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Medical Equipment & Automation

India's premium magazine on the diagnostic, medical equipment industry and technology

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"Oral health needs more attention

Oral diseases remain a major public health problem across the globe and are taking a toll in developing countries where dental caries and periodontal disease are the two major troublesome ailments. According to a report published by health ministry, dental caries affects about 60 per cent and periodontal disease about 85 per cent of the Indian population. Around 70 per cent of school children are suffering from dental caries and more than 90 per cent of the adult population is affected by periodontal disease. Further, India is considered as the world capital for oral cancer due to its high intake of both smoked and smokeless tobacco products. It is estimated that around 75,000 to 80,000 new cases of oral cancers being reported every year in India. That calls for a more effective, organised oral health related medical attention blueprint.

Today, dental implant has emerged as the preferred method of tooth replacement as they function the same as natural teeth. Also, it is a long-term replacement preserving adjacent teeth. The method involves insertion of artificial tooth roots into the jaw to replace missing teeth.

According to an analysis of Reports and Data, the global dental implants market, valued at USD 4.38 billion in 2018, is expected to reach USD 8.06 billion by 2026 at a CAGR of 7.9 per cent. A research report by MarketsandMarkets, the global dental implants market is projected to reach USD 13.01 billion by 2023 from USD 9.50 billion in 2018, at a CAGR of 6.5 per cent. Another research agency Ameco Research anticipates that the global dental implant and prosthetic market will grow progressive from USD 8,879 million in 2017 to USD 14,490 million in 2024 at a CAGR of 7.2 per cent during the forecast period.

Though the market penetration of dental implants remains low in India, it is expected to a sharp growth attributed to rising disposable income and increasing willingness to consider surgeries related to dental implants. Various studies reveal that the overall market will continue to grow at double-digit rates over the next few years.

For more information, please write to me at **pravita@charypublications.in**

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Publisher

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Editorial

The Digital Disruption

Automation plays a crucial role in a healthcare facility by enhancing administration, optimising accessible operations and maximising the performance of healthcare professionals. In a hospital, automation is used to maintain patient records, hospital operations, manages finance, collection and delivery of reports, facilities management etc. It enhances overall operations through efficiency, improved patient experience and higher job satisfaction. Also, when it comes to diagnostics and treatment, healthcare automation enables early detection of diseases and treatment. Thus, automation offers better healthcare facilities, improved efficiency and increased healthcare delivery quality.

Today, healthcare industry across the world is witnessing signification transformation with the advent of Artificial Intelligence (AI), Blockchain, Internet of Things (IoT), and Robotic Process Automation (RPA). This increased adoption of digitalisation is enabling all stakeholders to redefine the healthcare in terms of prevention, diagnosis and treatment. At the same time the effective use of these technologies help to reduce costs, increase productivity and improved quality.

> "Even smartphones with diagnostic capabilities are being used to detect early on-set of long-term conditions, such as Parkinson's disease, asthma and thyroid disorders."

Even smartphones with diagnostic capabilities are being used to detect early on-set of long-term conditions, such as Parkinson's disease, asthma and thyroid disorders. Smartphones facilitates patients in remote geographical areas to have much better access to healthcare by using clip-on sensors. Implantable drug-delivery mechanism is a microchip-based breakthrough solution that is designed to administer different medications, drugs, and fluids without inserting needle repeatedly.

Owing to this very reasons, the healthcare automation market is all set to witness exponential growth. According to a Zion Market Research report, the global healthcare automation market, valued approximately US$ 33,334 million in 2018, is expected to generate around US$ 63,596 million by 2026, at a CAGR of around 8.41 per cent between 2019 and 2026. Another research agency Market Research Engine also expects that the healthcare automation market will exceed more than US$ 60 billion by 2024 at a CAGR of 9 per cent.

Subhajit Roy
Group Editor

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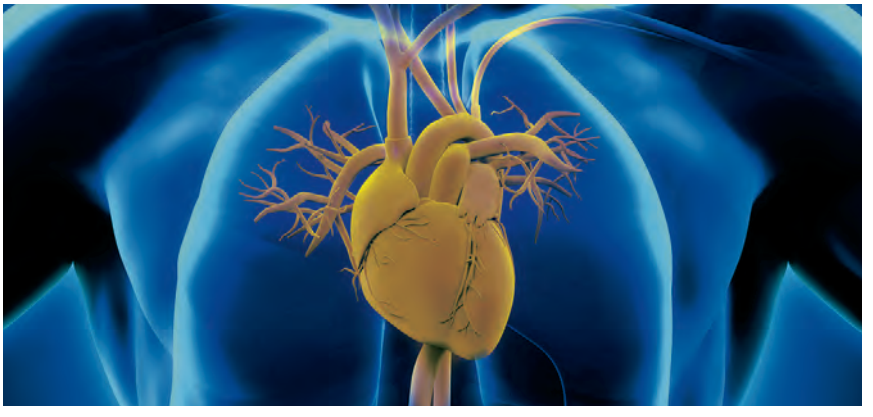

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'Train the trainer's course hosted at IDL Care

Gastrointestinal problems have increased in number and complexity over the years. Recent advances in technology have been a boon to diagnose and treat many digestive problems. Endoscopic Ultrasound was originally devised to detect and stage Cancers. While it still excels in that area, a new branch of Endoscopic Ultrasound called 'Interventional EUS' has shown great promise in minimally invasive, day care treatment of problems like Pancreatitis, Pancreas Cancer, and obstructive Jaundice. Since the techniques are new, there is a need to train young doctors in these complex techniques. With this in mind, experts from SL Raheja Hospital, Mahim, announced 1st of its kind 'train the trainer program' – at the 'School of EUS' (Endoscopic Ultrasound). Led by Dr Vinay Dhir, Executive Director, Institute of Digestive and Liver Care, SL Raheja Hospital, Mahim, the training focused on equipping 12 Gastroenterologists across the world with full spectrum of EUS training, from basic anatomy to interventional EUS.

The three-day training program was spearheaded by Dr Vinay Dhir, Executive Director, Institute of Digestive and Liver Care, SL Raheja Hospital, Mahim, who trained 12 doctors from China, Japan, Korea, Myanmar, Indonesia, Taiwan, and India. The participants were trained using the Indian Interventional EUS Model program.

Dr Hiren Ambegaokar, CEO, SL Raheja Hospital, Mahim-A Fortis Associate, spoke proudly about this program, he said, "This is a brilliant initiative in which experts pass on their learnings to their fellow doctors, enabling access to latest techniques and methods. The program was a great success!" ✚

Transasia Bio-Medicals to foray into Rs 300 cr Indian molecular diagnostics space

Transasia Bio-Medicals recently announced that it will soon be foraying into the Rs 300 crore Indian molecular diagnostics space. It unveiled the MX 16, a fully automated nucleic acid extractor, at the 50th Union World Conference on Lung Health and TB in Hyderabad. The MX 16 has been developed by Erba Molecular, a UK subsidiary of the Transasia-Erba Group.

The new system will offer an easy-to-use and lower priced molecular TB test in India, with the goal of replacing traditional smear microscopy. The system will be particularly beneficial to India, which has the highest burden of TB and drug-resistant TB: One in four TB patients globally are in India. Also, 89 per cent of affected individuals in India are in the productive age group 15-69, which makes it a critical national health issue to be addressed. Though TB incidence in India has been declining at 1.7 per cent annually since 2016, it is estimated that it needs to fall by 10 per cent annually to reach the Government's 2025 goal of ending TB in the country. Currently a significant number of TB patients remain undiagnosed for long and out of those diagnosed, only 65 per cent of cases in India are treated. According

to the Tuberculosis India Report 2019, there has been a 16 per cent increase in cases compared to 2017, further raising the need for early, simple and accurate diagnostics, which is a crucial element of any successful strategy to address TB in India. To this effect, Molecular testing has been included in first ever Essential Diagnostics List announced in 2018 by the WHO, further stressing the need for timely diagnosis of TB.

Announcing the foray, Suresh Vazirani, Chairman and Managing Director, Transasia-Erba International Group said, "Erba Molecular in UK is among a handful of companies in the world having state-of-the-art, proprietary molecular diagnostic technology. The unveiling of MX 16 and our upcoming entry into the molecular diagnostics segment in India, is part of our commitment to bringing the best in IVD globally to benefit the Indian public." ✚

3M signs MoU with Infusion Nurses Society

3M India has signed a MoU with Infusion Nurses Society (INS-Ind) to launch "INFUZE", a quality improvement program in Infusion therapy in India. The program is aimed at improving compliance to the best practices in Infusion therapy. As an extension to the partnership with INS-Ind since its inception, 3M India, now as the technical partner, will design workshop modules and conduct initial compliance assessment.

While Infusion therapy is viewed as niche segment, insertion and maintenance of peripheral intravascular catheters is expected of every registered nurse. The importance of this is missed in the absence of a dedicated curriculum. Addressing this, 3M India will create educational modules and checklists on the INS Policy and Procedures, and also conduct training workshops in the enrolled centers to help them comply with the Infusion Therapy Policy and Procedures and Guidance Manual. 3M India will also undertake an initial compliance assessment of the center within two months of completion of every workshop.

Rajiv Gupta, Country Business Leader, HCBG, 3M India, said, "We at 3M, believe in giving back to our customers and communities. We have continuously invested in promoting global healthcare best practices through our products and services. "Patient safety" is one of the most discussed issues in healthcare worldwide, including India. Our association with INS India, through INFUZE is built on strengthening this cause through means of standardisation of healthcare practices in Infusion Therapy." ✚

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KlinicApp to hire 500 phlebotomists in Pune this year

India's fastest growing e-diagnostic company–KlinicApp announced that it is set to hire 500 employees in Pune this year. The 500 new employees would be people trained to draw blood from a patient for clinical or medical testing-lab technicians with specialised BMLT and DMLT degrees.

"Currently KlinicApp is adding 200 phlebotomists per month especially in Delhi, Mumbai to our existing teams. With a strong and growing presence in north India, we now aim to expand across the country and hire over 1000 people this year." Satkam Divya, CEO, KlinicApp, announced on the expansion.

KlinicApp is providing online blood test operational services at home in PAN India. It has partnered with NABL, ISO and CAP certified labs to provide best possible diagnostic and path services to our customers. Along with path test and many broad health check-up with free home sample collection services are also available at the diagnostic centers. It conducts blood sample collection with their own fleet of expert technicians (Phlebotomists) who are trained for home sample collection, hygiene sample handling and laboratory procedures. KlinicApp has served more than 1 lakh customers with hassle free services through their phlebotomists.

Satkam Divya, CEO, KlinicApp shared "Healthcare issues in Pune are increasing due to changing lifestyle, unhealthy diet, lack of exercise, high stress levels, increase in disposable income and environmental degradation. Most common health issues faced by the population today include Heart Disease, High Blood Pressure, High Cholesterol, Diabetes, Stroke, Gallbladder and Liver disease, Sleep apnea, respiratory problems and many more."

"With timely standard health checkup one can identify any health issue at the earlier stage. Early diagnosis and screening would help in early recognition of any health issues in order to take prevention and medication for a quick recovery." He further added. ✚

Fujifilm India and Max Healthcare partner to train doctors

Witnessing the scarcity of radiologists and limited experts in breast cancer diagnostics across Asia and in India, Max Super Speciality Hospital, Saket and Fujifilm India have come together to train doctors in advance diagnostics and spread awareness about early detection of breast cancer. Fujifilm will be sponsoring an advanced fellowship in breast imaging with Max Healthcare Hospital under the guidance of Dr Bharat Aggarwal, Director – Radiology Services, Max Super Speciality Hospital, Saket and Dr Harit Chaturvedi, Chairman, Max Institute of Cancer Care.

The doctors will be trained in breast mammography, breast MR and breast ultrasound techniques for six months through the Max-Fujifilm collaboration fellowship programme. The programme will train two selected radiologists in a year towards early detection of breast cancer.

Commenting on the association, Haruto Iwata, MD, Fujifilm India, said, "According to the Health Ministry of India, breast cancer ranks as the number one cancer among Indian females with rate as high as 25.8 per 100,000 women and mortality of 12.7 per 100,000 women. We at Fujifilm understand

the importance of early detection and are committed at improving the survival rates with advance treatments. Our Amulet Innovality is one such product that has made early detection of breast cancer a reality for women all over the world.

"Our association with Max Super Speciality Hospital is a significant and collective step to fight against cancer. With the increasing prevalence of breast cancer in the female populace, it is imperative for healthcare providers to deliver the best and precise early detection screening facilities that can help save lives. We are making continuous attempts to create awareness among women on breast cancer and promoting campaigns like the Pink Ribbon to encourage the early discovery of breast cancer," he added. ✚

Aditya Birla Finance partners with Indian Dental Association

Aditya Birla Finance, in partnership with Indian Dental Association (IDA) has launched an easy EMI facility for dental treatments at 11th World Dental Show 2019, to make dental treatments more accessible and convenient in the country. The occasion was graced by the presence of Dr Ashok Dhoble, Secretary General, Indian Dental Association and Rakesh Singh, MD and CEO, Aditya Birla Finance. Over the past few months Indian Dental Association has been constantly working to bring the most beneficial and economical programmes for dentists and patients. This partnership aims at bridging the gap between dentists and patients by making dental financing accessible, cashless, and convenient.

Most insurance policies do not cover dental treatments. At times, dental treatments could be expensive and inconvenient. Therefore, availability of easy EMI facility can be immensely useful for people to access right treatment with easy installment options starting at 0 per cent interest.

The aim of easy EMI facility is to help dentists with flexible monthly payment options to enable their patients to take advantage of all dental treatment plans without any financial worries. It is a simple, easy and alternative treatment payment method that can be used by dentists to help their patients avail the right treatment with easy installment options.

Speaking on the occasion, Dr Dhoble said, "Easy EMI facility for dental treatments is an important step in facilitating and boosting the dental practice in India. A much-needed service that will ease the patients in terms of easy financing options on EMI basis. This facility is indeed a need of the hour to encourage people to willingly undertake oral treatment. Gearing-up on similar lines as in some of the developed countries." ✚

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Cloudnine Hospital organises free health assessment camp

While conducting a health assessment camp at Kashiram resettlement colony at Sector 45, Noida recently, it was found that the awareness about several types of lifestyle related disorders is extremely low. The World Health Organisation (WHO), which identifies alcohol, tobacco, poor diet intake and lack of physical activity as major risk factors for NCDs, the incidences of such diseases while screening the families were relatively high. Tests such as ECG, blood sugar were conducted and a gynaecologist and paediatrician were also present to consult the families on BP and weight control management for families and children.

