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MEDLAB

6-9 February 2017

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DAY 04 THURSDAY 2 FEBRUARY 2017

arab health DAILY DOSE

THE OFFICIAL DAILY NEWSPAPER OF THE ARAB HEALTH EXHIBITION

Arab Health Receives UAE Royals

His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, visited the Arab Health Exhibition and Congress on its third day along with his son, His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai. The pair toured a number of exhibition halls before spending a while in the UAE Ministry of Health's stand.



HRH Princess Haya Opens Leaders in Healthcare Conference

HEALTHCARE LEADERS FROM ACROSS the globe will gather today at the "Leaders in Healthcare" conference, one of the region's most established and reputed healthcare conferences. Held under the patronage of the Chairperson of the Dubai Healthcare City Authority (DHCA) HRH Princess Haya Bint Al Hussein, wife of HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, the Leaders in Healthcare conference will see industry experts from across the globe discuss current challenges and opportunities in the adoption of innovative technologies for healthcare including robotics, drones, and 3D printing.

The 2017 edition of Leaders in Healthcare will focus on the "Evolution of Healthcare Automation". From robotics, to drones and 3D Medical Printing,



these featured topics will include real life case studies and interactive discussions.

HRH Princess Haya will also tour some of the vendors, service providers and manufacturer exhibits at the show, including those belonging to the UAE Ministry of Health & Prevention, the Dubai Health Authority, Dubai Healthcare City Authority, GE, Siemens and Philips, amongst others.

Speakers at the 2017 Leaders in Healthcare

conference also include: Lord Stephen Carter, Group CEO, Informa, organiser of Arab Health; Dr Azad Moopen, Chairman and Managing Director, Aster DM Healthcare; Elliot Sack, Managing Director, ehealth group; Dr Alawi Alsheikh Ali, Dean College of Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences; Timothy Kien Amikele, Medical Director, Makerere University-Johns Hopkins University Research Collaboration Core Laboratory; Paul Miullen, general Manager, GE Healthcare, and other healthcare leaders from across the globe.

The Leaders in Healthcare conference will mark the final day of the Arab Health Exhibition & Congress. This year, the world's second largest healthcare congress and exhibition, showcased more than 4,400 exhibitors and saw healthcare professionals from around the world in attendance.

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GE Healthcare Partners Announces Strategic Collaborations

GE HEALTHCARE PARTNERS, GE Healthcare's advisory arm, has announced several strategic partnership initiatives that will help transform the Middle East's healthcare sector by leveraging the strength of digital industrial technologies, big data analytics, and health consultancy expertise.

In a key digital transformation initiative, GE Healthcare will partner with Saudi Ministry of Health (MoH) to bring the benefits of big data to the region. This joint effort supports MoH's goal of driving digitization to achieve measurable improvements in quality of patient care and cost.

Several GE Healthcare Partners' initiatives are already helping to transform care throughout the region, including the Patient Centered Program (PCP). This first-of-its-kind program has been initiated across Saudi MoH hospitals to drive better patient outcomes through performance measurement and change management. PCP has already been implemented in 30 of the busiest hospitals in the Kingdom, training over 300 Saudi professionals to achieve improvements in hospital operations, and staff and patient satisfaction. It targets high patient traffic areas—emergency, inpatient, and outpatient—to improve operations, patient care, and clinical outcomes.

GE Healthcare Partners' recent acquisition of two leading healthcare consultancies—Finnamore and Camden Group—has been instrumental in providing the regional capabilities necessary to drive the Patient Centered Program forward.

Finnamore is one of the most respected dedicated health and social care consultancies in the UK, with more than 20 years' expertise in helping organizations improve operational efficiency, clinical outcomes and patient experience.

Camden Group is a leading US healthcare



advisory firm with expertise in population health management, value-based care, clinical integration, and care redesign.

Consultants from both Camden Group and GE Healthcare Finnamore will be located in the United Arab Emirates and Saudi Arabia to provide local expertise and resources to help public and private organizations realize their goals.

"Digital transformation is the big opportunity before us to support the healthcare sector to deliver better outcomes. A more digital hospital and healthcare infrastructure means faster and more efficient healthcare delivery. By leveraging

big data to track and optimize treatment, patient flow, and equipment use in hospitals, even a one percent efficiency gain could yield significant health care savings. Our analytics solutions are built on a foundation of change management and operational transformation capability. The combination of which has consistently yielded measurable improvement for our clients. GE has the regional and global capabilities to help healthcare organizations execute their transformation agenda," said Fida Ghantous, Managing Principal of GE Healthcare Finnamore Camden Group.

GE Healthcare Partners has also signed a

Memorandum of Understanding with the Dubai Health Authority (DHA) to jointly explore opportunities to drive the optimization of operations at various DHA hospitals and primary care clinics to deliver its patient experience transformation strategy. It could cover such issues as patient pathways through inpatient, outpatient, radiology, emergency and laboratory departments. The partnership also includes the development of Dubai-based Centers of Excellence to drive better healthcare for Dubai, the UAE and the region. GE is already contributing to the UAE healthcare delivery system, such as the 'Unison' partnership to enhance 11 radiology departments across the country.

Leader Healthcare Proud Platinum Sponsors At Arab Health 2017

IT'S DAY FOUR OF Arab Health 2017, one of the second largest healthcare exhibition and congress in the world and the largest in the Middle East and Africa. Leader Healthcare is honored and proud to be the platinum sponsor of ARAB HEALTH 2017.

Leader Healthcare has chosen the Arab Health 2017 platform to unveil its expansion plans, and this has enabled us to spread its global roots to Australia with Sydney being our new branch.

During the past three days at the Leader Healthcare booth which is located in Hall 4, D30 the audience got to:

- Learn about the future challenges and opportunities in healthcare
- Participate in interactive workshops to improve your healthcare practice effectiveness
- Discuss and share solutions to improve healthcare provision in your workplace
- Engage in learning about the latest healthcare innovations from around the world

Sessions featured some of our renowned established partnerships with ZOLL, SAM MEDICAL, STRATEGIC OPERATIONS, CAE HEALTHCARE and many more! With healthcare being an essential sector, and one that is growing in prominence with the Dubai Health Strategy, there is an expectation to witness steady growth in this sector in the coming years.

Some milestones achieved through the exhibit was sponsoring a ZOLL AED for the winner who takes the picture with our AED mascot and having all our international product representatives to help the audience run through the product features in detail. Demonstration of AED 3 proved to be



extremely impactful in the Dubai Heart Safety Project. As, it is easy-to-use and comparatively easier to maintain. It has the latest technology onboard, which makes it exceptionally reliable. It was very effective in training people, on how to give cardiopulmonary resuscitation (CPR) and also to provide medical assistance at the time of need.

It would thus effectively contribute in DHA's (Dubai Health Authority) efforts of increasing the number of first responders in Dubai.

We also hosted the corporate gala dinner for over 70 VIPs of the medical industry.

Come join us on the last day of Arab Health to experience diverse, multi-layered content that will include educative conferences for healthcare professionals, training facilities, distribution and retail display of medical equipment showcasing the latest medical technologies which is something that shouldn't be missed. Leader Healthcare is very excited to be an integral part of this much awaited exhibit and we hope to see you there.



TODAY AT A GLANCE

ARAB HEALTH CONGRESS 2017

CONFERENCE	ROOM	LOCATION	START TIME	FINISH
Gastroenterology	Sharjah D	Above Hall 6	8:00	16:45
3D Printing	Dubai D	Above Shk Maktoum Hall	11:00	16:00
Public Health	Abu Dhabi B	1st Floor building opp Hall 5	9:00	16:10
Emergency Workshop	Umm Al Qwain	2nd Floor building opp Hall 5	8:30	16:30
Leaders in Healthcare	Al Multaqua Ballroom	Between Halls 4 & 5	9:00	14:00
Surgery	Shk Maktoum Hall section B	Concourse 2	8:50	16:50
Orthopaedics	Shk Rashid Hall - Part C	Shk Rashid Hall	11:00	17:00
Total Radiology	Shk Rashid Hall - Part D	Shk Rashid Hall	11:00	17:45
Quality Mgmt	Al Ain J	Above Hall 4	8:20	17:00

ARAB HEALTH DAILY DOSE

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GLOBAL MEDICAL DIRECTORY

OMNIA Global Medical Directory is a new digital platform brought to you by Informa Life Sciences, the organisers of 27 exhibitions worldwide. This comprehensive catalogue of all things medical allows companies and customers to connect both on-site and beyond our exhibitions, 365 days a year.

