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Medical Equipment & Automation

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

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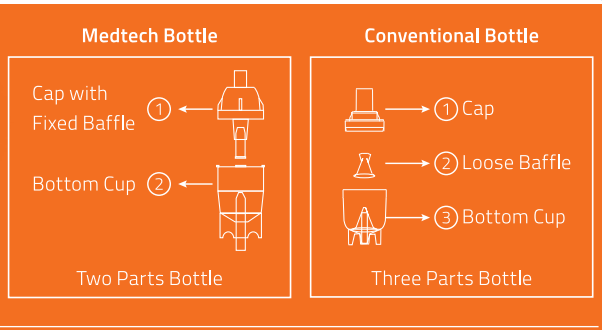

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Publisher's Note

Ophthalmic market on rise

India is one of the fastest growing economies in the world. However, around 30 per cent of the world's blind people are the citizens of this country, about half of whom are blind from cataracts. Further, as the lifespans are increasing, there's an alarming rise in the number of people suffering from glaucoma or retinal diseases. It calls for a tremendous focus on ophthalmic care.

Lately, growing awareness about ophthalmic disorders coupled with various technological advances in the field of ophthalmology are driving the markets for ophthalmic equipment in India. The ophthalmic market valued US$1.3 billion in 2017 is expected to grow at a compound annual growth rate (CAGR) of 6.8 per cent a year to $US1.8 billion by 2022, forecasts research agency Market Scope. The report estimated that cataract will remain the largest overall ophthalmic market in the country.

The dry eye disease is one of the most frequent ocular morbidities. Experts believe, there is an increase in demand for safe and non-invasive diagnosis of dry eye disease which is driving the product innovations in this front. This time, we present to you an analysis on ophthalmic equipment industry featuring some breakthrough solutions.

Globally, there are 360 million people having disability of hearing and in India 63 million persons suffer from hearing loss. Here, we talk about designing of small, effective and economical hearing aids that can be apt for the developing nations and also to the residents of rural and remote areas.

Some other interesting topics like healthcare lighting, hospital relocation and implants are featured prominently in this edition. Hope you'll enjoy reading this issue as always.

The 24th edition of Medicall, one of the major medical equipment exhibitions in India, scheduled to be held in Mumbai between 13th and 15th December, is all set to bring in state-of-the-art healthcare technologies from across the globe. Medical Equipment & Automation, being the media partner for this event, will come up with a special issue on medical equipment sector. The issue will highlight the key market trends, technological innovations, product update etc. We invite you to be a part of this Medicall 2019 special issue.

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

Pravita Iyer
Publisher

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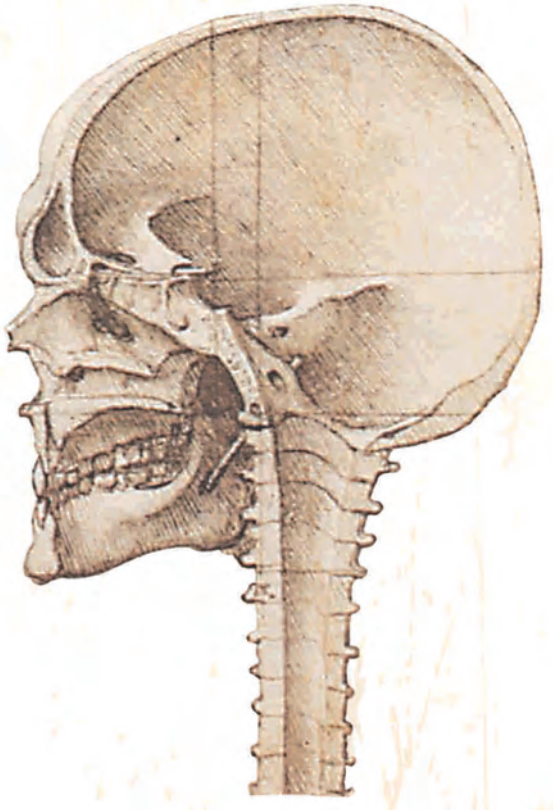

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Eliminate Preventable Blindness by 2020 - A Tough Target

Globally, it is observed that preventable blindness is on the rise. Preventable blindness is defined as blindness which results from the conditions that could have been prevented or controlled if the available interventions had been timely applied, or it can be successfully treated with the sight restored. Vision impairment and age-related eye diseases affect the economic and educational opportunities, reduce the quality of life and increase the risk of death. The World Health Organization (WHO) estimates that about 80 per cent of global blindness is avoidable. According to a report in the Lancet Global Health, researchers have predicted that the cases of blindness shall rise to 115 million by 2050, if treatment is not improved by better funding.

Estimating the magnitude of the problem, major focus and concert international efforts were made to combat avoidable blindness. Hence, VISION 2020: The Right to Sight, a global initiative for the elimination of avoidable blindness was launched in 1999. This global initiative was a joint programme of the WHO and the International Agency for the Prevention of Blindness (IAPB). The aim of this initiative was to promote a world in which nobody is needlessly visually impaired and where those with unavoidable vision loss can achieve their full potential. The goal is to eliminate avoidable blindness by 2020.

Being aligned with the global vision of delivering "Right to Sight", India is committed to reduce the burden of preventable blindness by the year 2020 by adopting strategies advocated by Vision 2020. However, in reality, we are far from achieving this 'ambitious' target. According to a study published in the Global Estimates of Visual Impairment, India was home to about 20.5 per cent of the world's blind, 22.2 per cent of the world's low-vision population, and 21.9 per cent of those with vision impairment. Further, as per the WHO estimates, around 40 million people in India, including 1.6 million children, are blind or visually impaired due to refractive error.

Therefore, all stakeholders need to take concerted efforts to drive away the preventable blindness by 2020.

> "All stakeholders need to take concerted efforts to drive away the preventable blindness by 2020."

Subhajit Roy
Group Editor

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Dr. M. N. Bhattacharyya

Hospital Refurbishment

Praful Gupta

Intense planning is key to successful hospital refurbishment projects, writes Praful Gupta, Business Head - Commercial Moving, Writer Relocations.

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23rd edition of Medicall Expo

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The 23rd edition of Medicall, a B2B hospital equipment expo, wrapped up its three-day programme held at the Chennai Trade Centre from 26th July to 28th July, 2019. This Medicall exhibition hosted more than 6,000 products from 20-plus countries

DEPARTMENTS

Fortis Healthcare contributes to the CM's Relief Fund, Assam

Fortis Healthcare, donated a sum of Rs One crore to the Chief Minister's Relief Fund, Assam to support and aid rehabilitation efforts by the state government for flood-affected victims. A team from the healthcare group led by Jasrita Dhir, Head, Corporate Social Responsibility, Fortis Healthcare and Tituraj Kashyap Das, Sr Manager, Corporate Communications, Fortis Healthcare met the CM of Assam, Sarbanand Sonowal in New Delhi recently and presented a cheque to him, reinforcing its commitment to the cause of public health.

According to the Assam State Disaster Management Authority (ASDMA), severe floods in Assam have affected 10 out of 33 districts and as per news reports, almost 50 lakh people have been affected with around 90,000 people seeking shelter in relief camps. According to latest data on the ASDMA site till 4th August 2019, the total death toll has risen to 91. The most affected districts are Darrang, Barpeta, Chirang, Morigaon, Nagaon, Hojai, Jorhat and Cachar. Morigaon is the worst affected followed by Barpeta with 9,554 and Jorhat with 3,762 people affected. Although with waters receding now, people are gradually returning to their homes, however, 2,816 people are still lodged in 11 relief camps at Chirang, Morigaon, Nagaon and Jorhat districts. A total crop area of 16,221 hectares of land is still under floodwaters.

Dhir shared, "We feel grateful that we could meet the CM, Sonowal recently and make a humble contribution towards the much-needed relief and rehabilitation efforts being driven by the State Government. As a leading healthcare service delivery provider in the country, the Fortis fraternity is committed to the cause of public health."

Tactile breast examination emerges as a viable robust screening technique

Recently, Delhi hosted Dr Frank Hoffmann, who pioneered the internationally accepted Discovering Hands concept and 'Tactile Breast Examination' (TBE) technique. In his presence, the CK Birla Hospital for Women, Gurugram and the NAB India Centre for Blind Women revealed that his method's application saw a high level of sensitivity in the early detection of breast cancer among women screened in Delhi NCR over the last three months. A validation study was started by the CK Birla Hospital for Women, Gurugram and NAB India Centre for Blind Women in March 2019, with support from the Bayer Crops Science Group in India in collaboration with Discovering Hands, Germany.

Tactile Breast Examination is a unique breast screening technique that uses the highly developed sensory skills of visually impaired women for manual breast health screening. Commenting on the findings emerging from the study, Dr Mandeep

Malhotra, Director, Surgical Oncology & The Breast Centre, CK Birla Hospital for Women said, "The country is witnessing a steady rise in incidence of breastcCancer (~11.54 per cent, Globocan 2012) and also mortality due to the disease (~13.82 per cent, Globocan 2012). In urban areas, one in 22 women are likely to suffer from breast cancer during their lifetime. Of these, 50 per cent may not survive within five years of diagnosis. Inadequate screening and advanced stage of presentation are the contributors to the rising death toll. Early detection by effective screening protocols is the possible solution."

Transasia - Erba Group sets a new benchmark in the Indian IVD industry

Transasia Bio-Medicals announced that it has successfully sold over 1,000 units of the recently launched Erba hematology range of analyzers in India, thereby retaining its No. 1 position in the Indian hematology market. Transasia is one of India's leading In-vitro Diagnostic Industry and a part of the global Transasia-Erba group.

A result of in-depth research and development at the group's European centre, the Erba hematology range was launched in India just four and half months ago to mark Transasia's 40th anniversary. The 3-Part (H 360) and 5- Part (H 560 and ELite 580) fully automated hematology analyzers, reagents and controls include a number of features to help institutions, clinicians and laboratory technologists offer accurate diagnosis.

When asked what he felt about this remarkable feat, Suresh Vazirani, Chairman and Managing Director said, "All along the 40 years of our journey, we have been committed to offering the highest level of quality and service to Doctors and their patients. India's greatest need is the easy

access to affordable healthcare. And that is the lacunae that we have been striving to fill by pooling in our best technologies from our global subsidiaries and making them available at affordable prices for Indian hospitals and labs."

"Our Erba range of hematology analyzers is comparable to the best in the world and is widely used in the European market. I am grateful to our customers for their overwhelming response and our success is an outcome of the trust they bestow in us", he further added.

Erba H 360 is a 3-Part Differential Hematology analyzer and is suitable for obtaining a complete blood count (CBC) with a three-part differential white blood cell (WBC) count.