Commenting on the health camp, Dr Pawan Kumar, Regional Director (North), Cloudnine Group of Hospitals said "We, at Cloudnine always believe that it is important to enhance awareness among different segments about the adverse effects of various lifestyle issues and stress can have on one's health. These days unspecified hours, thus leading to unhealthy eating habits and irregular time schedules is on its peak and it is critical for people to be informed about lifestyle diseases such as heart disease, stroke; obesity and type 2 diabetes; and diseases associated with smoking and alcohol. This initiative is aimed at early diagnosis of problems arising due to the same, wherein the doctors present will then advise on precautions and solutions."

During the health camp about 200 families were medically examined out of which more than 175 females between the age group of 30 to 55 attended the screening. Children between the age group of 5 years upto 11 years were examined by a senior paediatrician from the hospital. The camp witnessed a total footfall of about 300 attendees. Senior female family members along with young girls were identified as risk group of patients facing many lifestyle and fertility related issues.

Medica Hospital bags Kayakalp Award for promoting cleanliness

Kolkata-headquartered Medica Superspeciality Hospital has been recognised for its efforts towards excellence in promoting cleanliness, high standards of hygiene, sanitation and infection control. The city-based private hospital has been honoured with the Kayakalp Awards constituted by the Government of India under the category of Hospital contributing to improved quality of care. Dr Alok Roy, Chairman of Medica Superspeciality Hospital received the award from Dr Harsh Vardhan, Union Health Minister.

Addressing the delegates and dignitaries present at the award ceremony in Delhi, Dr Roy said, "Cleanliness should be incorporated in our daily lifestyles. We are thankful to the Government of India, as Kayakalp has played a pivotal role in reinstating and reconfirming trust and confidence of the citizens in public and

private health facilities. As we celebrate the 150th birth anniversary of Mahatma Gandhi, the efforts put up by the public and private healthcare to conform to the Kayakalp standards will go on to pay a true tribute to the Mahatma."

Introduced in 2015 by the Union Ministry of Health and Family Welfare, the Kayakalp Awards are given to district hospitals and health centres that maintain cleanliness and hygiene throughout the year by taking extra initiatives.

Transasia awarded with ZED Diamond Quality rating

Transasia Bio-Medicals Ltd., announced that it has received the Diamond rating in ZED Quality Certification from the Ministry of MSME, Government of India and the Quality Council of India for its manufacturing facility at Mumbai (Seepz). The plant was assessed on 30 stringent parameters including manufacturing infrastructure, Lean concepts, 5S, Kaizen, daily management practices, manufacturing process and FMEA, impact of manufacturing on the environment. The entire assessment process is very elaborate and lasted a year.

The ZED Quality Certification is an initiative by the Government to encourage 'Make in India' and export of Indian products, through manufacturing practices, aligned towards providing products aimed at Zero Defect (for customers) and Zero Effect (on the environment). First announced by Hon'ble Prime Minister Narendra Modi in 2014, the initiative is meant to raise quality levels in the MSME sector and is seen as the cornerstone of the Make in India programme.

So far, 266 companies have been awarded in 23 manufacturing sectors. The extensive assessment process comprises

self, desktop and site assessment and evaluates the companies on a total of 50 varied parameters. At the end of the assessment and evaluation, the final rating is provided to MSMEs based on the maturity assessment model.

Speaking on the achievement, Mr Suresh Vazirani, Chairman & Managing Director said, "Transasia has been manufacturing in India from the early 1990s, much before the Make in India concept actually came into existence. Over the last forty years, our mission has always been to provide high quality diagnostic solutions that are reliable and environmentally sustainable. The quality of our products and solutions is recognised not only in India but in over 100 countries globally."

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Ayushman Bharat achieves 50 lakh treatments milestone

Half a crore hospital treatments have been provided under Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY), the flagship health assurance scheme of the Government of India, in just over a year. There are nine hospital admissions every minute across India, in the first year.

PM-JAY is the world's largest fully Government funded health insurance scheme, which was launched by Prime Minister, Narendra Modi on September 23, last year. Today the scheme crossed 50 lakh treatments mark. These secondary and tertiary level treatments worth Rs. 7,901 crore have been carried out in the 32 States and Union Territories implementing the scheme. More than 60 per cent of the amount spent has been on tertiary care. Cardiology, Orthopaedics, Radiation Oncology, Cardio-thoracic and Vascular Surgery, and Urology have emerged as the top tertiary specialities.

Lauding the progress of the scheme, Dr Harsh Vardhan, Union Minister for Health and Family Welfare said "The Ayushman Bharat family is growing by leaps and bounds. In just over one year, under PM-JAY more than 50 lakh treatments have been availed by beneficiaries across the country. But, this is just the beginning for this path-breaking scheme. We are grateful to our Prime Minister, Narendra Modi for his visionary leadership. The successful implementation of this scheme will help us take forward Pandit Deen Dayal Upadhyay's vision of "Antyodaya" – the upliftment of the last man, such that this deprived man gets the benefits of development. The aim of our government is to make Bharat "Rog mukt and Ayushmaan!" ✚

Apollo Hospitals Navi Mumbai completes 25 paediatric liver transplants

Apollo Navi Mumbai recently announced the completion of 25 paediatric liver transplants. The paediatric liver transplant programme at Apollo Navi Mumbai took off two years ago at a time when children with end-stage liver disease had no comprehensive facility or access to advanced paediatric liver transplantation programme in the city of Mumbai. The transplants have been successfully carried out at subsidised costs with a more than 90 per cent success rate.

Dr Darius F Mirza, Consultant, HPB and Liver Transplant Surgery, Apollo Hospitals Navi Mumbai said, "The Apollo Hospitals paediatric liver transplantation programme is staffed with an experienced paediatric liver transplant surgeons and has success rates that are comparable to the best in the world. With well-equipped infrastructure, skilled pre and post-operative management team, the risk to both donor and recipient are minimised to ensure a successful outcome. Today, with advances in surgical technique, immunosuppression and post-operative aftercare, paediatric liver transplantation is a safe proven procedure."

Dr Aabha Nagral, Consultant, Hepatology (Adult and Pediatrics), Apollo Hospitals Navi Mumbai spoke on the common indications

for a paediatric liver transplant. She said, "The most common indication for a liver transplant is biliary atresia, a rare disease of the liver and bile ducts that occurs in infants and results in blockage of the bile flow from the liver to the gallbladder, causing damage to the liver cells. Other causes of childhood acute and chronic liver failure include inherited liver diseases. In children with serious dysfunction of the liver and end-stage liver disease, a liver transplant is the only solution. Timing of the liver transplant in a paediatric patient is important and is influenced by many factors including the age, the underlying liver disease and past medical and surgical history. A multi-disciplinary team assesses the child and gives their input for the management."

Dr Vikram Raut, Consultant, Liver Transplant Surgeon, Apollo Hospitals Navi Mumbai elaborated on how the team has achieved high success rates which are at par with international transplant success rates. ✚

AIIMS initiates survey to assess infrastructure needs

The AIIMS administration has initiated a survey to assess space and infrastructure requirements of its departments and divisions for transforming the premier institute into a 'world-class medical university' by 2024.

The Union Cabinet had in March given its in-principle approval to implement the redevelopment master plan. The administration has now asked the heads of all departments, divisions and various facilities to suggest their needs and vision for the institute during this survey.

The master plan aims at freeing up adequate space at the institute through redevelopment, expansion and reorganising the land usage to ensure most appropriate utilisation of resources for the next 20 years. "The document should anticipate the space and infrastructure requirements over the next 20-30 years. It should be built on a comprehensive vision and not simply a reflection of patient-care needs. Data regarding manpower and staff is not to be provided in this document. It is anticipated that this form may not be sufficiently appropriate for each specialty and has been made to harmonise data collection," the communique to all the departments read.

Suggestions have been sought about future requirements for OPD rooms per day, day-care beds, indoor beds, clinical laboratories, ICU beds and operation theatres, among others. It has also sought suggestions over requirements in terms of seminar rooms and undergraduate and postgraduate laboratories and student rooms for academics and research. ✚

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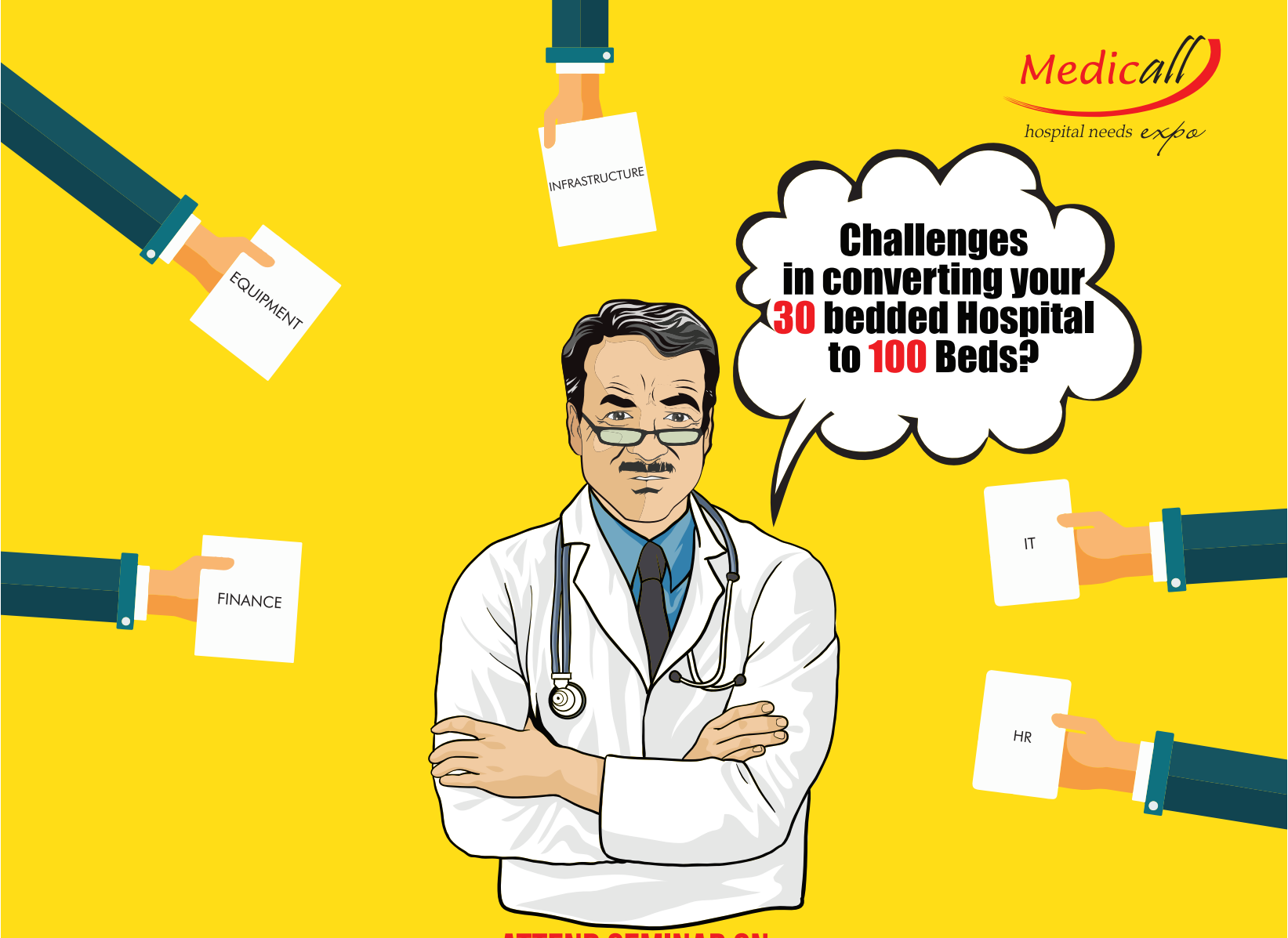

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Global dental surgical eqpt market to grow by $ 1.4 bn during 2019-23

The global dental surgical equipment market poised to grow by USD 1.4 billion during 2019-2023, progressing at a CAGR of 6 per cent during the forecast period, a research report by Technavio said.

According to the report, the market is driven by the increasing prevalence of dental diseases and related risk factors. In addition, the increasing adoption of 3D printing technology by dental professionals is anticipated to further boost the growth of the dental surgical equipment market.

Dental diseases and associated risk factors are on the rise. In fact, severe periodontal disease is the sixth most common disease worldwide. In addition, the older population is more prone to dental diseases with complete loss of natural teeth becoming more common. A few factors leading to the high prevalence of dental diseases are the growing instances of diabetes, poor oral hygiene, stress, and increasing use of tobacco and alcohol among the public. Thus, the report said, factors such as these are leading to increased demand for dental services, which, in turn, will drive the growth of the dental surgical equipment market.

Major five dental surgical equipment market companies

3M Co.

3M Co. owns and operates businesses under various segments such as industrial; safety and graphics; health care; electronics and energy; and consumer. The company offers a wide range of dental surgical equipment. Some of the products offered by the company are dental tools and equipment and dental curing lights.

Danaher Corp.

Danaher Corp. operates its business under four segments, which include life sciences, diagnostics, dental, and environmental and applied solutions. The company's key offerings include restoratives, endodontics, dental chairs, and handpieces.

Dentsply Sirona, Inc

Dentsply Sirona, Inc has business operations under various segments, namely technologies and equipment and consumables. Some of the products offered by the company are chairside economic restoration of aesthetic ceramic dentistry (CEREC) equipment, endodontics, instruments, treatment centers, and restorative.

Institut Straumann AG

Institut Straumann AG operates its business under three segments, which include implant solutions, restorative solutions, and others. The company's key offerings include digital solutions, and instruments and accessories.

Planmeca Group

Planmeca Group has business operations under various segments, which includes manufacturing business and wholesale and retail business. The company's key offerings in the dental surgical equipment market include dental units, CAD/CAM, and dental instruments. +

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DENTAL IMPLANTS

Surgery, Advantages & Risks

Natural teeth and dental implants may look the same, feel the same, and even function in a similar way, but they are very different. The most important differences are in the way they attach to the surrounding bone, their response to dental disease, their maintenance, and repair. This story shares views of dentists on dental implants.

Dental implants are artificial replacements for natural teeth. Among the available options for tooth replacements they can be considered as the highest among the lot in terms of both advancement and patient satisfaction.

Dr Ganesh R. Bhandari, BDS, MDS (Prosthodontist and Implantologist), Dr Bhandari's Dental Clinic and Implant Centre shares, "Dental implants consist of two main parts: Implant fixture and Prosthesis (dental crown/cap). The beauty of dental implants lies in the fact that they get fused with the bone upon healing which enables us to use them as 'anchors' for a superstructure such as a crown. Also majority of dental implants are made of biocompatible Titanium alloy which is readily acceptable by the body with no side effects. Dental implants have the highest life expectancy as compared with other forms of tooth replacements due to this very fact."

