal neutrality and impartiality are assets to secure universal access to conflict zones and to remain credible. This is why the co-optation of humanitarian aid as an instrument of domestic security puts both humanitar-

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ian action and global public health initiatives in jeopardy.

Interference of security agendas with humanitarian action

The setbacks of the Global Polio Eradication Initiative in its final stage could have been anticipated precisely in those conflict zones where access and trust are paramount. However, new counter-terrorism and foreign policies of Western coalitions are enmeshing humanitarian action into international security agendas, which can discredit the neutrality of all humanitarian actors, for example when relief and health care are provided to secure the acceptance of counter-insurgency operations[39], [40]. The securitization of global public health and the militarization of humanitarian action reflect the dominance of post-9/11 doctrines in the global health regime, and both trends combine to compromise the success of the Global Polio Eradication Initiative. This political complexity is not acknowledged by the WHO.

In her opening statement at the 67th World Health Assembly, Dr Chan attributed the recent downturn of international polio control to: "Armed conflict that flies in the face of international humanitarian law. Civil unrest. Migrant populations. Weak border controls. Poor routine immunization coverage. Bans on vaccination by militant groups. And the targeted killing of polio workers"[41].

Ironically, just ahead of that opening session, the CIA implicitly acknowledged some responsibility by announcing that the agency was ending the use of vaccination programmes in its spying operations[42].

Global health governance after the Ebola epidemic

A consensus has emerged to say that the disastrous situation in Guinea, Liberia and Sierra Leone reflects the disarray of national health systems and a vacuum in global health governance[43], [44]. With a much delayed and fragmented regional response, the case is an archetype of the global health security regime in several respects. What ultimately triggered the international mobilisation of adequate resources was the realisation that the epidemic could easily spread out of Africa and represented a common threat to international peace and security. In September 2014, three major political decisions followed this reasoning. Firstly, the UN Security Council adopted Resolution 2177, acknowledging that the Ebola outbreak in Western Africa constituted a threat to international peace and security. Secondly, the US administration deployed some 3,000 military personnel in Liberia to reinforce outbreak-control measures. Although such an initiative was generally acclaimed as a valuable contribution to controlling a catastrophic situation, some scholars see it as yet another example of the militarization of humanitarian aid[45], [46]. Thirdly, a UN Mission for Ebola Emergency Response (UNMEER) was established in Ghana. Its regional mandate and authority are limited, but as the first UN emergency health mission, UNMEER might become a precedent for a new transnational outbreak governance system, thus marginalising the IHR (2005) framework of non-binding recommendations.

It is uncertain how the current global health security regime will evolve [1], particularly after the epidemic crises of 2014–2015. Notwithstanding an evaluation of the performance of the IHR (2005), the 'reforms' proposed by the WHO[47], [48] in the wake of the 68th World Health Assembly consist in: (i) integrating WHO outbreak and emergency response units, (ii) the creation of a global health-emergency workforce, (iii) setting up an emergency contingency fund, and (iv) advancing the research and development of medical products for infectious diseases of epidemic potential, and (v) strengthening health systems. One could muse over the fact that such measures are belated, obvious or simply represent an attempt to resurrect similar assets dismantled by a recent round of crippling reforms. More than with circumstantial resolutions, global health would be served by genuine reforms of the current regime, emphasizing universal health values instead of security and diplomacy interests. This would entail a new constitutional mandate for the WHO. Reflecting on the future of global health governance, Lawrence Gostin has called for a new Framework Convention on Global Health[49]. With a bold departure from the UN governance model, a new and more credible global health regime could be built upon such a convention, by transcending narrow State interests. The core of this new architecture would make the WHO akin to the International Committee of the Red Cross with its supranational mandate, with political independence and a better capacity to react to global health crises.

Summary

The setbacks of the Global Polio Eradication Initiative and the delayed control of the Ebola epidemic in West Africa reflect a fragmented approach to outbreak preparedness. More broadly, they point to profound flaws in the current regime of global health governance, which is guided by foreign affairs and security policies. The securitization of communicable diseases has so far led foreign aid policies to sideline health systems. It has also been the source of ongoing misperceptions over the aims of global health initiatives. With its strict allegiance to Member States, the WHO mandate is problematic, particularly when it comes to controlling epidemic diseases. In this context, humanitarian medical organizations are expected to palliate the absence of public health services in the most destitute areas, particularly in conflict zones. The militarization of humanitarian aid itself threatens this fragile and imperfect equilibrium. None of the reforms announced by the WHO in the wake of the 68th World Health Assembly address these fundamental issues.

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References

References are available online here:
www.conflictandhealth.com/content/9/1/29


The new MacNair campus at St Lukes

CHI St. Luke's Health: A new era in healthcare

The world-renowned Texas Medical Center (TMC) – the largest medical complex in the world with more than 7.2 million visits per year – is home to CHI St. Luke's Health-Baylor St. Luke's Medical Center (Baylor St. Luke's).

As part of a six-hospital health system, Baylor St. Luke's is a quaternary care facility in Houston that is dedicated to a mission of enhancing community health through high-quality patient care in caring for the whole person – body, mind, and spirit. Led by Wayne Keathley, President, Baylor St. Luke's has embarked on a new era in healthcare through significant alliances that position the hospital at the forefront of transforming the delivery of healthcare in Texas and the United States.

History of Making History

Since 1962, Texas Heart Institute, founded by Denton A. Cooley, MD in 1962, has been leading world-class physicians in performing research to better understand the diagnosis and treatment of cardiovascular disease. Now, CHI St. Luke's Health is continuing to make life-changing breakthroughs to:

- eliminate heart disease,
- discover more methods of prevention, and
- save more lives than in any other era in medical history.

Texas Heart Institute

- **FIRST** successful heart transplantation in the United States
- **FIRST** implantation in the world of an artificial heart in a human
- More than **100,000 open-heart procedures** performed
- FIRST in the U.S. to implant a pacemaker enclosed in a mesh envelope embedded with two antibiotic agents that provide site-specific antibiotic protection
- THI Surgeon, Dr O.H. "Bud" Frazier has performed **more heart transplants and left ventricular assist device implantations than any other surgeon in the world**

Cancer care

The Dan L. Duncan Cancer Center at Baylor College of Medicine offer the best minds in cancer treatment backed by the renowned researchers of Baylor, improved outcomes through comprehensive, personalized care, and access to the latest clinical trials. We are at the forefront of personalized medicine, replacing traditional treatments with targeted therapies based on each individual's unique biology and the exact characteristics of their cancer.

The National Cancer Institute awarded the Dan L. Duncan Cancer Center at Baylor College of Medicine the prestigious designation of a NCI-Designated Comprehensive Cancer Center. The comprehensive status designation moves the Duncan Cancer Center into an elite class of 45 centres from around the country whose programs demonstrate significant depth and breadth in basic, clinical and translational research, research into cancers most affecting their communities, clinical care, outreach and education activities, as well as cancer epidemiology and prevention programs.

First Lung Institute in Texas

Baylor College of Medicine, NCI-Designated Comprehensive Cancer Center, and Baylor St. Luke's Medical Center have developed the first comprehensive, multispecialty Lung Institute in Texas, with a team of specialists led by world-renowned lung disease expert and surgeon David Sugarbaker, MD. From asthma to lung cancer, the Institute offers advanced technology and individualized treatment, backed by Baylor's top-ranked genetics program, to patients from all over the world.

"If you've been told you have a difficult case, this is where you come," said Dr Sugarbaker, Director of the Lung Institute and Professor and Chief of the Division of General Thoracic Surgery at Baylor College of Medicine. "Patients come to us based on the reputation of the Lung Institute team for providing hope as well as superb medical care in even the most difficult medical conditions."

The Institute combines experts from

> Patients come to us based on the reputation of the Lung Institute team for providing hope as well as superb medical care in even the most difficult medical conditions.

more than a dozen pulmonary, surgery and related specialties at Baylor College of Medicine and Baylor St. Luke's and taps into the resources of internationally recognized genetics and genome sequencing programs. This collaborative approach to lung disease treatment means that patients are provided more options for a course of treatment.

Neurosciences

The NeuroScience Center at Baylor St. Luke's takes a comprehensive approach to evaluation, treatment, and long-term management of neurological diseases, while providing the expertise of leading neurologists, neurosurgeons, neuroradiologists, and neurophysiologists.

Baylor St. Luke's houses specialized neuro-specific clinical units, which include a 20-bed Neuro-Intensive Care Unit, a 42-bed Neuro Acute Care Unit, and dedicated Neurosurgical operating room suites. All of the neuro-specific units have RNs that are NIH Stroke Scale certified. Interventional Neuroradiology at the NeuroScience Center has garnered international recognition for cutting-edge technology in the prevention and treatment of neurovascular diseases.

The Neurovascular Center, launched in 2005, offers multidisciplinary expertise from renowned interventional neuroradiologists to neurointensivists to neurologists and neurosurgeons, they work collaboratively to offer many treatment options for neurovascular disorders. In addition, they also work closely with internal hospital specialists to utilize diagnostic capabilities. Baylor St. Luke's is the first in Houston to operate CyberKnife in a clinical setting for treatment of intracranial tumours that continues to offer new hope to patients who have surgically complex tumours.

International Services

International Services at Baylor St. Luke's extends a gracious welcome to patients and families from around the world. Our multilingual professional team stands ready to manage all your medical services needs and related matters to make your stay with us more pleasant.

Services

- Second opinion
- Physician appointments and scheduling
- Language assistance
- Hotel reservations and long-term housing
- Air travel and ground transportation
- Air ambulance assistance
- Business centre for patient and family members (e-mail, fax machines, photocopiers)
- Spiritual support for all faiths
- Specialized in cultural needs
- Purchasing of medical equipment

2016 Arab Health Congress announcement

CHI St. Luke's Health–Baylor St. Luke's Medical Center and Baylor College of Medicine, in Houston, Texas, are joining healthcare leaders from around the globe at the 2016 Arab Health Congress with a mission to exchange the ever-evolving world of medical advancements.

Featured participants include:

Wayne Keathley

Baylor St. Luke's Medical Center President, **Wayne Keathley**, will participate in the Congress' Leaders in Healthcare Conference, which will be highlighting the topic of Genomics. Baylor College of Medicine is a world leader in this exciting field.

Howard "Bud " Frazier, MD

World-renowned cardiovascular surgeon, **O.H Frazier, MD**, Chief of Cardiopulmonary Transplantation, Program Director and Chief of the Center for Cardiac Support, and Director of Cardiovascular Surgery Research at the Texas Heart Institute; and Chief of the Transplant Service at Baylor St. Luke's, is presenting on the artificial heart at the "Cardiovascular Disease and Intervention Conference." Dr Frazier's pioneering work in the surgical treatment of severe heart failure has made the Texas Heart Institute one of the top transplantation and mechanical circulatory support programs in the world.

Steven Curley, MD

Steven Curley, MD, Professor of Surgery and Chief, Division of Surgical Oncology at Baylor College of Medicine; and Oncology Service Line Chief at Baylor St luke's Medical Center will present on electromagnetic fields combined with targeted nanoparticles to produce hypothermic killing of cancer cells. Presently, his research centres on the design, bench testing, and clinical study of novel noninvasive radiofrequency (RF) field treatment devices. Dr Curley has developed two FDA-approved devices for invasive radiofrequency ablation needles to treat unresectable liver cancers.

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Boehringer Ingelheim introduces new open innovation R&D strategy

Boehringer Ingelheim – one of the world's 20 leading pharmaceutical companies – is launching a new research and development (R&D) strategy which will see the company spend 1.5 billion euros over the next five years on open innovation, collaboration and crowdsourcing new ideas for some of their most challenging scientific problems.

This new R&D plan was announced in November at its R&D press conference in Berlin. The company pledges to invest a total of 11 billion euros in its new R&D programme over the next five years. Of the total investment, 5 billion euros will go to preclinical R&D with 1.5 billion euro thereof planned for collaborations with external partners.

The company is aiming to develop the next generation of medical breakthroughs and maintain its excellent competitive position.

The new R&D strategy embraces open innovation in the form of external collaborations to better leverage emerging science and Boehringer Ingelheim's experience and capabilities for the discovery of new medicines.

"With eleven new launches in 2014 and 2015, our R&D organisation is an example of Boehringer Ingelheim's outstanding capability in this field," said Professor Andreas Barner, Chairman of the Board of Managing Directors of Boehringer Ingelheim. "The new programme and strategy reflect our corporate philosophy of long-term, sustainable growth. They will enable us to continue our excellent track record of bringing therapeutic innovations with high value for patients to the market."

Professor Andreas Barner, Chairman of the Board of Managing Directors of Boehringer Ingelheim, talks about achieving value through innovation at Boehringer Ingelheim's R&D press conference in Berlin in November.

A new R&D strategy

A key element of the new strategy is an increased focus on collaborations with external partners, while maintaining strong internal R&D capabilities. This approach will enable the company to build on its long-term experience and strength in its core therapeutic areas while expanding its efforts to access the vast creative pool of global biomedical research through open innovation.

"Our new strategy embraces the trend towards more extensive open-innovation approaches between academia and industry in biomedical research. Our partners benefit by accessing our broad experience and capabilities and through establishment of long-term personal interactions with our R&D teams," explained Dr Michel Pairet, senior corporate vice president research and non-clinical development at Boehringer Ingelheim and designated Member of the Board of Managing Directors from January 2016 onwards.

"The new strategy will foster our external collaboration efforts by enabling us to be faster and more flexible. This is of essence for research beyond the borders of our current focus areas, where we explore emerging science, new indications and new technology to expand opportunities."

Cooperation with partners

Open innovation has become a fundamental part of drug discovery. The R&D organisation of Boehringer Ingelheim is working with the wider scientific world to embed a range of innovative opportunities in its R&D endeavours.

Firstly, bilateral collaboration agreements with academic investigators and biotechnology companies provide important starting points for drug discovery projects. Boehringer Ingelheim has entered into several new research collaborations in exciting areas of science with partners that are worldwide leaders in their fields.

Boehringer Ingelheim recently announced new collaborations with four major scientific partners to enrich R&D with novel therapeutic approaches for patients suffering from inflammatory bowel disease (IBD), namely the Icahn School of Medicine at Mount Sinai, Massachusetts General Hospital, Scripps Research Institute and Weill Cornell Medicine.

These four collaborations aim to identify and validate potential new therapeutic targets as well as identify biomarkers that offer the potential to address the significant unmet medical needs of patients suf-

fering from IBD such as Crohn's disease and ulcerative colitis.

Boehringer Ingelheim has also recently signed exclusive agreements with Hanmi Pharmaceuticals in Korea to develop a third generation EGFR-targeted therapy for lung cancer and with Circuit Therapeutics, California to apply the technique of optogenetics to find new treatments for psychiatric disorders and cardiometabolic diseases.

Secondly, public-private partnerships, such as the Structural Genomics Consortium (SGC), Innovative Medicines Initiative (IMI) and the G-protein coupled receptor (GPCR) Consortium, are playing an increasingly important role in medicines discovery because of their ability to bring together the best academic and industrial scientists in an unrestricted precompetitive field. Boehringer Ingelheim is an active participant in these successful public-private partnerships and recently joined the GPCR Consortium.

Thirdly, crowdsourcing initiatives with organisations such as InnoCentive and the BioMed X Innovation Center can be used to seek scientists with bright ideas to address important medical challenges.

BioMed X Innovation Center

Boehringer Ingelheim and the BioMed X Innovation Center recently announced that they are bringing together outstanding scientists at an academic centre of excellence in Heidelberg and providing them with appropriate infrastructure and mentorship to work on new epigenetic approaches to chronic obstructive pulmonary disease.

In addition, Boehringer Ingelheim invests in the Institute for Molecular Pathology (IMP) in Vienna to support basic research, and a global network of scientists as essential elements of the creative endeavour.

The Boehringer Ingelheim Venture Fund, founded in 2010 with an initial financial commitment of 100 million euro, is currently investing in a portfolio of 13 different start-up companies with exciting new therapeutic ideas.

The new R&D strategy is an important building block of Boehringer Ingelheim's global strategy to be prepared for changes and challenges in the pharmaceutical market.

"This is another decisive step to position Boehringer Ingelheim for long-term growth," said Professor Barner. "We are looking forward to addressing unresolved challenges in immunology, respiratory and cardiometabolic medicine, as well as in oncology, in diseases of the central nervous system and beyond." MEH

Biomed X Innovation – How it works

Speaking at the Boehringer Ingelheim press conference in Berlin in November, Dr Christian Tidona, CEO of BIOMED X, explained how the Biomed X Innovation initiative works.

"No matter how big you are as a company, more than 99% of the world's biomedical innovation will always happen outside of the company walls," Dr Tidona noted.

"Every year, over one million biomedical researchers publish their latest work in peer-reviewed journals, and this number is growing rapidly.

"Pharma companies like Boehringer Ingelheim are facing a big challenge: how to tap into the global brain power in order to create the best new medicines.

"We asked ourselves: Instead of going out and searching for a needle in a haystack, what if we could make the best new ideas come to us?

"So we set up BioMed X and started using a crowdsourcing approach to find these innovative ideas. It works like this:

- **1:** We post one of Boehringer Ingelheim's most challenging research problems world-wide at the best universities and research institutions and invite bright young scientists to submit very original project proposals that might solve the problem. Usually, we get around 500 such proposals.
- **2:** We invite the 15 most talented problem solvers to participate in a 5-day boot camp at BioMed X in Heidelberg. There, they are placed into 5 competing teams, and they are challenged to merge their creative ideas into completely new approaches.
- **3:** The most innovative team wins a fellowship at the BioMed X Innovation Center. The winners of the boot camp are relocated with their families to Heidelberg where the project is incubated for up to 4 years in an open innovation lab under supervision of experienced mentors from academia and industry.

He explained that the researchers who come to Biomed X are mostly post-doctoral researchers, a step before they become professors.

"Our target group – and it is quite a large group – are those researchers who are not entirely happy in academia nor in industry because they like freedom of research, but in academia are missing the application of their research. We call them the 'third species' of researcher – and the Biomed X research environment is well suited to them."

The BioMed X Innovation Center – founded 2013 – currently hosts around 50 early-career scientists from around the globe in six research groups sponsored by 4 different pharma companies, including Boehringer Ingelheim.

"We are also have agreements with Merck, Roche and Avi and expect a 5th pharma company to join us in December," Dr Tidona explained.

Under these agreements, each company can have up to five research topics being explored at Biomed X.

The first Boehringer group just started in the field of lung diseases (COPD), and the second call in the field of brain research was initiated at the end of October.

"As a good friend of mine once said: 'You cannot make innovation. Innovation happens'. And we are confident that it will happen more often at BioMed X than in most other places in the world," Dr Tidona concluded.

How patient experience is changing health care in the Middle East

Houston Methodist Global Health Care Services, the international subsidiary of US-based Houston Methodist Hospital, hosted a roundtable discussion at the Hyatt Regency in Dubai Healthcare City on 1 November 2015. The objective of this event was to discuss patient experience in the region with opinion leaders to understand the best practices, challenges and their visions of the future. Fourteen health care leaders were in attendance to offer insight from the hospital, government, regulatory, architecture and technology perspectives. The following excerpts are highlights from this discussion.

Presentation

Dr Sarper Tanli, Vice President, EMEA for Houston Methodist Global Health Care Services, welcomed the guests and led a round of introductions. He then presented a brief overview of patient experience citing the Beryl Institute definition of patient experience as "the sum of all interactions shaped by an organization's culture that influence patient perceptions across the continuum of care".

