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SPECIAL RADIOLOGY INSIDE FROM PAGE 14 TO 29

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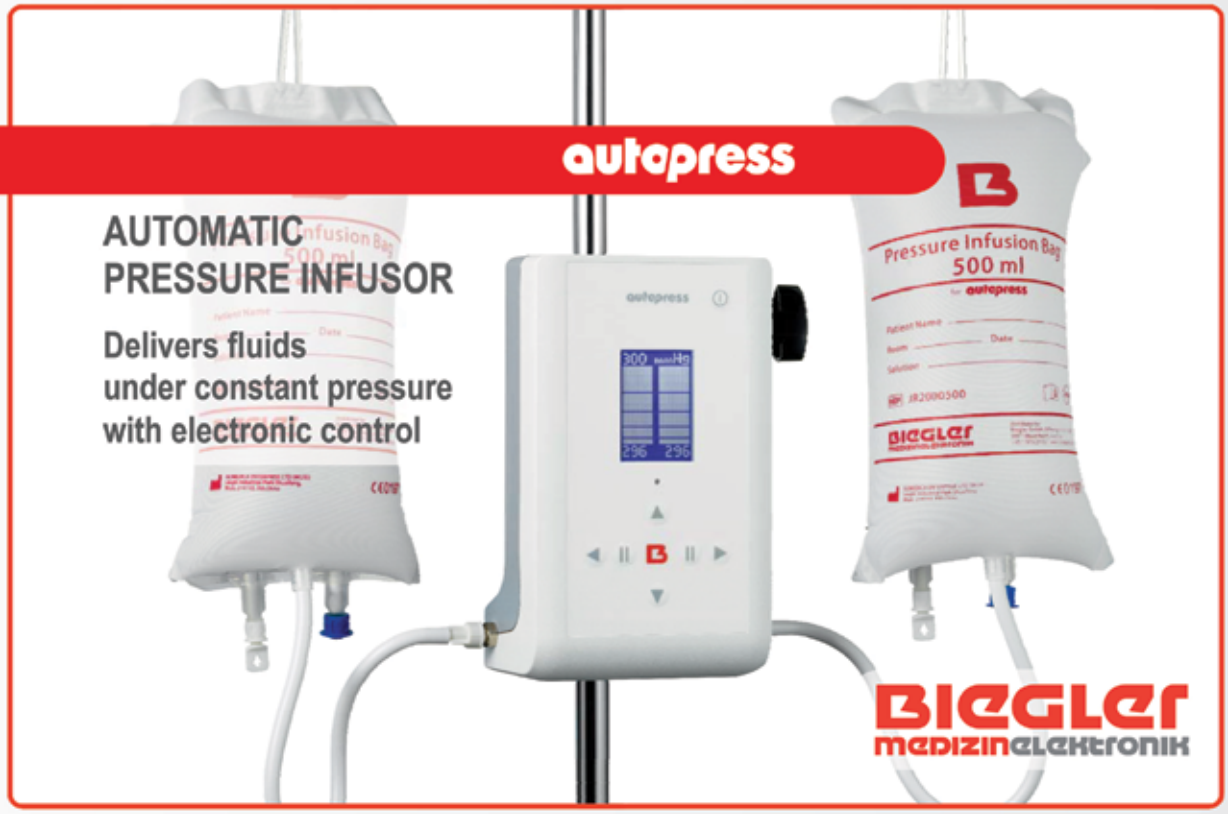

Automatic Pressure Infusor

BIEGLER GmbH develops and manufactures medical devices and disposables for over 40 years. Biegler serves their customers by offering them not only high quality products and services but comprehensive and personal support as well.

The company based in Austria / Europe introduced the AUTOPRESS device as an important part of its fluid warming philosophy. Autopress works directly with Biegler blood and infusion warmers to deliver blood and fluids at high flow rates or as a stand-alone unit to deliver fluids at constant pressure up to 300 mmHg wherever needed.

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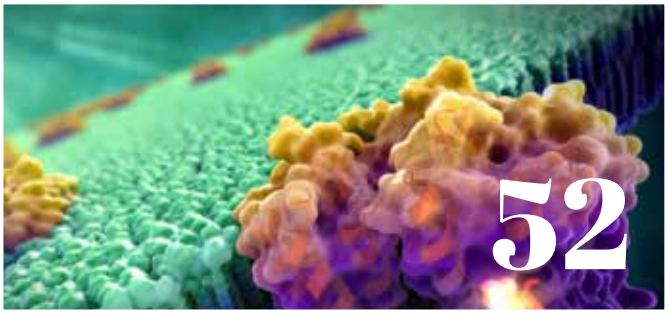

A HEALTHY LOOK INTO BODY CELLULAR MEMBRANES

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WHAT ABOUT DIGITAL?

For years, we have been engaged in the print vs digital debate and the never-ending question of "which is better?"
But what if we tell you that these two methods aren't enemies, but allies? There are a lot of opinions regarding print and digital means, as well as whether this argument has any validity at all. Some say print is dying. We say it gained a partner to expand its business.
Let's look at the facts. In 2018, a U.S. printing company, Freeport Press, conducted a survey where they received feedback from 1,226 magazine readers on their preferred format for publications. Their findings may surprise you!
Approximately 41% of readers read 1-2 print magazines a month, 33% read 3 or more while only 28% read 1-2 digital magazines a month. 55% of respondents had not read a digital magazine in the past month.
You may think that print is the winner, right? Wrong. This is the assumption that has led many publications to miss out on key opportunities to grow–or even save–their business. Think about it. When you calculate 28% of 1,226 people, that's almost 343 people. That's 343 potential readers print magazines are missing out on.
So, what if print publications tapped into this resource? They could deliver digital versions of their magazine to subscribers with a click of a button.
While the internet is a great resource and many people use it to quickly read up on the news and various niche stories, print magazines are viewed as more leisurely formats. Many readers classify sitting down and reading a physical magazine as a form of relaxation, taking their time to focus on it. It gives them a break from the screen they spend a good portion of their day staring at while at work.
Yet where it excels, it also lacks. Digital magazines have many advantages, one of the primary ones being convenience. They are easy to access, and whether you are on the computer or scrolling through the mobile phone, you won't have trouble reading a digital magazine if it's designed correctly.
Digital magazines have unique advantages over their print counterparts. Just like a physical magazine has its own feel and smell, digital magazines carry an advantage unique to its platform: interactive features. You can view videos while you are reading, you can share it with your friends and family, and you can track analytics based on how your readership interacts with an issue.

The more you consider it, the more it seems ridiculous to choose one or the other when print and digital mediums work together so well.
Isn't it time to start seeing their synergy? Both print and digital mediums have their place. Let them work hand-in-hand with you to grow your readership or business. With unique advantages to each, you can build your publication strategy around the pros that work best for your target audience.

A big change is taking place in the market. There's now too much writing online, and in an era of fake news, where you get your analysis from has never been more important.

But serious times call for serious journalism, something editors are paid to conjure up; that is what **Infomedix International Press Office** is doing and working on. We believe to have found the right balance between physical and digital content. We believe in quality.
A big change is taking place in the market. There's now too much writing online, and in an era of fake news, where you get your analysis from has never been more important. As newspapers and magazines are finding out, if you can publish writing that is consistently and significantly better than what can be found online, you'll gain loyalty from readers.
We have, for this, created a digital platform as container of extraordinary amount of news and press releases from all over the world and from which we can draw on for medical world news, to double check the sources and to publish in both the digital and printed formats. We will turn general-interest daily news into an almost universally available commodity in the internet, so that it can be quickly shared, and readers can move on to the next morsel. On the contrary, specialist-focused journalism - which is still a service people value and think they can't get elsewhere - will remain our milestone on the Infomedix International printed version. In this same context, a new digital interactive section will help distributors find new global business through our "Distributors Wall" on-line.
So, we ask you all to send to our Press Office scientific and trade news, press releases, classifieds for the "Distributors Wall" for all of us to share.

For news and press releases: pressoffice@infomedix.it

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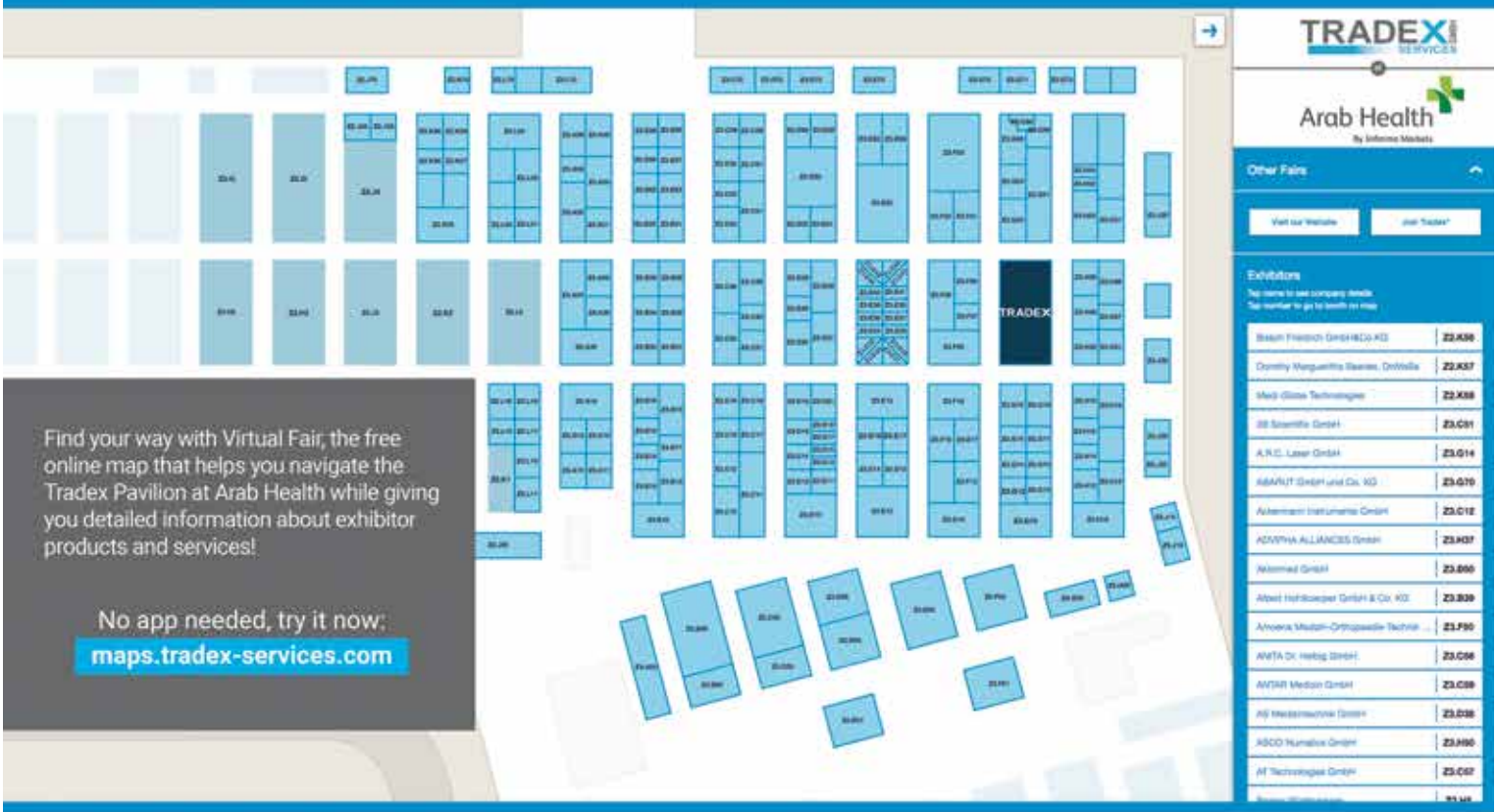

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WHO 2017: Urinary Incontinence (UI) affects 10-36% of population.
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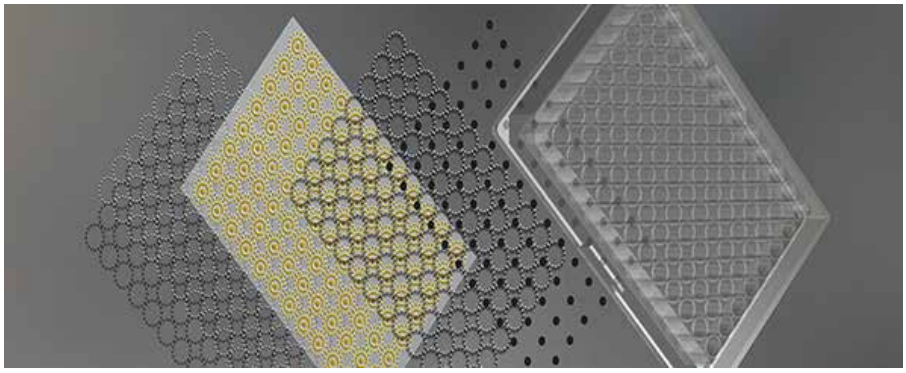

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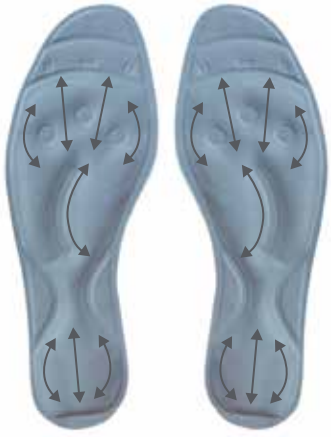
Probody: Groundbreaking New Sensational Solution for Diabetic Feet and Sore/Swollen Feet

One of the world's pioneers in liquid footwear have recently gained reimbursement status at the NHS in the UK for its truly sensational invention: A liquid footbed insole. The invention has obtained two European and four American patents. The insole has a number of flow channels within the bladder in order to obtain directional stability and improved pressure distribution during prolonged standing and walking. In the north of the heel is one flow channel so as to allow liquid to accumulate in the heel during instep. In the midfoot is a flow channel substantially matching the longitudinal arch, in the forefoot channel to match the flow of liquid to the transverse metatarsal arch. The liquid insole invention has two major applications: (1) prevention of ulceration under diabetic feet and (2) relief of sore, tired, aching and lightly swollen feet (similar to compression stockings). The liquid insoles have been scientifically tested and the results are published in the British Journal of Diabetes and Vascular Disease. The test showed the ability of the liquid insoles to prevent ulceration under diabetic feet and to improve the venous return from the foot via improved mmHg (Tcp02-test). Recently, the company has developed a range of therapeutic comfort shoes with said liquid insoles fitted inside as a removable insole. It is the first time ever in the world that liquid shoes with proven benefits have been launched. The liquid insoles have also been empirically tested by the Occupational & Safety departments at large companies, such as Arla Goods and Coop, results showing relief of sore, swollen feet during prolonged standing and walking.



In the north of the heel is one flow channel in order to facilitate that the liquid accumulates in the heel area during instep and leaves the heel into the midfoot at a low flow rate. In the midfoot the design is made so as to form a substantially longitudinal arch of liquid flow, in the forefoot area a number of flow channels so as to match the flow to the transverse metatarsal arch. The purpose is to match the flow of liquid to the anatomical structure of a normal foot so as to provide improved pressure distribution and directional stability during walking and standing.