There are different types of dental implants:

a. **Endosteal (in the bone):** This is the most frequently used type of implant. The various types include cylinders or blades, screws, surgically placed into the jawbone. Each implant holds one or more prosthetic teeth. This implant is usually used as an option for patients with bridges or removable dentures.
b. **Subperiosteal (on the bone):** In this procedure the implant are placed on top of the jaw with the metal framework's posts protruding through the gum to hold the prosthesis. These types of implants are used for patients who have minimal bone height or are unable to wear conventional dentures.

Dr Mukesh P. Wankhede, MDS, Dental Surgeon, Tata Cancer Hospital says, "Once the implant has bonded to the jawbone, a small connector post - called an abutment - is attached to the post to securely hold the new tooth. To make the new tooth or teeth, we dentist make impressions of patient's teeth, and creates a model of your bite (which captures all the teeth, their type, and arrangement). The denture is based on this model. A replacement tooth, known as a crown is then attached to the abutment."

He further adds, "Instead of one or more individual crowns, some patients may have attachments placed on the implant that retain and support a removable denture. A dentist also will match the color of the new teeth to the natural teeth. Because the implant is secured within the jawbone, the replacement teeth look, feel, and function just like own natural teeth."

Maintaining Dental Implants

To ensure the longevity of an implant, specific techniques and efforts are necessary in order to maintain the implants. Implant recipients play a significant role in the success of their own restoration and must be motivated to take care of the implant.

Dental implants however advanced are still artificial replacements and need to be taken care of and maintained just like any other part of the body.
Dr Ganesh R. Bhandari,
Prosthodontist and Implantologist,
Dr Bhandari's Dental Clinic and Implant Centre

Dental implants however advanced are still artificial replacements and need to be taken care of and maintained just like any other part of the body. Dr Bhandari suggests the points one should keep in mind:

- Adequate oral hygiene is a must when it comes to dental implants. Patients need to understand that food can accumulate around teeth and dental implants and need to be cleaned meticulously. Regular brushing followed by water flossed are recommended techniques of maintaining hygiene.
- One shall not bite onto unnatural products such as bottle caps with implant crowns as they have not been designed to be used that way.
- Avoid excessively hard foods such as bones and "Til Ladoo" or chikki directly on the implant crown.
- Do not eat sticky things such as sticky candy or chewing gums as this can cause the crown part to come out over a period of time.
- Usually regular follow up with your Dentist/ Implantologist is a must every 6 months where gum health and bone levels around implants are assessed.

Dr Wankhede says, "It is important to practice good daily oral hygiene, including brushing and flossing to control bacterial bio-film. It is also important to see your dentist on a regular basis. The dentists will need to examine implants to make sure the integrity of the osseointegration is stable and that the implant bridgework, crowns or dentures are functioning adequately. Special equipment are necessary to clean dental implants that will not damage their metal surface beneath the gum tissues."

Advantages of Dental Implants

Dental implants offer advantages that other tooth replacement options, like dentures or bridges, just can't offer. Dental implants may actually endow with better long-term value than conventional teeth replacement options. Dental implant technology has become the state-of-the-art tooth replacement solution because of its benefits over earlier treatments. And, with new innovations in dentistry, most patients can benefit from them. Here, our experts share their views on the advantages of dental implants.

Dr. Bhandari points the advantages as, "Dental implants are the best treatment options as far as available treatment options go. They do not need to cut adjacent teeth as is needed in other treatment options such as dental bridges. Adjacent teeth are healthy and maintained as they are not over loaded

as in dental bridges. Functionally satisfying as bite force generated by implant prosthesis is equal to natural teeth, aesthetically pleasing as the effect of tooth coming out of gum is achieved and dental implants are biocompatible."

Dr Wankhede said, "One of the biggest advantages of an implant is that it restores full chewing power. In most of the cases, the patients can't tell the difference between their natural teeth and the implant tooth."

According to Dr Wankhede, the other advantages to dental implants include:

- **Improved appearance:** Dental implants look and feel like the own teeth. And because they are designed to fuse with bone, they become permanent.
- **Improved speech:** With poor-fitting dentures, the teeth can slip within the mouth causing one to mumble or slur words. Dental implants allow to speak without the worry that teeth might slip.
- **Improved comfort:** Because they become part of one's mouth, implants eliminate the discomfort of removable dentures.
- **Easier eating:** Compared to natural teeth, sliding dentures can make chewing difficult. Dental implants function like own teeth, allowing to eat with confidence and without pain.
- **Improved oral health:** Dental implants don't require reducing other teeth, as a tooth-supported bridge does. Because nearby teeth are not altered to support the implant, more of own teeth are left intact, improving long-term oral health. Individual implants also allow improving oral hygiene.

Disadvantages of Dental Implants

There are some disadvantages that are important to consider when choosing dental implants as a procedure.

Dr Wankhede says, "Surgical procedure is necessary for implant placement. There may be insufficient bone for implant placement. This may necessitate bone grafting and additional expense. While implant fixtures (roots) have a 95 per cent success rate, a porcelain crown placed on the implant may still fracture with time. Primary implant expense may be costly, but in the long term, is actually more cost-effective."

Dr. Bhandari points out the disadvantages as:

- Involves surgery.
- May not be possible in patients with advanced medical problems.
- Initial cost may seem high to some but long term benefits are more.
- Treatment time is longer as bone needs to heal up around the implants.

Instead of one or more individual crowns, some patients may have attachments placed on the implant that retain and support a removable denture.

Dr Mukesh P. Wankhede
Dental Surgeon,
Tata Cancer Hospital

Conclusion

There are very few disadvantages of dental implants, but they are overweighed by the benefits and value that they provide to the patient for the rest of a person's life. The only thing to keep in mind is about maintaining the implants carefully to ripe more benefits. Placing dental implants requires a great deal of knowledge in this area. Dental professionals are overwhelmed by the variety of implants available on the market. The dentist should choose a dental implant system based on evidence-based study.

ADVANTAGES OF DENTAL IMPLANTS

- Dental implants are the best treatment options as far as available treatment options go
- Do not need to cut adjacent teeth as is needed in other treatment options such as dental bridges
- Adjacent teeth are healthy and maintained as they are not over loaded as in Dental bridges
- Functionally satisfying as bite force generated by implant prosthesis is equal to natural teeth
- Aesthetically pleasing as the effect of tooth coming out of gum is achieved.
- Biocompatible.

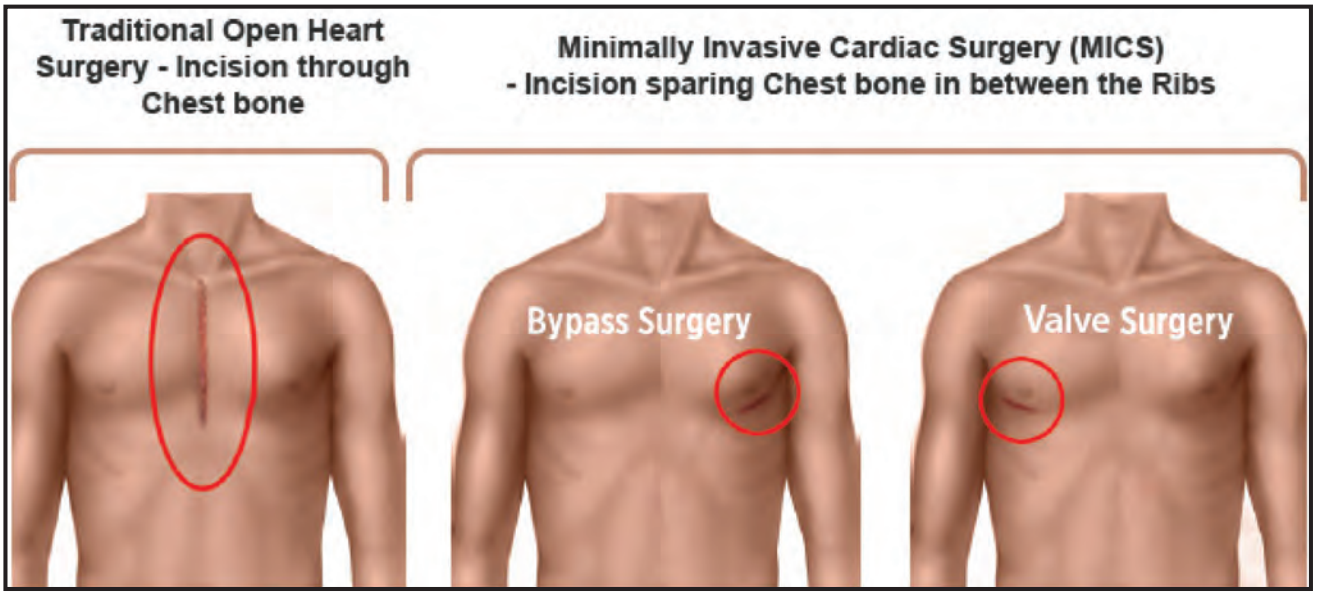
DISADVANTAGES OF DENTAL IMPLANTS

- Involves surgery
- May not be possible in patients with advanced medical problems
- Initial cost may seem high to some but long term benefits are more
- Treatment time is longer as bone needs to heal up around the implants.

Technological Innovations in Cardiac Surgery

From the successful closure of a patent ductus arteriosus in 1938 and the Blalock-Taussig shunt, discovery and innovation have been the hallmarks of cardiac surgery.

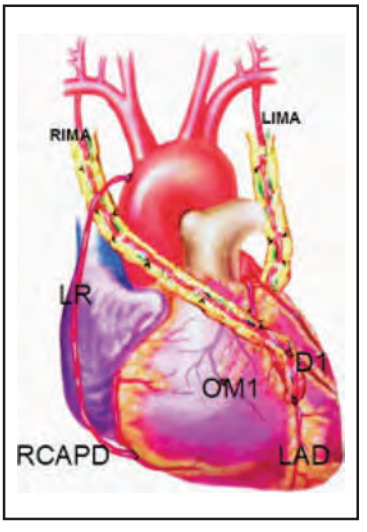
Dr John Gibbon's first clinical use of the heart lung machine in 1953 opened the door to diverting the circulation and oxygenating the blood, making open heart surgery to repair congenital defects and valvular lesions possible. The development of safe myocardial preservation with solutions to protect the heart opened the



surgical world to complex prolonged cardiac procedures and made cardiac transplantation feasible. Routine preservation of myocardial structure and function for periods of several hours has been achieved.

Minimally invasive cardiac surgery: The majority of open heart surgeries still involve a median sternotomy and use cardiopulmonary bypass combined with aortic cross-clamping and cardioplegic arrest. This can represent a frightening prospect for some patients with regard to having the "chest cracked open". Minimally invasive cardiac surgery, where access to the heart is typically achieved through a left or right minithoracotomy, may alleviate this problem. The incision is smaller and the risks of wound infection following sternal trauma and problems with sternum healing are avoided. Other benefits of minimally invasive cardiac surgery include a reduction in post-operative rhythm disturbances, reduced length of hospital stay, less physical restriction in post operative recovery to normal life and great cosmetic result.

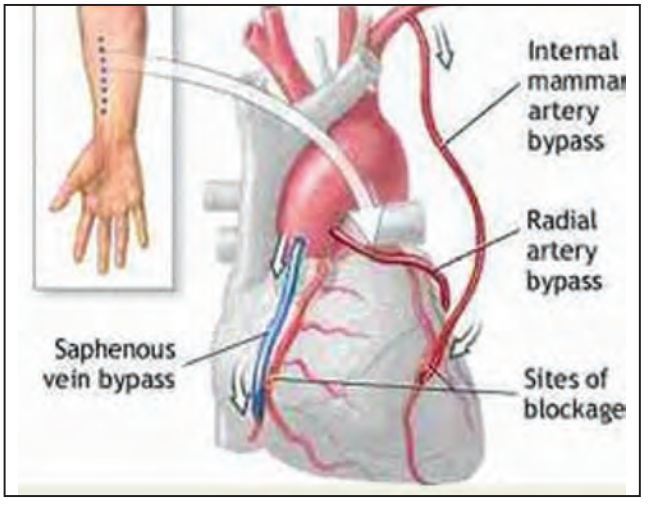
Heart can be approached through right or left mini anterior thoracotomy incision (4-5 cm) or upper ministernotomy incision. Through right thoracotomy approach mitral valve disease, septal defect and various congenital cardiac anomalies can be addressed. Left anterolateral thoracotomy is preferred incision for majority of coronary artery disease surgery. Conduit for CABG like saphenous vein and radial artery are being harvested endoscopically with just 1 cm incision and far superior cosmetic result and early recovery. Upper partial sternotomy incision is preferred for aortic valve repair and replacement. There is no absolute contraindication for these approaches but Minimally invasive surgery is not advisable in Emergency life saving surgery, morbidly obese patient or very high risk patient.



Minimally invasive CABG or MIDCAB is advancement in management of coronary artery disease patient. In MIDCAB surgery is done through 5-10 cm left thoracotomy incision below the nipple. It gives early recovery to normal life with superior cosmetic result. With advancement of newer instrument, all area of heart is approachable and can be grafted IN MIDCAB surgery with long term result almost equal to conventional beating heart surgery.

Beating Heart Surgery: Coronary artery bypass grafting remains one of the most commonly performed major cardiac surgeries with well established symptomatic and prognostic benefits in patients of multi-vessel and left main coronary artery disease. Previously grafting was being done on still heart and rest of the body was supported by cardiopulmonary bypass machine. With continuous improvement in technology and development of fine instrument, grafting is performed on beating heart. This revolutionary advancement has led decreased post operative mortality and morbidity to around 1 in 100 cases. Beating heart CABG is highly preferred in patients with kidney dysfunction, aortic calcification and multiple comorbidity.

Use of only arterial conduit for grafting has improved the long term results and survival of post CABG patients. Instead of using



vein from both legs, preferred conduits now days are arteries from underside of breast bone and radial artery from forearm. With use of bilateral breast bone arteries (internal mammary artery) and aortic 'no touch technique' risk of stroke in high risk patients has come down significantly.

Advancement in valve surgery:- In our country rheumatic valve disease and age related calcific valve disease are most common indications for valve surgery. Development of bileaflet mechanical valve in 1980s was major advancement in artificial valve prosthesis. With time, continuous refinement in prosthesis design and material have led increased durability and decreased anticoagulation requirement. Third generation bioprosthetic valve, developed from porcine or bowine pericardium and fixed in glutaraldehyde, exhibits improved sustained haemodynamic performance and durability and thus reducing the likelihood of reoperation. Need of anticoagulation has been come down to 3months to 6 months in these patients.

