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Don't miss our brand new Distributors' Wall pp. 52-59

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We have been supporting endoscope repair facilities and technicians with customized training techniques for over a decade.



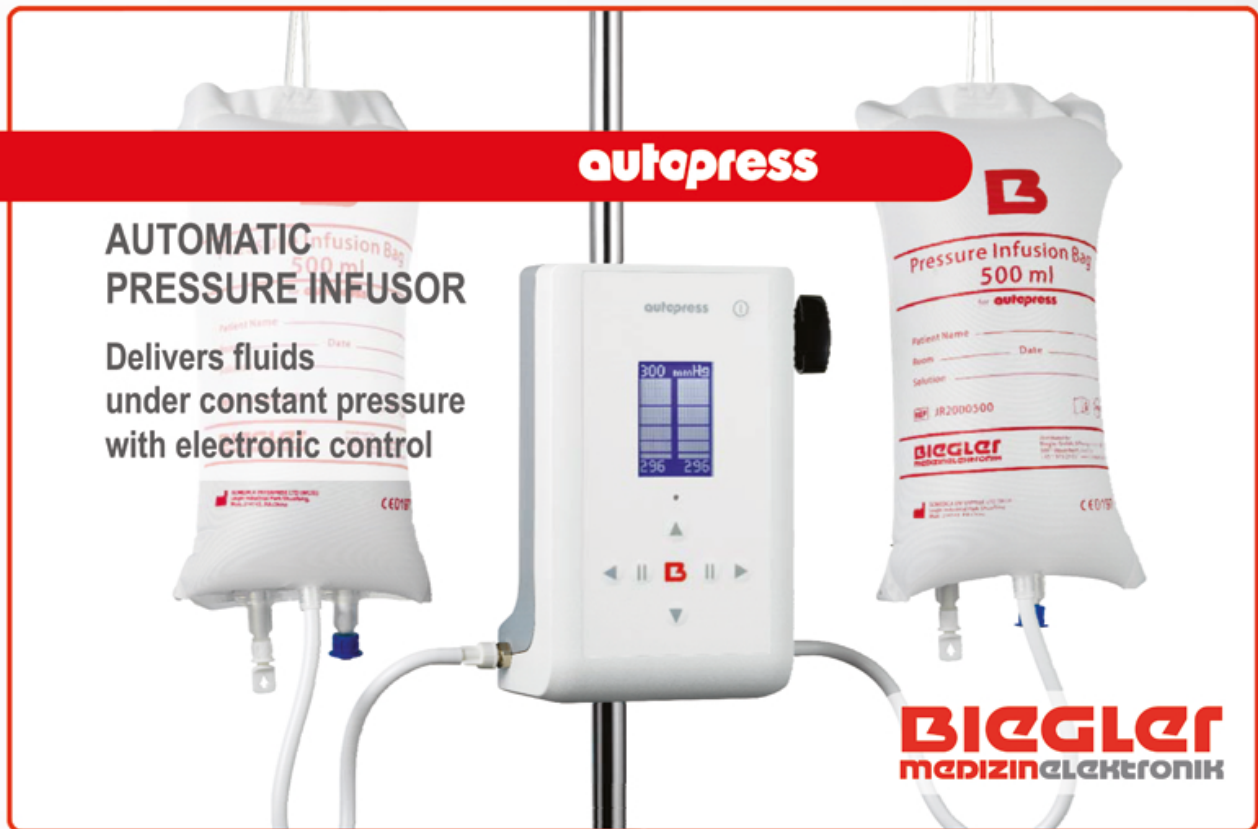
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BIEGLER GmbH develops and manufactures medical devices and disposables for over 40 years. Bieglar serves their customers by offering them not only high quality products and services but comprehensive and personal support as well.

The company based in Austria / Europe introduced the AUTOPRESS device as an important part of its fluid warming philosophy. Autopress works directly with Bieglar 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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- Small and lightweight
- Mains operated
- Pressure cuffs can be emptied rapidly and easily
- Significant reduction of set up time

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3001 Mauerbach
Austria

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CE 0123



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WORLD FORUM FOR MEDICINE
November 13 - 16, 2017
Hall 11, Stand A 22
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Contents

We are excited to develop an innovation in our Infomedix magazine. Starting from this issue our focuses are changing, nevertheless remaining loyal to our articles on the economic and medical markets as well as worldwide industry news.



FOCUS ON OBESITY

"Nearly 30 percent of the world's population is overweight or obese and not one country has reduced its obesity rate in over 30 years."



MARKET OVERVIEW - GERMAN HEALTHCARE SYSTEM

"According to the Euro health consumer index, which placed it in 7th position in its 2015 survey, Germany has long had the most restriction-free and consumer-oriented healthcare system in Europe, allowing patients to seek almost any type of care they wish whenever they want it."

Highlights

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**HOT TOPIC**

"July 2017 - The European Medicines Agency (EMA) has concluded its review of gadolinium contrast agents, confirming recommendations to restrict the use of some linear gadolinium agents used in MRI body scans and suspend the authorisations of others".

Special Radiology Research

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SPECIAL EVENT

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2D mammography!**

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13 november 2017 at 12.00



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PRINT VS. DIGITAL



Both digital and print publishing have their pros and cons but the real challenge with both is trying to maintain and build an audience as well as producing content that is engaging and relevant. With ever decreasing attention spans and even more content available people expect a constant stream of personalised engaging, short form content delivered instantly, most of which can be consumed on mobile and tablet.

Reading from print publications offers a memorable and leisurely experience as you fold page corners to save your favourite articles, tossing from page to page and digesting slowly. However, the problem with this is that once you've read it and tucked it away you're likely to forget about it. The beauty of digital publishing is that it makes it very easy to share your favourite articles to spark discussions on social networks that creates a much higher reader engagement, build community and access a lucrative wider audience. The true strength of digital growth is hard to measure and as newspapers and magazines circulation continues to shift from print to digital, **INFOMEDIX is also coming out with its digital format but without ever shifting from its beloved printed version**, satisfying all tastes. The key is establishing where, when and who we are reaching. We consume content differently on PC, mobile and tablet. Print provides a tactile human experience where the reader can sit back and enjoy "me" time in privacy, without being invaded by targeted digital ads being served up in real-time based on your browsing history or digital footprint.

Mobile provides consumers on the go with short snippets of relevant news (content snacking) whilst tablets allow readers to manipulate the content in beautiful ways by touch to scroll and swipe seamlessly. Publishers need to create a point of difference between their various versions.

It's safe to say that print and digital will always co-exist together, seamlessly being integrated into our everyday lives. After all, the word "magazine"; comes from the 16th century Arabic term *makzin or makzan*, which means storehouse. While publishers fixate on modes of distribution (print, online), they might be better off finding new ways to enrich the lives of their readers. Rethinking the magazine as a unified "house" of value is a nice starting point for brainstorming new ways for magazines to create pleasure and value for their audiences across different media, offering more ways of packing that storehouse with endless goodies. To learn more about our digital formats come and visit the **INFOMEDIX booths around the world and discover all other novelties such as the "DISTRIBUTORS WALL" at Arab Health in Dubai**, a dedicated wall inside our booth where you can attach your announcement and read all the others, with announcements of distributors and manufacturers looking for new business and contacts. You can use the wall at our booth to copy or give us contacts throughout the exhibition, creating an Infomedix meeting point!

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From conventional mammography to digital breast tomosynthesis



Metaltronica has been designing and manufacturing mammography devices for almost 40 years, our long experience and the excellent skills of our staff grant the highest productivity levels and quality standards. We provide a full range of complete solutions for mammography that can satisfy all customer's need.

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Helianthus DBT uses an anti-scatter grid specifically designed for tomosynthesis and this makes it a complete solution to obtain excellent images in 2D screening, 3D tomosynthesis and stereotactic biopsy.

www.metaltronica.com // metaltronica@metaltronica.com

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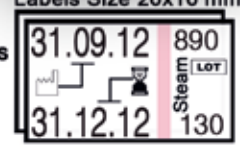
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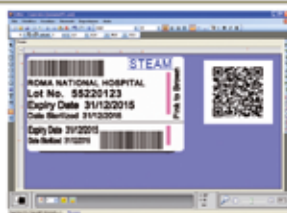


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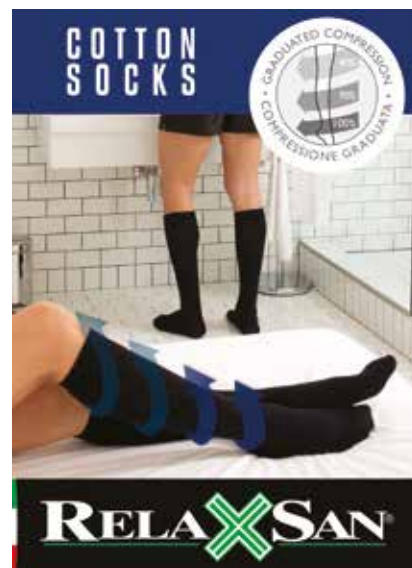
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ECM Echo Control Medical - the French choice for portable ultrasound



As if one wasn't enough, ECM, the French specialist in portable ultrasound, now releases the EXAPAD mini! Handier, more lightweight and with longer battery than its bigger brother EXAPAD, the EXAPAD mini is offering an excellent image quality and the same intuitive and streamlined user interface without any buttons.

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Advanced Mammography System: the new Giotto Class



The new Giotto CLASS mammography system is the latest addition to IMS Giotto's range. The system is designed to drastically improve screening and diagnostic throughput thanks to a high rotation speed between two consecutive projections and improved vertical run speed. Additionally, it features a lightweight stereotactic/tomo-guided biopsy kit for interventional procedures. This state-of-the-art system consists of an examination stand with integrated microprocessor-controlled high-voltage generator as well as a control desk with an integrated Acquisition Workstation (AWS). The gantry is ergonomically designed to give patients a natural and more relaxed positioning. The new CLASS mammography system, innovative performances.

IMS Giotto is a company of GMM Group.

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Villa Sistemi Medicali presents the new Apollo DRF 4.0



The new Apollo DRF 4.0, evolution of the reference remote controlled table from Villa, presents a series of improving features that enhance system's performance and usability, as well as its flexibility and dia-



gnostic capabilities, providing a rapid and efficient workflow with increased productivity and better diagnostic results.

The new borderless tabletop with reduced height from the floor improves the patient accessibility to the table and simplifies its transfer from the stretcher. The new touch screen console with smart-touch joysticks and the direct controls on the touch screen collimator improve and simplify the operator interaction with the equipment, while the new 2 way intercom system with preset audio messages allows to communicate with the patient in different languages.

Apollo DRF 4.0 can cover the widest range of R/F applications, providing high resolution images at very low dose: in addition to DSA and full-leg/full-spine exams, the new tomosynthesis modality offers detailed information resulting in a rapid and effective diagnostic process.

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Excelitas Technologies Introduces Qioptiq SlimLine Camera Lens System for Mobile X-Ray C-Arms



Qioptiq, an Excelitas Technologies® Company introduces SlimLine Camera Lens System for mobile X-ray C-arm medical imaging devices.

As the first 1K x 1K CMOS camera available for this market, the new compact ready-to-use SlimLine lens system offers high-resolution X-ray images in real time at an affordable price.

The design-to-cost OEM product consists of the SlimLine lens assembly and a QioCam X-ray camera to deliver a high-performance combination of optics (lens ele-

ments), mechanics (housing, flange) and electronics (motor control board for Iris communication).

The SlimLine lens assembly can be used with all 9" and 12" image intensifiers, and the camera is equipped with special functions including automatic gain control, gamma correction, frame on demand and more. The motion control board for Iris communication works with different interfaces such as GigE and SPI.

www.qioptiq.com // slimline.qpkg@excelitas.com

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www.stieglmeyer.com // info@stieglmeyer.com

Visit us at: **MEDICA 2017, Hall: 14, Booth: D05**



Evario – the hospital bed for all requirements

Thanks to its intelligent modular system the **Evario** is suited for all hospital units. Different control options, safety side systems, castors and head and footboards create a functional and aesthetically flexible hospital bed.

The **Evario** is suited for

- everyday medical care
- intensive care
- premium units

Different decors and shapes can be combined to design settings ranging from homelike elegance to a modern functional style.

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The greatest advantage of our new equipment is being completely independent from the mains thanks to its rechargeable battery pack featuring an extremely long endurance of use (> 200 exposures) so that there is definitely no need to compromise between power and mobility anymore!

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ECR 2018

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How to Work out the Body Mass Index (BMI)

What is a healthy BMI?

For most adults, an ideal BMI is in the 18.5 to 24.9 range. If your BMI is higher than 25, you weigh more than is ideal for your height. For children and young people aged 2 to 18, the BMI calculation considers age and gender as well as height and weight.

If your BMI is:

- Below 18.5 – you're in the underweight range
- Between 18.5 and 24.9 – you're in the healthy weight range
- Between 25 and 29.9 – you're in the overweight range
- Between 30 and 39.9 – you're in the obese range

How do you work out your BMI?