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KlinicApp to hire 1000 phlebotomists in 2019

India's fastest growing e-diagnostic company–KlinicApp announced that it is set to hire 1000 employees in 2019. The 1000 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 has more than 100 phlebotomists in the team and this number is growing exponentially every month. We are adding 200 phlebotomists per month especially in Delhi, Mumbai and Pune 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-ups 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 one lakh customers with hassle free services through their phlebotomists.

Satkam shared "Healthcare issues in today's time are increasing day by day 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."

Siddaganga Hospital to train Tumakuru Police Personnel

Siddaganga Hospital and Research Centre (SHRC), a super-speciality hospital in Tumakuru announced the launch of Road Safety and Basic Life Support (BLS) Training Programme for Tumakuru Police Personnel. The announcement was made by Dr Shivanna Paramesh, Managing Director – SHRC in the presence of Siddalinga Mahaswamiji, Pontiff, Siddaganga Mutt, Dr Umashankar, Chairman, SHRC and Dr Kona Vamsikrishna, SP, Tumakuru Police. SHRC has partnered with Tumakuru Police, regarded as the Guardians of Tumakuru's roads, to spread awareness about the essential steps that need to be taken to support victims of roads accidents or other medical emergencies on the road.

Under this month-long programme, SHRC will provide Tumakuru Police a 360-degree training programme on BLS, a method of non-invasive emergency procedure to assist in the immediate survival in case of a medical emergency

without the use of any medications. It aims to provide prompt medical interventions to save a victim within the 'Golden Hour,' even prevent death. Golden hour refers to a window of time, after a traumatic injury in which a victim's chances of survival is significantly higher if immediate medical attention is administered. BLS training includes providing a basic knowledge on life-saving techniques which will help prepare a person for emergency situations to care and save the lives of others. It also includes critical thinking and problem-solving skills and be able to work as part of a team to deliver the best care possible and improve patient outcomes.

Redd Experience Design developing an app for early detection of breast cancer

Breast cancer is sometimes found after symptoms appear, but many women with breast cancer have no symptoms. This is why regular breast cancer screening is so important. The sooner breast cancer gets diagnosed; the better treatment one can have. UE LifeSciences have created a portable device that enables women to perform a self-exam for early detection of breast cancer. This device helps in locating lumps in the breast, which then pushes one to visit a doctor for further diagnosis. With the help of the device it become easy to detect breast lumps hassle free. "At Redd, we are designing an app for the device so users can see the results of their scans and keep track of them. Since the market has changed and become more consumer-oriented, we've been engaged to design the interface to be as simple as possible, reduce the chance of errors and easy for users to understand the scan results. The device will make it easy early detection of breast cancer," said Sharan Grandigae, CEO & Founder, Redd Experience Design.

Redd is a dedicated user experience design start-up company that focuses on developing interfaces and experiences that humanise technology. The team of 19, headed by Founder Sharan Grandigae, offers specialised services necessary for UX design including UX, UI, motion graphics, illustration, iconography, graphic design, copywriting, branding and service design. To complement its products and services, Redd has been involved with companies like Urban Ladder, Bluestone.com, Lacoste, Rewrads360, Asian Paints, Lenskart, Syska, Adobe Systems and many others. It has been ranked amongst the top 9 design agencies in India by Dysco, Marketplace for Designers.

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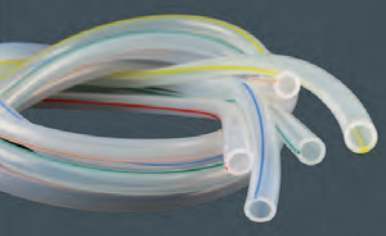

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SURESH ENTERPRISES

Fiinovation & HFCL partner for mobile medical units project

Innovative Financial Advisors Pvt. Ltd (Fiinovation) recently partnered with Himachal Futuristic Communications (HFCL) for evaluation of HFCL's Mobile Medical Units (MMU) projects running in Goa, Solan - Himachal Pradesh, Ghazipur - Uttar Pradesh and Sardarshahar – Rajasthan. The projects are categorically designed to reach out to the poor and to those who have limited or no access to basic healthcare facilities in the targeted areas. Medical consultations, medicines and diagnostics are provided free of cost under the project. Each MMU is equipped with an ENT & Eye diagnostic set, an ECG machine, minor surgical and dressing set. More than 1.5 lakh beneficiaries from the marginalised community have benefitted since the inception of the project.

As part of the alliance, Fiinovation has reviewed the status of the project based on accurate data collected from the ground to understand the positive aspects and to suggest counter mechanisms for mitigating the challenges if any facing the project. The partnership will also benefit in evaluating the design and planning structures of the project, status of on-ground implementation and assessment of the sustainability of the program. Increased access to mobile health units and qualified medical professionals has benefitted all, especially the elderly as it reduces the time sought to reach health facilities. Awareness campaigns designed around the importance of good hygiene practices have resulted in overall improvement of the health of the community members.

Dr Soumitro Chakraborty, CEO, Fiinovation commented, "In order to achieve the Sustainable Development Goal of Good Health and Well-Being in India, it becomes imperative that the government, corporations, civil societies and other stakeholders work in cohesion and concentrate their efforts in providing access to affordable and adequate healthcare for all and HFCL has done excellent work in this area."

12th anniversary celebration for Ortho-One

Ortho-One celebrated its 12th Anniversary on July 20th. Dr Ganesh Gopalakrishnan (Urologist) and his wife, Dr Alka Ganesh were the special guests. Rev. Ebenezer Mani gave the introductory speech and opening prayer. He remarked how at this anniversary celebration the venue was larger and the audience was more in number indicating very clearly the growth of Ortho-One.

Dr David Rajan appreciated the staff for their dedication at work. He introduced the Chief Guest as an Urologist of excellence. This excellence caught the attention of a Sheik from the Middle East, who had to undergo urological surgery. The Sheik insisted that Dr Ganesh be on the team of surgeons for the surgery that he had to undergo. Dr David Rajan also said that Dr Ganesh is a compassionate doctor who uses his surgical skills to do a lot of charitable work especially in places like Bangladesh, Ethiopia etc.

Dr Ganesh spoke about the importance of teamwork and that no doctor can claim total importance for themselves, by stating the number of surgeries done etc. He ended his talk with a quote by Ambroise Pare, a French military surgeon, in the 16th century who is known as the father of modern surgery.

Kiran Medical Systems launches ZeroLead Air

Kiran Medical Systems, the radiology division of Trivitron Healthcare and a global leader in Radiation Protection Products, has developed ZeroLead Air Series of Radiation Protection Aprons using cutting edge Microparticle Technology to offer Aprons that are "Lighter than the Lightest".

Radiation Protection Aprons are an essential accessory worn by healthcare providers during most medical procedures involving ionising radiation. They play a cardinal role in protecting the healthcare providers from the damaging effects of ionising radiation generated by X-ray systems, C-Arm systems, Cathlabs, Fluoroscopy Systems and CT. Radiation Protection Aprons are heavy and considering the fact that most healthcare providers need to wear such Aprons for extended durations every day, it affects the general comfort and puts a lot of strain on the joints during long procedures.

Keeping these considerations in mind, Kiran has been developing light weight aprons over the years using novel core material technologies. Ultralite, ZeroLead are examples of such lightweight Aprons that Kiran has been offering. ZeroLead Air is a quantum leap in this endeavour, made possible through extensive research in particle engineering and material science. These Aprons are 10 per cent lighter than existing ZeroLead Aprons without compromising the radiation attenuation levels that Kiran Aprons are known for. The use of novel plasticisers ensure that the Aprons offer a soft and supple feel further enhancing the comfort. All ZeroLead Air Aprons would feature Kiran's Satin Touch fabric with Anti-microbial coating and is expected to set a Global benchmark in Premium Radiation Protection Segment.

Satyaki Banerjee, CEO, Kiran Medical Systems, said, "Kiran has been committed to the field of Radiology and has been offering Research Oriented World Class products for 4 decades. The launch of Zerolead Air is a step further in our endeavour of offering the ultimate to our customers who have reposed their trust and faith on the Kiran brand all these years. We are obsessed with our customer's needs and we work hard to identify the unmet needs of Radiologists across the world and direct our efforts towards research and development to develop state of the art products to address these unmet needs. ZeroLead Air is the Culmination of four decades of experience in radiation protection and we are sure it would be a global benchmark for a good period of time to come".

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Aster Healthcare to invest Rs 1,000 cr in five new hospitals

The Kochi-based Aster DM Healthcare, is planning to add over 2,000 beds at an investment of over Rs 1,000 crore in the next two to three years in five new properties outside Kerala.

"We are investing over Rs 1,000 crore to add over 2,000 beds to our existing 4,500 beds in the next two-three years. These hospitals will be on an asset-light model, where we will be operating and managing the facility. Chennai will have the first of these new hospitals at an investment of over Rs 550 crore," Azad Moopen, Founder and Chairman, Aster DM Healthcare shared.

Aster already runs two facilities with 500 beds in Bengaluru, one each in Vijayawada and Gutur in Andhra and a 300-bed facility in Kohlapur in southern Maharashtra. While Dr Moopen and his family own 38 per cent, Aster counts PE majors Olympus Capital which owns around 23 per cent and True North which had held 10.4 per cent but had sold 7 per cent in June as its investors. The 500-beds Chennai facility will be operational over the next 30 months, Moopen said, adding the Rs 1,000-crore capex plan does not include the 500-beds upcoming facility in the Kerala capital Thiruvananthapuram.

It can be noted that Aster's largest facility in Kochi with 670 beds was in headlines recently after it successfully treated a youth for the deadly Nipah virus. The patient was wheeled in early June with the symptoms of the deadly virus, which had taken 18 lives last year in the state. After being treated for 53 days, the patient walked home on July 23 and thanks to this hospital, the state didn't report any other Nipah case this year.

Nanavati Hospital successfully implements Baby Friendly Hospital Initiative

Nanavati Super Speciality Hospital (NSSH) has been able to successfully implement a Baby Friendly Hospital Initiative (BFHI). Under the initiative, 71 per cent children born at the hospital during June-July received their mother's milk—ideal first feed which provides lifelong immunity against diseases, boosts growth and tissue repair factors within the, 'Golden Hour,' of childbirth.

BFHI was launched by World Health Organisation and UNICEF (United Nations Children's Fund) in 1991, to implement practice that protects, promotes and supports breastfeeding. The BFHI revolution at NSSH started with the medical administration taking active efforts to study existing breastfeeding practices.

"We conducted an audit of our 'Birthing unit,' to understand constraints, bottlenecks and current beliefs or practices. The audit report findings suggested need of counselling and training for expectant mothers during antenatal period. We helped the mothers prepare physically and mentally to breastfeed their babies post-delivery and experience it as precious bonding moments with their baby," said Dr Ashwini Jogade, Medical Superintendent, NSSH.