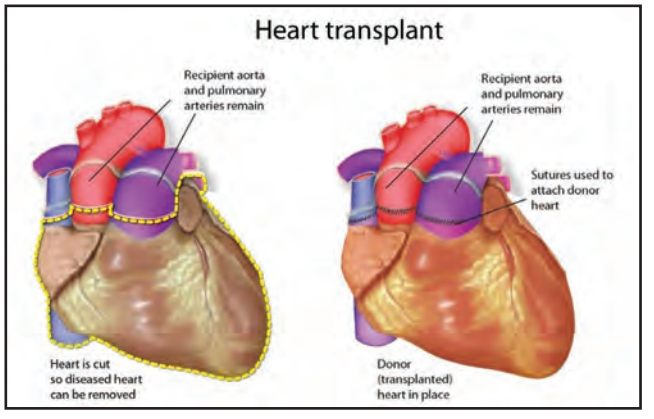
In high risk patient like old age, multiple comorbidity or in severely calcified valve, 'SUTURE LESS VALVE' or "TAVI" has emerged as procedure of choice. By using suture less valve, cardioplulmonary bypass time decreases at least by 70 per cent leading to rapid recovery of heart and decreased post operative ICU stay.

Transcatheter aortic valve implantation is a big breakthrough in stenosed aortic valve management, indicated in moribund, fragile patient where conventional valve replacement is not possible or is associated with very high risk. Procedure is performed through transfemoral approach. In spite of great result in inoperable patients, it is associated with pacemaker implantation in 8-25 per cent patients, paravalvular leak in around 10 per cent patients and questionable long term durability. Trials are going on for expanding the indication of TAVI.

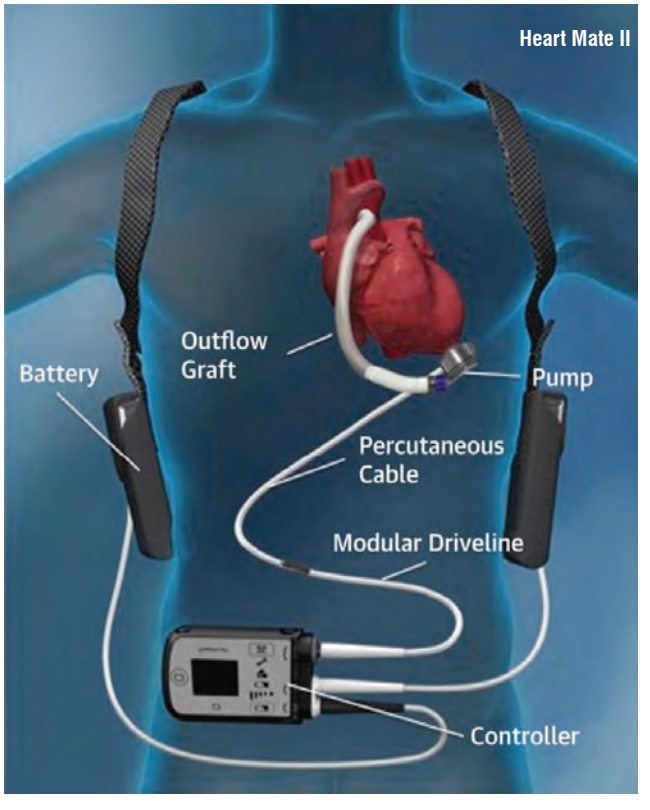
'MITRACLIP' another breakthrough in regurgitant mitral valve disease, is indicated in severe mitral valve leakage in patients not fit for conventional valve surgery. It is a large clip that grasp both leaflets of mitral valve, so it creates a bridge in the middle of valve. It cannot completely eliminate the leakage.

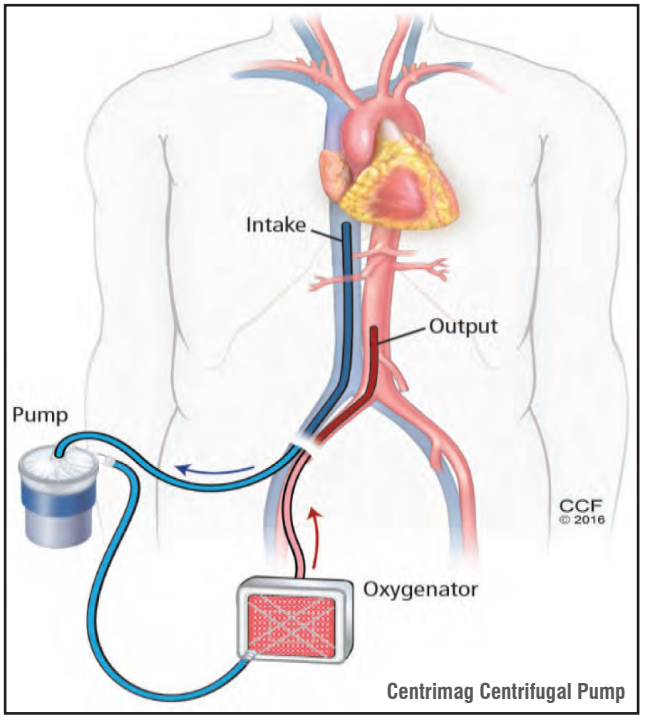
Advanced heart failure therapy:- Heart failure remains a progressive disease, and if left untreated, 30-40 per cent of patients die in end-stage heart failure. Last decade witnessed the revolution in the surgical management of advanced heart failure.

Heart Transplant:- Orthotopic heart transplantation is a fairly well established and standardised procedure with good long term results. Quality of life improves drastically. Less number of



usable donor heart and restriction of ischaemia time (6 hours) are major constrains to transplant surgery program. Recent advancement in heart transportation leads to development of 'organ care system'. In this, heart is transported in natural





Centrimag Centrifugal Pump

beating condition so that every available donor heart can be utilised and transported to patient in need irrespective of distance and ischaemia time. With the increasing number of patients eligible for heart transplantation, it is impossible to meet the demands for donor hearts, even if the potential for organ donations were fully exploited.

Ventricular Assist Devices:- To treat acute refractory heart failure or for chronic heart failure patient in waiting list for transplant or for those patients who have contraindications for transplants artificial ventricular assist devices have been evolved. A ventricular assist device (VAD) — also known as a mechanical circulatory support device — is an implantable mechanical pump that helps pump blood from the the ventricles to the rest of body.VADs are of short term use (like IMPELLA and CENTRIMAG) and long term use (like HEART MATE II and III).

Short term VADS are for temporary support during acute pump failure or after high risk cardiac surgery. It has to be replaced by longterm VAD or donor heart if required for longer periods. Long term VADS are being developed as a destination therapy for chronic heart failure patient.

HEARTMATE II and III, both are both intra corporeal mechanical pump. They took the blood from the left ventricle and eject in to systemic circulation. HEART MATEIII is completely intrapericardial device which is connected to the battery through the cord. Cord line infection and portable battery is major factor for their limited success. Though research on nuclear battery is on and it will make the device completely intrapericardial.

Stem cell therapy:- The groundbreaking discoveries of ongoing cardiomyocyte turnover and of progenitor cells located in the myocardium identified the human adult heart as an organ bearing potential for self-renewal. However, the limited endogenous degree of cardiac regeneration is insufficient to compensate for the massive loss of cardiomyocytes occurring after acute injury and the consecutive adverse remodeling.

Stem cells therapy could be a boon to patient of mayocardial infarction and refractory heart failure. Recently, pluripotent stem cell-derived interventions were used in clinical trials for the first time. “Patches” of human heart muscle cells derived from the stem cells were transplanted onto the surface of failing hearts. Early results suggest that this approach is feasible and safe, but it is too early to know whether there are functional benefits.

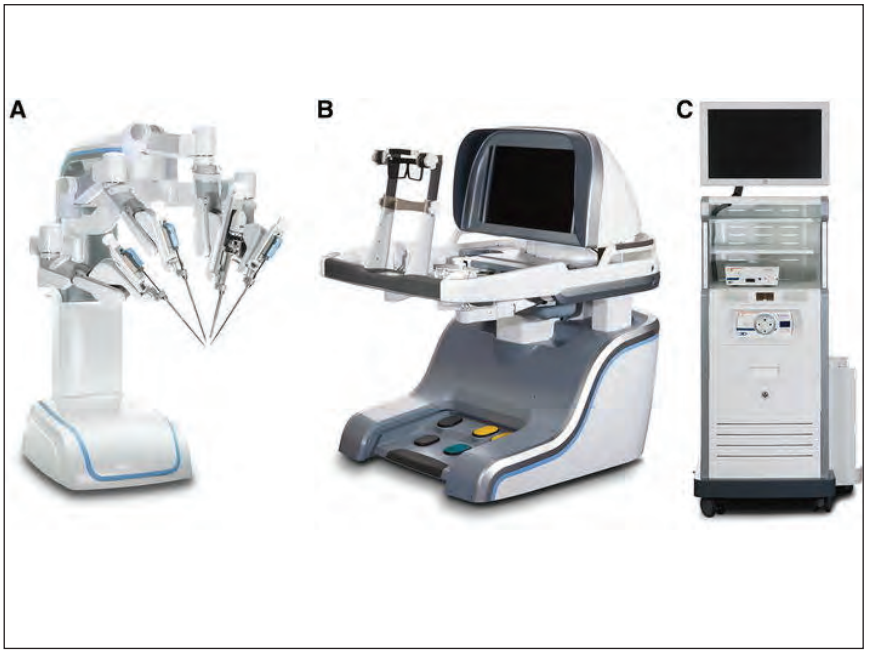
Research is ongoing to test cellular therapies to treat heart attacks by combining different types of stem cells, repeating transplantations, or improving stem cell patches. Clinical trials using these improved methods are currently targeted to begin around 2020.

Dr Z S Meharwal,
Executive Director and Head of Department,
Heart Transplantation and VAD Programme,
Fortis Escorts Heart Institute (FEHI).

ROBOTICS

THE FUTURE OF SURGERIES

Use of intra-operative aids like image-guided navigation will also play a greater role in robotic surgery in the future, informs **Dr Vivek Venkat, Consultant,Uro-Oncology & Robotic Urology, Nanavati Super Speciality Hospital** in an interview with Neha Wagle.



Initially developed with a view to perform surgery on the battlefield, robotic surgery has grown by leaps and bounds in the last two decades. Today it has become one of the most important tools a surgeon has, allowing for precise surgery with the added benefits of minimal-invasive approach.

Can you brief our readers what are the inventions happening in robotic surgery?

Global market of robotic surgery is expanding every minute with new companies investing in development of robotic systems to intensify competition and cost reduction. The Cambridge Versius system, which is available in markets, allows most of the functionality of the Da Vinci System. A South Korean system (Revo-i) has also started human testing and a Chinese surgical robot is under research and development process.

The new systems are designed to track the surgeon's eye movement as potential means to control the robotic camera instead of the traditional foot pedal. Further miniaturisation of instruments and access through a single incision (single-port) system are also under development. This may be important, particularly in paediatric cases. Research using pressure sensor or different components like 'tactile gloves' to provide touch feedback (haptic feedback) to the surgeon is ongoing and this could be a real game changer for the surgeon. Use of intra-operative aids like image-guided navigation will also play a greater role in robotic surgery in the future. Training and simulation modules to replicate surgical challenges and difficult cases will allow better training of surgeons. Use of robotics for tele-surgery using strong 5G communication networks could allow the benefits to reach more people at distances; however this needs a lot more research.

What are the drawbacks of robotic surgery and minimally invasive surgeries as per your personal experience?

One of the main drawbacks of any minimally-invasive surgery is the loss of touch with the surgeon's fingers (haptic feedback). During robotic surgery the surgeon relies purely on vision to operate. However, with adequate training the surgeon can rely very well on visual cues to operate. But in certain large and advanced tumors it is safer to do traditional open surgery as access is very important for complete removal.

Another predominant drawback is additional costs and unavailability of medical insurance packages for robotic surgeries. However, there are significant advantages to robotic surgeries for uro-oncological procedures like prostatectomy for prostate cancer and partial nephrectomy for kidney cancer. A large section of well-informed patients and their families reciprocate these advantages and willingly bear the additional expense for a much better outcome. With intense competition in the robotic surgery field, hopefully the costs will substantially reduce in the future.

Training in robotic surgery remains a roadblock for many surgeons and improvement in stimulation and training modules would make a significant impact. The integration of machine learning with large databases could give surgeons guidance by allowing a step-by-step guide. Such integration between robotic systems, operating rooms and databases of trainers or videos would help overcome a surgeons' initial learning period.

What do you have to say about AI in healthcare segment?

Artificial Intelligence (AI) is a buzzword on everyone's lips today. AI will play a huge role in healthcare of the future. Certain jobs involving pattern recognition like pathology and radiology are likely to increase dependency on machine learning algorithms with physicians playing a supervisory role.

Clerical jobs in healthcare, including billing, lab work, etc. may have already started using AI tools but present diagnostic algorithms have not shown to be accurate enough to replace a human physician and depend on human guidance.

Verb Surgical (a company formed by Johnson and Johnson with Google) are working on completely automated surgery and recently reported on autonomous suturing using their device. However, the time when AI can completely take over a surgical procedure may need a few years.

At present, AI plays a significant role in pre-surgical planning, intra-operative 3-D imaging and navigation for precise and subtle operations. People expect that ultimately robots will replace surgeons and actually perform the surgery. Nevertheless, I believe that this still remains well in the future. However, given the speed at which AI research is progressing, one never knows when surgeons' job could be under threat. ✚

New Techniques in Cardiovascular Surgery

Modern cardiac surgery owes its existence to technology as all other fields of medicine. Cardiac surgery with its various surgeries requires artificial valves, fabric grafts, Heart-Lung machine and its components and disposables, along with various other technological innovations in the ICU and in anaesthesia for successful outcomes.

Further advances are needed to miniaturise the incisions and to perform the most difficult type of surgeries i.e. Aortic Surgeries, Aneurysm Repairs, Aortic Dissections that can take upwards of 6-8 hours to perform. This requires the use of deep Hypothermia (cooling the patient down to 18C) and stopping the circulation completely – Circulatory Arrest, without causing any brain or other organ damage. This has been possible due to technological innovations and evolution

of new techniques in the field. We have started understanding the physiology of the human body better, thereby are able to make machines that can help improve outcomes in cardiac surgery. Robotic heart surgery, involving the use of robots, use of Anastomotic Devices for Coronary Artery Anastomoses, stabilisers, are all examples of technology allowing us to perform heart surgeries with smaller incisions, better accuracy and better results. Robotic surgery as applied to cardiac surgery is still developing, due to the restricted access in the chest and the difficulty in handling fine sutures while stitching the heart.

The most challenging aspects of heart surgery are surgeries in new-borns and small children with birth defects. These babies are sometimes prematurely born and weigh less than 2kg, needing complex surgeries to correct their heart defects. This is an entirely different specialty and needs a completely different training as well as dedicated surgeons, Anaesthetists, Perfusionists and nurses to make the surgeries successful.