Divide your weight in kilograms (kg) by your height in metres (m), then divide your answer by your height again to get your BMI. For example, if you weigh 70kg and you are 1.75m tall, divide 70 by 1.75. The answer is 40. Then divide 40 by 1.75, which gives 22.9, which is your BMI.

Source: NHS Choices

<http://www.nhs.uk/ckq/Pages/3215.aspx?CategoryID=52>

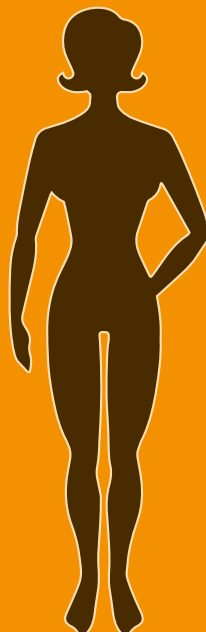


UNDERWEIGHT
< 18.5

HEALTHY WEIGHT
18.5 - 24.9

OVERWEIGHT
25 - 29.9

OBESE
> 30



Focus Obesity

A 21st Century Public Health Burden

Author: Silvia Borriello

silvia.borriello@infodent.com

Nearly 30 percent of the world's population is overweight or obese and not one country has reduced its obesity rate in over 30 years. With at least 4 million people dying each year as a result of being overweight or obese, obesity has reached epidemic proportions globally and if once associated with high-income countries, obesity is now also prevalent in low- and middle-income countries.



The prevalence of obesity has more than doubled between 1980 and 2014. In 2014, more than 1.9 billion adults were overweight and according to a report from the Institute of Health Metrics and Evaluation, based at the University of Washington in Seattle, **more than 603 million adults and 107 million children, out of a global population of around 7.5 billion, are obese, representing around 5 per cent of all children and 12 per cent of all adults.**

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. In 2013 the American Medical Association classified obesity as a disease. Overweight and obesity are in fact defined as “abnormal or excessive fat accumulation that may impair health”.

The body mass index (BMI) – the weight in kilograms divided by the square of the height in meters (kg/m²) – is a commonly used index to classify overweight and obesity in adults. WHO defines overweight as a BMI equal to or more than 25 and obesity as a BMI equal to or more than 30.

It is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few

cases are caused primarily by genes, endocrine disorders, medications or mental disorder. The view that obese people eat little yet gain weight due to a slow metabolism is not generally supported. On average, obese people have a greater energy expenditure than their thin counterparts' due to the energy required to maintain an increased body mass. **Obesity increases the likelihood of various chronic diseases and conditions, particularly cardiovascular diseases, type 2 diabetes, obstructive sleep apnea, chronic kidney and liver disease, certain types of cancer, an array of musculoskeletal disorders and depression.**

The view that obese people eat little yet gain weight due to a slow metabolism is not generally supported.

Childhood obesity is among one of the most serious public health challenges of the 21st century. Turning to a global issue, it is steadily affecting many low- and

middle-income countries, particularly in urban settings. The prevalence has increased at an alarming rate. **Globally, in 2015 the number of overweight children under the age of five, was estimated to be over 42 million. Almost half of all overweight children under 5 lived in Asia and one quarter lived in Africa.** Overweight and obese children are more likely to stay obese into adulthood and to develop noncommunicable diseases like diabetes and cardiovascular diseases at a younger age which, in turn, are associated with a higher chance of premature death and disability. The most significant health consequences of childhood overweight and obesity, that often do not become apparent until adulthood, include cardiovascular diseases (mainly heart disease and stroke); diabetes; musculoskeletal disorders, especially osteoarthritis and certain types of cancer (endometrial, breast and colon).

Analysing data from around the world, researchers found that excess weight in 2015 accounted for 4 million deaths and 120 million disability-adjusted life-years. Most deaths

from heart disease (70 %), diabetes, kidney disease and other factors. The per capita death rate was up 28.3 % since 1990 and, notably, 40 % of the deaths were among people who were overweight but not heavy enough to be classified as obese.

And yet, Overweight and obesity, as well as their related diseases, are largely preventable through a combination of social changes and personal choices. Changes to diet and exercising are the main treatments. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat and sugars and by increasing the intake of dietary fiber. Medications may be taken, along with a suitable diet, to reduce appetite or decrease fat absorption. If diet, exercise and medication are not effective, a gastric balloon or surgery may be performed to reduce stomach volume or bowel length, leading to feeling full earlier or a reduced ability to absorb nutrients from food.





Overweight and obese children are more likely to stay obese into adulthood and to develop noncommunicable diseases like diabetes and cardiovascular diseases at a younger age

According to the Institute of Health Metrics and Evaluation report, in 2015 a total of 107.7 million children (5%) and 603.7 million adults (12%) were obese worldwide. In this study of 68.5 million people from 195 countries, investigators analysed the trends between high BMI and burden of disease by age, sex and cause among children and adults between 1990 and 2015. **In adults, the prevalence of obesity was generally higher among women than men in all age brackets and the peak in the prevalence of obesity between the ages of 60 and 64 years among women and 50 and 54 years among men.** No sex differences were observed in obesity prevalence before the age of 20 years. While at all sociodemographic index levels and for all age groups, the prevalence of obesity was generally higher for women than for men, with the highest prevalence among women between the ages of 60 to 64 years living in countries with a high sociodemographic index. **In general, the prevalence of obesity among both women and men increased with the increase in the sociodemographic index across all age groups.** Among children, the prevalence of obesity was greater in countries with higher sociodemographic index levels. Since 1980, the prevalence of obesity has doubled in more than 70 countries and has continuously increased in most other countries; only the Democratic Republic

Measuring your Waist

Your risk of some health problems is affected by where your body fat is stored, as well as by your weight. Carrying too much fat around your middle (waist) can increase your risk of developing conditions such as:

- heart disease
- type 2 diabetes
- cancer

Measuring your waist is a good way to check you're not carrying too much fat around your stomach. You can have a healthy BMI and still have excess tummy fat – meaning you're still at risk of developing the mentioned diseases.

To measure your waist:

- find the bottom of your ribs and the top of your hips
- wrap a tape measure around your waist, midway between these points
- breathe out naturally before taking the measurement

Regardless of your height or BMI, you should try to lose weight if your waist is:

-94cm (37ins) or more for men

-80cm (31.5ins) or more for women

You are at very high risk and you should contact your doctor if your waist is:

-102cm (40ins) or more for men

-88cm (34ins) or more for women

Source: NHS Choices <http://www.nhs.uk/chq/Pages/849.aspx?CategoryID=51&SubCategoryID=165>



Understanding Calories

When we eat and drink more calories than we use up, our bodies store the excess as body fat. If this continues over time we may put on weight.

As a guide:

-an average man needs around 2,500kcal (10,500kJ) a day to maintain a healthy body weight.

-For an average woman, that figure is around 2,000 kcal (8,400kJ) a day.

The values can vary depending on age, size and levels of physical activity, among other factors.

Checking Calories in Food

Knowing the calorie content of food and drink can help ensure you're not consuming too much.

The calorie content of many shop-bought foods is stated on the packaging as part of the nutrition label.

This information will appear under the "Energy" heading. The calorie content is often given in kcals, which is short for "kilocalories", and also in kJ, which is short for "kilojoules".

A "kilocalorie" is another word for what is commonly called a "calorie", so 1,000 calories will be written as 1,000kcal.

Kilojoules are the metric measurement of calories. To find the energy content in kilojoules, multiply the calorie figure by 4.2.

The label will usually tell you how many calories are contained in 100 grams or 100 millilitres of the food or drink, so you can compare the calorie content of different products.

Many labels will also state the number of calories in "one portion" of the food. But remember that the manufacturer's idea of "one portion" may not be the same as yours, so there could be more calories in the portion you serve yourself.

Source: NHS Choices <http://www.nhs.uk/Livewell/loseweight/Pages/understanding-calories.aspx>

After the United States, citizens of many Middle Eastern countries, including Egypt, Algeria and Saudi Arabia, gained the most weight over the last 30 years.

of Congo had no increase. **Although the prevalence of obesity among children has been lower than that among adults, the rate of increase in childhood obesity in many countries has been greater than the rate of increase in adult obesity.** Among the 20 most populous countries the highest prevalence of obesity among adults in 2015 was observed in Egypt at 35.3% and the lowest in Vietnam at 1.6%. The highest prevalence of child obesity was in the United States at 12.7% and the lowest in Bangladesh at 1.2%.

Combining children and adults, the United States had the dubious distinction of having the largest increase in percentile points of any country, a jump of 16 percentage points to 26.5 % of the overall population. After the United States, citizens of many Middle Eastern countries, including Egypt, Algeria and Saudi Arabia, gained the most weight over the last 30 years. Countries with the highest rates included Tonga, Samoa and Kiribati in the South Pacific and Kuwait, Libya and Qatar in the Middle East.

But other countries had rates that rose much faster, even though they remained lower as an overall percent of the population. Broadly, the fastest rises were found in Latin America, Africa and China.

In China, for example, less than 1 % of the population was obese in 1980, but now more than 5 % is, a fivefold increase. The rise in childhood obesity in China roughly paralleled that overall change. Together



How do I Know if a Food is High in Fat, Saturated Fat, Sugar or Salt?

There are guidelines to tell you if a food is high in fat, saturated fat, salt or sugar, or not. These are:

Total fat

High: more than 17.5g of fat per 100g

Low: 3g of fat or less per 100g

Saturated fat

High: more than 5g of saturated fat per 100g

Low: 1.5g of saturated fat or less per 100g

Sugars

High: more than 22.5g of total sugars per 100g

Low: 5g of total sugars or less per 100g

Salt

High: more than 1.5g of salt per 100g (or 0.6g sodium)

Low: 0.3g of salt or less per 100g (or 0.1g sodium)

For example, if you are trying to cut down on saturated fat, limit your consumption of foods that have more than 5g of saturated fat per 100g.

Source: NHS Choices <http://www.nhs.uk/Livewell/Goodfood/Pages/food-labelling.aspx>



with China, India had the highest numbers of obese children in 2015.

The widest fluctuations were in Africa. Island nations like Mauritius and the Seychelles had obesity rates nearly 10 times those of Ethiopia and Burundi, for example. Relatively prosperous South Africa had the highest female obesity rates, but obesity was also surprisingly high in a few poor nations like South Sudan and Equatorial Guinea. Three countries in Africa — Burkina Faso, Mali and Guinea-Bissau — had the fastest growth. Burkina Faso, the country with the fastest growth in the world in obesity, began in 1980 with around one-third of a percent of its population as obese. Its rate rose to nearly 7 % of the population.

Countries near each other may differ greatly. Few Tunisians are obese, while many Libyans are. Bhutan's obesity rates are five times as high as Nepal's. The two Koreas, vastly different in wealth, are both low, though South Koreans are somewhat fatter.

Given the huge health and economic costs linked with overweight and obesity, no country in the globe has reduced overweight or obesity levels and high BMI continues to have one of the highest rates of increase among the leading health risks. Across levels of development, the prevalence of obesity has increased over recent decades, which indicates that the problem is not simply a function of income or wealth. Changes in the food environment and food systems are probably major drivers. Increased availability, accessibility and affordability of energy-dense foods, along with intense marketing of such foods, could explain excess energy intake and weight gain among different populations. The reduced opportunities for physical activity that have followed urbanization and other changes in the built environment have also been considered as potential drivers; however, these changes generally preceded the global increase in obesity and are less likely to be major

contributors. What people eat is the key factor in whether they become obese or not but getting people healthy food is easier said than done. Unhealthy foods cost less; healthier foods often cost more and people simply eat what they can afford... to date no country has been able to control the food environment, which seems to be the main driver of obesity.

Among main sources:

- Extracts from the study compiled by the Institute for Health Metrics and Evaluation at the University of Washington, funded by the Gates Foundation, published in The New England Journal of Medicine. <http://www.nejm.org/doi/full/10.1056/NEJMoa1614362#t=article>
- The W.H.O. - <http://www.who.int/features/factfiles/obesity/en/>
- <https://www.nytimes.com/2017/06/12/health/obesity-study-10-percent-globally.html?mcubz=0>
- <https://www.nytimes.com/2014/06/03/health/nation-has-lowered-obesity-rate-in-33-years.html?action=click&contentCollection=Health&module=RelatedCoverage®ion=EndOfArticle&pgtype=article>

Population
82.6 mn
(2016)

Foreign
Population
8.7 mn
(2015)

With Migrant
Background
17.1 mn
(2015)

Capital
Berlin

Life
Expectancy
at Birth
81.1
(2015)

Persons in
Employment
43.7 mn
3rd quarter
2016

VAT/Sales tax **19%**
on purchases.
Reduced to 7% on
certain items and services
including the costs
of production of dental
prosthesis.