Manufacturing is made in western Europe according to ISO 9000 standards, both shoes and liquid insoles are CE-registered according to EU directive 93/42
See **www.diabetes-einlagen.de**
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Contact: Henning Schoesler

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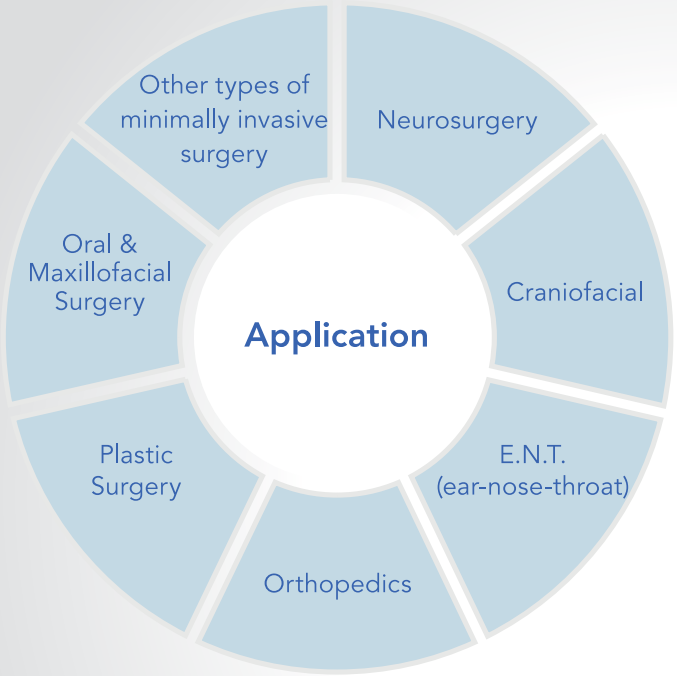

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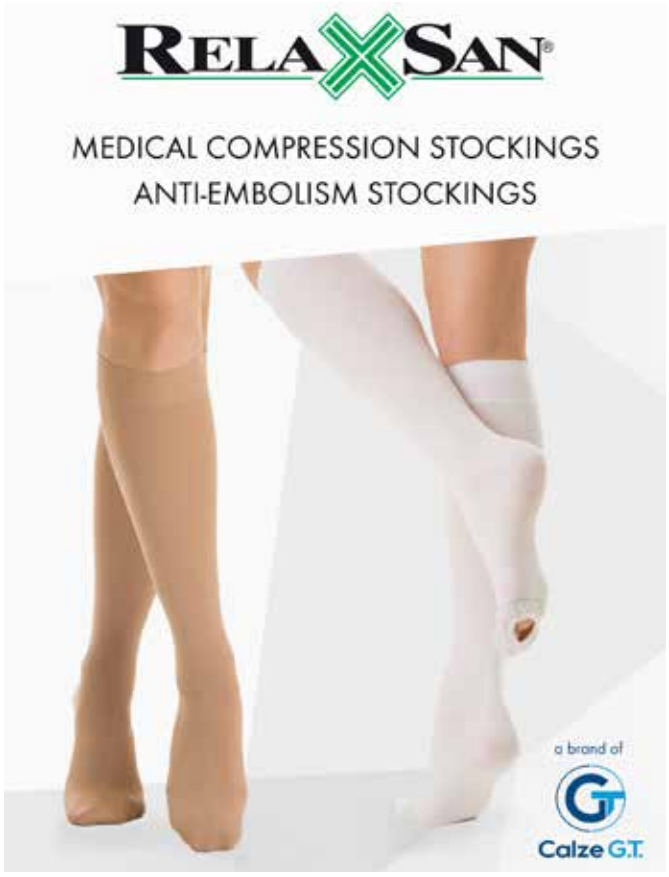

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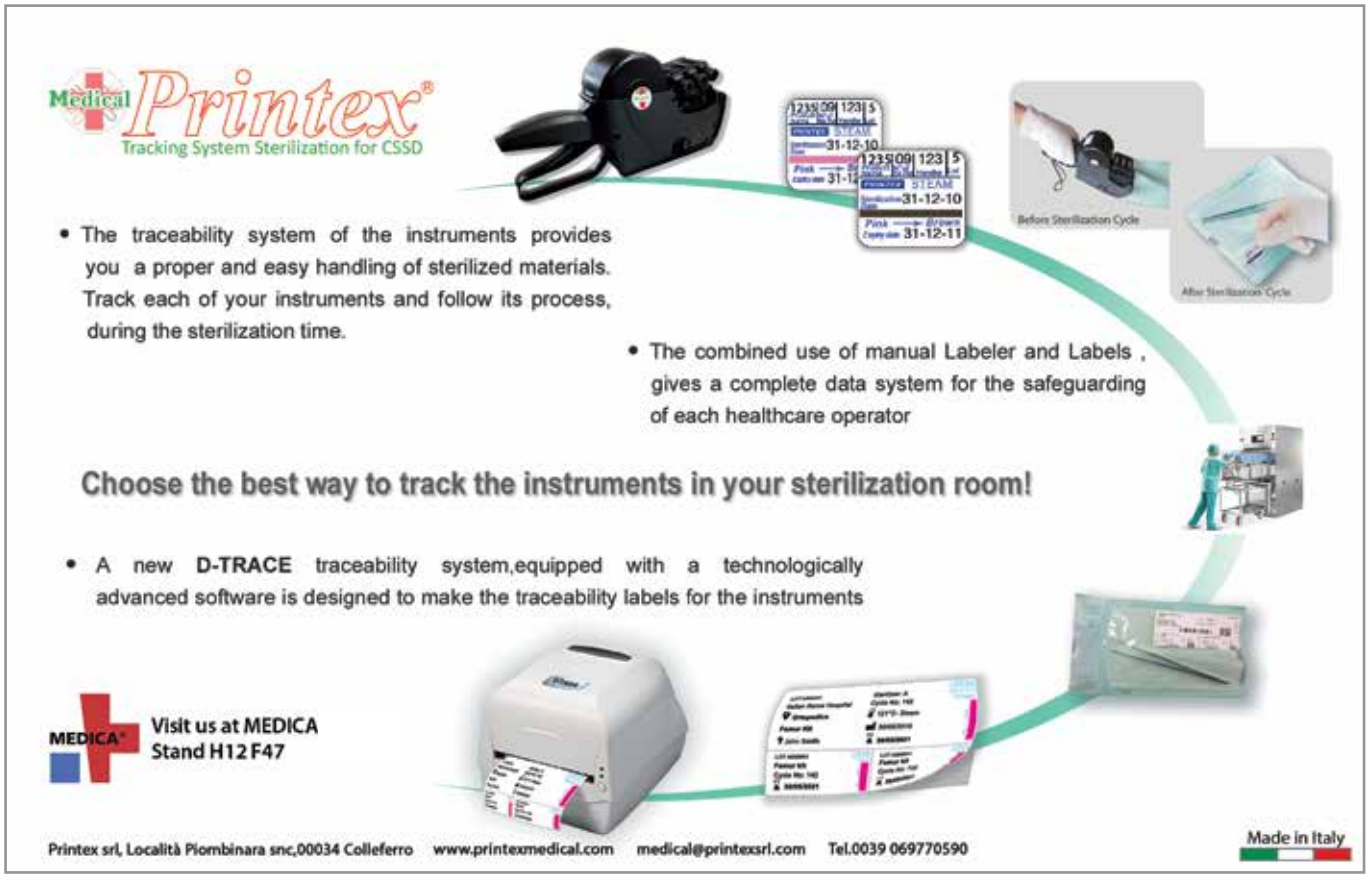

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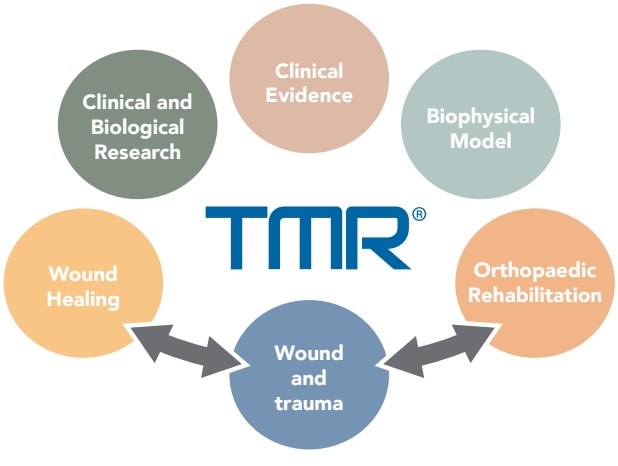

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Mini 'magic' MRI scanner could diagnose footballer knee injuries more accurately

Researchers at Imperial College London have developed a prototype mini MRI scanner that fits around a patient's leg.

June 28, 2019 - The team say the device—which uses so-called 'magic angle' effect—could potentially help diagnose knee injuries more quickly, and more accurately. In a proof-of-concept study using animal knees, the results suggest the technology could be used to show all the structures of the knee.

The scientists say the device (which looks like a large metal ring through which a patient places their leg) could help diagnose conditions such as anterior cruciate ligament injuries—particularly common among footballers.

Furthermore, the small size of the device could enable it to be used in local clinics and even GP surgeries, potentially reducing NHS waiting times for MRI scans. The research was funded by the National Institute for Health Research.

Currently, key components of the knee joints such as ligaments and tendons are difficult to see in detail in the MRI scans, explains Dr. Karyn Chappell, a researcher and radiographer from Imperial's MSK Lab: "Knee injuries affect millions of people—and MRI scans are crucial to diagnosing the problem, leading to quick and effective treatment. However we currently face two problems: connective tissue in the knee is unclear on MRI scans, and people are waiting a long time for a scan." Dr. Chappell added: "This can cause particular problems for women, as they are at greater risk of anterior cruciate ligament injuries. The reasons for this are unclear, but it could be linked to hormones such as oestrogen making ligaments more elastic, leading to more joint injuries."

The scientists say the device (which looks like a large metal ring through which a patient places their leg) could help diagnose conditions such as anterior cruciate ligament injuries—particularly common among footballers.

Knee injuries commonly affect one of three areas: the tendons (which attach muscle to bone), the meniscus (a cushioning pad of cartilage that prevents the bones of the joints rubbing together), or the ligaments (tough bands of connective tissue that hold bones in a joint together). Following knee injury a doctor may refer a patient for a MRI scan to help establish which part of the joint is injured. MRI scans use a combination of radio waves and strong magnets to 'flip' water molecules in the body. The water molecules send out a signal, which creates an image.

However, tendons, ligaments and meniscus are not usually visible with MRI, due to the way water molecules are arranged in these structures, explains Dr. Karyn Chappell.

"These structures are normally black on an MRI scan—they simply don't produce much signal that can be detected by the machine to create the image. This is because they are made mostly of the protein collagen, arranged as fibres. The collagen fibres hold water molecules in a tight configuration, and it is in fact water that is detected by the MRI. If you do see a signal it suggests there is more fluid in the area—which suggests damage, but it is very difficult for medical staff to conclusively say if there is injury."

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"At the moment, it's very difficult to see which direction the collagen fibres run in a meniscus. This is important because sewing across the fibres will effectively repair a tear in the meniscus. However, if the stitch is in the same direction as the fibres, the repair may fail."

To overcome this problem, Dr. Chappell harnessed the power of a phenomenon called the *magic angle*: "The brightness of these tissues such as tendons and ligaments in MRI images strongly depends on the angle between the collagen fibres and the magnetic field of the scanner. If this angle is 55 degrees the image can be very bright, but for other angles it is usually very dark."

The team explain the magic angle is achieved in their scanner because they are able to easily change the orientation of the magnetic field.

While the patient sits comfortably in a chair, the specially designed magnet (which uses motors and sensors similar to those found in robots in car factories) can rotate around the leg and the orientate magnetic field in multiple directions.

This is not possible in current hospital MRI scanners, which are also much more expensive than the prototype scanner.

"Previously the magic angle phenomenon was thought of as a problem, as it could mean medical staff mistakenly thinking the knee is injured. However, I realised that if we took a number of scans around the knee, we could use the signal produced by the magic angle effect to build a clear picture of the knee structures," explained Dr. Chappell.

"Specifically, we can combine images obtained at different magnet angles and not only increase the brightness, but also see how the collagen fibres are arranged. This enables us to establish the pattern of collagen fibres in the knee structures, which is crucial information ahead of treatments such as repairing a torn meniscus," added Dr. Chappell.

"At the moment, it's very difficult to see which direction the collagen fibres run in a meniscus. This is important because sewing across the fibres will effectively repair a tear in the meniscus. However, if the stitch is in the same direction as the fibres, the repair may fail."

In a new study, published in the journal Magnetic Resonance in Medicine, the multi-disciplinary team scanned the knee joints of six goats and ten dogs in a conventional MRI scanner.

All of the dog legs were donated by the Royal Veterinary College, having been donated for research by dog owners following the death of their pet. Dogs suffer from knee injuries and arthritis similar to humans, making them a good subject for the study.

The results showed that using the magic angle can accurately detect ligament and tendon damage.

The team say now they know magic angle scanning can be used to visualise the knee, combining this with the new prototype mini scanner could enable knees to be accurately scanned with this technology—and hope to progress to human trials of the 'mini' scanner within a year.

Dr. Chappell explained: "Although this is an early-stage proof-of-concept study, it shows the technology could potentially be used to accurately detect knee injury. We now hope to enter human trials—and explore if this technology could be used for other joints such as ankles, wrists and elbows."

Source: provided by Imperial College London. Article taken from: https://medicalxpress.com/news/2019-06-mini-magic-mri-scanner-footballer.html

More information: *Karyn E. Chappell et al, Detection of maturity and ligament injury using magic angle directional imaging, Magnetic Resonance in Medicine (2019). dx.doi.org/10.1002/mrm.27794*

Swallowable balloon device for early detection of Barrett's esophagus receives FDA 510K clearance

Investigators at Case Western Reserve University School of Medicine and University Hospitals Cleveland Medical Center developed the test for early detection of Barrett's esophagus that offers promise for preventing deaths from esophageal adenocarcinoma.

August 21, 2019 – The test involves a novel swallowable balloon device that samples the esophagus and a DNA assay that detects Barrett's esophagus and esophageal cancers. In a major step to bringing this technology forward to patients, the balloon device has just received 510K clearance from the U.S. Food and Drug Administration (FDA) for clinical use. The now FDA-cleared device is being manufactured by Lucid Diagnostics and marketed under the tradename EsoCheck.

Barrett's esophagus (BE) is the precursor lesion of esophageal adenocarcinoma (EAC), a highly lethal cancer with more than 80% mortality at five years. Lethal EAC can be prevented when patients are diagnosed at the precursor stage of BE, and early foci of near cancerous changes (dysplasias) are ablated. However, detection of BE has traditionally necessitated endoscopy, an expensive and invasive test that requires sedation and is thus unsuitable as a method for wide BE screening.

In a significant step forward, the investigator team developed an easy, five-minute outpatient test that is more than 90% sensitive for detecting individuals with BE. Patients simply swallow a pill-sized capsule attached to a thin silicone catheter. After delivery to the stomach, the small balloon inside the capsule, is inflated by injecting air through the catheter. The inflated balloon is maneuvered to swab the lower esophagus near the stomach, the region where BE begins, and obtain a sample of the lining cells. Surface texturing on the balloon increases the effectiveness of the sampling. The balloon is then deflated through the catheter and inverted back into the capsule, thus protecting the esophagus sample from dilution or contamination.

In a significant step forward, the investigator team developed an easy, five-minute outpatient test that is more than 90% sensitive for detecting individuals with Barrett's esophagus.

After easy retrieval of the capsule through the mouth, DNA is extracted from the balloon surface and tested for aberrant DNA methylation that the investigators discovered is diagnostics of BE.
The device was developed by School of Medicine faculty and University Hospitals physicians Amitabh Chak, MD (Professor of Medicine and head of the NIH-Case Barrett's Esophagus Translational Research Network "BETRNet" program), Joseph Willis, MD (Professor of Pathology and Pathology Vice-Chair for Clinical Affairs), and Sanford Markowitz, MD, PhD (Ingalls Professor of Cancer Genetics and head of the NIH-Case GI Cancers "SPORE" Program of Research Excellence).
"Our goal is early detection. Symptoms of Barrett's esophagus, such as heartburn, can also be commonly seen in individuals who have acid reflux disease without BE. These symptoms can easily be treated by over the counter medications so people often don't get tested for BE, particularly by an invasive test such as endoscopy. As a result, when individuals develop EAC, 95% of the time the presence of the prior Barrett's esophagus was undetected and unknown. We wanted an easier, less costly test that could provide a practical way for screening and early detection of individuals with BE, who can then be followed closely to prevent development of EAC.