"Leadership remains a critical success factor for patient experience, because it is not a short journey. It is a long journey for any organization and they can have their own way of doing and managing the experience in their hospital.

"Houston Methodist Hospital started this patient experience journey around 2004/2005. We really looked at our values and started changing the organization with the 'ICARE' values that were created. It is now more than 10 years later and we are still on the journey; and now we can call it a better experience."

Discussion

The roundtable discussion was an informal meeting moderated by Dr Tanli who prompted the panelists to further discussion with probing questions and summarized comments.

Trends

Dr Sarper Tanli

What do we see from patient experience trends in the GCC region? Are we seeing any of these trends occurring or starting in other organizations?

Rana Aljebreen

I would say that there is heavy interest in patient experience in the GCC. I think we have all the components of the patient experience, but the question is how do we get there? How do we ingrain the processes within the organizational culture? What measurements do we need to have?

From our perspective at King Faisal Specialist Hospital and Research Centre, we are addressing cultures and processes currently. We are exploring and learning and investing in it. Thanks to Houston Methodist, we have had a lot of training and education related to patient experience. However, it is an ongoing journey that we are really working on. We concluded that it is based on our own organization's culture and leadership and our patient population because we cannot just copy and paste one process to another.

Dr Moin Fikree

How many of you have done a workshop with patient stakeholders? How many of you have sat down with them and tried to figure out where you are, what you are doing and where you are going?

Rana Aljebreen

We have established the Patient and Family Advisory Council. This is something that we are already working on with our patients and to have them as important stakeholders within the organization to improve our patient experience.

Ali Al Obaidi

We have 2000 employees and 3000 doctors. We introduced in our health system a concept called "musharaka". Musharaka means participation. From these musharaka, a lot of ideas come to the table and then a group will do a feasibility study on some of these suggestions. Out of this musharaka one of the suggestions was an initiative called "Masool".

Host and Moderator

Name	Title	Organization
Dr Sarper Tanli	VP, Global Development	Houston Methodist Health Care Services

The Panelists

Name	Title	Organization
Catherine Connolly	Global Manager	Houston Methodist Global Health Care Services
Rana Aljebreen	Director, Patient Relations	King Faisal Specialist Hospital & Research Centre
Randy Edwards	Managing Director	HDR Middle East (Architecture)
Ozlem Fidanci	Senior VP	Philips
Peter Makowski	CEO	American Hospital
Dr. Mohamed Abdulraheim Alawadhi		Al Jalila Children's Speciality Hospital
Dr. Moin Fikree	Clinical Director	Rashid Hospital
Mariano Gonzalez	Director	Moorfields Eye Hospital
Hamad Al Matrooshi	Senior VP	Meraas Healthcare
Andrew Fisk	General Manager	Valiant Healthcare
Dr. Abdulrahman Mohammed Al Jassmi	CEO	Dubai Hospital
Lina Shadid	Executive Partner	IBM
Engr. Assaf Alassaf	Executive Manager	Dallah Hospital
Ali Al Obaidi	Chief Academic Affairs Officer	SEHA

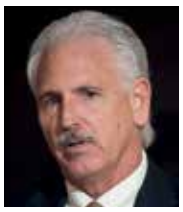

Dr Sarper Tanli


Catherine Connolly


Rana Aljebreen


Randy Edwards


Ozlem Fidanci


Peter Makowski


Dr. Mohamed Abdul-raheim Alawadhi


Dr. Moin Fikree


Mariano Gonzalez


Hamad Al Matrooshi


Andrew Fisk


Engr. Assaf Alassaf


Lina Shadid


Ali Al Obaidi

Masool in Arabic means responsible. The way our Masool Project works is that we have asked each of our business units in Abu Dhabi Health Services to have an open forum on a regular basis with the public. They will have a six-week open house with the public. In the early days, there were many dissatisfaction issues and then the public got to know that we were noting everything; we were taking action. We started to receive lots of constructive feedback from the public and this led to improvements.

Engr. Assaf Alassaf

Our big challenge in the region is the transitional nature of staff and how we address patient experience issues. Our big competitors are the government provider such as King Faisal Specialist Hospital and Research Centre and National Guard Hospitals. These institutions can hire the staff we have trained and, if these staff specialize in different areas, the institutions are able to give them job security, unlike the private sector.

The role of patients and families

Dr Sarper Tanli

On another note, patients and families want to be engaged in the decision-making process. Now in the US, providers are engaging the patients or community in the design phase. Are there any initiatives like that which include patients and families? Are the expansions always happening like this? What do you see from that?

Randy Edwards

It seems to me it is the more mature private organizations that really are getting into the patient awareness and consultation. In Qatar, there is more engagement with client and patient feedback. In the UAE, it is the same thing; there is more engagement with the end users and also the patients. The level of engagement varies between each country. The biggest challenge the region has is the contracts you have to employ which are two years in duration. I think the success that Houston

Methodist has is nurses have been there 10 to 15 years and it is all about the culture.

Part of the challenge you have in the Middle East is the mentality of a two-year contract. As soon as they are done, there is no loyalty, they are going to go find another job somewhere else that is going to pay more.

Ali Al Obaidi

The trends in patient experience or public satisfaction are a moving target. I think we can manage patient expectations to make them more realistic. How do we navigate when patient expectation is a moving target, and we have to find out what their expectations are?

In regards to staffing, sometimes they need mentorship; they need long-term professional development. If staff feel that they are part of the organization for a longer period of time because they can achieve other goals and objectives; they may stay even if they get a better package.

Lina Shadid

In the Middle East, I don't think we have the right balance. I think we have, in some facilities, good quality but not patient experience; and others, the best patient experience, but moderate quality. And that bridge is not still there.

Dr Moin Fikree

However, perception is a little bit different. Perception comes from expectation and is correlated to satisfaction. If you have a low expectation and you exceed those expectations; your perception goes way beyond. If you have a very high expectation and then you don't meet those expectations, the satisfaction really goes down. So we have to really divide these two words, and understand them really well; and what we have to do is surpass expectations. Because once we surpass expectations it's when the satisfaction really increases.

Mariano Gonzalez

Okay, so to manage that relationship; to manage the expectations in a totally different market requires a slightly different purpose for our commercial unit. We need to make money to invest in the region, in our facilities and to bring some money back to London. You are under pressure because your reputation is your brand; Because your name is something that you cannot fall short of, as the expectations of the patients escalate.

Peter Makowski

The American Hospital is going back to patient family-centred care. We've got patients and family members very involved in a number of activities. For example, we hand-selected patients who had a terrible experience at the hospital because we wanted to learn from them. Not only did we listen to the experience, but caregivers also sat in on those sessions because we wanted the caregivers, physicians, nurses and ancillary service staff to hear very specifically what that experience meant to those patients.

The other thing we did, which was pretty exciting – we got these patients involved in operation committees at the hospital. They sat on the Quality Care Committee. They participated in operations and they were able to react to what was being discussed from a patient perspective. Another initiative was getting them directly involved in policy-making. Many of our policies changed direction as a result.

Technology

Dr Sarper Tanli

We were speaking earlier of patient experience versus patient engagement expectation or perception. The GCC has the highest technological/mobile phone usage in the world. Could technology have a place for us to be able to manage such care in terms of overall care coordination; in terms of medicine; in terms of other aspects of the continuum of care?

What do you think is happening in terms of engaging patients and families by using technology? I know it is in the early stages, but it would be great to hear some examples.

Ozlem Fidanci

Health care is not about sick care anymore, but more about overall continuous care. Technology can play a very important role. Connectivity has really taken the patient experience to another level. It is possible to be in your home, but still connected to your healthcare provider. That healthcare provider gets your data every day, every week and there might be some predictive analysis where you only intervene when it is needed based on the data; based on the predicted evidence.

There is a lot of interest from the private sector as well as from the Ministry of Health to buy connected solutions and not solely rely on the technology used in the hospital to provide better patient services.

Lina Shadid

We need to be aware of the patient experience in the digital sphere. We are seeing all this technology whether it is the Internet of Things or the sensors or the mobile technology. It is enabling us to always stay connected with physicians.

Rana Aljebreen

In Saudi Arabia, the government has recently invested in e-government by implementing the Yesser program. They have set standards which are applicable to healthcare organizations as well as government. It mandates that we have certain information exchange with patients, such as medical records and laboratory results, so that patients in distant areas don't have to travel from outside of Riyadh for results.

The challenge that we face – is that we have all this information out there, but it is getting the patients to utilize it. Often they can't because of the language barrier or their literacy level. A lot of our patients are elderly and they can't read even if it's Arabic. It's really difficult for them to go online.

Ali Al Obaidi

I think that nursing and medical students need to be brought to the table. They need to know what kind of things they are going to witness in their practice. Another thing is that we do not invest enough in analytics. We gather lots

> In regards to staffing, sometimes they need mentorship; they need long-term professional development. If staff feel that they are part of the organization for a longer period of time because they can achieve other goals and objectives; they may stay even if they get a better package.

of data, but are we using the data that we have? It's an opportunity to be harvested.

Lina Shadid
An area of improvement can be the predictive analytics of the summarized version of the medical record. There is value here for the physician and the patient. Unfortunately, we keep investing in the foundation system and we do not build that predictive analytic layer that will benefit the physician and the hospital.

Catherine Connolly
There are service standards in the traditional setting and there will have to be service standards around technology. One of the things that we have experienced around technology is our oncology physicians have reached out and asked how they can extend that continuum of care so that they can ensure that their patients' health is maintained throughout the course of treatment. Our physicians connected with our research institute and they're working collaboratively on an app that will allow them to track patient nutrition so doctors can see their intake.

Engr. Assaf Alassaf
Unfortunately, some physicians are resistant to the change of technology. They are resistant even though they claim they are not, because they have smartphones. But instead of using the technology available to them for patient care, they are making the nurse do it!

Insurance

Dr Sarper Tanli
I think the policies for the payers shows insurance companies are not keeping up with technology because their reimbursement model is based on traditional health care of patients. Now with the Internet of Things and telehealth there are many new ways of having patient encounters, such as virtual consultations, but insurance companies are lagging behind on this.

Ozlem Fidanci
I think the whole system needs to work in a better way so that the consumers or patients feel empowered to take care of their own health. When they do so, the cost burden on health care will be reduced.

Peter Makowski
I think we as a provider have to become far more transparent than we have been. We tend to horde our information and not share it with anybody, particularly when it comes to quality outcomes. One of the things that we're trying to do is develop a relationship with payers where we put together operational committees and meet with them on a quarterly basis to share that information.

Abdulrahman Mohamed Al Jassmi
The main objective is training. We need to bring the patients on board to be a part of the policy making. This needs the healthcare providers and the doctors in particular, to be on the same page. You need to train them and to highlight the importance of patient engagement and to be aware of the patient expectation and how far this will affect their decisions. This should come as part of their training; it has to be part of their curriculum during their internship, medical school and residency.

The future of patient experience

Dr Sarper Tanli
In the next five to ten years what can we do to ensure we are at the forefront of developing a positive patient experience in health care?

Andrew Fisk
One of the things that we found very important is actually hiring staff with patient experience in mind. The culture, those behaviours, really are driven by the people in the hospital and so that's not just nurses or allied health professionals, but it's also physicians. If you haven't adopted or incorporated those patient experience questions in your hiring process you are missing a tremendous opportunity to save yourself all of those complaints and issues downstream.

Lina Shadid
I think we touched on realigning the measurement system. In other words, align my incentives as a physician. I should be paid more if my patient satisfaction is high.

Randy Edwards
It is very interesting to listen to this from an architectural standpoint because we build the buildings. We can do all the spaces and we can make it nice. But it is pretty interesting because it gets down to the leadership and how you deal with a patient, how you deal with the doctors and nurses and how you are going to get all that to work together. And that is the big challenge.

Dr Moin Fikree
This issue of empowerment of staff at the most beneficial level is a big issue in implementing patient satisfaction systems. For that to happen, empowerment needs to be built within the system. You have to have leaders who understand that and are willing to relinquish their decision making authority. That is a major culture change in this region. That is not easy.

Conclusion

Dr Tanli thanked the panellists for their time and insights. He reviewed some key points from the discussion as well. "We have noted that many staff are transitional which makes it difficult to implement positive patient experience behaviours. We are faced with the challenge of elderly patients' inability to use technology. We have physicians who are resistant to change. We noted that education of healthcare providers will go some way to improve patient experience. When choosing our doctors, we should include some questions about patient experience behaviour.

"These are all barriers and suggested solutions that we've discussed. But we agree that leadership in organizational culture is at the forefront of any major change and this will be the case with patient experience as well." MEH

Scientists developing Proton CT for better cancer imaging

A multi-national team of scientists is putting together a unique medical imaging platform which could improve treatment for millions of cancer sufferers by making proton therapy a viable option.

Members of the multi-national research team behind the PRaVDA (Proton Radiotherapy Verification and Dosimetry Applications) project, led by the University of Lincoln, UK, are now building the instrument that will produce for the first time detailed three-dimensional images of a patient's anatomy using protons rather than x-rays.

To produce these Proton CT images, the world-first technology will use the same high energy particles that are used to destroy a tumour during proton therapy treatment.

Like x-rays, protons can penetrate tissue to reach deep tumours. However, compared to x-rays, protons cause less damage to healthy tissue in front of the tumour, and no damage at all to healthy tissue lying behind, which greatly reduces the side effects of radiation therapy.

Led by Distinguished Professor of Image Engineering Nigel Allinson MBE, the PRaVDA team aims to become the first in the world to produce clinical-quality Proton CT imagery. They are currently working near Cape Town at the South African National Cyclotron – a type of particle accelerator.

Professor Allinson said: "Proton therapy is an improved approach for treating challenging tumours especially in the head and neck, and near critical organs. It is likely to become the preferred radiotherapy method for most childhood cancers, as the unwanted exposure to radiation of healthy tissue is much reduced and so the risk of second cancers later in life is also much reduced.

"Having the ability to administer a high dose in a small region is the main underlying advantage of proton therapy, however accurate planning is absolutely essential to ensure that the dose does not miss the target tumour."

Using protons to form an image of the patient will greatly improve the accuracy of proton therapy. Using current methods, there could be a discrepancy of up to 1cm in terms of where the proton beam hits and releases its energy, destroying cells, after passing through 20 cm of healthy tissue. By using Proton CT, this margin for error can be reduced to just a few millimetres.

The PRaVDA researchers believe that Proton CT will soon be used as part of the planning process for cancer patients, as well as during and after treatment.

"Imaging with protons is challenging, because the individual particles are randomly scattered as they pass through tissue," Professor Allinson continued. "Millions of protons make up a single image and each particle has to be individually tracked from the point it enters the patient to the point where it leaves. The PRaVDA instrument is therefore one of the most complex medical instruments ever developed, but it is absolutely essential – the uncertainties in where the protons lose their energy and do damage to either tumour or healthy tissue will only be eliminated by using the same type of radiation to image and to treat."

Proton therapy is rapidly gaining momentum as a cancer treatment around the world.

The PRaVDA consortium, funded by a £1.6 million translation grant from the Wellcome Trust and led by the University of Lincoln, consists of five UK universities, four UK NHS Trusts and Foundation Trusts, University of Cape Town and IThemba LABS, South Africa, and Karolinska University Hospital, Sweden. MEH

Lung cancer survival rates improve with CT scan follow-up

Patients with recurrent lung cancer have better post-surgery survival rates if their management includes a follow-up programme based on computer tomography (CT) of the chest, according to new findings.

The findings, presented at the ERS International Congress 2015 in Amsterdam in September, are the first to show improved overall survival after surgery for a CT- based follow-up programme and could change the way patients are currently managed.

Previous research has confirmed that after the introduction of the CT-based follow-up, most cases of recurrent lung cancer can be detected before the patient has any symptoms. This allows for earlier diagnosis and leads to an improved chance of having a radical treatment against the relapse. This new study aimed to assess whether this follow-up also improved survival rates.

Researchers from the Odense University Hospital in Denmark assessed 391 patients who had surgery following a lung cancer diagnosis between 2008 and 2013. After the introduction of a CT- based follow-up in July 2010 all patients received a scan every third month for two years and then every 6 months for three years. In May 2015, researchers recorded whether the patients were alive and free from lung cancer.

Results showed that the number of patients alive four years after surgery increased from 54% to an estimated 68%. Additionally, for patients experiencing a relapse during the first 24 months after surgery, the chance of being alive four years after the first treatment increased from 2% to an estimated 27%.

Dr Niels-Christian Hansen, presenting author on the study, commented: "Our results show a significant improvement for survival rates for patients post-surgery in a CT follow-up programme currently running in Denmark. A key strength of our study is the real-life setting we used, where we were able to demonstrate successful results in a representative sample of lung cancer patients from Denmark. This is very encouraging news and we believe that our results could contribute to the planning of similar treatment programmes in other centres and countries."

The authors plan to repeat the same kind of analysis for the group of lung cancer patients treated by radiation with the aim to cure, instead of by surgery, to see if the results are also successful for this group of patients. MEH

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Dose neutral dual-energy images

With the Somatom Definition Edge, Siemens Healthcare has created the basis for establishing the dual energy procedure in clinical routine. The innovative X-ray tube concept in the new CT scanner enables simultaneous imaging at two different energy levels for the first time in single source computed tomography.

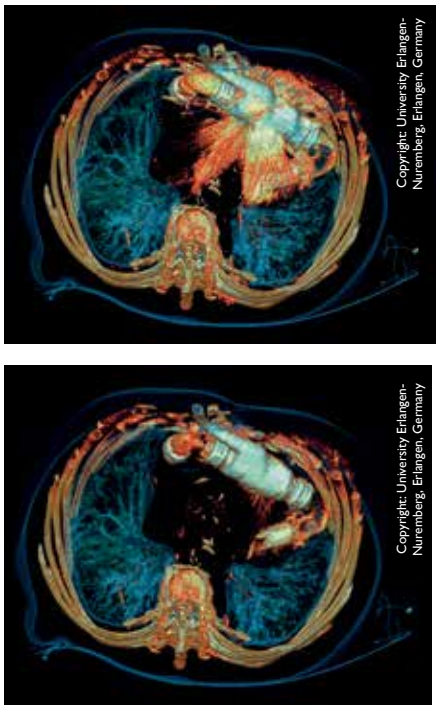
Siemens Healthcare's approach to delivering dose-neutral dual energy images obtained on Somatom computed tomography (CT) scanners using TwinBeam Dual Energy technology is now commercially available. With this availability, which affects the Somatom Definition Edge and Somatom Definition AS CT systems, Siemens sets the benchmark for acquiring single-source dual energy images in clinical routine.

Dual energy imaging has gained momentum as a clinical imaging tool amid pressure to reduce the cost and frequency of medical imaging while increasing quality of care. With dual energy imaging, only one CT study is acquired, but the imaging data can be used in a variety of additional methods to improve clinical decision-making. Siemens' TwinBeam Dual Energy approach is unique in that it enables acquisition of this data without introducing additional radiation – a dose-neutral dual energy approach.

