

# Middle East HEALTH

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July - August 2019

## World Health Assembly

**Health leaders united in effort  
to improve health of all people  
– agree several new resolutions**

### Autism

Researchers find vasopressin hormone  
helps alleviate developmental disorder

### Lebanon

WHO country cooperation strategy  
signals commitment to ambitious goals

#### In the News

- Field hospital opens for displaced people in Al-Hol camp, Syria
- New patient network to support people living with obesity in Middle East
- Study finds HPV vaccination programmes have substantial impact in reducing HPV infections
- GE Healthcare MoU to drive research, empower Saudi healthcare students





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# Prognosis

## The health of the world's people

Health ministers from all the nations of the world gathered in Geneva for the annual World Health Assembly in the last week of May to discuss major public health issues affecting the world. This year they agreed on a number of resolutions ranging from the promotion of universal health coverage to combatting antimicrobial resistance and from mitigating the effects of climate change on health to preparing for the next pandemic influenza outbreak. The significance of the work of the World Health Assembly is largely unrecognized by the public at large, yet it is instrumental in fostering unity on the healthcare front and ensuring cohesive action to safeguard people's lives and prevent the spread of disease which is not bound by political borders. Preventing the spread of disease is but a part of the work of this important assembly. Among the many facets of its remit is the provision of technical assistance to health ministries that require it to improve the public health of their nations. In this issue of *Middle East Health* read our report on the key highlights from this year's assembly.

Also in this issue, in our focus on paediatrics, we look at two new studies on autism. The first – a pilot study by researchers at Stanford – provides evidence that the hormone vasopressin may reduce social impairments in the developmental disorder. In another study on autism at the Stanford University School of Medicine, researchers have shown that children with autism have structural and functional abnormalities in the brain circuit that normally makes social interaction feel rewarding. They say the findings help clarify which of several competing theories best explains the social impairments seen in children with autism. The discoveries, made via MRI brain scans, support the social motivation theory of autism, which proposes that social interaction is inherently less appealing to people who have the disorder.

In our research news section – the Laboratory – we report on a study by researchers at the Johns Hopkins Kimmel Cancer Center who have developed a simple new blood test that can detect the presence of seven different types of cancer by spotting unique patterns in the fragmentation of DNA shed from cancer cells that circulate in the bloodstream. The researchers caution that the test's potential must be further validated in additional studies, but if that happens it could be used to screen for cancer by taking a tube of blood from an individual, extracting the cell free DNA, studying its genetic sequences and determining the fragmentation profile of the cell free DNA. The genome-wide fragmentation pattern from an individual can then be compared with reference populations to determine if the pattern is likely healthy or derived from cancer.

As in each issue, you will find a range of informative news and reviews in this issue.

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# middle east monitor

Update from around the region

## Cleveland Clinic Abu Dhabi shows strong growth and several firsts

Cleveland Clinic Abu Dhabi on 29 May launched the third edition of its 'State of the Clinic' annual report, highlighting a year of remarkable growth.

In 2018, physicians and medical providers at Cleveland Clinic Abu Dhabi recorded more than 583,500 patient encounters, more than 50,000 Emergency Department visits, around 9,500 patient admissions, and in excess of 16,000 surgical cases. The average daily census of patients increased by 30% year-on-year, while outpatient visits exceeded 508,000, an increase of 25% year-on-year.

MORE THAN 1,600 PATIENTS WERE TRANSFERRED TO CLEVELAND CLINIC ABU DHABI FROM UAE AND

international hospitals in 2018, and the hospital treated patients from 93 countries.

Waleed Al Mokarrab Al Muhairi, Chairman of Cleveland Clinic Abu Dhabi, Deputy Group CEO of Mubadala and Chief Executive Officer, Alternative Investments and Infrastructure, said: "As part of Mubadala's network of healthcare providers, Cleveland Clinic Abu Dhabi is playing a vital role in developing and sustaining new services in areas where our community most needs support. In particular, the hospital is offering complex care and treatments for which patients have traditionally travelled abroad, delivering a global standard of care closer to home."

One of the most significant milestones of 2018 was the creation of the UAE's first and only multi-organ transplant facility, which conducted kidney, heart, liver, and lung transplantations during the year. In total, the hospital conducted 35 transplant operations as of December 31, 2018.

Other innovations included the UAE's first percutaneous mitral valve replacement operation, the launch of the first robotic colorectal surgery in the region, the first team in the Middle East to use state-of-the-art flow diverting stent SILK Vista for cerebral aneurysms, the first use of endoscopic

minimally-invasive orbital surgery in the UAE, and the first team in the UAE to use cryotherapy in the lung for biopsy and tumour ablation.

In addition, the hospital launched a medical oncology program in 2018, receiving more than 1,000 cancer outpatient visits.

Dr Rakesh Suri, CEO of Cleveland Clinic Abu Dhabi, said: "Listening to our patients, and understanding their needs, has enabled us to evolve and improve rapidly. The hospital achieved important regional and global medical firsts in 2018, including pioneering the use of minimally invasive technology for high-risk heart patients, expanding the range of robotic surgical procedures, and becoming the UAE's first multi-organ transplant facility."

"Cleveland Clinic Abu Dhabi caregivers were recognized as distinguished leaders in their specialties, publishing landmark research and generating new medical inventions and patents. We also expanded our clinic timings, enhanced our mobile and online channels to make it easier to book appointments, and worked with insurance partners to provide access to our high-quality healthcare for significantly more patients," he added.

In 2018, Cleveland Clinic Abu Dhabi employed 346 physicians, an increase of 4% over 2017. Throughout the year, 94% of Cleveland Clinic Abu Dhabi physicians received a four or five-star rating in outpatient surveys.

Recruiting, developing and retaining talented UAE Nationals across the hospital continued to be a top priority throughout the year. The proportion of UAE National caregivers within the total employee population reached 19.1% by the end of 2018.

As part of its strategy to transform physician education in the region, Cleveland Clinic Abu Dhabi's successfully established and initiated a residency program in 2018. Residencies provide an opportunity for physicians to specialize in their chosen fields of medicine under the supervision and guidance of fully-qualified physicians.

The hospital also signed new agreements



Dr Rakesh Suri, CEO of Cleveland Clinic Abu Dhabi



Waleed Al Mokarrab Al Muhairi, Chairman of Cleveland Clinic Abu Dhabi, Deputy Group CEO of Mubadala and Chief Executive Officer

with insurance providers, as part of its efforts to enable more people access to complex and critical healthcare services.

Cleveland Clinic Abu Dhabi is a multispecialty hospital on Al Maryah Island in Abu Dhabi, UAE. The hospital is a unique extension of US-based Cleveland Clinic's model of care, specifically designed to address a range of complex and critical care requirements unique to the Abu Dhabi population. The hospital is a 364 (expandable to 490) bed facility, with five clinical floors, three diagnostic and treatment levels, and 13 floors of critical and acute inpatient units. It is a physician-led medical facility served by North American/European Board Certified (or equivalent) physicians.

## Field hospital opens for displaced people in Al-Hol camp, Syria

A new field hospital to assist patients wounded in war or suffering from illness was opened in June in Al-Hol camp to address the massive humanitarian needs after an influx of people in recent months.

The hospital is supported by the Syrian Arab Red Crescent (SARC), the International Committee of the Red Cross (ICRC) and the Norwegian Red Cross.

In the initial phase, the 30-bed hospital will include an emergency room, operating theatre, post-operative care and a laboratory. The first rotation of medical staff comprises people from Red Cross Societies in Norway, Iceland, Denmark and Finland.

The more than 63,000 people who have arrived in Al-Hol since December have been without access to health care due to ongoing hostilities, lack of medicine, and damaged or destroyed health facilities. Philip Spoerri, the head of ICRC's delegation in Syria, described the need for medical assistance in Al Hol as "tremendous" after a recent visit there.

"The camp expanded very rapidly, and this has made it challenging for humanitarians to keep up with the demand, particularly for medical services. Many people were injured during the hostilities or on the road to the camp, and months later now they have still not been treated," Spoerri said.

After the arrivals, the population of Al Hol stands at 74,000 people, of which 90% are women and children.

"We are trying to meet the increasing humanitarian needs, not only towards the families residing in Al-Hol Camp, but also the distressed people who have been affected by floods in Rural Hassakeh, where Syrian Arab Red Crescent volunteers have been working around the clock over the last few months."

"The deterioration of the health situation in the Camp rang a bell to the need of this medical facility, which is the first of its kind, designed to provide a higher level of health care service, including surgeries. The field hospital is considered one of the most



advanced facilities used in disaster response. We wouldn't have gotten this far without the support of our humanitarian partners and the concerned parties responsible for facilitating the approvals and delivery of this hospital to Hassakeh", said Eng. Khaled Hboubati, President of SARC.

"The Norwegian Red Cross has many years of experience deploying surgical field hospitals, and our teams can set up a field facility and begin treating patients within a few days, when all the equipment is in place. We are proud to work together with the SARC and the ICRC to provide life-saving surgical assistance to the people in Al-Hol," Bernt G. Apeland, Secretary General of the Norwegian Red Cross, said.

## GE Healthcare MoU to drive research and empower Saudi healthcare students

GE Healthcare Partners together with its partner Advanced Health Solutions (AHS) have signed a Memorandum of Understanding with Prince Sattam bin Abdulaziz University (PSAU) in Al Kharj,

Saudi Arabia to drive localized research and to empower Saudi students with advanced healthcare advisory and consultancy development.

The agreement was signed in May by Dr. Mobarak Ben Obaid Al Harbi, President of the Institute of Research and Consulting Services at PSAU, and Daoud Shinwari, General Manager of GE Healthcare Saudi Arabia, at PSAU in Al Kharj, and Dr. Mohammad Ben Fouad Zamakhshary Chairman of Advanced Health Solutions, at a ceremony attended by senior representatives of the three organizations.

Under the MoU, which supports the goals of Saudi Vision 2030 and the National Healthcare Transformation Program to ensure the highest standards of care in the Kingdom, GE, AHS and PSAU will work on extensive research on diverse aspects of healthcare in the Kingdom. Healthcare advisory and consultancy workshops will be held for students, and GE, AHS and PSAU will also cooperate in field of healthcare consultancy and operational services by drawing on PSAU's reputation as one of the centers of excellence in education and community partnership.

Dr Mobarek Ben Obaid Al Harbi, President of the Institute of Research & Consulting Services at PSAU, commented: "The agreement highlights the goals of Saudi Vision 2030 and the National Healthcare Transformation Plan to promote public private partnerships as well as to strengthen academic-industry linkages. As a center of excellence for education, we are committed to nurturing a generation of future professionals and experts, who will contribute to the development of the Kingdom. GE Healthcare's strengths in advisory and consultancy will serve as an ideal fit to drive localized research and to upskill the talents of our students."

Daoud Shinwari, Commercial General Manager, GE Healthcare Saudi Arabia, said: "PSAU has established its reputation in education excellence and community engagement, contributing significantly to developing an extensive talent pool of Saudi professionals. Through our partnership, we





aim to collaborate on in-depth research into healthcare-specific challenges in the Kingdom that will help enhance their overall efficiency.”

Karim Benhameurlaine, Managing Principal, GE Healthcare Partners EGM, added: “We work with healthcare clients on strategic relationships, clinical command centers and consulting solutions that have provided us with unique insights on real-world healthcare sector challenges. Through our partnership with PSAU, we aim to deliver consultancy and advisory programs that will enable Saudi talent to address these as well as contribute to achieving the transformational goals for the healthcare sector outlined in Saudi Vision 2030.”

GE Healthcare Partners has been supporting the Ministry of Health on its Ada’a program, a radical hospital culture and performance transformation initiative that is driving efficiency and productivity across 70 MOH hospitals and reinvesting the savings into patient care. The project, a strategic priority for the MOH, is the first system-wide hospital transformation of this scale in the world.

Over the years, GE Healthcare has been working closely with public and private sector healthcare stakeholders by not only providing advanced technologies but also upskilling Saudi healthcare professionals. GE Healthcare has over 267 employees in Saudi Arabia and more than 30,000 GE Healthcare technologies have been deployed in hospitals and clinics across the Kingdom.

## New Patient Network to support people living with obesity in Middle East

A new Patient Network to support people living with obesity, backed by clinicians across the Gulf and Lebanon, is being launched by the World Obesity Federation. Designed to raise awareness of the multiple causes of obesity and provide access to information about healthier lifestyle choices, treatment options and ongoing management, the

programme marks World Obesity’s first major initiative in the region.

Dr Nasreen Alfariis, Endocrinologist and Obesity Medicine specialist in KSA and co-chair of the World Obesity Gulf & Lebanon Network Steering Committee, said: “In some countries in our region a third of our people are living with obesity. This initiative will help people make informed choices about healthier lifestyles and the different treatment options available. Obesity is a complex disease that is driven by a multitude of factors, including our living environment, cultural traditions and genetics. It’s also one of the key health and lifestyle challenges facing our region. The Patient Network is an opportunity for people to share their own experiences and, in doing so, support other people living with obesity to manage weight loss and live a healthy, active lifestyle.”

The Global Patient Network hosts evidence and features on several key factors associated with obesity in the Gulf including: changes in food habits and increasing consumption of fast food; rising levels of childhood obesity; supporting men and women living with obesity and explaining treatment options; and promoting higher physical activity levels.

Speaking in the UAE, Lucy Keightley, Director of Communications and Partnerships at World Obesity, said: “If you are living with obesity and want a source of evidence based information, please join the Patient Network -- a source of facts and information on obesity. The Patient Network is an online hub enabling people to connect with other people’s stories and experiences. We are looking for people living with obesity to share their story. By sharing your personal experience, more people living with obesity will have access to the information and support to enable them to live a healthier active lifestyle.”

World Obesity has worked in collaboration with a steering group of leading clinicians from across the region, drawing on their experiences to develop and roll-out the initiative. The Gulf and Lebanon Steering Committee met in

Muscat earlier this year and will continue to provide expert advice to the Network.



World Obesity Patient Network  
[www.worldobesity.org/patient-portal](http://www.worldobesity.org/patient-portal)

## Breaking new ground for cancer treatment

Cleveland Clinic Abu Dhabi has broken ground on a state-of-the-art oncology center, bringing an integrated and transformative approach to diagnosing and treating cancer to the UAE.

Modelled on Cleveland Clinic’s Taussig Cancer Center, one of the leading cancer centres in the United States, the hospital’s new 17,000-sqm purpose-built centre will provide patients with comprehensive, personalized care at a single location, as well as expand the range of cancer treatments available.

Cancer is the third leading cause of death in Abu Dhabi and the main reason patients travel abroad for treatment.

“This expansion of cancer services at Cleveland Clinic Abu Dhabi marks a significant step in the fight against the disease in the UAE. Patients will now have access to centralized oncology services, complementing the existing healthcare landscape, as we continue to build a world-class network of healthcare facilities for the people of this nation,” said Waleed Al Mokarrab Al Muhairi, Chairman of Cleveland Clinic Abu Dhabi and Deputy Group Chief Executive Officer and Chief Executive Officer of Alternative Investments & Infrastructure, Mubadala.

Designed to meet the specific needs of cancer patients and their treatments, the seven-story facility will have dedicated clinical practice areas for advanced imaging, infusion, radiation, and chemotherapy, as well as a connection to the main hospital’s surgical areas. The practice areas will have space for subspecialized nurses, social workers, and other key team members.

The layout of each floor unites a range of complementary specialties, enhancing collaboration and enabling patients to receive most of their treatment in one area – a unique



## American Diabetes Association honors Qatar Diabetes Association

Qatar Diabetes Association (QDA), a member of Qatar

Foundation, has been recognized by the American Diabetes Association through a six-minute film broadcast at the 79th annual American Diabetes Association Scientific Sessions in San Francisco.

The film focuses on the organization's efforts over the last 20 years in raising diabetes awareness, and showcases a variety of the center's current projects, including its various camps, the Mobile Clinic, and the Healthy Kitchen initiative. The acknowledgement also demonstrates QDA's dedication to addressing diabetes on an international level.

Dr Abdulla Al-Hamaq, Executive Director, QDA, attended the conference. "We are very grateful that QDA has been selected to showcase by the American Diabetes Association for its outstanding work as a diabetes center. We are fully committed to pursuing novel approaches to tackling the prevalence of diabetes, especially in light of global forecasts indicating an increase in the number of afflicted patients.

"Through our various health-education activities and programs, QDA provides information, outreach, and support to people with diabetes and their families, helping to raise public awareness of the causes of the condition and means to prevent it.

"We believe that all these achievements would not have been possible without the support and direction of Qatar Foundation and its leadership," said Al-Hamaq.

The five-day annual meeting features timely and significant advances in basic science and the prevention, diagnosis,

and treatment of diabetes. It is attended by more than 20,000 people, including 14,000 clinicians, from over 100 countries.



View the film on Youtube

[www.youtube.com/watch?v=tTGBCTDt5n0](http://www.youtube.com/watch?v=tTGBCTDt5n0)

## RAK Hospital wins Sheikh Khalifa Excellence award

Adding yet another feather to its cap, RAK Hospital won the prestigious Sheikh Khalifa Excellence Award for Business Excellence at the 17th edition of SKEA awards in April, gaining recognition as the only healthcare institution in private sector to receive the honour. The premier healthcare institution is also the first hospital in the northern emirates to have won the award, selected from more than 50 companies representing all economic sectors in the UAE and abroad.