The advent of Percutaneous Valve replacements using TAVI – Trans Apical or Femoral Aortic ValveImplants, valves, is an example of superb innovations to make sutureless valve replacements possible. These valves are crimped to a size of our groin arteries so that they can be introduced without an incision and then expanded once the valve is near the Heart. This technique of crimping and re-expansion is a direct application of space technology and involves the use of a self-expanding alloy called Nitinol. Currently, these valves are approved for use in patients >80 years age who are too ill to have a surgical valve replacement. Similarly, is a technology called a Mitraclip that is used to fix a leaking Mitral Calve without a cut on the body.

The future will include Gene Therapy and the use of Stem Cells injected in specific areas of the heart as treatment at a cellular level, without the use of conventional surgery. ✚

Dr Manoj Pradhan,
Senior Consultant,
CVTS Surgery,
SL Raheja Hospital-A Fortis Associate

Advancements in diagnostics

Diagnostics play a significant part in the growth of the healthcare industry. Advanced and high-end diagnostics has phenomenally changed the current scenario and replaced the traditional modes of diagnosis with advanced expertise and efficiency.

The tech advancements and new inventions have made it possible to conduct the tests and identify the pathogens and distinguish bacterial and viral infections. The advancements also ensure to provide rapid results which endow the world with a positive impact on healthcare.

Advanced technology and modern inventions bridge the gap to ensure efficient healthcare

The advanced diagnosis and the tech gadgets invented are easy to use and provide rapid results interpreting the diagnostic testing. The healthcare providers can ensure to bridge the gap between the laboratory and delivering the test results with proper use of the devices. The emerging technologies and the new inventions of smart devices for the diagnostic industry have enabled easy detection of the pathogens with the improved clinical outcomes. The pathologists and physicians can quantify the burden of diagnosis with new speed, accuracy, sensitivity, and simplicity using the new technologies. With access to the advanced opportunities, the diagnostic industry can conduct more complex tests which feed the requirements of tracking and detecting new disease outbreaks as well as investigation of unknown pathogens!

Problems faced by start-ups play a considerable part in boosting up growth

However, the startups face significant challenges in the development, clinical integration, and regulatory

approval of diagnostic tests using the new technologies. Apart from that, maintenance of the medical equipment is a challenge as it requires considerable investments. Managing the medical devices for diagnosis is essential to ensure safe and reliable tests with high accuracy. The demand for efficient and powerful diagnosing devices is increasing rapidly across the world. Thus, the manufacturing companies need to give high efforts to ensure the proper functioning of the tools and prevent the accidental breakdown of equipment. The manufacturers need to remain concerned about the topic to boost up the growth opportunities for medical equipment market globally.

The modern healthcare industry is receiving paramount importance as the modern methods of diagnosis have shifted the way of diagnosing the patients. The doctors can put the amount of accessible data into good use. The improvements and inventions proved to be a game-changer in the industry. Using accurate data reduces the likelihood of errors in the healthcare sector that immensely contributes to actionable treatment.

Apart from the traditional modes of diagnosis, the device inventions for rapid tests created a revolution. Since the origination of the portable diagnostic tools, patients as well as physicians can access the test reports. Such portable devices are easy-to-operate and the timely reports play a major part in accessing immediate treatment, which in overall is beneficial. The advanced point-of-care testing strategy efficiently helps in controlling the spread of infectious diseases and remarkably reduces healthcare costs.

The diagnostic tools for rapid tests offer immediate preliminary screening test results. Simplicity, portability, inexpensiveness, and speed are the unavoidable requirements. The sensitive diagnostic tools that are operated everywhere without requiring trained operators have strong appreciation all over with low-resource setting. The inventions have turned as the feasible way for improving access to diagnosis and healthcare. The evolution of the diagnostic industry is expected to expand more and more with the growing healthcare needs.

Currently, we are residing in a world of growing technology, and the industry is continuously inventing up-to-date instruments to meet the growing needs in healthcare. But certain factors are bringing limitations in the implementation of healthcare settings. Though the advanced testing methods have revolutionised the field of laboratory diagnosis, steps must be taken to remove the hurdles and overcome the limitations.

The startups play a key role in the development and commercialisation of new technology, which gets further fuelled by investors, universities, corporate partners, accelerators, and governments. The base of the modern invention on the conceptualised themes which once got considered as fiction proves to be efficient. But several promising startups have accelerated growth and development, which has been transforming the healthcare industry a lot.

Artificial Intelligence introduced transformation in the healthcare industry

Though the use of Artificial Intelligence (AI) in diagnostic and healthcare industry is in its infancy stage, the initiative has shown great signs of improvement in medical assistance. The acute shortage of doctors and healthcare service in rural areas can get overlapped by advanced technology. The technology created by the integration of AI with Machine Learning has proven effective in diagnosing breast cancer. Such startups inventing revolutionary technology share a considerable part in boosting diagnosis and treatment methods.

Computer Vision as an aid in the healthcare industry

Computer Vision technology is closely associated with AI and also combines the features of machine learning, data analytics, and data processing. The technology enables the computers to process the images, including human eyes. Using AI and visual medical data based on intelligent screening solutions have set new trends and introduced transformation in the diagnostic and healthcare industry.

Robotics-A revolution in the healthcare industry

Robotic technology has proven to be effective in several industries. The advanced technology also plays a crucial part in the diagnostic and healthcare industry. Though the technology is in its initial stage, soon it will make its way to the vast requirement of healthcare needs.

The works initiated by the startups are short of revolutionary, which stands the tests of time and aids the rapid tech advancements to meet the healthcare and diagnosis requirements. The startups are giving high-efforts to invent revolutionary methods of medical tests or diagnosis and provide simple solutions to ever-increasing complexity. The startups play a crucial part in transforming fiction into reality. The landscape of the healthcare industry will be soon witnessing a magnificent changeover which would change every aspect of life.

The advancements in inventing powerful and effective diagnostic tools will soon improve access to advanced healthcare and immediate treatment. The lack of expert healthcare professionals will also get addressed with the advanced technology ensuring faster and efficient tests and critical care.

Satkam Divya
CEO
KlinicApp

Wearable technology in healthcare

Coming out of its shell and dissolving the silos, the healthcare sector is openly and widely embracing the digitally disruptive processes. The industry is burgeoning with innovative solutions for delivering enhanced care to the patients.

It is evident from the favourable statistics showcasing that over 1800 hospitals in the U.S. utilise mobile applications, while 92 per cent of the hospitals have a patient portal solution in place revealed that 70 per cent of consumers would rather use video consulting than visit their primary care provider in person.

With the advent of technology, wearable health devices are increasingly helping people to better monitor their health status both at an activity/fitness level for self-health tracking and at a medical level providing more data to clinicians with a potential for earlier diagnostic and guidance of treatment. These devices typically work in coordination

with a smartphone app for display and interaction with the clinician. Smart watches, fitness trackers, wrist bands, movement sensors, smart footwear, and wearable patches may seem like a luxury today but will define the healthcare industry of tomorrow.

Benefits

- Offering convenience
- Help care providers to obtain data on real-time activity and patient vitals
- Instrumental in prevention, monitoring and treatment of a patient's medical conditions
- Utilising IoT and data analytics to enhance quality and expectancy of life
- Helps in monitoring and responding to life-threatening conditions such as Medical emergency, cardiac diseases and COPD
- To reduce medical errors and reduce costs
- Allows the user to be better aware of his or her health and maintain it to the best of their ability
- Increase patient engagement.

Wearable technology in healthcare is undergoing a shift from simply being fitness trackers to real-time clinical monitors. This evolving landscape is expected to result in an annual industry-wide expenditure of $20 billion on health trackers and remote patient monitoring devices by 2023.

With seamless tracking of physical activity, sleep patterns, weight, glucose, heart rate and more, doctors can use this technology to collect a large amount of useful data about their patients. However, wearable technology also has potential to save time for patients.

Some Concerns/Challenges of Excessive Use of Technology

- High costs of wearable devices
- Data theft and data privacy remains the largest obstacle on the road to the widespread popularity of such devices
- Most users are not comfortable with an AI-based sensor keeping a record of their every moment
- Although there is an increase in the people allowing these devices to penetrate their privacy, there is still a long way to go for wearable devices to become mainstream
- They are more deemed as a luxury that is not affordable for a majority
- These devices are highly dependent on the individual's motivation to manage their health
- Without the patient's willingness to be an active participant in their care, these devices implementation will likely fail
- Devices deployment is highly dependent on an extensive wireless telecommunications infrastructure, which may not be available or feasible in rural areas
- The high stakes involved in the application of wearable devices in healthcare make accuracy and reliability the top priority
- There might be serious consequences, sometimes fatal, if a device is faulty, sends out false alarms, unable to transmit data correctly, or fails to correctly analyse health conditions of the wearer.

Conclusion

In today's world, where time is precious, people, the working class especially, spend most of the day shuttling between various tasks and tend to ignore their health and fitness. Hence, many people are seeking for an alternative, such as a device that can be worn on the body, which would not only continuously monitor the user's health in real time but also provide timely insights on various health parameters to the user as well as his or her physician Wearable devices are now used for a wide range of healthcare observation. While wearable healthcare technologies promise improvements in clinical services and the reduction in financial costs, most devices are still in the process of development. However, as technology has nowhere to go but up, the possibilities of mobile healthcare apps and wearable technologies are endless.

Dr Vinod Singh
Founder & Consultant
Hospitech Healthcare

Healthcare's Digital Revolution

Doctor Crawford W. Long conducted the first surgical operation under anaesthetic in 1841 in Jefferson, Georgia. Here Mark Howard, US country manager of obsolete parts supplier, EU Automation discusses three technologies that are revolutionising healthcare in the 21st century.

In 1841, general anaesthetic had not yet been invented, so Dr Long used diethyl ether, a chemical most commonly used to start internal combustion engines, in its place. The surgeon pressed an ether-soaked towel to the patient's face to put him to sleep before removing a tumour from his neck. He billed the patient two dollars for the whole procedure.

Medicine and healthcare have come a long way since the 19th century and we are now experiencing the effects of digitalisation on the industry.

However, despite the advances in technology, every medical device has an expected lifespan and the companies that manufacture components for those devices are expected to make them, or a compatible alternative, available for the entire period.

The medical industry also depends on the traceability of everything from pharmaceuticals to machine components. As a result, the equipment on which a device is manufactured has to be validated and approved, often as part of 21 CFR Part 11, the FDA's (Food and Drug Administration), rules governing electronics records in healthcare related sectors.

Finally, if a component breaks, the device owner, or the company managing the medical facility, may need to source an alternative quickly. After all, many medical devices are the textbook definition of mission critical.

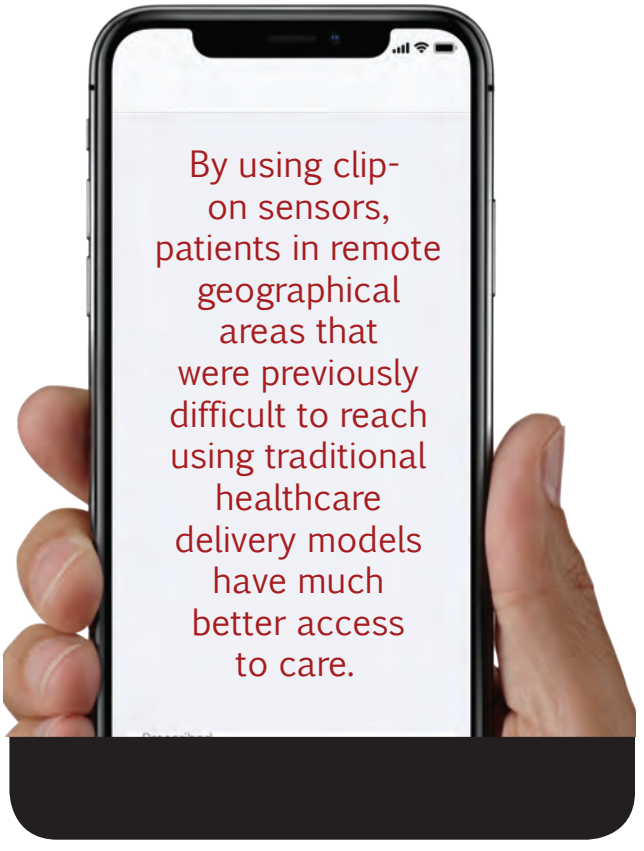
The combination of the need to guarantee a lifespan with traceability and validation and the need for speedy replacements means that many medical device OEMs, choose to source exact replacement parts from an obsolete component supplier. The irony is that the use of obsolete components in manufacturing then becomes a key enabler, allowing the medical device itself to take a quantum technology leap forward.

With the rate of technological advancement speeding up, what digital techniques can we expect to see more of in the healthcare industry over the next decade?

Smartphone diagnostics

Smartphones now have the diagnostic capabilities of some of the most high-tech hospital equipment of previous eras. By using clip-on sensors, patients in remote geographical areas that were previously difficult to reach using traditional healthcare delivery models have much better access to care.

Smartphones are also much cheaper than many specialised medical diagnostic devices, which makes them more popular as enabling platforms to which diagnostic capabilities can be added.



Smartphones can be used to detect early on-set of long-term conditions, such as Parkinson's disease, asthma and thyroid disorders. It is interesting that smartphones and tablets, while used in healthcare, aren't governed by the same regulations as traditional medical devices. As a result, the manufacturing processes that underpin them do not have to be managed with the same level of traceability and validation. This isn't to say that they aren't, or that obsolete component supply can't support smartphone manufacturers in the same way, merely that there is space for a new set of regulations to be created, governing smartphone use in medicine.