While the early breastfeeding rate of NSSH during January to May was about 17 per cent between June to July the rate grew to 71 per cent. All the 56 childbirths, through vaginal and caesarean deliveries were strictly followed by skin-to-skin contact of mother and child and breastfeeding initiation.

Dr Gayatri Deshpande, Consultant, Gynaecology and Obstetrics, NSSH said the two most integral part of the initiative at NSSH were early breastfeeding initiation (breastfeeding initiation within first hour of birth) and exclusive breastfeeding (giving the child only breast milk exclusively for first six months).

"Cases where we couldn't initiate breastfeeding were those, where either mother or the child needed immediate medical attention and couldn't physically be together," said Dr Deshpande, who spearheaded the programme along with Dr Jui Shinde-Patil, Lactation Counsellor, NSSH.

HORIBA Medical gets award for conducting best CMEs

HORIBA Medical has been recognised as the only brand that systematically organises excellent CMEs. The company recently received the award from Union Minister of Health and Family Welfare Ashwini Kumar Choubey. The company's CMEs cover every vital technical aspect for haematology range of products used by Indian diagnostic medical laboratories.

The selection was made on the basis of HORIBA's uniquely designed initiatives in conducting CMEs, workshops and technical training programmes, which are well recognised throughout country among pathologists and laboratory experts. Some of the flagship initiatives include Hematology Analyzer Based Xchanges (HABX), HORIBA interpretation Training (HIT), Horiba Operational Training (HOT) and various workshops, which the company organises in collaboration with government institutes, medical colleges and reputed hospitals and laboratory chains across the country.

In addition to this, HORIBA Medical has its International Technical Training Centre, located at New Delhi, where they have state-of-the-art simulated laboratory set-up. Along with the help of internationally certified trainers from France, the US and Japan, their centre trains haematologists, pathologists and technical experts of hematology range of instruments from across the globe throughout the year.

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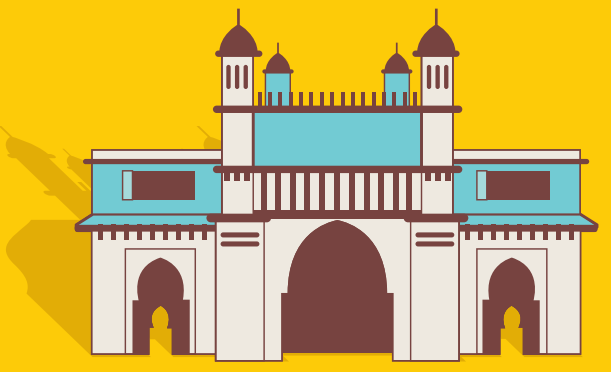

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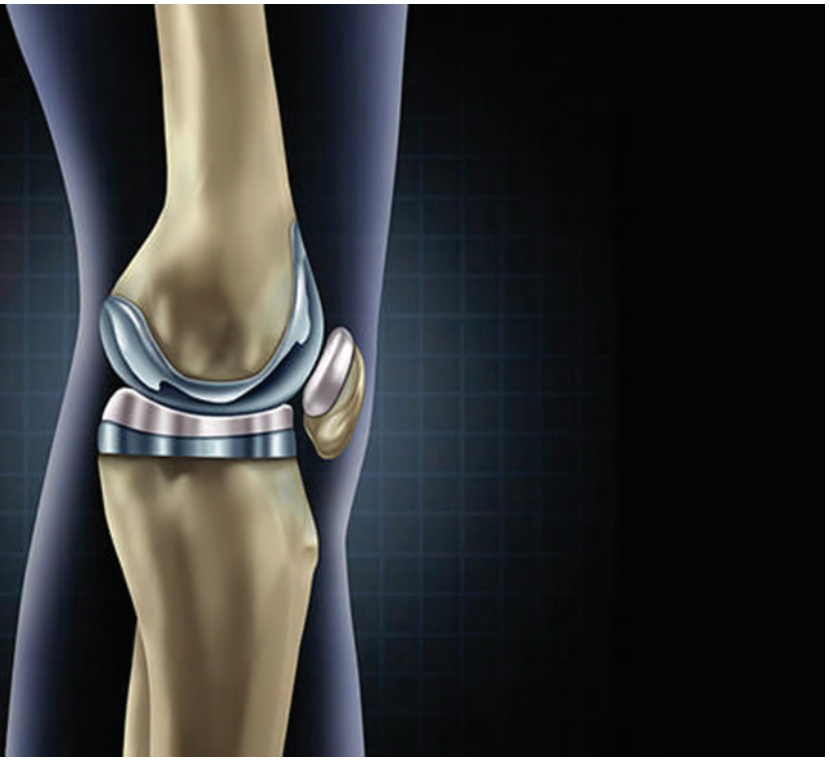
Will not allow knee implants costs to rise beyond 10% in a year: Govt



Recently the government said the ceiling price of orthopaedic knee implants will be monitored to ensure that the cost does not increase beyond 10 per cent in a given year.

Though the industry has requested for a 20 per cent (10 per cent for the year 2018 and 10 per cent for the year 2019) increase in the price of knee implants, it was decided to further monitor the price increase of knee implants as per para 20 of the DPCO, 2013 that restricts price increase beyond 10 per cent in a given year. This shall be subject to a review after one year, a statement issued by Chemicals and Fertilisers Ministry said.

The NPPA notified the ceiling price of orthopaedic knee implants on 16th August, 2017 by invoking extraordinary powers, in public interest, under Para 19 of Drugs Prices Control Order (DPCO) 2013, for a period of one year. Subsequently, vide notification dated 13th August, 2018, the applicability of ceiling prices fixed for orthopaedic knee implants was extended for another one year, up to 15th August, 2019.

Accordingly, the cost of knee implants was reduced significantly, upto 69 per cent, resulting in a notional saving of Rs.1,500 crore per annum to the consumers.

The NPPA, in its meeting held on 8th Aug, 2019, reviewed the matter. It was noted that there has been an increased access due to knee implants becoming affordable. As per the data submitted by manufacturers and importers, an increase of 30 per cent in the sales of knee implants has been reported during the period of July, 2018 to June, 2019.

The knee implant is a non-scheduled medical device or drug for which DPCO, 2013 allows an annual increase upto 10 per cent of MRP. However, this was not permitted in 2018.

Commenting on this announcement, Medical Technology Association of India's (MTaI) Chairman and Director General Pavan Choudary said, "We were seeking a 20 per cent increase in selling price of knee implants to make up for two years of price control combined with continuing pressures of rupee devaluation and inflation. Having said that, it is reassuring that the government has begun to acknowledge the financial pressures on medical device companies and has decided to give a partial relief by letting companies increase the price by 10 per cent in next one year, as per Para 20 of DPCO, 2013. As we move ahead, we will continue to engage with the government for a long-term solution."

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OPHTHALMIC INDUSTRY: AN EVOLVING INDUSTRY

Ophthalmic equipment are medical devices which are designed for vision correction and surgical diagnosis, purposes and help to prevent disorders such as, dry eye, cataract glaucoma etc. This story takes our readers to the industry analysis and innovations in the ophthalmic equipment industry.

Ophthalmic devices are utilised in the detection and treatment of ocular defects or deficiencies and eye disorders. The increasing incidence of loss of vision and eye disorders continue to accelerate the demand for ophthalmic devices. Ophthalmology industry is witnessing a rapid pace of technological advances in order to accomplish efficient diagnosis and treatment.

India is considered to be a home to around 30 per cent of the world's blind people. A huge part of the Indian population suffers from glaucoma and the country has over 10 million blind citizens. It is reported that 60 per cent of blindness is caused by cataract and about 13 per cent from glaucoma. Indian ophthalmologist surgeons conduct approximately five million cataract surgeries annually.

Industry Analysis

According to Persistence Market Research, "Asia is the fastest budding market for ophthalmology equipment because of the hastening number of eye surgeries for diagnostics of ophthalmic conditions. Moreover, there are several government steps that are supporting the growth of ophthalmology devices market in the Asian countries." Tarun Jaggi, CEO, Optitech Eyecare says, "The dry eye disease is one of the most frequent ocular morbidities. The rapidly increasing incidence rate of keratoconjunctivitis sicca due to pollution and changing environmental conditions is a rising health concern imposing a significant economic burden globally. Ophthalmic strips are used as a diagnostic tool for the detection of dry eye disease."

Rise in demand for safe and non-invasive diagnosis of dry eye disease, rise in prevalence of dry eye disease globally, improvements in health care infrastructure in developing countries, rise in incidence rate of lifestyle-related disorders, and increase in number of new market entrants that are establishing strong local distribution network owing to aggressive marketing strategy are some of the major factors expected to drive the global ophthalmic strips market during the forecast period. Jaggi said, "However, intensified pricing pressure leading to reduced profit margins and limited availability of skilled eye care providers in rural areas, which results in delayed diagnosis of dry eye, are some of the factors expected to detain the global ophthalmic strips market between 2018 and 2026."

Similarly, Zeiss has been at the forefront of ophthalmology and optics right from inception. Deepak Singhal, National Manager-Sales and Marketing, Refractive Lasers, Medical Technology, Carl Zeiss India shares, "The Medical division at Zeiss has been consistently contributing to help the doctors in improving the patient outcomes through its continuous innovations in ophthalmology and microsurgery. Zeiss technology is so dominant in ophthalmic patient care that around 75 per cent of all cataract patients worldwide come into contact with Zeiss product at least once during their treatment."

Carl Zeiss - Visumax Hr

Refractive care is yet another sphere that saw its evolution and growth with parallel contribution from Zeiss. "MEL Excimer lasers from Zeiss have been used widely to perform LASIK on millions of patients worldwide. However, a new benchmark was set in 2011 when Zeiss launched ReLEx SMILE commercially. The ground-breaking technology redefined the way refractive procedures were performed and has gained wide spread interest in ophthalmology community. Performed on VisuMax by Zeiss, SMILE is the only minimally invasive procedure available today in refractive segment that does not need creation of flap. It works on intact cornea and is totally painless," Singhal shared.

An estimated 58 per cent of individuals worldwide suffer from a type of ametropia. Fortunately, refractive surgery procedures

The Medical division at Zeiss has been consistently contributing to help the doctors in improving the patient outcomes

Deepak Singhal,
National Manager-Sales and Marketing, Refractive Lasers
Carl Zeiss India

Highlights of SMILE:

- Small incision of less than 4 mm
- Side-cut length up to 80 per cent shorter and cap incision area up to 30 per cent smaller than for a Femto-LASIK flap
- Potentially lower incidence of transient dry eye syndrome and less nerve transection thanks to smallest of incisions without flaps
- Less risk of infections and epithelial ingrowths reproducibility of the lenticule, irrespective of individual corneal characteristics and ambient conditions
- Excellent predictability, particularly for higher refraction values
- Efficient treatment process without patient having to switch places.