A pioneer in innovation and technology in the UAE healthcare sector, RAK Hospital has been recognised for its successful business model that has neatly blended healthcare with hospitality to present a novel approach to healing.

Speaking at the occasion, Dr Raza Siddiqui, Executive Director of RAK Hospital thanked the leadership of the UAE, adding: "We are honoured and humbled to have been selected for one of the most coveted business excellence awards in the UAE, which is already spurring us to scale further heights. Over the years, the UAE leaders have been consistently encouraging the business sector to perform well with not only lucrative opportunities but awards like these which are a huge morale booster".

Now in its 17th cycle, Sheikh Khalifa Excellence Award was launched by the Abu Dhabi Chamber of Commerce & Industry (ADCCI) in 1999 as a roadmap for continuous improvement aimed at enhancing the competitiveness of the business sector in the UAE. Criteria for selection is based on Results Orientation, Customer Focus, People Development and Involvement, Continuous Learning, Innovation and Improvement, Partnership Development and Public Responsibility among others. **MEH**

approach for patient care in the region. The centre will have 24 exam rooms, 24 infusion rooms, two procedure rooms, and an area devoted to specialty women's services.

"As part of our commitment to tackling the most pressing healthcare needs in our community, we are expanding our oncology services to provide a complete, integrated, and personalized approach to the disease right here in the heart of Abu Dhabi. Building on a proven approach, the Oncology Center promises to transform cancer care in the UAE," said Dr Rakesh Suri, Chief Executive Officer at Cleveland Clinic Abu Dhabi.

The building is designed to ensure the most comfortable flow for patients, provide an abundance of natural light, and offer the optimal combination of clinical care with support services, including a spa service and prayer rooms for patients.

It will be also be a home for cancer research in the region, with a centralized hub for existing high-level treatment technology.

"Receiving a cancer diagnosis is a tremendous upheaval in a person's life. Perhaps more than many others, it requires significant emotional support from a person's family and friends. Bringing Cleveland Clinic's proven model of cancer care to Abu Dhabi means patients will be able to embark on their journeys to recovery closer to home, surrounded by their family," said Dr Suri.

Cleveland Clinic Abu Dhabi's current cancer services include Positron Emission Tomography and Computed Tomography (PET-CT) for cancer diagnoses, and minimally invasive robotic surgery for their treatments. In certain cases, the hospital complements its advanced surgical offerings with chemotherapy.





# worldwide monitor

Update from around the globe

## Largest ever global blood pressure screening initiative finds only 1 in 3 with high blood pressure has it under control

A pioneering global initiative by the International Society of Hypertension (ISH) to screen the blood pressure of as many people globally as possible managed to screen just over 1.5 million people across countries of all incomes in 2018, discovering that 1 in 3 had hypertension.

Furthermore, only a small proportion (1 in 3) of those found to have hypertension had their condition under control, either because they were unaware, not on treatment, or both - or, their treatment was not working well enough.

According to the most recent Global Burden of Disease study (2017), raised blood pressure is the biggest contributor to disease and mortality worldwide, with 10.4 million raised blood pressure related deaths in 2017.

To help tackle this burden and address the lack of priority given to blood pressure monitoring and control in most countries of the world, the ISH decided to take action, using a global network of volunteers to measure the blood pressure of as many people as possible during the month of May. The project, called 'May Measurement Month', began in 2017 and is now in its third year.

"The simplest way to save lives is to increase awareness and get people's blood pressure checked," explained Professor Neil Poulter, Chief Investigator for MMM, Immediate Past-President of ISH, Professor of preventive cardiovascular medicine and Director of the Imperial Clinical Trials Unit at Imperial College London, UK.

In 2017, some 1.2 million people in 30 countries were screened. Now, the results of MMM for 2018 are available, and the initiative has grown to 89 countries and 1.5 million people screened. These latest results for 2018 were published in the *Eu-*

*ropean Heart Journal* as part of World Hypertension Day (May 17).

These new data from 2018 showed that 502,079 (33.4%) out of 1,504,963 participants were found to have hypertension. Of these, 298,940 (59.5%) were aware of their condition and 277,794 (55.3%) were on treatment. Of those on treatment, 166,580 (60.0%) were controlled and hence only 33.2% of all those with hypertension were controlled. A total of 111,214 (40%) of people were taking blood pressure treatments but still had uncontrolled blood pressure. Furthermore, one in six (15%) of those screened overall (224,285) had hypertension and were not on any form of treatment.

In all cases where hypertension was detected, the person was offered diet and lifestyle advice to help lower their blood pressure and ways to seek treatment if required. While the effects of this advice could not be measured in the 2018 study, there are plans to evaluate this for MMM 2019 which is ongoing.

Other interesting findings include that less than half (43%) of people screened had had their blood pressure checked in the last 12 months. There were also stark regional differences in the results (see tables 3 and 4 full paper and supplementary appendix). The Americas and Europe had the highest rates of hypertension detected (40.4% and 41.6% respectively), while sub-Saharan Africa had the lowest (24.8%). The Americas (76.7%) and Europe (71.0%) also had the highest proportion of people with hypertension aware of their condition, while North Africa and the Middle East had the lowest (35.7%). The Americas was also the region with the highest proportion of cases of controlled hypertension (43.0%) while sub-Saharan Africa was the lowest (15%).

Systolic and diastolic BPs were lower when measured on the left compared to the right arm, and in pregnant women compared to women who were not pregnant. Higher BPs were seen in alcohol drinkers, increasing proportionally with the amount of alcohol consumed, and slightly higher BPs were seen in those who were

fasting at the time of their blood pressure measurement (more than 100,000 participants were fasting during Ramadan in May 2018). BPs also increased across the range of body-mass index from underweight to obese. Compared to hospital- or clinic-based measurements, BPs measured in pharmacies were significantly lower, while those taken in the workplace were significantly higher. Systolic BPs were highest on Saturday and lowest on Tuesday.

Professor Poulter noted: "It is urgent that we act to address the enormous burden that hypertension is placing on every country in the world. As long as we have sufficient support, we will continue to grow MMM on an annual basis, making May the month the world checks its blood pressure. Whilst we do this, the ISH is also calling upon policy influencers around the globe to recognise the need for better availability of screening as a direct way to reduce the huge burden raised blood pressures for global health."

## Experts gather in Dubai to finalise surgical guidelines to help standardise surgical practice

University of Birmingham research experts gathered medical professionals from around the world in Dubai to finalise international surgical guidelines the National Institute for Health Research Global Health Research Unit on Global Surgery (NIHR GHRU) that will help to save thousands of lives in Low- and Middle-income Countries (LMIC) countries. The *International Guidelines on Surgical Site Infection* will provide essential guidance that will help standardise and improve practice in surgery.

In LMICs, 9 out of 10 people lack access to even the most basic surgical services; six million will die each year within 30 days of an operation and failure to improve surgical care will cost the world economy \$12.3 trillion in lost GDP by 2030.

The guidelines are designed to produce clear evidence-based recommendations

that can be applied across a range of surgical settings covering pre-operative preparation and in-theatre interventions to reduce the risk of surgical site infection. The guidelines will be published later this year.

Professor Dion Morton, Barling Chair of Surgery at the University's Institute of Cancer and Genomic Sciences, and Co-director of the NIHR GHRU, commented: *"There is a critical need to improve worldwide surgical care, through growing capacity, quality and innovation we can transform patient lives."*

"High-quality research and training are crucial to building sustainable surgical infrastructure and improving care in LMICs. Our aim is to improve surgical outcomes through collaborative research and training in these countries.

"These new guidelines will help to change surgical practice and improve patient care around the world – saving thousands of lives and helping to reduce the massive loss to the world economy that would result from failing to improve surgical care."

Surgical professionals travelled to Dubai from: Mexico, India, South Africa, Ghana, Nigeria, Rwanda, Benin, Zambia, Philippines, and Pakistan. The meeting followed a University of Birmingham-led conference in Kigali, Rwanda, in November last year, where experts came up with 31 evidence-based recommendations identified from existing high-income country Surgical Site Infection guidelines.

This initial list was reduced and revised down to 19 recommendations, which were put to an online vote by LMIC surgeons. Participants voted based on whether each recommendation was appropriate to their setting, current practice and whether implementation would be easy or difficult.

Conference participants in Dubai reviewed results of the online voting and decided which of the 19 recommendations were accepted into the final guidelines – classifying each as 'essential' (a reasonable expectation for all hospitals worldwide) or 'desirable'.

Launched with partners from LMICs, Universities of Edinburgh and Warwick, the NIHR GHRU is establishing hubs and/or trial centres in partner countries

that perform their own clinical research relevant to local populations, whilst serving global needs.

The Unit is based at the University of Birmingham and co-directed by Professor Dion Morton, Barling Chair of Surgery and Professor Peter Brocklehurst, Director of the Birmingham Clinical Trials Unit.

Partners in the Unit have also formed a Policy and Implementation Consortium to work with professional associations, NGOs and government organisations across the world, including the World Health Organisation. This Consortium will use the results from the research generated by the Unit as a tool to inform changes in clinical practise and provide evidence to drive policy changes across the globe.

## **HPV vaccination programmes have substantial impact in reducing HPV infections**

A meta-analysis including 60 million individuals in high-income countries finds significant decreases in HPV infections, anogenital wart diagnoses and precancerous cervical lesions (CIN2+) over 8-9 years after girls-only HPV vaccination.

The new study is the first to show pooled estimates of population-level impact of HPV vaccination on CIN2+ from several countries, the benefit of vaccinating more than one age group, along with substantial herd effects in countries achieving high vaccination coverage. Published in *The Lancet*, the results provide strong evidence of HPV vaccination working to prevent cervical cancer in real-world settings as both the cause (HPV infection) and precancerous cervical lesions are declining. These results have implications for policy makers around the world as it backs the recently revised WHO position on vaccinating multiple age groups rather than a single cohort when introducing the vaccine.

The HPV vaccination was first licensed in 2007 and since then it has been adopted into 99 countries\* and territories.

An earlier version of this meta-analysis with data for four years post-vaccination showed substantial decreases in two types of HPV – 16 and 18 – that cause the majority of cervical cancers and anogenital wart diagnoses among women who had received the vaccine along with herd effects among boys and older women. However, the past meta-analysis was unable to assess CIN2+ lesions, which is the most proximal outcome to cervical cancer, as it was too soon after vaccination to be able to estimate the impact.

In addition, since that publication many more countries have introduced vaccination programmes and in 2016 the WHO updated its advice to recommend HPV vaccination of multiple age cohorts of girls – from nine to fourteen.

To update their 2015 review which included 18 studies, the team added 47 new studies published between February 2014 and October 2018 that compared the frequency of one or more HPV endpoints (HPV infections, anogenital wart diagnoses, or histologically confirmed CIN2+) between pre and post-vaccination periods in the general population. In total, their analysis includes 65 articles in 14 high-income countries – including 23 for HPV infection, 29 for anogenital warts and 13 for CIN2+ lesions. It brings together data from over 60 million individuals over eight years.

They found that the two types of HPV that cause 70% of cervical cancers, HPV 16 and 18, were significantly reduced after vaccination. They report a decrease of 83% in girls aged 13-19 and of 66% in women aged 20-24 years after five to eight years of vaccination. An overall 54% reduction was seen in three other types of HPV, 31, 33 and 45 in girls aged 13-19 years.\*\*

There were also significant reductions in anogenital wart diagnoses. After five to eight years of vaccination, they found decreases of 67% in girls aged 15-19, 54% in women aged 20-24 and 31% in women aged 25-29 as well as reductions of 48% in boys aged 15-19 and 32% in men aged 20-24 years.

Five to nine years after vaccination CIN2+ decreased significantly. The team





reports a 51% reduction in screened girls aged 15-19 years and a 31% reduction in screened women aged 20-24 years.

The analysis shows the greater and faster impact and herd effects in countries with both multi-cohort vaccination and high vaccination coverage. In such countries after five to eight years of vaccination,

anogenital wart diagnoses declined by 88% among girls and 86% in boys aged 15-19 years compared with 44% among girls and 1% among boys from countries with single-cohort or low routine vaccination coverage. In girls aged 15-19 years, CIN2+ decreased by 57% in countries with both multi-cohort vaccination and high vac-

cination coverage whereas there was no decrease in countries with single-cohort vaccination or low routine coverage.

Mélanie Drolet of the CHU de Quebec-Laval University Research Center says: "Our results provide strong evidence that HPV vaccination works to prevent cervical cancer in real-world settings as both

## One in five people living in an area affected by conflict has a mental health condition

New estimates from the World Health Organization (WHO) highlight need for increased, sustained investment in the development of mental health services in areas affected by conflict.

One in five people (22%) living in an area affected by conflict has depression, anxiety, post-traumatic stress disorder, bipolar disorder or schizophrenia, and about 9% of conflict-affected populations have a moderate to severe mental health condition, according to an analysis of 129 studies published in *The Lancet*. The figures are substantially higher than the global estimate for these mental health conditions in the general population, which stands at one in 14 people.

Depression and anxiety appeared to increase with age in conflict settings, and depression was more common among women than men.

The findings suggest that past studies underestimated the burden of mental health conditions in conflict-affected areas – with higher rates of severe mental health conditions (5% at any one time in the new study compared to 3-4% over a 12-month-period in the 2005 estimates), and also of mild to moderate mental health conditions (17% at any one time in the new estimates compared to 15-20% over a 12-month period in previous estimates).

Overall, the mean prevalence was highest for mild mental health conditions (13%), for moderate the prevalence was

4%, and for severe conditions the prevalence was 5%.

The revised estimates use research from 129 studies and data from 39 countries published between 1980 and August 2017, including 45 new studies published between 2013 and August 2017. Settings that have experienced conflict in the last 10 years were included. There was limited data for bipolar disorder and schizophrenia, so estimates for these conditions were based on global estimates and do not take into account any increased risk of these conditions in conflict settings. Cases were categorised as mild, moderate or severe. Natural disasters and public health emergencies, such as Ebola, were not included.

"I am confident that our study provides the most accurate estimates available today of the prevalence of mental health conditions in areas of conflict," said lead author of the study Fiona Charlson of the University of Queensland, Australia and the Institute for Health Metrics and Evaluation, USA. "Estimates from previous studies have been inconsistent, with some finding inconceivably low or high rates. In this study we used more stringent inclusion and exclusion criteria for

the literature search, and advanced search strategies and statistical methods."

Currently, there are major conflict-induced humanitarian crises in a number of countries, including Afghanistan, Iraq, Nigeria, Somalia, South Sudan, Syria, and Yemen. In 2016, the number of armed conflicts reached an all-time high, with 53 ongoing conflicts in 37 countries and 12% of the world's population living in an active conflict zone. Nearly 69 million people worldwide have been forcibly displaced by violence and conflict, the highest number since World War II.

"The new estimates, together with already available practical tools for helping people with mental health conditions in emergencies, add yet more weight to the argument for immediate and sustained investment, so that mental and psychosocial support is made available to all people in need living through conflict and its aftermath," said study author Dr Mark van Ommeren, of the Department of Mental Health and Substance Abuse at the World Health Organization.

Dr van Ommeren concludes: "In conflict situations and other humanitarian emergencies, WHO provides support in many ways: firstly, by supporting coordi-



HPV infections that cause most cervical cancers and precancerous cervical lesions are decreasing. We saw that programmes with multiple age cohorts of girls vaccinated and high vaccination coverage have greater direct impact and herd effects. This finding reinforces WHO's recently revised position on HPV vaccination to recommend HPV vaccination of multiple age cohorts of girls aged 9–14 years old when the vaccine is introduced in a country, rather than vaccination of a single cohort.” **MEH**

nation and by assessing the mental health needs of populations affected, secondly by determining what existing support is available on the ground and what more is needed; and thirdly by helping provide the capacity for support when it isn't sufficient, either through training or bringing in additional resources. Despite their tragic consequences, when the political will exists, emergencies can be catalysts for building quality, sustainable mental health services that continue to help people in the long-term.”

The authors note some limitations due to the complexity of data collection in conflict settings, which means that there is variation in the data used, and so there is uncertainty in the estimates. In addition, cultural variation in diagnosis and changes in diagnostic criteria might have affected prevalence estimates.

Past research has suggested that psychosis is more common in populations affected by conflict. However, the new estimates for bipolar disorder and schizophrenia are based on global averages, not specifically conflict settings, so these may underestimate the issue.

Writing in a linked Comment, Dr Cristiane S Duarte, Columbia University, USA, says: “The many challenges inherent to generating information capable of guiding policy in the absence of reliable data need to be balanced against the alarming need suggested by current estimates: the prevalence of mental disorders (depression, anxiety, post-traumatic stress disorder, bipolar disorder, and schizophrenia) was 22.1% (95% uncertainty interval 18.8–25.7) at any point in time in the conflict-affected populations assessed and the burden is substantial. Work towards producing more accurate estimates needs to continue. Improved estimates can guide strategic implementation of services and more effective allocation of scarce resources. Notwithstanding its limitations, current estimates warrant greater investment in prevention and treatment of mental disorders in conflict-affected populations.”