Furthermore, FDA clearance of the EsoCheck device means the device is now available to patients and physicians as a non-endoscopic method for sampling the esophagus. This will make it much easier to detect Barrett's esophagus in the outpatient setting."
Amitabh Chak, MD, Professor of Medicine and head of the NIH-Case Barrett's Esophagus Translational Research Network "BETRNet" program.

Under sponsorship from the SPORE and BETRNet programs, Chak led a clinical trial in which 86 individuals were tested using the swallowable esophageal balloon device. In the clinical trial, patients tolerated the balloon test well, with 82% reporting little to no anxiety, pain, or choking, 93% stating they would repeat the procedure again, and 95% stating they would recommend the test to others.

Helen Moinova, PhD, study first author and instructor at the School of Medicine, led a parallel effort within the Markowitz laboratory to identify DNA changes diagnostic of Barrett's. Using genome-wide sequencing approaches, Moinova identified two genes, VIM and CCNA1, that each get chemically modified by DNA methylation in BE.

"Having two accurate biomarkers increases confidence in our ability to correctly diagnose Barrett's esophagus," said Moinova. "Taken together, our findings show that non-endoscopic balloon sampling paired with molecular tests for the methylated VIM and CCNA1 biomarkers is effective in addressing the need for simple, non-invasive, safe, and accurate Barrett's esophagus screening."

Moinova's DNA methylation test was more than 90% accurate in detecting BE or in recognizing an esophagus as normal in a set of more than 300 esophagus endoscopy samples collected by Chak's multicenter BETRNet team.

> "We are fortunate to be the only academic medical center in the country to which the NIH has awarded both a GI Cancers SPORE and a BETRNet program."

Willis is currently leading a National Institutes of Health (NIH)-supported effort to implement the VIM and CCNA1 DNA tests as a standardized clinical laboratory test that will be provided by the University Hospital's pathology department. The team is also working with Lucid Diagnostics to nationally provide the VIM and CCNA1 DNA assays for use in testing DNA from patients who use the Eso-Check device.

"We are fortunate to be the only academic medical center in the country to which the NIH has awarded both a GI Cancers SPORE and a BETRNet program." Markowitz said. "The $18 million in support from these NIH awards has allowed us to build a premier team for developing new approaches for early detection, prevention and treatment of GI cancers. However, credit for this advance most importantly belongs to each of the patients who so generously participated in the clinical trial of this exciting new technology."

Source: Case Western Reserve University. Article taken from News Medical Life Sciences: www.news-medical.net/news/20190821/Swallowable-balloon-device-for-early-detection-of-Barretts-esophagus-receives-FDA-510K-clearance.aspx

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Focus

Japan's World-Class System

Author: Silvia Borriello
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The history of Japan's public health insurance system goes back more than a century and Japan has maintained its current world-class system, which is called a "Universal Health Insurance System", for over 50 years of this history. Nevertheless, in recent years, population aging and a declining birthrate have made for a rapidly progressing trend and the nation's financial situation has been worsening. It is therefore becoming increasingly difficult to maintain this valuable system that deserves being kept in place for the future.

Japan, located in Northeast Asia, is an archipelago set between the Sea of Japan to the west and the Pacific Ocean to the east. It shares no contiguous land borders with any other nation, but due to the large number of islands within its territory, it has an extensive maritime boundary. While Japan comprises 6,848 smaller islands, a large majority of its population inhabits the four main islands: Honshu, Kyushu, Hokkaido and Shikoku (in descending order of population). Its four islands and the many small archipelagos are divided into 47 prefectures (regions). Due to mountainous terrain, the land available for urban development is limited. The country is a constitutional monarchy with a parliamentary system of government. It is a highly urbanized country and is host to one of the largest metropolises in the world, Tokyo. **The country's 127 million population is ageing rapidly and shrinking due to low birth rates, increased life expectancy and its immigration policy. This has led to what some claim is an imminent demographic crisis.**

World's third-largest economy, Japan's national gross domestic product (GDP) amounts to approximately 4.937 trillion US$ (2016), with a GDP per capita of 40,686 US$ (PPP) and a total health expenditure of around 10% of GDP, ranking 3rd, in health expenditure, among 34 OECD countries. With a corresponding high standard of living, level of development, safety and stability, it has made many noticeable successes in health since its universal health insurance system was founded in 1961. This includes the full implementation of universal insurance coverage, providing comprehensive coverage to all Japanese citizens, achieving the world's highest life expectancy and the control and even eradication of common infectious diseases. In addition, alco-

This includes the full implementation of universal insurance coverage, providing comprehensive coverage to all Japanese citizens, achieving the world's highest life expectancy and the control and even eradication of common infectious diseases.

hol consumption and transport accident deaths have decreased substantially over the past 50 years. **Despite the many achievements, in recent decades, the incidence of noncommunicable (NCDs) and degenerative diseases has increased significantly. This increase, along with population ageing, has placed a strain on the national health system. Coupled with over two decades of economic slowdown, Japan must now find policies that balance universal insurance coverage, service quality and financial sustainability.** There is an urgent need to scale up effective coverage of preventive and public health interventions to further reduce the disease burden from NCDs. In addition, although the overall life expectancy and healthy life expectancy have been increasing in Japan, there are increasing disparities among prefectures, demonstrating a need for region-specific health policies.

The Healthcare System

Japan is called a welfare country and the Ministry of Health, Labour and Welfare (MHLW) is the central leading organization in the Japanese healthcare system, characterized by excellent health outcomes at a relatively low cost. **The system emphasizes equity, facilitated by universal insurance coverage through social insurance premiums and tax subsidies, with virtually free access to healthcare facilities. The universal health insurance system covers almost all medical procedures, dental care and drugs and is operated by either the national or local government.** The fee schedule is reviewed every two years and inclusions/exclusions of each treatment option within the insurance scheme is reviewed by an expert committee established through the MHLW.

While there are several official Japanese health insurance systems, all citizens must be covered by one of them. There are two major types of insurance schemes in Japan: *Employees' Health Insurance and National Health Insurance (NHI).* Employees' Health Insurance is provided to employed workers (company employees and public servants) and their dependents, while the NHI is designed for self-employed and unemployed people and is run by municipal governments (i.e., cities, towns and villages). Employees' Health Insurance is further divided into four major categories: Japan Health Insurance Association (JHIA), Society Managed Health Insurance (SMHI), Mutual Aid Association and Seamen's Insurance. Japan does not have a single insurance fund; insurers are divided into approximately 3,000 organizations. **Moreover, the premium rate largely differs from one insurance scheme to the next; this fragmentation is a source of inefficiency in the system and inequity in premiums.** Although there are several cross-subsidy systems among insurance schemes, mainly for the financially weak NHI, financial sustainability and equity among insurance schemes remain major challenges for the Japanese health financing system, especially when considering the rapidly ageing society.

Although there are several cross-subsidy systems among insurance schemes, mainly for the financially weak NHI, financial sustainability and equity among insurance schemes remain major challenges for the Japanese health financing system, especially when considering the rapidly ageing society.

The government regulates and controls nearly all aspects of the health system, at three levels: national, prefectural (regional) and municipal (cities, towns and villages), where service delivery and implementation are mainly handled by prefectural and municipal governments. Several professional organizations such as the Japanese Medical Association, the Japanese Dental Association and the Japanese Nursing Association are also actively involved in health policy processes. The way in which the MHLW interacts with these professional organizations, including the private sector, care providers and patients, is however notably complex. Across the 47 prefectures, there are a total of 1,718 municipalities. There are three types of municipalities in Japan: cities, towns and villages. The Central and local (prefectural/municipal) governments are responsible by law for ensuring a system that efficiently provides quality healthcare services. The Central Government sets the nationally uniform fee schedule for insurance reimbursement and subsidizes and supervises local governments, insurers and healthcare providers. It also establishes and enforces detailed regulations for insurers and healthcare providers at the prefecture levels. Japan's 47 prefectures implement those regulations and develop regional healthcare delivery with their own budgets and funds allocated by the national government.

Almost all practicing doctors and dentists are registered in the public national health insurance scheme as insured doctors and provide treatment according to a fee-for-service system. In general, after receiving treatment by an insured doctor or dentist, patients make partial payments (co-payments) of the total cost to the clinic or hospital. **The nationally uniform fee schedule (i.e., amount of reimbursement, including the patients' co-payment) covers most healthcare procedures and products, including drugs. The health insurance pays 70–90% of the cost while the remainder is paid by the insured as co-payment.** The co-payment rate as of March 2017 is as follows: pre-elementary school = 20%; elementary school up to age 69 years = 30%; age 70–75 years = 20% and age 75 years or above = 10%. Thus, the cost of insurance treatment provided is the same, throughout the nation, fixed by the fee schedule. There is no price difference between private and public institutions. There are certain exemptions. Low income earners do not necessarily have to pay the cost directly to the clinic. In addition, elderly persons, as specified above, may pay

directly but at a reduced rate (10–20% of the cost) according to their income. Moreover, the Japanese health insurance system has a reimbursement scheme for patients who receive costly treatment services such as cardiac surgery, where the patient's payment over a certain amount is refunded later. **Under this health insurance system, Japanese people can receive high-quality healthcare services at a relatively low cost, both in public and private institutions.**

In 2017, there were a total of 479 health centers throughout Japan. These health centers take the role of the central administrative management office for the regional public health services. There were also 8,442 hospitals and 101,529 clinics, predominantly privately owned. Compared with other OECD countries, inpatient care in Japan is characterized by longer average hospital stays, with a larger number of inpatient beds per capita. **Japanese hospitals are in general well equipped with high-technology devices such as computed tomography (CT) and magnetic resonance imaging (MRI) scanners.** There is no restriction on hospitals that prohibits the purchase of medical equipment and hospitals are free to open any specialty department without authorization from the Central Government. Two out of every three hospitals, including psychiatric hospitals, have whole-body CT scanners.

The health insurance coverage rate was nearly 100% while the share of household consumption spent on OOP payments was only 2.2%, 0.6% less than the OECD average of 2.8%.

Healthcare in Japan is predominantly financed by publicly sourced funding. **In 2015, 85% of health spending came from public sources, well above the average of 76% in OECD countries. Direct out-of-pocket (OOP) payments contributed only 11.7% of total health financing.** The health insurance coverage rate was nearly 100% while the share of household consumption spent on OOP payments was only 2.2%, 0.6% less than the OECD average of 2.8%. Despite the relatively low OOP payments, the key challenges in Japan are population ageing, rapid increases in chronic illness, escalating medical expenditure, contracting fiscal space and pressures on the healthcare workforce. Reforms of the financing system and greater efficiencies in health systems will be necessary to sustain good health at low cost with equity in the future.

To deal with the rapidly increasing ageing population, in April 2000 Japan introduced the "long-term care insurance system" to deliver health and welfare services for the elderly (65 years or over), so that they can live independently as long as possible. The long-term care insurance covers 90% of the service-related costs, while the remaining 10% of costs are paid by the user. The services provided under this scheme include home visit nursing, day-care or short-stay medical service, etc. In-home healthcare guidance, doctors, nurses, dentists, dental hygienists or other medical professionals visit the homes of users who have difficulty in making a hospital visit. **The long-term care insurance system has now come to have an important role as a system designed to assure an affordable and comfortable life for elderly people and their family members.**

Furthermore, in 2000, a National Health Promotion Campaign for the 21st cen-

Trends in Healthcare Expenditure in Japan, 1995–2014

EXPENDITURE	2000	2014
Total health expenditure (% GDP)	8	10
Public expenditure on health (% of THE)	81	84
Private expenditure on health (% of THE)	19	16
Government expenditure on health (% of GTE)	15	20
OOP payments (% of PHE)	81	85
OOP payments (% of THE)	16	14

Notes: GDP: gross domestic product; THE: total healthcare expenditure; GTE: government total expenditure; PHE: private health expenditure; OOP: out-of-pocket - Source: World Health Organization, 2017

Workforce Data (2016)

	Total Number	Female
Physicians	319,480	67,493 (21.1%)
Dentists	104,533	24,344 (23.3%)
Pharmacists	301,323	184,497 (61.2%)

Source: Ministry of Health, Labour and Welfare Survey of Physicians, Dentists and Pharmacists in 2016. Available online:http://www.mhlw.go.jp/english/database/db-hss/dl/spdp_2016.pdf.

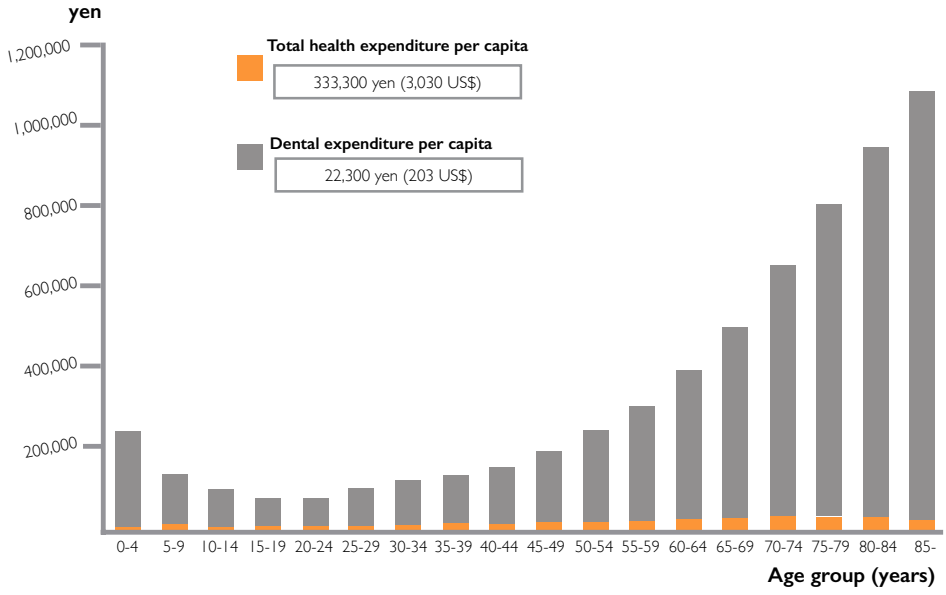
tury, "Healthy Japan 21", was proposed to prevent lifestyle-related diseases (non-communicable diseases such as cancers, cardiovascular diseases, diabetes and chronic obstructive pulmonary disease). **"Healthy Japan 21" set up national goals for improving lifestyles, reducing risk factors and decreasing diseases. Oral health was one of the NCDs conditions identified and specific goals were set to prevent tooth loss.** In the second "Health Japan 21" specific goals include: (1) nutrition and dietary habits; (2) physical activity and exercise; (3) rest; (4) alcohol use; (5) tobacco use and (6) oral health. Among the goal related to oral health for 2022 are the increase in proportion of persons aged 60–69 years with good mastication function to 80%; increase in the proportion of 40-year-old persons with no missing teeth to 75%; decrease in the proportion of persons in their 40s with progressive periodontitis to 25%; increase in the number of prefectures where 12-year-old children have fewer than 1 DMFT and increase in the proportion of persons who received a dental check-up during the past year to 65%. Japan has in fact developed a system for providing high-quality and appropriate oral healthcare efficiently. Citizens can use dental healthcare services provided by the health insurance system and dentists are paid using a fee-for-service system, although some restrictions apply to the materials that can be used. **Consequently, dental services under the national health insurance system are available for most restorative, prosthetic and oral surgery treatment. They include services such as fillings, endodontic treatment, crowns, bridges, dentures and extractions.** Higher cost items (e.g. gold crowns and bridges, metal plate dentures, implants and orthodontic treatment for cosmetic purposes) are excluded. Preventive services are also excluded as the current health insurance system only covers treatments for existing diseases. Delivery of dental treatment services to bedridden people at home or in aged care centers by dentists are also covered in this public health insurance scheme. Therefore, all people can receive dental treatment at a relatively low cost, with the same fees applying throughout the nation.