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Create a wish list of companies you want to visit at any of our exhibitions throughout the year. Filter alphabetically, by hall or section, print and bring it with you to the show, allowing you to spend more time networking and less time searching for a stand.

REQUEST INFORMATION

Make appointments ahead of the show. With our new 'Request Info' feature you can reach out to exhibitors and book a slot for a full product demonstration in advance of the event, allowing you to maximise your time on-site.

DEMONSTRATION VIDEOS

Get a deeper look at the product before purchasing with a virtual experience, offering you all the information you need to make the right decision for your business. Omnia is the fastest and simplest way to get an interactive experience with the product beyond the exhibition.



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Cyber-Attacks on Healthcare: Where Greed is More Powerful Than Ethics

By Christiaan Beek, Advanced Threat Research - Office of the CTO at Intel Security

THE WEEK OF JAN 16, a group of cybercriminals lowered the ethics bar by extending their attacks on the healthcare sector, beyond providers such as hospitals and clinics, to a non-profit cancer support organization.

Little Red Door provides diagnostics, treatment, and supplies to under-served cancer patients. Sadly, this is just the latest example of hackers' exploitation of the healthcare sector.

On Jan 13, the computer systems of five hospitals in the UK's Barts Health NHS Trust group were taken offline in response to a Trojan malware attack. Luckily, no patient data seems to have been taken, the virus has been quarantined, and most systems have since recovered from the attack (minus file-sharing). But the attacks were the latest notable reminder that legacy systems, a fragmented workforce, and inconsistent security defenses continue to put hospital cybersecurity in critical condition.

Why cybercriminals target healthcare

Last year, we saw a series of attacks on hospitals across the U.S. Hospitals have become a prime target because they usually operate legacy systems and medical devices with weak security and they have a life or death need for immediate access to information. For instance, it appears Barts Health uses the unsupported Windows XP operating system.

But the trend also represents a notable shift in ransomware attackers' focus from consumer to organizations with weak security. This new form of crime appears to be paying well. One ransomware developer posted a screenshot of his digital wallet that showed a balance of US\$94 million, earned in about six months.

Why IoT medical devices pose an IT challenge

Ransomware attacks can target medical devices, which are more challenging to protect and clean up than servers and workstations. Recovering from these attacks not only includes the ransom payment but also the costs of downtime and system recovery. Some hospitals have experienced partial

or complete network downtime of five to 10 days. Intel Security's Foundstone Incident Response team identified at least 19 hospital ransomware attacks during the first half of 2016, across six countries. Most of the hospitals that paid the ransom had no contingency plans for this type of event.

What we can do to protect healthcare IT systems

For Little Red Door, the organization decided not to play by the attackers' rules, refusing to pay them, noting that its funds are intended to "help cancer patients and their families."

For organizations, seeking to avoid such choices, we recommend the following Top 10 list for protecting healthcare systems from malware

infections and prompt recovery:

- Develop an incident response plan, so that if your systems are compromised you can get back in operation quickly.

- On general-purpose devices, keep the patches up to date. Many of the vulnerabilities exploited by these attackers have patches available.

- Whitelist medical equipment to prevent unapproved programs from executing.

- Do not rely on default settings for endpoint protection. Turn on advanced endpoint protections that can block malware executables from running.

- Add or enhance your antispam filter. Most ransomware attacks use uncommon file formats, packed several levels into .zip files to evade detection, so make sure you are scanning for them.

- Block unnecessary programs and traffic. Many ransomware control servers use Tor to get their encryption key. If you can block this traffic, you can stop the encryption process.

- Use network segmentation to separate critical devices required for patient care from the general network.

- Keep backups completely disconnected from the production network, so that ransomware payloads cannot corrupt your backup data.

- Reduce or eliminate the use of local disks to store sensitive data. Secure network drives can be restored more quickly, assuming the backups are clean.

- Almost one in 10 spam messages is still being opened, so ongoing user awareness training is critically important.



MEDLAB 2017:

Spotlight on collaboration between the lab and clinicians

MEDLAB EXHIBITION & CONGRESS, the world's leading event for laboratory management and diagnostics, has introduced a new focus for its scientific programme for 2017 with updates on laboratory testing and developments in clinical diagnostics. It will review the expanding role of laboratory medicine in patient care in the GCC and will feature the correlation of tasks between a laboratory professional and a clinician, in analysing algorithms of the disease, test interpretations and standards in reporting.

In 2016, the global in-vitro diagnostics market (universally known as 'laboratory tests'), in which MEDLAB offers a critical platform, was estimated to be worth USD 60.07 billion and is expected to grow at a steady CAGR of 5.2% to be worth USD 77.38 billion by 2021. Growing at a similar pace (estimated 6.5% by 2018 in Saudi Arabia and 5.23% in UAE by 2020) in the GCC, the increase is due to several factors such as the strong rise in the incidences of chronic diseases and the rise in the research and development efforts from the key market players.

In an effort to bridge the gap between laboratory professionals and doctors, MEDLAB will host the first Laboratory Informatics conference in the region in order to effectively implement technology for

laboratory information management and to explore how to efficiently manage laboratory data in electronic medical records systems in the Middle East.

Dr Aaron Han, Chief, Department of Pathology and Laboratory Medicine; Acting Chief Medical Officer at American Hospital said, "As medicine undergoes fundamental transformation in how it is delivered, and new technological innovations bring us new possibilities in diagnosis and treatment, the laboratory has a key role to play in the new healthcare paradigm. MEDLAB provides a forum to bring the diverse players together. The technology entrepreneur, the lab scientist, and the clinician, are given the opportunity for cross fertilization of ideas and practices.

"The collective of leading healthcare professionals and sharing their diverse skills, perspectives and experiences, leads to fruitful collaborations, enhances care, and elevates our daily work to new vistas. We may work in different parts of the medical ecosystem, yet we are all united through a shared commitment to the wellbeing and health of populations and individuals", Dr Han added.

MEDLAB offers over 11 CME-accredited multi-disciplinary conference tracks featuring topics such as laboratory management, molecular

diagnostics and clinical chemistry. This year's congress introduces new conferences about blood transfusion medicine, cardiac markers, laboratory testing and the management of diabetes, as well as laboratory informatics.

Dr Mansour Al-Zarouni, Member, General Secretariat Committee at Sultan Bin Khalifa International Thalassaemia Award (SITA) and Chair of MEDLAB said, "Transforming scientific advances occurring in our laboratories into patient care is a challenge, but one that needs to be addressed in order to improve healthcare. It is essential that laboratory workers and clinicians work together to convert modern science into medicine that saves lives. This is why MEDLAB this year will focus on

bridging the gap between clinicians and laboratory workers in all areas of healthcare - from the dynamics of lab chains to cardiac markers.

"It is essential that every effort is made to further improve collaboration and holistic ways of working. MEDLAB will play a crucial role in inspiring innovative and progressive ways to accelerate standards of patient care in both the GCC and the rest of the world."

As a platform for the pioneers in the industry to showcase their innovation, MEDLAB will host more than 700 of the world's leading laboratory management and diagnostics brands such as Abbott, Siemens Healthineers, Snibe Diagnostic, Beckman Coulter and many more.

See you next week



MEDLAB

6-9 February 2017

High precision technology needs the highest quality of service: Olympus

Service Center in UAE to ensure faster turnaround times at lower costs due to proximity to customers

DUBAI - JANUARY 2017: Olympus provides a level of service support that extends far beyond mere repairs. Unique service solutions increase equipment uptime and keep processes running reliably.