New WHO prevalence estimates of mental disorders in conflict settings: a systematic review and meta-analysis  
doi: 10.1016/S0140-6736(19)30934-1



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# the laboratory

Medical research news from around the world

## Artificial DNA can control release of active ingredients from drugs

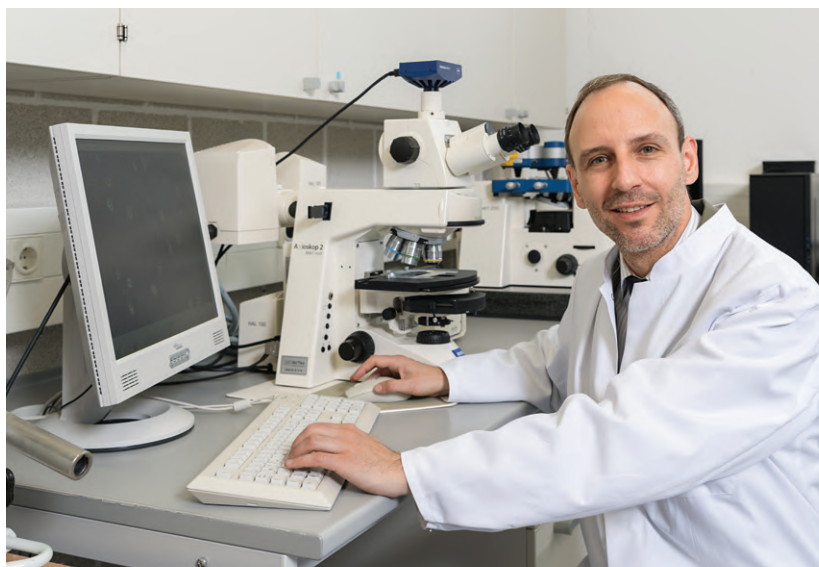
A drug with three active ingredients that are released in sequence at specific times: Thanks to the work of a team at the Technical University of Munich (TUM), what was once a pharmacologist's dream is now much closer to reality. With a combination of hydrogels and artificial DNA, nanoparticles can be released in sequence under conditions similar to those in the human body.

It is becoming much more common for patients to be treated with several different medications. It is often necessary for the patient to take them at fixed intervals – a limitation that makes everyday life difficult and increases the risk of doses being skipped or forgotten.

Oliver Lieleg, a professor of biomechanics and a member of the Munich School of BioEngineering at TUM, and doctoral candidate Ceren Kimna have now developed a process that could serve as the basis for medications containing several active ingredients that would reliably release them in the body in a pre-defined sequence at specified times. "For example, an ointment applied to a surgical incision could release pain medication first, followed by an anti-inflammatory drug and then a drug to reduce swelling," explains Oliver Lieleg.

"Ointments or creams releasing their active ingredients with a time delay are not new in themselves," says Oliver Lieleg. With the drugs currently in use, however, there is no guarantee that two or more active ingredients will not be released into the organism simultaneously.

To test the principle behind their idea, Oliver Lieleg and Ceren Kimna used nanometer-sized silver, iron oxide and gold particles embedded in a special gel-like substance known as a hydrogel. They then used a spectroscopic method to track the exit of the particles from the gel. The particles selected by the researchers have similar motion characteristics within the gel to the particles used to transport real active ingredients, but



Dr Oliver Lieleg, a professor of biomechanics and a member of the Munich School of BioEngineering at TUM



Ceren Kimna

are easier and cheaper to make.

The special ingredient controlling the nanoparticles is artificial DNA. In nature, DNA is above all the carrier of genetic information. However, researchers are increasingly exploiting another property: The ability of DNA fragments to be combined with great accuracy, both in terms of the types of bonds and their strength, for example to build machines on a nanometer scale.

The silver particles were released first. In the initial state, the particles were bound together by DNA fragments designed by Lieleg and Kimna using special software. The resulting particle clusters are so large that they are unable to move in the hydrogel. However, when a saline solution is added, they separate from the DNA. They can now move in the

gel and drift to the surface. "Because the saline solution has approximately the same salinity as the human body, we were able to simulate conditions where the active ingredients would not be released until the medication is applied," explains Kimna.

The mesh-like DNA structure surrounding the iron oxide particles consists of two types of DNA: The first has one end attached to the iron oxide particles. The second type is attached to the loose ends of the first type. These structures are not affected by the saline solution. The iron oxide particles can only be released when the first clusters have dissolved. This event releases not only the silver nanoparticles, but also DNA, which eliminates the "connection DNA" of the second cluster without forming connections itself. As a result, the iron oxide particles can separate. This releases DNA fragments which in turn act as the key to the third DNA-nanoparticle combination.

"The consistency of ointments makes them the most obvious solution for a hydrogel-based approach. However, this principle also has the potential to be used in tablets that could release several effective ingredients in the body in a specific order," explains Prof. Lieleg.

• doi: 10.1016/j.jconrel.2019.04.028





## Researchers design new blood test to detect multiple cancer types

Researchers at the Johns Hopkins Kimmel Cancer Center have developed a simple new blood test that can detect the presence of seven different types of cancer by spotting unique patterns in the fragmentation of DNA shed from cancer cells and circulating in the bloodstream.

In a proof-of-concept study, the test, called DELFI (DNA evaluation of fragments for early interception), accurately detected the presence of cancer DNA in 57% to more than 99% of blood samples from 208 patients with various stages of breast, colorectal, lung, ovarian, pancreatic, gastric or bile duct cancers in the U.S., Denmark and the Netherlands.

DELFI also performed well in tests of blood samples from 215 healthy individuals, falsely identifying cancer in just four cases. The test uses machine learning, a type of artificial intelligence, to identify abnormal patterns of DNA fragments in the blood of patients with cancer. By studying these patterns, the investigators said they could identify the cancers' tissue of origin in up to 75% of cases.

A report on the research was published online May 29 in *Nature*.

Blood tests, or so-called "liquid biopsies" for cancer detection typically look for mutations, which are changes in the DNA sequence within a cancer cell, or for methylation, a chemical reaction in which a methyl group is added to DNA, says senior study author Victor E. Velculescu, M.D., Ph.D., professor of oncology and co-director of the Cancer Biology Program at the Johns Hopkins Kimmel Cancer Center. But not all cancer patients have changes that are detectable using these methods, he says, and there is a great need for improved methods for early detection of cancer.

DELFI, he says, takes a different approach, studying the way DNA is packaged inside the nucleus of a cell by look-

ing in the blood at the size and amount of DNA from different regions across the genome for clues to that packaging.

Alessandro Leal, M.D., a lead author of the study and a Ph.D. candidate at the Johns Hopkins University School of Medicine, explains that the nuclei of healthy cells package DNA like a well-organized suitcase in which different regions of the genome are carefully placed in various compartments. By contrast, the nuclei of cancer cells are more like disorganized suitcases, with items from across the genome thrown in haphazardly.

"For various reasons, a cancer genome is disorganized in the way it's packaged, which means that when cancer cells die they release their DNA in a chaotic manner into the bloodstream," says Jillian Phallen, Ph.D., a lead author on the study and a Johns Hopkins Kimmel Cancer Center postdoctoral fellow. "By examining this cell-free DNA (cfDNA), DELFI helps identify the presence of cancer by detecting abnormalities in the size and amount of DNA in different regions of the genome based on how it is packaged."

The researchers caution that the test's potential must be further validated in additional studies, but if that happens it could be used to screen for cancer by taking a tube of blood from an individual, extracting the cfDNA, studying its genetic sequences and determining the fragmentation profile of the cfDNA. The genome-wide fragmentation pattern from an individual can then be compared with reference populations to determine if the pattern is likely healthy or derived from cancer.

Robert B. Scharpf, Ph.D., a senior author on the study and an associate professor of oncology, says that because the genome-wide fragmentation patterns may reveal differences associated with specific tissues, these patterns, when found to be derived from cancer, can also indicate the source of the cancer, such as from the breast, colon or lung.

DELFI simultaneously analyzes millions

of sequences from hundreds to thousands of regions in the genome, identifying tumor-specific abnormalities from minute cfDNA amounts, says Scharpf.

Using DELFI, investigators found that genome-wide cfDNA fragmentation profiles are different between cancer patients and healthy individuals. Stephen Cristiano, a lead author on the study and a Ph.D. candidate in the Johns Hopkins Bloomberg School of Public Health, says that in cancer patients, fragmentation patterns in cfDNA appear to result from mixtures of DNA released from both blood and tumour cells, and show multiple distinct genomic differences with increases and decreases in fragment sizes at different regions.

For the current study, the Johns Hopkins investigators worked with colleagues from institutions in the U.S., Denmark and the Netherlands to perform low-coverage whole genome sequencing of cfDNA from 208 patients with cancer, including 54 breast cancer patients, 27 colorectal cancer patients, 12 lung cancer patients, 28 ovarian cancer patients, 34 pancreatic cancer patients, 27 gastric cancer patients and 26 bile duct cancer patients. They also performed whole genome sequencing to analyze cfDNA from 215 healthy individuals.

All cancer patient samples were obtained before any treatment, and the majority of the samples (183) were from people whose disease could be treated with surgical removal of the tumours.

Overall, the researchers report, healthy individuals had similar fragmentation profiles, while patients with cancer had more variable fragmentation profiles that were less likely to match healthy profiles.

DELFI detected cancer in 73% of cancer patients overall, while misclassifying four of 215 healthy individuals (98% specificity). The test also was found to be 61%–75% accurate in identifying the tissue of origin of the cfDNA. When DELFI and mutation-based cfDNA analyses were combined, investigators could accurately detect 91% of cancer patients.



Velculescu, Leal, Phallen, Scharpf, Cristiano and colleagues are in the process of scaling up their analyses to study DELFI's performance in thousands of samples.

Because the test is easy to administer and employs simple and inexpensive laboratory methods, Velculescu expects that the test could ultimately be more cost-effective than other cancer screening tests, including other current cfDNA tests.

## **UK study shows obesity in pregnant women associated with a 3.5 times increased risk of type 2 diabetes in the child**

Obesity during pregnancy is associated with a 3.5-times increased future risk of type 2 diabetes (T2D) in the child, concludes new research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes). If the pregnant woman is overweight rather than obese, the increased risk of T2D in the child is 40%. The study says strategies to reduce obesity and overweight in women of reproductive age are urgently required.

The short-term complications of maternal obesity are well recognised - including gestational diabetes (diabetes in the mother during pregnancy); pre-eclampsia; larger infants and higher likelihood of Caesarian delivery. In addition, there is now an increasing awareness that there are longer term health problems for infants born to obese mothers; for example, increased risk of premature cardiovascular disease and premature mortality.

Previous studies have indicated a link between maternal obesity and diabetes in the offspring, but have been limited in scope - for example by being based on diabetes diagnosis via medication use (thereby excluding individuals who control the condition using diet alone); or by age range. This study, conducted by Professor Rebecca Reynolds, University of Edinburgh, UK and colleagues, examined

the link between maternal body mass index (BMI) and the risk of the offspring developing a clinically confirmed diagnosis of diabetes (however treated) right up to adulthood.

The study linked birth records of 118,201 children from 1950 to 2011 in the Aberdeen Maternity and Neonatal Databank (AMND), a unique databank of diverse obstetric information, with data from Scottish Care Information (SCI)-Diabetes, the national register for diagnosed diabetes in Scotland. The analysis adjusted for potential confounding factors, including maternal history of diabetes before pregnancy, maternal age at delivery, area-based socioeconomic status, parity (number of full-term pregnancies for a particular mother), the stage of the pregnancy when the mother's weight was measured, maternal history of high blood pressure, and the sex of the child.

The data showed that 25% of the pregnant women were overweight and 10% were obese across all years studied. However, the proportion of obese mothers has increased 5-fold from the years 1950-1959 (3%) to the years 2000-2011 (16%).

Compared with normal weight mothers, being overweight or obese during pregnancy was associated with a significantly increased risk of any diabetes (type 1 or type 2) in the child, with an increased risk of 26% for overweight mothers and 83% for obese mothers. However, when looking only at type 2 diabetes, the increased risks were even higher. Being an obese mother was associated with a 3.5 times increased risk of T2D in the child, while for overweight mothers, the associated increased risk was 40%.

The underlying mechanism for the association between high maternal BMI and offspring type 2 diabetes is unknown. One theory is that obesity in the mother produces an adverse in-utero environment, with high levels of glucose, insulin and other metabolites leading to a 'programming' of adverse metabolic outcomes for the offspring (the fetal over nutrition hypothesis). In addition, there are complex

neuroendocrine, metabolic and immune/inflammatory changes associated with obesity in pregnancy that are likely to impact on hormonal exposure and nutrient supply to the fetus. Epigenetic changes (metabolic changes that switch genes on or off) in the intrauterine environment in obese mothers may also cause stress on the insulin producing beta cells in the pancreas of the unborn child, which can then lead to earlier onset of type 2 diabetes and raised cardiometabolic risk. Further research is needed to definitively explain these relationships.

The authors note several limitations to their study, including that it did not include data on the BMI of the offspring or of lifestyle factors such as diet and exercise, which in themselves are known to increase the risk of type 2 diabetes. It is plausible, the authors suggest, that the link between high maternal BMI and offspring diabetes may be caused by increased BMI in the child, either because of antenatal programming or because of a shared lifestyle between mother and child.

They say: "This large cohort study, using over 60 years of pregnancy data linked to the national diabetes dataset in Scotland, showed a significant association between maternal BMI and incidence of diabetes in the offspring. This association may partly explain the link between being overweight or obese during pregnancy and offspring cardiovascular disease and mortality rates - highlighting a potential target for intervention."

They add: "With the rising prevalence of being overweight/obese in women of childbearing age - for example, recent data indicated that over 60% of women in the USA were overweight or obese at the time of conception - our findings have profound public health implications. There is an urgent need to establish effective approaches to prevention of obesity and diabetes among mothers and their offspring. pregnancy represents a potential time to intervene with health advice for the family". MEH

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# NEWS FROM THE World Health Organisation



## In the face of slow progress, WHO offers a new tool and sets a target to accelerate action against antimicrobial resistance

WHO has launched a global campaign urging governments to adopt a tool to reduce the spread of antimicrobial resistance, adverse events and costs.

The AWaRe tool was developed by the WHO Essential Medicines List to contain rising resistance and make antibiotic use safer and more effective. It classifies antibiotics into three groups – Access, Watch and Reserve – and specifies which antibiotics to use for the most common and serious infections, which ones should be available at all times in the healthcare system, and those that must be used sparingly or preserved and used only as a last resort.

The new campaign aims to increase the proportion of global consumption of antibiotics in the Access group to at least 60%, and to reduce use of the antibiotics most at risk of resistance from the Watch and Reserve groups. Using Access antibiotics lowers the risk of resistance because they are ‘narrow-spectrum’ antibiotics (that target a specific

microorganism rather than several). They are also less costly because they are available in generic formulations.

“Antimicrobial resistance is one of the most urgent health risks of our time and threatens to undo a century of medical progress,” said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. “All countries must strike a balance between ensuring access to life-saving antibiotics and slowing drug resistance by reserving the use of some antibiotics for the hardest-to-treat infections. I urge countries to adopt AWaRe, which is a valuable and practical tool for doing just that.”

Antimicrobial resistance is a global health and development threat that continues to escalate globally, as highlighted in a recent report by the International Coordination Group on Antimicrobial Resistance. Currently, it is estimated that more than 50% of antibiotics in many countries are used inappropriately such as for treatment of viruses when they only treat bacterial infections or use of the wrong (broader spectrum) antibiotic, thus contributing to the spread of antimicrobial resistance.

One of the most pressing concerns is the spread of resistant gram-negative bacteria, including *Acinetobacter*, *Escherichia coli* and *Klebsiella pneumoniae*. These bacteria, which are commonly seen in

hospitalized patients, cause infections like pneumonia, bloodstream infections, wound or surgical site infections and meningitis. When antibiotics stop working effectively, more expensive treatments and hospital admissions are needed, taking a heavy toll on already stretched health budgets.

At the same time, many low- and middle-income countries experience vast gaps in access to effective and appropriate antibiotics. Childhood deaths due to pneumonia (estimated globally at close to one million per year) because of lack of access to antibiotics remain frequent in many parts of the world. And although over 100 countries have put in place national plans to tackle antimicrobial resistance, only about one fifth of those plans are funded and implemented.

“Tackling antimicrobial resistance requires a careful balance between access and preservation,” said Dr Hanan Balkhy, WHO Assistant-Director General for antimicrobial resistance. “The AWaRe tool can guide policy to ensure patients keep being treated, while also limiting use of the antibiotics most at risk of resistance.”

In the absence of new significant investments into the development of new antibiotics, improving the use of antibiotics is one of the key actions needed to curb further emergence and spread of antimicrobial resistance. By classifying antibiotics into three distinct groups, and advising on when to use them, AWaRe makes it easier for policy-makers, prescribers and health workers to select the right antibiotic at the right time, and to protect endangered antibiotics.

“Antimicrobial resistance is an invisible pandemic,” said Dr Mariângela Simão, Assistant-Director General for Access to Medicines. “We are already starting to see signs of a post-antibiotic era, with the emergence of infections that are untreatable by all classes of antibiotics. We must safeguard these precious last-line antibiotics to ensure we can still treat and prevent serious infections.”



AWaRe

<https://adoptaware.org/>





## Smarter research & development to tackle global health priorities

WHO's new Science Division has launched an online resource to guide the development of new health products for which there are limited markets or incentives for research and development. An essential tool for realizing universal health coverage, the Health Product Profile Directory <[www.who.int/tdr/product-profile-directory](http://www.who.int/tdr/product-profile-directory)> aims to promote research and development for products to combat neglected diseases and threats to global health, including antimicrobial resistance and diseases with pandemic potential.