Public oral health services are provided according to the life stage of their populations and these services are mainly conducted by private dental practitioners under contracts with local governments.

According to the Survey on Economic Conditions in Health Care in 2015, the proportion of dental expenses provided by the public health insurance scheme is about 85.8% of total dental health expenditure. The proportion of medical expenses borne by private fees was only 1.2% in 2015. So, this figure can explain the general outline of Japanese health expenditure between the medical and dental components of the insurance scheme. Personal contributions for dental services are far higher than for medical care. Total health expenditure per capita is 333,300 yen (3030 US$) and dental expenditure per capita is 22,300 yen (203 US$). Dental expenditure occupies 6.7% of total expenditure in general. It is amazing that those aged 65 years and older use 60% of the total health expenditure. Effective oral health promotion programs targeting younger generations can therefore be expected to contribute to the escalation of medical health expenditure for the elderly population.

...all people can receive dental treatment at a relatively low cost, with the same fees applying throughout the nation.

Total Health Expenditure and Dental Expenditure per capita by age group, Japan, 2015 (110 yen= 1USD)



Source: Ministry of Health, Labour and Welfare National Health Expenditures in Fiscal Year 2015 (accessed on 6 June 2018) - https://www.mhlw.go.jp/toukei/saikin/hw/k-iryohi/15/index.html. [Ref list].

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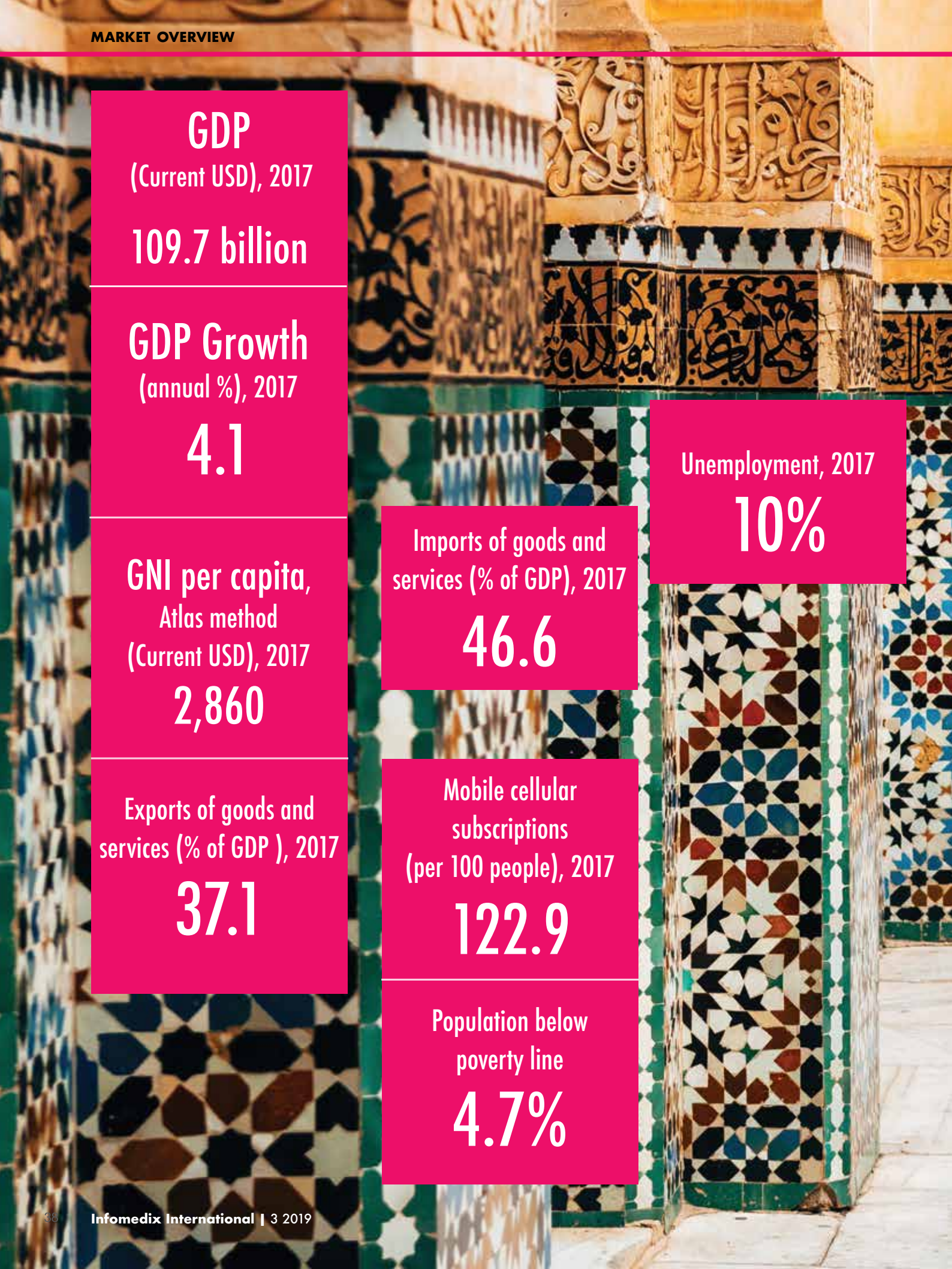


GDP
(Current USD), 2017
109.7 billion

GDP Growth
(annual %), 2017
4.1

GNI per capita,
Atlas method
(Current USD), 2017
2,860

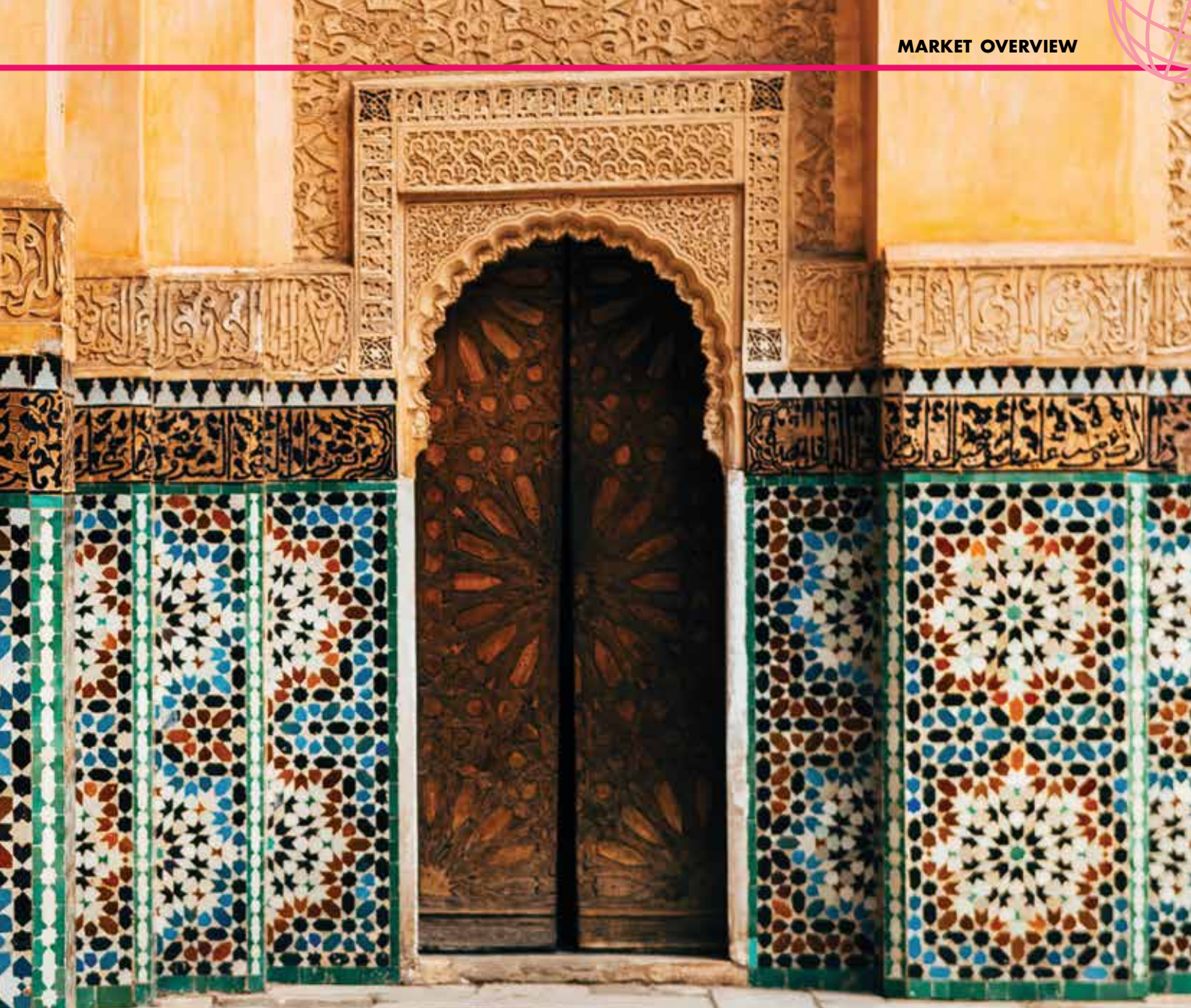
Exports of goods and services (% of GDP), 2017
37.1

Imports of goods and services (% of GDP), 2017
46.6

Mobile cellular subscriptions (per 100 people), 2017
122.9

Population below poverty line
4.7%

Unemployment, 2017
10%



Morocco's Challenging Healthcare

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According to the constitution of Morocco, citizens have a right to accessible, affordable and high-quality health services; however, in terms of access to care, Morocco suffers from "glaring inequalities" among its regions and between rich and poor. The government is making significant progress towards universal healthcare coverage but, a lot still needs to be done.

In the wake of the Arab Spring, Moroccan citizens approved, in July 2011, a new constitution that promised a range of new rights, including universal healthcare and access to quality health services. **The authorities have since taken several steps to increase coverage, reduce costs, improve service quality and extend services in rural and otherwise isolated areas.** However, despite significant progress in recent years, a number of critical challenges remain, including chronic staff shortages, particularly in the public health system; disparity in service quality; lack of financial resources; gaps in governance, especially regarding efforts to decentralize control of the public health system; and additional issues created by the burgeoning private segment.

In response to these continuing challenges, in May 2017 the Ministry of Health introduced the Health Sector Strategy 2017-21, a plan to prioritize certain health goals to raise the rate and quality of coverage in Morocco. The main objectives of this strategy are to improve the capital resources that hospitals receive, from MRI machines to ambulances; expand medical coverage to include individuals who are either self-employed or in liberal arts profession; decrease the incidence of deafness, cardiovascular diseases and hepatitis C; increase the number of employees in the health sector; standardize the type of education that Moroccan medical students receive; and lower the price of pharmaceuticals, especially those that are very expensive, such as medicine for cancer and hepatitis-C treatment.

With so much at stake and with the implementation of appropriate measures, private and public healthcare in Morocco is a growing business for future investments for the healthcare industry. **The government remains the primary healthcare provider as 70% of the population uses public hospitals.**

Medical Coverage - All Moroccan citizens are required to be members of a basic public medical scheme through one of two state-financed healthcare schemes: The Mandatory Health Insurance Plan (Assurance Maladie Obligatoire, AMO) or the Medical Assistance Regime (Régime d'Assistance Médicale, RAMED).

AMO was introduced in 2005 and began as a payroll-based mandatory health insurance program for public and formal private sector employees, covering all employees for sickness, maternity, invalidity and retirement. The social protection system has later expanded to include post-secondary students and family members of beneficiaries. The scheme is financed by contributions from employer and employees as well as retired workers and from the government providing around Dh100m (€9.3m) per year in funding for the scheme.

RAMED was later launched, as a pilot program, in 2009 for the purpose of providing healthcare to most disadvantaged citizens of low socio-economic status and has later expanded to cover all regions of the country. This scheme is based on the principle of social welfare and national solidarity and it is a publicly financed fund to cover services for the poor. It allows persons who are not paying into the AMO to benefit from treatment dispensed in public medical centers as well as state-provided health services. RAMED is primarily financed through tax revenue, with the government allocating around Dh1bn (€92.6m) annually to the measure.

The CNSS (Caisse Nationale de la Securite Sociale or National Social Security Fund) runs the AMO and guarantees the reimbursement of a part of the care costs, the other part being borne by the insured. The current healthcare basket covers preventive and curative care related to the priority program of the State: pregnancy and childbirth; medical and surgical hospitalization; medical biology tests; radiology and medical imaging; medicines within the list of reimbursable medicines; blood derivatives; medical devices and implants required for different medical procedures; medical prosthetic or orthotic appliances accepted for reimbursement; medical spectacle according to the frequency defined by regulation (Law-65-00-AMO); oral care; facial orthodontics for children. The reimbursement rate is set at 70% and can be up to 90% for serious and debilitating diseases

However, despite significant progress in recent years, a number of critical challenges remain, including chronic staff shortages, particularly in the public health system.

requiring long-term care or when the related services are provided in public institutions. In parallel, the private insurance companies have different offers that vary from one company to another and from one client to another.

Despite significant progress towards universal coverage, according to a 2018 health coverage report from the Office of the Higher Planning Commission(HCP), only around half (46.6%) of the Moroccan population has health coverage with disparities by gender, age and place of residence. Out of an estimated population of 34.8 million in 2017, 16.2 million Moroccans have medical coverage (15.5% are subscribers and 31.1% are eligible or beneficiaries). The report, based on the National Employment Survey data from 2017, states that only about 4 out of 10 employed people aged 15 and over have medical coverage. HCP indicates that 10.7 million people were employed in Morocco in 2017, and of these about 4.6 million people (42.7%) have medical coverage. In addition, several factors increase the likelihood individuals have healthcare coverage: being female, living in a city, being 60 or older and in a household headed by a male—or more importantly, by a person with a higher education degree. Specifically, 47.1% of employed working women have medical coverage compared to 41.3% of men and 51.6% of urban residents compared to 31.8% of rural residents. This rate rises from 35.3% among employed workers with no qualifications to 78.5% among those with a higher-level qualification.

In an effort to move towards universal healthcare and to reach at least 90% coverage by 2021 as per the Health Sector Strategy introduced by the government in 2017, Moroccan authorities are taking steps to extend insurance to those who fall into coverage gaps – many citizens have too high an income to receive help from RAMED, yet do not receive AMO through their employer and cannot afford private health insurance. Authorities are now working to further extend the program to include independent workers, such as craftsmen and those in the liberal profession.

Private Care - A further small but growing share of Moroccans are covered by private health insurance. **These individuals pay out-of-pocket when they use public health facilities and are later reimbursed by their insurer.** While all vaccines and some treatments, such as those for tuberculosis and malaria, are offered free-of-charge to citizens, out-of-pocket fees are charged for most procedures that entail going to a hospital. For citizen able to afford it, private health has long been an attractive alternative to the public system, it is well developed, and treatment is of better quality but, prices are higher.

A legislative change in 2015 permitted non-medical professionals to establish health facilities in Morocco for the first time, which has dramatically altered the landscape of health services, liberalizing the ownership of private clinics. Up until 2015, only doctors had the right to own private healthcare facilities while now, individuals who are not doctors as well as financial investors (both local and international), have the right to own a clinic. **This reform has greatly expanded the range of potential investors in private facilities, while also making it easier for foreign health service providers to establish a local presence.** Before this change, most investors and insurance providers were Moroccan however, since 2015 more foreign players have entered the market creating a more competitive landscape. If demand remains constant, increased supply of health services could lead to a fall in prices, which are quite high compared to average purchasing power.