Dose-neutral dual energy imaging entails the examination of the same body region using two different energy levels. The resulting two datasets offer detailed information regarding tissue composition that extends beyond pure morphology. However, in cases where data have been acquired using fast kV-switching or dual layer detector technology, dual energy imaging has encountered significant drawbacks. In the past, single-source dual energy images acquired via these methods were excluded from routine clinical use because the X-ray tube did not emit the two energy spectra simultaneously, but rather in succession through rapid switching or spectral separation at the detector side. With kV-switching, image quality is impaired significantly due to the limited data per energy level. Also, increased X-ray doses are inevitable because the dose cannot be modulated to reduce radiation.

Beam-splitting innovation in dose-neutral dual energy

The innovative design of Siemens' TwinBeam Dual Energy technology enables a dose-neutral approach. Via a split filter within the X-ray tube, the X-ray beam is divided into two different energy spectra prior to reaching the patient. The result: simultaneous generation of dose-neutral dual energy images.



Using the Somatom Definition Edge this follow up study after a cardiac pump implantation – two volume rendering technique (VRT) images show that the severe artifacts caused by the implanted pump (left) are significantly reduced by iMAR reconstruction technique and the surrounding anatomical structures can be clearly visualized (right).

"With the availability of TwinBeam Dual Energy technology on the Somatom Definition Edge and Somatom Definition AS systems, Siemens Healthcare provides the tools necessary for health care facilities to realize dose-neutral dual energy imaging in single-source CT," said Douglas Ryan, Vice President, CT Business Line, Siemens Healthcare North America. "This technique paves the way for dual energy's use in routine procedures and especially in challenging cases."

For example, Siemens' approach to dose-neutral dual energy imaging in general offers tissue characterization that potentially may help physicians identify and classify challenging abdominal lesions. Additional information regarding contrast uptake in the tumour potentially may aid physicians in monitoring patient response to treatment.

With this approach to dose-neutral dual energy, CT systems with TwinBeam technology can simplify radiology workflow. Unlike other methods of single-source dual energy CT imaging, the Somatom Definition Edge's acquired dual energy datasets are preprocessed intelligently directly after acquisition. The Somatom Definition Edge can also send datasets automatically to the picture archiving and communication system (PACS) with Siemens' Fast DE Results technology. MEH

FDA clearance for low-dose lung cancer screening

The US FDA has cleared Siemens Healthcare's Somatom computed tomography (CT) systems for low-dose lung cancer screening. Siemens now offers the industry's most comprehensive approach to low-dose lung cancer screening – on all of Siemens' new CT scanners sold as well as on the company's installed base of non-end-of-support systems – using standard low-dose lung protocols that are already delivered on Siemens CT scanners. From the Somatom Scope 16-slice CT system to the ultra-premium Somatom Force, Siemens now makes low-dose lung cancer screening broadly available to its customers.

Obtaining this indication for low-dose CT lung cancer screening is a milestone not just for Siemens Healthcare, but for CT as an imaging modality. With this indication, an imaging modality that has long been a benchmark diagnostic tool for symptomatic patients is becoming a viable screening tool for a subset of high-risk asymptomatic patients. For the right patient population, this technology can have a significant impact on mortality for a disease that is often diagnosed too late.

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Simple blood test and CT can predict traumatic brain injury

New study results show that a simple blood test to measure brain-specific proteins released after a person suffers a traumatic brain injury (TBI) can reliably predict both evidence of TBI on radiographic imaging and injury severity. The potential benefit of adding detection of glial fibrillary acidic protein breakdown products (GFAP-BDP) to clinical screening with computed tomography (CT) and magnetic resonance imaging (MRI) is described in an article published in *Journal of Neurotrauma*.

Paul McMahon, University of Pittsburgh Medical Center, and a team of international researchers, including TRACK-TBI investigators, analyzed blood levels of GFAP-BDP from patients ages 16-93 years treated at multiple trauma centres for suspected TBI. They evaluated the ability of the blood-based biomarker to predict intracranial injury as compared to the findings on an admission CT and a delayed MRI scan. The authors reported a net benefit for the use of GFAP-BDP above imaging-based screening alone and a net reduction in unnecessary scans by 12-30% in the article "Measurement of the Glial Fibrillary Acidic Protein and Its Breakdown Products GFAP-BDP Biomarker for the Detection of Traumatic Brain Injury Compared to Computed Tomography and Magnetic Resonance Imaging".

John T. Povlishock, PhD, Editor-in-Chief of *Journal of Neurotrauma* and Professor, Medical College of Virginia Campus of Virginia Commonwealth University, Richmond, notes that "this impressive multicentre study joins with other streams of emerging evidence supporting the use of biomarkers as an important tool in the clinical decision making and prediction process".

"Importantly, this study significantly expands upon other studies that speak to the usefulness of GFAP and, specifically, serum-derived GFAP-BDP in identifying those traumatically brain injured patients whose clinical course is complicated by intracranial injury, demonstrating that GFAP-BDP offers good predictive ability, significant discrimination of injury severity, and net benefit in reducing the need for unnecessary scans, all of which have significant implications for the brain injured patient," says Dr Povlishock.

• **doi:** 10.1089/neu.2014.3635

Are CT scans safe?

With questions lingering about the safety of medical imaging and the radiation that is used in some of those tests, Mayo Clinic radiation safety expert Cynthia McCollough, Ph.D., wrote a paper that provides clear answers that she hopes will allay patients' fears.

Dr McCollough wrote "Answers to Common Questions About the Use and Safety of CT Scans," which was published 1 October 2015 in *Mayo Clinic Proceedings* as a Q&A in an effort to provide credible, balanced information about how much radiation a CT scan delivers and what levels are considered safe.

So, are CT scans safe? Yes, says Dr McCollough.

Patients can get a prescribed CT scan without worrying, Dr McCollough says. "Radiation has a bad rap. The Incredible Hulk and Spider Man were mutants created from some radiation exposure; that's science fiction. The truth is we are all exposed to radiation every day of our lives, with no evidence that those low doses cause any long-term harm."

Areas that have higher background radiation levels (e.g., from the sun and radon in the ground) have lower cancer rates. If there is a cause and effect, it's simply too small to measure. And, because of increased research and updates in technology, less radiation also is used these days in medical imaging.

"Over the past decade, the radiation doses used in CT have been cut by almost a factor of 2," Dr McCollough says. "The current dose levels are not dangerous, but if we can use less, we will. I can take two Tylenol for a headache and not worry about it being dangerous. But, if one Tylenol will get rid of my headache, it is prudent medicine to take a lower dose – and that is what we want with radiation."

In addition, radiologists are keenly aware that radiation doses will vary based on patient size, so children are given a child-size dose instead of the amount an adult would receive.

"What we have done over the past decade is, as a community, launched national and international campaigns to make sure that CT providers understand that they need to right-size the dose and dial down for the little ones," Dr McCollough says.

If patients are unsure about getting a CT scan, they should ask their referring physician to explain the reasons it was requested. "If there is a reason and the information from the CT will help guide their medical care, then, by all means, patients should go ahead and have that exam and not worry about some small, theoretical, long-term radiation risk," Dr McCollough says.

• doi: 10.1016/j.mayocp.2015.07.011

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Siemens introduces new Biograph Horizon PET/CT

At the 28th Annual Congress of the European Association of Nuclear Medicine (EANM) in Hamburg, Germany, Siemens Healthcare introduced the new Biograph Horizon. The PET/CT (positron emission tomography/computed tomography) system offers premium performance at an attractive total cost of ownership to support clinicians in addressing more clinical indications. This versatility gives users the capabilities needed to serve a broader patient mix and expand into new service lines, without compromising on quality due to budget constraints.

Biograph Horizon leverages the standard in PET/CT technology to image patients using all commercially available PET tracers, giving users the ability to address more indications in oncology, neurology and cardiology. To help physicians visualize smaller lesions earlier, the system's 4 mm LSO crystals scintillate faster and have a higher light output, providing better image quality and enabling Time-of-Flight. With more precise information, physicians can diagnose disease earlier, contributing to more effective care pathways. This can help reduce costs and patient side effects related to ineffective therapies.

Biograph Horizon simplifies staff's daily routine by automating manual tasks and offering protocol-based exams to increase productivity. For example, Quanti•QC runs quality control procedures overnight, scans can be performed in as fast as 5 minutes, and reconstruction runs alongside acquisition for image delivery just 30 seconds after the scan.

As the smallest PET/CT system with the lowest power requirements, Biograph Horizon minimizes the initial capital investment, while low operating and maintenance costs help manage the total cost of ownership. Additionally, Siemens Guardian Program predicts downtime ahead of time, so maintenance is scheduled when convenient to minimize the impact on system utilization. Automated technologies, such as gentle system warm-up and automatic standby, help extend the economic life of the system as well as help reduce power consumption.

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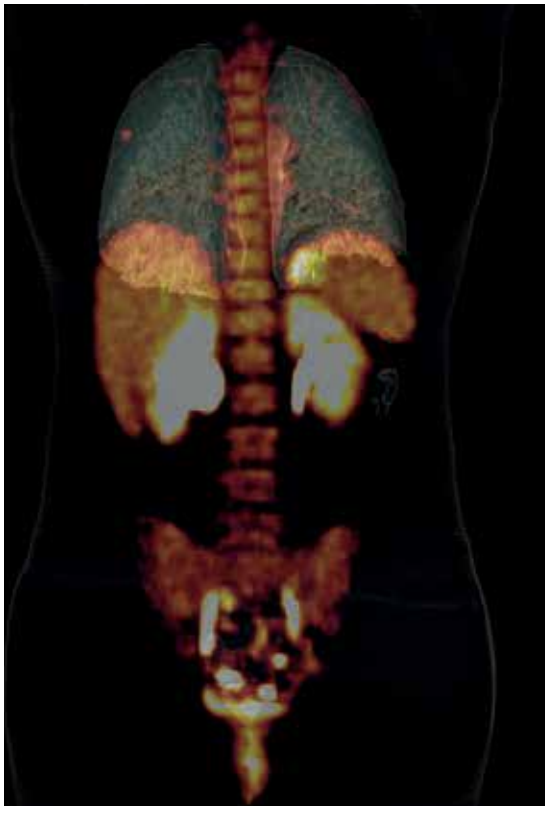
Configured specifically for Biograph Horizon, syngo.via Molecular Imaging Workplace is a cost-effective image processing solution designed to expand with an institution's clinical needs. The solution offers automated tools to instantly visualize diagnostic information, measure with confidence and report more comprehensively. syngo.via automates pre-fetching, preprocessing, and display and comparison of previous findings for up to 45% faster processing. Also, ALPHA technology provides automatic registration with organ-based recognition capabilities. EQ•PET7 normalizes SUV measurements across different scanners for more precise calculation of changes in tumour uptake. MEH



Siemens' new Biograph Horizon PET/CT is used to identify a suspicious 8 mm lung nodule showing metabolic activity. The clinical image was taken in the Radiologische und Nuklearmedizinische Gemeinschaftspraxis Halle, Germany. Parameters: Weight: 80 kg; injected dose: 326 MBq; 8 beds, 2 min./bed.

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Harnessing App technology in international healthcare

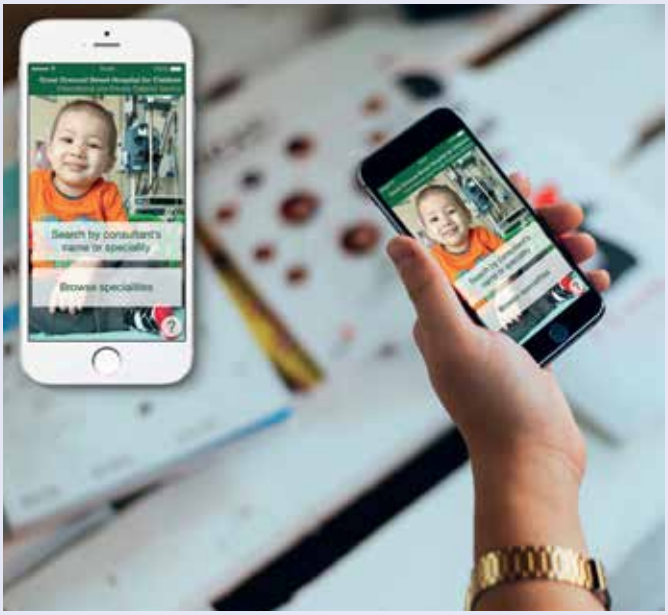
Great Ormond Street Children's Hospital (GOSH) in London, one of the top five children's hospitals in the world, has developed "GOSH Global", a free-to-download app that allows healthcare professionals and parents seeking treatment for children throughout the world to access a comprehensive database of clinical specialities and world-leading consultants, and make an instant referral of a patient for treatment.

With an increase in international patient referrals, GOSH wants to streamline the way patients are referred for treatment and for healthcare professionals worldwide to be able to view the specialist services and consultants available at GOSH at the click of a button.

"We know that our partners overseas need an easy way of accessing a database of our services and consultants, and want to be able to refer a patient quickly and efficiently," said Trevor Clarke, Director of International Services at GOSH. "We provide world class quality paediatric care to patients and now we're thrilled to be able to extend the process in referring to GOSH".

The International and Private Patients Service at GOSH treats over 5,000 children from over 80 different countries each year; the majority of these children are from the Middle East. The service is tailored to the referral and treatment of international patients and the dedicated, multi-lingual team at GOSH ensure a smooth and efficient patient experience.

The new free-to-download app will facilitate the easy referral of international and private patients for treatment. Users can browse the wide range of clinical specialities available through the International and Private Patient Service and view an extensive list of world-leading consultants. Users can also search for a GOSH consultant by name or speciality and then either make an instant referral, email that consultant's profile to another contact, or make an enquiry to the dedicated, multi-lingual GOSH referrals team, who respond to all enquiries within two working days.



About Great Ormond Street Children's Hospital

Great Ormond Street Children's Hospital is a world-class centre of excellence with over 50 different paediatric specialities and 300 world-leading consultants under one roof. Through pioneering translational research, GOSH provides cutting-edge treatment for the rarest and most complex paediatric conditions. As a global leader, GOSH has top clinical and research experts working every day to find new and better ways to treat children.

While breakthroughs and medical expertise are essential to the treatment of patients, GOSH also places great emphasis on the support and care provided for children by nurturing an open and supportive atmosphere, ensuring that parents and patients are well informed and closely involved in the treatment process. Children receive the highest standards of care and attention from the expert team of medical and support staff during their stay at GOSH, and are always treated with respect, trust, concern and openness.

Find GOSH at Arab Health

GOSH will be exhibiting at Arab Health in the Dubai International Convention & Exhibition Centre on the 25th - 28th January 2016. Find them at stand Z1C14 in the UK Pavilion where you can view and download the app, and chat with GOSH staff about the range of clinical services on offer.

GOSH Global will be available to download from the iTunes app store in January 2016 and available on Android in March 2016.

- For more information about GOSH or to refer a patient for treatment, please contact our Gulf Office:

Great Ormond Street Hospital for Children
Dubai Healthcare City
PO Box 505050
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United Arab Emirates
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gulfoffice@gosh.nhs.uk
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- For enquiries about GOSH Global, please contact: *sarah.morgan@gosh.nhs.uk*

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Endoscopic Sleeve Gastroplasty for obesity: The Mayo Clinic experience

By **Barham K. Abu Dayyeh** MD MPH
and **Andres J. Acosta** MD PhD

Despite the positive impact of bariatric-metabolic surgery, only 1% of qualified patients receive surgery because of limited access, patient preference, risks, and cost of surgery.[1] Given this low utilization rate of surgery and limited efficacy of life-style and pharmacological interventions, a significant gap exists in our current approach to obesity, which has contributed to unprecedented rates of the disease and escalation of co-morbid conditions.

Endoscopic bariatric therapies (EBTs) can potentially offer effective weight loss intervention at lower cost, as well as higher patient acceptability, potentially bridging the current obesity management gap.[3] Multiple EBTs have targeted the stomach by reducing its volume or restricting its accommodation. The stomach plays a key role in appetite regulation.[4] Furthermore, gastric volume reduction through creation of restrictive sleeves or pouches is an important component of bariatric surgical procedures such as Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy.

Early attempts at endoscopic gastric suturing for weight loss used superficial endoscopic suturing devices that only replicated the anatomic manipulation of marginally effective bariatric surgical procedures, such as the vertical banded gastroplasty.[5, 6] Although these techniques and devices had limited clinical adoption, they paved the way for newer full thickness suturing systems and demonstrated the feasibility of endoscopic reduction of the gastric reservoir for the management of obesity.

Endoscopic sleeve gastroplasty (ESG) is a transoral endoscopic gastric volume reduction technique that reduces gastric capacity by creating an endoscopic sleeve (figure 1). This is accomplished by a series of endoluminally placed full-thickness sutures through the gastric wall, extending from the antrum to the gastroesophageal junction. This technique reduces the entire stomach along the greater curvature, creating a sleeve. ESG is created by using a commercially available endoscopic suturing device (Overstitch; Apollo Endosurgery, Austin, Texas), which requires a double-channel therapeutic gastroscope to operate. Full-thickness suture placement is aided by the use of a tissue helix device that captures the targeted suture placement site on the gastric wall and retracts it into the suturing arm of the device (figure 2).

We first demonstrated the feasibility of this technique at Mayo Clinic in humans in 2013.[7] Since then multiple other groups demonstrated the safety and efficacy of this technique.[8-10] A prospective Spanish study of 50 patients with baseline body mass index of 37.7 kg/m² showed a %excess weight loss (%EWL) of 53% and 57% at 6 and 12 months, respectively, with no serious adverse events.[9] Another multicenter study of 82 patients with BMI of 36.2 kg/m² demonstrated a %total body weight loss (%TBWL) of 17.8% and 19% at 6 and 12 months, respectively. [10]

Since these initial reports, we have been offering ESG clinically at the Mayo Clinic and found it to be a well-tolerated outpatient intervention, requiring less than two hours of endoscopy time after a short initial learning curve, with the majority of patients returning to a fully functional status within 1-3 days after the intervention. We have found the majority of suture plications to be intact at repeat endoscopy after three months with formation of fibrotic bridges (figure 3). Finally, we have been studying the physiological perturbations resulting from the creation of the ESG and demonstrated that ESG is associated with impairment of gastric emptying, increased satiation and metabolic effects that are potentially important to control the metabolic dysregulation associated with obesity.[11]

In our experience, ESG may have an important role in the treatment of patient with obesity who do not qualify or wish to undergo bariatric surgery. Thus, it may offer a paradigm shift in our management of obesity that targets current gaps in therapy and may allow us to gain ground in our losing battle against obesity.