Professionally qualified Olympus service technicians conduct specialist maintenance procedures complying fully with Original Equipment Manufacturer (OEM) standards to ensure a secure investment for customers.

The Service Center at the new Olympus Regional Headquarter in Dubai, United Arab Emirates, will be staffed by the most skilled Olympus service engineers and featuring the very latest technology.

The professional qualification of the Olympus staff is based on more than 20,000 hours of training per year.

Each endoscope has approximately 300 replaceable parts and some require microscopic soldering of micro-connects. Each endoscope takes almost 25 working hours to take apart, service and put together again in a process that requires up to 170 checks to ensure the high quality approach of Olympus.

The Service Center will have a 'dirty area' where the item is received, opened and catalogued. It will then go to a 'cleaning area' where it will be thoroughly disinfected and cleaned. Then, it will be passed on to a separate room for service and repairs.

Some 75 per cent of repair tools are developed by Olympus in Japan specially tailored to the needs of our products.



Moreover, the center will have its own water plant and air compressor to ensure the highest quality of water and air – apart from other agents – to clean a service item.

Once active, the plan is to ensure faster

turnaround times at lower costs due to proximity to the customer.

Part of this Center focuses on stocking of critical spare parts and also providing loaners to enhance uptime at customer side.



Maurice Faber, Regional Director, Olympus MEA



Linking Health, Education and Research

Hamad Medical Corporation is the main provider of secondary and tertiary healthcare in the State of Qatar and is also one of the leading hospital providers in the Middle East.

Hamad aims to deliver the safest, most effective and most compassionate care to each and every one of their patients.

Hamad at Arab Health 2017

The Center for Patient Experience and Staff Engagement (CPSE) is a department within Hamad Medical Corporation that drives transformation to continuously improve patient care. To hear about more about the work of CPSE, please visit the stand (H6A15) at Arab Health 2017 exhibition or email us on CPSE@hamad.qa

MBRU pushes the envelope on innovation in higher medical education

DUBAI HEALTHCARE CITY'S FIRST medical university, the Mohammed Bin Rashid University of Medicine and Health Sciences has raised the bar of innovation in the field of medical education in barely a couple of years since its opening, teaching students innovative solutions and approaches that will be relevant three decades from now.

As far as first go, the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU), has earned a clutch of titles.

From introducing innovative teaching approaches to organizing the first kidney transplant in Dubai. And yet another first is planned for 2017 – the 1st International Medical Education Conference in Dubai from 2-3 March.

All of these underscore the university's founding philosophy – innovation. In an interview with Daily Dose, Professor Alawi Alsheikh-Ali, Dean of MBRU's College of Medicine, talks about preparing students for the unknown by teaching them the skills to think outside the box and always be on the look for innovative solutions.

"Our philosophy at MBRU is to prepare them for the unknown. Therefore, it is important to introduce creative concepts to our students to help them develop the capacity to come up with innovative solutions for major challenges in healthcare," he says.

As a young university, established in September 2014, MBRU has grown from strength to strength. Currently, it has two colleges - Hamdan Bin Mohammed College of Dental Medicine and College of Medicine. The university has an academic collaboration with Queen's University Belfast, UK. It offers six post-graduate, three-year dental programs in Endodontics, Oral Surgery, Orthodontics, Pediatric Dentistry, Periodontics and Prosthodontics; and a six-year Bachelor of Medicine and Bachelor of Surgery (MBBS) program.

"As of January 2017, we have more than 160 undergraduate and post-graduates," says Professor Alsheikh-Ali.



MBRU is making every effort to uplift the standards of medical education, healthcare and research in the UAE and the region, and reverse the trend of seeking medical education overseas by providing quality medical education closer to home.

It is innovation that is helping MBRU provide quality medical education right here in Dubai, explains Professor Al Sheikh-Ali. "Innovation is core to MBRU. In the words of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice-President and Prime Minister and Ruler of Dubai, 'All people have an ocean of achievement inside themselves just waiting to escape'. That is exactly what we work on developing in our students."

In real terms, it's about providing education that is relevant to the current talent and ensuring that the education is relevant in 20 to 30 years from now "when they are at the peak of their practice", he says.

"MBRU caters to new learners who are digital natives," says Professor Al Sheikh-Ali. "To reference research, digital natives are individuals who have grown up in the digital world and use technology to communicate, record, and learn. This fact makes it important for MBRU to meet

expectations by integrating technology into learning. And hence, we focus on innovation in medical education from teaching students through clinical simulation, use of digital technologies like Google Glass, and state-of-the-art student learning systems."

MBRU has spearheaded innovative courses and events. For instance, first year medical students benefit from the 'Innovation and Technology in Health Sciences' in which 'Design thinking' concept is introduced. Professor Alsheikh-Ali says, "The concept a problem-solving approach used to stimulate innovation."

MBRU has also held in the field of Organ transplantation, the 1st UAE Organ Transplant Summit in 2015 and the 1st UAE Organ Donation Forum in 2016. As a result of that the first kidney transplant in Dubai took place in 2016 successfully.

Clinical simulation is one of the areas that the MBRU is particularly proud of. Dr Sharif says, "Research shows that simulation-based medical education (SBME) enhances the transfer of theory into practice and improves patient safety. When medical students practice in simulated learning environment, they can

focus on the technical skills as well as non-technical skills such as prioritizing, situational awareness, decision-making, communication, teamwork and leadership. Simulation plays an important role in enhancing patient safety."

Speaking about the upcoming MedEdDXB, MBRU's 1st International Medical Education Conference in Dubai, he says, "Themed 'Health Professions Education in an Interconnected World', MedEdDXB is yet another innovative conference which stems out from a series of successful simulation conferences held at MBRU. These conferences have helped advance the understanding of the role of simulation in healthcare through case studies demonstrating the link between simulation-based medical education and better evaluation and treatment techniques."

Optional trim starts

MedEdDXB 2017 will focus on five key areas - Learner-centered Education; Professionalism in Medical Education; Patient Safety and Clinical Simulation; Technology Enhanced Learning; and Patient & Community Involvement. Each of these areas will talk about the importance of moving away from instruction that is mainly teacher-centered and instead focus on learning outcomes; placing the interests of patients above all others; simulation to replicate clinical scenarios; educational technologies that can enable flexibility, creativity and innovation; and involving patients and the wider community in the management and practice of healthcare.

Optional trim ends

"The Conference reaffirms the university's approach to collaborate with strategic local, regional, and international healthcare players and institutions. Above all, it strengthens MBRU's goal to increase the delivery of high quality healthcare in the UAE and the region," he adds.

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Trading Point Unveils Its Food Supplements Dedicated To Family Well-Being At Arab Health 2017

FOR THE SECOND CONSECUTIVE year, the food supplement manufacturer Trading Point (group Elite Pharm group) will be exhibiting its new products at Arab Health. The French company is exclusively presenting its new range of food supplements specifically designed to meet the needs of women from pregnancy to breast-feeding.

In response to strong market demand, the company has created two unique products that meet the expectations and specific characteristics of these fields of application:

PREGNANCY SUPPORT is a food supplement that meets the essential nutritional needs of pregnant women. This combination of vitamins and trace elements helps ensure that pregnancy proceeds smoothly and supports fetal development.

LACTATION SUPPORT is a nutritional complex dedicated to breast-feeding women. It supports lactation by improving colostrum and milk's nutritional quality thanks to its carefully selected plant extracts.

Motivated by the success of its attendance at Arab Health 2016, Trading Point is coming back to the exhibition. Its export experience has helped to significantly expand its partnership with various collaborators in the Near East and Middle East.

Company Chairman Gérard Strauch says, "Arab Health 2016 was an opportunity to make new contacts and develop our networks. Being keen to maintain these business relationships and ensure the long-term success of our business in the Gulf states, we are happy to be back to next year's exhibition."