While the private segment has been relatively dynamic in recent years, its presence is still heavily concentrated in the Northern Atlantic regions, as rural areas have not yet proven to be bankable opportunities for potential investors. **As such, the government has been supportive of expansions in private healthcare, as it believes such developments broaden coverage and improve quality.**

Public-private partnerships (PPPs) have also become a main feature of Morocco's healthcare landscape, starting in the early 2010s. Through PPPs, the public health system can close gaps in coverage by acquiring treatments for its patients from private providers.

With so much at stake and with the implementation of appropriate measures, private and public healthcare in Morocco is a growing business for future investments for the healthcare industry.

The depth and dynamics of the private healthcare sector give comfort to foreign investors in terms of sizeable market potential. **Moroccans are dedicating an increasing share of their revenue to healthcare: out-of-pocket spending accounts for over 54% of total Moroccan healthcare spending.** Also, the Moroccan Ministry of Health, which is the first care provider in the country with approximately 77% bed capacity only receives 28% of total health expenditure, while private spending accounts for about 60%. Growth dynamics are supported by several sustainable drivers. The rapid growth of the middle-income class has contributed to the increasing demand for quality infrastructure and services; which in turn have driven the need to expand the current capacity of private clinics.

Market Trends - Overall, this momentum experienced by the healthcare sector represents an opportunity for international players to get a foot in the door and enter the Moroccan market through a very dynamic environment with a strong potential. The medical device market is estimated at USD 236 million, with USD 181 million constituting imports. **Medical device imports supply approximately 90% of the market. As the local medical device manufacturing industry remains at an embryonic stage, most sectors of the market rely on imports.** Morocco does not manufacture medical equipment and the local production is limited to medical disposables. The United States, Germany and France are the main suppliers. Recently, Italian products have been well received and accepted by the local population thanks to their good quality and attractive price however, there is an increasing demand for Turkish, Chinese and Korean equipment.

Public hospitals represent 85% of the demand and private clinics represent 15%. There are five University Hospital Centers in Rabat, Casablanca, Fez, Oujda and Marrakech and six military hospitals located in the large cities, such as Casablanca, Rabat, Fez and Marrakech. In addition, there are over 139 hospitals in the public sector; another 28 are being rehabilitated and equipped for a total of 65.1 million MAD. The private sector healthcare market is growing rapidly as there are more than 360 private clinics and 9,661 physician specialists in Morocco. In addition, the import of refurbished equipment is no longer allowed for both public and private entities. **A new law was submitted banning the purchase of second-hand /refurbished medical devices and equipment in 2015 and came into force in February 2017. This is expected to improve the quality of medical equipment and offer a better quality of medical care to patients treated in Morocco.**

The annual health budget, at approximately Dh14.3bn (€1.3bn), has changed little in recent years and accounted for just 5.7% of total public spending in 2017. This is less than half the 12% threshold the World Health Organization (WHO) recommends for countries such as Morocco that are trying to improve their health systems and it is behind its peer countries in North Africa such as Algeria and Tunisia that spend at around 10% of their national budgets on healthcare.

Staff Shortages - One of the biggest challenges are the alarming loopholes in medical services, such as lack of specialized doctors and specialized medical services. Morocco scores low in terms of physician density, with only 6.2 per 10,000 inhabitants, according to a World Bank report published in early 2018. Budget scarcity is also reflected in the shortage of hospital beds, at 11 per 10,000 inhabitants. **The country's demographic profile has exasperated the staffing shortfall in two ways: in terms of rising demand for health services from the population and from the age of the existing medical workforce, which has seen large waves of professionals take scheduled or early retirement in recent years.** This has caused several much-needed medical facilities to fall into chronic underuse from not employing enough physicians and has also increased pressure on existing staff. As a result of the persisting human resource shortages, as of mid-2017, 14 well-equipped hospitals in Morocco were lying idle. In the face of such challenging working conditions in recent years, some medical staff in the public system have been tempted to move to the private segment. Strong demand from the US, Canada and Europe for Moroccan medical staff has also encouraged some to emigrate for employment purposes. Personnel shortages are often unevenly distributed geographically. Medical facilities in remote areas face a more critical lack of staff than those in large cities, such as Casablanca and Rabat.

Physicians	**22,900 (2016)**
Dentists	**4,655 (WHO, 2014)**

Oral health is also an indicator for overall health and quality of life but, in Morocco, it is an overlooked aspect of hygiene and healthcare as many Moroccans neglect visiting the dentist on a regular basis to monitor and examine their teeth. According to the National Order of Dentists, the current national average of dentists is one dentist for every 7,000 citizens, with a geographic concentration in large urban centers. Morocco's target for 2025 is to reach one dentist for every 5,000 people. There is a high number of highly qualified dentists, many of whom have trained in France and the cost of good dentistry is remarkably inexpensive by European standards with many surgeries having all the modern equipment one would expect. Nonetheless, according to the National Order of Dentists, Morocco is also home to over 3,300 fake dentists, 1,800 of which are illegal even as only dental technicians. These therapeutic methods that do not conform to the rules of sterilization and safety, used by people who practice dentistry illegally, increase the severity of the oral health situation, also determining further burden on public healthcare by putting patients at risk of serious diseases such as hepatitis, tuberculosis, AIDS or even death. The Order of Dentists has asked the authorities to take urgent measures to deal with the fakes, claiming they are endangering "the image of the Moroccan dentistry." Fake dentists specifically target poor areas and neighborhoods where the population does not necessarily know the difference between a real and a fake dentist as well as isolated villages or remote mountain areas with no dentists. These interlopers carry out all sorts of operations, from extracting and removing teeth to deadening nerves for 40 or 50 dirhams (4-5 euros) compared with at least 200 charged by a doctor.

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Total GDP (nominal) - 386 billion USD (2019 estimate, IMF)
GDP per capita USD 6,609
Parliamentary Representative Democratic Republic
The African National Congress (ANC) is the governing political party. Ruling party of post-apartheid South Africa since the election of Nelson Mandela in 1994, winning every election since then
Second-largest economy in Africa, 34th-largest in the world
Cyril Ramaphosa, President of South Africa serves both as head of state and as head of government, since 2017
South Africa consists of 9 provinces, each with its own Legislature, Premier and Executive Council
Member of the World Trade Organization (WTO), the G20 and BRICS (Brazil, Russia, India, China, and South Africa)
Along with Egypt, South Africa accounts for 40% of the medical devices market in Africa

Sweeping Changes in South African Healthcare

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South Africa is well integrated into regional economic infrastructure as formalized by Membership in the Southern African Development Community (SADC). In addition, the Southern African Customs Union (SACU) agreement with Botswana, Namibia, Lesotho, and Swaziland facilitates commercial exchanges

Mining, manufacturing and agriculture are the three pillars of the economy. Gold mining, drilling equipment, rail manufacturing, automobile assembly and cardiac surgery are among the best in the world

Since first free elections in 1994, many were the efforts made by South African governments to combat health inequalities. As the government moves ahead with plans to implement mandatory national insurance to find solutions to universal, sustainable and effective healthcare services there are still extreme differences and disparities and a magnitude of challenges to face.

The Republic of South Africa, with a population of 57.3 million, is located at the southern tip of the continent and is one of Africa's most economically developed countries with the highest degree of modernization. Its executive capital is Pretoria, though Bloemfontein is its judicial capital and Cape Town is the legislative capital. The largest city is Johannesburg. A long history of political shifts and changes has made it one of the most multi-ethnic and multicultural nations. The constitution of South Africa recognizes 11 official languages, the fourth highest number on Earth.

Beyond the elimination of legislated racial policies, advances in South Africa over the past 20 years include substantial economic growth, an expansion of the black African middle class as well as enormous social progress, by bringing to millions of citizens access to key public services, such as education, health, housing and electricity. **An ambitious policy of redistributive grants has also been put in place, lifting a large share of the population out of poverty even if poverty rate, at about a third of the population, remains high compared to many emerging economies.** Social grants have reduced absolute poverty, but 45% of the population still lives on approximately $2 per day (the upper limit for the definition of poverty). More than 10 million people live on less than $1 per day.

Its legal framework is well regarded, and its judiciary is perceived as independent. The advanced banking system and deep financial markets have made South Africa a regional hub for financial services. The Johannesburg Stock Exchange (JSE) ranks among the top emerging market exchanges in the world. Nevertheless, growth has trended down markedly recently due to constraints on the supply side. Low growth has led to the stagnation of GDP per capita, and persistent high unemployment and inequalities. The economy faces many structural challenges while high inflation limits room for monetary policy support and high public debt constrains public spending.

Healthcare Context

Healthcare services and products in South Africa are provided by parallel running public and private healthcare systems. **The public system serves most of the population (80%) through government-run public clinics and hospitals, the wealthiest 17-20% of the population use the private system and are far better served.** The private health sector provides health services through individual practitioners who run private surgeries or through private hospitals, which tend to be in urban areas. The public health services are divided into primary, secondary and tertiary through health facilities located in and managed by the provincial departments of health. The provincial departments are thus the direct employers of the health workforce while the National Ministry of Health is responsible for policy development and coordination.

Beyond the elimination of legislated racial policies, advances in South Africa over the past 20 years include substantial economic growth, an expansion of the black African middle class as well as enormous social progress, by bringing to millions of citizens access to key public services, such as education, health, housing and electricity.

The Bill of Rights in Section 27 of the Constitution of the Republic of South Africa of 1996 states unequivocally that access to healthcare is a basic human right. It guarantees everyone *"access to health care services"* and states that *"no one may be refused emergency medical treatment."* Hence, all South African residents, including refugees and asylum seekers, are entitled to access free basic medical care. Thus, everyone can access both public and private health services, with access to private health services depending on an individual's ability to pay. **South Africa spends on average 8.4%-8.8% of its GDP on healthcare, or around US$437 per capita. Of that, approximately 42% is government expenditure while, a disproportionate 52% comes from private expenditure, even though private healthcare is only available to a very small section of the South African society (around 17,1%).** Most patients access health services through the public sector District Health System, which is the preferred government mechanism for health provision within a primary healthcare approach. There are more than 400 public hospitals and more than 200 private hospitals. The provincial health departments manage the larger regional hospitals directly. Smaller hospitals and primary care clinics are managed at district level. The national Department of Health manages the 10 major teaching hospitals directly. The Chris Hani Baragwanath Hospital is the third largest hospital in the world (3,400 beds) and it is located in Johannesburg. **Due to its chronically underfunded system, public hospitals and clinics are often lacking modern equipment and especially personnel.** Many doctors prefer to work at private clinics or abroad, since public clinics do not pay well and imply difficult general conditions. According to the General Household Survey 2017, conducted by Stats SA, the national statistical service of South Africa, about seven out of every 10 (71,2%) households used public-health facilities as their first point of access when household members needed healthcare services for an illness or injury. **In view of the introduction of the National Health Insurance (NHI) plan and as part of an effort to broaden access to treatment in a country where about 80% of the population lacks private insurance, the Government is maintaining, constructing or revitalizing the**

872 primary healthcare (PHC) facilities available. Also, at the end of March 2018, a cumulative total of 1,507 of the 3,434 public health facilities assessed had attained Ideal Clinic status, which is an initiative that was started in July 2013 to improve quality and efficiency in PHC facilities in the public sector.

Although some of the provinces in South Africa contain large cities, the bulk of the population lives in rural communities (about 64.7%), which are however only staffed by some 30% of the doctors available and with only 3% of newly qualified doctors taking jobs there. The remaining 70% of doctors work full-time in the private. In recent years, permission for senior full-time staff in the public sector to spend a limited proportion of their time working in the private sector has further diluted their public-service activities, leaving many people relying on a public system with too few doctors.

In 2013, it was estimated that vacancy rates for doctors were 56% and for nurses 46%. South Africa has a total of 23 universities and 9 schools of health sciences. In addition, there are 9 provincial nursing colleges and several private nursing schools. Collectively, the medical schools have an annual output of medical graduates ranging between 1,200 and 1,300. This is viewed as grossly inadequate for a country with a population size of over 57 million. **There is realization by the Government that the health workforce plays a critical role in advancing the health system goals, largely driven by a policy position of improving access to healthcare for all citizens.** In line with South Africa's strategic objective to increase the production of human resources for health is the training of doctors in Cuba as part of bilateral agreements on public health between South Africa and Cuba signed in 1994, the Nelson Mandela/Fidel Castro Medical Collaboration Program initiated to relieve the acute shortage of human capacity in the public health sector. The Health Professions Council of South Africa (HPCSA), maintains a register of all medical doctors that are licensed to practice medicine in South Africa. **As of October 2018, there were 46,091 medical practitioners on the Medical and Dental Board register. This figure includes those in the medical profession who are specialists.** In line with the sentiments of #feesmustfall protesters who in 2015 sparked a nationwide revolt against high university fees as a barrier for deserving poor students, the Government's policy to fully subsidized higher education and training for poor and working-class students will further ensure access to more students to enroll in health studies.

Public sector people-to-doctor ratio, 2015 - 4,024 to 1
Public sector people-to-nurse ratio, 2015 - 807 to 1
Hospital beds 2.3 per 1000 inhabitants (OCSE, 2010)

The public sector uses a Uniform Patient Fee Schedule (UPFS) as a guide to billing for services by grouping patients into three categories defined in general terms, which include: full paying patients—patients who are either being treated by a private practitioner, who are externally funded, or who are some types of non-South African citizens—, fully subsidized patients—patients who are referred to a hospital by Primary Healthcare Services— and partially subsidized patients—patients whose costs are partially covered based on their income. There are also specified occasions in which services are free of cost.

Following the end of the Second World War, South Africa saw a rapid growth in the coverage of private medical provision, with this development mainly benefiting the predominantly middle-class white population. Membership of health insurance schemes became effectively compulsory, being such membership a condition of employment, together with the fact that virtually all whites were formally employed. **According to Stats SA's General Household Survey 2017, by September 2018, there were about 80 medical schemes in South Africa with over 8 million beneficiaries, representing a relatively small percentage of individuals belonging to a medical aid scheme.** Despite policy initiatives aimed at structuring affordable low-cost healthcare funding products, medical schemes have remained unaffordable to the majority of South Africans over the years, with scheme contributions by members increasing at an alarming pace and out-of-pocket (OOP) expenses by members showing double digit growth. According to the Council of Medical Schemes a third (33%) of total OOP expenditure is spent on medicine, meaning patients spend around R9 billion rand out of their pockets on medicine alone. OOP also constitutes a large proportion (18.6%) of total healthcare expenditure for individuals who were already making significant premium contributions to medical schemes. While up to 25% of uninsured people pay out-of-pocket for private-sector care.

Since coming to power in 1994, the African National Congress (ANC) has implemented a number of measures to combat health inequalities in South Africa. These have included the introduction of free healthcare in 1994 for all children under the age of six together with pregnant and breastfeeding women making use of public sector health facilities (extended to all those using primary level public sector healthcare services in 1996) and the extension of free hospital care (in 2003) to children older than six with moderate and severe disabilities. **Furthermore, a National Health Insurance (NHI) initiative, aiming at eradicating financial barriers to healthcare access is now in a pilot phase prior to being implemented across the country in a phased approach from 2016 – 2025. The NHI system aims to ensure universal health coverage for all citizens and residents of South Africa, irrespective of socioeconomic status, to have access to good-quality, affordable health services.**

The NHI is speculated to propose that there be a single National Health Insurance Fund (NHIF) for health insurance that would buy services from accredited public and private facilities, which would then provide care for registered members. This fund is expected to draw its revenue from general taxes and some sort of health insurance contribution. Currently, most healthcare funds come from individual contributions coming from upper class patients paying directly for healthcare in the private sector. **There is in fact a discrepancy between money spent in the private sector which serves the wealthy (about US$1,500 per head per year) and that spent in the public sector (about US$150 per head per year) which serves about 84% of the population.** The NHI proposes that healthcare fund revenues be shifted from these individual contributions to a general tax revenue. Because the NHI aims to provide free healthcare to all South Africans, the new system is expected to bring an end to the financial burden facing public sector patients.