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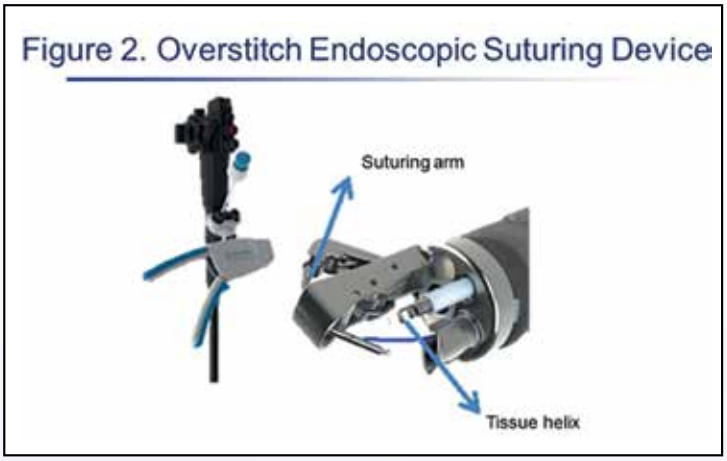

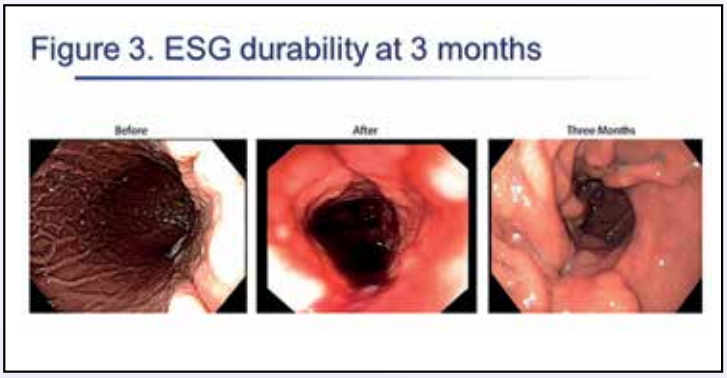

References

1. Mechanick JI, Youdim A, Jones DB, Timothy Garvey W, Hurley DL, Molly McMahon M, Heinberg LJ, Kushner R, Adams TD, Shikora S, Dixon JB, Brethauer S. Clinical practice guidelines for the perioperative nutritional, metabolic, and nonsurgical support of the bariatric surgery patient--2013 update: cosponsored by American Association of Clinical Endocrinologists, the Obesity Society, and American Society for Metabolic & Bariatric Surgery. Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery 2013;9:159-91.

2. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. JAMA 2014;311:806-14.

3. Abu Dayyeh BK, Edmundowicz SA, Jonnalagadda S, Kumar N, Larsen M, Sullivan S, Thompson CC, Banerjee S. Endoscopic bariatric therapies. Gastrointestinal endoscopy 2015;81:1073-86.

4. Cummings DE, Overduin J. Gastrointestinal regulation of food intake. The Journal of clinical investigation 2007;117:13-23.

5. Fogel R, De Fogel J, Bonilla Y, De La Fuente R. Clinical experience of transoral suturing for an endoluminal vertical gastroplasty: 1-year follow-up in 64 patients. Gastrointestinal endoscopy 2008;68:51-8.

6. Brethauer SA, Chand B, Schauer PR, Thompson CC. Transoral gastric volume reduction as intervention for weight management: 12-month follow-up of TRIM trial. Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery 2012;8:296-303.

7. Abu Dayyeh BK, Rajan E, Gostout CJ. Endoscopic sleeve gastroplasty: a potential endoscopic alternative to surgical sleeve gastrectomy for treatment of obesity. Gastrointestinal endoscopy 2013;78:530-5.

8. Sharaiha RZ, Kedia P, Kumta N, DeFilippis EM, Gaidhane M, Shukla A, Aronne LJ, Kahaleh M. Initial experience with endoscopic sleeve gastroplasty: technical success and reproducibility in the bariatric population. Endoscopy 2015;47:164-6.

9. Lopez-Nava G, Galvao MP, Bautista-Castano I, Jimenez-Banos A, Fernandez-Corbelle JP. Endoscopic Sleeve Gastroplasty: How I Do It? Obesity surgery 2015;25:1534-8.

10. Kumar N, Lopez-Nava G, Sahdala HNP, Manoel GN, Sharaiha RZ, Wilson EB, Shaikh S, Gomez E, Ryan MB, Zundel N, Thompson CC. Endoscopic Sleeve Gastroplasty: Multicenter Weight Loss Results. Gastroenterology 2015;148:S179-S179.

11. Abu Dayyeh BK, Acosta A, Topazian M, Rajan E, Camilleri M, Gostout CJ. One-Year Follow-Up and Physiological Alterations Following Endoscopic Sleeve Gastroplasty for Treatment of Obesity. Gastroenterology 2015;148:S11-S12. MEH

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Located in Pittsburgh, Pennsylvania, Children's opened its new, innovative campus in 2009. The 296 bed hospital was designed with children and families in mind with private patient rooms and many homelike amenities. Additionally, it's one of the most technologically advanced facilities in the U.S. for pediatric medicine. Clinical services that set Children's apart include innovations in the neurosciences, cardiac care, transplantation, rare disease therapy, and ophthalmology.

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First in pediatric transplantation

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Children's Hospital's has a rich heritage in pediatric research and today is recognized as one of the fastest growing National Institutes of Health (NIH)-funded pediatric research programs in the U.S.

Experts in telemedicine

Children's Hospital is a leading center for the use of telemedicine services to bring pediatric specialists to hospitals worldwide through state-of-the-art technology. Children's offers remote physician-to physician consultation of critical care units to hospitals around the world in need of pediatric intensivists. Children's provides telemedicine consultative services with pediatric cardiac critical care units in various cities in Colombia and post-operative management of pediatric liver transplant patients in Palermo, Italy.

International services

Children's International Services team is available to assist physicians, parents, health ministries, and embassies around the world who are seeking leading-edge clinical services, consultation, education and training, and more. International liaisons are fluent in multiple languages including Arabic, to ensure proficient communication. Its Passport Care program helps patients and families feel at home until they return home, providing a wide range of concierge services such as assistance with housing, transportation, administration, translation, financial counselling and religious and cultural matters.

- To learn more about Children's Hospital of Pittsburgh of UPMC, visit: *www.chp.edu* or contact our International Services team at: +1-412-692-3000 or by email: *international@chp.edu*

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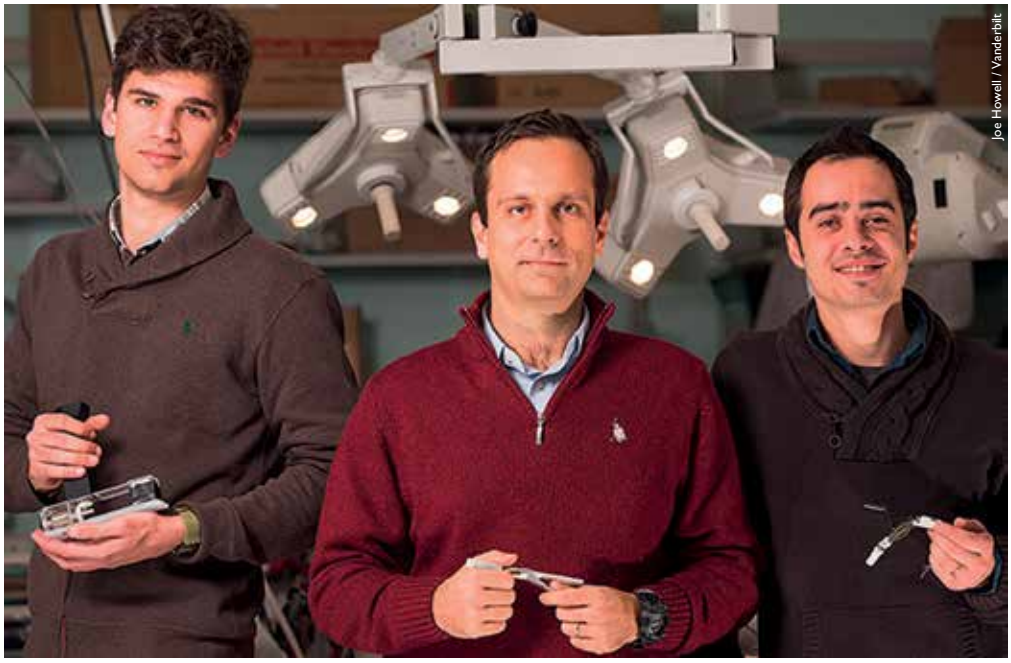


The researchers who are developing magnetically driven laparoscopic instruments: Nicolò Garbin, left, Piero Valdastri, and Christian Di Natali.

Sophisticated application of magnetic force enhances laparoscopic surgery

By **David Salisbury**

Pietro Valdastri is convinced that the clever application of magnetic force can make minimally invasive surgery easier and more effective.

"In 2007, a team of University of Texas researchers did some basic experiments using magnets in laparoscopic surgery," said Valdastri, assistant professor of mechanical engineering and director of Vanderbilt University's Science and Technology of Robotics in Medicine (STORM) Lab.

"Although their designs were very simple, mechanically speaking, they made me realize that small surgical devices guided and powered by external magnets have a number of potential advantages over placing tools on the end of a stick, which is the current approach. All that was required is a little sophisticated engineering!"

This realization led Valdastri and his graduate students – particularly Christian Di Natali and Nicolò Garbin – to develop a new approach to laparoscopic surgery that they call local magnetic actuation (LMA) and describe in an article titled "Closed-Loop Control of Local Magnetic Actuation for Robotic Surgical Instruments" published recently in the journal IEEE Transactions on Robotics.

The approach requires two components: an external unit that is placed on a patient's abdomen and an internal unit small enough to fit through the ¼ to ½ inch ports that are used in minimally invasive surgery. Each component carries a set of two strong permanent magnets. One pair anchors the internal unit to the inside of the abdominal wall, while the other pair provides the mechanical force that powers the device.

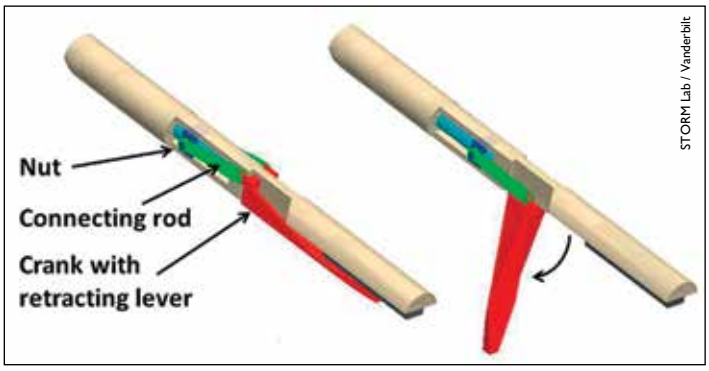
According to the researchers, their approach has two major benefits over the current "tool on a stick" approach. The most important is that it can deliver between 10 to 100 times more mechanical power than the electrical motors that are small enough to fit through the surgical ports can provide. The second is that it is easier to place the magnetic devices at optimal positions within the body than it is to position devices connected to sticks or wires.

The first instrument that embodies this principle is a fountain-pen-sized magnetic organ retractor that is described in an article appearing in the March 2015 issue of the ASME *Journal of Medical Devices*.

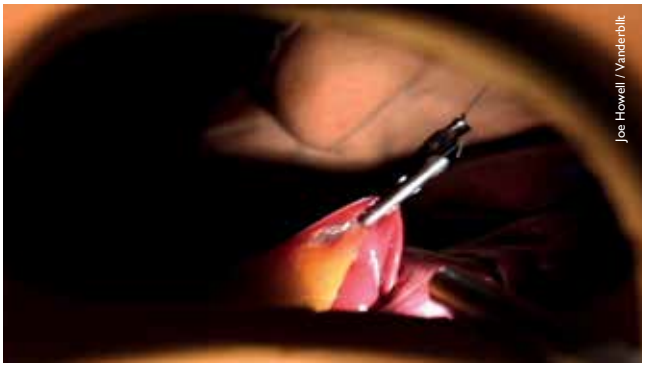
Di Natali came up with the innovative design, which Garbin then developed as a visiting master's student from the Polytechnic of Milan. After getting his master's degree, he joined STORM Lab as a doctoral student and continued working on the device.

Organ retraction

The device is designed to move organs out of the way when needed to perform an operation. For instance, the liver lies on top of the gall bladder, so it must be moved aside before the gall bladder can be removed. That isn't much of a problem in old-fashioned



A computer drawing of the internal retractor unit, which is about the size of a small fountain pen.



Demonstration of the power of magnetic actuation as the magnetically driven retractor lifts the edge of a liver.

open surgery, but open surgery is increasingly being replaced by minimally invasive surgery where the operation is performed with special equipment through small incisions in the abdominal wall.

Although patients tend to have quicker recovery times and less discomfort with minimally invasive surgery than with conventional surgery, being forced to operate through small incisions raises a new set of issues for the surgeon. One of these is organ retraction.

As it is currently practiced, minimally invasive abdominal surgery frequently requires making three to five incisions in order to insert all of the equipment needed. When an organ must be repositioned, an extra incision is needed to insert the organ retractor. One type of retractor looks like a miniature garden rake. The tines are collapsed together so they will fit through the incision and then spread apart so they can grip an organ with enough force to shift its position. The range of movement of the retractor is limited by the location of the incision through which it is inserted.

Magnetic magic

The STORM device looks much different than a conventional retractor. It consists of two parts: a fountain-pen-sized unit that is inserted into the body and a larger external unit that is placed on the patient's stomach. (There is no need to make an additional incision because the device can be inserted through a port used by another instrument.)

Both units contain powerful permanent magnets that are oriented so they attract one another. The magnetic force is strong enough to firmly anchor the internal unit against the inside of the abdominal wall directly below the external unit. The magnetic attraction between the two allows the user to accurately position the inside unit by rotating and sliding the external unit.

Both units also contain a second set of magnets that transmit the power. The magnet in the external unit is attached to the shaft of a powerful electric motor that causes it to spin. The magnet in the internal unit is also attached to a shaft, but one that drives a two-inch lever. When the electric motor on the external unit twirls its magnet, it generates a rotating magnetic field that forces the magnet on the shaft in the inner unit to spin at the same speed. When it spins in one direction, the lever opens up and when it spins in the opposite direction, the lever closes.

To retract an organ, the surgeon picks up the internal unit with a laparoscopic grasper and inserts it through the port into the body. When he manoeuvres the internal unit close enough to the external unit, it snaps into position against the inner surface of the abdominal wall. The motor on the external unit is engaged, lowering the lever. Using standard laparoscopic instruments, the surgeon attaches one end of a line to the tip of the lever and the other end to a clip or suction cup fastened to the organ that must be moved. The electric motor is run in reverse and the lever retracts, pulling the organ into the desired position.

Valdastri and his colleagues have tested the device in the lab and found that it can lift a 500-gram weight without any problem. The internal unit remained anchored and the lever opened and closed smoothly. They also tried it out with pig livers, which are comparable in size to human livers. Although the livers typically weigh three to four pounds, the device was able to lift and hold up the portion that typically covers the stomach and gall bladder with power to spare. The device has successfully undergone large animal testing.

"This device demonstrates for the first time that controllable mechanical power can be transferred across the abdominal wall via an intelligent magnetic link to power a robotic instrument," said Valdastri.

In the future, the engineer intends to apply this same principle to creating more complex instruments, such as laser and radio-frequency scalpels.

Besides the ability to deliver a lot of power, the magnetic actuation approach has some other important advantages: the internal units do not contain any expensive and delicate electronics so they can be easily sterilized and, if manufactured in bulk, could be made inexpensively enough to be disposable, Valdastri said.

One of the device's main limitations, Valdastri acknowledged, is that it does not work if a patient's abdominal wall is too thick. The magnetic force between the inner and outer units weakens rapidly as the distance between them increases and, at about an inch, it becomes too weak to keep the inner unit firmly anchored. As a result, the magnetic retractor will not work with overweight adults, which means about a third of the population in the US.

To turn this limitation into a strength, Valdastri's group is adapting this approach for paediatric surgery and have begun developing a paediatric camera.

"Currently, no one has developed laparoscopic devices specifically for paediatric surgery," Valdastri said. "There is a real need that I think we can help fill."

Jacopo Buzzi and Elena De Momi from the Polytechnic of Milan and Vanderbilt doctoral student Marco Beccani also contributed to the research. MEH

The oxytocin and altruism connection

Nowadays, much emphasis is placed on sustainability. The degree to which people are willing to donate their own money appears to depend on their level of oxytocin.

Scientists at the University of Bonn Hospital have discovered that the willingness to donate increases with the quantity of this bonding hormone. However, oxytocin only has an effect with regard to social sustainability projects. The hormone does not increase the ability to participate in the case of purely environmentally oriented projects. The scientists report their results in *The Journal of Neuroscience*.

The "cuddle hormone" oxytocin strengthens social ties: In persons newly in love, during sex and during breastfeeding, the level of this hormone is particularly high. "Earlier studies have found evidence that the messenger also promotes generosity," says Prof Dr René Hurlemann, director of the Department of Medical Psychology at the Clinic and Polyclinic for Psychiatry and Psychotherapy. Does oxytocin also increase the willingness to donate for sustainable projects? A team of researchers at the University of Bonn Hospital, under the guidance of the Department of Medical Psychology, got to the bottom of this question.

The scientists conducted experiments on a total of 172 participants. Each subject received ten Euros and was able to decide whether he would keep the amount for himself or whether he wished to donate all or only part of it. There were two actual aid projects to choose from: One ecological project for rain forest reforestation in Congo and a social project to improve the livelihoods of the native inhabitants in the Congo region. Using saliva samples, the researchers tested the participants' oxytocin level during the investigation.

Environmental projects

"Since projects for environmental sustainability also always have a social dimension, we initially suspected that oxytocin generally increases the willingness to donate to such projects," reports lead author Nina Marsh from the team working with Prof Hurlemann. Subjects exhibiting higher saliva levels of oxytocin during the experiment, donated far more generously to social projects, as expected, than did those with lower hormone levels. However, what was surprising was the fact that this effect was not seen in the case of environmental projects. Whether there were high or low amounts of the body's own oxytocin did not change anything at all with regard to donation behaviour.

In a second experiment, the researchers administered the bonding hormone to some of the test subjects via a nasal spray; the other test subjects received a placebo as control. "The pattern repeated itself: On average, the oxytocin group donated twice as much for social projects – 4.50 euros more on average – than did the untreated participants," says Marsh. In the case of the environmental project, the willingness to donate even decreased through oxytocin. While the placebo subjects donated an average of 4.42 euros of the ten euros, the subjects receiving oxytocin were stingier, donating only 2.42 euros.

Then the participants were given a catalogue of various foods and items of clothing. They could either select a conventionally produced version or choose the sustainable variant and indicate a price for these items which they would be willing to pay. One catalogue listed socially-conscious products which featured on good working conditions. The other catalogue targeted goods produced in an environmentally friendly way, for which emphasis was placed on maintaining biodiversity. The subjects each saw only one of the two catalogues. The group receiving oxytocin selected more products produced in a socially sustainable way than did the placebo participants. They were even willing to pay twice as much money than for conventional products. In the group with the environmentally oriented catalogue, practically no oxytocin influence could be observed.

> Under the influence of oxytocin, there is a shift in priorities which favours social altruism.

The hormone shifts test subjects' priorities

"The results show that subjects with low oxytocin levels tend to support environmental sustainability projects, since they donated an average of nearly half of their money for this purpose," says Nina Marsh. "But under the influence of oxytocin, there is a shift in priorities which favours social altruism."

Prof Hurlemanns says: "If support is needed for environmental projects, the social message of the project should be emphasized to also reach those persons who have elevated oxytocin levels."

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Global reach

Tech-savvy programs reach clinicians, researchers worldwide

By Jake Miller

Using a blended-learning model that unites students around the world through online tools, in-person seminars and workshops, and geographically diverse collaborative project teams, the Harvard Medical School (HMS) Office of Global Education is building a worldwide campus for the School's community of biomedical researchers and healthcare leaders.