Economic Growth
(GDP)
1.7 % (2015)
0.2% (3rd quarter 2016)

Urbanization
75.3%
(Share of
urban
population
in the total
population,
2015)

GDP
3,363,599
Million current
USD, 2015

GDP
8.7 mn
(2015)

GDP
per capita
41,176
(USD, 2015)

German Healthcare System

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According to the Euro health consumer index, which placed it in 7th position in its 2015 survey, Germany has long had the most restriction-free and consumer-oriented healthcare system in Europe, allowing patients to seek almost any type of care they wish whenever they want it. However, although providing very high quality healthcare, it is also one of the most expensive among the systems and keeps undergoing reforms to reduce costs and maintain or improve quality.

Germany has the world's oldest national social health insurance system, with origins dating back to Otto von Bismarck's social legislation, which included the *Health Insurance Bill of 1883*, *Accident Insurance Bill of 1884* and *Old Age and Disability Insurance Bill of 1889*. **Mandatory health insurance originally applied only to low-income workers and certain government employees, but has gradually expanded to cover the great majority of the population.** The system is decentralized with private practice physicians providing ambulatory care and independent, mostly non-profit hospitals providing the majority of inpatient care.

Publicly Financed Health Insurance

With its universal multi-payer healthcare system Germany ensures free healthcare for all via health insurance funds.

Health insurance is mandatory for all citizens and permanent residents of Germany. It is provided by competing, not-for-profit, nongovernmental health insurance funds or "sickness funds" (there were 124 as of January 2015) in the Statutory Health Insurance system (SHI), or by substitutive Private Health Insurance (PHI).

Coverage is universal for all legal residents. All employed citizens (and other groups such as pensioners) earning less than EUR54,900 per year (as of 2015) are mandatorily covered by Statutory Health Insurance, and their dependents (nonearning spouses and children) are covered free of charge. Individuals whose gross wages exceed the threshold (over EUR54,900), as well as the previously SHI-insured self-employed, can remain in the publicly financed scheme on a voluntary basis (and 75% do) or purchase substitutive Private Health Insurance, which also covers civil servants. The sickness funds are mandated to provide a unique and broad benefit package and cannot refuse membership or otherwise discriminate on an actuarial basis. **About 86% of the population receives their primary coverage through SHI and 11% through substitutive PHI.** The remainder (e.g., soldiers and policemen) are covered under special programs. Visitors are not covered through German SHI. Undocumented immigrants are covered by social security in case of acute

The sickness funds are mandated to provide a unique and broad benefit package and cannot refuse membership or otherwise discriminate on an actuarial basis.

illness and pain, as well as pregnancy and childbirth. **Statutory Health Insurance, which provides a standardized level of coverage, is funded by a combination of employee contributions, employer contributions and government subsidies on a scale determined by income level.** As such, the social insurance premium is not dependent on an individual's health condition, but on a percentage of salaried income (currently 15.5%, 7.3% of which is covered by the employer), shared between employee and employer. Out-of-pocket spending accounted for 13.6 % of total health spending in 2013, mostly on nursing homes, pharmaceuticals and medical aids (Federal Statistical Office, 2015). Co-payments, which exist for medicines and other items, are relatively low compared to other countries; they include outpatient prescriptions, inpatient hospital (for e.g. accommodation and meals) and rehabilitation stays as well as prescribed medical devices. SHI-contracted physicians are not allowed to charge above the fee schedule for services in the SHI benefit catalogue. However, a list of "individual health services" outside the comprehensive range of SHI coverage may be offered to patients paying out-of-pocket.

According to the Principle of solidarity: In the German healthcare system, statutory health insurance members mutually carry the individual risks of loss of earnings and the costs of medical care in the event of illness. Everyone covered by statutory insurance has an equal right to receive care – regardless of their income and premium level. Premiums are based solely on income. This means that the rich can help the poor, and the healthy can help the ill. However, these premiums are only based on a percentage scale up to a certain income level. Anyone earning more than this amount pays the same maximum premium.

Private health insurance (PHI): In 2014, 8.8 million people were covered through substitutive private health insurance (Association of Private Health Insurance Companies, 2015). There were 42 substitutive PHI companies in June 2015 (of which 24 were for-profit) covering the two groups exempt from SHI (civil servants, whose healthcare costs are partly refunded by their employer and the self-employed) and those who have chosen to opt out of SHI. All of the PHI-insured pay a risk-related premium linked to health status and age, with separate premiums for dependents; risk is assessed only upon entry and based on an individual agreement between the insurance company and the insured person defining the set of covered services and the percentage of coverage. **Government regulates PHI to ensure that the insured do not face large premium increases as they age and are not overburdened by premiums if their income decreases. PHI also plays a mixed complementary and supplementary role, covering minor benefits not covered by SHI, access to better amenities and some co-payments (e.g. for glasses, coverage abroad and additional dental care or more sophisticated dentures).** The federal government determines provider fees in substitutive, complementary and supplementary PHI through a specific fee schedule. There are no government subsidies for complementary and supplementary PHI. **In 2013, all forms of PHI accounted for 9.2% of total health expenditure** (Federal Statistical Office, 2015)

Healthcare Provision

Germany has a strong healthcare system in terms of infrastructure, hospital beds and trained staff. In 2015 it counted 499,351 beds in 1,956 hospitals, around 2,000 medical supply stores, 1,240 rehabilitation centers and 21,062 pharmacies. **One out of six jobs in Germany is linked to the healthcare sector as the well-established infrastructure makes the health-**

Social Security Contributions Often Higher than Taxes

Case I: Family of 4 (single earner, married couple, and 2 children),
income gross: € 3,000

Gross income	Employee Euro 3,000	Employer
Contribution old age pension	298.- €	298.- €
Contribution health insurance	246.- €	219.- €
Contribution long-term care	29.- €	29.- € (children)
Contribution unemployment insurance	45.- €	45.- €
Contribution accident insurance	0	48.- € (industrial sector)
TOTAL social security contribution	618.- €	639.- €
TAX	240.- €	

Case II: Single, income gross: € 10,000

Gross income	Employee 10 000.- €	Employer
Contribution old age pension	547.- €	547.- €
Contribution health insurance	private	
Contribution long-term care	private	
Contribution unemployment insurance	83.- €	83.- €
Contribution accident insurance	0	160.- € (industrial sector, no limit)
TOTAL social security contribution	610.- €	770.- €
TAX	3 800.- €	

Source: _Understanding_the_German 2010 -https://www.goinginternational.eu/newsletter2013nl_03SpecialDE_EN_Understanding_the_German.pdf

care industry the largest employer in Germany with over 7 million employees. With one of the highest population densities within the European Union, the proportion of physicians in the population is around 3.4 per 1,000 inhabitants. The number of physicians rose again in 2013. **Of a total of 470,422 physicians living in the Federal Republic at the end of 2013, 357,252 were profession-**

ally active. Of these, 181,012 were working in hospitals and 145,933 in a practice (primary care).

The healthcare system is divided into three main areas: outpatient care (primary care), inpatient care (the hospital sector) and rehabilitation facilities

- Outpatient care or Ambulatory care
- businesses of self-employed professionals.

There are private practices and statutory healthcare fund practices; both in general medicine and for specialized medical care. **Private practices only treat patients with private health insurance or self-payers. "Panel doctors", i.e. doctors who have been recognized by the Association of Statutory Health Insurance Physicians as service providers to patients with SHI, are entitled to treat both types of patients.** Most people go to see their family doctor (*Hausarzt*) first. In Germany, general practitioners, internists and pediatricians are considered to be family doctors. These doctors can refer patients to the right kind of specialist or patients can go straight to specialists without a referral. **In 2014, 48% of self-employed SHI-accredited physicians in ambulatory care were practicing as family physicians and 52% as specialists.** There were about 2,000 multispecialty clinics in 2014, joint practices and medical care centers with two or more doctors or other healthcare professionals working together which can often offer services that are usually only available in hospitals, like special examinations or day surgery. Panel doctors only receive a lump sum per quarter per statutory healthcare patient they treat. This lump sum is distributed by the Association of Statutory Health Insurance Physicians and costs exceeding this lump sum are not reimbursed and must be borne by the physician. Private patients, accounting for roughly 10% of all patients, are charged on a fee-for-service basis with doctors and dentists earning roughly twice as much on the same service when treating private patients.

- Inpatient care (Hospital Care) - Most hospitals in Germany treat all patients regardless of whether they have statutory or private health insurance. **Publicly owned hospitals make up about half of all beds, while private not-for-profits (Charity-run or church-run hospitals) account for about a third.**

The for-profit hospitals in Germany are largely comprised of hospital chains, with Asklepios, Sana, Helios und Rhoen being the dominate chains. **The number of private, for-profit hospitals has been growing in recent years (now around one-sixth of all beds).** Hospitals also provide certain highly specialized services on an outpatient basis.

Total Hospital Beds and Average Length of Stay in Steady Decline

Year	Number of Hospitals	Beds Provided	Number of Cases	Length of Stay (average days)	% of Bed Occupancy Rate (average)
1995	2,325	609,123	15,931,168	11.4	82.1 %
2010	2,064	502,749	18,032,903	7.9	77.4 %
2011	2,045	502,029	18,344,156	7.7	77.3 %
2012	2,017	501,475	18,620,442	7.6	77.4 %
2013	1,996	500,671	18,787,168	7.5	77.3 %
2014	1,980	500,680	19,148,626	7.4	77.4 %
2015	1,956	499,351	19,239,574	7.3	77.5 %

Source: <https://www.destatis.de/EN/Homepage.html>

Rehabilitation Clinics - For-profit companies dominate this sector. About 56% of the roughly 1,240 rehabilitation clinics are held by private owners, 26% by independent charitable organizations and 18% by public entities.

In contrast to hospitals, rehabilitation clinics do not typically receive public grants and are therefore particularly exposed to competitive pressures. To save costs, the responsible payer generally prefers the rehabilitative care to be prescribed on an outpatient basis in the primary sector. Nonetheless, given the aging population, the long-term prospects for rehabilitation clinics are favorable. At present, rehabilitation clinics are

increasingly providing the post-operative care following the hospital discharge. This is a result of the introduction of the diagnosis related groups and the incentive of the hospitals to discharge their patients as soon as possible.

Health Sector Turnover

Medical technology is set to remain a German domain, at least until 2020. **Germany has a long history of producing high quality medical equipment, with particular emphasis on diagnostic imaging, dental products and optical technologies.** Not only is Germany the third largest market in the world after the United States and Japan but also by far

the largest European market - twice the size of the French market and three times as large as those of Italy, the United Kingdom, and Spain.

Accordingly, German healthcare expenditures are comparatively high but also increasingly cost-contained. In 2014 total expenditures increased 4% to 327,951 billion € roughly 11.2% of GDP. **In per capita terms, expenditure is estimated at 4,050€, exceeded only by Denmark, the United States, Switzerland and Norway.**

Approximately 76.5% of healthcare expenditure is sourced from the

Health expenditures in Germany as share of GDP and in millions of Euro (absolute and per inhabitant).

Figure Year	2000	2005	2010	2011	2012	2013	2014
Total expenditure on health in mill. €	213,804	241,932	290,252	295,510	302,907	314,666	327,951
Share of GDP in %	10.1	10.5	11.2	10.9	11.0	11.2	11.2
Health expenditures per inhabitant in €	2,601	2,934	3,550	3,681	3,766	3,902	4,050

Source: <https://www.destatis.de/EN/Homepage.html>

public sector mostly from statutory health insurances (58%). As public health insurance funds continue to record deficits and public hospitals are operating at a loss, health reforms and cost-cutting measures keep the market tight and increase pressure on prices. Hospitals in the public sector are therefore pressed to maintain existing equipment rather than investing in new units. Private hospitals, now at 30% of hospital total in Germany, as well as the over 60 university hospitals with specialized departments, seek price-competitive state-of-the-art technologies and equipment offering proven cost savings.