With a presence in Europe, Asia and the Middle East, Trading Point (group Elite Pharm group) is a French firm specialized in developing and producing healthcare products. For almost 20 years, it has focused its development on food supplements. It offers products in both dry and liquid form covering a wide range of application fields, including bones, muscles, joints, memory, vision, circulation, sleep, energy, immune system, prostate, fertility, libido, digestion, slimming, glycaemia, cholesterol and many more.

It offers standardized and tailored turnkey products manufactured exclusively in France. Its core business is private label development. Its expertise covers every phase of project development, from formulation to delivery of the finished product including technical and regulatory approval, selection of raw materials, visual design and packaging.

Trading Point (group Elite Pharm group) are exhibiting in the France Pavilion.



Sidra Medical and Research Center

SIDRA MEDICAL AND RESEARCH Center is a groundbreaking hospital, research and education institution, focusing on the health and wellbeing of children and women regionally and globally. The high-tech facility will not only provide world-class patient care but will also help build Qatar's scientific expertise and resources. This is being developed through an intellectual ecosystem to help advance scientific discovery through investment in medical research.

Designed by renowned architect Cesar Pelli, Sidra features a main hospital building and a separate outpatient clinic. Sidra opened its Outpatient Clinic on 1 May 2016 and offers over 35 clinics and services through a referral based system in partnership with other healthcare providers.

The main hospital, currently in final construction stage, will initially have 400 beds with infrastructure to enable expansion to 550 beds in a subsequent phase. Once fully operational, Sidra will be a digital facility, incorporating the most advanced information technology and patient and family focused services.

For more information please visit www.sidra.org.



GULFDRUG

VISIT US AT
Hall No- 2 , Stall No- 2D 30

Masimo to Showcase Next Generation SedLine® Brain Function Monitor at Arab Health 2017

Masimo Root® with Next Generation SedLine®

NEXT GENERATION SEDLINE ENHANCES how Masimo's processed EEG parameter, the Patient State Index (PSI), responds in challenging situations, addressing many of the concerns raised with quantitative EEG while bolstering brain function monitoring's support of anesthetic management.

Next Generation PSI uses Masimo's breakthrough Parallel Engines and Adaptive Signal Processing technology and provides the following enhancements:

- Less susceptibility to electromyography (EMG) interference by extracting a clearer EEG signal even in the presence of EMG
- Improved PSI performance in low power EEG cases
These improvements build upon the existing benefits of SedLine technology:
- Four simultaneous EEG leads to enable continuous assessment of both sides of the brain
- Density Spectral Array (DSA) offers easy-to-interpret, high-resolution display of bi-hemispheric activity
- Multiple screen views expand information while enabling customization in the OR and ICU
- Electrocautery resistance

"We are delighted to unveil Next Generation SedLine," said Joe Kiani, Founder and CEO of Masimo. "Next Generation PSI takes advantage of Masimo's signal processing prowess and promises to do for brain function monitoring what SET did for pulse oximetry."

Next Generation SedLine has not received FDA 510(k) clearance and is not currently available for sale in the United States.



Let's shape the future of healthcare together

Why Siemens Healthineers?

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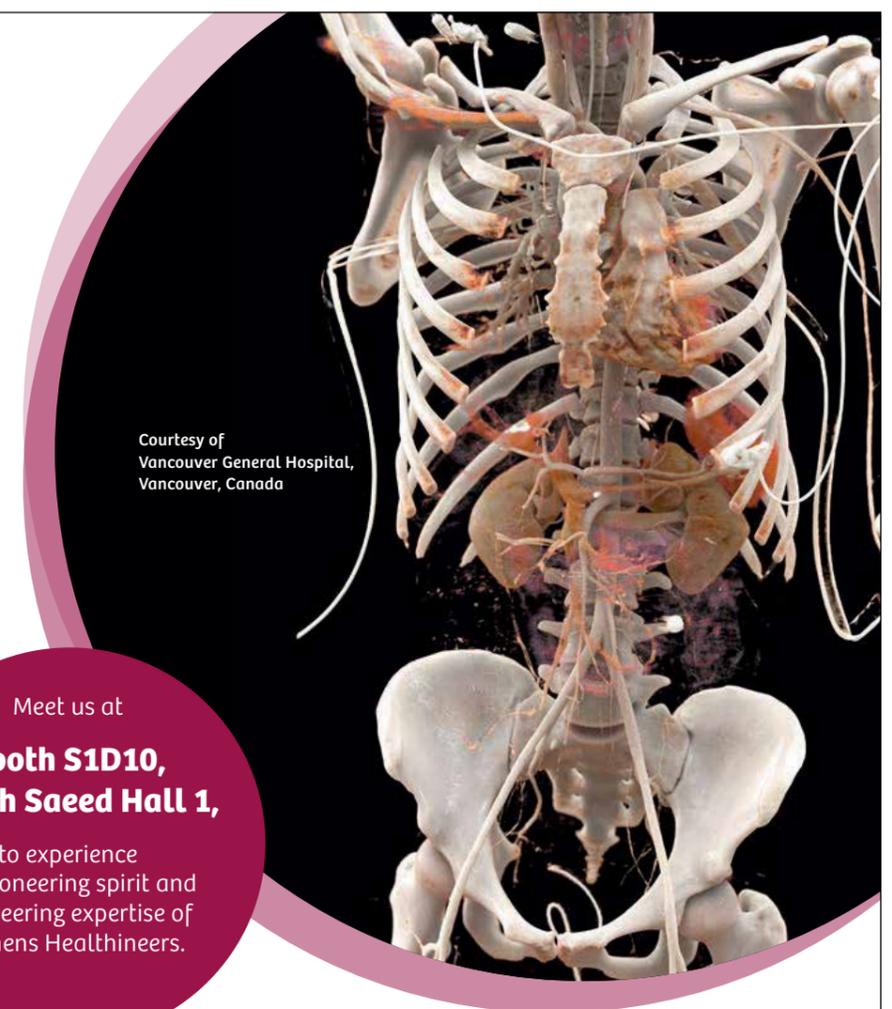
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*Siemens AG, "Sustainable healthcare strategy – Indicators in fiscal 2014", page 3-4

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Advancing novel urine test to predict high-risk cervical cancer

Preliminary studies affirm accuracy and potential cost savings to screen for virus-caused malignancy

JOHNS HOPKINS MEDICINE SPECIALISTS report they have developed a urine test for the likely emergence of cervical cancer that is highly accurate compared to other genetic marker tests derived from cervical tissue.

The new urine test, they say, is different because it analyzes not only human cellular DNA altered by precancerous changes, but also DNA from sexually transmitted HPV that causes virtually all cases of the disease.

In a proof-of-concept study, described in Cancer Prevention Research, the investigators say their test showed a "sensitivity" or accuracy rate of 90.9 percent in identifying so-called CIN2 lesions – abnormal cervical cells likely to not only develop into cancer, but also to develop into cancers likely to spread. Additionally, they demonstrated that the DNA for all three human genes and one viral gene could be extracted from urine, and they identified such lesions with 75 percent sensitivity.

Two commercial tests based on markers of DNA chemical changes, released in Europe last summer, require Pap smears or swabs of cervical tissue, and show 64 percent sensitivity in identifying similar lesions, according to senior investigator Rafael Guerrero-Preston, Dr. P.H., M.P.H., assistant professor of otolaryngology-head and neck surgery at the Johns Hopkins University School of Medicine and member of the Johns Hopkins Kimmel Cancer Center.

"We predict a significant use of urine screening as a way to quickly and inexpensively determine if a biopsy is warranted, or if physicians can use a 'watch and wait' approach before intervening," says Guerrero-Preston. Typically, he says, a woman who tests positive for HPV and has an abnormal Pap smear undergoes a biopsy to rule out cervical

cancer. But previous studies suggest more than 50 percent of these biopsies are unnecessary and can result in pain, worry, infertility and higher costs.