"Our courses take a novel learning approach to delivering the expertise of the School's faculty to current and future global leaders in basic, translational, and clinical research," says Ajay Singh, associate dean for global education and contributing education at HMS. "Those who participate in the courses will, we hope, become part of a truly global network of professionals committed to the mission of Harvard Medical School."

Coursework emphasizes team-based problem solving, which trains individuals of diverse cultural backgrounds and professional experiences to work as a cohesive group toward a shared research of medical outcome. This is a critical skill as healthcare becomes more globalized and as multinational research teams become the norm, program leaders say.

The blended-learning format strengthens local access to education by allowing admittance into a Harvard-quality program on a competitive basis by those unable to attend a master's level program outside their home country.

● The author, Jake Miller is a science writer and editor in the HMS Office of Communications and External Relations. Adapted with permission from Harvard Medicine magazine, Autumn 2015. MEH

Medical Fair Asia 2016 set to take place in Singapore

The hallmark event for Asia's medical and healthcare sector

Medical Fair Asia 2016
31 Aug – 2 Sep 2016
Marina Bay Sands, Singapore

In just about nine months, Singapore will once again play host to MEDICAL FAIR ASIA, as it makes a much anticipated return from 31 August to 2 September 2016 to be held at a new venue – the Marina Bay Sands Singapore. The 11th instalment of the international exhibition on Hospital, Diagnostic, Pharmaceutical, Medical & Rehabilitation Equipment & Supplies continues its proud tradition of show-on-show growth, with an anticipated participation of 1,000 exhibitors from 45 countries, 20 national pavilion and country groups and an expected attendance of 15,000 qualified trade buyers and decision makers from across Asia, making it the largest MEDICAL FAIR ASIA trade event yet.

Organized by Messe Düsseldorf Asia, MEDICAL FAIR ASIA is Southeast Asia's most definitive event for the medical and healthcare industry, bringing together all facets of the industry for networking, sharing of best industry practices, as well as products, services and solutions development. Part of MEDICA – World Forum for Medicine, a global series of medical events, MEDICAL FAIR ASIA's contribution and growing relevance to the region and its associated industries is further underlined by the endorsement and continued support it receives from hospitals and medical associations all across Asia as well as from the Singapore Tourism Board and the Singapore Exhibition and Convention Bureau.

Where healthcare connects with technology

MEDICAL FAIR ASIA is well positioned to be the No.1 procurement stage for industry professionals to experience new and innovative technologies, solutions, products and services. At the 2016 edition, new disruptive digital healthcare solutions such as remote and wireless healthcare, IT platforms, wearable devices, smarter medicine and healthcare analytics are also expected to be showcased by participating exhibitors.

Focused on equipment and supplies for the hospital, diagnostic, pharmaceutical, medical and rehabilitation sectors, the event continues to raise the overall capabilities and spur the growth of the region's medical and healthcare sectors to meet the changing demands in both the public and private sectors, driving the next wave of healthcare modernization.

Synergistic co-location with medical manufacturing Asia 2016

MEDICAL MANUFACTURING ASIA will return for its 3rd edition and run synergistically with MEDICAL FAIR ASIA 2016. Focused on the medical technology and medical manufacturing sector, the trade fair is jointly organized by Messe Düsseldorf Asia and the Singapore Precision Engineering & Technology Association (SPETA).

The synergistic qualities of MEDICAL FAIR ASIA 2016 and MEDICAL MANUFACTURING ASIA 2016 bode well for exhibitors and visitors alike as they gain access to a diverse mix of high quality products and services.

Asia – at the spotlight for investment, innovation and growth in healthcare

The dynamic healthcare landscape across the Asia is riding on a strong growth momentum in areas of new entities, investments and products with the accelerated evolution driven by innovation and opportunities afforded by this region. As the medical and healthcare sector continues on the robust growth in Asia, MEDICAL FAIR ASIA will continue to be the preferred strategic business platform for region's medical and healthcare industries.

With exhibition spaces filling fast, interested exhibitors are encouraged to submit their space booking forms for MEDICAL FAIR ASIA 2016 at the earliest opportunity.

● For more information on the trade fair, please visit *www.medicalfair-asia.com* or contact *medicalfar-asia@mda.com.sg*

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Dr Amin Hussain Al Amiri, Assistant Undersecretary for Public Policy and License Sector, Ministry of Health, UAE

Experts discuss provision of world-class healthcare services for MENA region

Experts from the Middle East and North Africa (MENA) healthcare industry have committed to navigating through a rapidly changing landscape to ensure healthcare provision in the region is second-to-none. That was the message from an expert panel bought together to discuss 'Managing changing healthcare dynamics in MENA' on the first day of the 2nd MENA MedTech Forum.

Hosted by Mecomed, the Middle East and North Africa Medical Devices and Diagnostics Trade Association, the two-day Forum was held at the Mohammed Bin Rashid Academic Medical Centre, Dubai Healthcare City, and has attracted more than 200 medical-technology executives, regulators and healthcare professionals.

The panel session, moderated by Nenad Pacek, President, Global Success Advisors and Co-founder, CEEMEA Business Group, bought together leaders from government, industry, and academia including Dr Amin Hussain Al Amiri, Assistant Undersecretary for Public Policy and License Sector, Ministry of Health, UAE, to discuss strategies to adapt and thrive in the rapidly changing healthcare sector and ensure that patients receive world-class treatment.

Following the panel discussion, Dr Al Amiri discussed the ever changing healthcare landscape in the region.

"Unlike many countries in Europe, the UAE has a high population growth rate with over 200 different nationalities, therefore we must ensure that we align our healthcare strategies with the needs of all our communities by determining which treatment facilities, equipment and technologies best match these needs," he said.

"The government is succeeding at this through establishing strategic partnerships across the healthcare private sector, which also ensures a high quality service is provided to patients and access to the best treatments and facilities are maintained."

Having recently celebrated its strategic collaboration with Mecomed, Dubai Science Park's Executive Director, Marwan Abdulaziz Janahi, also highlighted the importance of partnerships and collaboration in the UAE's healthcare market.

"The UAE's healthcare sector has substantial growth potential on the back of the significant market size, and as a result, Dubai is well placed to evolve into an innovative regional hub for R&D investment for major market players. Partnerships and collaboration are key to developing the UAE's healthcare sector, and Dubai Science Park is in a position to facilitate this. Our aim is to develop relationships with the highest levels of Government and healthcare industry representatives to drive the potential of the industry and ensure it is a major contributor to economic growth in the UAE."

> The UAE's healthcare sector has substantial growth potential on the back of the significant market size, and as a result, Dubai is well placed to evolve into an innovative regional hub for R&D investment for major market players.

The overarching theme of the 2nd MENA MedTech Forum was 'The Changing Face of Healthcare in the MENA Region' and it provides a platform for participants to share insights and best practice on local critical issues, including regulatory, educational and market entry strategies needed to integrate medical technology into the complex healthcare systems of the region.

Mecomed Chairman Rami Rajab said the main objective of the forum was to bring all sectors of the MedTech industry together for greater collaboration, which is critical to solve the region's healthcare challenges.

"The success of events like this depends on the caliber of the speakers – such as the gentlemen we had on the panel this morning – but also on the attendees who contribute to the discussion and bring their own perspectives and ideas," Rajab said.

"And for the second year running we have both at the MENA MedTech Forum," he said.

"It's inspiring to witness the level of engagement and commitment from everyone attending; it's through this kind of collaboration that the MedTech industry is able to improve access to high-quality healthcare for patients, create innovative solutions and jointly shape the future of healthcare in the region," said Rajab.

About Mecomed

Established in 2007, Mecomed is the Middle East & North Africa Medical Devices and Diagnostics trade association which currently includes 24 multinational MedTech companies and covers 21 countries in the Middle East & North Africa. Mecomed aims to bring all healthcare stakeholders and the MedTech industry together to improve the quality of people's health in ethnical, clinically and economically sustainable ways for the benefit of the MENA region community. Mecomed brings the regional healthcare industry together – manufacturers, regulators and authorities - to share information and insights, as well as informed views and experience from Europe, to raise industry standards which benefits patients through access to timely and affordable healthcare.

● To find out more about Mecomed, visit: *www.mecomed.com*

Biotech world conference comes to Sharjah

7th International Conference on Drug Discovery & 4th Biotechnology World Congress
University of Sharjah, Sharjah, UAE
15-18 February 2016

These international conferences co-organized by Eureka Science and the University of Sharjah, under the patronage of His Highness Dr Sheikh Sultan Bin-Mohammed Al Qasimi, Supreme Council Member, Ruler of Sharjah and President of the University of Sharjah, Sharjah, UAE are unique in bringing state-of-the-art innovation in the fields of drug discovery, therapy and biotechnology closer to the doorstep of pharmaceutical scientists, internists and primary care physicians from all over the world.

These conferences aim to provide an open and stimulating scientific and cultural exchange that will give all participants the opportunity to share their experiences, foster collaborations across industry and academia and evaluate emerging technologies across the globe. The 4-day conference will provide an opportunity to learn about biotechnological innovation taking place in the international academic and corporate biotechnology communities.

Previous conferences, held in Dubai annually since 2008, where Noble Laureates participated, met with great successes. These conferences will have exclusive talks provided by a number of Nobel Laureates and numerous top scientists who will cover a diverse range of themes regarding the current state of developments and the new challenges and horizons facing the scientists, along with poster presentations and an associated commercial exhibition.

- Detailed information on both conferences can be found at *www.icddt.com* and *www.biotechworldcongress.com*.
- Please contact Eureka Science, Sharjah, United Arab Emirates.
Tel: +971 6 5575783 for additional queries.

HIMSS Middle East ELSEVIER DIGITAL HEALTHCARE AWARD 2015

Honored for digital healthcare

The first HIMSS-Elsevier Digital Healthcare Award in the Middle East recognizes Cleveland Clinic Abu Dhabi and SAAD Specialist Hospital's for their outstanding achievements.

HIMSS and Elsevier announced the winners of the inaugural Middle East HIMSS-Elsevier Digital Healthcare Award at the HIMSS-Elsevier Gala dinner held at Hyatt Regency Dubai Creek Heights during the Inaugural HIMSS Middle East UAE eHealth Week in December.

Cleveland Clinic Abu Dhabi, United Arab Emirates and SAAD Specialist Hospital, Al-Khobar, Kingdom of Saudi Arabia emerged as winners with their projects: Use of Automation for the Safe and Effective Management of Controlled Medications in UAE Quaternary Hospital (Cleveland) and Implementation of Inpatient Electronic Medication Orders & Electronic Medication Administration Record (EMAR) (SAAD) respectively.

The two winners were selected from four finalists, who were in turn chosen from 10 nominated projects.

The two finalists who came in close were: King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia with their project: Health Maintenance – The Use of Patient and/or Population Health History to Prevent Illnesses and Promote Health and Tawam Hospital, Abu Dhabi, United Arab Emirates with their project: Central Cancer Registry – SEHA.

The entries were evaluated by:

- Dr Mohammad Abdulqader Al Redha, Director, Health Data & Information Analysis Department, Non-Resident Fellow, Mohammed Bin Rashid School of Government,
- Mubaraka Mubarak Ali Ibrahim, Director of Health Information Systems at the Ministry of Health, United Arab Emirates,
- Dr Amer Sharif, Managing Director, Education, Dubai Healthcare City,
- John Daniels, Global Vice President, Healthcare Advisory Services Group, HIMSS Analytics,
- Shiraaz Joosub, Chief Executive Officer, Health-e-Solutions, and
- Dr. Jonathan Teich, Chief Medical Informatics Officer, Elsevier Clinical Solutions

This Award is the result of a long-standing partnership between HIMSS and Elsevier. Previously held only in Asia, the Award has gone global to the Middle East for the first time in 2015, and will run in Europe in 2016. Open to all public and private healthcare providers, this award recognizes organizations for outstanding achievements in the implementation and usage of health information and technology. MEH

The winners of the HIMSS-Elsevier Digital Healthcare Award – Cleveland Clinic Abu Dhabi and SAAD Specialist Hospital – receive their awards.

Robotic surgery demonstrated at International Congress for Joint Reconstruction

Burjeel Hospital for Advanced Surgery (BHAS), one the region's leading Orthopaedic Hospitals, participated in the International Congress for Joint Reconstruction (ICJR), which featured a first-of-its-kind demonstration of robotic surgery.

The hospital group participated under the leadership of the congress's Chairman, Dr Samih Tarabichi; Director General of the Burjeel Hospital for Advanced Surgery, who has played a key role in the growth and development of the event since its inception. The event was attended by more than 800 delegates from across the globe and featured more than 30 medical equipment manufacturing companies.

Attendees were given the opportunity to witness the industry's major suppliers showcasing their latest products and technologies through a series of live launches, demonstrations and free-to-attend workshops. Sessions covered topics including knee and hip arthroplasty, shoulder dislocations and sports injuries and a special cadaver course was held in association with Sharjah University.

Now in its fourth year, the ICJR is the biggest conference for orthopaedics in the Middle East and was held from 12-14 November at Dubai International Convention and Exhibition Centre.

Commenting on the event, Dr Tarabichi said: "This year's event brought together leading experts from across the globe to discuss current trends in the area of joint reconstruction.

Through the incorporation of pioneering treatments in orthopedic applications, Burjeel Hospital for Advanced Surgery is paving the way for further research and advancement in this important field.

"For example, the introduction of improved devices and technologies such as minimally invasive techniques are revolutionising how we treat joint problems. Robotic technology allows for very small incisions and provides better magnification, resulting in faster recovery times and fewer risks.

"Attendees at this year's ICJR event were given a glimpse of the massive potential of robotics, which have the power to optimize healthcare in new and exciting ways."

According to a recent report published by BCC Research, the joint reconstruction and replacement market is the largest segment within the orthopedic market and contributes more than 40% in terms of sales revenue. The report states that the global market for joint reconstruction and replacement is expected to increase to nearly US$16.2 billion by 2018.

- The next ICJR event will take place from 3rd to 5th November 2016. For more information, visit: *www.icjr.me*

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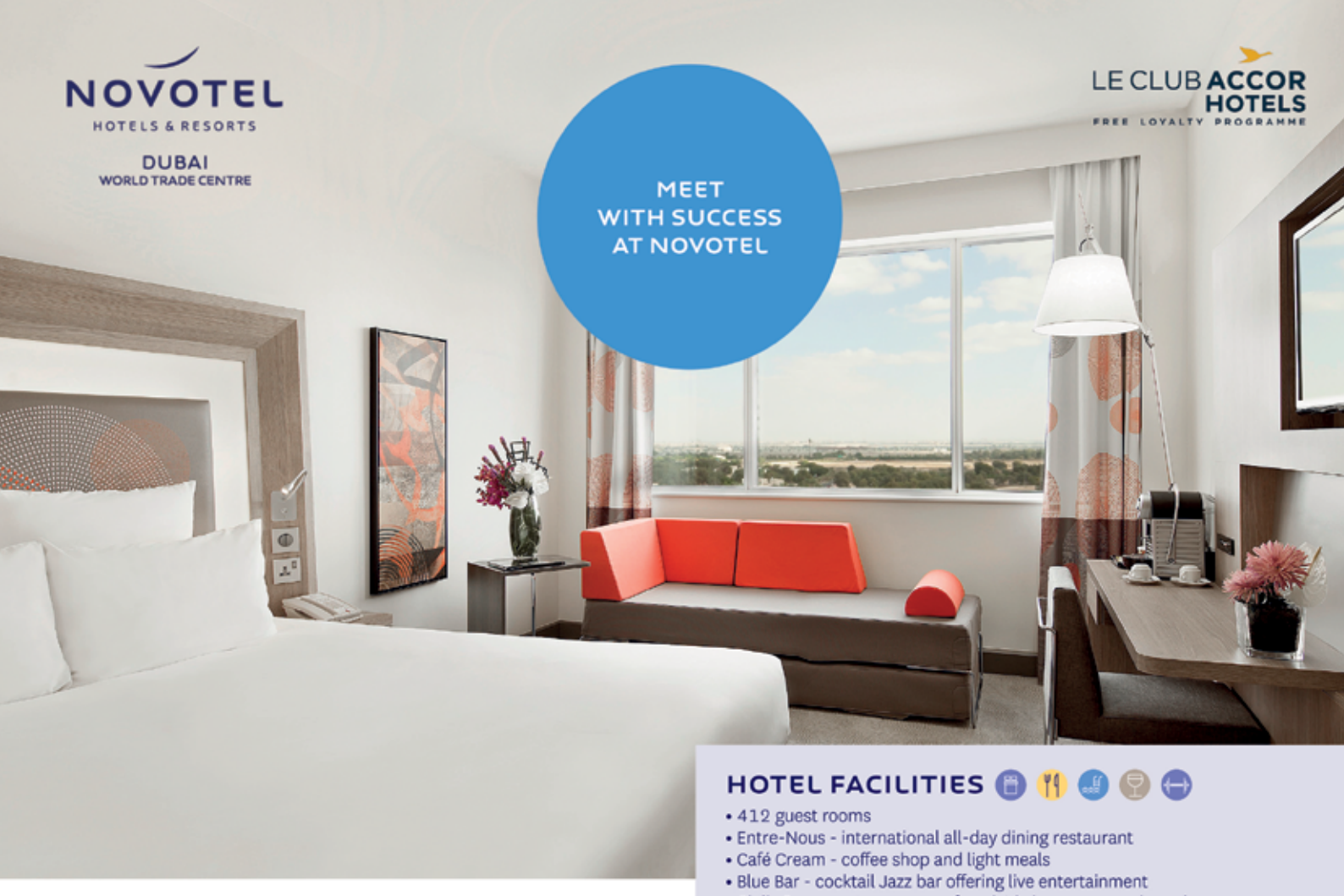

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Lung cancer experts meet in UAE to discuss new targeted therapies

In November cancer experts from across the Gulf gathered to discuss the latest weapon available in the fight against lung cancer. The meeting entitled "Survival and Beyond" was held in Dubai, and provided a platform for specialists from the UAE and Qatar to share best practice.

Globally, lung cancer is one of the most common cancers in the world. In the UAE, it causes more deaths per year than the combined mortality rates of breast, colorectal, and breast cancer.

Chairman of the Survival and Beyond meeting, Dr Mohammed Jaloudi, Chief of Medical Oncology, Tawam Hospital, Al Ain, UAE, said unfortunately the incidence of lung cancer is increasing across the Emirates.

"The increase we see is due to many factors such as aging, continued population growth, and widespread smoking habits," Dr Jaloudi said. "The majority of patients are men; this is because it is less socially acceptable for women to smoke here in the UAE – so their risk of developing lung cancer is greatly reduced," he added.

Dr Jaloudi explained that there are two types of lung cancer – non-small-cell lung cancer (NSCLC) and small-cell lung cancer – with NSCLC accounting for around 85% of all cases. NSCLC is further characterized by different subtypes, of which Epidermal Growth Factor Receptor (EGFR) mutations is one.

A first-of-its-kind therapy has recently become available in the UAE to target EGFR mutations NSCLC. In trials, the new therapy from Boehringer Ingelheim was shown to offer patients with this type of lung cancer a significant delay in tumour progression, coupled with improvements in their lung cancer related symptoms, such as shortness of breath, cough and chest pain, and quality of life, in addition to median overall survival benefit.

Speaking at the event, lung cancer specialist Dr Filippo de Maranis, Director of Thoracic Oncology Division, European Institute of Oncology (IEO), Milan, Italy, explained that conventional treatments for lung cancer, like chemotherapy, effect healthy cells as well as the cancer cells and are often associated with side-effects.