The Health Product Profile Directory is a free-to-use online resource created and developed by TDR, the Special Programme for Research and Training in Tropical Diseases, on behalf of WHO as a global public good. It provides a searchable database of profiles for health products needed to tackle pressing health issues in global health including those prioritized by WHO. The summary of the published profiles outlines 8-10 key characteristics (such as target population, measures of efficacy and dosage) for the development of health products, including medicines, vaccines and diagnostics. Building in these characteristics at an early stage of the development process is essential to ensure that the final products will be accessible to the populations that need them.

The Ebola outbreak of 2014-15 and other recent pandemics have highlighted the urgent need for centralized information to guide and improve coordination of efforts to develop new health products for neglected diseases and populations. Until now, less than 10% of new products that have been submitted for regulatory review have referenced product profiles in the R&D process. This absence of a standard way to describe the health products that are priorities for global health has contributed to uncoordinated and ineffective research

and development in these areas.

"As the first global public good launched by WHO's new Science Division, the Health Product Profile Directory exemplifies our effort to shape the global health research agenda to achieve health for all," said WHO Chief Scientist Dr Soumya Swaminathan. "While the Directory is launched with a focus on infectious diseases, we will update and grow the content, so I invite submissions of product profiles on other priority areas such as non-communicable diseases and antimicrobial resistance."

Currently, the Directory contains 196 product profiles developed by 24 agencies, of which 191 describe a product with an infectious disease as the target. The top four diseases with product profiles are tuberculosis, malaria, HIV and Chagas. The Directory contains only 5 product profiles for conditions other than infectious diseases (one vaccine for breast cancer and four contraception technologies).

"DNDi welcomes the release of this new resource that will help to better understand the priorities of the global health product R&D landscape," said Graeme Bilbe, Research & Development Director, Drugs for Neglected Diseases initiative (DNDi). "At DNDi, we recognize the importance of product profiles as an essential tool to guide our research strategy and ensure that the products we develop are able to be used by the vulnerable populations we are developing them for. We are pleased to have contributed some of the product profiles used in this valuable new directory and we look forward to using it."

"In an R&D landscape which is increasingly complicated to navigate, Medicines for Malaria Venture welcomes this new Directory, which will help us ensure that new malaria products that are developed are able to be accessed and used by the populations that need them," said David Reddy, Chief Executive Officer of Medicines for Malaria Venture.

## France and WHO collaborate to realize the vision of the WHO Academy

Emmanuel Macron, President of the French Republic and Dr Tedros Adhanom Ghebreyesus, WHO Director-General have signed a Declaration of Intent to establish the WHO Academy that will revolutionize lifelong learning in health. The Academy aims to reach millions of people with innovative learning via a state-of-the-art digital learning experience platform at a campus in Lyon and embedded in the six WHO regions. The WHO Academy Lyon hub will feature high-tech learning environments, a world-class health emergencies simulation centre and collaboration spaces for learning co-design, research and innovation.

The Academy will bring together adult learning science, behavioural science and cutting-edge learning technologies such as artificial intelligence and virtual reality with WHO's norms, standards and evidence to deliver high-impact accredited and tailored multilingual learning to meet diverse needs.

The Academy will be open to a wide range of multisectoral stakeholders that can influence health, including leaders, educators, researchers, health workers, WHO staff and the broader public. It will be run as an internal WHO Division, and the Organization will ensure strong coordination and collaboration with all WHO Member States, thereby optimizing the learning assistance provided to all. The Academy will also harness the strength of the WHO's partnerships, experts, collaborating centres and networks.

The overall goal is to support the learning and development needs of WHO staff and stakeholders to progress towards WHO's "triple billion" goal: ensuring that by 2023, an additional 1 billion people benefit from universal health coverage; 1 billion more are afforded better protection in health emergencies, and 1 billion more enjoy improved health and wellbeing. MEH





# World's healthcare leaders take important action to improve global public health

The 72nd World Health Assembly was held in Geneva from 22-28 May. Member States at the World Health Assembly agreed on a range of resolutions. Here are some of the highlights from the meeting.

## **Primary health care towards universal health coverage**

Member states agreed on three resolutions regarding universal health coverage (UHC).

The first resolution urges Member States to take measures to implement the Declaration of Astana, adopted at the 2018 Global Conference on Primary Health Care.

It recognizes the key role strong primary health care plays in ensuring countries can provide the full range of health services a person needs throughout their life – be it disease prevention or treatment, rehabilitation or palliative care. Primary health care means countries must have quality, integrated health systems, empowered individuals and communities, and that they must involve a wide range of sectors in addressing social, economic, and environmental determinants of health.

The resolution calls on the WHO secretariat to increase its support to Member States in this area. WHO is also required to finalize its Primary Health Care Operational Framework in time for next year's World Health Assembly. WHO and other stakeholders are tasked with supporting countries in implementing the Declaration of Astana and mobilizing resources to build strong and sustainable primary health care.

## **Community health workers delivering primary health care**

The second resolution recognizes the contribution made by community health workers to achieving universal health coverage, responding to health emergencies, and promoting healthier populations. It urges countries and partners to use WHO's guideline on health

policy and system support to optimize community health worker programme, and to allocate adequate resources. At the same time, the WHO Secretariat is requested to collect and evaluate data, monitor implementation of the guideline, and provide support to Member States.

Community health workers have a key role to play in delivering primary health care – they speak local languages and have the trust of local people. They need to be well trained, effectively supervised, and properly recognized for the work they do, as part of multi-disciplinary teams. Investing in community healthworkers generates important employment opportunities, especially for women.

## **Universal health coverage high-level meeting**

The third UHC resolution endorsed by





Member States agreed a new global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. The strategy provides a vision and way forward on how the world and its health community need to respond to environmental health risks and challenges until 2030.

Member States supports preparation for the UN General Assembly high-level meeting on universal health coverage in September 2019. The resolution calls on Member States to accelerate progress towards universal health coverage with a focus on poor, vulnerable and marginalized individuals and groups. The UN high-level meeting will call for the involvement of governments in coordinating the work required across all sectors to achieve universal health coverage. Member States identified key priorities such as health financing, building sustainable and resilient people-centred health systems, and strengthening health workforces. They also emphasized the importance of investing in and strengthening primary health care.

### Antimicrobial resistance

Member States at the World Health Assembly agreed a resolution calling for continued high-level commitments to implement and adequately resource multi-sectoral National Action Plans.

The resolution urges Member States to strengthen infection prevention and control measures including water sanitation and hygiene; enhance participation in Global Antimicrobial Surveillance System; ensure prudent use of quality-assured antimicrobials; and support multisectoral annual self-assessment survey.

It requests the WHO Director-General to significantly enhance support to countries in implementing their national

action plans and help mobilize needed financial resources, in collaboration with other UN agencies and partners. It also calls on the WHO Director-General to maintain the WHO list of Critically Important Antimicrobials for human medicine and keep Member States informed of WHO's work with the other members of the Tripartite (the Food and Agriculture Organisation and the World Organisation for Animal Health) and UN agencies.

The resolution acknowledges the work of the Interagency Coordination Group on Antimicrobial Resistance to provide practical guidance to enhance global action to address antimicrobial resistance, and stresses the importance of addressing antimicrobial resistance to the achievement of the 2030 Agenda for Sustainable Development.

### Health, environment and climate change

Member States agreed a new global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. The strategy provides a vision and way forward on how the world and its health community need to respond to environmental health risks and challenges until 2030.

Risks include environmental physical, chemical, biological and work-related factors.

They also agreed a plan of action on climate change and health in small island developing States. The plan has four

strategic lines of action: empowerment (supporting health leadership in small island developing States); evidence (building the business case for investment); implementation (preparedness for climate risks, adaptation and health-promoting mitigation policies); resources (facilitating access to climate and health finance).

### Noncommunicable diseases

Member States agreed a decision to accelerate and scale up action to prevent and treat noncommunicable diseases, primarily cancer, diabetes, and heart and lung diseases, and to meet global targets to reduce the number of people dying too young from these diseases.

NCDs are the leading cause of premature death: WHO estimates that 15.2 million people died in 2016, aged between 30 and 70 years, from one of these conditions.

The Health Assembly heard that for the first time since the initial United Nations General Assembly High-level Meeting on NCDs in 2011, there are promising signs that health outcomes are improving thanks to action on NCDs. These include a downward trend in prevalence of tobacco smoking, heavy episodic drinking of alcoholic beverages and raised blood pressure.

Treatment interventions, including for hypertension, have also progressed through strengthening primary health care services. There has also been an increase in the number of countries with national standards for managing major NCDs through a primary care approach.

Later this year, WHO will publish a technical note setting out indicators for countries to annually measure progress on the commitments they made at the UN General Assembly to address NCDs and include in reports to the United Nations Secretary General.

### World Chagas Day and Year of the Nurse and Midwife

Member States also agreed to establish World Chagas Day, to be celebrated each year on 14 April. Chagas, a neglected tropical disease, currently affects between 6 and 7 million people, mostly in Latin America. They also declared 2020 the Year of the Nurse and the Midwife.

### Pandemic Influenza Preparedness Framework

Further to requests made by the World Health Assembly in 2017 and 2018, delegates considered the final text of WHO's analysis of the issues raised by the 2016 PIP Framework Review Group's recommendations concerning seasonal influenza and genetic sequence data. The Health Assembly also considered the information provided by the Secretariat regarding implementation of the recommendations contained in the Director-General's report on progress to implement decision WHA70(10).

Delegates adopted a decision to request WHO, inter alia, to work with the Global Influenza Surveillance and Response System (GISRS) and other partners to improve influenza virus sharing, and to prepare a report with Member States and stakeholders on influenza virus sharing and public health in the context of legislation and regulatory measures including those implementing the Nagoya Protocol.

Furthermore, the Health Assembly requested more information on the prototype search engine previously developed and asked WHO to explore possible next steps in raising awareness of the PIP Framework among databases, data users and data providers.

The decision also agreed to amend a footnote relating to SMTA2 (Standard Material Transfer Agreement 2) in the PIP Framework. This will help ensure that the integrity of the PIP Framework access and

benefit-sharing system continues to be well maintained.

The PIP Framework is an international normative instrument adopted by the Health Assembly in 2011 that brings together WHO, Member States, industry, and other relevant stakeholders to implement a global approach to pandemic influenza preparedness and response. The objective of the PIP Framework is to ensure a fair, transparent, equitable, efficient and effective system for, on an equal footing, the sharing of influenza viruses with human pandemic potential and access to vaccines and other benefits.

### International Statistical Classification of Diseases and Related Health Problems (ICD-11)

Member states agreed to adopt the eleventh revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-11), to come into effect on 1 January 2022.

ICD is the foundation for the identification of health trends and statistics globally, and the international standard for reporting diseases and health conditions. It is the diagnostic classification standard for all clinical and research purposes. ICD defines the universe of diseases, disorders, injuries and other related health conditions.

The ICD also captures factors influencing health, or external causes of mortality and morbidity, providing an holistic look at every aspect of life that can affect health.

Understanding what makes people sick, and what eventually kills them, is at the core of mapping disease trends and epidemics, deciding how to programme health services, allocate healthcare spending, and invest in improving therapies and prevention. ICD-11 is now fit for many uses, including clinical recording, primary care, patient safety, antimicrobial resistance, resource allocation, reimbursement, casemix, in addition to mortality and morbidity statistics.

ICD-11 has been updated for the 21st century and reflects critical advances in science and medicine. It can be well integrated with electronic health applications and information systems. This new version is fully electronic, allows more detail to be recorded and is significantly easier to use and to implement, which will



Understanding what makes people sick, and what eventually kills them, is at the core of mapping disease trends and epidemics, deciding how to programme health services, allocate healthcare spending, and invest in improving therapies and prevention. ICD-11 is now fit for many uses, including clinical recording, primary care, patient safety, antimicrobial resistance, resource allocation, reimbursement, casemix, in addition to mortality and morbidity statistics.

lead to fewer mistakes and lower costs, and make the tool much more accessible, particularly for low-resource settings.

Member States noted that ICD-11 has been produced in a transparent and collaborative manner.

### Patient safety

Member States committed to recognize patient safety as a key health priority, and to take concerted action to reduce patient harm in healthcare settings.

The World Health Assembly also endorsed the establishment of an annual





Delegates in Committee A discussing health issues, such as promoting health of refugees and migrants, and access to medicines and vaccines

World Patient Safety Day on 17 September and called on WHO to provide technical support to countries to build national capacities to assess, measure and improve patient safety.

The Assembly requested WHO to formulate a global patient safety action plan in consultation with countries and all relevant stakeholders, to improve and ensure patient safety globally.

Patient harm due to adverse events is one of the leading causes of death and disability globally. An estimated 134 million adverse events occur annually due to unsafe care in hospitals in low- and middle-income countries, contributing to 2.6 million deaths, while 1 in 10 patients is estimated to be harmed while receiving hospital care in high-income countries.

Recognizing patient safety as central to healthcare delivery and the provision of universal health coverage, WHO and the United Kingdom have jointly launched the 'Global Patient Safety Collaborative'. The aim of this initiative is to secure and scale up global action on patient safety, and collaborate closely with low- and middle-income countries to reduce avoidable patient harm and improve safety of their national health care systems.

### Emergency care systems for universal health coverage

Member States agreed to pave the way for better and faster services for time-sensitive health conditions, including injuries, heart attacks, mental health conditions, infections or pregnancy complications.

A functional emergency care system is essential to universal health coverage, and investing in frontline care saves lives, increases impact and reduces costs in other parts of the health system.

Member States stressed that timeliness is an essential component of quality care, and that millions of deaths and long-term disabilities could be prevented if emergency care services exist and patients reach them in time.

Steps agreed to strengthen countries' emergency care include developing policies for sustainable funding, governance and universal access to emergency care for all, and integrating emergency care into health delivery and training strategies at all levels. Member States also embraced the use of the WHO emergency care system assessment to identify gaps and context-relevant priorities.

### Water, sanitation and hygiene

Member States agreed a new resolution to improve safe water, sanitation and hygiene (WASH) services in health facilities around the world. Noting that this is a critical measure for preventing the spread of infections, reducing maternal and newborn deaths and achieving universal health coverage, the resolution urges Member States to prioritize WASH for safer health care worldwide.

Currently, 1 in 4 healthcare facilities lacks basic water services and 1 in 5 has no sanitation services – affecting 2 billion and 1.5 billion people respectively. Furthermore, many have no hand hygiene facilities and lack systems for safe segregation and disposal of waste. An estimated 15% of patients globally develop one or more infections during a hospital stay, with the greatest risk in low-income countries.

In light of this, the resolution asks Member States to develop national roadmaps, establish and implement standards, and invest in systems to support sustainable WASH services. It also requests WHO to

Member States have agreed a five-year global action plan to promote the health of refugees and migrants. The plan focuses on achieving universal health coverage – and the highest attainable standard of health – for refugees and migrants and for host populations.

provide leadership, to help mobilize resources for investment, to report on global progress, and in emergencies, to help coordinate and implement WASH and infection prevention and control in healthcare.

### Global action plan

Member States have agreed a five-year global action plan to promote the health of refugees and migrants. The plan focuses on achieving universal health coverage – and the highest attainable standard of health – for refugees and migrants and for host populations.

The plan includes short and long-term steps to mainstream refugee and migrant health care; enhance partnerships; strengthen health monitoring and information systems and counter misperceptions about migrant and refugee health.

Member States are requesting that the Director-General report back on progress at the 74th World Health Assembly. Reports to the 74th and 76th World Health Assemblies will also include information provided by Member States on a voluntary basis, and UN agencies as appropriate.

Globally, the number of international migrants has grown. During the period 2000–2017, the total number of international migrants rose from 173 million to 258 million, an increase of 49%. The number of forcibly displaced people, 68.5 million, is also the highest ever, and includes 25.4 million refugees. Ten million stateless people lack a

nationality and access to basic rights such as education, health care, employment and freedom of movement.

### Access to medicines

The World Health Assembly adopted a resolution on improving the transparency of markets for medicines, vaccines and other health products in an effort to expand access.

The resolution urges Member States to enhance public sharing of information on actual prices paid by governments and other buyers for health products, and greater transparency on pharmaceutical patents, clinical trial results and other determinants of pricing along the value chain from laboratory to patient.

It requests the WHO secretariat to support efforts towards transparency and monitor the impact of transparency on affordability and availability of health products, including the effect of differential pricing.

The aim is to help Member States to make more informed decisions when purchasing health products, negotiate more affordable prices and ultimately expand access to health products for the populations.

Assuring access to medicines is key to advancing universal health coverage. Member States also expressed wide support for the WHO Access Roadmap for Medicines, Vaccines and other health products, which will determine WHO's work on this issue for the next five years.

### Nagoya Protocol

The Health Assembly requested the Director-General to broaden engagement with Member States, the Secretariat of the Convention on Biological Diversity, relevant international organizations and relevant stakeholders, to provide information on current pathogen-sharing practices and arrangements, the implementation of access and benefit-sharing measures, as well as the potential public health outcomes and other implications. The request followed a review of the WHO's Secretariat's report on the public health implications of implementation of the Nagoya Protocol, an international agreement on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization. MEH

## Challenges ahead

In his closing remarks Dr Tedros Adhanom Ghebreyesus, the WHO Director-General, talked about – among other topics – the challenges healthcare leaders face.