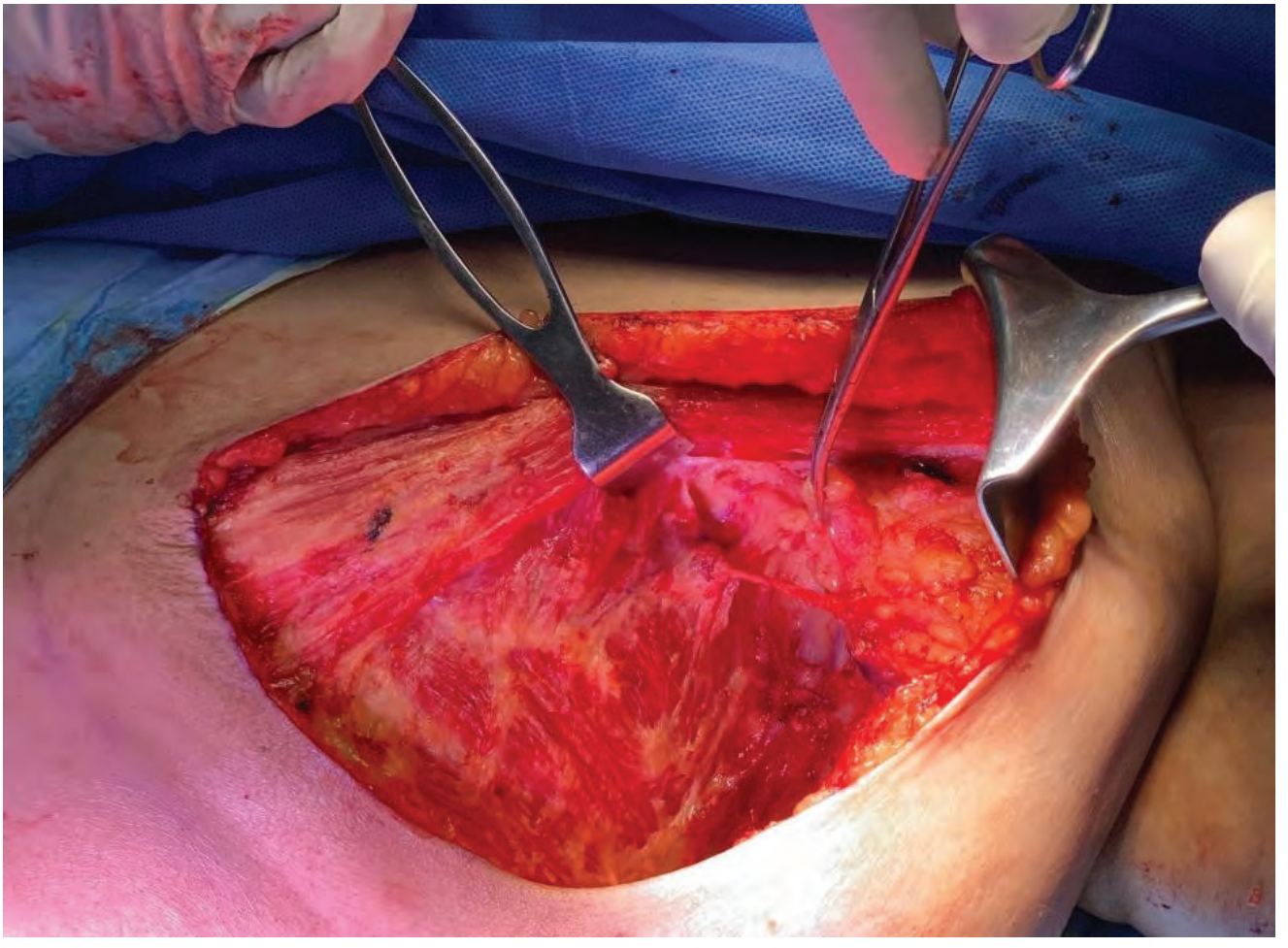
Implantable drug-delivery mechanisms

Implantable drug-delivery systems usually consist of a microchip-based implant that is in direct contact with the affected tissue. The microchip has discrete doses of a particular drug and each dose is hermetically sealed. The implant uses control electronics, such as radio frequency communications and a real-time clock, to ensure accurate timing for release of each dose.

The microchip also has a customised circuit connected to each dose to allow independent administration at any time or in any sequence. An external device communicates with the implanted device through radio frequency. The external device can provide instructions to release a dose instantly, or at a future time, or instructions to release any number of doses at specific time points in the future. The external controller can be a smartphone, a tablet, or a customised transceiver connected to a personal computer.

Unlike smartphone manufacturers, companies producing implantable devices are governed by all of the rules and regulations that every medical OEM has to master. However, it is anticipated that because their devices are used inside the body, further regulation being introduced in the future, making the guarantee of manufacturing consistency that obsolete components provide even more important.

Before Doctor Long's breakthrough in general anaesthesia, surgery could rarely be used in medical treatment, because the patient's suffering would have been overwhelming. Today, anaesthetic is used for everything from dentistry to organ transplants. It will be interesting to see what digital technologies and advanced medical devices will have the same impact on medicine over the next 175 years. ✚



Visualisation of breast anatomy Without FI

Spy-Phi

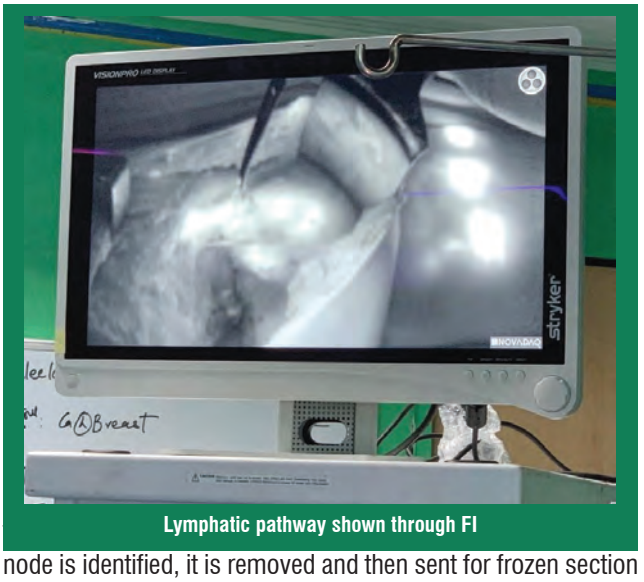
A game changer in breast oncology

World renowned breast cancer expert, Dr. David Weintritt visits India to hold clinical workshops on role of Spy-Phi Fluorescence Imaging technology in breast cancer surgery and reconstruction.

Global medical device company Stryker announced the launch of its state-of-the-art Fluorescence Imaging (FI) technology, Spy-Phi, for better outcomes and safety of patients suffering from breast cancer. The only of its's kind technology in the world uses near-infrared fluorescence imaging during cancer surgery that allows real time, clinically significant and actionable information to improve quality of care and lower overall healthcare burden.

During breast cancer surgery, surgeons inject a safe and affordable ICG dye in patients. Using Spy-Phi imaging technology, they can view blood flow in vessels, micro-vessels, tissue perfusion and critical anatomical structures intraoperatively. The relevant tissues light up in fluorescent green colour. The reliability and multiple applications of the imaging are a significant differentiation compared to currently used technologies like Blue dye.

The technology can be used in various procedures, but is especially helpful in mapping of lymphatics, identification of lymph nodes and confirming adequate



Lymphatic pathway shown through FI

node is identified, it is removed and then sent for frozen section in the lab to stage the cancer which helps to decide the further line of treatment.

Renowned breast cancer expert Dr David Weintritt from GW School of Medicine and Health Sciences, US, visited India to hold clinical workshops on the role of Fluorescence Imaging in breast cancer surgery and reconstruction.

"Rising prevalence of cancer and complexity of surgeries we perform is making infrared fluorescence imaging increasingly critical as it is beneficial in detecting pathways of cancer spread more precisely and in preventing complications in breast cancer surgeries. Fluorescence Imaging uses near infrared technology and indocyanine green (ICG) dye that rapidly visualises lymph nodes that can otherwise be challenging for surgeons to navigate. It has the potential to help save and improve lives of many patients suffering from breast cancer. Further, because the information is obtained real time during the surgery, we can now prevent several complications proactively and reduce the overall cost of healthcare," stated Dr. Weintritt.

Excited about the launch, Ms. Meenakshi Nevatia, Managing Director, Stryker India, shared, "Spy-Phi is a unique and highly advanced fluorescence imaging technology that can be used in plastics, microsurgical, reconstructive and gastrointestinal procedures. We're proud to bring Spy-Phi to India and are looking forward to the incredible impact this technology can have in making healthcare better."

The Spy-Phi technology

Using Spy-Phi technology surgeons can precisely follow the pathway of lymphatics in the patient's body during surgery. Older techniques require removal of all lymph nodes associated with cancer which sometimes results in complications and high cases of lymphedema and chronic impairment of the arm. Fluorescence Imaging technology gives surgeons precise information about which lymph node, called Sentinel Lymph

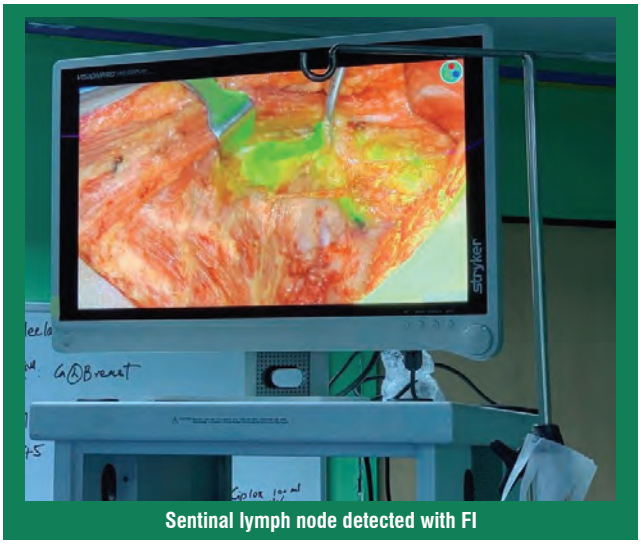
THE TECHNOLOGY USES NEAR-INFRARED FLUORESCENCE IMAGING DURING CANCER SURGERY THAT ALLOWS REAL TIME, CLINICALLY SIGNIFICANT AND ACTIONABLE INFORMATION TO IMPROVE QUALITY OF CARE AND LOWER OVERALL HEALTHCARE BURDEN.

Node (SLN) should be removed, resulting in a more accurate outcome with fewer complications. The technology improves precision of cancer staging by giving improved detection rates of SLNs and less false positives.

The technology allows SLN nodes to light up in green colour which distinguishes them from the surrounding tissue and from the lymph nodes that should not be removed. Currently the most common method to detect and remove lymph nodes during surgery is use of blue dye and radiocolloid while using a gamma probe. Challenge with gamma probes is that it involves injecting radiation into the patient and is not widely available across healthcare institutes due to regulatory restrictions as well as high operating cost per surgery.

"Stryker's Spy-Phi infrared fluorescence technology with its accuracy and precision, not only helps improve patient outcomes, but also provides alternative options compared to current technologies like gamma probe," the company claims.

FI can also be used in breast oncoplasty and in breast reconstruction post mastectomy. FI reveals areas that do not have adequate blood supply allowing the surgeon to remove tissues that would otherwise lead to problems in healing, infections and unnecessary additional surgeries which are costly. More than 250 peer-reviewed publications demonstrate that the use of this technology will improve clinical outcomes and help surgeons choose the best next line of treatment.



Sentinal lymph node detected with FI

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24th edition of Medicall to be held at Mumbai

Medicall – One of India's largest and No.1 medical equipment expo is back again at Mumbai, it is a 3-day event being held on 13, 14 and 15th Dec 2019 at Hall no 4, Bombay Convention and Exhibition Centre, Goregaon East.

An International show, covering complete hospital needs like a supermarket with A-Z of hospital requirements. Medicall is the most popular show amongst health care professionals, attracts who-is-who of the healthcare industry, hospital owners and decision makers who find Medicall a convenient one-stop shop for choosing and selecting their equipment.

One can see, feel, touch, try and buy the latest hospital equipment, technologies and services from display of about 6000 products by more than 400+ exhibitors being represented by 20 different countries under one roof.

Highlights of the event

- Exclusive rehab and wearable pavilion
- Brainstorm seminars and interactive sessions.

Seminar Topics	Date	Time
Challenges in upgrading your 30 bedded hospital to 100 Beds	Fri, 13th Dec '19	10.30-1.30 am
Financial Management for Digitised Hospitals	Fri, 13th Dec '19	2.30-5.30 pm
Artificial Intelligence in Healthcare	Sat, 14th Dec '19	10.30-1.30 am
Human Resources Growth Pages in Hospitals	Sat, 14th Dec '19	2.30-5.30 pm
Patient Delight	Sun, 15th Dec '19	10.30-1.30 am
Specialty of Rehabilitation & Care	Sun, 15th Dec '19	2.30-5.30 pm

Top reasons to visit Medicall

- To buy equipment / services for the hospital
- To get the best and latest in healthcare industry
- To get updates on innovations in the field of healthcare
- To meet collaborating partners
- To manage and run your hospitals better.

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Visitors Profile

Doctors – Physicians & Surgeons, hospitals owners and decision makers, dealers distributors and manufacturers, owners of diagnostic and other healthcare centers, medical directors, Deans and academicians, Biomedical Engineers, key policy makers from the governmental sectors, purchase managers, healthcare professionals, healthcare consultants, importers, hospitals planners, designers and architects, nursing and paramedical professionals, CIOs, CTOs, IT Managers and many more visitors. +

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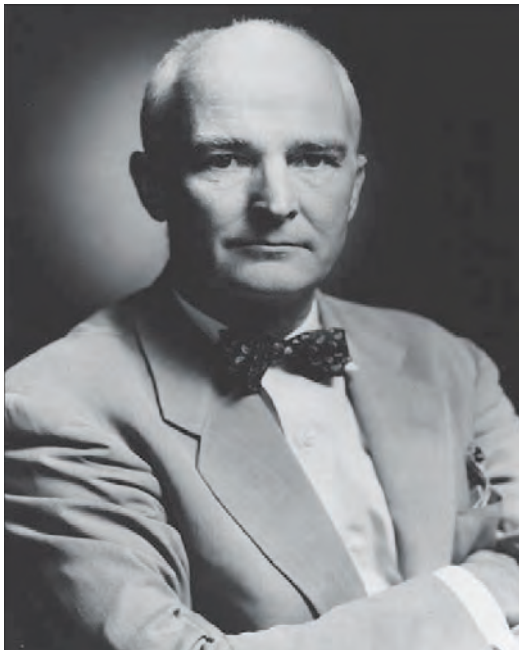


Dr. John Heysham Gibbon
(1903 – 1973)

Dr John Heysham Gibbon, an American surgeon was born on September 29, 1903 in Philadelphia. He was recognized for his invention of the heart-lung bypass machine. In 1935, during an operation on a cat, Dr. Gibbsonwas the first to demonstrate that life can be maintained by an external pump which acts as an artificial heart. In 1953, he performed the first successful open-heart operation using a heart-lung machine where the device took over the functions of cardiac and respiratory.

In 1923, Dr. Gibbon received his BA from Princeton University &his M.D. in 1927 from Jefferson Medical College in Philadelphia. In 1929, he completed his internship at Pennsylvania Hospital and in 1930 he went to Harvard Medical School as a research fellow in surgery. He also received honorary degrees from the Universities of Princeton, Buffalo and Pennsylvania, and Dickinson College.

In 1931, Dr Gibbon married Mary Hopkinson, a surgical researcher & in the same year he became assistant surgeon at Pennsylvania Hospital. The death of a young patient in 1931 first raised Dr. Gibbon's imagination about making an artificial device for bypassing the heart and lungs, enabling more effective heart surgery techniques. Independently, he continued his experiments and invention. In 1934, he worked as a research fellow in surgery at Harvard Medical School. Here, he formulated the first generation heart-lung machine utilising a rotating blood-film oxygenator.