Highlights of VisuMax:

- **Maximum cutting precision:** High-precision optics from Zeiss provide an extremely focused laser beam. The result: minimum laser pulse energy at a high pulse frequency for unsurpassed incision control – at precisely the desired depth in the cornea, even with three-dimensional, curved incisions.
- **Brilliant visual control:** The combined, high-quality Zeiss surgical microscope, including digital video camera for live recording of the surgical procedure ensures precise and complete control of each treatment step.
- **A smart unit:** The ergonomically pivoting patient supporting system ensures maximum comfort. The patient's position is endlessly monitored during treatment and the robust yet comfortable patient supporting system is robotically adjusted during surgery.
- **Efficiency paying off:** With a laser pulse frequency of 500 kHz, the VisuMax realises short treatment times. This means more comfort for both physician and patient. In addition, the user benefits from a more efficient workflow and a higher throughput of satisfied patients.

can correct the natural limitations of the human eye while enhancing vision and providing better quality of life for those affected individuals.

Innovations in the Market

Ophthalmic equipment market in India has vast opportunities as ophthalmic services are offered all across major cities in India. The number of practicing ophthalmologist in India is increasing day-by-day. There are few ophthalmologists who work in solo practices while few ophthalmic surgeons are attached to hospitals. There are several prominent ophthalmic hospitals spread all over India.

It has been observed that there has been a tremendous rise in the prevalence of eye-related conditions such as glaucoma, cataract, refractive errors, age-related macular degeneration which has driven the Indian ophthalmic devices market towards a progressive growth. Further, the role of few more drivers have been observed in boosting the growth of ophthalmic device market such as rapid growth in the geriatric population, high demand for efficient diagnostic platforms, augmenting government investment towards research activities, continuous technological advancements in developing novel ophthalmic devices, persistent product modifications, use of mobile smartphone applications for eye visualisation, increasing demand for minimally invasive eye surgeries, growing adoption of contact lenses and spectacles, and increasing government initiatives to control visual impairment. It is also viewed that the subsequent increase in the number of ophthalmologists is also a vital factor which is escalating the demand for ophthalmic diagnostic devices.

Singhal says, "With the VisuMax, Zeiss is expressively shaping the world of refractive surgery. This innovative laser system employs high-performance femtosecond laser technology and is characterised by its outstanding cutting precision, unsurpassed speed and gentle treatment technique."

Further giving the details of VisuMax, Sinhal shares, "The VisuMax is thus

Optitech - Lissamine Strip

Optitech - Schirmer strips

the ideal platform for therapeutic and refractive applications of cutting-edge corneal surgery including:

- Flap – for precise flap cutting for Femto-LASIK
- Keratoplasty – for a broad spectrum of corneal transplant procedures
- Incision for ICR – for tailor-made intracorneal tunnel segments
- SMILE – the step towards minimally invasive laser vision correction

With SMILE, VisuMax heralds a paradigm shift in refractive surgery: minimally invasive laser vision correction. It completes the unparalleled range of innovative surgical possibilities and creates the ideal preconditions for tapping into new patient groups. VisuMax is the logical enhancement of the product range for refractive surgeons – and marks another step into the future of corneal surgery, the progress of which Zeiss has been shaping for more than 20 years."

Singhal adds, "Owing to its painless nature and quick recovery benefits, SMILE is now highly preferred by patients. More than two million eyes have been already treated globally and around 45 installations of SMILE are functioning in India alone. All the premium institutes of ophthalmology in India including RP Centre of Ophthalmology, AIIMS have installed VisuMax and offer SMILE to their patients."

SMILE enables the fusion of cutting-edge femtosecond technology and precise lenticule extraction to provide minimally invasive vision correction. A refractive lenticule is formed in the intact cornea and detached via a small incision. Without ablation. Without a flap. This solution made way for additional treatment opportunities – like Small Incision Lenticule Extraction.

Jaggi explains, "The ophthalmic strips market can be classified based on product, usage, application, end-user, and region. Based on product, the global ophthalmic strips market can be divided into schirmer strips, fluorescein strips, phenol red strips, rose bengal strips and lissamine green strips. In terms of usage, the global ophthalmic strips market can be divided into human and veterinary." Based on application, the global ophthalmic strips market can be classified into diagnosis of IgE identification and dry eye (keratoconjunctivitis sicca). "In terms of end-user, the global ophthalmic strips market can be categorised into hospitals, ophthalmic clinics, research institutes, diagnostic laboratories, and ambulatory surgical centers," Jaggi adds.

The rapidly increasing incidence rate of keratoconjunctivitis sicca due to pollution and changing environmental conditions is a rising health concern imposing a significant economic burden globally.

Tarun Jaggi,
CEO, Optitech Eyecare

Another innovation that Jaggi shares is Ophthalmic knives. "Ophthalmic knives market size is expected to grow significantly from 2019 to 2025. Ophthalmic knives market will grow significantly over the forthcoming years," Jaagi said. "The growth is mainly attributable to rising incidence of ophthalmic diseases including keratosis, cataracts among others. According to World Health Organisation published data in October 2018, around 1.3 billion individuals worldwide live with some type of vison impairment and the major cause for vision impairment is uncorrected refractive errors as well as cataracts. Also, majority of individuals with vision impairment are above the age of 50 years. Such huge patient pool of vision impairment is anticipated to boost ophthalmic knives industry growth," Jaggi added.

Crescent knives segment accounted for substantial revenue share in 2018 and is expected to grow with a robust CAGR over the analysis period. Jaggi says, "The growth is primarily attributable to various advantages associated with crescent knives such as sharp edges that help in smooth tunnel incision, and well-rounded tip. Reusable segment is anticipated to witness considerable growth during the forecast timeline owing to increasing preference for reusable knives among ophthalmic surgeons." The factors such as efficacy, durability, and sharpness increase the preference of reusable knives, thereby, propels segmental growth.

Conclusion

Asia Pacific ophthalmic knives industry is expected to grow substantially during the estimated timeline. The growth is attributed to factors such as increasing incidence of ophthalmic diseases coupled with improving healthcare infrastructure. Moreover, industry players focusing on emerging economies to increase their market share in the region should further boost regional growth.

With the rising rate of ophthalmic disorders, there surely arises a need for technologically advanced ophthalmic equipment. Ophthalmic equipment industry does necessitate to continue to progress at a rapid pace for not only technologically advanced devices but also for quality products. Thus, there is an enormous opportunity for the growth of quality ophthalmic equipment market in India.

Innovations in Ophthalmic Equipment

In today's medical world, equipment-based diagnostics and therapeutics play a major role, while the clinical skills of doctors although important, are fast dwindling due to overdependence on these equipment. The other important factor is medicolegal issues, due to which diagnostics and proof of disease have become an inseparable part of medical practice, making the use of modern technology all the more imperative.

So, what do we have in Ophthalmology today?

- First and foremost, the existing surgeries have all become even less invasive with the advent of suture less micro incision options in Cataract and Vitrectomy.
- Secondly, use of laser-based machines is on the rise with the advent of Femtosecond Laser which has applications in refractive surgeries like Femtolasik and Smile, corneal procedures like transplants, rings and inlays, and finally in Cataract surgery as well. We have bladeless laser procedures like Transprk for correcting higher errors with less tissue loss. We also have high-end lenses giving trifocal vision and correcting Corneal Astigmatism, as well as implantable contact lenses for very high refractive errors giving spectacle independence. For diseases like Keratoconus, customised crosslinking of the cornea give hope and avoid transplants.

Talking about transplants, today we can use a single donated Cornea for two patients, due to the advent of Corneal Lamellar Surgeries like Dalk, Dsaek and Dmek. Limbal Stem Cell surgeries for clearing Corneal Opacification and reconstructing the Ocular surface has evolved into Clet and Slet surgeries, as well as nerve transplant procedures. For patients that have a very poor prognosis for the above procedures, we have high quality artificial Corneas, bio engineered Corneas and retinal Implants (Bionic

Eye). As for the latest inventions, we are talking of applying the Crispr Technology in genetic diseases of the eye like Congenital Optic Atrophy, giving hope to thousands of patients.

As for the diagnostic aspects, we have high-quality retinal and optic nerve scans in the form of OCT and angioOCT, Glaucoma Visual Field Progression monitoring through perimetry, high-quality Topographers for mapping the Cornea before and after refractive surgery, and accurate IOL power calculators for cataract surgery in the form of Optical Biometers.

For Glaucoma patients, there are new stents and valves which control eye pressure in patients with a slim ray of hope. In Retinal surgeries, we have newer 27G Vitrectomy Cutters, lasers and anti-VEGF Injections for controlling Diabetic Eye Disease and age-related bleeds.

For Oculoplasty and squint patients, newer approaches and equipment are used to deal with trauma, complex injuries, congenital anomalies, eye movement disorders, Neuro-Ophthalmic diseases, complex tumors and complicated squints.

In pediatric diseases and sports ophthalmology, today there are software available to improve visual acuity in lazy eyes and other equipment to improve dynamic visual acuity for sports persons. Finally, in rehabilitation there are electronic devices as Low Vision Aids, Intraocular Telescopes and artificial eyes and lenses for cosmetic improvement.

All in all, Ophthalmology is at the brink of a revolution and we are happy to be a part of it, as we increase our armamentarium in delivering the best and safest patient eye care that was ever possible! ✚

Dr Harshvardhan Ghorpade,
Cornea, Cataract and Refractive Surgeon, Department of Visual Sciences, Hiranandani Hospital Vashi-A Fortis Network Hospital

NAME OF THE GAME: LABORATORY SERVICES

At a recently hosted third edition of annual scientific symposium, Total Agilent Experience, in Mumbai, **Bharat Bhardwaj, Country GM-India, Agilent Technologies (India)** shares his opinion in regards with the growth of medical lab and medical equipment industry.

708-DS Dissolution Apparatus from Agilent

At third edition of annual scientific symposium held in Mumbai on 17th June

Agilent is a significant player in the analytical and diagnostic measurement business. With more than 50 years of insight and innovation, Agilent instruments, software, services, solutions, and people provide trusted answers to customers' most challenging questions. Total Agilent Experience has fast become the place to be for professionals from chemical, food and pharma industries over the years, drawing over 300 scientists and researchers from across the country Bharat shared. Edited excerpts from his interview with Neha Wagle:

What is your opinion regarding the role of laboratory diagnostics in shaping the future of healthcare industry?

We in India are 1.2 billion people, there is a strong opportunity to reach out to the world. From the Agilent India, we are focusing on the laboratory research side of it. So, we work with the diagnostic

research centres where they work on any particular illness, any areas of concern where they would like to focus on as there are particular regulations around them as well like certification, licensing and many such things. So far, we have been focusing on the laboratory research side of it. In the years to come, there will be moments to come.

In which way do the laboratory services offered by Agilent Technologies differ from the laboratory services offered by other centres?