The Healthcare Industry

The German healthcare industry offers high growth potential and provides opportunities for medical technology imports. The Federal Ministry of Economics anticipates that by 2030, an additional two million people will be employed in the industry. Current austerity measures are likely to hit the pharmaceutical industry harder than the medical device industry, which continues to be a job engine and is expected to achieve steady growth over the next five years with annual growth rates of 3-4%. **The German market accounts for 40 % of the entire EU market for medical devices.** Apart from a handful of large producers, headed by Siemens, B. Braun and Fresenius, **95% of the German medical technology industry is characterized by small and mid-sized companies or sub-groups of larger companies.** 95% of all compa-

nies employ less than 250 employees and rarely does one company represent more than 2% of the entire sector. In addition, foreign industry giants such as Philips (NL), Hitachi (Japan) and Toshiba (Japan), GE Medical (USA), 3M Healthcare (USA), Medtronic (USA) and Johnson & Johnson (USA) are only a few of the many German subsidiaries of foreign medical device suppliers. As a result of a low-growth domestic market, the German medical technology industry has to rely heavily on export markets for continued growth. On average, German medical technology companies export between 60% - 65% of their products. In 2014 foreign sales rose by 2% and the exports reached 68% of local production. **Next to a strong German manufacturing base, imports supply around three-quarters of the German medical market (\$16.7 billion).** Between 2007 and 2011 medical device imports recorded a CAGR of 6.6% in Euro terms. Suppliers of innovative and price-competitive products can compete strongly on the German market. Most medical equipment imported into Germany is either sold direct through a local subsidiary, through medical distributors with an established distribution network or through appointed agents or manufacturer representatives. A representation or distributorship agreement may be harder to arrange but the German associate will, in fact, purchase the product which is to be sold, thus sharing the marketing risk. Finding a mid-size distributor covering all of the German, or German-speaking, market has become harder

since large manufacturers have increasingly purchased the good distributors off the market to gain access to established distribution channels, rather than developing those themselves. **As Germany's healthcare market is very decentralized and regional, it may therefore be a viable alternative to seek regionally active and well-established dealers/distributors for northern, southern and eastern Germany with defined territories.**

Current Market Trends - Demand for medical supply will mainly be driven by demographics and a substantial increase in the number of patients. Germany's population still accounts for **20% of the total population in Western Europe and is increasingly aging.** By 2050 the 65+ age group is forecast to expand to 23 million, up from an estimated 17 million in 2012. **The German medical technology industry is a highly innovative and dynamic sector.** One third of sales are generated by devices that are less than three years old and approximately 9% of all sales are reinvested in research. The German healthcare system is also **among the best in the world regarding the uptake of new technologies.** More than two thirds of German physicians are seeing innovation as the key element in maintaining the high standards of the German healthcare system.

Sources:

- Germany Trade & Invest (GTAI) - the economic development agency of the Federal Republic of Germany: <https://www.gtai.de/GTAI/Navigation/EN/Meta/Press/Markets/Markets-germany/Issues-2016/markets-germany-2016-01,t=with-a-flawless-smile,did=1383728.html>
- The German Medical Association: <http://www.bundesaerztekammer.de/weiteresprachen/english/healthcare-system/>
- http://2016.export.gov/industry/health/health-care/resourceguide/eg_main_092308.asp
- <https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0078019/>
- <https://www.destatis.de/EN/Homepage.html>
- [_Understanding_the_German 2010 -httpswww.goinginternational.eu/newsletter2013n1_03SpecialDE_EN_Understanding_the_German.pdf](http://www.goinginternational.eu/newsletter2013n1_03SpecialDE_EN_Understanding_the_German.pdf)
- The Commonwealth Fund: "International Profiles of Health Care systems, 2015"
- <https://www.statista.com/statistics/295444/germany-gross-domestic-product/>

The German Medical Equipment Market (Billion Euros)

	2013	2014
Market Total Total Market Size = (Total Local Production + Total Imports) – (Total Exports)	30.4	31.0
Local Production	29.8	30.6
Exports	20.5	21.2
Imports	21.1	21.6

Source: http://2016.export.gov/industry/health/healthcare/resourceguide/eg_main_092308.asp

EMA's Final Opinion Confirms Restrictions on Use of Linear Gadolinium Agents in Body Scans

Recommendations conclude EMA's scientific review of gadolinium deposition in brain and other tissues

July 2017 - The European Medicines Agency (EMA) has concluded its review of gadolinium contrast agents, confirming recommendations to restrict the use of some linear gadolinium agents used in MRI body scans and suspend the authorisations of others.

The recommendations – confirmed by EMA's Committee for Medicinal Products for Human Use (CHMP) – follow a review that found that gadolinium deposition occurs in brain tissues following use of gadolinium contrast agents.

There is currently no evidence that gadolinium deposition in the brain has caused any harm to patients; however, EMA has recommended restrictions for some intravenous linear agents to prevent any risks that could potentially be associated with gadolinium brain deposition.

The intravenous linear agents gadoxetic acid and gadobenic acid can continue to be used for liver scans because they are taken up in the liver and meet an important diagnostic need. In addition, gadopentetic acid given intra-articularly (into the joint) can continue to be used for joint scans because the dose of gadolinium used for joint injections is very low. All other intravenous linear products (gadodiamide, gadopentetic acid and gadoversetamide) should be suspended in the EU. Another class of gadolinium agents known

as macrocyclic agents (gadobutrol, gadoteric acid and gadoteridol) are more stable and have a lower propensity to release gadolinium than linear agents. These products can continue to be used in their current indications but in the lowest doses that enhance images sufficiently and only when unenhanced body scans are not suitable. The suspensions or re-

Product	Type (formulation)	Recommendation
Artirem / Dotarem (gadoteric acid)	macrocyclic (i.v.)	maintain
Artirem / Dotarem (gadoteric acid)	macrocyclic (intra-articular)	maintain
Gadovist (gadobutrol)	macrocyclic (i.v.)	maintain
Magnevist (gadopentetic acid)	linear (intra-articular)	maintain
Magnevist (gadopentetic acid)	linear (i.v.)	suspend
Multihance (gadobenic acid)	linear (i.v.)	restrict use to liver scans
Omniscan (gadodiamide)	linear (i.v.)	suspend
Optimark (gadoversetamide)	linear (i.v.)	suspend
Primovist (gadoxetic acid)	linear (i.v.)	maintain
Prohance (gadoteridol)	macrocyclic (i.v.)	maintain



strictions on linear agents can be lifted if the companies concerned provide evidence of new benefits in an identified patient group that outweigh the risk of brain deposition or if the companies can modify their products so they do not release gadolinium significantly or cause its retention in tissues. EMA's scientific review of gadolinium deposition in brain and other tissues is now concluded. The final recommendations will be sent to the European Commission, which will issue a final legally binding decision applicable in all EU Member States.

Information for patients

- Gadolinium contrast agents are given to patients during body scans to help obtain a clear image of the inside of the body.
- It is known that small amounts of gadolinium may remain in the brain after a scan with these agents, although there is currently no evidence that these small amounts cause any harm.
- As a precaution, doctors will stop using some contrast agents given into the vein while some others will only be used when other agents are not suitable (e.g. for liver scans).
- Gadolinium contrast agents are essential for diagnosing a wide range of life-threatening and debilitating diseases.
- If you need a scan with a gadolinium contrast agent to help in your treatment, your doctor will use the lowest dose required for a clear image.
- If you have any questions about your scan, speak to your doctor.

Information for healthcare professionals

- Gadolinium deposition in the brain has been confirmed by mass spectrometry and increases in signal intensity in brain tissue.
- Data on stability, as well as in vitro and non-clinical studies, show that linear gadolinium agents release gadolinium from the ligand molecules to a greater extent than macrocyclic agents.
- No adverse neurological effects, such as cognitive or movement disorders, have been attributed to gadolinium deposition in the brain with any gadolinium agents.
- The marketing authorisations for the

intravenous linear agents gadodiamide and gadoversetamide, as well as the intravenous formulation of the linear agent gadopentetic acid, are being suspended in the EU.

- Two intravenous linear agents – gadoxetic acid and gadobenidic acid – will remain available as these agents undergo hepatic uptake, and can be used for imaging poorly vascularised hepatic lesions, especially in delayed phase imaging, that cannot be adequately studied with other agents.
- Intra-articular formulations of the linear agent gadopentetic acid will continue to be available because the dose of gadolinium that is required for these scans is very low.
- All macrocyclic agents reviewed – gadobutrol, gadoteric acid and gadoteridol – will also remain available.
- Healthcare professionals should use gadolinium contrast agents only when essential diagnostic information cannot be obtained with unenhanced scans.
- Healthcare professionals should always use the lowest dose that provides sufficient enhancement for diagnosis.
- The product information for gadolinium contrast agents remaining on the EU market will be updated accordingly.
- Healthcare professionals in the EU will also be sent a letter with information about EMA's review of gadolinium contrast agents.

More about the medicines

Gadolinium contrast agents are used as contrast enhancers to improve image quality with magnetic resonance scans. These body scans rely on the magnetic fields produced by water molecules in the body. Once injected, gadolinium interacts with the water molecules. As a result of this interaction, the water molecules give a stronger signal, helping to

obtain a brighter image.

This review covers agents containing the following active substances: gadobenidic acid, gadobutrol, gadodiamide, gadopentetic acid, gadoteric acid, gadoteridol, gadoversetamide and gadoxetic acid.

Most gadolinium-containing contrast agents have been authorised nationally in the EU. OptiMARK (gadoversetamide) is the only gadolinium contrast agent that was authorised centrally via EMA in the EU.

More about the procedure

The review of gadolinium contrast agents was initiated on 17 March 2016 at the request of the European Commission, under Article 31 of Directive 2001/83/EC.

The review was first carried out by the Pharmacovigilance Risk Assessment Committee (PRAC), the Committee responsible for the evaluation of safety issues for human medicines, which made a set of recommendations in March 2017.

Following a request from companies concerned, the PRAC re-examined its initial recommendation. The PRAC's final recommendations were sent to the Committee for Medicinal Products for Human Use (CHMP), responsible for questions concerning medicines for human use, which has adopted the Agency's final opinion.

The final stage of the review procedure is the adoption by the European Commission of a legally binding decision applicable in all EU Member States.

Source: European Medicines Agency, Science Medicines Health: http://www.ema.europa.eu/ema/index.jsp?curl=pages/medicines/human/referrals/Gadolinium-containing_contrast_agents/human_referral_prac_000056.jsp&mid=WC0b01ac05805c516f

FDA Panel Backs New Warning for Gadolinium Contrast Agents

Manufacturers Could be Required to Conduct New Studies

September 11, 2017 -SILVER SPRING, Md. - An FDA advisory committee voted 13-1, with one abstention, to recommend a new warning for gadolinium-based contrast agents (GBCAs) used in magnetic resonance imaging on Friday.

Specifically, the FDA's Medical Imaging Drugs Advisory Committee recommended that prescribing information should include "a warning for retention for all GBCAs with greater retention of all or some of the linear GBCAs compared to the macrocyclics in certain organs including the brain," and that "risk minimization steps" be taken for certain patient populations. The FDA made a minor distinction between macrocyclic and linear GBCAs, noting the higher stability of the macrocyclics may cause them to "wash out" of the body; but the agency stressed that both agents leave behind deposits of gadolinium. Agency leadership asked the committee for advice on how to weigh recent findings of gadolinium retention in the brain and other organs, and how to minimize potential risks moving forward. Virtually all committee members agreed that the evidence of retention in patients, to date, doesn't indicate a definitive causal relationship with an array of symptoms reported in the FDA's database and medical literature, beyond previously identified concerns for kidney patients (current labelling already includes a boxed warning and contraindications for this population). In 2007, researchers uncovered a link between GBCAs and nephrogenic systemic fibrosis (NSF) -- a debilitating condition, that impacts the skin, muscles and internal organs and is sometimes fatal -- in kidney patients, however more recent evidence suggests patients without impaired renal function also show deposits of gadolinium in their central nervous system and throughout the body. As recently as June, researchers reported that gadolinium deposits were found in patients with normal brains -- previously intracranial abnormalities were seen as responsible for the agents clinging to neural tissues. Still, members voted unanimously to recommend the FDA consider requiring industry conduct more research to help the agency

determine if regulatory action "including withdrawal of approval and restriction of indicated populations" is necessary. Jeffrey Brent, MD, PhD, of the University of Pennsylvania, who backed the new warning, described the latest evidence of problems in patients without a serious renal condition as "anecdotal data." However, "there clearly is concern and people need to know."

"People need to know," said Alicia Toledano, ScD, president of Biostatistics Consulting LLC, from Kensington, Md., and the single "no" vote. She said the warning was not strong enough and would never be seen by most patients. During the meeting, some macrocyclic makers sought to emphasize differences in the chemical structure between their products and linear contrast agents, which may lead to greater retention of linear products; while linear contrast agent manufacturers underscored that retention occurs with both classes, differences in retention are slight, and the threshold for toxicity is unclear. In public testimony, Sharon Williams and Hubbs Grimm, who run The LightHouse Project, a support group for people who believe they have gadolinium toxicity. Williams and Grimm argued that if people without renal issues are also retaining gadolinium, it follows that they might have NSF-like symptoms. "It makes no sense to think that there are only two options: NSF or nothing at all," Williams said. Sammy Almashat, MD, MPH, a research associate for the consumer group Public Citizen, argued that if they knew the evidence regarding the differences between the two classes of contrast agents, "virtually all patients" would choose the macrocyclics. He, like Brent and Vaughan, argued for adopting the European Medicines Agency's approach. That agency suspended certain GBCAs in July. Concerns about gadolinium toxicity emerged over a decade ago, after some patients with renal failure developed Neph-

rogenic Systemic Fibrosis (NSF) and a link was found between the "debilitating" condition and GBCA used in MRIs. In 2010, the FDA adopted safety label changes including a contraindication for patients with renal insufficiency, strengthened a boxed warning and precautions recommending limiting or "allow[ing] clearance" between doses, and screening vulnerable populations. Then, in July 2015, the FDA issued a Drug Safety communication that noted reports of retention of gadolinium in the brain after the use of GBCAs, which underscored the increased retention with linear GBCAs compared to macrocyclic GBCAs. In that communication the FDA urged physicians to limit the use of such agents to "clinical circumstances in which the additional information provided by the contrast is necessary," also urging them to reassess the necessity of repetitive contrast MRIs in established treatment protocols. In 2016, manufacturer Optemark, requested label changes to include mention that "retention may be greater with linear GBCAs than macrocyclic GBCAs."