In 1935, Dr Gibbon successfully used a prototype heart-lung bypass machine to keep a cat alive for 26 minutes. In 1938, he introduced a second-generation version of his machine utilising DeBakey roller pumps. In 1949, IBM utilized the revolving film oxygenator & established the model I heart-lung machine and in 1951, IBM produced the model II oxygenator. While in 1953, utilizing the heart-lung machine, Dr Gibbon performed the first successful bypass surgery. In 1954, IBM produced the model III.

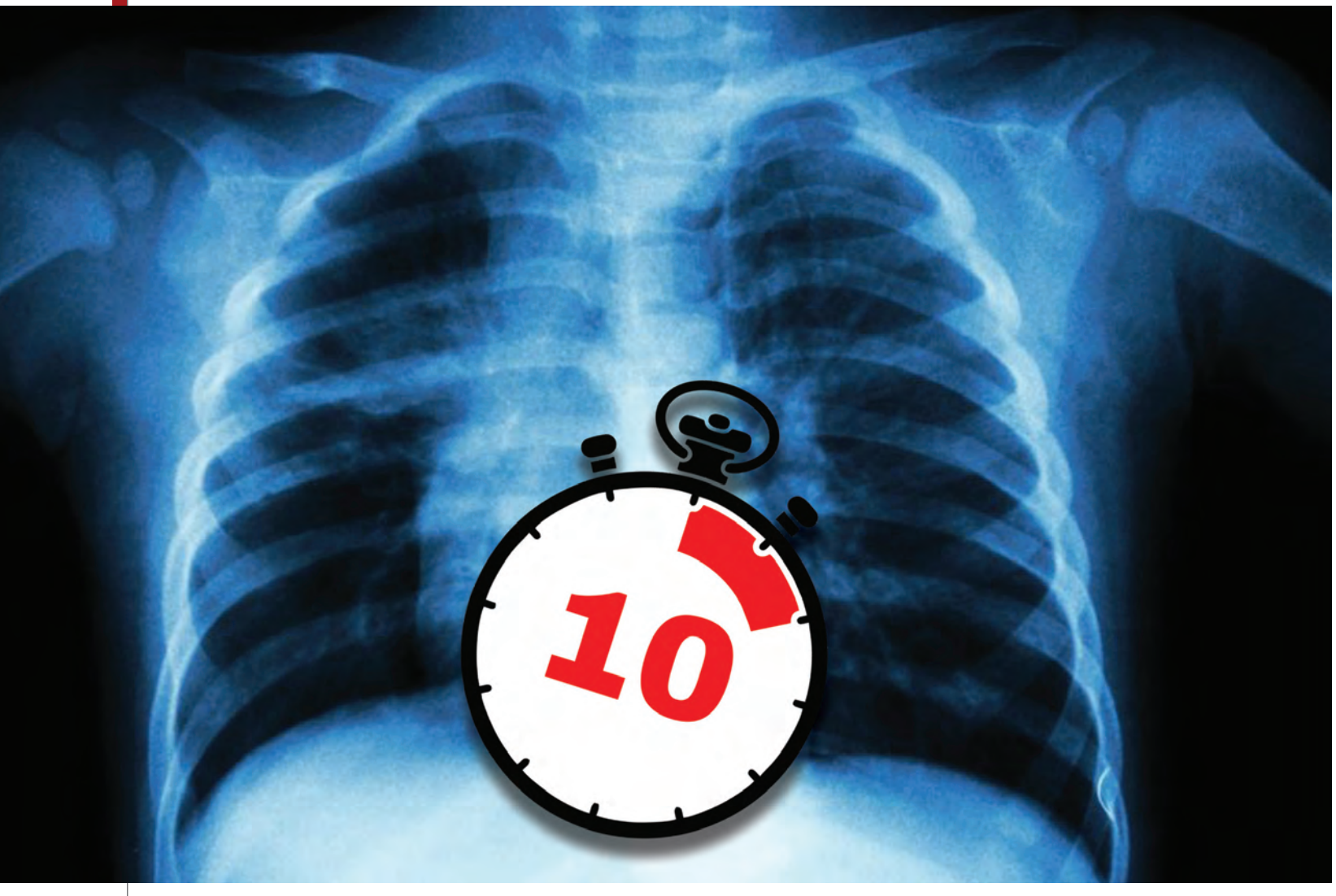
He was a faculty at Jefferson Medical College in the Department of Surgery. He retired as Emeritus Professor of Surgery at the Jefferson Medical College Hospital. He was the President of several professional societies and organisations. Dr Gibbon worked as consulting surgeon at Pennsylvania Hospital and as a Consultant in general surgery for the Veterans Administration Hospital in Philadelphia from 1950 to 1967. In 1959, he was attached to Baylor Medical College and in 1960 to Harvard Medical School. Dr Gibbon died of a massive myocardial infarction on February 5, 1973.

Titles & Achievements

- President of the American Surgical Association.
- President of the American Association of Thoracic Surgeons.
- President of the Society for Vascular Surgery.
- National Academy of Sciences.

Awards

- Albert Lasker Clinical Research Award.
- Gairdner Foundation International Award.
- Distinguished Service Awards from both the International Society of Surgery and the Pennsylvania Medical Society.
- American Heart Association's Research Achievement Award.
- Dixon Prize in Medicine from the University of Pennsylvania. +



Diagnose pneumonia in 10 seconds!

AI-powered radiology model accurately detects key findings in chest x-rays of pneumonia patients within 10 seconds: Study

From 20 minutes or more to 10 seconds. Researchers from Intermountain Healthcare and Stanford University say 10 seconds is about how quickly a new system they studied that utilises artificial intelligence took to accurately identify key findings in chest X-rays of patients in the emergency department suspected of having pneumonia.

The study found that those ultra-quick findings will enable physicians reading X-rays to accurately confirm a pneumonia diagnosis significantly faster than current clinical practice, enabling treatment to start sooner, which is vital

for severely ill patients who're suffering from pneumonia.

Findings from the collaborative study were presented at the European Respiratory Society's International Congress 2019, held in Madrid, Spain.

Researchers from Intermountain and Stanford studied the CheXpert system, an automated chest X-ray interpretation model developed at Stanford University that utilises artificial intelligence, to review X-ray images taken at a number of emergency departments at Intermountain hospitals throughout Utah, as part of the study.

Researchers found the CheXpert system identified key findings in X-rays very accurately – with high agreement to a consensus of three radiologists – in about 10 seconds, which significantly outperforms current clinical practice.

"CheXpert is going to be faster and as accurate as radiologists viewing the studies. It's an exciting new way of thinking about diagnosing and treating patients to provide the very best care possible," said Nathan C. Dean, MD, principal investigator of the study, and section chief of pulmonary and critical care medicine at Intermountain Medical Center in Salt Lake City.

The CheXpert model was developed by the Stanford Machine Learning Group, which used 188,000 chest imaging studies to create a model that can determine what is and is not pneumonia on an X-ray. These images were taken from the Stanford Medical Center in Palo Alto, Calif.

Since patient populations are different per geographic locations, CheXpert was then fine-tuned for Utah by reading an additional 6,973 images from Intermountain emergency departments.

"We've been developing a deep learning algorithm that can automatically detect pneumonia and related findings in chest X-rays," said Jeremy Irvin, a PhD student at Stanford, and member of the research team. "In this initial study, we've demonstrated the algorithm's potential by validating it on patients in the emergency departments at Intermountain Healthcare. Our hope is that the algorithm can improve the quality of pneumonia care at Intermountain, from improving diagnostic accuracy to reducing time to diagnosis."

In a typical emergency department, Dr. Dean explained, patients suspected of having pneumonia get a chest X-ray. While creating those images is a quick process, having them read can be time consuming since those X-rays go into a line with other images to be interpreted by radiologists. That process can take up to 20 minutes or more, which means potential delays in the start of antibiotics for very sick pneumonia patients.

RESEARCHERS FOUND THAT THE CHEXPERT MODEL OUTPERFORMED THE CURRENT SYSTEM OF USING A RADIOLOGIST TO CREATE RADIOLOGY REPORTS FOR ALL KEY PNEUMONIA FINDINGS, PLUS NLP.

At Intermountain emergency departments, radiology reports are run through the Cerner Natural Language Processing (NLP), which is a support tool currently used to get needed information from the radiologist report. NLP then feeds the information into ePNa, an electronic clinical decision support tool part of usual pneumonia care at Intermountain.

For most emergency departments where ePNa is not available, the CheXpert model could provide the information from chest X-rays directly to clinicians, said Dr. Dean.

"Using the CheXpert system, we found the interpretation time was very swift and the accuracy of the report to be very high," he added.

For the study, Intermountain radiologists categorised chest images from 461 Intermountain patients as being "likely," "likely-uncertain," "unlikely-uncertain," or "unlikely" to have pneumonia. They also identified images they believed showed pneumonia in multiple parts of the lungs, and whether these patients had parapneumonic effusion, which is fluid build-up between the lungs and chest cavity.

The radiologists differed from each other in their categorisations in more than half of patients, as has been commonly shown in prior studies. The CheXpert model performance on the same images was comparable to the radiologists.

Researchers found that the CheXpert model outperformed the current system of using a radiologist to create radiology reports for all key pneumonia findings, plus NLP. It also did so in less than 10 seconds, compared to the 20 minutes to hours from NLP. NLP of radiology reports was the most frequent cause of errors within ePNa.

"A 2013 study published in JAMA Internal Medicine found that 59 percent of errors made by ePNA were due to NLP processing of radiologist reports, so we're eager to replace it with a better, faster system," Dr. Dean said.

Outside of ePNa concerns, emergency department physicians looking at radiology reports often are challenged to understand the unstructured language used by radiologists in interpreting shadows on chest X-rays, Dr. Dean added.

The next step, he said, is for the CheXpert model to be used live in emergency departments, which he expects to happen in select Intermountain Healthcare hospitals this fall. ✚

Fortis Hospital, Mulund launches training initiative, 'National Trauma Life Support Program'

Emergency care is a major part of healthcare delivery; this includes acute care for accidents and disasters and quick appropriate response to several medical emergencies. In India 80 per cent of accident victims do not get access to apt medical care during the 'Golden Hour', leading to increased number of fatalities. To address this concern and equip emergency caregivers, Fortis Hospital Mulund launched the 'National Trauma Life Support Program' in association with the Society for Emergency Medicine India, at the hospital. It was launched by Dr Sandeep Gore, HOD-Emergency Medicine, Fortis Hospital Mulund under the guidance of Dr S. Narayani, Zonal Director, Fortis Hospital, Mulund. Dr Ramesh Punjani, President, Indian Medical Association (Mulund) was the guest of the honor.

The program is accredited by Maharashtra Medical Council for 3 CPD credit points and is endorsed by the Association of National Board Accredited Institute (ANBAI). It is designed to train doctors involved in Emergency Care and Acute Trauma care. Aiming to empower all specialised medical professionals in Mumbai, the initiative will help train them in management of polytrauma (Major Trauma) patients and deliver Golden Hour care. The program includes lectures and training modules on lifesaving skills such as airway management, inserting chest tube, FAST etc. To be hosted every quarter, the participants will be certified upon completion of the course, and after passing the examination.

Speaking about the importance of the program, Dr Sandeep Gore, HOD-Emergency Medicine, Fortis Hospital, Mulund and Course Director, National Trauma Life Support Program, said, "Trauma is neglected disease in India. As per statistics, every 1.9minutes someone dies due to injury, 80 per cent of trauma victims don't get Golden Hour care, 30 per cent of trauma patients die even before they reach the Emergency Department. There is a dearth of proper pre-hospitalisation care and deficiency of well trained professionals in administering polytrauma care. To progressively change this scenario, we designed this program. For budding medical professionals, it is very important to understand and master art of saving lives within the Golden Hour. We aim to further our belief in saving and enriching lives through this initiative".

Global Hospital Parel, Mumbai launches Neuro Critical Care and Stroke Unit

Global Hospital Parel, Mumbai has launched a dedicated Neuro Critical Care and Stroke Unit with modern ventilators and with latest invasive and non-invasive facilities for monitoring of vital functions. The Neuro Critical Care and Stroke Unitis designed to address the clinical needs of neurological and neurosurgical patients to improve their outcomes and a committed team of intensivists, pulmonologists, infectious diseases specialists, nephrologists and cardiologists will provide support round the clock in this Neuro Critical Care and Stroke Unit. Neurological disorders can be termed as the diseases of the brain, spine, and nerves that connect them.

Millions of people are affected by neurological conditions like stroke, traumatic brain injury, Parkinson's disease, memory disorders, and many more posing a large burden on the healthcare system. Furthermore, the number of patients needing neurological care will continue growing. Thus, to help patients with neurological conditions get top-notch treatment and care, Global Hospital, Mumbai, has inaugurated a 10-bedded Neuro Critical Care and Stroke Unit which includes 2 isolation beds under the leadership of Dr Shirish Hastak, Regional Director – Neurology, Stroke and Neuro Critical Care.

OMRON Healthcare inaugurates its first experience center in Mumbai

OMRON Healthcare India recently announced the launch of its maiden experience cum service center in Thane West, Mumbai. With this center, OMRON now has 58 touch points across India including experience, service and pick-up centers. This signifies company's commitment to reach closer to consumers to make them experience the utility of the products and to provide a swift and easy access to quality repairs and services.

With growing advancements in technology, customers are often left unaware of products optimum usage in day to day life, especially in the preventive healthcare sector. Omron's experience center, therefore, aims to provide product experience through actual demonstration of the products along with providing the complete gamut of repair services ranging from run-of-the-mill calibration issues to advanced technical interventions. The experience center is equipped with an 'Experience Zone' for customers offering live demo for a wide range of OMRON products. The center is expected to address 100+ customers on a daily basis initially, where consumers will be provided with quick resolution of queries and complete know-how on the utility of OMRON healthcare products.

Commenting on the announcement, Mr Kazunori Tokura, Managing Director, OMRON Healthcare India, said, "Omron is constantly innovating and coming up with unique ways to build stronger connect with customers to help them lead a healthy lifestyle and quality living experience. With the launch of our latest experience center in Mumbai, we aim to touch more and more lives by providing them with cutting-edge products and best-in-class services for a healthy today, tomorrow and beyond!" ✚

Nashik gets next-gen surgical robotic system

HCG Manavata Cancer Centre in Nashik has introduced Versius, a next-generation surgical robotic system, marking the latest robotic system in the North Maharashtra region. A range of surgical procedures have already been completed using The Versius under the leadership of Dr Raj Nagarkar, Chairman, Manavata Cancer Centre. The introduction of Versius will bring robotic-assisted laparoscopic general and oncological care to the people of the North Maharashtra region, making minimal access surgery available and affordable to all. People in Nashik and surrounding cities will have access to new-age medical technology at a reasonable cost. Robotic procedures such as cholecystectomy, hysterectomy, LAR, APR, and all urology procedures can be performed at Manavata Cancer Centre.