We are clearly leading on the laboratory services side of it. The reason why I say this is because we are one of the few companies where focusing on the services as an important pillar in our overall maintenance to our customers and in that what we do is when we launch a product our services engineers get well trained before the product is launched. It is different from others as many companies sell the product and then train their people. Next thing is in our entire program, we just don't provide services with our product but also provide services for everything else for e.g. if Agilent customers have products for other than Agilent, we also provide services to the other manufacturers. Which makes us far more integrated solution provider. For this we call it as Lab Resource Management, where we are able to provide laboratory services to them.

Where in the next decade do you see Agilent Technologies and where do you see India in the progressing sector of Medical Laboratory?

Going back into the history, we started back in the 90's. In India, we started around in 1999, with a small number – 10 to 15 employees and today if I look at it, we are about 1500 employees in Agilent India, with more than 500 employees focusing on domestic market and about 1000+ employees focusing on the global support services which we provide from our center in Manesar.

So, these are two investments that we have been doing in the last few years. Agilent has evolved as a company within India as well. We are almost in every nook and corner of the country and we have about 10 offices across India and equally staffed service and technical team which is the backbone of our investment, for what we have been doing in India.

From our product side of it, we had a certain portfolio to offer but if I look back in last 3 – 4 years we have made huge investments in our product portfolio. Now, from our earlier space we were really focusing on our gas chromatography and liquid chromatography businesses, now we are able to offer end-to-end solutions to the customers. Right from sample preparation to a technology, which is chromatography or mass spectrometry, which is again followed by a software, where the real work takes place. All of this is backed by a very strong service team. If I look at it, we are able to meet all the laboratory needs which in the past we were addressing in pockets and now we are able to address them across the entire ecosystem.

Throw some light on the opportunities and market on analytical equipment industry.

The market opportunity for analytical market is huge. Of course, Pharma is a growing industry and the largest market if I look at it, but if you look at other markets like food, environment and with all the new trends which are emerging in the domestic market with the regulatory body becoming more active, the need of analytical market is far more important.

So, when I look at it, the pharma, food would be among the key segments. Within the pharma, the new emerging trend is also the biosimilar market segment, where a lot of generic manufacturers are also moving towards biosimilar segments and this is the mega trend if we have to look at. There are many opportunities and a growing market of analytical equipment market.

What is the impact of digitalisation on the equipment industry?

I think it's immense, because if you have to really compete in the global space you can't really do it with the manual process anymore. With the GLP and GMP practices you have to have a lot of strong network or data integration processes. So, the digitalisation is coming into the picture, the more you can reduce the manual the more you can reduce the process controls, you are able to have much more impact and this is the trend moving forward. So, from the way we look at it, the software is leading most of the conversations in any analytical reforms.

Can you share Agilent Technologies India's growth plans?

We are very excited for Agilent India. Agilent has a lot of growth plans, India is one of the key focus markets for us and we have the specific programmes which we are initiating in order to tap the growth and if I look at an example – the Biopharma space, a lot of exciting movements are happening in that market also in the food market. We have a lot of growth plans around it, just to get the reference right, we added about 110 jobs in the last one year purely towards making sure we have a complete baseline set and the base is strong in order to capture the growth for the future.

And all of this is backed by a very strong portfolio that is coming from our innovation. That's where we are focusing, on the footprint of the product and improving the ease of use of the product, and those are the traits for us to go further in the Indian market. ✚

The article details about small, effective and economical hearing aids that can be apt for the developing nations and also to the residents of rural and remote areas.

Designing Economical Hearing Aid Device

The ears are one of the sensitive organs out of number of sensitive organs existing in the human body. They help in sensing the sound with different frequency at different intensity. The hearing of human ears ranges from 20 Hz to 20,000 Hz and intensity ranges from 0 dB to 120dB. Different definition of deafness stated by different organisation is found in the literature and they are.

As per the World Health Organization (WHO), the deafness refers to the complete hearing disability in one or two ears. The WHO definition of hearing

impairment refers to both complete and partial loss of ability to hear. As per Rehabilitation Council of India Act 1992, hearing impairment of 70 dB and above in better ear or total loss of hearing in both ears. It is only applicable to the person having hearing impairment of 70 dB and above.

Globally there are 360 million people having disability of hearing and in India 63 million persons suffer from hearing loss. The national survey shows that hearing disability was the second most cases of disability. In the urban area 9 per cent and in the rural area it was 10 per cent. These numbers have been increased due the attitude of the modern civilisation. The three main types of hearing impairment are:

- Conductive hearing loss (inner ear)
- Sensorineural hearing loss (inner ear), and
- Mixed hearing loss.

They are subjected to various physical, medical and psychological ailments/ diseases like; noise pollution (music, personal music systems, mobiles systems (to be on the safer side the sound intensity from these systems should be restricted to 50 dB; better if it is below 50 dB), vehicle noise, vehicles and their horns harsh sounds, industrial noise, celebrations, functions/ religious sound systems and such other noise sources), some medical drugs effects, aging (especially persons above 65 years and as per literature, highest in South Asia, Asian Pacific and Sub–Saharan Africa) and water/cough entering the middle and the inner parts of the each ear or both the ears damage these organs and results in hearing loss of a range of ranking/grading of the ear hearing damages.

The damaged ear of the particular person in turn affects him of inability of understanding speech sound, lowers the capability to communicate, delay in language pick up, stigmatisation and social isolation. Some of the damages is difficult to treat or cannot be treated and correct deafness impairment or profound hearing impairment, some of the damages can be corrected by medical treatment and some of them can be treated by providing hearing aid. The table 1 details the different ranks and the corresponding data. The persons, especially in developing countries, in the rural areas and the remote areas who have been recommended to use hearing aids, have a number of difficulties of hearing aid systems and accessories due to the fact that these systems and their availability and price ranges. Hence there is significant demand for the easily available and economical hearing aid systems.

Methodology

Earlier the persons with hearing impairment were using mechanical system devices to hear the speech by folding the palms into hollow cone. Further this method was improved by using the metallic/non-metallic hollow cones, lip reading, signing with palms and hands. Research and developments in electrical, electronics, mechanical, nano-engineering and material science lead to the development of HAS from ordinary handmade to smart ones.

It is understood that the hearing aid should be handy (as small as possible to hide the same form the public), best speech/sound hearing capacity and should be of highest comfortability. If one considers these features in hearing device, it is very difficult get for the persons in rural/remote places. To have an economical, simple, manageable and an average type of hearing device, some of the features have to be compromised. A number of options exist to decide/select the appropriate design/configuration of the electronic circuit for the small

Grade of impairment	Corresponding audiometer ISO value	Performance	Recommendation
No impairment	25 dB or better (better ear)	No or very slight hearing problem	Nil
Slight impairment	16 – 25 dB (better ear)	Able to hear and repeat in normal voice spoken in normal voice at 1 metre	Counselling , hearing aid may be needed
Mild impairment	20 – 40 dB (better ear)	Able to hear and reply	Counselling , hearing aid may be needed
Moderate impairment	41 – 60 dB (better ear)	Able to hear and repeat	Hearing aids usually recommended
Sever impairment	61 – 80 dB (better ear)	Able to hear some words when shouted in better ear	Hearing aid is needed. If no hearing aid available lip reading and signing should be taught
Profound impairment	81 dB or greater (better ear)	Unable to hear and understand even shouted voice	Hearing aid may help, understand words. Additional rehabilitation needs, lip reading and sometimes signing is essential

transistor radio/one integrated chip (IC) (with pre amplifier and amplifier) and the electronic parts for constructing/ manufacturing economical hearing aid.

One can get required information and details of good one transistor amplifier circuit in electronics books, magazines, articles, company hand books, different web sites and such other sources, for building the amplifier for the hearing aid. Another option is to modify the old small conventional transistor radio (one to two transistors/ one IC chip) or the conventional/ordinary mobile phone in to a hearing aid.

Construction

It is easy to construct the one transistor amplifier/one chip. Some of the amplifiers can be built without using printed circuit boards whereas modification of the old small conventional transistor radios or the small ordinary mobiles into the hearing aid is easy. In the case small transistor radio, the matching mike's wires can be connected to the leads of volume control and disconnecting the antenna coil from circuit board, keeping other parts as it is on the circuit board. It is to be noted that earphone has to be used. In the case of ordinary small mobiles, the main thing is to know the circuit configuration used installed in the mobile. The study of the pre-amplifier, main amplifier, mike connections and earphone connection should be carried out in detail and accordingly the required modification should be made.

Conclusion

It is to be noted that the modification of small transistor radio or small ordinary mobile is the best option. With this innovative idea, the hearing aid device will be economical and affordable by almost all persons with hearing impairment, the e-waste will be reduced by reusing the discarded devices. Both the devices can be modified to work as the radio and the hearing aid by a two-way switch and in the similar way the small ordinary mobile can be modified. The modification cost will be less and at the same time the hearing aid will be small enough to keep it in the shirt pocket delivering good sound hearing and comfortable. ✚

Subramanya Krishna Bhat
Retired Engineer, Permanent Member of ISTE, Fellow of Institution of Engineers (India)

ENT Equipment:

Maintenance and safety measures while using them

This subject has expanded enormously in the last few decades and is not called as 'ENT Head and Neck Surgery'. With this expansion, more of the area, thus more of conditions need to be covered. And hence, more of Diagnostic and Therapeutic Tools are needed.

This discipline has the maximum number of tools within its domain. Some being very basic, others are very delicate and sophisticated. With the advancement of bio-medics and bio-technology, more and more high-end instruments are coming into the picture and they are helping in very precise and delicate approach to the management of patient.

Let us take three such instruments- Operating Microscope, Laser and finally, Coblation.

Operating Microscope:

- This tool is used by us, even before the eye surgeons. It is used since the last several decades. Its main function is to magnify smaller body parts; thus, it becomes easier for us to diagnose and also perform surgeries.
- It contains several parts, namely the Light Source, a Cable Conducting the Light (Fibre Optic Cable), Lens used for Magnification and Prisms for splitting of light.
- The cost of this equipment varies depending on the quality of the above parts. Magnification can be from 4X to 40X.
- A person, using it, must have a good knowledge of optics and must know how to take care of it.

Laser:

- This abbreviation is for Light Assisted Stimulation of Emission of Radiation. Thus, it involves Nuclear Physics, where different elements are used to produce cathode particles from its atom and they are passed through a small area in the same direction, hence making them powerful and effective. This bunch of cathode ray (Laser) has the ability to cut precisely and arrest bleeding. Depending on the element from which Laser is produced, the depth of penetrance in different body tissues depends on the element. The machine becomes hot after use for specific period; thus, a continuous cooking process is needed.
- This instrument is a powerful tool for our departmental surgeon. The surgeon needs to know the mechanics, area of use and its basic components before use.