"Our urine test would serve as a molecular triage," he says, "at times supplementing Pap test information. In countries without the money, medical infrastructure or cultural approval for Pap test, our test could be used instead."

The new study builds on the team's previously published work, in which investigators identified three genes associated with cervical cancer or lesions known to become cancerous: FKBP6, INTS1 and ZNF516. As abnormalities progress, these genes were more likely to have a chemical methyl group attached to their DNA in certain spots.

The researchers tested these genes as markers using 214 cervical cell samples collected from women undergoing Pap smears who ranged in age from 18 to 86. Among the test samples, 34 showed no abnormalities in their cervix; 87 showed one of three types of precancerous, abnormal tissue; and 90 showed evidence of cervical cancer.

Next, Guerrero-Preston's team isolated DNA from each tissue sample and used advanced genetic sequencing to read the DNA makeup of cells in the samples. The researchers then compared the number of methyl groups attached to each gene in samples from the 34 healthy women to 53 samples with a specific subset of precancerous markers.

Using methylation to diagnose malignancy, the three genes together showed a 90 percent sensitivity, meaning that their presence predicted a true positive cancer sample this percentage of the time. The test had an 88.9 percent specificity, meaning the percent of time the test correctly identified someone without the disease.

To improve the accuracy of the test, the investigators added a new gene marker to the test – one from the virus, HPV16-L1, – which also becomes methylated in human cells as cancer develops. They retested the four-gene combination on a new population of 115 women who ranged in age from 21 to 49; 41 participants had healthy cervical tissue, and 74 had one of three types of precancerous cells. Using four genes, the test now had a sensitivity of 90.9 percent and a specificity of 60.9 percent.

"When developing a new cancer screening test, we hoped for 90 to 95 percent sensitivity, which is competitive with the effectiveness of tests developed and now marketed in Europe," says

Guerrero-Preston.

The next step, the researchers report, was verifying that the four-gene test also worked using freely circulating DNA from blood and urine.

Using the DNA from blood, the test had an 85.7 percent sensitivity and a 60.9 percent specificity. Using urine, it had a 75 percent sensitivity and an 83.3 percent specificity.

They plan to continue improving the urine sensitivity to that of the cervical tissue samples.

Guerrero-Preston and his colleagues have a research agreement with Cepheid to develop a way to reduce the time for a test result from four days in the lab to under three hours in a Cepheid instrument.



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THE MODERN APPROACH TO DIABETIC FOOT

By Luca Dalla Paola MD, Diabetic Foot Department, Maria Cecilia Hospital GVM Care&Research, Cotignola (RA), Italy & Francesco Serino MD, Heart and Vascular Institute, Cleveland Clinic Abu Dhabi, UAE

DIABETIC FOOT MUST BE considered a syndrome. Two aspects are recognised: neuropathic foot and neuroischemic foot. Both entities have different pathophysiological moments, diagnostic-therapeutic phases and outcomes. It is only by recognising the factors capable of negatively influencing prognosis and correcting them (e.g. critical ischemia and revascularization, osteomyelitis and its surgical treatment, compartmental syndrome, emergency surgery) that we can reduce the number of amputations in the target diabetic population. The objective of this review is therefore to define therapeutic strategies in the various types of diabetic foot syndrome.

During the last 20 years, physiopathological knowledge and treatment methods for diabetic foot have progressively increased. The percentage increase in limb salvation in patients treated in multidisciplinary units is linked to improved treatment technique of an acutely infected foot, neuropathic foot, and the critical ischemic conditions of neuroischemic foot.

Epidemiology

One of the major clinical complications of diabetes is foot ulceration. Around 15% of diabetics encounter a foot ulcer at some point in their lives.

The natural history of diabetic foot syndrome is usually rapidly progressive and complex. Foot wounds can quickly progress to gangrene. Infection may spread rapidly leading overwhelming tissue destruction and amputation. 85% of amputations are preceded by an ulcer.

Neuropathy, critical limb ischemia and infection can come together in the diabetic foot and this combination can defeat every health system in the world. Successful management of this disease needs organized multidisciplinary expert teams.

Foot ulcers has important effects on the quality of life of both patients and caregivers and is associated with major health care costs.

Rates of amputation vary between countries, racial groups, and within countries, and may exceed 20 per 100.000 people. Ulcerations and above all amputations are made worse by incorrect prognosis. Morbidity and mortality rates are higher in the population with ulcerations. Mortality in the peri-operative period is high: 9% in a Dutch study and 10-15% in the UK. A retrospective paper by Aulivola et al. has shown the rate of mortality within 30 days of a major amputation (above or below the knee), reaching 10%. In a follow-up study of an amputated population, we have shown a 5-year survival rate of 50%.

The neuropathic foot

In diabetes there are two main types of diabetic foot, each of which has characteristic ulceration: firstly, the neuropathic foot which envelops ulceration at the sites of high mechanical pressure on the plantar surface. Neuropathic ulcers also result from thermal or chemical injuries that are unperceived by the patients because of loss of pain sensation.

Neuropathy is associated with an 8- to 18-fold higher risk of ulceration and a 2- to 15-fold higher risk of amputation. The mechanisms through which neuropathy acts as a pathogenetic event for ulceration and thus to amputation are complex and different. Above all, the reduction of protective sensitivity (including sensitivity to pain and heat) leads to a reduction in the perception of pain stimuli. Moreover, the motor component of neuropathy involves a progressive weakening of the intrinsic muscle component made up of interosseous and lumbrical muscles. It reveals itself as a deformation in toe flexion and the formation of overloaded plantar areas, identifiable from under the metatarsal heads and the tips of the toes. Thirdly, the autonomous component of neuropathy causes anhydrosis and dry, flaky skin, as well as an increase in arterio-venous shunting, leading to



altered skin and bone perfusion.

It has been widely demonstrated that a biomechanical foot alteration, which includes an increase in plantar pressures, bone abnormalities, mobility limitations, and equinus, are all linked to a significant increase in the risk of ulceration.

The clinical characteristics of the neuropathic lesion are as follows: development of an overloaded area, surrounded by a callous formation before the development of the lesion, without painful symptoms.

Neuropathic foot ulcer

The risk of the lesion worsening in terms of both progressive deep tissue destruction and infection, is linked to the co-existence of an ischemic component. Therefore, peripheral vascular disease must be excluded in the initial assessment of an ulcerated lesion with clinical characteristics proper to those of a neuropathic lesion.

The literature clearly highlights how offloading is essential in cases of plantar neuropathic lesion. Simple offloading techniques are multi-faceted and include casts and boots, sandals, half shoes or felted foam dressings. The use of a non-removable cast has recently been shown to be faster treatment for plantar neuropathic ulcers than a half-shoe.

The first step in treating an uncomplicated ulcerated neuropathic lesion is local debridement, dressing, and offloading. However, clinical conditions exist in which surgery becomes the treatment of choice. Indications for surgical treatment of plantar neuropathic ulcers are

essentially: 1) co-existence of osteomyelitis 2) plantar exostosis which puts healed wound at a high risk of recurrence 3) chronically ulcerated wounds resistant to conservative therapy.

Charcot neuropathic osteoarthropathy (CN) is a disease which, further to the progressive alteration of the bone structure of foot and/or ankle, leads to the development of serious deformities with high risk of ulceration, infection and, as a consequence, to major amputation. Prevalence of the disease is not well known but in literature it varies from 0.08 to 7.5%.

The physiopathological process may lead to progressive formation of deformities and subsequent ulcerations close to the pathological weightbearing areas. The development of infection and osteomyelitis, after the onset of an ulceration, may become a dangerous complication that leads to an increased risk of amputation unless an effective treatment, either non-surgical or surgical, is set in place. In literature ulceration is described in 40-50% of the patients affected by CN.

Once there is evidence of soft tissue infection and/or osteomyelitis, the risk of undergoing amputation is high.

The onset of a skin lesion may lead furthermore to high risk of death.