"The side effects many people experience from conventional treatments, such as nausea and vomiting, hair loss, and suppression of the immune system can lead to serious complications and significant loss of quality of life," he said.

"This new treatment has a unique mode of action that allows it to target just the cancer cells and block EGFR and other members of the ErB family of receptors that are responsible for the growth and spread of the cancer," Dr de Maranis said.

Early testing to see if a patient with NSCLC could benefit from treatment with the new therapy, is important, explained Dr de Maranis. "Targeted therapies are essential in the treatment of distinct subtypes of non-small-cell lung can and the earlier treatment starts the better," he said.

"We suggest early mutation testing for EGFR is a crucial step in the treatment-decision pathway, to give patients the best opportunity to receive appropriate personalised therapy from the start," Dr de Maranis said.

The launch of the new therapy in the UAE follows Boehringer Ingelheim's expansion of its oncology franchise to the region in 2015, and marks an important milestone for patients in the Emirates, who are seeking alternative treatments that offer a significant overall survival and improved quality of life.

"We are delighted to be able to make this targeted therapy available to patients in the UAE," said Dr Sherif Khattab, Head of Oncology, Boehringer Ingelheim META.

"This is a significant step towards meeting the substantial unmet need in lung cancer treatment in the UAE and across the region and reinforces our commitment to bringing the right treatments to the right patients," he said.

Dr Filippo de Maranis, Director of Thoracic Oncology Division, European Institute of Oncology, Milan, Italy

> We suggest early mutation testing for EGFR is a crucial step in the treatment-decision pathway, to give patients the best opportunity to receive appropriate personalised therapy from the start.

Mohammed Al Tawil, General Manager, Boehringer Ingelheim, Middle East and Near East Area, said Boehringer Ingelheim has embarked on a major research program to develop innovative cancer drugs, of which this new therapy is the latest.

"We work in close collaboration with the international scientific community and a number of the world's leading cancer centers, to ensure our pipeline is evolving and to demonstrate our continued commitment to improve the outcome for people with lung and other cancers," Al Tawil said. MEH

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The ClinicAll system is self-explanatory, intuitive and offers sophisticated touch screen operation. The bedside network connection also serves the patients, who can surf the internet, watch TV, listen to the radio – anything they want is possible with the user-friendly and versatile software.

The top athlete and former German national football player Nia Künzer also visited the ClinicAll stand and was impressed, stating she wished something like this had existed when she was a professional athlete. The world champion forecasts:

"I believe everyone will want something like this. Probably it will take some time until it is available in all hospitals, but it is definitely the future."

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Solutions to stop snoring

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

Many people can relate to the problems that snoring causes. In fact, The Statistic Brain Research Institute has estimated that 40% of people over 40 are known snorers. However, this figure doesn't reflect the true number of sufferers, as often it is the bed partner whose sleep is disturbed, mostly due to the chorus of unpleasant grunts, grumbles and snorts.

A person snores when the muscles in their throat which are used to keep the airways open, relax causing a partial obstruction of airflow. The actual sound comes from the vibration of the soft palate on the roof of the mouth as the flow of air struggles to pass through. Certain factors can affect or cause a person's snoring, for example, if they sleep on their back, are overweight, if they smoke or have been drinking alcohol. Some medications which contain sedatives, such as sleeping pills and antihistamines, can also worsen or cause a person to snore.

The body uses sleep to restore brain development and recuperate after the day. Even just one night without sleep has noticeable effects, such as exhaustion, grumpiness and a lack of energy and concentration. An occasional sleepless night is unlikely to harm your health in the long-term, but with a continued lack of good quality sleep the body loses its ability to function effectively.

Many people undergo years of constant exhaustion believing that it is just a symptom of aging, when in fact the reason is that they are unknowingly suffering from a sleep disorder.

Snoring can also be a symptom of a much worse health issue. When the blockage in the throat causes a person to stop breathing this may be a sign of Obstructive Sleep Apnoea (OSA). The London Sleep Centre has recently opened a new branch in Dubai which aims to be 'a convenient one-stop solution for all sleep related concerns'.

Globally, thousands of accidents occur due to lack of sleep and fatigue. As the number one cause of death and disability in the Middle East, the link between sleep deprivation and road traffic accidents should not be ignored. These worrying facts have led to an increase in recommendations for preventative measures. The founder of The Sleep Centre, Michael Oko, a UK government advisor on OSA, claims that treating these sleep disorders will lead to a reduction in road deaths.

As many as 75% of people who snore are thought to suffer from OSA and research from The Sleep Centre suggests that OSA affects 22% of the UAE. Severe OSA can cause a person to stop breathing over 100 times a night. This can seriously impact both the quality and quantity of sleep that a person has, as well as put them at higher risk of other health issues such as stroke, heart disease, hypertension, Type 2 diabetes and high cholesterol. A long period of sleep does not necessarily mean a good night's sleep. Someone with OSA may sleep for a long time but still wake up exhausted. This is due to the repeated interruption of breathing which momentarily wakes the brain in order to tell the body to breathe again. There are a number of treatment options for OSA, but the most popular and effective method is Continuous Positive Airway Pressure (CPAP). This involves the use of an oxygen mask attached to a machine which is designed to increase the air pressure in the throat which stops the muscles from relaxing and obstructing the airway.

For most people though, wearing a mask at night and using a CPAP machine is either not practical or will be seen as a treatment of last resort. This is why I welcome a simple yet innovative throat spray called Asonor that Durbin is now stocking. The spray helps keep the muscles in the throat tight and has been shown to improve 75% of users' sleep.

Snoring should certainly not be something you feel you have to live with. There are a variety of treatments, solutions and preventative measures such as avoiding sedatives and just 'looking after your health' can also have a huge impact. If symptoms persist however, then the cause may be sleep apnoea, in which case you should see your doctor to get the problem resolved. MEH

Durbin PLC is a British company based in South Harrow, London. Established in 1963, the company specialises in supplying quality assured pharmaceuticals, medical equipment and consumable supplies to healthcare professionals and aid agencies in over 180 countries. As well as reacting rapidly to emergency situations, Durbin PLC responds to healthcare supply needs from local project level to national scale programmes.
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Experts gather at 3rd Roche Days Middle East to discuss central role of in-vitro diagnostics in modern healthcare

Now, in its third year, and a key event in the industry's annual calendar, the recent Roche Days Middle East again attracted key opinion leaders of the in-vitro diagnostics (IVD) industry from across the region to the three-day event.

The event serves as a platform to acknowledge, develop and engage the region's experts. Topics covered at Roche Days Middle East included unmet medical needs, screening for infectious diseases, diagnosing women's infertility, and diagnostic tests used to assess heart problems.

Moritz Hartmann, General Manager of Roche Diagnostics Middle East, said it is an exciting time for the diagnostics industry.

"The pace of healthcare in the Middle East and worldwide changes almost daily and there has never been a greater need for the delivery and application of advanced IVD solutions," he said. "This means that both quality and efficiency need to be aligned in order to increase the accuracy and speed of in-vitro diagnostic services by healthcare professionals to ultimately benefit and provide unmatched care to patients across the region, giving them peace of mind that their condition is being properly investigated with the best tests available.

"Ultimately, our main focus is and will always be quality and efficiency. As Roche Diagnostics, we play our part in ensuring this is always met to the highest possible standard, whilst our choice in serving and pairing with some of the strongest regional partners allows for the delivery and provision of this to the market" added Hartmann.

Roche Diagnostics' commitment to quality and efficiency is reflected in many of the game changing solutions the IVD leader provides to the region. These include Roche's online learning platform that offers professionals continuous training by experts in the field, as well as the Roche Diagnostics Customer Support Center – the only IVD Application and Technical Support Hotline in the Middle East – that provides a cost efficient back up for labs, with expert advice just a phone call away reducing the need for often timely field support.

Moritz Hartmann, General Manager Roche Diagnostics Middle East, opens the 3rd Roche Days Middle East in Dubai, UAE

Innovation

Hartmann said it was these factors that spur those working in the in-vitro diagnostics industry to continually innovate and stay one step ahead.

"This is a rapidly evolving industry and it is important for us to continue investing in, and highlighting regional expertise, as well as facilitate the growth of the sector in this market; that is what Roche Days Middle East is all about," he said. "By bringing together experts from across the Middle East, we provide a platform for networking, sharing of best practice, and sow the seeds for future home-grown innovation. I think that's why the event is so well received and we see the IVD experts coming back each year," he added.

Roche Diagnostics is the global leader in in-vitro diagnostics with 20% global market share. On a regional front, Roche Diagnostics was the first IVD manufacturer to have a physical presence in the Middle East. The company has expanded significantly and now operates in 16 countries across the region.

With more than 375 dedicated regional professionals, its global IVD experience, technical know-how and specialized skills are continuously reinforced in the Middle East ensuring the ongoing delivery of real medial value to healthcare professionals and patients across the region.

The company's commitment to the region includes continuous industry education, support, training and skills transfer about in-vitro diagnostics. By making this support and educational tools available to its customers throughout the region, Roche Diagnostics helps deliver unparalleled tangible benefits to healthcare professionals and ultimately patients. MEH

MIDDLE EAST HEALTH I 126

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)
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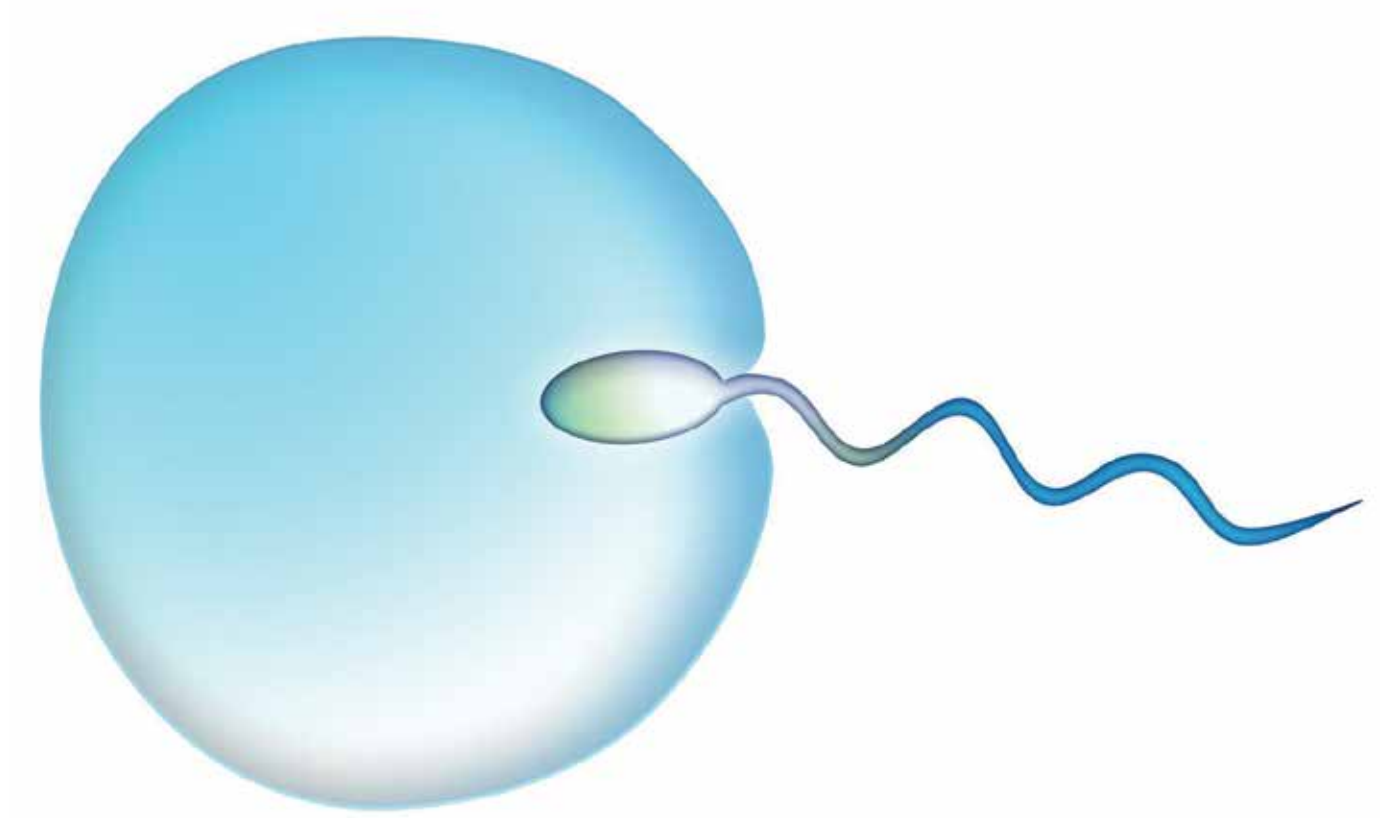

Can same-sex couples have their own biologically related children?

New analysis by a George Washington University academic examines the possibility of using in vitro gametogenesis (IVG) for human reproduction and its ethical and practical implications. The paper was published 17 December 2015 in the *Journal of Law and the Biosciences*.

IVG is the method, most advanced in mice, by which gametes are derived from pluripotent stem cells or embryonic stem cells. IVG in humans could potentially allow for never-before used methods of procreation. Research suggests that whilst not yet advanced enough on human cells, IVG for reproduction may one day be possible in humans.

Using a relational autonomy framework, Professor Sonia Suter analyses the potential benefits and harms of IVG, which depend on the social, scientific, and legal contexts in which it is used. As enormous developments are necessary before IVG could be used in humans, Professor Suter comments that: "the ethical dilemmas about when and how such research should be done will be enormously challenging".

Several groups of people could potentially use IVG for reproduction: those who cannot conceive for physical reasons, same-sex couples, postmenopausal women or premenarche girls, and groups of more than two – multiplex parenting.

Same-sex couples must currently rely on gamete donors when using assisted reproductive technologies (ART) such as artificial insemination or IVF with a surrogate. What distinguishes IVG from current ART is that it would allow such couples to have biologically related children without using gamete donors. For example, a gamete of the opposite sex could be derived from an individual's cells. This in combination with a naturally derived gamete from the other member of the couple could be used to produce an embryo.

Professor Suter also discusses the implications of 'perfecting reproduction' with IVG. She explains: "IVG could play a role in efforts to have a healthy or enhanced child" by making prenatal selection "much easier and more robust". It could, for example, be used to create many more embryos for preimplantation genetic diagnosis than we can today, vastly refining the ability to select embryos.

Perhaps most crucial to the future use of IVG, as she also points out, are the potential risks of the procedure. "We have minimal knowledge," Suter says, "about the implications of switching cell types from differentiated to undifferentiated states and the implications of erasing and resetting imprinting patterns to facilitate reproduction. The only way to demonstrate the effectiveness and safety of these techniques in humans is to use in vitro gametes to try to produce viable offspring in controlled settings – when and if we deem it sufficiently safe to do so."

Despite concerns over the risks and the fact that the technology is still a way off, Professor Suter concludes that, given that we support ART as a society, in many ways, IVG may be just another way to have a baby.

doi: 10.1093/jlb/lsv057

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Arab Health

We have extended our product news section in this issue in time for the big Arab Health expo in Dubai from 25-28 January.

France at Arab Health

130 French companies will be taking part in Arab Health-Medlab, from January 25-28, 2016. With 1,440 sqm in exhibition space across 2 halls, 1 entirely dedicated to laboratory equipment and diagnostics, and expanding every year, the international trade show for medical systems offers a prime venue for them to show off their know-how. Business France – the National Agency for the Internationalization of French Business which supports them, has 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 geared at 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. On the international front, they are further borne by the French health system's positive image and leading authorities in medicine. This has brought about real cooperation between France's manufacturers and medical-surgical teams, both in R&D and in actual use of the devices produced. France's manufacturers are generally positioned on high-technology niche markets (IVD and implants). Highly dynamic, they also meet every ethical and regulatory requirement on safety and quality.

As the not-to miss event in the Near and Middle East, Arab Health-Medlab attracts more and more manufacturers each year, from all over France, with a uniquely innovative offer; one-third of them are participating for the first time. Exhibiting in both halls, they will be unveiling their latest in products for orthopedics (surgical implants for bone surgery, prosthetics, digestive surgery), diagnostics (biopsy tools, reactants and laboratory equipment, blood analyzers), consumables and equipment for health-care establishments, air treatment (air decontamination and filtering), waste treatment, hospital supplies (medical equipment and furniture: beds, carts) and in-home care (home stay, patient transfer).

With the help of regional partners such as CENTRECO, Lille Eurasanté, Biomédical Alliance and, for the first time, the Aquitaine Region, all on-site at the France Pavilion each with some ten companies of its own, France's latest in innovation will be center-stage at the 2016 Arab Health Show. Their technical expertise perfectly aligns with a local market that is highly-demanding and currently burgeoning in these fields. MEH

Timesco Callisto Flare preloaded LED single-use handles

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 by addition of 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 United States 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 approved worldwide.

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

- For more information, visit: *www.timesco.com*
- Arab Heath stand **Z1 F18** on the British Pavilion.

Health made personal

A fresh perspective on personalizing health

Innovations across the health continuum designed to enable healthy living

Nothing is more important in life than good health. Today, digital technologies are empowering people to take more control of their health and lead healthier lives. Data and connected solutions help deliver the relevant information at the right time – enabling healthcare professionals to make first-time right decisions, achieve better outcomes at lower costs, and put patients at the center of care.

At Arab Health 2016, Philips is showcasing its range of innovative solutions that span the health continuum from living a healthy lifestyle, to better experience at hospitals as well as towards supportive care at home.

Philips looks beyond technology to the experiences of patients, providers and caregivers, across the patient journey.

By understanding the needs of these key individuals, Philips unlocks insights leading to solutions for the most meaningful moments of care, whether in the hospital or at home. Philips brings together clinical breadth and depth of expertise, technology and services, actionable data, consultative new business models and partnerships.

Improving experiences of patients, providers and caregivers means moving outside the walls of a hospital. In today's healthcare environment, it is not enough to only diagnose and treat. Patients and clinicians alike are looking for ways to manage health conditions before issues arise and to stay healthy long after treatment. Philips' solutions are strategically developed to work cohesively across the patient journey.

Philips' breadth of diagnostic and treatment solutions offer real time tools

to connect patient information with clinical knowledge, resulting in more personalized care while innovations for recovery and wellness provide a safer transition from hospital to home.

Connecting care with information that matters

The healthcare landscape is rapidly changing across the region to embrace the implementation of new technologies in a meaningful way to deliver sustainable care. Healthcare reform demands health IT solutions that bring greater value to connect, innovate and transform.

To that extent, telehealth is an effective way to address the growing issue of scarce clinical resources. Centralizing and leveraging those resources across the care continuum, at the hospital and at home, provides greater access to care and improves transitions.

Philips' ultimate goal is centered around expanding the patient care team using proven continuous and sustainable models, enabling remote diagnostics, as well as reducing overall healthcare costs.

As part of its 'in the hospital' approach, Philips provides the eICU program, a sustainable, acute care model for around the clock support to patients in hospitals and across the health system, demonstrated to reduce mortality rates by 22% and length of stay by 23%. This program is being extended into new care areas and supports better care transitions and the assessment of patients' readiness for discharge.