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The National Development Plan (NDP), appointed by former President Jacob Zuma in 2010, aiming to eliminate poverty and reduce inequality by 2030, expects South Africa to have, among other things, raised the life expectancy of South Africans to at least 70 years; produced a generation of under-20s that is largely free of HIV; achieved an infant mortality rate of less than 20 deaths per thousand live births, including an under-five mortality rate of less than 30 per thousand; achieved a significant shift in equity, efficiency and quality of health service provision. **Yet, disparities in South Africa are amongst the widest in the world. The persistence of such disparities is incompatible with improvements in population health and are associated with diseases of poverty such as HIV/AIDS and tuberculosis.** The top 10% of South Africans earn 58% of the total annual national income, whereas the bottom 70% combined earn a mere 17%.

South Africa, with 0.7% of the world's population, accounts for 17% of the global burden of human immunodeficiency virus (HIV) infection, continuing to be home to

Life expectancy at birth, 61.1 years for males and 67.3 years for females

Infant mortality rate per 1 000 live births – 36.4

Under-five mortality rate per 1 000 live births – 45.0

Source: South African Government (Stats SA), https://www.gov.za/about-sa/health

Registered Persons, HPCSA, October 2018

Medical Practitioners	46,091
Medical Students	13,158
Dentists	6,466
Student Dentists	1,158
Dental Assistants	4,908
Student Dental Assistants	1,949
Oral Hygienists	1,226
Student Oral Hygienists	400
Dental Therapists	743
Student Dental Therapists	282

Source: HPCSA, https://www.hpcsa.co.za/Publications/Statistics

the world's largest number of people living with HIV. In 2003, after much government denial and slow response regarding funding for HIV and the acquired immunodeficiency syndrome (AIDS), considerable local and international pressure resulted in the government introducing an ambitious program to provide antiretroviral (ARV) therapy to patients with HIV infection. Access to ARV treatment through the public sector has changed historical patterns of mortality as the number of AIDS-related deaths has declined consistently since 2007. Nonetheless, according to Stats SA, the total number of persons living with HIV has increased from an estimated 4.25 million in 2002 to 7.52 million by 2018. An estimated 13.1% of the total population is HIV positive. Driven in recent decades by the spread of HIV infection, the incidence of tuberculosis has also increased from 300 per 100,000 people in the early 1990s to more than 950 per 100,000 in 2012. Despite notable progress in improving treatment outcomes for new smear-positive tuberculosis cases, the tuberculosis burden remains enormous.

The oral healthcare system very much reflects general health. **The richest part of the population is privately insured, and oral care is comparable to the European standards but the majority of South Africans have no access to private services and are dependent on the government for oral healthcare; but just around 10% of the population uses public oral health services.** This underutilization is due to limited resources and inaccessibility. Consequently, oral diseases are widespread and affect large numbers of people in terms of pain, tooth loss, disfigurement, loss of function. Only one in six registered dentists works in the public sector. There are fewer than 2.5 dentists per 100 000 people in the country. The situation is even more complicated when it comes to dental specialists, with only 160 in the public sector in the entire country. This translates into fewer than half a specialist (0.4) per 100 000 people.

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Medical Industry

Even if actual growth does not match that of other African economies, South Africa is the most advanced, diversified and productive economy in Africa, enjoying relative macroeconomic stability and a largely pro-business environment. It is, for this, the primary business hub for the medical device industry in Sub-Saharan Africa as a substantial portion of medical device and lab equipment exports are sent to other parts of Africa.

Top Sub-Saharan Destinations for Medical Devices from South Africa, 2017

Country	USD Millions
Namibia	**31.46**
Botswana	18.85
Uganda	9.80
Swaziland	9.69
Zimbabwe	9.55
Zambia	5.90
Kenya	5.85
Mozambique	4.82
Lesotho	3.91
Malawi	3.47
Tanzania	3.29
Mauritius	2.64
Democratic Republic of Congo	2.23

Source: AFH19_Industry_Insights_Medical_Devices_Market_REPORT.pdf by Africa Health, an Informa Experience

Even if underdeveloped and considerably restrained by funding issues, poor infrastructure and staff shortages, particularly in the public sector, South Africa's health market offers potential for growth, also influenced by national legislation related to the implementation of government's National Health Insurance program. This, combined with the Competition Commission's** market inquiry into private healthcare costs and further changing legislation, will effect radical change to the purchasing and provision of private and public healthcare in South Africa. Despite recent cutbacks, the government sector is still the major purchaser of healthcare equipment and supplies. Opportunities will exist for exporters of medical equipment, especially new and innovative equipment, as extensive upgrades and development of hospital infrastructure is being considered. Nonetheless, the best prospects for advanced technology and equipment remain in the private sector as very sophisticated and boasts world class facilities with several centers of excellence. The government's encouragement of public private partnerships in the development of hospitals is a new area of growth.

South Africa Medical Device Market Value by Product Category, 2018

Devices	USD Millions
Consumables	241.00
Diagnostic Imaging	199.30
Orthopedics & Prosthetics	153.70
Patient Aids	156.00
Dental Products	41.30
Other Medical Devices	487.10
TOTAL	**1,278.40**

Source: AFH119_Industry_Insights_Medical_Devices_Market_REPORT.pdf

****The Competition Commission is a statutory body constituted in terms of the Competition Act, No 89 of 1998 by the Government of South Africa empowered to investigate, control and evaluate restrictive business practices, abuse of dominant positions and mergers in order to achieve equity and efficiency in South Africa in order to:**

-Promote the efficiency, adaptability and development of the economy;
-Provide consumers with competitive prices and product choices;
-Promote employment and advance the social and economic welfare of South Africans;
-Expand opportunities for South African participation in world markets and recognise the role of foreign competition in the Republic;
-Ensure that small- and medium-sized enterprises have an equitable opportunity to participate in the economy; and
-Promote a greater spread of ownership, in particular to increase the ownership stakes of historically disadvantaged persons.

www.compcom.co.za

There is limited medical device production in South Africa and the market is largely dependent on imports (around 90%). Local firms tend to be small or medium sized businesses with less than 50 employees and often combine distribution activity with manufacturing. Multinational companies often operate in a joint venture capacity with local firms. Most South African manufacturers specialize on producing basic medical equipment and supplies. According to an "Africa Health" report by Informa, a leading international events, intelligence and scholarly research group, the output by the domestic medical manufacturing industry is estimated to be around USD 200mn-USD 300mn, of which more than half is exported. Production is focused on bandages and dressings, medical furniture and low technology items. The import market is dominated by the United States and Germany followed by China, Switzerland, the United Kingdom and Japan in all categories, but particularly in orthopedics, prosthetics, patient aids, other devices and consumables. Buyers are increasingly looking towards sourcing from Asian markets to save on costs. China is making significant inroads, increasing by around 10% in terms of market share. **Consistent with healthcare infrastructure upgrades, the demand for diagnostic imaging equipment is forecast to grow approximately 12% between 2016 and 2021.** Although dental equipment represents the smallest product area (3.6% of all medical imports), it grew at a CAGR of 10.2% in the past year even if access to good dental health remains a problem for most of the population in the public sector. Because of the high quality of dental care available in private settings and in combination with its general tourism appeal, South Africa has seen an increase in dental tourism industry. First class surgeons work to extremely high standards in clinics, offering procedures at a fraction of the cost of European and US centers. Cape Town and Johannesburg are particularly popular. People are in fact not just visiting for simple treatments like fillings, whitening, dentures and implants but many come seeking wisdom tooth extraction, cleft lip and palate surgery and even surgery for the replacement of damaged or lost bone.

Regulations - The Department of Health has issued (2016) new regulatory requirements for medical and in vitro diagnostics (IVD) devices which will be overseen by a recently established regulatory authority, the South African Health Products Regulatory Authority (SAHPRA). **This entity has adopted harmonization initiatives that will ultimately see an alignment of registration and product approval requirements with those of regulatory authorities in other regions.**
Also, the National Treasury published new revised Preferential Procurement Regulations in January2017, which came into effect on April 1, 2017, replacing the previous regulations from 2011. The revised preferential procurement regulations will help optimize procurement strategies in South Africa, although corruption remains a critical issue hindering effective procurement. Multinational medical device companies will aim to develop strategies that are in line with the country's socio-economic polices to counter the increasing preference for local suppliers. **The revised preferential procurement regulations will make it harder for foreign companies to win government tenders, making local companies more competitive.** Tenders are now geared further to supporting the government's broader objectives: favoring small, medium and micro enterprises (SMMEs), which complement the government's aims of employment creation and income generation using local suppliers.

USEFUL CONTACTS

• Health professional Council of South Africa (HPCSA)
553 cnr Hamilton and Madiba Streets,
Arcadia, 0001 Pretoria, South Africa
Tel: (+27) 12 338 9300
info@hpcsa.co.za - www.hpcsa.co.za

The HPCSA is a statutory body committed to promoting the health of the population, determining standards of professional education and training, and setting and maintaining excellent standards of ethical and professional practice, ensuring continuing professional development and fostering compliance with healthcare standards. All individuals who practice any of the health care professions incorporated in the scope of the HPCSA are obliged by the Health Professions Act No. 56 of 1974 to register with the Council. Failure to do so constitutes a criminal offence.

• South African Medical Devices Industry Association (SAMED)
Hammets Crossing Office Park
Prince House 816/4
No 2 Selborne Road, Johannesburg North, Randburg, South Africa
Phone +27 11 704 2440
info@samed.org.za - www.samed.org.za

SAMED promotes, represents and safeguards the interests of the South African Medical Device and In-Vitro Diagnostics (IVD) industry, focuses on healthcare matters relevant to its members' interests. The association aims to provide member companies - local and multinational - with a collective, objective and credible platform to engage with stakeholders. SAMED's members include individual medical technology companies, associated members and associations.

MAJOR SHOWS: AFRICA HEALTH 2020

May 26 – 28, 2020
Gallagher Centre, Johannesburg
Informa Markets' Global Healthcare Group
africahealth@informa.com - www.africahealthexhibition.com/en/home.html

Among Main Sources:

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A Healthy Look Into Body Cellular Membranes

What does eating well mean? Lipidomic analysis is close to finding an answer by providing your own personal membrane profile.

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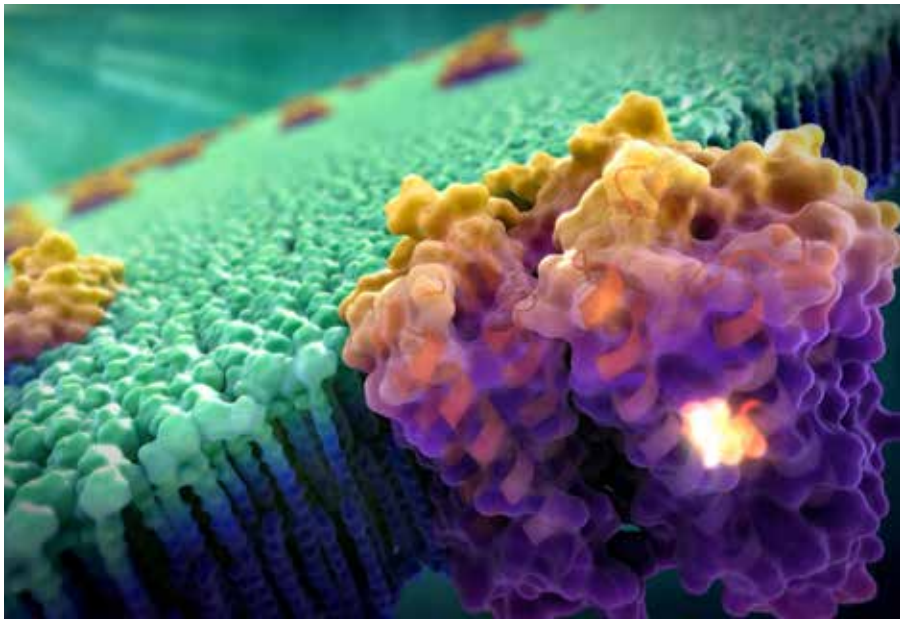
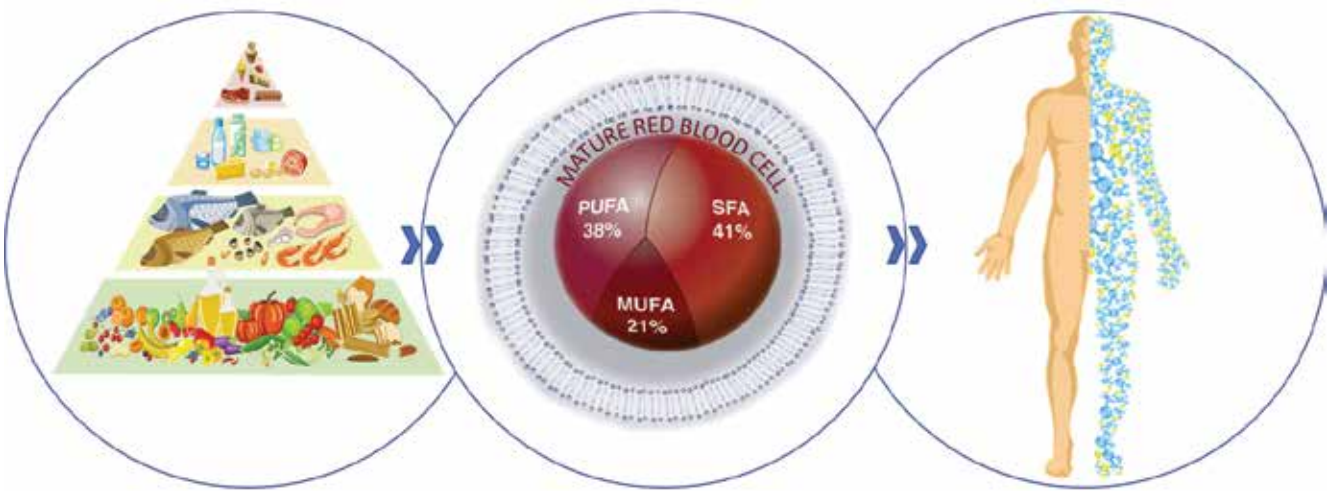
We are what we eat, so if we eat well we shall keep our bodies healthy. It might seem simple and straightforward, but it contains an enormous complexity. What does eating well mean? There is no dry answer to this question because there is no clear boundary that separates what is healthy from what is harmful. Part of the molecules that make up the food we ingest become part of the structural components of our cells, from which depend the basic molecular asset and behavior, consequently influencing the state of health of the whole organism. A crucial example is given by lipids that make up cellular membranes, the needed part to define a cell! Lipids derive from endogenous biosynthesis but, an important part is composed by polyunsaturated (omega-6 and omega-3) fats with primary physiological functions that must be taken from the diet. Therefore, the composition and even the formation of the membranes is strongly influenced by our diet. To determine if the latter is in line with the maintenance of our body is not only the quality of the food but also the variety of foods we eat and the metabolism that each individual possesses, because even though the human species shares the biochemistry that keeps it alive, each individual has his own clinical history, his own pathological picture and his own metabolic capacity. From this it's possible to understand why it is not easy to give a general definition to the meaning of eating well, just as it is not easy to build a diet that is suitable for all. Not everyone is able to digest lactose-containing foods, for example, as well as those who suffer from frequent gastritis can hardly bear foods that irritate the mucous membrane of the stomach, or even those who suffer from allergies could easily feel acute symptoms if they consumed canned fish, alcohol or other foods that are high in histamine. Furthermore, with regard to the prevention of some diseases the uniqueness of the individual occupies a key position. The genetics of the family from which it derives provides important indications on the predispositions that the latter may or may not inherit and research is ongoing on this nutrigenomic aspect. The best diet, as well as the lifestyle in general, to which an individual can aspire is personalized. The real complexity of this approach lies in the depth with which customization is built, and as a result, the

Part of the molecules that make up the food we ingest become part of the structural components of our cells, from which depend the basic molecular asset and behavior, consequently influencing the state of health of the whole organism.





more information is obtained on the individual the more precise this process is. But at the same time, to obtain information, it is necessary to carry out analyses that, while on one hand can increase the effectiveness of this approach, on the other hand they cost both time and money.