In this excerpt from his speech, Dr Tedros notes: We must all resolve to translate our work this week into policies, programmes and actions that deliver results.

We must be honest that we will all face many challenges in implementing the commitments we have made.

Some of our countries are deeply divided. Some are in severe economic crisis. Some are still suffering from years of conflict.

In some countries, there is an alarming increase in attacks on health workers and health facilities.

We also face challenges in our continuing mission to transform WHO and make it more modern, responsive, and effective; an organization for today and an organization for tomorrow.

We have a lot of hard work ahead of us to implement the changes we have announced, and to make them work.

Our new science division will enable us to stay ahead of the curve on the latest developments in science and medicine, and to provide up-to-date guidance on digital health, investing in our core business: norms and standards.

The future of health is digital, and we are committed to giving Member States the support they need to maximize the opportunities of digital technologies, while avoiding the pitfalls with appropriate regulation.

Our new division of healthy populations will support countries to invest in health promotion, addressing the determinants of health through a health-in-all-policies approach.

I'm pleased to announce that we are establishing a special programme on primary health care to support countries in strengthening the foundations of their health systems and of universal health coverage.

We're also changing the way we work, by establishing agile teams to break the siloes and work on cross-cutting issues like antimicrobial resistance.

And we're establishing the WHO Academy, to transform the training of WHO staff and public health professionals worldwide.

We also face challenges in securing the financial sustainability of WHO, and in increasing the proportion of more flexible and more predictable funding.

These are just some of the changes we're making.

Re-orienting an organization with 8,000 people, 6 regions and 194 Member States is no easy task.

But we are committed to the path we are on.

And the only way to address any of these challenges we face is the same way we have addressed our work this week – together. The rule of the game is: together.



Dr Tedros Adhanom Ghebreyesus,  
the WHO Director-General



Read Dr Tedros's opening speech the World Health Assembly  
<https://www.who.int/dg/speeches/detail/world-health-assembly>





# Progress in a time of challenge

The WHO in Lebanon has recently published its 2018 annual report *Bridging humanitarian support with sustainable development*. *Middle East Health* reports on some of the report's highlights

The WHO's Lebanon 2018 country report *Bridging humanitarian support with sustainable development*, looks at the current public health situation in Lebanon, the challenges it faces and its achievements, and proposes a way forward.

The report notes that over the year 2018, Lebanon faced several challenges: on-going political instability and insecurity within the nation as well as the consequences of the protracted conflict in neighbouring Syria, which has led Lebanon to host the highest number of refugees per capita in the world.

This social, economic, and political context has contributed notable pressure to an already strained healthcare system. For this reason, not only has the World Health Organization persisted in 2018 in its collaboration with and support to the Ministry of Public Health and the Government of Lebanon as a whole, but 2018 also marked a crucial moment in the history of the WHO's work in Lebanon with the signing of the Country Cooperation Strategy for 2019-2023.

According to the report, in 2018, the population of Lebanon was estimated at a total of 6.09 million. Around 948,849 registered Syrians were living in Lebanon at the end of 2018, together with approximately 500,000 non-registered refugees, and some 500,000 long-term Palestinian refugees in addition to around 100,000 workers from South-East Asia, for a total of 1.7 million displaced people, refugees and migrants.

In addition to the Syrian crisis continuing to exert a sustained strain on the country's socio-political and economic stability, poverty rates are rising in Lebanon: in

2017 around 1.5 million Lebanese were considered vulnerable, 32% lived under the poverty line (\$3.84/day), of whom 270,000 were below the extreme poverty line (\$2.87/day). At the same time, 76% of displaced Syrians in Lebanon were living below the poverty line and classified as extremely vulnerable

## Population health

The health profile of Lebanon is characterized by a high burden of Non-Communicable Diseases (NCDs), which remain the top causes of mortality in the population, contributing to a total of 87% of health burdens, with cardiovascular disease comprising 44% of the overall burden.

Risk factors and determinants of NCDs are highly prevalent, with two-thirds of the population being overweight and obese, one-third exhibiting low physical activity, and one-third being smokers. Alongside NCDs, road traffic injuries (particularly among youth) are on the rise, and environmental pollution, exacerbated by the lack of national waste and energy management as well as by inadequate water and sanitation infrastructure, continues to pose health risk factors. Moreover, the influx of refugees adds considerable complexity to the country's health profile.

## Priorities

The report highlights three priority areas of focus: Strengthening universal health coverage; developing and maintaining emergency preparedness and health security; and improving health and well-being across different life stages.

The WHO has been instrumental in the assistance it has provided in these three focus areas, including helping to build capacity for health human resources; the development hospital-based death notification system; the setting up of a tuberculosis automation of management system for latent Tb cases; assistance in combatting antimicrobial resistance; and the establishment of a national mental health registry for psychiatrists, among others.

## Polio

As a supplement to Acute Flaccid Paralysis Surveillance and in line with the recommendation of Global Polio Eradication Programme, WHO supported the MOPH in expanding its monthly environmental surveillance to detect polio (Wild Polio, Vaccine Derived Polio, and Sabin) viruses to four areas considered high risk for polio.

2018 marked the 20th anniversary of the Acute Flaccid Paralysis Surveillance in the National Program for Poliovirus Eradication. Over the last 20 years, the program has witnessed consistent progress indicated by many successes, covering the enhancement of national surveillance systems, continuous capacity-building of national teams, the creation of a well-established reporting site network, the solidification of the relationship between reporting sites and surveillance departments, and the establishment of community-based surveillance.

The diligent work of the program has allowed for the immediate detection of cases, and most notably, the detection and immediate containment of the last imported polio case in 2003. In addition, the program

has adopted high surveillance vigilance following the polio outbreak in Syria in 2013, resulting in a marked improvement in performance. The Environmental Surveillance System was also established in 2016 and currently supplements the work of the program.

WHO support to the MOPH has covered hospital training sessions, the setting of guidelines, and the production of advocacy and Information, Education, and Communication materials.

### HIV

WHO intensified its operational support to the National AIDS Program (NAP) in 2018 in order to gain better access to key and vulnerable populations through engagement with NGOs, workshops and trainings, introduction of HIV self-testing and implementation of research studies.

### Influenza

In collaboration with the National Influenza Center (NIC) located at Rafic Hariri University Governmental Hospital in Lebanon and eight selected sentinel sites, WHO continued its support to the Severe Acute Respiratory Infections (SARI) surveillance established since 2014 at the Epidemiologic Surveillance Unit (ESU) at the MOPH.

### Emergency operations

In 2007 WHO supported the MOPH in establishing a Public Health Emergency Operations Centre (EOC) at the Rafic Hariri University Hospital. The EOC is functional and adequately equipped, but needs to be fully operationalized and tested during a real-life event.

Participation of Emergency Operations Centres, including a team of experts led by the MOPH, in a WHO Global Emergency Operations Centre Exercise (GEOCX) in December 2018, with the purpose of supporting the assessment and improvement of EOC's readiness to respond jointly and effectively to a global public health emergency and identifying gaps and areas for improvement in emergency coordination.

Alongside reinforcing the national surveillance system in general, WHO also provided support to the Early Warning and Alerts Response System (EWARS)

### Chemical, biological, radiological and nuclear (CBRN) defense/ Hazardous Materials and Items (HAZMAT)

In line with the National CBRN committee plan and in coordination with the MOPH team, WHO supported the training of a multidisciplinary Hazards Management Team (HAZMAT team) in Bekaa, comprised of members from the MOPH medical staff, Civil Defense, Lebanese Army and Lebanese Red Cross. WHO provided the required personal protective equipment (PPE) and other safe transport equipment, and a drill was also completed in Bekaa. In previous years, the MOPH trained HAZMAT teams in Beirut and Tripoli, and this year, a HAZMAT team will be trained in the south of Lebanon.

across the country. Over 2018, the EWARS expansion was accelerated, paralleled by a steady reinforcement of routine surveillance.

### Infection prevention and control

Infection Prevention and Control (IPC) measures in health care settings are essential to patient safety, the safety of healthcare providers and workers, and the environment, and to the management of communicable disease threats to the community. In 2017, WHO supported the development of a National Infection Prevention and Control Strategic Plan to guide the National AMR Steering Committee's IPC related activities. In 2018, WHO supported the development of this strategy's framework of action that focuses on IPC related policies, interventions, guidelines, surveillance systems, legalities, trainings, and stewardship programs.

### Palliative care

The steady increase in the number of cancer cases in Lebanon, the aging population, the general belief among families that their patients do not die in peace and dignity and suffer during the end-of-life period, and the limited number of hospitals offering palliative care services, highlight the urgent need for accessible and adequate hospital-based care services that support terminally

### School health initiative

The Healthy School Initiative is an MOPH initiative that would allow public, private and vocational schools to voluntarily apply for a comprehensive assessment and receive a certification upon the completion of a positive evaluation. As a first step, and in support to the MOPH, WHO recruited a national consultant who developed the Healthy School Initiative guideline and checklist.

ill patients and their families. In 2017, WHO, SANAD Home Hospice Care, and the MOPH collaborated to develop a palliative care model that can offer high-quality hospital-based palliative care services at Rafic Hariri University Hospital. In 2018, WHO implemented a follow up project where SANAD continued shadowing the palliative case team at RHUH and offered refresher training to the staff.

### The way forward

The report notes that 2018 witnessed the completion of most of the preparatory work needed to initiate the Health System Strengthening project. Looking out onto 2019, WHO is committed to supporting the implementation of the various planned assessments under the EU MADAD funded project for health system support. The PSO with WHO support will be fully operational by mid-2019, and the first National Health Forum will be conducted towards the end of 2019.

Additional support to enhance the EWARS system will be provided, with establishment of an Event Management System, as per IHR guidelines.

The pharmaceutical sector will be further reinforced through the expansion of the Barcode System, as well as by updating the national GMP guide and establishing an automated national Drugs Pricing system.

Technical support to selected critical programs will continue, namely: the EPI, the TB, the HIV, the AMR, the NCD, and the mother and child health programs, in addition to the school health program.



Special support will be provided to the IHR program, with particular focus on reinforcing the coordination and response capacity at a national level through the EOC and the “One Health” approach. In addition, in 2019, Lebanon commits an additional focus on psychosocial support and the quality of life

of people living with HIV. Testing services for HIV will soon be integrated as part of an essential PHC package of services.

WHO will continue filling gaps under the humanitarian response, particularly in terms of access to NCD medications, as well as access to selected lab reagents support to

ensure adequate and timely support in case of outbreaks.



Bridging humanitarian support with sustainable development: annual report 2018 (PDF)

<https://tinyurl.com/y437yfxr>

## The Lebanon–WHO Country Cooperation Strategy

The Lebanon–WHO Country Cooperation Strategy (CCS) 2019-2023 signals a strong commitment from WHO and the Government of Lebanon to work together with partners to achieve the following ambitious country goals by 2023:

- The entire population (6.09 million people) better protected from health emergencies
- +300,000 of the most vulnerable people (150,000 Lebanese and 150,000 refugees) have access to affordable essential health services
- Improved health and well-being for 2 million people whose health is negatively impacted by social, behavioural, and environmental risk factors

This CCS is developed at a time where Lebanon’s political stability is fragile, affected by political and confessional cleavages, and the protracted civil war in Syria has severely impacted by the country’s stability, economy and social fabric. The presence of an estimated 1.5 million Syrian refugees/displaced and more than 0.3 million Palestinian refugees puts huge pressure on Lebanon’s resources and its social and health services. Major economic drawbacks occurred simultaneously with an unprecedented and sudden increase of demand and strain on the health care system.

Despite all this, the Lebanese health system has been showing considerable resilience. The continuous focus on targeted reforms in the health sector shows that progress in achieving strategic goals has been possible against all the odds. Improvements have been in health outcomes, in health care productivity and performance, and in health sector governance. Increasing access to the primary health care system, increasing the efficiency of hospital care and reducing out of pocket payments have been major objectives for the Ministry of Public Health

(MoPH). In fact, between 2011 and 2017, access to services expanded in terms of both coverage and distribution of health facilities, as well as in types of services.

The health profile of Lebanon remains dominated by non-communicable diseases (NCDs) in an ageing society. However, the influx of refugees with their triple burden of communicable diseases, NCDs and the social, economic and psychological effects of their displacement adds considerable complexity. Lebanon has in the past performed poorly in controlling determinants and risk factors of NCDs: two thirds of the population suffer from overweight/obesity, half lack regular physical activity and one-third smokes.

The disruption of immunization activities in Syria coupled with poor living conditions of the displaced in Lebanon has heightened risks of disease outbreaks. There has been a major threat that polio outbreaks in Syria would spillover to Lebanon. Massive immunization efforts ensured that Lebanon remained polio free.

Health authorities are confronted with a triple challenge: ensuring access to care for the refugees; ensuring resilience and coping capacity of the health care delivery system confronted with the strain of increased demand; and managing the health risks associated with the refugee influx.

This country cooperation strategy matches the uniqueness of Lebanon by defining a strategic agenda that addresses country-specific bottlenecks to health and development, leveraging the multiple resources for health in Lebanon. A series of discussions with the MoPH, other Government departments, development partners, civil society, academia and professional organizations shaped the strategy. The agreed focus of WHO’s engagement and support will be on several

areas of intervention, namely: strengthening health governance and evidence-based policy making; improving quality of care at primary health care (people-centeredness); further developing financing mechanisms to ensure access to an essential Universal Health Coverage (UHC) service package; strengthening emergency preparedness and response capacities within the health security framework; and promoting multi-sectoral programs to tackle NCD risk factors.

WHO support to Lebanon will leverage the resources and expertise of the three levels of the Organization: The Office of WHO Representative in Lebanon (country office), the WHO Regional Office for the Eastern Mediterranean in Cairo, and WHO headquarters in Geneva. In doing so, WHO seeks to harness global knowledge for the betterment of the health of the Lebanese people and provide a platform for Lebanon to engage in regional and global health initiatives. WHO will adapt the way it works in Lebanon to maximize its contribution – as a place of meeting and dialogue where public health stakeholders come together to consider challenges and develop innovative solutions. WHO will use its influence and convening power to assist MoPH in collaborating with government bodies, legislators, and UN partners to support the adoption and implementation of health-related taxation laws and regulations and to promote multi-sectoral collaboration for achieving the Lebanon’s Sustainable Development Goals (SDGs) health targets including for tobacco, mental health, road traffic injuries, environmental health and food safety, and healthy lifestyles. 



The Lebanon–WHO Country Cooperation Strategy 2019-2023 (PDF)

<https://tinyurl.com/y2pxuxxw>



# A new accomplishment for LAU Medical Center-Rizk Hospital

## New Otolaryngology and Head and Neck Surgery Department is inaugurated

The new otolaryngology and head and neck surgery department has been opened at the LAU Medical Center-Rizk Hospital, a leading medical facility in Beirut that serves as the primary teaching hospital for LAU's schools of Medicine, Nursing, and Pharmacy.

The inauguration marks another milestone in its mission to provide the best specialised medical service as well as pioneering the most advanced technologies in this field.

The inauguration was led by Dr Joseph Jabbra, LAU President, Sami Rizk, CEO and Dr Georges Ghanem, CMO, in the presence of Dr Michel Mawad, the Dean of the Gilbert and Rose-Marie Chaghoury School of Medicine at the Lebanese American University, Dr Alain Sabri, the head of the ENT and head and neck surgery department, and Dr Rami Saade, the residency director.

Commenting on the occasion, Dr Saade said: "We are very proud to inaugurate this fully equipped new department, which is the result of many teams' joint effort since 2016."

Also attending the event were members of the LAU board of trustees and steering committee, many CEO's of affiliated hospitals and medical companies related to ENT, and numerous nurses, staff members and members of the media.

The ribbon was cut by Dr Sabri who spoke



LAU Medical Center-Rizk Hospital

briefly: "The new ENT floor provides nose and throat surgeries, in addition to cancer related surgeries, reconstruction and hearing-aid surgeries."

The department has been especially designed to form a comprehensive clinic, offering multi-disciplinary services under one roof with a highly specialised new team.

LAU Medical Center-Rizk Hospital is renowned in the community for its long tradition of fostering excellent health through caring about the well-being of each of its patients. Keeping the best of its traditions, LAU Medical Center-Rizk Hospital has evolved since its



Dr Alain Sabri, Chair of the ENT, Otolaryngology Head & Neck Surgery Department

beginnings in 1925 to become one of the leading hubs for comprehensive patient services in Lebanon and the region.

Under the stewardship of physicians who are leaders in their respective fields, LAU Medical Center-Rizk Hospital continues to set the highest community standards in ethics and patient safety.

LAU Medical Center-Rizk Hospital is committed to continuing to build on its excellence in patient care, clinical outcomes, teaching, and scholarship by investing in human resources as well as cutting-edge technology. **MEH**



# HEALING WITH COMPASSION

## YOU, AT THE CENTER OF OUR

At our academic medical center, it is all about YOU: we take pride in our excellence in patient care, high-quality teaching, research and innovation practiced in close partnership with superior health professionals.

From diverse specialized clinics and outstanding facilities, to state-of-the-art operating rooms, a pioneer Comprehensive Stroke Center in the region, and a team of highly qualified physicians, nurses and staff, we are committed to healing with compassion.

Guided by a strong and unwavering promise to achieve our mission and fulfill our vision, YOU are at the heart of our model.