The treatment of CN complicated by ulcerations, infection and osteomyelitis requires not only an appropriate antibiotic therapy but also and adequate surgical debridement treatment of soft tissues and osteomyelitis foci.

Also, negative pressure wound therapy and the use of dermal substitutes and/or skin grafting may

be useful for healing surgical sites after treatment of infected bones.

The removal of osteomyelitis foci must be, in many cases, combined with an adequate procedure for correcting the deformities and stabilization/fusion. Use of external fixation method may be useful. The goal of therapy is the eradication of bone and soft tissue infection associated with stable fusion, allowing ambulation and reduced risk of re-ulceration.

Principles of treatment of the neuroischemic foot

The neuroischaemic foot has both neuropathy and ischemia. It develops ulcers on the margins of the foot and toes, often at sites of pressure from poorly fitted shoes. This pressure is unperceived because of a coexisting neuropathy. The main characteristic of PVD in diabetics is the morphological and clinical presentation. Painful symptoms are often reduced or absent, due to the co-existence of neuropathic sensitivity, and medial arterial calcinosis (MAC) is common. These characteristics make PVD in diabetics more difficult to diagnose and therapy more problematic than in non-diabetics. They also means that PVD plays a fundamental role in the prognosis of major amputation. Nevertheless, since the 1990's, revascularization procedures have been proved feasible options compared with initial thinking. Procedures ranging from distal revascularization to angioplasty and by-pass interventions have all been able to change the original prognosis of amputation.

Certainly endoluminal or surgical revascularization is the only treatment capable of reducing the number of major amputations significantly. This is amply shown in literature. Revascularization can restore direct arterial flow where it has been interrupted or significantly reduced. This is an indispensable condition for healing a wound in an ischemic foot without resorting to amputation.

Revascularization principles

For many years there has been a misconception concerning the principles around the revascularization of a diabetic foot. This was consequences of the usage of scholastic classifications (Fontaine or Rutherford) which never distinguished diabetic from non-diabetic arteriopathy, being centered on clinical findings. According to those classifications, the presence of any foot lesions (ulcer or gangrene) was enabling the definition of "Critical Limb Ischemia", independently by the underlying status of the ischemia. For example, a case of a non-diabetic patient with three levels of arterial obstructions, leading to an arterial brachial index (ABI) of 0.4

evaluations, is to abandon of a non-specific category of "CLI" when dealing with diabetic foot lesions and, consequently, to avoid the associate, here unreliable, "limb salvage" as outcome target: The Eurodiale study clearly showed that foot lesions, in absence of infection, do not lead to an 100% limb loss as any true- CLI case and wound healing is achievable in 77% of cases. The associated presence of ischemia was the only adverse prognostic factor, decreasing wound healing rate.

Healing, thus, non "limb Salvage" is the only reliable outcome measurement in cases of diabetic foot lesions and, most appropriately, the term "Critical Foot" would better define those cases, being the foot integrity, its biomechanic functionality and freedom from lesion relapsing, the only valuable outcome of our intervention.

The determination of "wound healing" as clinical target for multidisciplinary management of a DFU, impose the consideration of an other concept which has been shown to effectively influence wound healing: the angiosome concept. Introduced in 1997 by Attinger, as a transposition to the foot of an established concept in plastic surgery or in cardiac surgery, this concept is based on the assumption

be the same: to secure a direct line flow to the angiosomal specific feeding artery, - needles to say- if the choice is given.

Roughly dividing the leg and foot vascular territories into three levels, tibial (three crural vessels), metatarsal (dorsal and plantar circles with tarsal collaterals) and digital, the intervention should be targeted in reaching any following viable levels to reach the angiosome(s) affected by the lesion (either at digital, metatarsal, tarsal level). In case that direct angiosomal revascularization would be technically impossible, as in many cases, the same schematic approach can reliably predict the possibility for the foot lesion to heal and be useful in planing bail out strategies or expected level of adjunctive minor amputations. In this regard, also the choice of different methods, which have different efficacy profiles and lives, need to be tuned with the single case, clinic, age and prognosis: immediate revascularization "to reope in any way at any cost" versus more durable strategies.

In a DFU, revascularization is a fundamental support to healing and methods and timing need to be entangled with other therapies. The old "CLI time" heroic representations of "one man band"

microbiological examination after exclusion of the ischemic component. Clearly revascularization must be postponed until after acute treatment of infection.

Infections that do not pose an immediate threat of limb loss are defined as 'non limb-threatening', and are generally characterized by the absence of signs of systemic intoxication. Infections defined as 'limb-threatening' show extended cellulitis, deep abscesses, osteomyelitis or gangrene. Ischemia characterizes a superficial lesion as limb-threatening.

Acute infection (phlegmon, abscess, necrotizing fasciitis) is an emergent condition that can threaten not only the limb but also the patient's life. It requires evaluation, and immediate hospitalization and treatment. The infection may be due to progressive destruction of soft tissues, involvement of bone, the need for surgical treatment, and possibly amputation.

The development of infection constitutes a foot care emergency, which requires referral to specialised foot care team within 24 hours. Surgical management of moderate to severe diabetic foot infection is often required and includes aggressive

The Wifi classification clearly accounts all different possible interactions between the wound characteristics, the grade of ischemia and presence and grade of foot infection and their combined effect on determining risk for major amputation.

and dry gangrene of forefoot would be classified in the same group of a diabetic patient with an ulcer of the 1st toe with a single obstructions of an anterior tibial artery and patency of the posterior tibial artery. This explain, without surprises, the classical discrepancies between revascularization procedures patencies and clinical outcomes in diabetic patients, leading to better clinical outcomes, even in case of by pass obstructions or relapse of disease after angioplasty as well as opposite findings. This systematic mistake had caused unreliable trials results leading to an extremely poor scientific evidence even in case of well designed studies or valid products investigations. It is clearly established, as stated in the introduction, that the etiology of a foot lesion in a diabetic patient has multiple, interacting and synergistic causes, among which ischemia, when present, is one of the most valuable in determining chance of limb salvage or loss. Only recently, finally, a new omni comprehensive and multi disciplinary classification method, called "Wifi", was release, finally leading to a more specific and selective patients stratifications, thus allowing better homogeneity of groups, enabling fair comparisons of outcomes in clinical trials investigating on strategie, devices or drugs.

The Wifi classification clearly accounts all different possible interactions between the wound characteristics, the grade of ischemia and presence and grade of foot infection and their combined effect on determining risk for major amputation.

Direct implication of this approach in case

that, especially in case of diabetes or/and end stage renal disease (ESRD), foot vessels act, functionally, as terminal vessels, being the physiology of the collateralization by so called "choke" vessels abolished. When clinical results are analysed according to this concept, there is a constat increase of wound healing rate (or amputation avoidance) when the specific angiosome directed vessels are revascularised instead of "indirect", random, ones (as historically done as believed effective as in non diabetic CLI).

The implication of this is huge, when considering that the main goal for revascularization, in case of a DFU is increase the correspondent target zone reoxygenation. The classical concept, based on achieving a distal arterial pressurization above 50 mm Hg, which is well established as effective in overcoming CLI, has been already shown as insufficient in case of diabetic foot, where revascularization is necessary even in presence of mild arterial disease, with and ABI below the threshold of 0.9, underlying the importance of the revascularization as support for healing.

As distal pressure guidance is often impaired in diabetic or ESRD patients, zone TcPO₂ level may better indicate the relative hypoxigenation of the lesion, thus the lower chance of healing. In this regard, the newly introduced implantable biosensors may be of huge impact.

"Distal and Selective"

A discussion on techniques and devices is out from the scope of this article. However, for any approach, either surgical, endovascular or hybrid, and for any technique, the guiding principles should

limb salvager (often armed with balloons and wires) should give the way to the figure of vascular surgeons or therapist as co-protagonist in an well organised and experienced multi disciplinary orchestra, where the timing and tone of the "vascular solo" is clearly set by the director, case by case.