Coblation:

- A Coblator is a wonder machine which vaporises the tissues. It stands for "Controlled Ablation". Here, radio frequency at a low temperature uses saline (Saline, here means Sodium Chloride); it uses Sodium Ion out of it. This highly energetic Sodium Ion to form a Plasma Field, which is strong enough to break organic molecular bonds, causing vaporisation of tissue, without producing heat.
- This equipment is used safely and precisely to remove various tumors in our domain without causing bleeding during surgery or pain after surgery.
- There are several of these wonderful, high-end instruments out of which, we have only discussed a few.

Dr. M. N. Bhattacharyya,
Consultant Department of ENT Head and Neck Surgery, Fortis Hospital Anandapur

Hospital Refurbishment

Intense planning is key to successful hospital refurbishment projects, writes Praful Gupta, Business Head - Commercial Moving, Writer Relocations.

In the increasingly competitive healthcare landscape, continuous facility improvements are imperative for not just patient satisfaction but also to attract and retain top medical talent. Even as the latest medical technology evolves every five to six years, hospitals and health care facilities must constantly vie to keep their premises up-to-date to comply with evolving industry and environmental standards. In fact, medical equipment tends to become archaic every 10 years or so which means hospitals need to consider the options of either retrofitting current facilities to accommodate new equipment or building new ones.

However, retrofitting or renovations in medical facilities is a very specialised aspect primarily because of the significant number of factors involved in the whole process. Healthcare refurbishment projects face all of the usual challenges of construction in addition to healthcare-related factors. These factors like uninterrupted patient care may require creative construction solutions to execute successfully.

Refurbishment or retrofitting projects in a medical environment require planning of a massive level mainly because one is dealing with human life. Medical retrofits can broadly be divided into three categories including logistic, electrical and mechanical.

Logistics generally deal with the mammoth task of actually shifting equipment or fixed assets in and out of buildings. The challenge is in case of buildings which may have evolved over a time period of 5 or 10 years and may have changed internally and externally. These buildings may not have enough space or even clearances anymore to actually move assets in and out, although they may have existed when the building was originally put in operation.

Electrical and Mechanical retrofit require special Original Equipment Manufacturers (OEMs) and contractors to Supply, Install, Test and Commission (SITC) the new infrastructure. When it comes to any construction work in a medical environment, patient and staff needs are as important for contractors to understand as the technical aspects. Therefore, hospital refurbishment projects require specialised teams and companies that can handle the various facets that are involved in the process. To undertake such a retrofit activity calls for an integrated solution deployment with a joint involvement of OEMs, Relocation Partners and Mechanical and Electrical (ME) contractors.

To begin with, there may be emergency operations that cannot be rescheduled along with ones that can be deferred for a later period. The project management team has to understand each of these aspects in detail which means the stakeholder engagement in case of a medical facility increases manifold. The team will have to collaborate with not just people from the administration or the civil contractor, but also doctors, internal scheduling teams, nurses, technicians and other staff.

For such projects, it is essential to have project managers and superintendents who specialise in healthcare so that they understand the impact that the project can have on the patient's experience as well as on the workers. These people are more equipped to take every precaution necessary to minimise project disruptions and maximise convenience.

Also, hospitals function 24x7x365. So unlike other businesses where renovation activities can be scheduled at night or during weekends, there is no such window in hospitals for less intrusive times. The project calls for early planning which can help healthcare clients save millions, prevent unnecessary and costly surprises, and minimise the operational impacts of construction. The planning phase can focus on phased scheduling where the recommendations are provided on how the project can be segmented to meet the overall timeframe.

If necessary, the refurbishment has to be scheduled in phases where series of smaller projects are done in succession. This can help minimise the impact on day-to-day facility operations and can make it easier to synchronise construction activity with the kinds of timing and scheduling restraints that are unique to healthcare facilities. However, this again requires immense planning and engagement between the project team and the stakeholders. A truly collaborative relationship between project team and the client can go a long way in easing the refurbishment process, shorten project time and allow the renovated facility to begin generating revenue much sooner. It is helpful for the project team to encourage a constant exchange of ideas and information with the client, and to help satisfy all stakeholders throughout the refurbishment or renovation journey.

However, one of the most important aspects when it comes to working on a medical facility refurbishment project is the safety and health of patients, visitors, medical staff and even workers with regard to infection control and environmental hazards. While the health of patients may be directly impacted, the safety of workers involved in the project is also a matter of concern. For instance, there are renovations that may happen close to MRI centres which call for very specific and stringent cautions. It is necessary to invest enough time and money in providing proper safety gears and understand the risks involved to ensure that no patients, staff, visitors or workers are put at risk during the project work. The project team have to develop a pre-planning action item checklist, and conduct compliance monitoring from time to time. It is essential to engage with staff that is involved in the aspects of safety, infection control, maintenance, housekeeping etc during the entire time period of the project.

There has to be a proper inspection regarding general safety, fire safety, exits and security. With respect to infection control, the project team has to conduct an in-depth analysis of the existing facility before any construction begins to identify and cite any discovered safety risks and determine what steps may be necessary to address those risks.

The success of a healthcare refurbishment project is contingent on many elements. It is critical that both the hospital and the project team agree on the overall goals, have a strong commitment to patient safety and be flexible for changes with respect to construction logistics. ✚

Praful Gupta,
Business Head - Commercial Moving, Writer Relocations

Experience the Sky

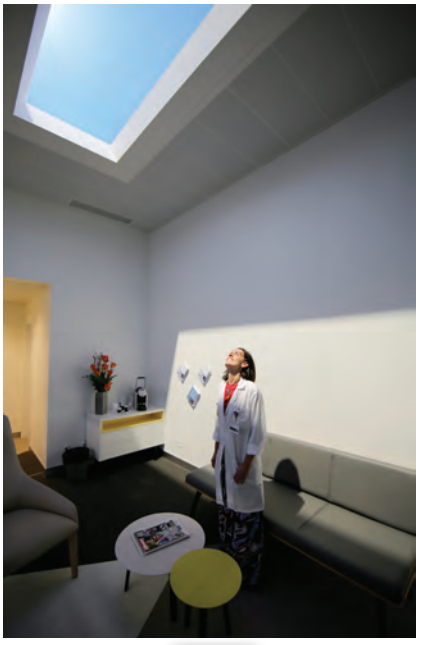
Healthcare, improved well-being with CoeLux

Natural lighting is a vital ingredient when creating comfortable settings, especially if the project involves a windowless space or one that has no openings towards the outside. This is often the case for facilities dedicated to healthcare, where there is a shortage of natural light and artificial lighting doesn't help to create a sense of well-being. With its high-tech systems capable of recreating the natural experience of the sun and sky in indoor spaces, CoeLux contributes towards creating a comfortable setting and thus limit the trauma of a hospital stay and the anxiety-inducing situations linked to the claustrophobic nature of certain spaces and machinery.

Neonatal Intensive Care Ward - Mangiagalli Hospital, Milan

One project which makes the company particularly proud is the Neonatal Intensive Care Ward at the Mangiagalli

Coelux LS - Mangiagalli hospital

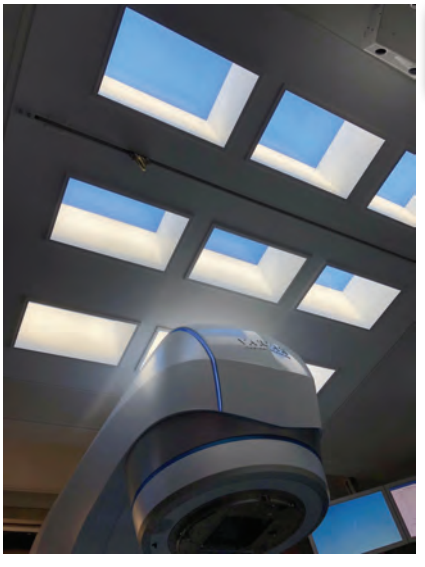


CoeLux_La Tour

Clinic in Milan, a hospital dedicated to new mums and their babies, where several CoeLux ST systems have been installed. Prof. Fabio Mosca, neonatologist and director of this ward, explains in a video interview how premature babies who spend days or even weeks in the hospital ward can benefit from the positive effects of natural light. The setting is also more pleasant for the parents who spend a lot of their time in the ward as well as the nursing staff. Prof. Mosca thinks that this new method of lighting may encounter extensive application possibilities on hospital wards owing to the positive influence on the biological effects on patients, accompanying relatives and healthcare personnel.

La Tour Hospital, Geneva

A recent project and interesting case-study as regards well-being linked to hospital facilities is the oncological radiology ward at the La Tour Hospital in Geneva, Switzerland, which opened



in June 2018. Several CoeLux high-tech systems have been installed throughout the ward, including a CoeLux 60 HC in the waiting room and nine CoeLux ST Ibla in one of the bunker rooms where patients undergo cutting-edge treatments, using futuristic radiotherapy equipment and a Varian EDGE linear accelerator.

CoeLux systems are dimmable in order to accommodate the psychophysical needs of the patient throughout the entire duration of treatment. The different brightness intensity levels are controlled manually by competent staff in an adjacent control room, where other CoeLux ST Ibla systems have been installed. To begin with, the support systems are started with a warm chromatic light, and CoeLux is started with an intensity dimmed to 30 per cent; this scenario produces a calming effect on the patient. At the end of treatment, with the rise in the intensity of the brightness of CoeLux up to 100 per cent and the support lights being turned on, the patient is accompanied towards waking up.

The objective from a lighting technology perspective was to create the perception of natural and comfortable light throughout the entire ward. The medical staff, in some areas of the ward, prefer to use CoeLux systems instead of traditional lighting systems and enjoy a more pleasant and natural work environment.

23rd edition of Medicall Expo attracts 20-plus countries in Chennai

The 23rd edition of Medicall, a B2B hospital equipment expo, wrapped up its three-day programme held at the Chennai Trade Centre from 26th July to 28th July, 2019. This Medicall exhibition hosted more than 6,000 products from 20-plus countries, reports **Neha Wagle**.

Dr Manivannan S, Joint Managing Director Kauvery Hospital, in association with Medexpert Business Consultants Pvt Ltd, launched the 23rd edition of medical equipment trade fair, 'Medicall', scheduled from 26th July to 28th July at the Chennai Trade Center. The expo was inaugurated by Consul General at the German Consulate Karin Stoll. Medicall is an international show with exclusive hall for international companies from Germany, Japan, China, Taiwan, Malaysia, South Korea, Portugal, Italy, UK, and USA. More than 6,000 products from 20-plus countries were on display.

The trade fair focuses on all the needs of a hospital from surgical cotton to the latest imaging equipment and surgical tools. Around 18,000 medical professionals visited the expo.