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# Hôtel-Dieu de France makes great strides in achieving its Vision 2020

Since its inauguration in 1923, Hôtel-Dieu de France (HDF), the Saint Joseph University (USJ) Medical Center, has always been considered as a reference medical center in Lebanon and the Middle East. Even after enduring years of war – especially given its position on the frontline – the hospital emerged intact and maintained its status as a renowned hospital with top quality care.

In recent years, the hospital has experienced many changes and renovation projects and it adopted several policies to renew its infrastructure and to grow. The reason behind this is a 10-year strategy plan, Vision HDF 2020, set up by the Board of Directors in 2011.

Vision HDF 2020 is based on six main strategic orientations: Human Resources, High-end Medicine, Fluidity, Quality and Risk Management, Optimization and Partnerships, and Positioning.

## Human Resources

For its strategic focus on Human Resources, the hospital's main objective was to develop a recruitment policy of high level professionals, as well as succession and retention policies. As such, Hôtel-Dieu recruited since 2011, 94 highly specialized and sub-specialized doctors (40 in 2018 alone) practicing cutting-edge medicine to join the team of the 200 already operational doctors. On the other hand, the retention of specialized and sub-specialized skills capable of transmitting knowledge and know-how is now regarded as a priority.

## High-end Medicine

While focusing on its High-end Medicine, Hôtel-Dieu de France acquired modern

medical equipment for several specializations. In addition, the hospital created several specialized centers, considered reference centers in Lebanon and the Middle East. As of today, the hospital has a unique Smoking Cessation Center, a Diabetes Education Center, a Sleep Center, a Rehabilitation Center (in partnership with RJC-Chicago), a Women's Imaging Center, an Anesthesia, Resuscitation and Pain Treatment Center and a Family Medicine Center.

## Fluidity

To improve Fluidity, HDF established new circuits for its operating rooms and tech labs. However, the opening of the newly renovated ER was the biggest achievement in terms of fluidity. The new department is designed to meet the latest international accreditation requirements and equipped to handle any type of emergency. The centralized reception area will serve as a reception, sorting and orientation station that helps patients to swiftly complete their paperwork; while the centralized medical monitoring will allow the staff to promptly receive any updates regarding any patient.

## Quality and Risk Management

When it comes to Quality and Risk Management, the hospital ensures its healthcare service and management are multidisciplinary. With team members from different backgrounds and professions, the hospital promotes good communication between all its agents, who are able together to develop patient satisfaction. In addition to its high quality service, HDF obtained the highest accreditation scores in 2011 and is currently working on the upcoming accreditation re-

quirements aiming to meet them and pass the benchmark with flying colors.

## Optimization

To ensure Optimization, the hospital adopted new policies to increase its activity while maintaining adequate financing and budget management. In addition, and to keep up with the latest medical advancements, Hôtel-Dieu de France was the first Lebanese hospital to implement a fully integrated Hospital Information System (HIS), making it Lebanon's first "e-hospital".

## Positioning and Partnerships

To enhance its Positioning and Partnerships in the MENA region, HDF improved its visibility and created international packages for check-ups. Hôtel-Dieu de France participated in the 2017 Arab Health held in Dubai where the HDF team presented four medical packages set up for international patients offering general, cardiovascular, gynecological and smokers/former smokers medical evaluations.

With numerous collaborations with the Lebanese Ministry of Public Health and several new partnerships with insurance companies and medical centers, Hôtel-Dieu's positioning was greatly enhanced. Furthermore, the hospital took part in numerous international campaigns and conferences such as the Child-Mother Network of Francophonie conference and the World No Tobacco Day campaign.

The past decade at HDF has certainly been buzzing with activities. However, reaching the end of the 10-year mark, Hôtel-Dieu de France can proudly say that Vision 2020 has, and greatly so, succeeded in imprinting the hospital's status as a reference medical center. MEH





# Towards the Hospital of Tomorrow...



## HDF 2020

*Our recent projects:*

- New Consultation Clinics
- New Emergency Department
- New Administrative Offices
- New Specialized Medical Centers



**HOTEL-DIEU DE FRANCE**

Saint-Joseph University Medical Center





# Hormone reduces social impairment in kids with autism

In a Stanford study of 30 children with autism, intranasal vasopressin improved social skills more than a placebo, suggesting that the hormone may treat core features of the disorder. *Middle East Health* reports.

Social behaviour improved in children with autism after they inhaled a hormone called vasopressin, a pilot study by researchers at the Stanford University School of Medicine has found. It is the first study to test intranasal vasopressin for any indication in children.

Although small, the placebo-controlled study of 30 children provides early evidence that vasopressin may reduce social impairments in the developmental disorder. The findings were published online May 1, 2019 in *Science Translational Medicine*.

"Social deficits are one of the core features of autism and a challenging area for many kids with the disorder," said the study's lead author, Karen Parker, PhD, associate professor of psychiatry and behavioural sciences at Stanford. "Some of these kids want to socially connect but aren't capable of doing so."

The other core features of autism are poor verbal communication skills and restricted, repetitive behaviours. No existing medications address any core features of the disorder.

In the trial, parents' and experts' ratings of social behaviour indicated more improvement in children treated with vasopressin than in those given a placebo. Vasopressin-treated children also experienced some reductions in anxiety and repetitive behaviours.

"We saw this across multiple measures independently," Parker said. "It is really exciting."

"We might finally have an agent that will target these core features that are very hard to treat," said the study's senior author, Antonio Hardan, MD, professor of psychiatry and behavioural sciences at Stanford. The researchers are now testing vasopressin in 100 additional children with autism to see if

the pilot findings can be repeated.

"Before getting too excited, I want us to replicate this, and more importantly I want others to replicate our findings," added Hardan, who is also director of the Autism and Developmental Disabilities Clinic at Lucile Packard Children's Hospital Stanford. Large trials are also needed to assure the drug's safety.

## Sex-specific social hormones

Vasopressin is a tiny protein hormone, nine amino acids long, manufactured in the hypothalamus. It differs by two amino acids from oxytocin, another hormone made in the same part of the brain.

Although both hormones play roles in social behaviour, there are sex differences in their activity. Parker's early research in animal models showed that, in males, vasopressin influences pair-bonding and fathering behaviour. Oxytocin regulates aspects of childbirth and certain maternal behaviours, such as milk letdown during nursing.

Oxytocin has been tested as an autism treatment with mixed results; Parker and Hardan previously showed that among autistic children whose oxytocin levels were low to begin with, giving that hormone improved aspects of social behaviour. However, many children with autism do not have low oxytocin levels.

Vasopressin's social effects in males made the researchers wonder if this hormone influences autism. The disorder is male-biased, with 4 or 5 males affected for every female.

Parker and Hardan have previously shown that, compared with typically developing children, those with autism have lower vasopressin levels in their cerebrospinal fluid, which bathes the brain and spinal cord.

Among children with autism, those with the lowest CSF vasopressin levels also have the lowest social functioning, the researchers have shown.

## Dosing with vasopressin

The Stanford team recruited 30 children with autism, all of whom were 6 to 12 years old and had an IQ of at least 50. The participants were randomly assigned, in a double-blind fashion, to receive intranasal vasopressin or a placebo. Participants took daily doses of their assigned medication for four weeks.

At the beginning and end of the trial, several measurements were used to assess autism symptoms. Participants' parents completed questionnaires rating their children's social abilities. In the lab, the researchers tested participants' ability to recognize emotional states in images of people's eyes or facial expressions. Children's repetitive behaviours and anxiety levels were also measured. The researchers also completed physical and clinical chemistry measurements to evaluate the safety of the treatment.

Children's social abilities improved more after vasopressin than placebo, according to the parents' and researchers' observations, as did children's performance on objective lab tests of social abilities. Vasopressin also reduced anxiety symptoms.

Identifying who responds and why is really important.

The changes in social ability and anxiety were greatest among children whose vasopressin levels were highest at the beginning of the study, a finding that surprised the researchers, given that their prior work had showed the lowest social abilities in children with the lowest vasopressin levels.



# Key social reward circuit in the brain impaired in kids with autism

In another study on autism at the Stanford University School of Medicine researchers have shown that children with autism have structural and functional abnormalities in the brain circuit that normally makes social interaction feel rewarding.

The study, published July 17, 2018 in *Brain* <doi.org/10.1093/brain/awy191>, documented deficits in children with autism in a crucial reward circuit, called the mesolimbic reward pathway, that's buried deep within the brain. The degree of abnormality in this pathway predicted the degree of social difficulty in individual children with autism, the study found.

The findings help clarify which of several competing theories best explains the social impairments seen in children with autism. The discoveries, made via MRI brain scans, support the social motivation theory of autism, which proposes that social interaction is inherently less appealing to people who have the disorder.

"It's the first time we have had concrete brain evidence to support this theory," said the study's lead author, Kaustubh Supekar, PhD, a research scientist at Stanford's Translational Neurosciences Incubator. Disrupting the mesolimbic reward pathway in mice reduces their social behaviour, prior research has shown, but no one knew how closely the pathway was tied to social skills in people. "This is the first neurobiological evidence in children that this mechanism might explain their social impairments," Supekar said.

"Human social cognition is complex," said the study's senior author, Vinod Menon, PhD, professor of psychiatry and behavioural sciences. "We were surprised we could trace deficits in social skills to a very simple, almost primordial circuit."

## A vicious cycle

The brain difference could launch a vicious cycle that makes it hard for children with autism to acquire complex social skills, according to the researchers.

"Social interaction is usually inherently rewarding. If it's not rewarding enough to a child with autism, that could have cascading effects on other brain systems," said Menon, who is the Rachael L. and Walter F. Nichols, MD, Professor. In order to develop social-communication skills and the ability to infer others' thoughts and feelings, children must interact with other people. If they don't find those interactions rewarding, they seek fewer opportunities to develop complex social skills, he said. "Our findings suggest that this is a brain system that should be targeted early in clinical treatments," he added.

Children with autism have difficulty with social interaction and communication, and show repetitive behaviours and restricted

interests. The Centers for Disease Control and Prevention estimates the developmental disorder affects 1 in 59 children in the United States.

To conduct the study, the researchers collected MRI brain scans of 40 children with autism and 44 children without autism. They examined brain wiring in 24 children with autism and 24 children who didn't have it, and functional connections in the brain in 16 children with autism and 20 children without the disorder as they looked at social or nonsocial images – pictures of faces or of scenery – while having their brains scanned.

The team also conducted MRI scans of brain wiring on an additional 17 children with the disorder and 17 children without it to see if the results from the first groups could be replicated in a second, independent cohort. All of the children studied were 8-13 years old. Children with autism had their diagnosis confirmed by standard clinical testing for the disorder, and all children had their IQ tested.

The density of nerve-fibre tracts in the mesolimbic reward pathway was lower in children with autism than in those without; there were no differences between the children with and without autism when researchers examined an emotion-related brain pathway as a control. Among the children who had autism, lower density of nerve-fibre tracts was linked to greater social impairment on a standard clinical evaluation of their social skills. The results were the same in the second, independent cohort of children the team studied. Children with autism also had weaker functional connections in the mesolimbic reward pathway than did typically developing children. The degree of functional deficit was also correlated to social impairment.

## Findings could aid search for treatments

The research provides a useful link between prior work in animal models of autism and human data, the researchers said, and is especially strong because the findings were replicated in two groups of research participants. Next, the researchers want to determine whether the same brain deficits can be detected in younger children with autism.

The discovery also provides a good starting point for future studies of autism treatments. Some existing, effective autism therapies use various rewards to help children engage in social interaction, but it is not known if those treatments strengthen the brain's social reward circuits.

"It would be exciting to conduct a clinical intervention study to determine whether the structural and functional integrity of this pathway can be altered through a reward-based learning paradigm," Menon said. MEH

The density of nerve-fibre tracts in the mesolimbic reward pathway was lower in children with autism than in those without.

In addition, among children with the highest vasopressin at baseline, vasopressin treatment reduced restricted and repetitive behaviours. This finding did not extend to participants with lower baseline vasopressin.

The findings will guide larger trials of vasopressin. "Identifying who responds and

why is really important," Parker said. Because autism exists on a spectrum, with some people more severely affected than others, treatments must be individualized, she said.

If the findings of the pilot trial are replicated, it will also be important to validate the safety of the hormone in large populations and to understand

which aspects of social behaviour are most improved by vasopressin, Hardan added. "Is it motivation, affiliation, attachment? Ability to understand others' mental states or read facial expressions or body language?" he said. "This has opened up a lot of possibilities for individuals with autism." MEH

# The Comprehensive Colorectal Center at Children's Mercy



Children's Mercy Kansas City is home to one of the few established comprehensive pediatric colorectal centers in the USA.

At Children's Mercy Kansas City we take a team-based, collaborative approach to care for children with abnormal development of the pelvic structures. This includes the bowel, bladder and genitalia, involving anorectal malformations (ARM)/ imperforate anus (IA), Cloacal malformation, Hirschsprung disease and complex associations such as VACTERL Syndrome.

Evaluation of colorectal disorders with state-of-the-art technology, including anorectal and colonic manometry and motility testing, provides information to guide medical and surgical care of these patients.

In order to offer the best treatment plan and outcomes for patients and families, we take an integrated approach and create a customized plan for each patient. Our team consists of pediatric experts including:

- Colorectal surgery
- Gastroenterology
- Urology
- Gynecology
- Neurosurgery
- Psychology

Often, children with complex conditions have had several isolated surgeries to correct their different issues based on their anatomy. Whenever possible, our goal is to provide all the surgical procedures necessary in one comprehensive surgical approach. This reduces the risk of complications. Through collaborative care we offer the patient the best possible quality of life in the future.

The Children's Mercy team can anticipate some of the potential hurdles that might arise down the road, providing support throughout life changes and milestones, including:

- Toilet training
- Beginning school
- Puberty
- Sexual development
- Childbearing

Our recommendations are not just short-

term but long-term, sustainable plans for each patient to achieve the best outcomes.

## Services We Provide

We provide team-based care that focuses on the best possible outcome for each child. We create an integrated and personalized care plan specific to each family's needs. Depending on the child's age and condition, we can:

- Carefully examine and diagnose any related conditions
- Help achieve independence with fecal and urinary cleanliness
- Provide a second opinion or re-evaluation for children with complex colorectal and pelvic conditions
- Coordinate complex, multi-system surgery to correct or reconstruct the child's anorectal, urological and gynecological systems using the least invasive approach, always keeping the patient's future in mind
- Evaluate internationally adopted children with colorectal or pelvic floor conditions in coordination with the Children's Mercy' International Adoption Clinic.

## Conditions We Treat

We care for all types of colorectal and pelvic floor conditions:

Anorectal malformations/imperforate anus, including: VATER (Vertebrae, Anus, Tracheo-Esophageal, Renal) and VACTERL (Vertebrae, Anus, Cardiac, Tracheo-Esophageal, Renal and Limbs) Syndromes

- Hirschsprung disease
- Cloacal malformations, including: Cloaca
- Cloacal exstrophy
- Bladder exstrophy/epispadias complex
- OEIS sequence
- Functional constipation with or without fecal incontinence
- Non-retentive fecal incontinence
- Gastrointestinal motility disorders

## Meet the Team

- **Director, Comprehensive Colorectal Center; Colorectal and Pelvic Reconstruction Surgery:** Rebecca Rentea, MD
- **Urology:** John Gatti, MD; Alonso Carras-

co Jr., MD; Mary Langston, PPCNP-BC

- **Gastroenterology:** John Rosen, MD

- **Gynecology:** Julie Strickland, MD

- **Neurosurgery:** David Garcia, MD

- **Health Psychology:** Christina Low Kapalu, PhD

- **Clinic Coordinator:** Cindy Pugh, BSN, RN

## Capable Hands for Every Circumstance

Surgeons at Children's Mercy are some of the very best in the nation. Our great outcomes across many different types of surgery helped us earn recognition in all 10 specialties included in the U.S. News & World Report "Best Children's Hospitals" rankings.

## Top-rated Surgery Center, Always Ready

Children's Mercy is one of only 10 centers in the nation to be verified as a Level 1 Children's Surgery Center – the highest possible rating – by the American College of Surgeons.

This verification means the surgery center at Children's Mercy is:

- Achieving the highest standards for safety and outcomes determined by the ACS
- Committed to providing and supporting quality improvement and patient safety efforts for children who require surgical services
- Designed to manage routine conditions to highly complex illnesses
- Prepared to operate at all times with experts in every pediatric specialty to provide comprehensive care for kids
- Continually working together to achieve multispecialty standards, such as:
  - resource standards
  - quality improvement and safety processes
  - data collection
- Dedicated to providing multidisciplinary, high-quality, patient-centered surgical care
- Part of an elite group of pediatric surgery centers dedicated to researching new innovations that improve surgical outcomes.

## Contact Information

For more information please contact us at [international@chm.edu](mailto:international@chm.edu) or call +1 (816) 234-3199 to speak with the Comprehensive Colorectal Center team.

[childrensmercy.org/colorectal](http://childrensmercy.org/colorectal) 



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# To grow up healthy, children need to sit less and play more

WHO issues new guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age



Children under five must spend less time sitting watching screens, or restrained in prams and seats, get better quality sleep and have more time for active play if they are to grow up healthy, according to new guidelines issued by the World Health Organization (WHO).

“Achieving health for all means doing what is best for health right from the beginning of people’s lives,” says WHO Director-General Dr Tedros Adhanom Ghebreyesus. “Early childhood is a period

of rapid development and a time when family lifestyle patterns can be adapted to boost health gains.”