At Arab Health, you'll see how our connected solutions can help to make care more personal across the health continuum. Because at Philips we believe there is always a way to make life better. MEH

Advantech to showcase latest telemedicine solutions at Arab Health tradeshow

Advantech, a leading innovator of medical computing platform services and solutions, plans to showcase its latest telemedicine solutions at Arab Health 2016. With the maturation of virtual consultation technology, telehealth is expected to transform healthcare delivery and reduce costs while increasing patient engagement. To satisfy the specific needs of hospital environments, Advantech constructs open platforms that fit customers' existing telehealth devices. Advantech also plans to showcase its clinical mobility, critical care, emergency fleet management, patient services, and hospital public spaces solutions developed together with its channel partners, Alminhaj, and Emitac Healthcare, and Taiwan Institute for Information Industry.

Advantech's Telemedicine Carts – customizable mobile telemedicine stations

Telemedicine is set to be one of the main healthcare industry trends in 2016. "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 and extend their clinical reach are continually being created," said James Fan, Senior Solution Architect Manager. Advantech is set to reveal its latest telemedicine solution – an open mobile platform that can support telemedicine systems created by different vendors – at the Arab Health 2016 tradeshow.

Advantech's AMiS telemedicine carts support dual displays and multiple video inputs. Featuring a point-of-care (POC) medical computer and secondary display, these carts provide the ideal platform for virtual applications such as tele-consultation, tele-monitoring, and tele-visitation. 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 that Advantech's telemedicine carts can be employed in even the most critical environments. Boasting a state-of-the-art design, the system features internally routed cables and DIN rails for accessories to facilitate intelligent upgrades and customization in the future.

"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.

Medical tablets facilitate clinical mobility

Advantech produces diverse medical tablets that range between 5, 7, and 10 inches in size. The tablets demonstrated in this show include MIT-W101 and MICA-071. The MIT-W101 10.1" medical tablet computer is expected to be officially launched in late February or early March 2016. In addition to meeting strict industry regulations, the MIT-W101 is compatible with diverse accessories and module options, allowing customers to customize 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.

Medical-grade computers enable Integrated Operating Rooms

Advantech's medical computers are produced in a range of sizes (from 15" to 24") and comply with the relevant safety standard. At Arab Health 2016, Advantech also plans to showcase its POC-W242 24" medical computer linked to an anesthesia machine for integrated operating room applications. Furthermore, from Q1 of 2016, Advantech's 21" medical-grade computers will be equipped with the latest 6th generation Intel® Core™ processors. With its sleek, thinner-than-ever design, ability to boot up in seconds, and enhanced computing performance, Intel's 6th generation Core™ processor has set new industry standards that promote the continuing innovation of technology.

- All aforementioned platforms and solutions will be showcased at the Advantech booth **(Booth Number S1C45)** at Arab Health 2016, in Dubai, 25-28 January 2016. MEH

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EKF's Altair240 is a compact, reliable and fully automated clinical chemistry benchtop analyzer.

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- To find out more about the Altair240 and our comprehensive range of Stanbio Chemistry reagents, visit *www.ekfdiagnostics.com/altair_240.html*
  or call our US sales team on +1 830 249 0772.
- Arab Health stand **Z1G30**

Falcon*Media* MEDILINE: Certified optical media solutions for medical application

FTI is a leading world-class manufacturer of professional optical data storage media and archival solutions. From the company's start in 2005, in Ras Al Khaimah, United Arab Emirates, to the current day, quality is a strategic priority and a value that supports the brand.

FTI o ers the most reliable and top-quality optical media in the market.

For the best filmless imaging data storage solution, FalconMedia MEDILINE offers the most reliable and highest quality CD and DVD recordable media, specifically designed for healthcare environments. All FalconMedia MEDILINE products are registered as medical grade and are CE certified. This combines DICOM compliance with professional top grade media. The combination ensures the highest read/write performance at all speeds matched with excellent compatibility with PACS systems and modular drives, resulting in a reliable, consistent quality media with an extended lifespan for recorded patient data.

FalconMedia MEDILINE is an ideal solution for:

- Providing patients with imaging reports, radiology reports and treatment history
- Distributing medical reports economically to patients, referring physicians and other healthcare facilities
- Archiving patient data to comply with the EC Directive
- Publishing teaching files and video used in conferences and physician trainings

Outlined below are some features and benefits of FalconMedia MEDILINE:

- DICOM standard compliant
- CE certified medical grade media in accordance with European EC Directive 93/42/EEC
- Compatible with PACS image recording systems
- Compatible with the majority of professional and consumer Inkjet printers: Canon, Epson, HP, IMT, Microboards, Primera, Rimage and Thermal printers: Rimage (all models) and Teac, (Prism and some Everest printers)
- Exclusive and practical packaging design, developed specifically for the healthcare environment
- Extraordinary read/write performance, characterized by the use of high quality original Japanese materials and a fully controlled manufacturing process
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- For more information, visit: *www.falconrak.net*

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Tcore – a new non-invasive temperature monitoring technology from Dräger

Tcore employs a unique dual-sensor heat flux technology, which, following a short ramp-up time, calculates core body temperature continuously and accurately. A simple, self-adhesive sensor placed on the patient's forehead is all that's required.

This single-use sensor can be connected through a battery-powered adapter to all current Dräger monitors (except the Vista 120 patient monitor), eliminating the need for a dedicated display.

Because Tcore is non-invasive, it brings the advantages of accurate core temperature monitoring to a broad range of patients. Tcore can be used with comfort and ease, even with fully conscious patients who would not tolerate conventional invasive methods. The disposable sensor helps to eliminate the possibility of cross-contamination and therefore reduces the likelihood of nosocomial infections.

- For more information, visit: *www.draeger.com*
- Arab Health stand **S3D30**

The battery-operated adapter (above) transmits the measuring results of the Tcore sensor (below) to all Dräger Infinity patient monitors.

JD honingberg's Accudxa2 peripheral bone densitometer provides quick way to determine fracture risk

The Acudxa2 Bone Mineral Density (BMD) Assessment system provides a quick, convenient, and economical measure for determining a patient's fracture risk.

Light (12.5kgs) and small in size (38x29x30cm), the accudxa2 includes sophisticated technology. Everything needed to quickly and confidently assess a patient's BMD is in the unit. The simple test can be performed in a physician's office and does not require garment removal or the application of messy gels or creams.

Accudxa2 measures Bone Mineral Density by imaging and analyzing the intermediate phalange of the middle finger. Only one finger is exposed to a very low radiation level. The radiation exposure to the patient is less than 1% of a chest x-ray. The x-ray scatter to the operator is also extremely low. 15,000 exposures would be needed to reach the limit of 2 mR/week.

Complete results are obtained in 1 minute. A laser guide helps position the hand for more precision in the results and repeat studies. The machine's DEXA technology is very reliable and precise with a deviation of <1%.

A large memory capacity (8 GB) enables it to store up to 2000 patient images. Software upgrade is easy via the USB port.

- For more information, visit: *www.jdhmedical.com*
- Arab Health stand: **1C38**

Big Case Back Tables take less space in OR

Tables are specifically designed for surgical cases holding large instruments (Neurosurgery, Endoscopy, Cardiovascular, Spinal Fusions, Orthopaedics, Craniotomies).

The table is ideal for small Operating Rooms as the upper shelf eliminates the need for a 2nd table to be used at the same time during procedures, thus taking less space than 2 conventional tables. The upper and lower shelf enable more instruments to be set up in a smaller Operating Room space.

The upper shelf can be removed to create one large table when extra instruments are required such as in spine, cardiovascular, trauma and general surgery.

- For more information, visit: *www.jdhmedical.com*
- Arab Health stand: **1C38**

Intersurgical introduces TrachSeal closed suction systems

Closed suction enables a clinician to clear the lungs of secretions whilst maintaining ventilation and minimising contamination with the least possible disruption to the patient and exposure to the care provider.

Intersurgical TrachSeal closed suction systems are available for 24-hour or 72-hour usage depending on patient requirements. There are two length options to allow attachment to either endotracheal or tracheostomy tubes. The endotracheal products feature a catheter length of 54cm and the tracheostomy tube variants have a catheter length of 30.5cm.

The new closed suction systems feature an ultra clear, soft sleeve. This allows the clinician greater feel when inserting the catheter with optimum visibility of blockage assessments. The suction control valve is responsive and allows for single-handed control of the applied suction force. The positive locking mechanism is designed to prevent suction being accidentally applied.

- For more information on this new range, visit: *www.intersurgical.com/products/critical-care/trachseal-closed-suction-systems*
- Arab Health stand: **Z1C11**

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Laptop-style ultrasound system has sliding keyboard cover to prevent contamination

South Korean company Alpinion Medical Systems recently introduced a portable ultrasound system, E-CUBE i7.

The new system integrates high-performance hardware and software and offers a variety of transducers for high clinical versatility across an extensive range of applications including point of care applications; Anaesthesiology, Pain management, orthopaedic/MSK, Emergency medicine. The system also features advanced image optimization technologies to support both routine and specialty application needs, such as 'Needle Vision' Plus that makes the needle visible without degrading the surrounding tissue image, facilitating quick needle guidance to the target anatomy. The E-CUBE i7 system is characterized by its combination of comprehensive capabilities and compact, user-optimized design.

The E-CUBE i7 is the first laptop-style ultrasound system with a sliding keyboard cover. The E-CUBE i7's streamlined design provides a solution for users who suffer from the wrist pain that often accompanies the use of bulky, heavy systems. The unique sliding keyboard cover and ergonomically located keyboard provide better support for the user's arms and wrists when typing. According to the study conducted by a Korea-based university hospital (Department of Orthopedics, Korea University Guro Hospital), users experienced a dramatic reduction in carpal tunnel pressure and muscle tension. In addition to these benefits, the new cover design also prevents the keyboard from being contaminated by dust, gel, fluid, and blood.

With the cart-based ultrasound system architecture, the E-CUBE i7 brings a new level of image clarity to compact ultrasound systems. The E-CUBE i7 features Alpinion's Crystal Signature transducers, which are proven to improve penetration in difficult-to-image patients and to reduce clutter so clinicians can view fine structures in precise detail. The system also provides advanced imaging technologies including speckle reduction, spatial compounding and harmonic imaging. Its excellent image quality offers the detail and contrast resolution required to clearly delineate complex anatomy.

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

Konica Minolta's Sonimage HS1 ultrasound system boasts many advanced features

Konica Minolta's Sonimage HS1 ultrasound system was developed with the highest image quality and ease of use as its first priorities.

It is equipped with newly developed Ultra-Broadband and high-frequency probes that allow for high sensitivity imaging along with an overall uniform image.

In addition to the new probes, an advanced level of Tissue Harmonics was developed (3THI Triad-Harmonic Imaging) bringing an important enhancement in image definition and clarity, ideal for use in Point of Care, Orthopaedics and other Musculoskeletal applications.

Furthermore, Sonimage HS1's Simple Needle Visualisation (SNV) technology reflects the needle tip clearly to ensure safer and more efficient in-plane and out-of-plane interventional procedures.

Sonimage HS1 features a full touch screen, biaxial large monitor and responsive touch operation for ease of use and even allows for the system to be mounted on the wall of the OT, ER or ambulances.

The user interface can be efficiently customised to fit the user's needs and improve workflow. The portable cart enables Sonimage HS1 to be used wherever and whenever needed. Adding to its functionality a quick boot-up time of 15 seconds from standby mode makes sure that Sonimage HS1 is ready to go when you are!

With Sonimage HS1, Konica Minolta continues to contribute to medical imaging through innovative concepts and designs.

- For more information, visit: *www.konicaminolta.com*
- Arab Health stand: **S1E50**

The S-Cube is Starkstrom's latest innovation

Starkstrom for over 40 years has been a pioneer within Operating Rooms focusing on electrical safety and integrating the most complex parts of a theatre into an easy to use Surgical Control Panel.

Starkstrom was recently acquired by Progility and as a result expansive growth in R&D resulting in the objective to provide solutions and services that fully satisfy our customers. Efficiency, integrating the latest technology and building a state-of-the-art upgradable infrastructure is a key focus. Starkstrom is proud to be actively promoting innovation, excellence and producing world class equipment from the United Kingdom.

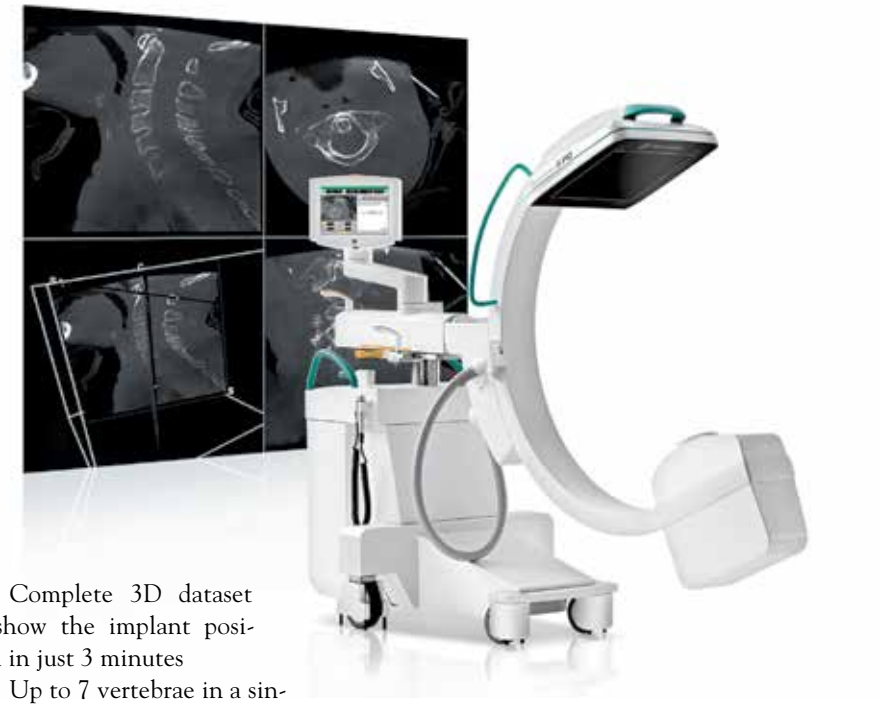
The latest innovation in the surgical area is the state-of-the-art, clinically orientated and engineered Operating Room that will be modular in design to allow the user to continually adapt to the changing operating room environment, it's called S-Cube.

S-Cube features

- Smart modular: A four-panel system that allows for the fastest modification within the operating room.
- Infection control: Full stainless steel capsule including stainless steel rounded edges allowing for better infection control.
- Technologically oriented: Equipped with Starkstrom Surgeon touchscreen control panel and S-View a new OR monitoring system, it's your first step to a SMART Hospital
- Highly engineered: S-Cube is installed faster than any system due to its new innovative engineered structural design.

- For more information, visit: *www.starkstrom.com*
- Arab Health stand: **SAF30**

Ziehm Vision RFD 3D – revolutionizing 3D imaging



Ziehm Vision RFD 3D is the only 3D C-arm worldwide with flat-panel technology that provides a 16 cm edge length per scan volume. It combines 2D and 3D functionality to offer maximum ease-of-use. Available with a 30 cm x 30 cm flat-panel, the C-arm offers game-changing 3D imaging and is ideally suited for orthopedics, traumatology and spinal surgery, but also for demanding cardiovascular hybrid applications.

- Patented SmartScan technology
- CT-like reconstruction with ZIR (Ziehm Iterative Reconstruction)
- Gain intraoperative confidence and reduce revision rates
- Complete 3D dataset to show the implant position in just 3 minutes
- Up to 7 vertebrae in a single 3D scan volume

Ziehm Vision RFD 3D has been awarded with the Bronze Stevie Award in the category "Best New Product or Service of the Year – Health & Pharmaceuticals" in the 12th Annual International Business Awards. Ziehm Imaging impressed the international jury with this new product, which offers intraoperative 3D information for enhanced patient care.

- For more information, visit: *www.ziehm.com/3D*
- Arab Health stand: **S2B70**

Continence Care wipes can replace traditional cleaning methods

Clinicept Care 8 in 1 Continence Care wipes have been carefully developed by the UK R&D team at Clinicept Healthcare and are the latest addition to their Clinicept Care patient care & hygiene range.

The 8 in 1 continence care wipes are very convenient and easy to use and replace the need to apply long-established continence care methods, which include the use of bowls of water, dry wipes, foams and barrier type cream applications. Each continence care wipe is impregnated with a very advanced continence care formulation which offers an effective 8 in 1 action. The 8 in 1 action formula offers Cleansing, Moisturising, Antibacterial, Hypoallergenic, Barrier protection, Deodorising, Soothing and Restoring.

The highly effective formulation contains Dimethicone which forms a protective layer on the skin, sealing out moisture and protecting the skin from urine and faeces.

Clinicept Care 8 in 1 continence care wipes are super strong and soft, pH balanced, alcohol free, Lanolin free, dermatologically tested and contain a special soothing triple complex of natural extracts which include Aloe Vera, Camomile and Witch hazel extract.

Clinicept Care continence wipes are available in single patient packs of 25 large wipes to help reduce the risk of cross contamination. A new 10 pack of large wipes is now available for short stay patients in acute care. The wipe is a luxurious spunlace nonwoven material, which has been specifically designed for continence care.

- For more information, visit: *www.clinicept.co.uk*

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.

- For more information, visit: *www.trilux-medical.com*
- Arab Health stand: **SAC50**

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ibis ONE CENTRAL

ibis One Central is a newly opened hotel and is the largest ibis hotel in the GCC with an inventory of 588 rooms, all quiet, soundproofed and air-conditioned. The hotel is located in the heart of Dubai's financial, commercial and exhibition districts, next to Dubai International Exhibition and Convention Centre. The hotel is a few minutes walk from World Trade Centre metro station and well-connected to Dubai's tourist attractions including Burj Khalifa, Dubai Mall and historic Bur Dubai which ensures your stay at ibis the perfect location for business or leisure whilst in Dubai.

HOTEL FACILITIES

- 588 guest rooms
- **Wok & Co** - stylish contemporary Asian restaurant
- **Cubano-Lito Bar & Grill** - Cuban-themed bar (opening 2nd quarter 2016)

MEETING ROOMS

5 meeting rooms

SERVICES

- Reception 24/7
- Scheduled complimentary shuttles to beach and major shopping malls
- E-corner with WIFI/internet access in the lobby
- Underground car park

ACCESS INFORMATION

- **Rail** : World Trade Centre Metro Station 0.4km
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DTR Medical to showcase new sterile single-use suction range for ear endoscopy at Arab Health 2016

Award-winning UK manufacturer of innovative and high quality single-use surgical instruments DTR Medical, are proud to launch the new endoscopic ear range.

The single-use endoscopic ear range has been designed in response to the growing demand for this recent surgical approach.