On May 22, 2017, the FDA further updated its recommendation to say, "All GBCAs may be associated with some gadolinium retention in the brain and other body tissues. However, because we identified no evidence to date that gadolinium retention in the brain from any of the GBCAs, including GBCAs associated with higher retention of gadolinium, is harmful, restricting GBCA use is not warranted at this time." As part of the Friday meeting, FDA officials asked panel members to suggest future directions for research, a hint that the agency may impose more requirements on manufacturers. Members recommended patient registries and epidemiological and animal studies.

Source: article taken from Medpage Today - <https://www.medpagetoday.com/radiology/diagnostic/radiology/67811>

THE QUENCH TUBE: The main safety element for High Field MR.

Superconducting magnets use the property of some materials to exhibit very high electrical conduction capacity if they are brought to a particular operating condition, i.e. below a so-called "critical" temperature of about -269° Celsius, so close to absolute zero.

To achieve and maintain this temperature requires a cryogenic system, in particular,



**The quench tube therefore turns out to be
an indispensable element whose design needs
to be precise and punctual.**

most magnets use liquid helium which has the advantage of being chemically inert and non-flammable, with high thermal conductivity, low weight and atomic size and is characterized by the lowest known boiling point. The main disadvantage however is that in only about 3.2° Celsius there is the transition from the liquid phase to the gas phase and the conversion ratio is 1:750 i.e. that per liter of liquid helium corresponds to 750 liters of Helium gas.

If we consider that the average amount of liquid helium in a RM is about 500-1500 liters, we can understand that a magnet in operation is in all effects a pressure device and for this reason a "escape route" is indispensable in the case in which a rapid expulsion of gas would be necessary.

The event we are talking about is Quench, and the escape route is the Quench Tube. A quench occurs when a superconductor part is overheated, thus losing its conductivity characteristics and thus dispersing large amounts of heat. The reaction that is triggered is the rapid passage of large amounts of helium from the liquid phase to the gas phase whose rapid expansion has to be conveyed to the outside of the magnet and to the outside of the building.

Helium being odorless could suffocate a patient in the magnet room during quench. The quench tube therefore turns out to be an indispensable element whose design needs to be precise and punctual. First, it must be of amalgamous material as its path starts with the magnet itself. It has to withstand low temperatures, so it is advisable to predict stretches that can be compressed and expanded to compensate for the large thermal shocks. It must have adequate length and section to withstand high pressures and ensure proper load loss.

Linear, curve and expansion lines must be adequately welded, for example with TIG technique.

The final section of the pipe must be at a safe distance from the tread with respect to the windows and any air intakes.

The pipe section that can be accidentally touched by technical personnel and not, should be appropriately insulated with materials such as armaflex.

The pipe must be properly anchored along the entire path to withstand vibrations and stresses especially during the quench phase.

Some important details are: Provide a hole for condensate drain at the lowest point of the stretch and an intruder wire mesh to prevent nesting of birds.

From the above it is shown that the quench tube is the most important safety element for a Faraday cage serving a superconductive MR, nothing should be left to chance, from project to installation, which is another extremely delicate stage. In case of quench there is an only thing to do: to immediately go out of the room and to wait that the air returns breathable. Every other thing is tried to do around the magnet it is completely useless. The helium is unscented, not flammable, not toxic

- lighter than the air--> it accumulates toward the ceiling
 - it evaporates producing cold (to 20°C 1 liter liquid helium it produces around 750 liters gaseous helium) vapors
 - Cold damages: contact skin provokes damages similar to burns
 - Suffocation lowers the concentration of O_2 in the air. Condensation of the oxygen increases the risk of fire
- How to protect the PATIENT / OPERATOR ?:

- Periodic Verification of Security Systems:
- oxygen detector
 - gas expulsion system in case of "quench"
 - ventilation system (normal conditions: 10 air changes/ hour)
 - forced suction system (20 air changes / hour)

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Note: the first part was published in Infomedix 1/2017 pag. 44

Patient Mortality Could be Predicted Through Computer Analysis of Organs

Using a computer to analyze CT images of patients' organs, researchers were able to predict their 5-year mortality with almost 70 percent accuracy. This is according to a new study recently published in the journal "Scientific Reports".

Lead study author Dr. Luke Oakden-Rayner, of the School of Public Health at the University of Adelaide in Australia, and colleagues believe that their findings could advance the field of precision medicine.

The National Institutes of Health (NIH) define precision medicine as *"an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person."*

As the study authors note, precision medicine relies on the discovery of biomarkers that are accurate indicators of disease risk, response to treatment, or disease prognosis. They believe that radiology has an important role to play in this field. *"[...] we propose that images derived from routine radiological testing have been largely ignored in the context of precision medicine, and motivate the use of powerful new machine-learning techniques applied to radiological images as the basis for novel and useful biomarker discovery."*

"Recent advances in the field of medical image analysis have shown that machine-detectable image features can approximate the descriptive power of biopsy, microscopy, and even DNA analysis for a number of pathologies," they add.

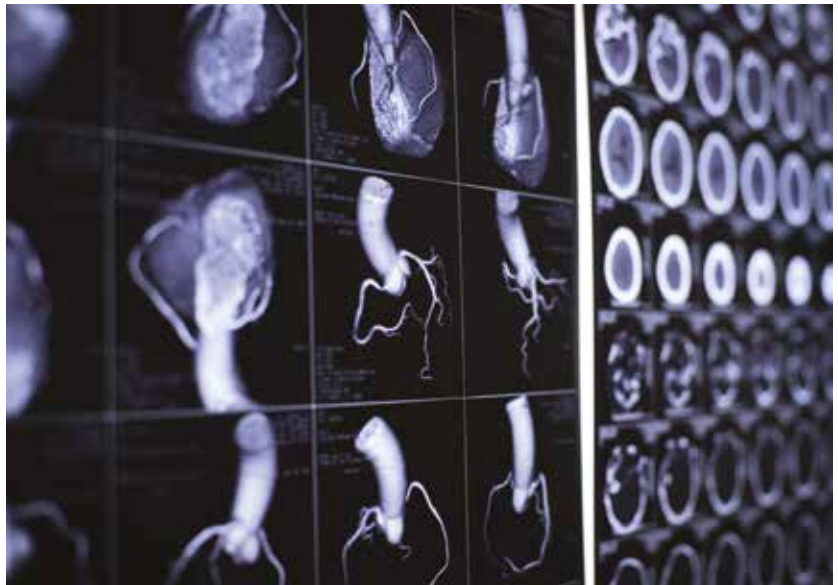
Patient Mortality Predicted with 69 Percent Accuracy

For their study, Dr. Oakden-Rayner and colleagues set out to investigate whether they could teach a computer to "learn" information in computed tomography (CT) scans, in order to predict a patient's 5-year mortality.

Firstly, the team gathered more than 15,000 CT images of seven different tissues - including heart and lung tissue - from patients aged 60 and older. Using logistic regression techniques, the researchers identified a number of image features that were linked to 5-year mortality.

The team then combined the data with a "deep learning" technique. Dr. Oakden-Rayner explains that this is a method whereby computers can *"learn how to understand and analyze images."*

"Instead of focusing on diagnosing diseases, the automated systems can predict medical outcomes in a way that doctors are not trained to do, by incorporating large volumes of data and detecting subtle patterns," he adds.



Next, the researchers used the computer to analyze CT chest images of 48 patients aged 60 and older. They found that it was able to predict their 5-year mortality with 69 percent accuracy, compared with mortality predictions made by healthcare professionals.

"Although for this study only a small sample of patients was used, our research suggests that the computer has learnt to recognize the complex imaging appearances of diseases, something that requires extensive training for human experts," says Dr. Oakden-Rayner.

The next step for the team is to use the computer technique to analyze the CT images of tens of thousands of patients.

In the meantime, the researchers say that their study offers proof of concept that CT images and computer learning could lead to significant advances in precision medicine.

"Our research opens new avenues for the application of artificial intelligence technology in medical image analysis, and could offer new hope for the early detection of serious illness, requiring specific medical interventions."

Dr. Luke Oakden-Rayner

Source: Article taken from MedicalNewsToday - <https://www.medicalnewstoday.com/articles/317762.php>



Statement on MEDICA 2017

by Joachim Schäfer, Managing Director of Messe Düsseldorf GmbH



Düsseldorf, July 2017 - Those wishing to reduce the German economy, its potential for development, the value it creates or the number of people it employs to its most important common denominator have for years drawn on the following adage: 'Germany is a car nation.' And it is true and still true that Germany is a car nation. But, it is a saying that more than ever needs something decisive added to it – which is: 'Germany is a car nation as well as a health nation.' That is because, over the last 10 years, the health economy has grown significantly faster than the economy in general. The number of people in Germany who work in the health sector increased to more than seven million for the first time in 2016. The health industry's industrial segment alone now provides jobs for a good 900,000 people and therefore 100,000 more than the automotive industry does (sources: BMWi/ GGR, VDA).

Irrespective of any discussion about financing and the costs for modern healthcare provisions, the health sector is a stability factor and driver of growth not only in Germany but across the world. Europe and the USA are still the main export markets for medical-equipment companies, large numbers of which will be represented at the world's No. 1 leading trade fair – **MEDICA – which will be taking place in Düsseldorf from 13 to 16 November 2017.** The registrations to date lead us to expect that more than 5,000 exhibitors from 68 countries will be taking part.

Besides the 'classic' target markets of Eu-

rope, North America and Japan, suppliers are also increasingly focusing on emerging economies in spite of some uncertainties. That is because people's willingness to spend on health is increasing with rising incomes in these markets. More and more prosperity-related diseases and greater life expectancies in these countries are additionally driving up demand for medical products and modern treatments. The large number of people who will be attending MEDICA from other countries, particularly from Asia, is indicative of these increasing needs. Of the 120,000 to 130,000 trade visitors that MEDICA has regularly welcomed over the past, a good 60% of these travelled to the event from countries other than Germany.

The significantly increased popularity with visitors and exhibitors that the Messe Düsseldorf Group's medical trade fairs are enjoying in opportunity-rich continental markets – for example, the MEDICAL FAIR INDIA and MEDICAL FAIR ASIA – also shows how attractive these markets for medical-equipment suppliers are and demonstrates that a great potential to do business exists there. This applies in particular to the highly innovation-oriented privately funded areas of inpatient and outpatient care.

Rapid change – MEDICA in step with the times

But, just like the automotive industry, the healthcare sector is also experiencing rapid change. Digitisation is affecting all aspects of supply and such buzzwords as 'networking' and 'artificial intelligence' are characterising the technical discussions and are already affecting production in particular.

MEDICA 2017 will provide professionals with the opportunity of gaining insights into all the developments – during the presentations and talks at the MEDICA CONNECTED HEALTHCARE FORUM, during the MEDICA HEALTH IT FO-

RUM and even with the help of the exhibitors' new products as well as the exciting MEDICA APP COMPETITION.

More and more health applications for smartphones, tablet PCs and 'wearables' – applications that are already enjoying increasing acceptance in the practical world – are going to be presented, for instance, within the appropriately relevant contexts. 45% of German smartphone owners are already using health apps and another 45% can see themselves using them. A further 60% of people in Germany approve of the concept of an electronic patient file that could be used to store their medical data centrally (Source: Bitkom/ Bayerische TelemedAllianz BTA). That is why one of the leading German health insurance providers has taken the initiative and commissioned the development of an electronic patient file for its more than 10 million clients. The plan is for customers to be able to access their health and treatment data on a central server with the help of a security code and an app or Internet browser. Standardised interfaces are to be implemented to enable the data to be exchanged between IT systems in doctors' practices and clinics.

Artificial intelligence is another challenge that the healthcare sector is facing. A robot that is able to automatically set up needles for infusions and biopsies was already presented to an amazed expert audience at MEDICA 2016. It is therefore not surprising that artificial intelligence is on the agenda for this year's MEDICA HEALTH IT FORUM. Because what previously seemed like 'science fiction' is currently on the threshold of becoming reality in concrete and plausible applications. IBM's 'Watson' cognitive assist system, for example, is already helping to diagnose rare diseases at the University Clinic of Marburg. It is doing so by analysing patient data and comparing it with huge quantities of information about successfully solved previous cases and searching

for documented symptoms and the drugs administered accordingly. The analysis also takes digitised medical knowledge sourced from databases, publications and even Wikipedia into account. It is then able to generate a list of probable diagnoses.

Developments in the field of medical imaging appear just as revolutionary. The first applications to use artificial intelligence for the automated detection of possible tumours on the basis of digitally generated image data from CRT or MRT systems are about to be launched on the market.