While talking about the motivation behind starting this expo, Dr Manivannan said, "Small- and medium-sized hospital owners from tier-II and III cities cannot afford to have qualified purchase managers. Equipment companies also do not have adequate sale force to meet all these hospital owners. Since I have suffered and undergone the difficulty for my hospital, I thought Medicall would bring in all equipment manufacturers under one roof for all the needs of a hospital."

Medicall Made in India Healthcare Innovation Awards is the most sought-after award because of its objective selection criteria and independent jury. Medicall encourages, supports and catalyses innovations in Medical equipment, Made in India. Medicall strongly believes in multidisciplinary approach in finding solutions in the healthcare industry. Medicall wanted clinicians, scientists, technocrats, entrepreneurs and researchers must work in lock step to produce innovations and hence this year Medicall came up with an innovative idea called 'Medicall 100-Days Open Challenge'.

The 100-days open challenge was a curtain raiser primarily to excite the unsung heroes in the far corners of India, many a times, even semi literates with brilliant ideas and magical solutions which are pragmatic, affordable and simple. Medicall wants to showcase to the world these Eureka moments transforming healthcare! National Hub for Healthcare Instrumentation Development (NHHID) powered the Open Challenge by participating at all stages from ideation to selection. SRM Dental College, Ramapuram, Dr. Rajkumar K, Dr. Ramya R, Dr Swarnalakshmi R, Salivary Neuro Electro Stimulator won the Open Challenge 2019.

Product Highlights

TurboChem Prime

CPC offers an entire spectrum of clinical chemistry instruments which will meet the requirements of all laboratories, very large to small. CPC has 6000+ installations in South India. As an early entrant in this segment, CPC has set an example for excellent after-sales service and application support. These instruments are ably supported by a wide spectrum of substrate, enzyme, minerals and special protein assays. We offer products from leading manufacturers of clinical chemistry reagents viz. Aptec. This TurboChem Prime is a compact random access fully automated analyzer for Clinical Chemistry.

Features:

- Mid-size automated chemistry analyzer.
- Upto 180 tests / hour constant throughput, with 20 sample positions.
- 81 reaction vessels.
- Unique lab cooling facility through a jacket.
- Low water consumption.

Koleno 800 DVT System

Codex Solutions introduces Koleno 800 DVT Pump at Medicall. The DVT Pump is a clinically effective, non-invasive, mechanical prophylaxis system designed to reduce the incidence of DVT specially for ICU patients and patients undergoing surgery.

Features:

- DVT System is easy to use, single button operation
- Lightweight pump with detachable hooks to hang on the bedside
- Easy push-to-click connectors
- Pressure set at a standard 40 mmHg
- Single chamber Intermittent Pneumatic Compression (IPC) sleeves
- Pump compatible with all 3 types of sleeves; Calf, Thigh and Foot
- Special provision for foot sleeve with a dedicated button.
- Pressure for foot sleeve set at a standard 120 mmHg
- Audio visual alarm in case of loose connections or leakage in sleeves
- Sweat and moisture absorbent sleeves
- Velcro system in sleeves ensures perfect fit while serving all sizes from 18 inch to 22 inches.

Event Review

MedAir 2200

MedAir 2200 is a compact, easy to install and operate compressed airline monitor that can continuously and simultaneously monitor up to four gases in real-time using internally mounted sensors. MedAir 2200 is typically configured to monitor hospital compressed air for carbon monoxide, oxygen and dew point. MedAir 2200 is designed to meet OSHA monitoring requirements for Grade D breathing air, NFPA 99 "Medical Air System Guidelines" and is UL and CSA certified for "Medical Electrical Equipment Safety Requirements" (UL/IEC 60601-1 and CSA 22.2, No. 601-1). MedAir 2200 is ENMET's most advanced compressed airline monitor for medical air systems, specifically designed for hospital applications.

Features:

- Continuous real-time gas monitoring of hospital compressed airlines
- Monitors oxygen, carbon monoxide and dew point simultaneously
- User programmable alarms and relays
- Meets Grade D breathing and NFPA 99 requirements

Ultrasonic Cutting Hemostat System

The HPS36P series has a manual button, which can be used directly after connecting with the main unit and the transducer. The rotary knob is integrated with the torque wrench.

Features:

- HPS36P for laparoscopic surgery
- HPS23P for open surgery
- HPS14P for superficial surgery
- Compatible with host: RXCD-300
- GEN04 and GEN11
- Disinfection method: support 134C high temperature.

Stryker ADAPT Platform

The Stryker ADAPT Platform is the next generation of surgical navigation platforms. With its sleek design and small footprint, this fully equipped mobile unit integrates seamlessly into the operating room or office setting and brings the ultimate navigation experience.

Features:

- 24" HD surgeon monitor
- HD touchpad user interface with RFID-reader
- Industrial PC with Intel Core i5 processor
- Sleek and maneuverable camera arm
- Computer interface for video (BNC, S-Video), USB and LAN connections
- Portable and mobile design—approximately 100 lbs.
- Small footprint—26.0-inch x 25.6-inch.

Multi Parameter Patient Monitor

Pulse rate range of this patient monitor is 0-300 bpm with display of 10.4 inch and Bionet brand with a frequency of 50-60 Hz and a resolution of 800x600 Pixel. It has power supply of AC 100-240 V.

Features:

- ECG, SpO2, NIBP, Respiration, 2 IBP, 2 Temperature, EtCO2 (Optional)
- Individual sweep speed setting for each parameter
- Connection to external VGA output for large screen (Optional)
- Multiple display modes
- Connected to central monitoring system using LAN or W-LAN
- Ambulance mode using car recharge cable
- Movable Cart/ Wall mount.

Ice Lined Blood Bank Refrigerator

The available sizes (storage areas) for Ice Lined Blood Bank Refrigerator are 160 ltrs, 240 ltrs, 340 ltrs, 410 ltrs. Features as per WHO standards E3/RF3, Dual Temperature Controller, Standby Temperature Control for VCV 330, Volts, Ampere readout and Temperature alert alarm with flash light, Master control switch, Digital Temperature display with Battery backup, Food grade (304) Stainless Steel Cabinet.

Features:

- WHO PQS – R003 Complaint
- Temperature Range: +2 TO +8
- Hold Overtime – 55 TO 60 hours
- Low Running Cost < 12 TO 15 Units Power PER Month
- Frost Free Technology – Product Safety
- Master Control – Dual Switches
- Digital TEMPERATURE DISPLAY WITH Battery Back UP
- Food GRADE (304) Stainless Steel Cabinet / Sliding Trays
- Provision FOR USB PORT / Cloud Data Loggers.

Asha +

Asha + is a handheld Remote Monitoring Solution takes health diagnostics, monitoring and tracking to the door steps of patients, provides a paradigm shift towards Preventive Healthcare model that can be used by individuals as well as various levels of health care providers.

Features:

- Temperature (Infrared 1 sec)
- Oxygen Saturation and Pulse rate (Reflective Pulse Oximeter)
- Blood Pressure (Digital)
- ECG (3-Lead ECG)
- Blood Glucose
- Stethoscope (Digital)
- Bluetooth interface to communicate with a smartphone
- The Smartphone App provides seamless and easy to use remote monitoring platform that ensures quality healthcare to people even in remote areas

GEM Premier 3000

GEM Premier 3000 simplifies and enhances critical care testing. In addition to unique features such as its self-contained cartridge system and comprehensive menu options, the GEM Premier 3000 now offers Intelligent Quality Management (iQM), an internal, automated program that performs continuous quality management. Available exclusively from Instrumentation Laboratory, iQM is an automated quality assurance system that replaces the use of conventional QC.

Features:

- Reliability:
  a. State-of-the-art planar sensors
  b. iQM for automatic, continuous, real-time quality control (QC)
  c. Demographic look-up and patient verification options
- Flexibility:
  a. Standardised testing platform for use throughout the hospital – laboratory, respiratory care and point-of-care – with customised cartridges for every location
  b. Over 15 cartridge menu and size configurations
- Connectivity:
  a. GEMweb for remote system management from any network computer
  b. IMPACT for Critical Care total information management with scripted and EDI interface options.

Stereoscopic 3D (Sony)

Stereoscopic 3D colour images captured in Full HD with this medical grade camera can assist with providing improved depth perception and spatial orientation compared with conventional 2D. 'Live' 3D images can be shared with other consultants, teaching staff and students using a monitor such as the Sony LMD-2451MT (MDD approved) LMD-4251TD (non MDD compliant). 3D Full HD images can also be captured for later analysis, sharing and review using the HVO-3000MT medical grade video recorder.

The MCC-3000MT consists of two light, compact camera heads plus a CCU (Camera Control Unit). Compliant with latest medical safety standards, the complete system can be easily integrated into medical environments. Image quality is assured by precision Exmor™ Full HD CMOS sensors in each camera head. Combined with advanced Sony digital image processing techniques, this allows the MCC-3000MT to capture detail-packed 3D images with high sensitivity and signal-to-noise plus wide dynamic range.

Ligation Clip

Ligation Clip is available in small, medium and large sizes. It is suitable for ligation and closure of vascular and coelomic tissues during human surgery. The use of this ligation clip is done in General Surgery, Obstetrics and Gynecology, Urinary Surgery.

Features:

- Three types of product can meet all kinds of intraoperative ligation requirements.
- Lock release device can modify the ligature position during operation.
- Integrated teeth interface with the vessel and are designed to prevent slippage
- Locking mechanism provides tactile feedback and secure closure
- Bow-shape design allows removal with appropriate instrument
- Hinge allows flexibility in clip placement prior to clip locking
- Non-absorbable polymer is inert, non-conductive, radiolucent, and does not interfere with CT, MRI, or X-ray diagnostics.

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Thermography

and its applications in medical and clinical research field

The current method to diagnose Type-2 diabetes is invasive like checking blood-sugar levels and Hb1AC by giving blood sample for testing. Using thermal imaging camera, we introduce a non-invasive method, with which the mass screening of people can be carried out for early diagnostic of Type-2 diabetes. Similarly, fever detection by mass screening of people is also possible: It is a fast, easy, contactless method to screen persons to track the risk of elevated body temperatures, which in turn is an indicator of potential viral infections.

Introduction

All objects with a temperature above absolute zero emit enfrared radiation because of the thermal motion of their molecules. Infrared thermography (IRT) is an imaging modality that can be used to detect this radiation which is also called thermal radiation. Human skin emits infrared radiation almost like a perfect black body and thus IRT is well suited for the measurement of skin temperature. Not only that now thermography finds several applications in the medical field such as fever detection, identifying blood circulation disturbances, determining symptoms of diabetes, screening of joint inflammation and rheumatoid arthritis etc. This application note briefly describes some of the application areas where Testo Thermal Imagers have proved out to be an efficient tool to analyse medical conditions and syndromes in various test cases.