It would therefore be necessary to find a compromise between the number of analyses to be performed and the information obtained from them, if possible, aiming at some physiological structure that can be representative of our metabolism and our physical well-being. A "tissue" that during its physiological functions comes into contact with all the other tissues of the body, completely permeating the organism.

Blood, more specifically the red blood cells, fully respond to this description. As the whole cell population, they are delimited by a double layer membrane, which is composed by lipids: phospholipids and cholesterol. Phospholipids are composed of fatty acids, long chain organic molecules, which play a key role in cell's physical and biochemical balance. Those molecules present a structural heterogeneity, dependent on their bond arrangement (SFA, MUFA and PUFA), which gives them different chemical physical properties. This variety is able to provide a palette of arrangements for fine-tuning of membrane fluidity and permeability properties, as well as for receptor and channel functioning. The correct ratio between the various cellular lipids promotes a biochemical balance which, by strongly influencing the body's cells to remain in the right oxidative state and consequently reducing undesired inflammatory processes, guarantees the health of the organism as a whole. Our body is able to synthesize fatty acids but linolenic acid and alpha linoleic acid, respectively as precursors of omega 6 and omega 3, must necessarily be supplied with the diet. Although this may suggest that the assumption of these precursors can compensate for any omega fatty deficiencies, in reality the efficiency of the lipid metabolism strongly depends on the functionality of the enzymatic systems (such as desaturases) that provides the synthesis of the complete set of such molecules. For these reasons the diet plays a fundamental role in ensuring the right balance in the quantities of the individual fatty acids that make up the cell membrane. Information regarding the enzymatic situation and the balance of membrane components cannot be obtained through normal clinical analyzes but requires the use of specific analytical techniques.

CNR researchers, Dr. Carla Ferreri and Chryssostomos Chatgilialoglu, have founded a lipidomic analysis laboratory, Lipinutragen srl, at the CNR facilities in Bologna where it's possible to obtain one's own lipidomic profile, through robotic analysis of the membranes of mature red blood cells. The information regarding the quotas of single lipids and the functioning of the enzymes involved in the biosynthesis of omega fats are added to the eating habits and to the pathological picture of the patient to create a totally personalized analysis. On this basis, a list of foods and supplements is created addressing the needs of the subject to restore a possible state of membranes imbalance. This approach allows patients to annually monitor their cell membrane health and then correct the diet with specific supplements, chosen on the basis of their personal condition. All this is added to it as a powerful tool for creating personalized nutrition, without giving up to a healthy and balanced diet, thus paving the way to a more conscious and innovative approach.

A world first from Silfradent research team:

Regenerative medicine

The CGF (Concentrated Growth Factors) initial popularity grew from its promise as a safe and natural alternative to surgery. The CGF promoters supported the procedure as an organism-based therapy that allowed healing thanks to its own natural growth factors.

Dott.ssa Paola Pederzoli
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In recent years, scientific research and technology provided a new perspective on platelets. Studies suggest that platelets contain abundance of growth factors and cytokines which can affect the inflammation, the post-operative blood loss, the infection, the osseogenesis, the wound, the muscle laceration and the soft tissue healing.
Research now shows that platelets release also numerous bioactive proteins responsible for the attraction of macrophages, mesenchymal stem cells and osteoblasts that not only promote the removal of degenerated and necrotic tissues, but also improve tissues regeneration and healing.
In regenerative medicine, three factors are important to optimize the regenerative process: the scaffold (biological, natural or synthetic), growth factors and autologous cells. All the above is present in CGF. CGF is obtained following a process of blood separation collected in vacuum tubes, using a special medical device (Medifuge, Silfradent Srl, Italy). The CGF technology has an interesting characteristic: the centrifugation simplicity and speed, allow a more elastic matrix of fibrin glue rich in growth factors. Using SEM analysis (Electron Scanning Electron Microscopy), Rodella and associates (University of Brescia) showed the presence of a fibrin network formed by thin and thick elements with numerous platelets trapped in the network itself, representing an optimal autologous scaffold. In addition to the growth factors released after the platelets activation and degranulation, we also count the vascular endothelial growth factor (VEGF), the insulin growth factor (IGF), the transforming growth factor (TGF), the tumour necrosis factor (TNF), the brain-derived neurotrophic factor (BDNF) and the presence of TGF-β1 and VEGF.

In recent years, scientific research and technology provided a new perspective on platelets.

The presence of autologous cells like platelets and leukocytes, including CD34+ cells, have been described in the CGF. The histochemical evidences indicate the role of CD34+ cells, circulating on vascular level: neovascularization and angiogenesis. The presence of these cells in the PRP benefit the tissue re-growth. The CGF has a good regenerative capacity and various fields of application. The use of Platelet-rich Plasma (PRP) has already been for years a reality and a scientific evidence verified by the international medical community for plastic surgery in the treatment of severe burned cases. Plastic surgeons and their patients benefit greatly from tissue regeneration through PRP, obtaining a clearly superior recovery both in tissue quality and healing speed.
In Maxillary facial surgery and Implantology, the potentialities of CGF Concentrated growth factors have been known for years. Its application helps and stimulates the bone regeneration both in managing endosseous implants and in the healing of difficult fractures.
This is a well-documented and effective procedure. Already in 1970, using PRP it was proven a 20% increase in the trabecular bone density, a 40% reduction in healing times and an 80% decrease in pain levels.
Researcher have investigated this effect also in periodontal problems. Conclusions reported that PRP technique represents a rich source of growth factors able to bring significant changes in periodontal damages and it is capable to suppress the cytokines release, limit inflammation and promote in such way the tissue regeneration.
Orthopaedic surgeons know well how the speed of healing processes for tendons and articular surfaces traumas improves thanks to the use of PRP platelets Growth Factors. The CGF is now used in musculoskeletal medicine with increasing frequency and effectiveness. Soft tissues injuries, such as tendinopathies and tendinitis, have been treated with PRP since the early '90s.
The PRP has also been used for the treatment of muscle fibrosis, ligament distortions, joint capsular laxity and in intra-articular

"APAG" *DENATURATION DEVICE*
- A.P.A.G. Activated Plasma Albumin Gel
- I.C.F. Induces Collagen Formation
Built with anti-static and anti-magnetic materials.
Operations with heating pulse and thermal equilibrium temperature

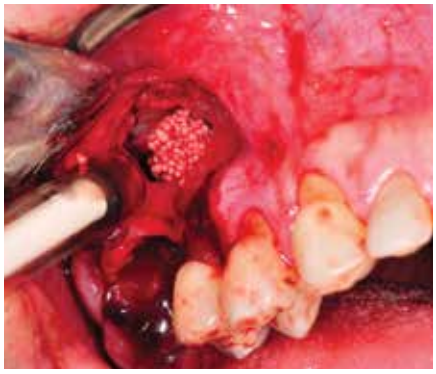
"MEDIFUGE MF 200"
BLOOD SEPARATOR
- Differentiated acceleration
- Speed and fractional - alternating RCF (does not allow the platelet degranulation)
- Anti-static and anti-magnetic rotor
- Constant temperature maintained by self ventilation / self decontamination

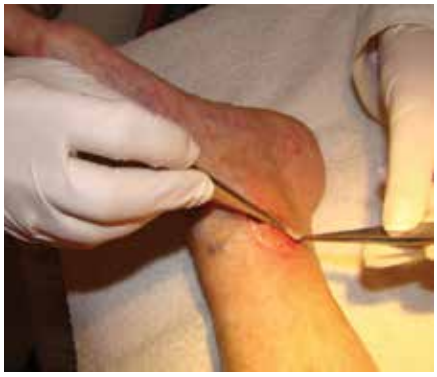
injuries like arthritis, arthrofibrosis, injuries of the articular cartilage, meniscus injuries, chronic synovitis or joints inflammation.
Retrospective assessment in patients treated with a single injection of PRP for chronic tendinopathy, revealed that 78% had a clear clinical improvement within 6 months, avoiding surgical intervention.
"Excellent results were found also in the healing of skin sores in diabetic subjects."
In short, a valid technique that optimizes the healing processes of every tissue where it is applied. With the CGF technique instead, all that is necessary for our regeneration is autologous therefore already within us and we make it work for us.
In the dermatological field CGF is used for alopecia (bulbar implants and mesotherapy). It's clear that it opens a new and exciting chapter, a true revolution in the field of aesthetic medicine: the application of the Platelet Growth Factor for skin rejuvenation through the stimulation of skin regeneration.

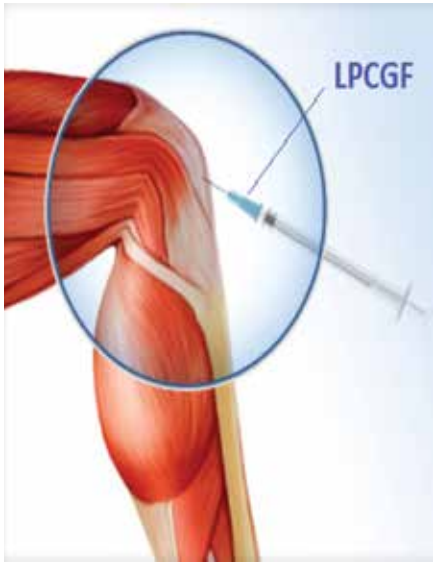
In Maxillary facial surgery and Implantology, the potentialities of CGF concentrated growth factors have been known for years.

The growth factors contained in the platelets are able to stimulate various cellular mechanisms like the proliferation and migration of fibroblasts (dermis functional units!) and the synthesis of collagen, recalling and reactivating the stem cells present in the area we are treating, improving the skin condition. It is important to point out that the Platelet Growth Factor CGF Treatment is not a mere aesthetic treatment, but a biological method that tends to restore the best vital conditions of our skin with an excellent improvement of the skin's aesthetic and an optimization of the cutaneous physiological parameters. The number of platelets, concentration and release of the growth factors, strongly depend on the type of kit used, on how the platelets are activated and on the centrifuge used.

Could modern Aesthetic Medicine not benefit of this **miraculous solution**?







Aging is not only made of wrinkles. Flattened cheekbones add various years to the ID as well. Luckily, today we can earn back fullness and turgidity typical of youth without falling into the unpleasant "pillow face" effect, showed by many stars.
The technique is ESSENTIAL!
We can create a volumizing filler (A.P.A.G.) using a component (PPP) to reach, with thermal impulses, a high temperature (75°) to obtain a gel that, once cooled down will be mixed with CD34+.
Or we can obtain a filler that creates an aged collagen reconstruction bringing the PRP to 44°, again with thermal impulses.
Therefore, with a simple peripheral venous blood sample we can create:

- L.P.C.G.F. for cutaneous BIOSTIMULATION
- I.C.F. for collagen RECONSTRUCTION
- A.P.A.G. to create a filling effect

At the end of the first session, all patients are given a kit containing mask, cream and lotion, with the addition of growth factors to prolong the treatment effect, for home care maintenance. It is recommended to respect the protocol: three treatments over a two months period, the fourth after six months, the fifth at the end of the year and a maintenance treatment every year.
The whole treatment is relatively painless; a topic anaesthetic can be applied, twenty minutes before the injection.

www.silfradent.com

The 4th Annual Radiology Meeting to focus on Musculoskeletal System and Chest X-ray this October

ARM 2019 ANNUAL RADIOLOGY MEETING IN UAE

Under the patronage of His Highness Sheikh Hamdan bin Rashid Al Maktoum, Deputy ruler of Dubai, Minister of Finance and President of the Dubai Health Authority, the 4th edition of the Annual Radiology Meeting in UAE - ARM will be held from 15-17 October 2019 in Dubai International Convention and Exhibition Center, under the theme "Patient first, back to basics". This year, ARM will discuss in depth the diseases related to the Musculoskeletal System and will feature a special seminar on Chest X-ray.

Radiology has changed the way patients and physicians view health and disease. It plays a vital role in disease management as it provides doctors with tools and techniques to better detect, stage, and treat various diseases. Year after year, the radiology field is focusing more on patient interaction and patient-centered care; thanks to the advance technologies and the artificial intelligence which made the ability to diagnose cases in the early stages, thus saving the patient life, much easier than before.

The 4th edition of this specialized event features a rich agenda covering topics like MSK, Neuroradiology, Body Imaging, Breast Imaging, Chest Imaging, Radiography, Education and Management. These important topics will be discussed by more than 50 renowned speakers coming from all over the world to share their insights, knowledge, and expertise in the field of radiology and radiography.
The 3-day conference which is intended for radiologists, radiographers, and Industry professionals will witness this year two sessions dedicated to radiographers and a seminar focusing on chest imaging. It will also feature a poster presentation competition and an Emirates Radiology Cup competition as well as a number of practical workshops that will be presented by different companies in the field.
Running parallel to the conference, a dedicated exhibition will showcase the latest technologies in the field of radiology and radiography and is expected to attract over 1,700 visitors and participants from the region and the world.

The Annual Radiology Meeting in UAE is annually organized by INDEX Conferences and Exhibitions – a member of INDEX Holding in collaboration with the Radiology Society of the Emirates and supported by UIBC and the Radiographers Society of the Emirates(RASE), European Society of Radiology (ESR), Radiological Society of Saudi Arabia (RSSA), Jordanian Radiology Society (JRS), Kuwait Radiology Society (KRS), and the International Society of Radiographers & Radiological Technologists (ISRRT) and it is sponsored by Cannon – Platinum Partner, GE Healthcare – Knowledge Partner, INFINITT MEA - Silver Partner and AGFA Healthcare – Silver Partner.

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CMEF on Data

- 4319 Exhibitors
- 117,159 Visitors
- 22 International Pavilions with Products from 36 Countries and Regions
- 35 Domestic Pavilions
- 61 Academic Forums
- 4 CMEF Featured Country Day Programs
- 1,000+ New Product Releases
- 36 Representatives of China National Brand

Ms Yolanda Li
Reed Sinopharm Exhibitions International Marketing
ye.li@reedsinopharm.com

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2020
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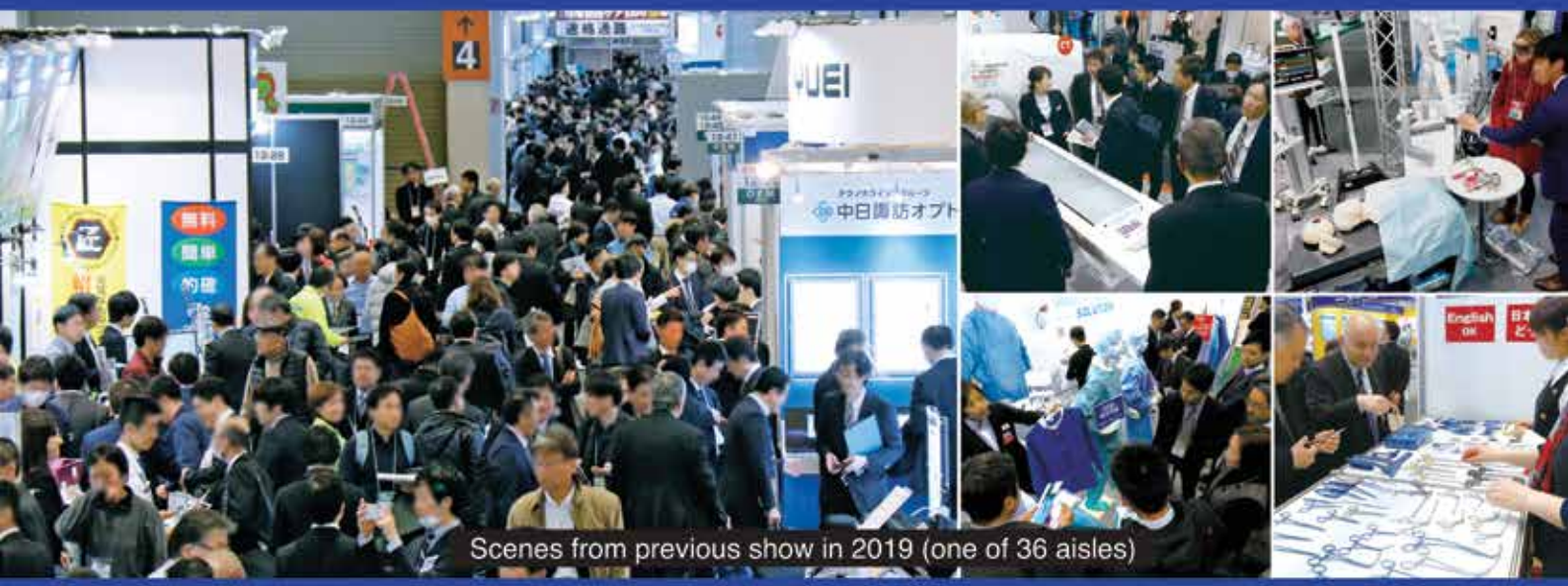

Scenes from previous show in 2019 (one of 36 aisles)

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  - Doctors/Nurses
  - Clinical Engineers
  - Administrators
- Manufacturers
  - Medical Devices
- Importers/Distributors

etc.