The above examples demonstrate the dynamic that the healthcare sector is currently experiencing. For the 'market players' in the field of medical technology this means: Only those who use their creativity and power of development to consistently align themselves with customer interests and market developments will be able to succeed.

This applies equally to the world's No. 1 trade fair – MEDICA – as well as the COMPAMED trade fair for suppliers, which will be taking place at the same time. It is also a market leader in its market segment.

New programme highlights for topical subjects

With the aim of meeting the needs of the international professional public even into the future, the programme for the accompanying conferences and the forums integrated into the trade fair have, over recent years, been radically restructured and aligned at a more international level with many highlights also being presented in English and rounded off by ever-new formats that focus on topical subjects.

The dynamic that characterises eHealth applications and the digital networking of those involved in the health sector are producing interesting business options, for example, particularly for creative start-ups – be it in innovative services, smart products or software applications. That is why the new MEDICA START-UP PARK has been created in Hall 15 with the intention of matching founders of innovative businesses up with potential business partners, investors and distribution partners. With the aim of complementing the contents that are going to be presented at MEDICA CONNECTED HEALTHCARE



Mr. Joachim Schäfer

FORUM and the MEDICA HEALTH IT FORUM (both also in Hall 15), up to 40 start-ups will be presenting themselves and their ideas to an audience of experts on a total area of 500 square metres in direct proximity to these events.

The MEDICA LABMED FORUM is also new this year. Under the key heading of "The Interdisciplinary Fascination", laboratory medicine, molecular pathology, microbiology, medical technology and life sciences will be presenting themselves as drivers of innovation and generating new impulses for the entire medical sector.

Four themed days will be offering a range of exciting presentations and panel discussions that will be focusing on the following highlights: Preventive screening tests for cancer, cardiac and circulatory conditions, innovative diabetes diagnostic tools, infection and migration. The events will all be taking place between 11.00 a.m. and 4.00 p.m. and are free for trade fair visitors with MEDICA tickets. The cooperation partner for the content for the MEDICA LABMED FORUM in Hall 18 is the medical publisher Trillium.

The trade fair is 'smartening' itself up

Hall 18 is a modern structure that has been built with lightweight materials and that is located centrally between Halls 10 and 16. This temporary structure was specifically constructed for exhibitors who are

presenting products within the MEDICA's laboratory-technology and diagnostics sections, which were previously located in Halls 1 and 2. Background information: The South Entrance to the Messe Düsseldorf trade fair centre is being completely renovated, due for completion in summer 2019. The old Halls 1 and 2 are at the same time going to be replaced with a newly built hall. The new Hall 1, measuring 158 metres in length and 77 metres in width, with over 12,000 square metres of floor space, will be around the same size as Halls 8a and 8b once it is completed.

The new and the tried-and-tested – conferences by professionals for professionals

One highlight at the conference programme – the MEDICA ACADEMY – will be celebrating its launch at this year's MEDICA. It will be the venue for two workshops that are going to be devoted to 'blockbuster' subjects related to medical practice and that are going to be held on each of the four days of the fair. These will include, for example, 'updates' about imaging procedures, modern surgery procedures and even an ultrasound 'refresher' course. The MEDICA ACADEMY will also be discussing the 'hand over of practices' as a highly topical subject in a seminar aimed at both young physicians looking for practices and physicians wishing to pass on their practices.

In addition to the MEDICA ACADEMY, additional items on the MEDICA's conference programme will bridge the gap to the new products being presented at the trade fair through presentations with relevance to highly topical subjects and by focusing on the interests of the MEDICA's important target groups. The 40th German Hospital Conference deserves mention here as a leading event for the management of German hospitals. The bandwidth in this regard ranges from political health questions through aspects of financing and controlling for hospital services to the presentation of best-practice projects for hospital IT. These will additionally be presented at the same time by the ENTSCHEIDERFABRIK IT (IT DECISION-MAKERS) initiative at a large joint stand in Hall 15. This year, the German Hospital Conference is to be com-

plemented by the European Hospital Conference, which takes place every two years as a gathering that allows top decision-makers from European hospitals to swap notes. Other highlights include the DiMiMED conference for disaster and military medicine and the MEDICA MEDICINE + SPORTS CONFERENCE (respectively on 14 + 15 November 2017 / Congress Center Düsseldorf South) that will be focusing on prevention and sports medical treatment concepts. The conferences will be held in English and are geared towards an international audience.

Its great reception from participants has meant that the MEDICA PHYSIO CONFERENCE, which was launched in 2014 and organised by the Thieme publishing house, has established itself firmly within the conference programme. With its treatment-oriented presentations, it is directed towards professional physiotherapists, sports medicine specialists and orthopaedists and is taking place this year on 15 + 16 November (Congress Center Düsseldorf South).

Globally unique – varied presentations

Now, and in the future, a central strength of the MEDICA continues to be that it does not just deal with solutions for one individual medical specialist discipline, but that it offers solutions for the complete workflow of patient treatment in one place at one time.

The more than 5,000 exhibitors from a good 70 countries will use MEDICA 2017 to present their entire range of new products, services and processes for inpatient and outpatient care. No other event worldwide comes even close to this wealth of innovations. Being clearly structured by halls, the MEDICA trade fair will be focusing on the following subjects: Electromedicine / medical technology (approx. 2,500 exhibitors), laboratory technology / diagnostics, physiotherapy / orthopaedic technology, commodities and consumables, information and communication technology, medical furniture and specialist furnishings for hospitals and practices.



COMPAMED – suppliers as creative partners

COMPAMED 2017 will be taking place in Halls 8a and 8b alongside the MEDICA trade fair on all four days (13 to 16 November). With more than 750 exhibitors, it is the driving force and internationally leading market platform for suppliers to the medical technology industry. The high levels of creativity and development know-how that characterises the supplier sector means that, over its 25 years of its existence, COMPAMED has become the place to see what the future of medical progress looks like. Be it product development, production and marketing or the desire for comprehensive solutions: COMPAMED constitutes the starting point for close collaborations between suppliers and their customers.

This is something that may be demonstrated by the example of diagnostic applications for so-called 'Point-of-Care Testing'. These are analytical procedures for patient-proximate and rapid while favourably priced and uncomplicated laboratory diagnostics. The equipment used in diagnostics and treatment must operate reliably and automatically for the benefits to be properly utilised. Samples must be directed towards analysis in precisely defined quantities and then processed and tested. Drugs must be adapted and dosed according to the individual disease patterns presented by the patients. And it is here that microfluidic systems play an

important role. The development of smallest components and parts to this end has turned out to be highly complex but does provide the necessary basis for great progress in the field of 'lab-on-a-chip' technology, for example.

So if an increasing number of illnesses which, just a few years ago, could only be diagnosed with the aid of complex laboratory analyses and that now can be detected with the help of cheque-card-sized mini laboratories, it is the exhibitors at the COMPAMED trade fair and their competence who are driving these developments.

Other innovations that also deserve mention here are those that are being employed in so-called 'wearables' that are used to monitor important vital parameters and the functioning of implants. Be it suitable wireless modules for sharing data, the most delicate of sensors, body-compatible materials and coatings or powerful energy supplies that are associated with the smallest of footprints – the latest solutions are going to be presented at the COMPAMED trade fair with the most important aspects also being discussed at the two integrated specialist forums.

This globally unique combination means that both MEDICA and COMPAMED will be reflecting the entire process chain and presenting a comprehensive range of medical products, devices and instruments. Together, they occupy the entire space at Düsseldorf's exhibition centre. Of the 127,800 specialist visitors who attended MEDICA + COMPAMED in 2016, a good 17,000 were particularly interested in the topics covered within the COMPAMED event. As in previous years, it will be possible to visit both events with a single ticket.

**Date: 13 – 16 November 2017,
Monday to Thursday.**

Opening hours: 10:00 am - 6:00 pm

MEDICA MEDICINE + SPORTS CONFERENCE

Focusing on the Future of Individualised Sports Medicine



September, 2017 - Elite and recreational sports, exercise programs in healthcare, and prevention and rehabilitation: individualisation in all is the future. Patients and people who are active and do sports are as varied as the general population is – and every single person wants to get the support and help they need and require, and are capable of. Individualisation is also a central concern to the medical world. Digitisation and the increasing amount of individual data available and new methods of analysis are opening up new ways of personalising sports medicine and consequently medical progress. The **MEDICA MEDICINE + SPORTS CONFERENCE** – which is being held in English – will provide the opportunity to find out more about the latest research findings. It will be celebrating its 5th anniversary during **MEDICA 2017**, the world's leading trade fair, which will be taking place in Düsseldorf from 14 to 15 November 2017. The conference will be focusing on such future-oriented subjects as 'Latest Innovations in Monitoring Vital Data and Sports Performance', 'Tailored Exercise Programs' and 'Digital Innovations in Recreational and Elite Sports'. The topic of individualisation in sports medicine is going to be addressed during many of the talks to be given at the event.

Professor Yannis Pitsiladis, the founder of The SUB2 Marathon Project, for instance, will be presenting his 360 monitoring approach that is designed to help top runners complete marathons in less than two hours. Marko Yrjövuori, star trainer



to many of the top athletes in the USA, will also be presenting the digital tools and methods for comprehensive 'life management' that are already available today in top sports and which will soon also be available for recreational activities. Adidas will be premiering its ALL DAY fitness app in Session 1 on Tuesday, 14 November. It is an app that has been designed to assist users around the clock – it does not only help them with individual exercise programmes, but also with nutrition, rest periods and yoga, for example. The app thus complements popular fitness trackers and is aimed at providing individual support in a broad section of the grassroots population. The focus generally will be on the future of sports and sports medicine – and specifically on the question: Will it be possible to run a marathon in less than two hours? "Yes!" is what Professor Yannis Pitsiladis of the University of Brighton thinks. And – as a 'Member of the Medical and Scientific Commission' – he should know. The official record currently lies at 2:02:57. The new world record would have to be almost three minutes faster – and that in an age in which many experts are assuming that top sports have reached the limits of what is physically possible. It is becoming increasingly difficult to set new records.

A marathon in less than two hours is something that has to be done 'clean'.

In Session 1 on Tuesday, 14 November, the founder of the sub2hrs marathon project will be providing an insight into the progress that this mega project has made with the help of its modules that provide 360° multidisciplinary monitoring for ath-

letes. A precise schedule for the achievement of the ambitious target has not yet been announced. But the declared goal since the project was launched in 2014 is to break the two-hour barrier within five years. And everything that promises success and that is feasible is being undertaken to achieve this ambition. But doping is definitely off limits. On the contrary: The SUB2 project sees itself as a 'clean running' project. All athletes are regularly tested for doping in compliance with the rules set out by the World Anti-Doping Agency (WADA). While those involved in the project are not able to guarantee that the objective can be achieved, they still think that it can be a model for future successes in sports. That's why many fine adjustments are being made to enable athletes to achieve individual performances that it is hoped will produce ground-breaking records.

The team that Prof. Pitsiladis has gathered is focusing on modern equipment, intelligent training and on individualisation that, for example, uses data management and bio-informatics. The individualisation of training is being facilitated by analysing each athlete's genetic data, transcriptomes, metabolites, proteomes and epigenomes. Such projects may be deemed to be 'tailored exercise programmes' to which a further session – Session No. 5 – will be dedicated at the MEDICA MEDICINE + SPORTS CONFERENCE on Wednesday, 15 November. Exciting personal 'stories' and the associated training programmes and results will be on the agenda here. The freestyle skiing star Pekka Hyysalo from Finland, for instance, will be sharing his own personal experiences. He suffered a serious skiing accident in 2010. He was 19 at the time and sustained serious head and brain injuries and fell into a coma. His battle to return to life resulted in the founding of the 'FightBack' organisation that supports him and other athletes who are living with the consequences of head and brain trauma. Pekka works actively in the

organisation and shares his training programmes and findings with people going through similar difficulties and their carers. Laura Hottenrott, a top medium- to long-distance athlete, will be coming to Düsseldorf to talk about how she optimises her endurance training and recovery periods by monitoring her heart rate variability.

How the Bundesliga's team medic helps decision-making

Another topic that the event will be focusing on is the utilisation of specific monitoring procedures directly at the point of care (POC) to optimise training for individual athletes. What are the procedures that accompany a 'return to activity' decision in the football Bundesliga? Götz Welsch, Team Doctor at Hamburger SV, will be sharing his methods on the right timing of 'return to activity', 'return to play' and 'return to competition'. The question of whether players are fit to play is also a subject that will be discussed in Session 4 on Wednesday, 15 November. Here, the latest innovations for monitoring vital and performance data will be presented. The risk of head injuries still remains an underestimated risk in many types of sport – and the severity of the injury often only becomes clear a day after the injury. "Profound awareness for this issue is lacking in athletes, trainers and doctors and there is currently no standard definition for 'concussion'," says Prof. Claus Reinsberger of Paderborn University describing some of the issues associated with the treatment of head and brain injuries. It is clear that standardised diagnostics and treatment procedures that have been adapted to the situation at hand, are required for assessing possible brain injuries. The effects on long-term consequences must also be kept in mind here. Rapid diagnosis on the sidelines still depends largely on an assessment of the pupil reflex. Prof. Reinsberger intends to introduce a new safer method of diagnosis in his presentation: 'Assessing Concussed Brains Between Clinic And Technology' is the title of his talk. The future of not only elite, but also recreational sports may depend on such innovative approaches to precision medicine. Prof. Wilhelm Bloch, for instance, will be explaining the importance of real-time analytics at the point of care – and, based on it, the



specific rapid adaptation of how much exercise and medical care is required for the individual. Sleep also has an effect on individual performance. Raija Laukkanen, Director of Science Collaborations at Polar, will be discussing the importance of sleep in regard to regeneration, injury prevention and sports performance as well as methods for analysing sleep behaviour during Session 4 that will be taking place on Wednesday, 15 November.