Speaking on this, Dr Raj Nagarkar, Chairman, Manavata Cancer Centre, said, "The Manavata Cancer Centre has always strived to use cutting-edge cancer treatment. We are delighted to have acquired the Versius system as an innovative, cost-effective system to the patient which will enable us further to our commitment of providing quality cancer care to the people of the North Maharashtra region, who until now have not had access to the benefits of robotic surgery. Minimal invasive procedure has reduced hospital stay and pain while offering better outcomes." ✚

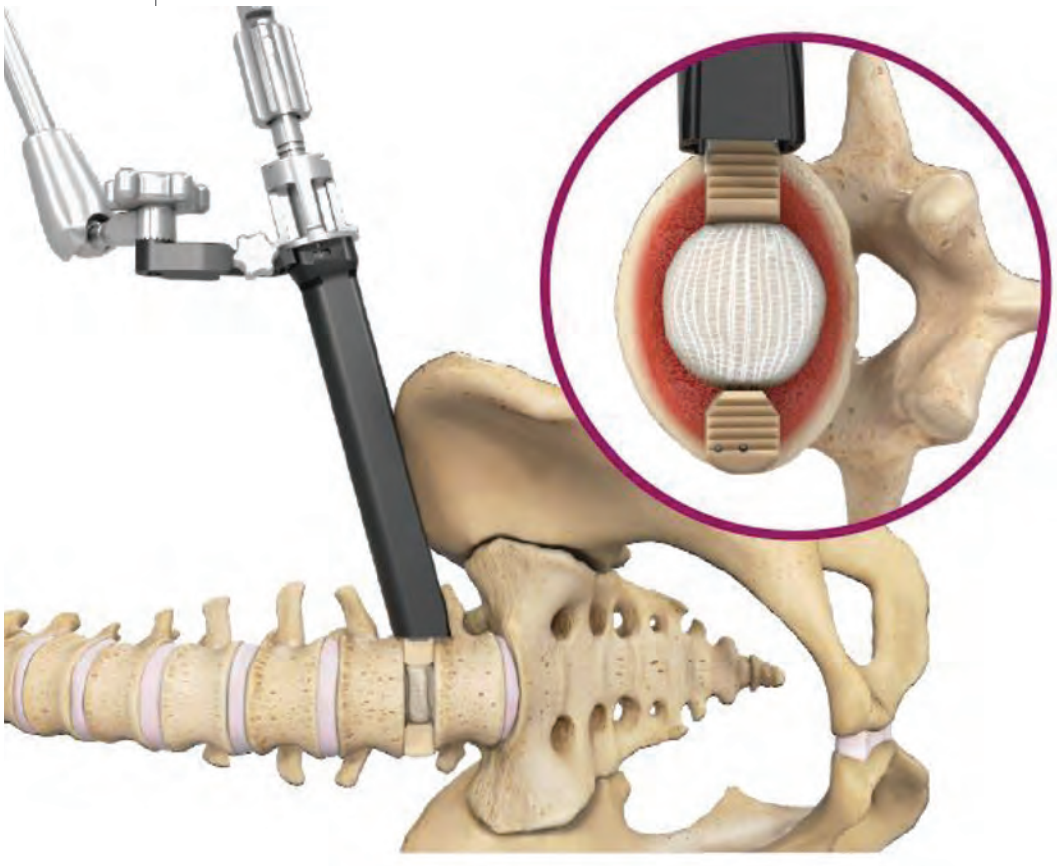
Jaslok Hospital and Research Centre launches Breast Cancer Clinic

Jaslok Hospital and Research Centre launched a new Breast Cancer Clinic to provide quality care, right treatment plan and support to patients with any breast related disease. It is a Multi Disciplinary Cancer Clinic (MDCC) wherein the patient case will be studied by a team of specialist multi disciplinary clinical physicians, basis which they will offer coordinated and comprehensive treatment planning to the patient.

Speaking at the launch, Dr S H Advani, Director, Onco-Sciences, Jaslok Hospital said, "It is important to help the patient understand the medical condition, be informed of the array of treatments options, support to cope with the situation and have a coordinated care with the doctors to ensure they receive the best medical care. The breast cancer clinic is an effort to help patients not only receives the requisite quality care and treatment but also help other patrons to come for regular screening or consultations so that early detection is possible."

The Breast Cancer Clinic will have multi-disciplinary team of specialists collaborating to give the patient the right treatment plan for any breast related disease. When the patient is at the clinic, the clinic history and physical examination is documented with every visit made to individual speciality physician. ✚

Spineology launches Duo Angled Instrumentation System



Spineology Inc., an innovator in anatomy-conserving spine surgery, has announced the launch of the Duo Angled Instrumentation System. The angled instrumentation supplements the Duo Lumbar Interbody Fusion System and allows surgeons to efficiently address the L4-L5 disc space in cases where the iliac crest prevents collinear access to the disc space.

"Accessing the L4-L5 disc space when a high crest is present can be very challenging, especially when using a bladed retractor," said Dr. John Malloy IV, Fort Lauderdale, Florida. "Compared to the traditional lateral systems I have used in the past, the design of the Angled Duo Portal Tube and supporting Angled Instrumentation makes these cases much easier as it allows me to quickly access the disc space, perform an efficient thorough discectomy, and place an implant with significantly less retraction of the soft tissue and neural structures."

"Positioning bladed retractors in the optimal location to ensure the instrumentation enters the disc space at the proper angle is difficult in cases with a high crest," said Dr. Kris Okumu, Daly City, California. "The design of the Angled Duo Portal Tube makes the placement and proper positioning of the Portal Tube very simple, which has significantly reduced my OR time in these cases. I have also been very pleased with the design of the Discectomy and Insertion Instrumentation. The set allows me to quickly address all areas of the endplates and place and fill the Duo Implant in a very efficient manner, which adds additional time savings."

The Duo System features the only implant on the market that combines PEEK, titanium, and graft containment mesh elements. The implant, which is filled with bone after insertion, creates a large, endplate-conforming graft pack that expands up to 30mm in width to maximise load-sharing and minimise point-loading. Once filled, the Duo Implant provides 70 per cent more load-sharing surface area when compared to a 22mm width traditional lateral implant of the same length. These features are designed to reduce subsidence, improve spinal correction maintenance, and support a robust fusion. In addition, the system significantly decreases the surgical access required to place the implant compared to traditional lateral systems. By minimising the neural and soft tissue retraction typically required in these surgeries, the company believes the Duo System will reduce the retraction-related neurologic deficits commonly associated with the lateral approach. +

Index to Advertisers

FORTHCOMING EVENTS

Medicall 2019
Location: BEC, Mumbai
Date: 13th to 15th December 2019

Expodent International India
Location: Pragati Maidan, New Delhi
Date: 20th - 22nd December 2019

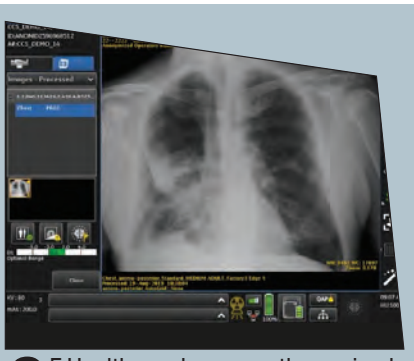
India Diagnostic Expo
Location: Hitex Exhibition Center, Hyderabad
Date: 04th - 06th January 2020

Arab Health Medical Exhibition 2020
Location: Dubai International Convention & Exhibition Centre
Date: 27th - 30th January 2020

Medical Fair India
Location: Bombay Exhibition Centre (BEC), Mumbai,
Date: 05th - 07th March 2020

Eastern Medical Healthcare Expo
Location: Eco Park, Kolkata
Date: 3rd - 5th April 2020

China International Medical Equipment Fair
Location: National Convention & Exhibition Center, Shanghai, China
Date: 09th - 12th April 2020



GE Healthcare receives FDA Clearance

GE Healthcare has recently received Food and Drug Administration's 510(k) clearance of Critical Care Suite, a collection of artificial intelligence (AI) algorithms embedded on a mobile X-ray device. Built in collaboration with UC San Francisco (UCSF), using GE Healthcare's Edison platform, the AI algorithms help to reduce the turn-around time it can take for radiologists to review a suspected pneumothorax, a type of collapsed lung.

Kieran Murphy, President and CEO, GE Healthcare said, "By integrating AI into every aspect of care, we will ultimately improve patient outcomes, reduce waste and inefficiencies, and eliminate costly errors. Critical Care Suite is just the beginning."

Dr Rachael Callcut, Associate Professor of Surgery at UCSF, a surgeon at UCSF Health and Director of Data Science for the Center for Digital Health Innovation, who partnered in the development of Critical Care Suite said, "When a patient X-ray is taken, the minutes and hours it takes to process and interpret the image can impact the outcome in either direction. AI gives us an opportunity to speed up diagnosis, and change the way we care for patients, which could ultimately save lives and improve outcomes."

Additional partners in the development of Critical Care Suite include St Luke's University Health Network, Humber River Hospital and CARING – Mahajan Imaging – India. ✚

Avatera Robot Cleared in Europe

A German company called avateramedical GmbH won European regulatory approval for its avatera robot-assisted, minimally invasive surgical system. The CE Mark was issued separately for all the system's components, including the control unit, the robot itself, as well as instruments, an endoscope, and sterile parts that accompany the avatera. Together, the separate CE Marks allow the entire system to be used in Europe during minimally invasive procedures.

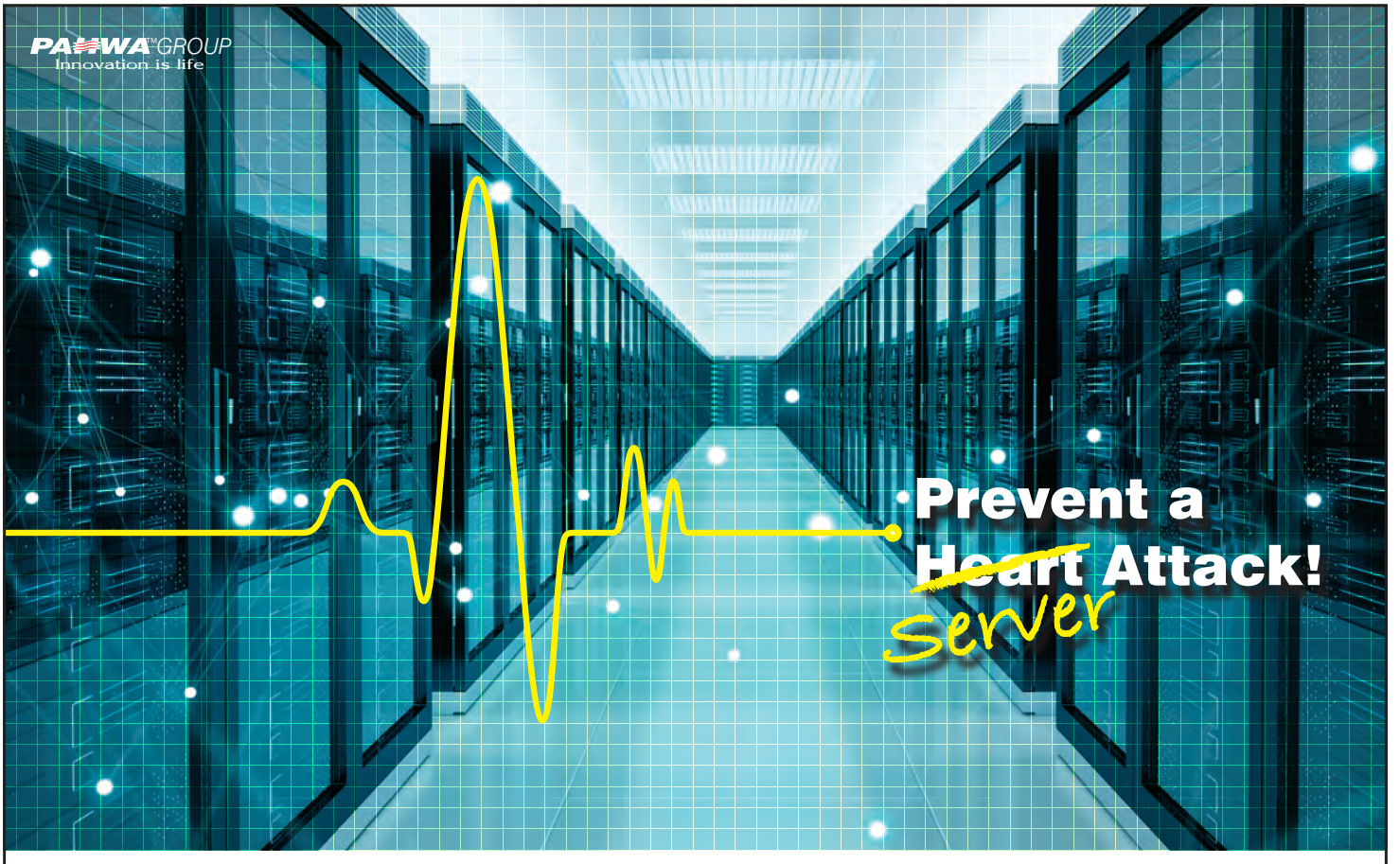
The avatera robot relies on single-use instruments, something that helps to guarantee sterility during every procedure using the new system. The potential for contamination is reduced and complicated cleansing regimens are not required. ✚

Stryker launches Spy-Phi

Stryker has launched state-of-the art Fluorescence Imaging (FI) technology, Spy-Phi, for better outcomes and safety of patients suffering from breast cancer. The only-of its-kind technology in the world uses near-infrared fluorescence imaging during cancer surgery that allows real time, clinically significant and actionable information to improve quality of care and lower overall healthcare burden.

During breast cancer surgery, surgeons inject a safe and affordable ICG dye in patients. Using Spy-Phi imaging technology, they can view blood flow in vessels, micro-vessels, tissue perfusion and critical anatomical structures intraoperatively. The relevant tissues light up in fluorescent green colour. The reliability and multiple applications of the imaging are a significant differentiation compared to currently used technologies like Blue dye.

The technology can be used in various procedures, but is especially helpful in mapping of lymphatics, identification of lymph nodes and confirming adequate tissue perfusion for safe breast reconstruction. Once the lymph node is identified, it is removed and then sent for frozen section in the lab to stage the cancer which helps to decide the further line of treatment. ✚



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