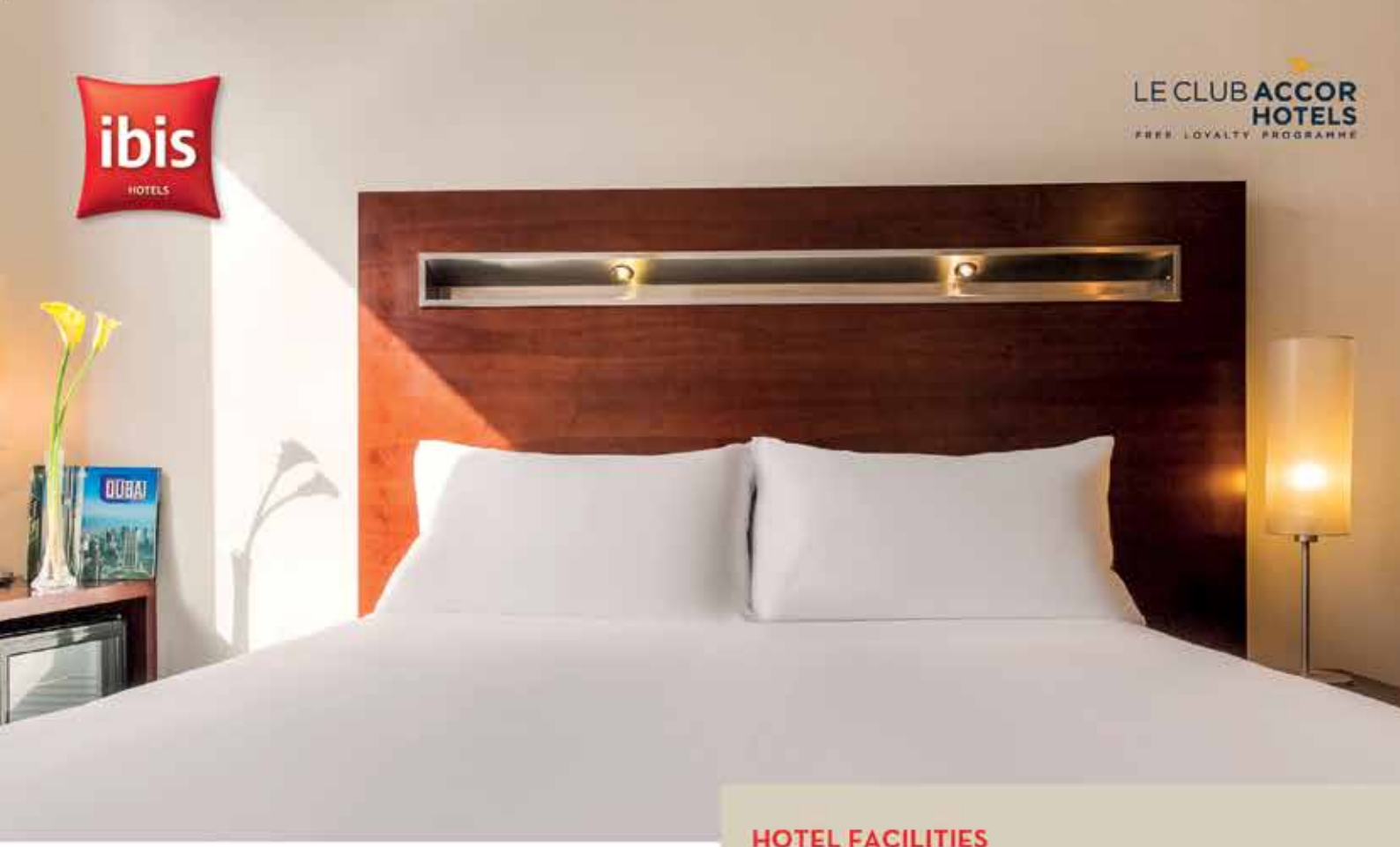
Featuring 3mm and 6mm bends to enable a more specific suction, the endoscopic ear range allows better visualization of the internal ear structure.

DTR Medical offer the Otologist a choice of Curved Endoscopic Suction Tubes for use with suction regulator and Curved Zoellner Suction Fine Ends used with a Zoellner Suction Handle. DTR Medical expect to expand this range to include further options.

At Arab Health 2016, DTR Medical will be displaying their full range of new products throughout ENT/MAXFAX, General Surgery, Gynaecology, Neurosurgical, Ophthalmic and Orthopaedic.

Last year the company celebrated ten years in this market, during which the product range has grown by working with clinicians and academics at leading hospitals worldwide who have increasingly sought sterile single-use alternatives to re-usable instruments. The benefits of such a move come from saving time, lives (reducing risk) and cost.

- For further information, email: *kmartin@dtrmedical.com*
- Or visit: *www.dtrmedical.com/*
- Arab Health stand **Z1G30**



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The ibis Dubai World Trade Centre Hotel is part of the Dubai World Trade Centre complex. Located off Sheikh Zayed Road and next to World Trade Centre metro station, the hotel enjoys direct links to both the airport and Dubai International Convention and Exhibition Centre. ibis Dubai World Trade Centre hotel offers scheduled complimentary shuttle service to beach, Dubai Mall and other major shopping malls, and is also well connected to sightseeing trips to historic Bur Dubai.

HOTEL FACILITIES

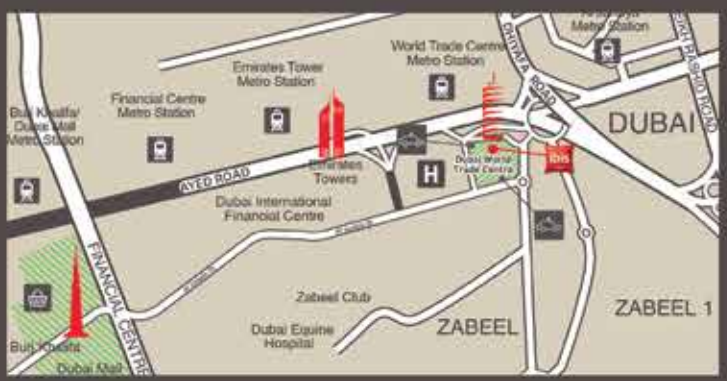
- 210 guest rooms
- **Cubo Restaurant** - authentic Italian restaurant
- **Chianti's Bar** - serving a wide range of beverages
- **Sublime Lounge** - lively lounge bar offering informal drink and light snacks

SERVICES

- Reception 24/7
- Scheduled complimentary shuttles to beach and major shopping malls
- E-corner with WIFI/internet access in the lobby

ACCESS INFORMATION

- **Rail** : World Trade Centre Metro Station 0.3km
- **Airport** : Dubai International Airport Terminal 1&3 10km
- **Road** : GPS. N 25° 13' 24.68" E 55° 17' 3.80"



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Siemens's new ACUSON P500 portable ultrasound good for fast imaging

Siemens Healthcare recently introduced its new hand-carried ACUSON P500 ultrasound system, FROSK edition. Its provides reliable and fast imaging through new and time-tested high-end imaging technology in a compact and easy-to-use device, makes it particularly suitable for use in the emergency department.

All this comes in a compact notebook format of 38 cm. Equipped with a battery that offers up to 60 minutes of scanning time, the new platform can be easily carried and positioned in any clinical environment, helping clinicians make quick decisions even in difficult scanning conditions. With a standard rapid boot-up feature, the system is ready for scanning in less than 30 seconds.

Simplicity

The ACUSON P500 system's clear user interface is easy to learn and operate for users of all experience levels. It features a highly sensitive touch screen display with advanced infrared (IR) technology for accurate gesturing. A dual interface control panel offers flexible use of the touch screen or a traditional control panel based on each user's own scanning preferences, allowing them to spend less time on the system and more time on the patient.

"The P500 is simple but not simplistic. Novice sonographers will appreciate its intuitive, easy-to-use interface, whereas more sophisticated users will enjoy the state-of-the-art features available," says Adam J. Ash, DO, RDMS Associate Director, Department of Emergency Medicine, St. Joseph Hospital, Beth Page, New York. "The dynamic persistence and colour artifact suppression technologies make doppler imaging much more accessible, and the inclusion of continuous wave doppler allows those interested to perform truly advanced cardiac studies."

For rapid, reliable visualization, the ACUSON P500 ultrasound system, FROSK edition is highly portable. A small footprint enables easy navigation through cramped ED spaces while superior engineering provides high-quality imaging when and where it's needed, for greater clinical confidence and speed to treatment.

● For more information visit: *www.healthcare.siemens.com*

Carestream's new radiography/ fluoroscopy systems now available worldwide

Carestream's affordable, high-quality CARESTREAM DRX-Excel and CARESTREAM DRX-Excel Plus radiography/ fluoroscopy systems are now shipping to countries across the globe.

These systems can enhance workflow and perform contrast exams using fluoroscopy that can be associated with a radiography image, in addition to specialized contrast procedures that record both fluoroscopy and radiography sequences and interventional procedures.

"Many hospitals, imaging centres and other healthcare providers are interested in our new radiography/fluoroscopy systems because of the latest features they offer and our proven ability to deliver outstanding service and support," said Jianqing Bennett, President, Digital Medical Solutions, Carestream. "The convenience of sharing DRX detectors among radiography and R/F systems at a customer's facility is also an attractive benefit that helps enhance productivity while reducing costs."

Carestream's DRX-Excel systems are configured with a table and an overhead tube. An optional integrated flat panel detector produces high-resolution images for general radiography as well as fluoroscopic sequences. The DRX-Excel platform also is available as a conventional R/F system that uses either CR cassettes or DRX-1 detectors with an image intensifier. Both DRX-Excel systems offer a source-to-image detector distance of 180 cm, an ergonomic design and the ability to select an image intensifier for fluoroscopy or use the optional flat panel detector. The DRX-Excel Plus has an elevating table that tilts for fluoroscopy exams and can be lowered or raised to provide flexible, comfortable imaging for patients. Table weight capacity is 265 kg. The DRX-Excel has a fixed table with a weight limit of up to 200 kg and has the tilt capability for fluoroscopy exams.

Both systems feature productivity-enhancing capabilities including a positioning pedal that allows the operator to have their hands free – which is helpful for interventional exams – and a remote control that can move the table from anywhere in the room. Other options include: integration of a CARESTREAM DRX detector; four-way float top table movement; and ability to stitch multiple images together for long-length exams.

Carestream enables its DRX detector to be shared with any of its DRX portfolio of imaging systems including DRX mobile or room-based radiography systems as well as R/F systems.

In the United States, only the DRX-Excel Plus model will be available. Both systems will be available in Europe, Asia, Latin America and other countries.

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

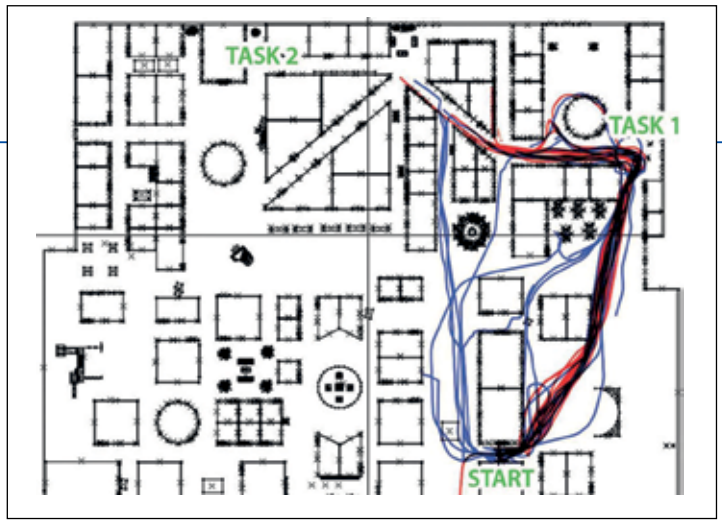

Illustration: C. Pintzka

The lines show how men and women navigated a route. The blue lines are the women's routes, and the red lines are the men's. The lines show that the men arrived faster and solved more tasks.

Men have better sense of direction than women

It's been well established that men perform better than women when it comes to specific spatial tasks. But how much of that is linked to sex hormones versus cultural conditioning and other factors?

Researchers at the Norwegian University of Science and Technology (NTNU) decided to explore this idea by administering testosterone to women and testing how they performed in wayfinding tasks in a virtual environment.

Using fMRI, the researchers saw that men in the study took several shortcuts, oriented themselves more using cardinal directions and used a different part of the brain than the women in the study.

But when women got a drop of testosterone under their tongue, several of them were able to orient themselves better in the four cardinal directions.

"Men's sense of direction was more effective. They quite simply got to their destination faster," says Carl Pintzka, a medical doctor and PhD candidate at NTNU's Department of Neuroscience.

The directional sense findings are part of his doctoral thesis on how the brain functions differently in men and women.

Puzzle solving in a 3D maze

Pintzka used an MRI scanner to see whether there are any differences in brain activity when men and women orient themselves. The test subjects lay in it while solving tasks. Using 3D goggles and a joystick, the participants had to orient themselves in a very large virtual maze while functional images of their brains were continuously recorded.

Eighteen men and 18 women first took an hour to learn the layout of the maze before the scanning session. In the MRI scanner, they were given 30 seconds for each of the 45 navigation tasks. One of the tasks, for example, was to "find the yellow car" from different starting points.

Women often use a route

The men solved 50% more of the tasks than the women did.

According to Pintzka, women and men have different navigational strategies. Men use cardinal directions during navigation to a greater degree. "If they're going to the Student Society building in Trondheim, for example, men usually go in the general direction where it's located. Women usually orient themselves along a route to get there, for example, 'go past the hairdresser and then up the street and turn right after the store'," he says.

The study shows that using the cardinal directions is more efficient because it is a more flexible strategy. The destination can be reached faster because the strategy depends less on where you start.

Women have better local memory

MRI images of the brain showed that both men and women use large areas of the brain when they navigate, but some areas were different. The men used the hippocampus more, whereas women used their frontal areas to a greater extent.

"That's in sync with the fact that the hippocampus is necessary to make use of cardinal directions," says Pintzka.

Hunters and gatherers

He explains the findings in evolutionary terms.

"In ancient times, men were hunters and women were gatherers. Therefore, our brains probably evolved differently. For instance, other researchers have documented that women are better at finding objects locally than men. In simple terms, women are faster at finding things in the house, and men are faster at finding the house," Pintzka says.

A little testosterone under the tongue

Step two was to give some women testosterone just before they were going to solve the maze puzzles.

This was a different group of women than the group that was compared to men. In this step, 42 women were divided into two groups. Twenty-one of them received a drop of placebo, and 21 got a drop of testosterone under the tongue. The study was double-blinded so that neither Pintzka nor the women knew who got what.

"We hoped that they would be able to solve more tasks, but they didn't. But they had improved knowledge of the layout of the maze. And they used the hippocampus to a greater extent, which tends to be more used by men for navigating," says Pintzka.

Losing one's sense of direction is one of the first symptoms in Alzheimer's disease.

"Almost all brain-related diseases are different in men and women, either in the number of affected individuals or in severity. Therefore, something is likely protecting or harming people of one sex. Since we know that twice as many women as men are diagnosed with Alzheimer's disease, there might be something related to sex hormones that is harmful," says Pintzka.

He hopes that by understanding how men and women use different brain areas and strategies to navigate, researchers will be able to enhance the understanding of the disease's development, and develop coping strategies for those already affected. MEH

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
January 2016		
The Breast and Gynaecological International Cancer Conference	14 – 15 January, 2016 Cairo, Egypt	*www.bgicc.eg.net/Home.aspx*
IMTEC Oman 2016	18 – 20 January, 2016 Muscat, Oman	*www.imtecoman.com*
6th Emirates Otorhinolaryngology, Audiology & Communication Disorder Congress	13 – 15 January, 2016 Dubai, UAE	*nadia.ansari@mci-group.com www.emiratesrhinologyandotology.ae*
ISER- 2nd International Conference on Science, Health and Medicine (ICSHM)	16 January 2016 Dubai, UAE	*http://iser.co/conference/Dubai/ICSHM*
1st Middle-Eastern Conference for Stereotactic and Functional eurosurgery	16 – 18 January, 2016 Dubai, UAE	*info@mfsns.org www.msfns.org*
Gulf Arrhythmia Congress	21 – 23 January, 2016 Dubai, UAE	*www.gulfarrhythmia.org*
The ICID 2016: 18th International Conference on Infectious Disease	26 – 27 January, 2016 Jeddah, KSA	*www.waset.org/conference/2016/01/Jeddah/ICID*
Arab Health	25 – 28 January, 2016 Dubai, UAE	*ww.arabhealthonline.com*
Medlab	25 – 28 January, 2016 Dubai, UAE	*www.medlabme.com/overview*
2016 IIER the 28th International Conference on Recent Advances in Medical Science (ICRAMS)	29 January, 2016 Dubai, UAE	*http://theiier.org/Conference/Dubai/8/ICRAMS*
February 2016		
The International Conference on Recent Advances in Medical and Health Sciences	February, 2016 Istanbul, Turkey	*www.rahms-medicine.org*
The World Congress on Asthma, Respiratory Allergy & Immunopathology	6 – 9 February, 2016 Dubai, UAE	*www.wipocis.org*
2016 AccessAbilities Expo	8 – 10 February, 2016 Dubai, UAE	*www.accessabilitiesexpo.com*
Remote Healthcare Middle East	16 – 17 February, 2016 The Westin Abu Dhabi, UAE	*www.remotehealthcareme.com*
The World Congress on Cardiology & Cardiovascular Medicine 2016	17 – 19 February, 2016 Dubai, UAE	*www.cardiologycongress.org*

Agenda

Selected schedule of regional medical meetings, conferences and exhibitions

Event	Date / City	Contact
International Emergency Catastrophe Management Exhibition (IECM Dubai)	21 – 23 March, 2016 Dubai, UAE	*www.emergency.ae*
11th International Conference on Healthcare and Biological Research	22 – 24 February, 2016 Dubai, UAE	*www.ichbrdubai.com*
CardioEgypt 2016	22 – 25 February 2016 Cairo, Egypt	*www.cardioegypt.com/ce2016*
Abu Dhabi 2nd International Conference in Foetal Medicine, Paediatrics, Paediatric Gastroenterology, Hepatology and Nutrition	25 – 27 February, 2015 Abu Dhabi, UAE	*http://atnd.it/29820-0*
The Arab Paediatric Medical Congress	25 – 27 February, 2016 Dubai, UAE	*www.arabpediatriccongress.com*
March 2016		
AbilitiesME 2016	1 – 3 March, 2016 Abu Dhabi, UAE	*www.abilitiesme.com*
5th International Emirates Gynaecology and Obstetrics Conference	3 – 4 March, 2016 Abu Dhabi, UAE	*http://menaconf.com*
2016 PICS-CSI-ASIA	3 – 5 March, 2016 Dubai, UAE	*ww.csi-congress.org/pics-csi-asia.php*
The Dubai Anaesthesia 2016 Conference & Exhibition	3 – 5 March, 2016 Dubai, UAE	*http://dubaianaesthesia.com*
2nd EMEL Symposium on Endometriosis and Chronic Pelvic Pain	4 – 5 March, 2016 Dubai, UAE	*www.endometriosisuae.com/symposium*
Health and Environment Conference 2016	7 – 9 March, 2016 Dubai, UAE	*http://innovationarabia.ae/tracks/health-and-environment*
The Gulf Thoracic Congress	9 – 12 March, 2016 Dubai, UAE	*www.gulfthoracic.com*
6th International Neonatology Conference On "Hottest Topics in Neonatal Medicine"	10 – 12 March, 2016 Abu Dhabi, UAE	*http://menaconf.com*
Kuwait Medica 2016	13 – 15 March, 2016 Salmiya, Kuwait	*gracy@kuwaituniversal.com* *www.kuwaitmedica.com*
ELAJ 2016 International Health and Medical Treatment Expo	13 – 15 March, 2016 Muscat, Oman	*contact@muscat-expo.com* *www.muscat-expo.com*

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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