Digital innovations for sports medicine, elite and recreational sports

Digital innovations for sports medicine in elite and recreational sports will be presented in Session 6 on Wednesday afternoon, which, for the first time, will also be open to all MEDICA visitors. A selection of innovations will be highlighted here: a 'smart running coach' based on biomechanical data, innovative gaming technologies for ball sports, wearables for regeneration and back training, new methods for the real-time analysis of cardiac arrhythmias, stretchable electronics for the highly precise measuring of strength and performance and solutions for corporate fitness management. Exercise is medicine. Well-dosed activities have been recognised as an important factor to prevention, recovery and rehabilitation. And sports is often better than medicine. This does not only apply to mental illness or dementia but also even to cardiovascular disease and many types of cancer: 'Exercise Prescription for Health in Practise – a Common European Project' is the title of the presentation by Prof. Petra Zupet, President of the Sports Medicine Association in Slovenia. The talk is further evidence that the exchange between sports and healthcare is essential. This dialogue is one of the objectives at this year's MEDICA MEDICINE + SPORTS CONFERENCE.

The 5th MEDICA MEDICINE + SPORTS CONFERENCE will be bringing interna-

tionally renowned sports medical experts, physiotherapists, sport techies, industry and further experts together for an interdisciplinary dialogue about innovative approaches to prevention, regeneration and rehabilitation.

Guided Innovation Tour takes conference participants to innovations

This interdisciplinary exchange can also be experienced on the trade show floor during the Guided Innovation Tour and at the new MEDICA MEDICINE + SPORTS CONFERENCE stand in hall 4, F25. Here, the world's largest sports medicine associations Exercise is Medicine (American College of Sports Medicine), DGSP, FIMS, EFSMA, DVS and partners like Polar, HUR and Movesense will be present. Movesense, for example, will show a programmable sensor for motion tracking for all sports disciplines that will unlock a new level of sports experience for athletes. The Guided Innovation Tour will be taking conference participants to see the latest developments by exhibitors at the MEDICA. The computer-based movement programmes of HUR will – among other things – also be on the programme. Its devices adapt the height, the performance level and the programme according to the user ID that has been entered. It can carry out the initial tests when no information is available about the user: Personalised strength training for diabetes, hypertension, cardiovascular diseases and fall prevention as well as for recovery after knee and hip operations are on the agenda. The Guided Innovation Tour will also stop off at Hocoma from Switzerland, which will be showing solutions and state-of-the-art technologies for functional movement therapy across the entire bandwidth of rehabilitation. Participants will also be able to test the latest solutions for vital data and performance monitoring and movement analysis at the WT Wearable Technologies Show.

All the details about the MEDICA MEDICINE + SPORTS CONFERENCE are available online at: <http://www.medica-tradefair.com/msc2>

Author reference: Dr Lutz Retzlaff, freelance medical journalist (Neuss)

Source: Press releases from Medica
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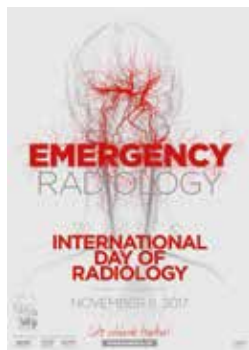
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International Day of Radiology 2017 to focus on emergency radiology



The International Day of Radiology (IDoR) will be celebrated for the sixth time on November 8, this year focusing on emergency radiology.

As in previous years, more than 150 radiology-related professional societies from around the world will participate in the International Day of Radiology, holding a range of different events to celebrate, such as public lectures, department open days, national

media appearances, and press events. Following on from recent themes such as paediatric imaging and breast imaging, this year the focus will be on radiology in emergency settings.

Emergency radiology is quite young as a subspecialty within the imaging field, but it has gained enormous significance in recent years. Emergencies constitute a substantial portion of radiological cases and require efficient, effective handling with correct diagnoses and decisions in a timely manner. In the majority of hospitals today, radiologists are integral members of the emergency unit, and are in charge of sequencing, prioritisation and management of imaging services. Wherever this is the case, the outcome is impressive; not only is trauma imaging improved, with resulting lower morbidity and mortality, but all emergency patients benefit from the closer relationship between radiologists and the emergency department team. IDoR 2017 highlights this essential role that radiologists play in the emergency room, increasing the quality of care and treatment of patients.

To underline the significance of emergency radiology in various regions of the world and to show its current place in today's medical healthcare spectrum, the ESR has conducted numerous interviews with experts from throughout Europe, Latin America and the United States. The European Society of Radiology (ESR) is happy to announce that the **IDoR website** has been completely redesigned and relaunched. The stunning new design reflects the colours of this year's poster and the invitation to celebrate the IDoR together throughout the world. The International Day of Radiology was launched in 2012 and is a joint initiative of **the European Society of Radiology (ESR), the Radiological Society of North America (RSNA) and the American College of Radiology (ACR)**. It is an annual event held with the aim of building greater awareness of the value that radiology contributes to safe patient care, and improving understanding of the vital role radiologists play in the healthcare continuum. To keep up to date with the latest announcements about the International Day of Radiology, visit the International Day of Radiology Facebook page or the IDoR website idor2017.com.

Expomed Mexico



ExpoMED México (7-8-9 June 2017) has been consolidated as the most important event in Latin America in terms of equipment, with the best technological innovations in health, with a sustained growth of 30% in the last 3 years, getting the elements to become the most important Continental event in the sector.

International visitors from 20 countries: Germany, Austria, Brazil, Chile, China, Colombia, Costa Rica, South Korea, Ecuador, El Salvador, USA, France, Guatemala, Nicaragua, Pakistan, Panama, Peru, United Kingdom, Uruguay, Taiwan.

International exhibitors from 16 countries: Germany, Argentina, Australia, Brazil, Canada, Chile, Korea, Colombia, Spain, USA, India, Malaysia, Poland, United Kingdom, Taiwan, Turkey.

HIGHLIGHTS OF THE 2017

- Increase of 36% of visitors vs 2016 edition
- The **Fourth International Hospital Congress** with more than **1600** attendees
- **5 international pavilions:** China, Canada (Ontario), Malaysia, Taiwan, USA
- **3 New National Pavilions:** ASEMED, InnovaREDES and Jalisco State.

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- Biomedical Innovation Forum

Course sharing knowledge:

- Comprehensive Airway Assessment (EMIVA)

Medical Fair Thailand sets record again!



- Biennial exhibition sees a 25% increase in visitor attendance
- 18 national pavilions, with 5 new country groups showcasing for the first time

Bangkok, Thailand, 15 September, 2017 - MEDICAL FAIR THAILAND 2017 concluded its most successful edition to date. It saw 830 companies from 66 countries, 18 national pavilions and country groups, and welcomed more than 9,000 quality trade visitors from over 70 countries.

MEDICAL FAIR THAILAND 2017 is the region's premier medical and healthcare exhibition with leading exhibitors showcasing their latest medical innovations to the show floor. There were many opportunities for networking and business matching, with 13,000 meetings requested through the free business matching service. MEDICAL FAIR THAILAND also hosted many industry-leading concurrent conferences and seminars that were well-attended throughout the three days with 650 attendees.

Mr. Gernot Ringling, Managing Director of Messe Düsseldorf Asia, organizer of MEDICAL FAIR THAILAND said: "The exhibition is a record-breaking edition, with a strong showcase of innovations from leading exhibitors as well as highly satisfied visitors. MEDICAL FAIR THAILAND certainly serves the booming medical market of Southeast Asia. We also welcomed 25% more visitors than the 2015 edition, of which 33% were from overseas, indica-

tive of the increasing interest from regional healthcare professionals".

Dr. Atchaka Sibunruang, Minister of Science and Technology, who visited the exhibition said, "MEDICAL FAIR THAILAND continues to grow from strength to strength. At this year's exhibition there were significantly more Thai companies in attendance and it was reassuring to see so many showcasing and selling their high-tech innovative products and medical devices, and showing an interest in the medical devices sector, proving the huge potential for medical tourism and S-Curve industries as the country's key growth engines." The increased representation from Thai companies was testament to the relevance of the event for local businesses to springboard their commercial dealings on an international platform. Commenting on their second participation at MEDICAL FAIR THAILAND 2017.

Ms. Theeraporn Thiramonth, Project Coordinator, Innovation Strategy Department, National Innovation Agency (NIA), said, "All the innovative products we showcased throughout MEDICAL FAIR THAILAND 2017, whether medical device, diagnostic device, or telemedicine, have been internationally certified, in compliance with international standards, so can be distributed throughout Asia, as well as Europe and the US."



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The NIA is a public organization under the Ministry of Science and Technology, with the mandate to assist private companies to develop their innovations and products, and supporting them to successfully launch their products. For French company, Clariance Inc, that specialises in the manufacture of spinal implants, according to Sales Director Mr. Marc-Antoine Lemaire, MEDICAL FAIR THAILAND 2017 was the event of choice to explore ways of expanding their business in the Asian market, and "a region where there is huge potential for growth. We found MEDICAL FAIR THAILAND 2017 incredibly useful in networking with Southeast Asian decision-makers and meeting potential partners and distributors, especially in Thailand."

MEDICAL FAIR THAILAND 2017 was also the first time an official Indian pavilion was organised. Expressing his tremendous satisfaction with the exhibition, Mr. Rajiv Nath, Forum Coordinator for the Association of Indian Medical Device Industry (AIMED) said: "We are very happy to bring an Indian delegation to the exhibition and be part of the growth story of Thailand. We came to bring affordable and safe healthcare to Thailand and I am very sure we will be back again in 2019 with a pavilion of at least 300 sqm. We look forward to working with the people of Thailand and the medical community of Thailand." Also participating for the first time was Precision UK, who garnered numerous inquiries from trade visitors regarding their medical gas pipeline equipment. According to Mr. Robert Parry, CEO, their main objective was to look for distributors to promote their products in Thailand. "The exhibition has been excellent, we have been very busy as we had many visitors, not only from Thailand, but all of the other Asian countries," he said. Dr. Tan Kok Yang, Head & Senior Consultant from Singapore's Khoo Teck Puat Hospital, who also spoke at the Advanced Rehab Technology Conference (ARTEC), said, "The co-location of a conference such as ARTEC with an exhibition like MEDICAL FAIR THAILAND is definitely good synergy and a relevant platform for physicians and those involved in allied healthcare. Overall, there is a good attendance at the conference and the exhibition offers a good range of products and solutions, particularly those related to rehab care."

This record-breaking edition is greatly indicative of the exhi-



bition's influence on the region's burgeoning and fast-growing medical and healthcare industry. Companies from all around the world continue to bring in their innovative products and best sellers to MEDICAL FAIR THAILAND, solidifying the exhibition as the industry's must-attend exhibition. Following the success of this exhibition, the much-anticipated 12th edition of MEDICAL FAIR ASIA will return to Singapore from 29 – 31 August 2018 at Marina Bay Sands. While, MEDICAL FAIR THAILAND will return for its 9th edition from 11 to 13 September 2019 at the Bangkok International Trade and Exhibition Centre (BITEC). More information on MEDICAL FAIR THAILAND 2019 can be found at www.medicalfair-thailand.com

About Messe Düsseldorf Asia

Messe Düsseldorf Asia is a subsidiary of Messe Düsseldorf in Germany, one of the world's leading trade fair organizers, responsible for organizing more than 20 global No. 1 exhibitions in various industries including medicine and health, specifically MEDICA, COMPAMED and REHACARE INTERNATIONAL held in Düsseldorf, Germany. With extensive expertise in organizing trade fairs in Southeast Asia, Messe Düsseldorf Asia has developed a portfolio of numerous trade fairs in the region since 1995. For more information on the exhibition, please visit mda.messe-dusseldorf.com

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Plasma therapy CGF - Concentrated Growth Factors (2nd generation)

- an overview of possible applications -

by **Katrin Rotter-Böttger**

Independent medical Trainer for Meso-/PRP-CGF-Therapie and Plasma-Gel
www.plasma-gel.de - info@plasma-gel.de

For the production of CGF, only special CGF-tubes are filled with blood and centrifuged. In comparison to other user protocols, here, there follows a targeted focus of the platelets and the CD34 + stem cells. The high-quality borosilicate tubes from Silfradent show a particularly high yield of growth factors.