The new guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age were developed by a WHO panel of experts. They assessed the effects on young children of inadequate sleep, and time spent sitting watching screens or restrained in chairs and prams. They also reviewed evidence around the benefits of increased activity levels.

“Improving physical activity, reducing sedentary time and ensuring quality sleep in young children will improve their physical, mental health and wellbeing, and help prevent childhood obesity and associated diseases later in life,” says Dr Fiona Bull, programme manager for surveillance and population-based prevention of noncommunicable diseases, at WHO.

Failure to meet current physical activity recommendations is responsible

## Recommendations at a glance:

### ■ Infants (less than 1 year) should:

- Be physically active several times a day in a variety of ways, particularly through interactive floor-based play; more is better. For those not yet mobile, this includes at least 30 minutes in prone position (tummy time) spread throughout the day while awake.

- Not be restrained for more than 1 hour at a time (e.g. prams/strollers, high chairs, or strapped on a caregiver’s back). Screen time is not recommended. When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

- Have 14–17h (0–3 months of age) or 12–16h (4–11 months of age) of good quality sleep, including naps.

### ■ Children 1-2 years of age should:

- Spend at least 180 minutes in a variety of types of physical activities at any intensity, including moderate-to-vigorous-intensity physical activity, spread throughout the day; more is better.

- Not be restrained for more than 1 hour at a time (e.g., prams/strollers, high chairs, or strapped on a caregiver’s back) or sit for extended periods of time. For 1-year-olds, sedentary

screen time (such as watching TV or videos, playing computer games) is not recommended. For those aged 2 years, sedentary screen time should be no more than 1 hour; less is better. When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

- Have 11-14 hours of good quality sleep, including naps, with regular sleep and wake-up times.

### ■ Children 3-4 years of age should:

- Spend at least 180 minutes in a variety of types of physical activities at any intensity, of which at least 60 minutes is moderate- to vigorous intensity physical activity, spread throughout the day; more is better.

- Not be restrained for more than 1 hour at a time (e.g., prams/strollers) or sit for extended periods of time. Sedentary screen time should be no more than 1 hour; less is better. When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

- Have 10–13h of good quality sleep, which may include a nap, with regular sleep and wake-up times.





Myles Tan

for more than 5 million deaths globally each year across all age groups. Currently, over 23% of adults and 80% of adolescents are not sufficiently physically active. If healthy physical activity, sedentary behaviour and sleep habits are established early in life, this helps shape habits through childhood, adolescence and into adulthood.

“What we really need to do is bring back play for children,” says Dr Juana Willumsen, WHO focal point for childhood obesity and physical activity. “This is about making the shift from sedentary time to playtime, while protecting sleep.”

The pattern of overall 24-hour activity is key: replacing prolonged restrained or sedentary screen time with more active play, while making sure young children get enough good-quality sleep. Quality sedentary time spent in interactive non-screen-based activities with a caregiver, such as reading, storytelling, singing and puzzles, is very important for child development.

The important interactions between physical activity, sedentary behaviour and adequate sleep time, and their impact on physical and mental health and wellbeing, were recognized by the Commission on Ending Childhood Obesity, which called for clear guidance on physical activity, sedentary behaviour and sleep in young children.

Applying the recommendations in these guidelines during the first five years of life will contribute to children’s motor and cognitive development and lifelong health. **MEH**



Download the guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age <https://apps.who.int/iris/handle/10665/311664>

## New study explores use of protective factors in pediatrics as a tool to help families buffer the effects of toxic stress on young children

In a report released in April 2019, the Child Health Development Institute (CHDI) in Connecticut, US and the Help Me Grow National Center, a program of Connecticut Children’s Office for Community Child Health, summarize findings from a study examining the feasibility and effectiveness of training pediatric primary care providers to promote child and family resilience using a protective factors framework. The study found that pediatric practices were able to promote protective factors among families with infants and toddlers to support optimal child development and buffer the negative effects of toxic stress.

“Protective factors are known to mitigate the negative long-term outcomes that arise from repeated exposure to adversity. The findings in this report will help guide pediatric practices, health administrators, and policy makers to prevent and address toxic stress and improve child and parental resilience and health outcomes,” said Jeffrey Vanderploeg, President and CEO of CHDI.

“A young child’s physical, social- emotional, and intellectual development is significantly shaped by their environment and relationships with caregivers,” said Abby Alter, senior associate for early childhood initiatives at CHDI and co- author of the IMPACT report. “Many families with young children experience poverty, violence, mental illness, and other potentially toxic stressors that can impede their ability to provide a healthy, nurturing environment. Research shows the presence of protective factors helps families promote healthy development, buffer toxic stress, and increase their child’s resiliency.”

The five protective factors are part of the Center for the Study of Social Policy’s Strengthening Families initiative, and include: parental resilience; social connections; knowledge of parenting

and child development; concrete support in times of need; and social- emotional competence of children.

In 2018, the Help Me Grow National Center partnered with CHDI to train child health providers to promote the protective factors framework, with support from a quality improvement activity. Help Me Grow offers a unique model to support and test the dissemination of the protective factors in pediatric settings by offering seamless access to helpful community- based services. The six participating pediatric practices in Connecticut, California, and Vermont were recruited from the Help Me Grow affiliate network. The project was funded by a grant from The JPB Foundation.

“Pediatric primary care is an ideal venue for promoting the protective factors because it is a universal service used by nearly all families, who often look to their pediatricians for guidance and expertise in child development,” said Erin Cornell, associate director of the Help Me Grow National Center and co- author of the IMPACT report. “After seeing the success of this project, we hope to further disseminate the protective factors throughout the Help Me Grow national network.”

One of the conclusions of the report was that pediatric providers are most effective in promoting the five protective factors when this work is implemented as part of a comprehensive system for addressing the medical and social determinants of health. The Help Me Grow system provides this structure by emphasizing a strengths- based and multi- generational approach to health promotion, early detection, and connection to services. **MEH**



Building Resilience in Young Children: Experiences Promoting Protective Factors in Six Pediatric Practices.

<https://tinyurl.com/y499fsyn>

# Child becomes first patient in trailblazing surgery that disconnects part of his brain to stop daily seizures

In hindsight, as they watch their five-year-old boy playing, Owen Turner's parents rest easy that they made the right decision.

Owen's seizures are unique in that they arise from a large area of his brain. The Neurosciences team at Cook Children's believed his best chance of becoming seizure-free was to disconnect the left side of his brain from the right. They wanted to sever the fibers (corpus callosum) that connect the two sides of Owen's brain. This would be the first time this particular surgery had been performed at Cook Children's. In fact, it's only offered at a handful of pediatric hospitals in the United States.

Cook Children's neurosurgeon, Daniel Hansen, M.D., is one of only a few pediatric neurosurgeons in the U.S. with experience doing similar procedures, he was confident this option was not only safe but would offer the seizure relief Owen needed.

While a traditional approach would require a procedure known as a corpus callosotomy, Dr. Hansen would be using endoscopes, which are less invasive and require much smaller openings in the skull. They also allow for less blood loss, quicker operating time, a shorter hospital recovery and the same chance of seizure freedom.

"Giving their consent and placing trust in our team, we went forward with surgery," Dr. Hansen said. "The operation itself went well. We were able to completely disconnect the two hemispheres of the child's brain using a bony opening not much larger than a square inch, and his recovery in the hospital was quick."

Owen's story really begins at eight months of age when his parents noticed weakness on his right side, they made an appointment with his pediatrician and over the weekend Owen stopped using the right side of his body.

"We were so fortunate," Allison Turner, Owen's mom, said. "That's the day we met (Kenneth Heym, M.D.), who would become Owen's oncologist."

His initial scans showed a large stroke

in the left side of his brain which soon was discovered to be related to a new diagnosis of acute myeloid leukemia. Owen endured four phases of chemotherapy and fortunately entered remission where he remains today.

Owen's first seizures occurred in the days following the stroke, but they were initially controlled with medication.

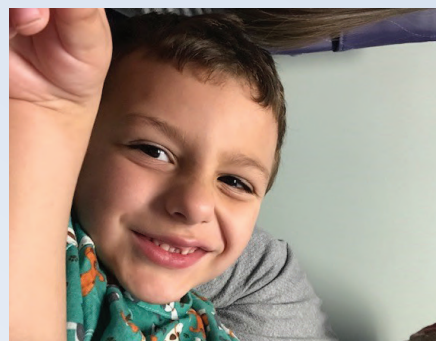
Owen's seizures involved periods of suddenly pausing in activity with a decreased response to them and sometimes unprovoked laughter. Other events such as a sudden fall to the ground or stiffening and shaking of his arms and legs posed a significant risk of injury. Despite the trials of at least six different medications – nothing helped control his daily seizures.

His neurologist at Cook Children's, Howard Kelfer, M.D., referred Owen to the Cook Children's Justin Comprehensive Epilepsy Program for epilepsy surgery evaluation.

Once Cynthia Keator, M.D., took over his case, she began a workup to determine where in the brain his seizures were arising. Owen's evaluation in the EMU (epilepsy monitoring unit) captured many seizures starting from the left hemisphere. Additional evaluation with a magnetoencephalogram (MEG) scan showed multiple areas of abnormal electrical activity throughout the left hemisphere both in front and behind the region of his prior stroke.

The Neurosciences team suggested the trailblazing endoscopic surgery, Owen is now nine months out of surgery and the family has noticed no seizures since. He's an active young boy, who is making steady strides in kindergarten now that his uncontrolled seizures have stopped. While it remains too early to speak to years of seizure control, doctors say this is an encouraging start.

Cook Children's Epilepsy team hopes to expand the number of children who are candidates for this type of surgery in the future. Such children will have medically refractory epilepsy and will



have undergone a thorough evaluation by the team at Cook Children's. Potential surgeries that can be performed endoscopically include complex surgeries such as corpus callosotomy, single-lobe disconnections, focal lesion resection, and functional hemispherectomy.

• For more information, please visit [cookchildrensinternational.org](http://cookchildrensinternational.org)

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- Fetal echocardiography
- 3-D technology
- Surgical repair of the most complex heart defects

#### Hematology and Oncology Center

- Bone Marrow and Stem Cell Transplant Program
- Investigational MIBG therapy for neuroblastoma

#### Urology/Genitourinary Institute

- Ambiguous genitalia/ disorders of sex development
- Anorectal malformation
- Bladder exstrophy
- Cloaca
- Hypospadias
- Kidney transplant
- Urogenital sinus

#### Neurosciences Center

- Deep brain stimulation
- Motion analysis lab for patients with cerebral palsy and movement disorders
- Stroke and Thrombosis program

#### Orthopedic Surgery

- Amniotic band
- Arthrogryposis
- Hand and foot abnormalities
- Hip dysplasia
- Limb length discrepancy

# New MRI sensor can image activity deep within the brain

## Noninvasive measurements of calcium could reveal neurons' roles in different types of behaviour

Calcium is a critical signalling molecule for most cells, and it is especially important in neurons. Imaging calcium in brain cells can reveal how neurons communicate with each other; however, current imaging techniques can only penetrate a few millimetres into the brain.

MIT researchers have now devised a new way to image calcium activity that is based on magnetic resonance imaging (MRI) and allows them to peer much deeper into the brain. Using this technique, they can track signalling processes inside the neurons of living animals, enabling them to link neural activity with specific behaviours.

"This paper describes the first MRI-based detection of intracellular calcium signalling, which is directly analogous to powerful optical approaches used widely in neuroscience but now enables such measurements to be performed in vivo in deep tissue," says Alan Jasanoff, an MIT professor of biological engineering, brain and cognitive sciences, and nuclear science and engineering, and an associate member of MIT's McGovern Institute for Brain Research.

Jasanoff is the senior author of the paper, which appears in the February 22, 2019 issue of *Nature Communications*.

### Getting into cells

In their resting state, neurons have very low calcium levels. However, when they fire an electrical impulse, calcium floods into the cell. Over the past several decades, scientists have devised ways to image this activity by labelling calcium with fluorescent molecules. This can be done in cells grown in a lab dish, or in the brains of living animals, but this kind of microscopy imaging can only penetrate a few tenths of

a millimetre into the tissue, limiting most studies to the surface of the brain.

"There are amazing things being done with these tools, but we wanted something that would allow ourselves and others to look deeper at cellular-level signalling," Jasanoff says.

To achieve that, the MIT team turned to MRI, a noninvasive technique that works by detecting magnetic interactions between an injected contrast agent and water molecules inside cells.

Many scientists have been working on MRI-based calcium sensors, but the major obstacle has been developing a contrast agent that can get inside brain cells. Last year, Jasanoff's lab developed an MRI sensor that can measure extracellular calcium concentrations, but these were based on nanoparticles that are too large to enter cells.

To create their new intracellular calcium sensors, the researchers used building blocks that can pass through the cell membrane. The contrast agent contains manganese, a metal that interacts weakly with magnetic fields, bound to an organic compound that can penetrate cell membranes. This complex also contains a calcium-binding arm called a chelator.

Once inside the cell, if calcium levels are low, the calcium chelator binds weakly to the manganese atom, shielding the manganese from MRI detection. When calcium flows into the cell, the chelator binds to the calcium and releases the manganese, which makes the contrast agent appear brighter in an MRI image.

"When neurons, or other brain cells called glia, become stimulated, they often experience more than tenfold increases in calcium concentration. Our sensor can detect those changes," Jasanoff says.

When neurons, or other brain cells called glia, become stimulated, they often experience more than tenfold increases in calcium concentration. Our sensor can detect those changes.

### Precise measurements

The researchers tested their sensor in rats by injecting it into the striatum, a region deep within the brain that is involved in planning movement and learning new behaviours. They then used potassium ions to stimulate electrical activity in neurons of the striatum and were able to measure the calcium response in those cells.

Jasanoff hopes to use this technique to identify small clusters of neurons that are involved in specific behaviours or actions. Because this method directly measures signalling within cells, it can offer much more precise information about the location and timing of neuron activity than traditional functional MRI (fMRI), which measures blood flow in the brain.

"This could be useful for figuring out how different structures in the brain work together to process stimuli or coordinate behaviour," he says.

In addition, this technique could be used to image calcium as it performs many other roles, such as facilitating the activation of immune cells. With further modification, it could also one day be used to perform diagnostic imaging of the brain or other organs whose functions rely on calcium, such as the heart. **MEH**



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## OKI Europe to showcase DICOM medical printers that push the boundaries at Global Health 2019

OKI Europe Ltd announced its attendance at the Global Health Exhibition 2019 where it will exhibit solutions which solve significant print challenges in the medical and healthcare sectors. Taking place at Riyadh Exhibition Center 10-12 September 2019, the conference attracts organisations from across the industry.

During the three-day event, OKI Europe will showcase its award winning digital LED technology with DICOM integration as well as its high definition non-diagnostic mono and colour printing capabilities on a wide range of media.

Delegates visiting OKI Europe at Stand H3.C20 will have the opportunity to preview a completely new innovation to revolutionise their medical imaging as well as discovering how customer satisfaction can be improved through personalised A4 and A3 patient leaflets and brochures. They will also learn how OKI devices save medical and healthcare businesses time and money in medical imaging and standard office printing.

The devices on display will include OKI's ES6410DMe and the ES8431DMe A4/A3 respectively colour and

mono printers which combines LED technology with embedded DICOM software, and the Pro9431DMe a versatile DICOM embedded printer.

OKI Europe delivers unbeatable accuracy and precision printing for the medical industry by removing the requirement for additional hardware that enables DICOM imaging and streamlining support through a single point of contact with a lower cost of ownership. OKI's embedded DICOM solution provides superior "near" diagnostic image quality with DMe (DICOM Enhanced) and higher quality mono printing for x-ray and ultrasound with its DMe (DICOM enhanced) printers.

"We are delighted to announce our attendance at Global Health 2019," said Carine Haddad, Health care Manager - MEIT, OKI Europe Ltd. "We are excited to showcase the diverse benefits of our printers which can be used to support patient care and non-diagnostic medical imaging without the need for additional hardware or software. These devices can also be used for day-to-day office printing, reducing the number of devices required by businesses in this thriving sector."



**OKI**

## DICOM Medical Printers A First in Digital Printer Technology

OKI's DICOM medical printers combine the cost effectiveness and high quality output of an LED printer with embedded DICOM software. This allows you to print directly from medical equipment without the use of conversion software or external print servers. Easy-to-use, the flexible medical printers are also well suited to general office use, so you no longer have the need for multiple devices.