Treatment of infection

There is increasing acceptance of the importance and impact of diabetic foot infection in terms of both health-related quality of life issues and associated economic burdens. Diabetic foot infections are one of the most common diabetes related causes of hospitalisation in the United States, accounting for 20% of all hospital admissions. Readmission rates for diabetic foot infection patients are approximately 40% and nearly one in six patients die within one year of their infection.

Accordingly, prompt diagnosis and treatment of infection is crucial. Guidelines on the diagnosis and treatment of diabetic foot infection have been issued from the Infectious Diseases Society of America (IDSA).

Cases of serious soft tissue destruction, osteomyelitis and compartmental syndrome (progressive infection through plantar and dorsal compartments) are true medical and surgical emergencies.

Infection of soft tissues, progressive compromise of deep tissues, and the development of osteomyelitic foci are the points which separate conservative treatment from a more aggressive surgical approach. This stage must include careful therapeutic planning, which should rely upon

incision, drainage and debridement of non-viable soft tissue and bone. Multiple debridements are often necessary to provide adequate drainage and control of infection.

In many cases, rapid treatment is absolutely essential in effectively treating an acute wound in a diabetic foot. It is often necessary to turn to surgical treatment, carried out in emergency, without considering limiting factors such as metabolic compensation, patient's nutritional state or vascular condition. In this specific environment, surgical debridement presents advantages over other forms of debridement (enzymatic, physical, chemical). In less urgent cases, patients can be treated on the ward or in bed, without need of anesthesiologic support. In cases of wider and deeper infections an operating theatre is required for adequate debridement and drainage. This is especially true in cases with bone involvement.

Care organizations

The diagnostic paths and treatments examined above are certainly the fruit of a multidisciplinary approach. The optimal way of improving prevention and treating patients with diabetic foot complications is to create an independent and dedicated multidisciplinary team. In many situations, where the social health impact of the problem has occurred, the decisive step toward facing the problem in a new way has been the creation of specialized centers.

The so-called 'foot clinics' have various characteristics depending on the healthcare environment in which the various specialists work.

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OSTEOTOMIES AROUND THE KNEE

Update in planning, surgical techniques and rehabilitation

By, R.J. van Heerwaarden MD PhD, International Knee & Joint Centre, Abu Dhabi

Deformity Analysis and Planning

Deformities around the knee can occur in all 3 anatomical planes of reference. There are frontal plane deformities (i.e. genu varum and genu valgum), sagittal plane deformities (i.e. genu procurvatum and genu recurvatum), and transverse plane deformities (translation and torsion). Deformities can even occur in the so called oblique plane (i.e. in between the frontal and sagittal planes). Since the most frequent and relevant deformities around the knee occur in the frontal plane, the focus is on these deformities.

Deformity in the frontal plane will increase the distance from the centre of the knee to the mechanical axis and thus create a moment arm at the knee joint. The medial compartment is predominantly loaded in a varus knee; a neutral mechanical axis loads the medial slightly more than the lateral compartment, and in valgus alignment, the main load runs through the lateral compartment. It has been shown that frontal plane malalignment around the knee is associated not only with progression of knee osteoarthritis but also with the development of knee osteoarthritis. Therefore axis deformities around the knee are regarded as pre-arthritic deformities. The goal of correctional osteotomies around the knee is the transfer of mechanical load from the diseased areas of the joint to the healthy compartment of the knee e.g. unloading of the medial compartment can be achieved with a high tibial osteotomy aimed at slight valgus overcorrection. The success of correctional osteotomies around the knee highly depends on an accurate preoperative analysis of the deformity as well as accurate planning of the deformity correction.

A thorough radiographic examination is indispensable to understand the true nature of the deformity. Preoperative evaluation for frontal plane corrections around the knee includes AP weight-bearing views in full extension, 45° flexion PA weight-bearing view (Rosenberg view), lateral views and skyline views of the patella. These allow an assessment of the extent and localisation of knee osteoarthritis including the patellofemoral joint. The AP full leg standing radiograph is considered the gold standard for measuring alignment and joint orientation angles of the distal femur (mLDFA) and proximal tibia (MPTA) and distal tibia (LDTA) and serves as the basis for the planning of osteotomies in the frontal plane (Figure 1). Standardized calibrated radiographs with the knee in full extension and in neutral rotation (patella forward on the AP projection) are necessary for such measurements.

Each axis deformity around the knee should be described in terms of its magnitude, level (the apex of the deformity, i.e. the CORA), plane (frontal, sagittal, transverse) and direction (valgus, procurvatum, recurvatum, etc.).

The goal of correction is different for different conditions. Neutral alignment is the

goal for posttraumatic conditions without knee osteoarthritis. In varus alignment associated with medial compartment osteoarthritis of the knee some degree of overcorrection to unload the affected compartment is desired. In lateral compartment osteoarthritis associated with valgus alignment correction to neutral often sufficiently unloads the diseased compartment.

It should be noted that soft tissue laxity, and cartilage and intra-articular bone loss contribute to the overall varus or valgus deformity. This portion of the deformity does not require bony correction and should be accounted for when planning the osteotomy to avoid overcorrection.

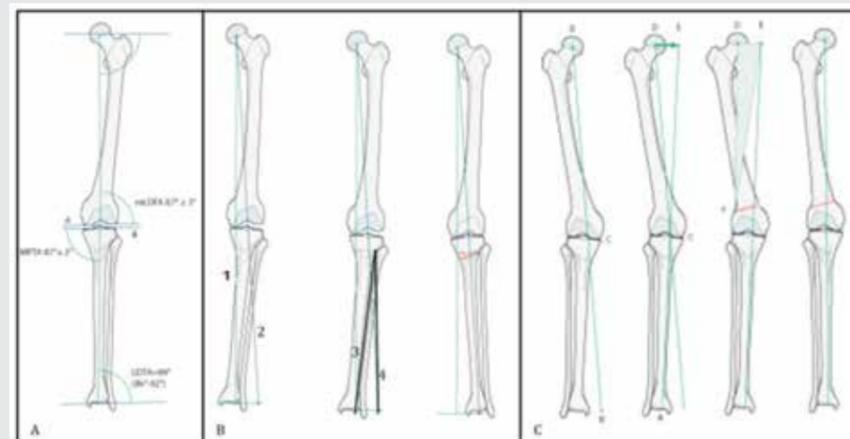
Besides proper patient selection criteria, the achievement of the optimal amount of correction is key for the success of osteotomies around the knee. Both under- and overcorrection lead to failure of the osteotomy and poor results. Systematic deformity analysis helps to recognize the magnitude, level, plane and direction of the deformity. Not seldomly and especially in larger malalignments the deformity is localized in the femur as well as in the tibia (Figure 2). Once the nature of the deformity is understood the correctional goal has to be defined. Finally, a careful and precise planning will help to achieve the desired correction.

Indications, Surgical Technique and Rehabilitation - High Tibial Osteotomy Objective criteria in which patients High Tibial Osteotomy (HTO) should be performed are not defined to full extend. Concerning age, there is no definite cut-off; nevertheless, some authors prefer HTO in patients younger than 65 years. This seems to be justified also against the background of a higher activity level. Even progressed osteoarthritis of the medial compartment seems tolerable and non-symptomatic cartilage defects of the patellofemoral joint do not significantly influence clinical outcome. Smoking seems to delay consolidation of the osteotomy gap and is therefore considered an exclusion criteria by some authors.

Concerning the type of varus deformity, the tibial bone varus angle (TBVA), which describes the amount of extraarticular metaphyseal varus of the proximal tibia, has been described as a reliable prognostic factor, which is associated with good clinical outcome. The question of the minimal amount of varus deformity that requires realignment still remains unclear. Recent studies demonstrate additional positive effects of HTO when performed in combination with cartilage repair even in mild varus deformities in patients suffering of isolated cartilage defects of the medial femoral condyle.