More details **www.medical-jpn.jp/en/**

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Preshow Report vol. 2

August 20, 2019

MEDICAL JAPAN 2019 TOKYO

— 2th Int'l MEDICAL & ELDERLY CARE EXPO TOKYO —

Dates: Oct. 23-25, 2019 Venue: Makuhari Messe, Japan

2nd MEDICAL JAPAN TOKYO is coming back with the larger scale!

610 Exhibitors gather and showcase the latest products.

MEDICAL JAPAN 2019 TOKYO – 2nd Int'l Medical and Elderly Care Expo Tokyo will be held from October 23-25, 2019 in Makuhari Messe, Japan by Reed Exhibitions Japan Ltd. The scale of the second Tokyo edition is expanding with 610 exhibitors, and this growth is gathering great attention from the industry.

In this edition, innovative products with cutting-edge technologies, especially for elderly care items are often seen reflecting the demands from the aging society, Japan.

<Excerpt of Exhibits at MEDICAL JAPAN TOKYO 2019>

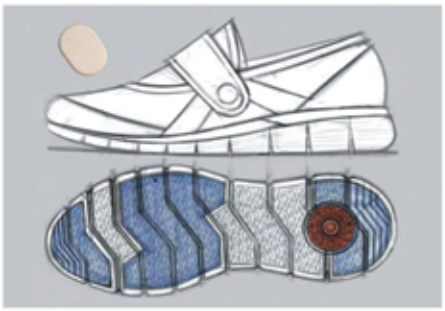
Mobility Support Robot to support transferring and standing position

Care camera with Artificial Intelligence for homecare and elderly care facility

Wearable Device - pelvic floor exerciser for ultimate comfort

Compact single joint exoskeleton robot with several special muscle training models

Most advanced Artificial Intelligence device for the blind and visually impaired



Smart Shoes for Activity and Location

To check more exhibits >> https://www.medical-jpn.jp/eguide_t_en/

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Contact MEDICAL JAPAN Show Management Organiser: Reed Exhibitions Japan Ltd.
TEL: +81-3-3349-8586 Email: medical-press@reedexpo.co.jp Web: https://www.medical-jpn.jp/en-gb.html

*The number of exhibitor is a forecast. The number may differ from the actual one at the show.

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STAND 3B64

HALL 4/ PHYSIOTHERAPY AND REHABILITATION
STAND 4J06

HALL 17
STAND 17A40

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Calendar

Here our trade shows selection.
Discover all worldwide medical exhibitions at
www.infomedix.it/calendars/tradeshow

October

23-25 10 2019

Medical Japan 2019 - Tokyo - 2nd International Medical and Elderly Care Expo and Conference

Tokyo - Japan
Organised by: Reed Exhibitions Japan Ltd.
18F Shinjuku-Nomura Bldg.,1-26-2
Nishishinjuku - Shinjuku-ku
Tokyo 163-0570
Japan
Phone: +81 3 3349 8519
Email: medical-japan@reedexpo.co.jp
Website: www.reedexpo.co.jp

Venue: Makuhari Messe
Tokyo - Japan

www.medical-jpn.jp/en-gb.html

November

31/10-02/11 2019

Asia Derma 2019 - 2nd Asia-Pacific Dermatology and Aesthetic Conference & Exhibition

Singapore - Singapore

Organized by: INDEX HOLDING SINGAPORE PTE Ltd.
1 Raffles Boulevard, Suntec City
Level 3 – Venue Management Office
SINGAPORE 039593
For more information please contact:
Marine Delahaye
Phone: + 971 4 520 8888 - Ext: 665
Fax: + 971 4 338 4193
Email: info@asiaderma.sg
Venue: SUNTEC Convention & Exhibition Centre
Singapore
http://asiaderma.sg/#

December

18-21 11 2019

MEDICA and COMPAMED 2019

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D-40001 Duesseldorf - Germany
Phone: +49 211 45 60 01
Infophone: +49 211 45 60 900
Fax: +49 211 45 60 668
Email: info@messe-duesseldorf.de
Website: www.messe-duesseldorf.de
Venue: Duesseldorf Trade Fair Centre
Messeplatz
40474 Duesseldorf

www.medica-tradefair.com

01-06 12 2019

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Chicago - USA

Radiological Society of North America (RSNA)
820 Jorie Blvd
Oak Brook, IL 60523-2251 USA
Phone: +1 630 571 2670
Toll Free (U.S. and Canada only):
1 800 381 6660
Fax: +1 630 571 7837
Website: www.rsna.org

Venue: McCormick Place
Chicago IL
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www.rsna.org/annual-meeting

13-15 12 2019

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Mumbai - India

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Organiser: emme — Messe Düsseldorf

26-28 02 2020
Medical Japan

January

27-30 01 2020

Arab Health 2020

Infomedix Booth: SA, H70

Dubai - United Arab Emirates

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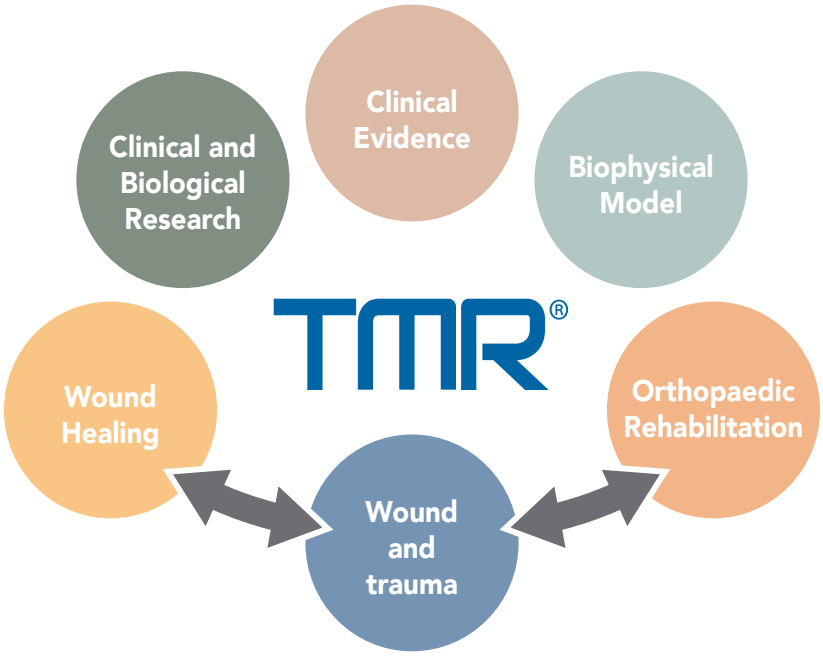

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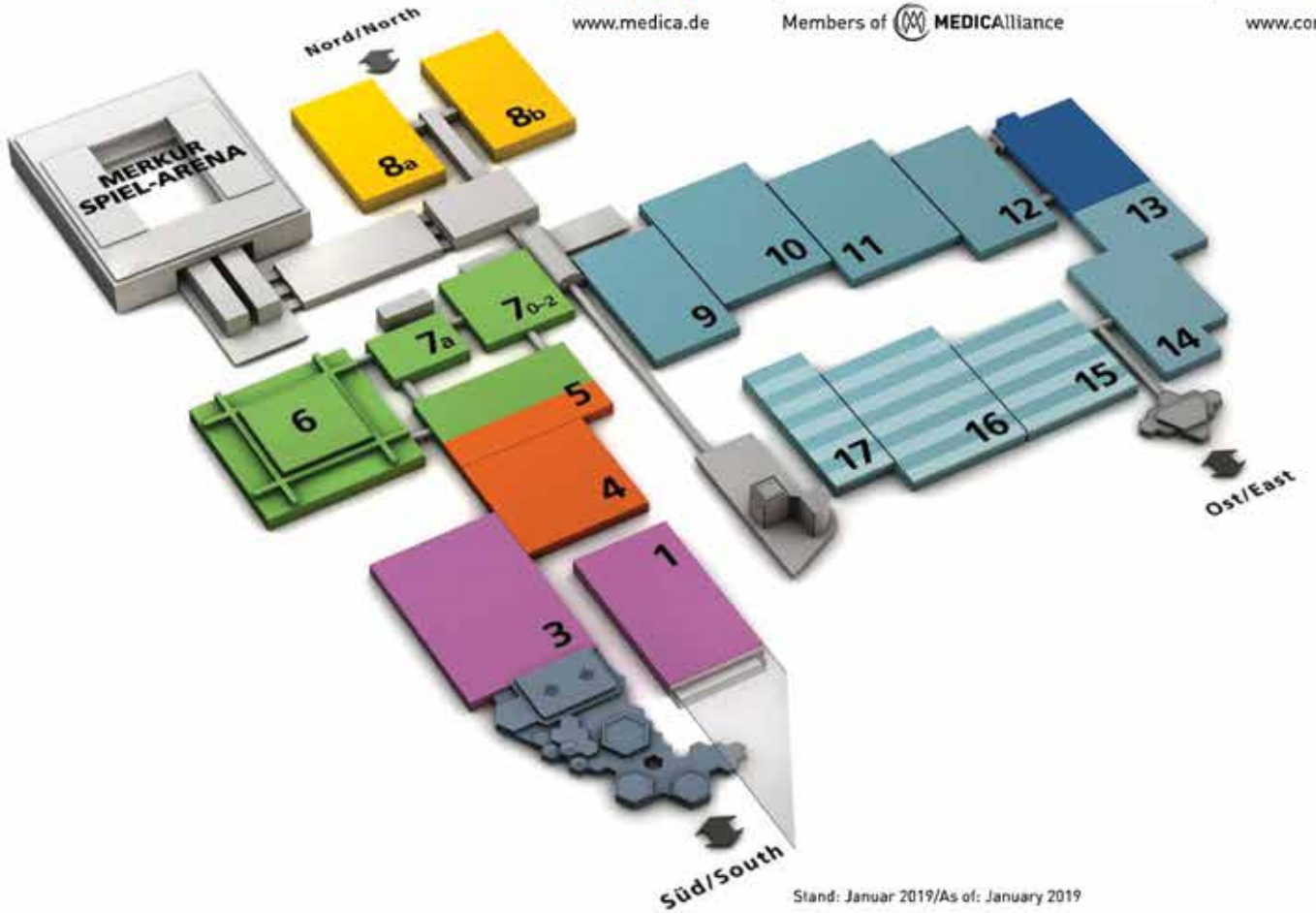

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Hallen/Halls 8a, 8b
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Hallen/Halls 4, 5
Physiotherapie, Orthopädietechnik
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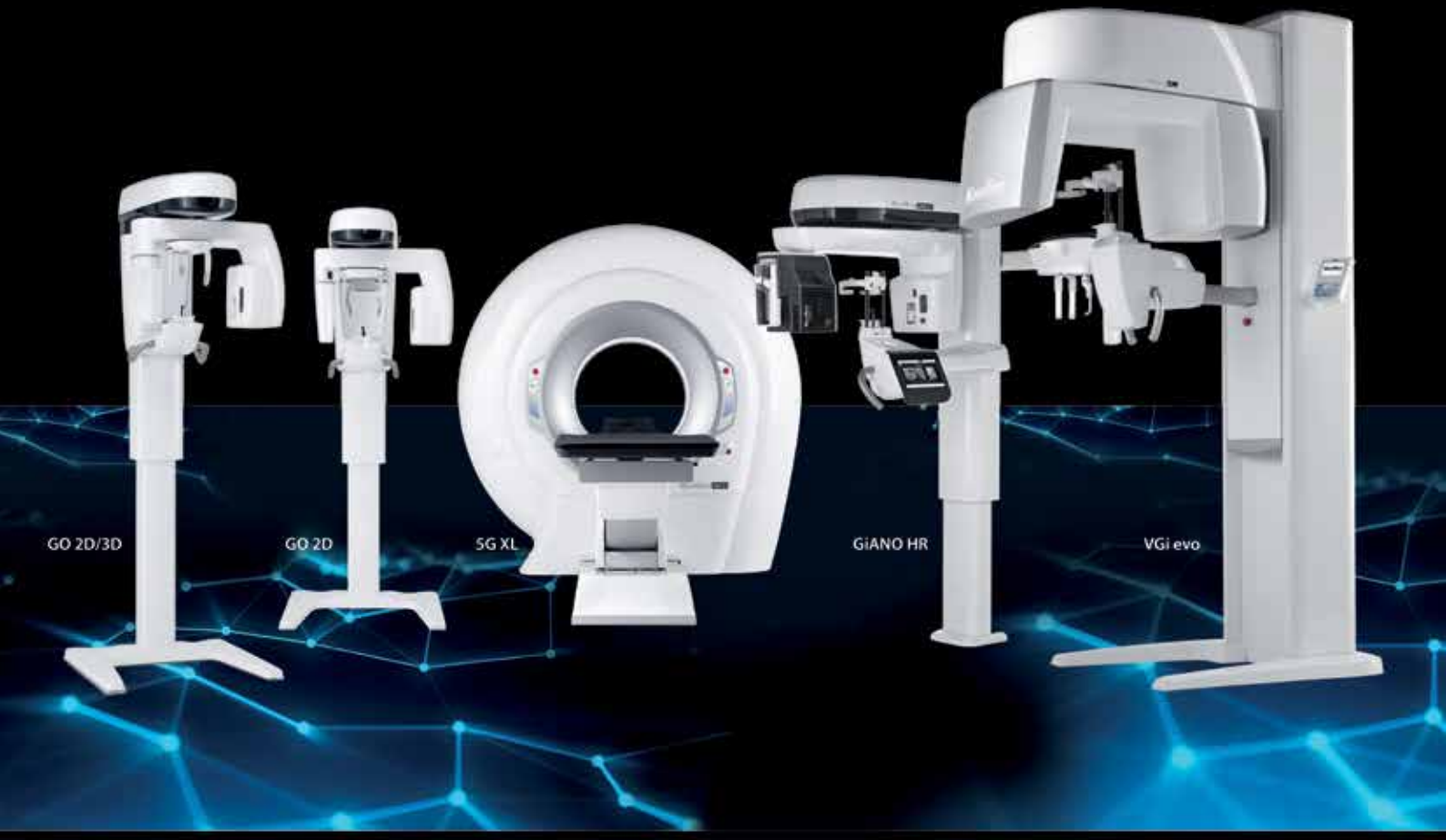

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