To know more visit OKI Stand at Global Health 10-12 Sep 2019  
Hall 3, Stand H3.C20

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# INCREASING MARKETING VALUE WITH A SHARPER FOCUS ON MEDICAL IMAGING

ARTICLE BY JAVIER LOPEZ, GENERAL MANAGER, VERTICAL SOLUTIONS, OKI EUROPE LTD

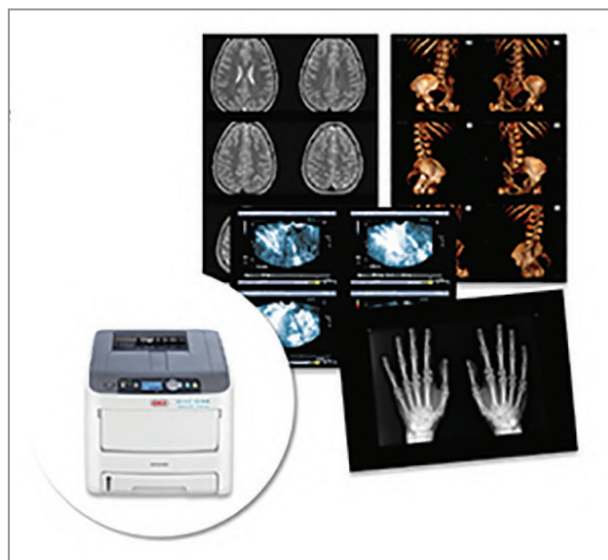
For medical organizations and businesses that center around radiology-based offerings, ensuring the right information is being provided in a clear, effective and personalized manner is essential to gaining trust and increasing satisfaction. From general surgeries to cosmetic surgeries, veterinary surgeries, dental surgeries and orthopaedists, clear and accurate medical imaging is vital to both correctly understanding patient issues and communicating the issues and the available treatments to the patients.

With accurate information presented in a clear fashion, medical businesses and organizations can ensure that patients are getting the right treatment, checking visually its progress on print-outs and are satisfied with the services that they are receiving. This has created an opportunity for medical imaging manufacturers to assist medical organizations and businesses in boosting trust and confidence. This can be achieved by providing them with the latest technology that can deliver clear imaging available in a wide variety of print formats.



## Tangible Assets

State of the art DICOM-embedded printing equipment and DICOM RIP printing technology can provide doctors, veterinarians, surgeons and consultants with a tangible and easy-to-understand way to examine x-ray, nuclear medicine, MRI, CT and ultrasound scans and explain the results to their patients. In orthopaedics for example, the provision of banner images printed to life size scale from a DICOM device will allow faster diagnoses through greater image clarity.



Studies have shown that it takes only 150 milliseconds for people to process images that are shown to them, and then another 100 milliseconds for them to attach meaning to it. The entire process takes less time than the blink of an eye whereas words can take up to twice as long to process and recognize.

A more recent MIT study suggests that we can understand the meaning of an image in only 13 milliseconds – ten times faster than the blink of an eye. Further studies have found that adding colour to important documents has been shown to increase recall of that technical information by up to 82 percent.

For medical organizations, DICOM printing will reduce the amount of time it takes for medical staff to explain medical conditions to their patients from printed scans and results, and minimizes the opportunity for the wrong misinterpretation to be given thanks to the clarity of the printed images.

DICOM printing will increase patient satisfaction through the businesses ability to track course of treatments (for example, dental aesthetics progress to improve smiles, rehabilitation progress) to



patients more clearly and easily through the use of sharp, large format images that are easy for patients and their loved ones to understand.

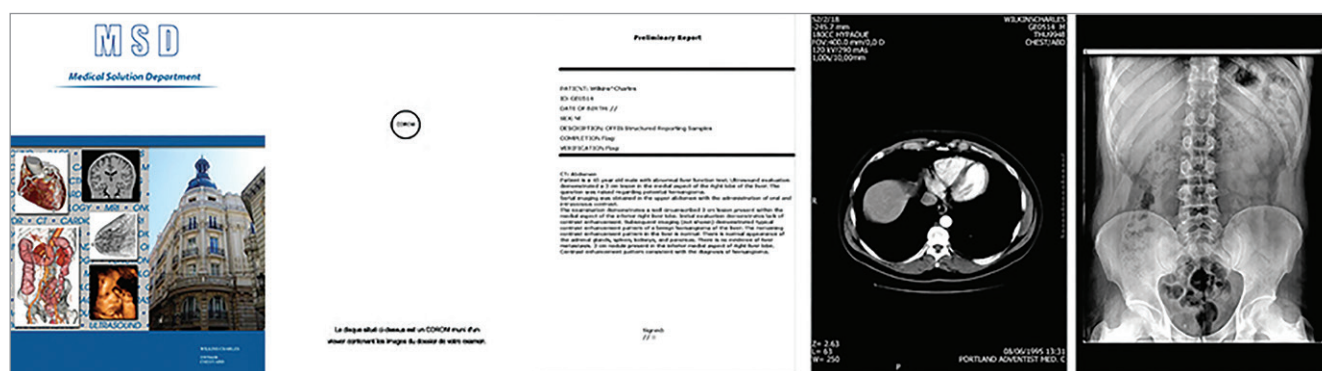
In policing and law, DICOM print outs can provide high quality forensic evidence, not only allowing law enforcement to accurately understand how crimes have taken place but also helping courts to apply the most suitable sentences to the correct suspects. From a marketing perspective, DICOM printed forensic evidence also allows police forces to share clear and accurate details through relevant media channels, informing the public about closed cases and helping to gather valuable information from the public about open cases.

## A Personalized Offering

Presenting patients with personalized booklets will increase satisfaction and boost confidence by providing them with a referenceable source of information including detailed, high quality images that they can take home. Printed booklets should include relevant medical record information alongside the images to maximize their marketing value by explaining the findings of the scan or X-Ray, or detailing proposed surgery in booklets that present visual renderings of potential cosmetic procedures.

Presenting a patient requiring surgery with an A3 colour booklet could help them make an informed decision during the consultancy stage, and help the business to drive patient satisfaction.

Including a detailed proposal of treatment in the booklet as well as the course of surgery, will increase the patient's confidence



in the weeks or months prior to the surgery as they will be able to quickly reference and familiarize themselves with the medical procedures. This confidence can be further supported by the inclusion of 'after treatment' renderings as well as details of any potential follow-up treatments.

For university hospitals, providing patients and students alike with their own personal copies of medical imaging is equally important. Attracting students to enroll relies heavily upon the quality of learning resources provided by the institution. Not only does a personalized copy for each student improve the learning experience, but holding on to a copy for reference will contribute to a high pass rate by providing students with high quality study material.

## State of the Art Simplicity

The ease of integration between medical imaging equipment and DICOM-embedded printers, and the continuous evolution this communication standard has experienced over the years, has achieved a nearly universal level of acceptance among vendors of radiological equipment. However, the benefits of DICOM are only recognized by medical imaging manufacturers and medical staff. While this means that patients receive correct diagnoses and treatments, the benefits of actually being able to keep or reference DICOM printed images have not been experienced by patients, or clients of private medical businesses.

This has traditionally been due to the fact that DICOM image files are not easy to share with patients. While other image file formats such as JPEG, PNG or TIFF files are recognized and easily read by personal computers, DICOM files are not recognized by the standard home PC or laptop running Windows or iOS operating systems. While medical organizations could explore the



option of sharing the images via email, the patient would require additional software in the form of a DICOM viewer to access the file, and even then, the patient would need additional information in the email content or in a separate text file to explain the findings in the image.

There are clear opportunities for surgery-based medical businesses to simplify the consultation process for both patients and staff, making it easier for both parties to understand treatments and injuries. In turn, this creates a clear opportunity for medical imaging manufacturers to provide the equipment that can cost-effectively print tangible assets such as high quality personalized booklets in a flexible range of formats and sizes including sharp, colourful images that will inform and placate medical patients in an age of increasingly high expectations.

# How much does the world trust medical experts and vaccines?

The world's biggest survey into public attitudes to health and science has been recently published, revealing high overall global trust in doctors, nurses and scientists, and high confidence in vaccines. However, it also shows that half of the world's population say they know little – if anything – about science, and almost one in five feel excluded from the benefits of science.

The recently published Wellcome Global Monitor asks more than 140,000 people, aged 15 and older, in over 140 countries, how they think and feel about health and science.

It is the first global survey of its kind and highlights questions that need to be answered to ensure science and health research benefits everyone equally, wherever they are in the world. It also reveals attitudes about science that are important to improving global health, including a complex picture of confidence in vaccines in high-income countries.

Dr Jeremy Farrar, Director of Wellcome, which commissioned and funded the report, says: “Wellcome Global Monitor presents an unprecedented view of the relationship between science and society worldwide. No matter how great your idea, how exciting your new treatment, or how robust your science, it must be accepted by the people who stand to benefit from it. Vaccines, for example, are one of our most powerful public health tools, and we need people to have confidence in them if they are to be most effective.”

Conducted by Gallup World Poll, the survey explores levels of trust and knowledge across science and health, revealing how this differs across ages, nationalities and genders.

For many countries – including Colombia, Nigeria, Egypt and Vietnam – the survey offers the first insights into what people think about these issues.

## Highlights

### Doctors and nurses are most trusted for health advice

- 73% of people worldwide would trust a doctor or nurse more than any other source of health advice, including family, friends, religious leaders or famous people.
- But across the world, people with the lowest household income have less confidence in hospitals and healthcare systems.

### What we know about science – and how we think it benefits society

- Overall, 72% of people globally trust scientists.
- But over half (57%) of the world's pop-

ulation don't think they know much – if anything – about science.

- Almost one in five (19%) believe that science does not benefit them personally.
- Alongside learning science at school or college, confidence in key national institutions such as the government, the military and the judiciary are among the strongest factors that relate to a person's trust in science.

Imran Khan, Head of Public Engagement at Wellcome, says: “This first-of-a-kind global survey clearly shows that people's beliefs about science are deeply influenced by their culture, context, and background. We need to care more about these connections if we want everyone to benefit from science.”

### More than three-quarters of the world's population agree that vaccines are safe and effective

- Worldwide, 79% of people agree that vaccines are safe and 84% agree that they are effective.
- Trust in vaccines tends to be strongly linked to trust in scientists and medical professionals; people who have strong trust in scientists overall are more trusting of vaccines, and vice versa.
- Bangladesh and Rwanda have the strongest confidence in vaccines – with almost all people in both countries agreeing vaccines are safe, effective and important for children to have. Rwanda also has the highest trust in their healthcare system, at 97% – compared to a global average of 76%.
- However, around a fifth of people in Europe either disagree or are unsure of

## Key findings

- Three-quarters of the world's population trust doctors and nurses more than anyone else for health advice.
- Globally, around eight in 10 people agree vaccines are safe, and nine in 10 people worldwide say their children have been vaccinated.
- People living in high-income countries have the lowest confidence in vaccines.
- In most parts of the world, higher confidence in health systems, governments, and scientists is a sign of high trust in vaccines – but the picture is more complicated in Europe.
- In almost every region of the world, men are significantly more likely to say they had a good level of understanding of science, compared to women.





This first-of-a-kind global survey clearly shows that people's beliefs about science are deeply influenced by their culture, context, and background. We need to care more about these connections if we want everyone to benefit from science.

science knowledge than women. This gender gap exists even when men and women report equal levels of science attainment.

- Globally, 49% of men worldwide say they know 'some' or 'a lot' about science, compared to 38% of women.
- The gap is biggest in Northern Europe, where 75% of men claim to know "a lot" or "some" science, compared to just 58% of women.
- It is lowest in the Middle East and Southeast Asia, which had a percentage gap of three points.

Simon Chaplin, Director, Culture & Society at Wellcome, says: "Science can change our understanding of the world, influence the way we live and how our communities function. We must remember that science is part of society: it needs to be done with the public, not just for them."

The results from the first Wellcome Global Monitor will help provide a baseline of evidence to assess how attitudes change over time and help formulate effective and targeted policy interventions to improve public engagement with science and health. MEH



Wellcome Global Monitor 2018

<https://wellcome.ac.uk/reports/wellcome-global-monitor/2018>

whether vaccines are safe. This is despite 86% trusting doctors and nurses and 21% showing high trust in scientists.

- The lowest confidence levels in relation to vaccines are in Western Europe where more than one in five (22%) of people disagree that vaccines are safe, and in Eastern Europe where 17% disagree that vaccines are effective.
- France has the lowest levels of trust in vaccines globally: a third (33%) of its inhabitants disagree that vaccines are safe and a tenth (10%) disagree they are important for children to have.

#### **Most parents say their children are vaccinated – and most adults agree they are important**

- 92% of parents worldwide say their children have received a vaccine to prevent them from getting childhood diseases.
- 92% of adults globally, including those who do not have children, agree vaccines are important for children to have.

- But worldwide 6% of parents say their children are unvaccinated, representing more than 188 million parents globally.
- The countries with the highest numbers of parents claiming to not vaccinate their children are China (9%), Austria (8%) and Japan (7%).

Charlie Weller, Head of Vaccines at Wellcome, says: "It is reassuring that almost all parents worldwide are vaccinating their children. However, there are pockets of lower confidence in vaccines across the world and we cannot afford to be complacent. To ensure society gets the full benefit of vaccines, we need to make sure that people have confidence in both the safety and effectiveness of vaccines and understand more about the complex reasons why this is not always the case."

#### **Significant gap in what men and women say they know about science**

- Men are more likely to claim greater

# Agenda

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

Event	Date / City	Contact
<b>■ July 2019</b>		
14th World Congress on Healthcare and Medical Tourism	18-19 July 2019, Abu Dhabi, UAE	<a href="https://healthcare.global-summit.com/middleeast/">https://healthcare.global-summit.com/middleeast/</a>
<b>■ September 2019</b>		
5th Abu Dhabi International Conference in Dermatology and Aesthetics (AIDA)	19-21 September 2019 Abu Dhabi, UAE	<a href="https://go.evnt.com/407453-0">https://go.evnt.com/407453-0</a>
The 5th Annual MENA International Orthopaedic Congress	19-21 September 2019 Dubai, UAE	<a href="https://go.evnt.com/349042-0">https://go.evnt.com/349042-0</a>
2nd Emirates Pediatric Hematology & Oncology Conference	20 September 2019 Abu Dhabi, UAE	<a href="http://menaconference.com/events/ephoc2/">http://menaconference.com/events/ephoc2/</a>
8th SEHA International Nursing, Midwifery and Allied Health Conference	24-26 September 2019 Abu Dhabi, UAE	<a href="http://menaconference.com/events/sinmac/">http://menaconference.com/events/sinmac/</a>
<b>■ October 2019</b>		
The 5TH MENA Health insurance congress	1-3 October 2019 Dubai, UAE	<a href="https://go.evnt.com/430242-0">https://go.evnt.com/430242-0</a>
AHIMA World Congress Healthcare Information Summit	3-5 October 2019 Abu Dhabi, UAE	<a href="https://www.awc.world-summit-2019/">https://www.awc.world-summit-2019/</a>
3rd Abu Dhabi Ambulatory Healthcare International Congress	16-19 October 2019 Abu Dhabi, UAE	<a href="http://www.adahic.ae/">http://www.adahic.ae/</a>
The Abu Dhabi ID Week	16-20 October 2019 Abu Dhabi, UAE	<a href="https://go.evnt.com/378477-0">https://go.evnt.com/378477-0</a>
The 6th Annual GCC Pharmacy Congress	24-26 October 2019 Dubai, UAE	<a href="https://go.evnt.com/445220-2">https://go.evnt.com/445220-2</a>
XXIV World Congress of Neurology - WCN 2019	27-31 October 2019 Dubai, UAE	<a href="https://go.evnt.com/323182-5">https://go.evnt.com/323182-5</a>
3rd International Conference on Prevention and Control of Infection	31 October - 2 Nov 2019 Abu Dhabi, UAE	<a href="http://menaconference.com/events/3icpci/">http://menaconference.com/events/3icpci/</a>
<b>■ November 2019</b>		
The 5th Annual International Paediatric & Neonatal Medical Congress	14-16 November 2019 Dubai, UAE	<a href="https://go.evnt.com/449240-0">https://go.evnt.com/449240-0</a>
7th International Oncology Conference	29-30 November 2019 Abu Dhabi, UAE	<a href="http://menaconference.com/events/7ioc/">http://menaconference.com/events/7ioc/</a>

### List your conference:

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

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## Giving new hope to children with metabolic disease

**UPMC Children's Hospital of Pittsburgh is a leading international center for liver transplantation as a treatment for metabolic disease.**

As one of the best children's hospitals in the United States, as named by U.S. News & World Report, UPMC Children's Hospital of Pittsburgh is a pioneer in the field of liver transplantation, which has proven to be a life-changing solution for patients with metabolic disease.

**Liver transplantation can dramatically reduce symptoms, and in cases like maple syrup urine disease (MSUD), can provide a cure.**

Liver transplantation is more than a life-saving procedure; it's also an attractive approach for improving quality of life for many patients with metabolic disease. In 2004, we developed the protocol for liver transplantation for MSUD. Today, we've performed more transplants on patients with MSUD than any other center in the world. That's more than 70 patients with a 100-percent survival rate. All of these patients show normal liver function, have avoided the risk of neurological complications, and enjoy an unrestricted diet.

**We've performed more liver transplants for patients with metabolic disease than any other transplant center.**

Since the inception of our program in 1981, our world-renowned experts have performed more than 1,700 liver transplants – that's more than any other center in the United States – with survival rates that exceed national averages. Additionally, we've performed more than 330 liver transplants for patients with metabolic disease, which is more than any other center, including adult facilities. Also, we're leaders in living-donor liver transplants, which eliminate wait times for a deceased donor and can provide excellent outcomes.

**Find out more about our excellent outcomes and extraordinary care.**

Our experience, expertise, and commitment to innovation and compassionate care are reasons why patients and families from around the world travel to UPMC Children's Hospital of Pittsburgh. For a free phone consultation with one of our experts in liver transplantation as a therapeutic option for metabolic disease, please visit [www.chp.edu/metabolic](http://www.chp.edu/metabolic) or send an email to [international@chp.edu](mailto:international@chp.edu).

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Source: Internal data, Hillman Center for Pediatric Transplantation