Since the introduction of HTO, the surgical technique has evolved. Recently the opening-wedge technique (OW-HTO) has become more popular, since it provides some potential benefits including less risk of intraoperative damage of the peroneus nerve, less soft tissue damage and the ability of continuously variable

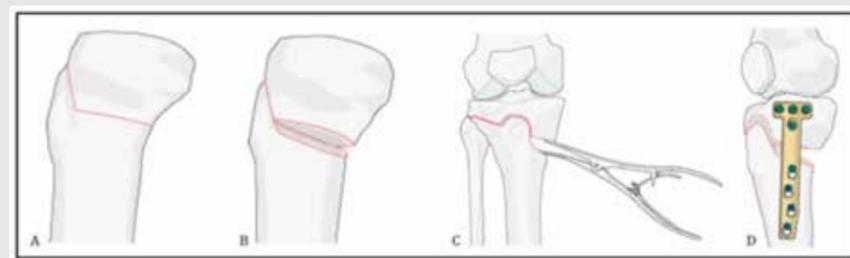
▼ **FIGURE 1:** A. Deformity analysis: mechanical leg axis with the joint orientation angles of the distal femur (mLDFA) and proximal tibia (MPTA) and distal tibia (LDTA). B. Planning for valgization opening wedge HTO correction. C. Planning for varization closing wedge DFO correction



▼ **FIGURE 2:** Patient with large varus deformity. A. Standing full leg weight bearing view shows varus in both the femur and the tibia. B. Knee AP view after double osteotomy: lateral closing wedge distal femoral osteotomy combined with medial opening wedge high tibial osteotomy. C. Standing full leg weight bearing view of corrected leg. D. Patient standing with corrected left leg.



▼ **FIGURE 3:** A. Sagittal plane view of open wedge HTO biplane cuts. B. Sagittal plane view after opening of the wedge. C. Frontal plane view of open wedge HTO with bone spreader. D. Oblique plane view of open wedge HTO with internal fixator plate fixation.



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correction. Concerning the surgical technique, biplanar, intraligamentous OW-HTO has been recommended (Figure 3) Using this technique, rotational stability is provided by the biplanar osteotomy approach. Furthermore, the tibial tuberosity is preserved and remains attached to the distal main fragment. In patients with preexisting patella baja, the biplanar technique can also be modified in terms that the tuberosity osteotomy is performed directed distally. Further advantage of the biplanar technique is the significantly higher bone healing potential as compared to the uniplanar technique. The osseous consolidation starts in the anterior part of the osteotomy, since the direct bone-to bone contact is preserved between the tuberosity and the proximal tibia. Concerning collateral ligaments, a controlled release of the medial collateral ligament is essential in order to achieve unloading of the medial compartment.

For OW-HTO specific implants are needed in order to stabilize the osteotomy. Among those implants internal plate fixators have been proven superior concerning biomechanical properties. This is of clinical relevance regarding rehabilitation such that early full weight-bearing is possible and safe. In clinical studies using RSA the safety of early full weight bearing with internal fixator plate fixation for OW-HTO has been proven.

Indications, Surgical Technique and Rehabilitation – Supracondylar Femur Osteotomy The objective of a varization Supracondylar Femur Osteotomy (SFO) is a shifting of the mechanical axis from the lateral towards the medial compartment in patients with lateral osteoarthritis in combination with valgus deformity. Besides

patients with osteoarthritis of the lateral compartment in combination with valgus deformity of the (distal) femur indications for this procedure consist of patients with posttraumatic and congenital valgus deformities of the (distal) femur. Contraindications for SFO consist of patients with osteoarthritis of the medial compartment (\geq grade 3 on Outerbridge Scale) and patients that have a total loss of the medial meniscus after previous surgery. Furthermore acute or chronic infections around the knee as well as rheumatoid arthritis are reasons to exclude patients. Finally, patients with knee extension or flexion deficit $> 20^\circ$ and poor soft-tissue conditions on the site of surgery as well as heavy smokers should preferably not be indicated for SFO.

In the last years the preferred surgical technique of the SFO has evolved to a biplanar medial closing wedge technique (Figure 4). In this technique a medially based wedge is removed using incomplete sawcuts ending at a hinge point within the lateral cortex from the posterior $\frac{3}{4}$ of the bone. After that a third sawcut is made proximally in the anterior $\frac{1}{4}$ of the bone parallel to the posterior femur cortex. After wedge removal and closure of the wedge fixation is performed with an internal fixator implant. Biomechanical testing has shown that the biplanar SFO with internal fixator plate fixation shows superior fixation strength as compared to previously performed single plane SFO's and lateral opening wedge SFO techniques (Figure 5). The new technique reduces rehabilitation time after SFO due to decreased time of partial weight bearing until 4-6 weeks after surgery which due to increased bone healing potential corresponds to the mean time to full bone healing.

▼ FIGURE 4: A. Hinge point and saw cut direction for medial closing wedge SFO. B. Biplane SFO after wedge removal. C. Biplane SFO after wedge closure and fixation with internal plate fixator.



▼ FIGURE 5: Patient with femoral valgus deformity. A. Standing full leg weight bearing view shows valgus leg alignment and valgus deformity of left femur. B. Knee AP view after medial closing wedge SFO. C. Knee lateral view after medial closing wedge SFO. D. Standing full leg weight bearing view after plate removal. Patient standing with corrected left leg.



Vims Presents The First Ultra-HD Video Endoscope At Arab Health 2017

For its first appearance at Arab Health, VIMS is bringing a breakthrough technology. From January 30 to February 2, 2017, the French leader in laparoscopy will be exhibiting an endoscopy column aimed at simplifying the preoperative phase. It is designed to consist of the smallest possible number of devices: a one-piece videoscope and a single-use sterile sheath. This level of rationalization confirms the expertise of video surgery equipment supplier VIMS, which has been at the leading edge of medical imaging technology for nearly 25 years.

The market for minimally invasive surgery is expanding fast, boosted in particular by rising life expectancy. Thanks to R&D efforts, outpatient surgery is on the increase, to the great satisfaction of public and private institutions that have to keep more and more their costs under control. Furthermore, surgeons need efficient and easy-to-use equipment to reduce the time required to prepare for operations. VIMS, which develops and markets integrated 4K visualization solutions for minimally invasive surgery (laparoscopy and arthroscopy), has designed the system to make surgeons' live easier:

- A single 'on' switch; all adjustments are automated.
- A 4K visualization system with a perfect image that creates a 3D depth effect, enabling surgeons to do their

job comfortably without the need to wear glasses.

- The VIMS hardware is equipped with a broadcast system so that surgeons can film their work unaided, be seen and heard and communicate with other surgeons in real time (users of competitor systems need a camera crew consisting of a camera operator and a sound recordist to obtain the same results but without live broadcast capability).

- The new OpenVcam range takes broadcasting further to help with the learning process for interns.

- The system uses single-use active sterile sheaths (protected by a worldwide patent) to cover the endoscope.

EndoVIMS® and ArthroVIMS® are the only ultra-HD 4K video endoscopes in existence dedicated to laparoscopy and arthroscopy procedures. The two systems offer integrated solutions including the following:

- digital processor
- digital video recording and photo capture capability
- 27" and 32" ultra-HD screens
- ultra-HD camera (2160p 4K)

Key characteristics of VIMS cameras:

- Image definition two to four times higher to that offered by the competition
- At 60 images per second, VIMS camera is twice as

effective as a traditional camera.

EndoVcover® is the only single-use active protection on the market which is intended to surgical surgery and is equipped with technology that increases light penetration so as to give very high-quality video across small diameters.

Active sheath technology is patented in all key countries.

Company chairman Henri Fernandez says, "VIMS is very happy to be attending the Arab Health Congress for the first time. I hope our avant-garde products, which represent a technological breakthrough, will be of interest to visitors, and that we will be able to discuss our vision of surgery both today and in the future."

From January 30 to February 2, 2017, VIMS will be exhibiting in the France Pavilion at Arab Health (Hall Zabeel 2, Stand E32).

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