No other therapy is so versatile and can be used in so many ways. CGF is used in sectors such as dentistry/implantology, orthopedics, ophthalmology, gynecology, ENT, sports medicine, dermatology and many other fields. Similarly, it has become essential in professional sports. CGF contributes to bone formation and stimulates injured tissue to regenerate. Meanwhile, autologous PRP is now available in powder form.

In this phase, the growth factors of the alpha-granules of the thrombocytes are released and attracted to the tissue (chemotaxis). It is primarily the fibroblasts that contribute to the healing process (collagen). Growth factors such as TGF- β , PDGF, FGF stimulate the fibroblasts to divide and migrate. In the wounded area, new cells and blood vessels are built to compensate the defect. **The CGF-Therapy uses this wound healing process.**

Centrifugation

Centrifugation is fundamental to successful CGF therapy. Newer user protocols take the correlation between relative centrifugal force (RCF) and yield of platelets into account.



CGF and A.P.A.G.
(solid form)



Orthopaedics CGF for
Epicondylitis lateralis



CGF for Wounds/Burns
Ulcus cruris - autologous membranes (endogenous plaster)



PRP, which works so fantastically in the medical arena, is becoming increasingly popular in medical aesthetics due to its unique mechanism of action. Since healthy skin does not show any inflammation or injury, a different protocol and application is required. CGF conduces to the regeneration of the skin and its solid form (APAG/activated plasma albumin gel) is used as a bio-dermal-filler to smooth out wrinkles.



Medical Aesthetics atrophic
changes in the skin – age
related (treatments with CGF
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can be integrated
into the CGF protocol
- Cream and Mask
containing autologous
Plasma



Device for
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The thrombocyte is the key player to this therapy and is activated by any injury. Wound closure takes place within a short period of time, due to adhesion and aggregation of the thrombocytes. At the beginning of every wound healing, vascular permeability is increased, causing fluid to exude from the vessels and form an oedema, thus easing the proliferative processes.

What happens if the centrifugation is too strong?

If the blood sample is centrifuged with an excessively high G-Force (RCF), platelets and plasma proteins can be pushed downwards into the erythrocyte phase. The result will be PPP – platelet poor plasma, plasma poor in thrombocytes. Furthermore, the thrombocytes degranulate prematurely, the erythrocytes are damaged and hemolysis is caused, which, although often not visible to the naked eye, has an unfavorable effect on the plasma composition.



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The latest technology in this field is the MEDIFUGE MF 200, offered by the company Silfradent. Six different times and speeds, allow the particles to settle in the desired layer.

Important: Only centrifuges certified as medical devices of the Class 2a may be used for the manufacture of PRP. Laboratory centrifuges may not be employed. (compare law regulation).



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Indonesian Government to immunise 70 million children against measles and rubella

The two-year campaign will aim to reach 95% immunisation coverage in Indonesia modernise vaccine delivery systems

Yogyakarta, 1 August 2017 – The Government of Indonesia launched a national measles-rubella immunisation campaign today targeting all Indonesian children between the ages of nine months and 15 years. The campaign will aim to reach 95% immunisation coverage and thus eliminate measles and rubella in Indonesia by 2020.

"The purpose of the campaign is to control the spread of both diseases and to transition from measles vaccine to a measles-rubella vaccine in Indonesia's routine immunisation schedule," said Indonesian Minister of Health Dr Nila Moeloek.

Thirty five million children are expected to receive the measles-rubella vaccine during the campaign's first phase which will be held in the Java region from August to September 2017. It will be conducted in 3,569 public health centres in 119 districts spread across six provinces. The second phase will cover all other regions outside of Java and will be conducted in August-September 2018.

"I congratulate the Government of Indonesia on this landmark campaign", said Gavi Deputy CEO Anuradha Gupta. "Measles is one of the most contagious diseases known to humanity and claims one life every four minutes - mostly children. Similarly, for millions of mothers and their children across the world, rubella poses a serious and ongoing threat and, if contracted during early pregnancy, can cause defects of the brain, heart, eyes, and ears. Yet for less than a dollar per dose these diseases can be easily prevented with a safe and effective vaccine. This campaign and the subsequent introduction of a combined measles-rubella vaccine in Indonesia's national immunisation programme will be a game changer in the



fight against these infections", she added. Gavi is supporting the Government of Indonesia by contributing 50% of the total cost of vaccines. WHO is assisting with the preparation of immunisation activities, particularly in high-risk areas and among vulnerable populations, to ensure all children receive the vaccine.

"The elimination of measles will also contribute to achieving sustainable development goal 3, which aims to end preventable deaths of newborns and children under five years of age by 2030," said WHO Indonesia Representative Dr Jihane Tawilah.

"We know from experience around the world that the combined measles-rubella vaccine is safe, effective and necessary. When parents immunise their child, they are protecting them from dangerous diseases – they are also protecting other

children around them so that all have the opportunity to thrive," said UNICEF Indonesia Representative Gunilla Olsson.

About Gavi: Gavi is an international organisation that was created in 2000 to improve access to new and underused vaccines for children living in the world's poorest countries. Based in Geneva, Switzerland, Gavi is the Vaccine Alliance, which brings together public and private sectors with the shared goal of creating equal access to vaccines for children, wherever they live <http://www.gavi.org/>

Source: Press releases from Gavi's website:
-<http://www.gavi.org/library/news/press-releases/2017/gavi-welcomes-contribution-from-the-united-arab-emirates/>
-<http://www.gavi.org/library/news/press-releases/2017/indonesian-government-to-immunise-70-million-children-against-measles-and-rubella/>

Gavi Welcomes Contribution from the United Arab Emirates

US\$ 5 million pledge will support INFUSE initiative, started in 2016 to help modernise vaccine delivery systems

Geneva, 21 August 2017 – The United Arab Emirates (UAE) has committed US\$ 5 million to Gavi, the Vaccine Alliance, to support its Innovation for Uptake, Scale and Equity in Immunisation (INFUSE) initiative. Launched at the 2016 World Economic Forum meeting in Davos, INFUSE helps developing countries accelerate the introduction of tried and tested technology which will modernise their immunisation systems.

“The Vaccine Alliance plays a pivotal role in encouraging innovation in immunisation and health system strengthening,” said Dr Seth Berkley, CEO of Gavi. “We are very grateful to the UAE and, in particular, His Highness Sheikh Mohamed bin Zayed al Nahyan for this contribution. Thanks to support from partners like the UAE, we will achieve our goal of reaching 300 million more children with life-saving vaccines by 2020”.

With immunisation systems in develop-



ing countries often reliant on technologies that have not been updated in years, INFUSE seeks private sector innovations with proven potential to improve vaccine delivery. It then “infuses” each with capital and expertise from Alliance partners to fast track their introduction into national immunisation programmes.

Last month, an INFUSE workshop in Barcelona, also attended by UAE representative, identified several cutting edge innovations which could transform immunisation uptake and health service delivery in the world's poorest countries. The UAE contribution will be disbursed from 2017 to 2020 – a period in which Gavi's mission is focused on improving coverage and equity for immunisation.

“The United Arab Emirates is happy to strengthen its partnership with Gavi, the Vaccine Alliance to support its mission of saving children's lives and protecting people's health through immunisation,” said Her Excellency Reem Al Hashimy, Minister of State for International Co-operation. “We believe that INFUSE innovations can make a real difference to developing countries and look forward to contributing to their growth to make sure that every child is protected with life-saving vaccines.”

The contribution has been made under the leadership of His Highness Sheikh Mohammed bin Zayed al Nahyan, Crown Prince of Abu Dhabi, and Deputy Supreme Commander of the UAE Armed Forces. His Highness has been a great champion and supporter of immunisation programmes in many countries. In 2011, he made his first pledge to support immunisation in developing countries through Gavi.

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mail@chemical-dojin.com



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s.frasca@medipan.de

Calendar

October

21-25 10 2017

EANM 2017 - 30th Annual Congress of the European Association of Nuclear Medicine

Vienna - Austria

EANM Executive Office
Schmalzhofgasse 26
1060 Vienna, Austria
Phone: +43 1 890 44 27
Fax: +43 1 890 44 27-9
Email: office@eanm.org
URL: www.eanm.org

Venue: ACV - Austria Center Vienna
Bruno-Kreisky-Platz 1
1220 Vienna, Austria
www.eanm17.eanm.org

23-25 10 2017

Medtrade 2017

Atlanta, GA - USA

Emerald Expositions
31910 Del Obispo, Suite 200
San Juan Capistrano,
CA 92675 - USA
Email: info@emeraldexpo.com
Website: www.emeraldexpo.com

Venue: Georgia World Congress Center
Atlanta, GA
USA

www.medtrade.com/show/show-schedule.shtml

27-29 10 2017

IRSF 2017 - International Rehabilitation Shanghai Forum

Shanghai - China

Exhibition Contact: Maggie Li
Rehabexpo Shanghai Committee
Poly world trade center,
No.1000 Xingang Dong road,
Haizhu district
Guangzhou, China
Phone/Fax: +86 20 66224913
Email: maggie@rehabexpo.org
Website: en.rehabexpo.org

Venue: Shanghai Everbright Convention
& Exhibition Centre International Hotel
www.rehabexpo.org

21-25 10 2017
ENAM
2017

23-25 10 2017
Medtrade
2017



November

5-11 11 2017

ARM 2017

Annual

Radiology Meeting

in UAE

Dubai - United Arab Emirates

INDEX Conferences & Exhibitions Org. Est.

Dubai Health Care City

Block B Office 203 2nd Floor

P.O.Box: 13636, Dubai - UAE

Phone: +971 4 362 4717

Fax: +971 4 362 4718

Email: info@radiologyuae.com

Website: www.radiologyuae.com

Contact: Mr. Job Zamora (Marketing Executive)

Email: job.zamora@index.ae

Venue: Dubai International Convention & Exhibition Centre

www.radiologyuae.com

5-11 11 2017

ARM 2017

Dubai

8-9 11 2017

MD&M Minneapolis

2017

Minneapolis - USA

UBM, Inc

2 Penn Plaza

New York

NY 10121

USA

Venue: Minneapolis Convention Center

1301 Second Avenue South,

Minneapolis, MN55403

[http://events.ubm.com/event/2997/](http://events.ubm.com/event/2997/mdm-minneapolis)

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November

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Goyang - Korea, South

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Gyeonggi-do, 411-766, Korea
Phone: +82 31 995 8048/8741
Fax: +82 31 995 8779
Email: sendex@kintex.com
Website: www.sendex.co.kr

KINTEX Exhibition Project Team
Tel: +82 31 995 8094
Fax: +82 31 995 8082
Venue: Kintex - Korea International Exhibition Center Hall 2-3
Goyang, Korea, South
www.sendex.co.kr/eng/main/main.php



10-12 11 2017

YESDEX 2017

Busan - Korea, South

Organised by:
Busan Dental Association
3-8 Jungang-daero,
308beon-gli
Dong-gu, Busan,
Korea
Phone: +82 51 469 5704
Fax: +82 51 463 5774

Venue: BEXCO Exhibition Centre
Busan, Korea, South
www.yesdex.or.kr

12-12 11 2017
YESDEX

Busan - Korea, South

11-14 11 2017

AAO 2017 - American Academy of Ophthalmology Annual Meeting

New Orleans, LA - USA

Organised by: American Academy of Ophthalmology
655 Beach Street
San Francisco, CA 94109-1336, USA
Phone: +1 415 561 8500
Fax: +1 415 561 8533
Email: meetings@aao.org
Website: www.aao.org

Venue: Ernest N. Morial Convention Center
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New Orleans, LA, USA
www.aao.org/annual-meeting/exhibition/aao-exhibition





13-16 11 2017

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Fax: +49 211 45 60 668
Email: info@messe-duesseldorf.de
Website: www.messe-duesseldorf.de

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www.medica-tradefair.com
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December

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Turkey
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Fax: +90 212 465 74 76
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www.cnrhealthexpo.com



4-7 12 2017

Algeria Health 2017

Mohammadia - Algeria

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Contact person:
Lovelynn Failano, Marketing Manager
Phone: +971 55 775 1524
Email: love@atexinternational.com

Venue: Palais des Expositions, SAFEX
Mohammadia, Algeria
www.algeriahealthexhibition.com



14-16 12 2017

IDEA 2017 - Ethiopia - 3rd International Exhibition Africa - Medical & Pharmaceutical Show

Infodent's Booth: 39

Addis Ababa - Ethiopia

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Phone: +39 02 7006121
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BIOTECNO	LIFEMED	SIGNO VINCES
BMR MEDICAL	LOKTAL	SISMATEC
CASEX	LUPETEC	SPINE
CIMATEC	MAGNAMED	SUPERA PARQUE
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Mexico City, Mexico
14 - 16 March 2018

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Mumbai, India
16 - 18 March 2018

NZSEE Annual Technical Conference
Auckland, New Zealand
13 - 15 April 2018

Malaysian Rubber Export Promotion Council

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