Case Study 1: All India Institutes of Medical Sciences (AIIMS), New Delhi — Testo 890

References

- **Anthropometric Measurement:** It is the systematic measurement of size, shape and composition of the human body using relevant indices to detect changes in the nutritional situations of the body.

- **HbA1c:** This refers to glycated haemoglobin and by measuring HbA1c, one can get an overall picture of what one's average blood sugar levels have been over a period.
- **Thermography as a non-invasive method for diabetes detection**: A diagnostic approach for Type 2 diabetes was conducted on the subject based on Non-Contact Infrared Thermal Imaging. Control (healthy) and diabetic group differ in discriminatory performance of various risk factors and anthropometric indices as segregated by HbA1c. A significant negative correlation of the HbA1c with the core body temperature (a function of body metabolism) was obtained through this non-invasive measurement by Testo 890 at the inner canthus of the eye, neuropathic foot and at the tympanic region of the ear.

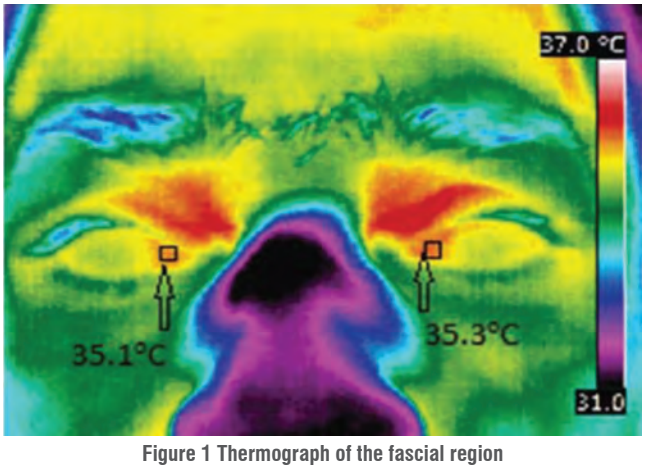

Figure 1 Thermograph of the fascial region

Case Study 2: Pharmaceutical Industry, R&D centre

Testo 890 References

- **Vasodilation:** It is the widening of blood vessels in the human body. It results from relaxation of smooth muscle cells within the vessel walls, particularly in the large veins called vasodilators, large arteries, and smaller arterioles.

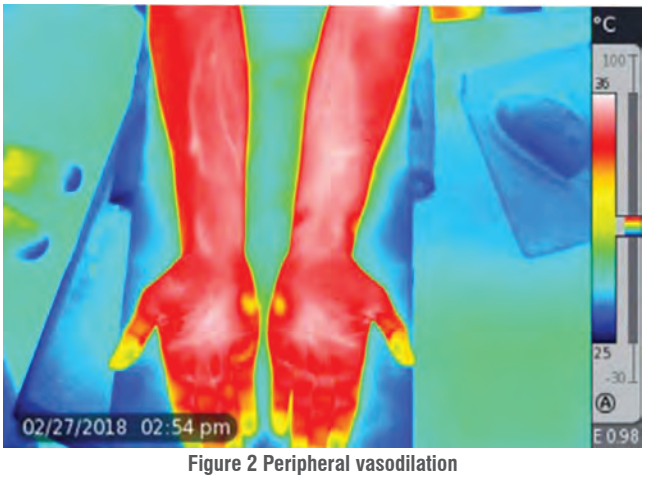

Figure 2 Peripheral vasodilation

Clinical Trials on Vasodilation

The blood vessels are monitored by thermal inspection before and after taking drugs. This is generally used in clinical trials during various phases of sports medicines and Ayurveda medicines/ drug development. To facilitate clinical trials, tests were carried out to see the effect of a test substance for peripheral vasodilation. Testo infrared thermography camera, Testo 890 was used to see and indirectly measure vasodilation by means of the change in peripheral temperatures.

Case Study 3: National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru

References

- **T2DM:** Diabetes mellitus type 2 (or type 2 diabetes) is a chronic condition that affects the way the body processes blood sugar and is characterised by high blood sugar, insulin resistance, and relative lack of insulin.
- **Analysis of Type 2 Diabetes:** Infrared (IR) thermography imaging will be able to monitor progression & improvement

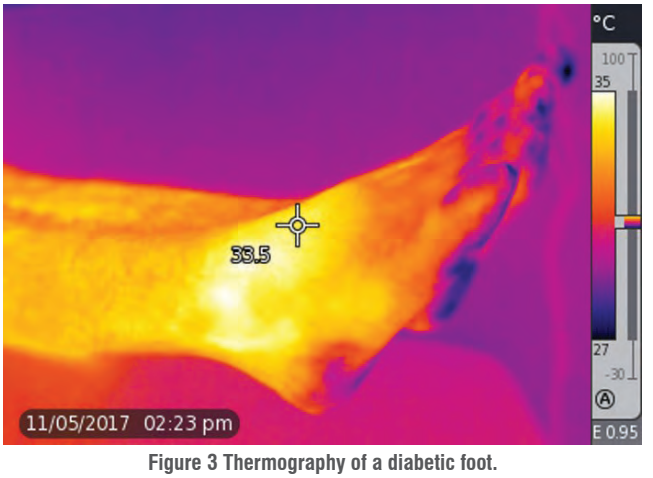

Figure 3 Thermography of a diabetic foot.

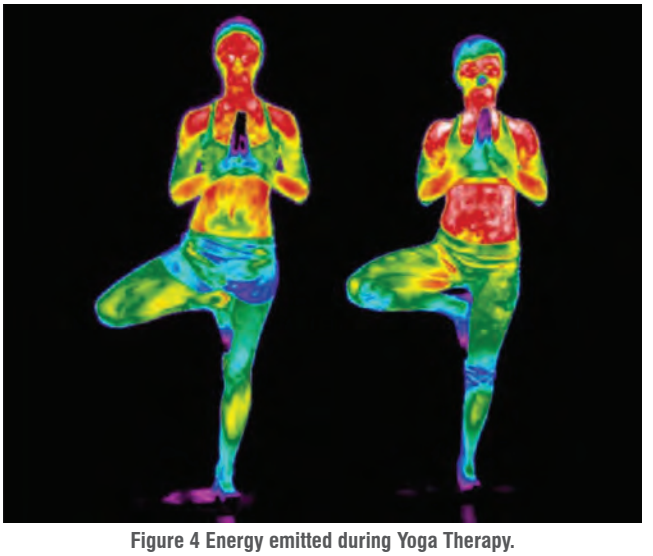

Figure 4 Energy emitted during Yoga Therapy.

of T2DM patients (with yoga-based lifestyle therapy) as compared with an invasive method of checking HbA1C, & biochemical assay of HbA1c as standard. Research is going on by using thermography camera Testo 890 to detect/diagnose the early diabetic condition by the non-invasive method by close thermal inspection of human being eyes, ear, face, palm, and foot. Also, by monitoring changes in body temperature after and during yoga.

The session has been imaged using thermography which allows us to see thermal energy or radiation, more commonly referred to as heat. Thermal Infrared is found within the Infrared region on the electromagnetic spectrum. The different colors in the images represent different levels of thermal energy being emitted from the skin's surface. In this image, the white, red, yellow and orange colors show a high level of thermal energy while the blue, black and purple show a lower level.

Customised software for Medical / Clinical Thermography

- The software generates the thermal image with Region of Interest (ROI), pointers, date, time, distance and other parameters of importance in a text file with the patient name. The data in the text file can be used by researchers in this field for analysis and R&D.
- We can stream the thermal and digital video at a time in LabView which cannot be otherwise done. Patient-specific report along with the image in a consolidated form is now possible. This finds applications in Medical Research Institutes and hospitals.

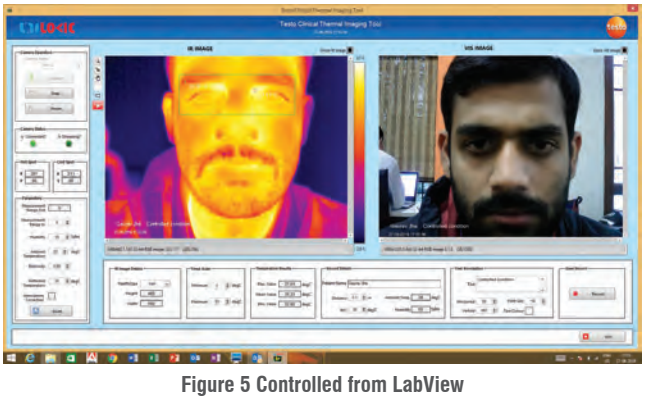

Figure 5 Controlled from LabView

From the details depicted in the above case studies, it is evident that Thermal Imager Testo 890 is an advantage for medical Thermography and serve various purposes.

Following advantages make Testo 890 the winner for Clinical Thermography:

Figure 6 Fever Detection feature

Figure 7 Testo 890

- The image resolution of 640 X 480 IR pixel and 1280 X 960 with Testo Super-Resolution
- Sequence Capturing: This helps to capture thermal images automatically with set time and number of images set. Also, with respect to the temperatures set points.
- Radiometric video of the patients for monitoring purpose is easily possible.
- Thermal sensitivity of 40mK helps them in accurate temperature difference within the selected shortest possible zone.
- Fever detection feature allows you to see the face of a human body to accurately monitor and detect febrile condition through a window in thermal imager screen against the set point for the temperature with emissivity automatically set to 0.98 for human skin. Anything beyond the set point temperature will show in red color automatically.
- Customised Software for medical/clinical thermography.

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Vesat Solar Energy Systems is promoted by passionate technocrats with cutting edge technology in solar energy, that cover domestic and industrial electricity needs, water heating systems and tailor-made turnkey projects. Vesat Solar Energy is ISO 9001:2008 certified company and are in the business of harnessing the solar energy for various applications for the past three decades, with clientele across the verticals of Industries, Educational Institutions, Hospitals, Hotels, SMEs and other major establishments. Solar Power Plant and Solar Water Heating System are suitable for Hospitals and Nursing Homes.

Vesat Solar Ongrid Power Plant mounted on the roof top generates electricity in the day. Solar power produced will be used directly for the needs. In case the load is more, then shortage will be drawn from EB. When load is less and polar power is more, the excess will be exported to TNEB through the EB meter. The electricity import from TNEB meter during the night and rainy day will be metered and charged as usual. Investment on the Ongrid Solar power plant is repaid by saving of electricity in four years' time. Hospital can also claim accelerated depreciation up to 40 per cent on the first year itself. Solar panels are warranted for 25 years and the Solar inverters for 20 years. Loans are available from Nationalised banks and NBFCs and can be repaid in monthly instalments up to five years.

Vesat Solar water heating system can be used to fulfil all the hot water needs especially for bathing requirement upto 70C. Also, laundry and boiler feed applications in the hospital canteens, hot water upto 90C can be provided through solar water heaters. This saves huge electricity/ diesel/ LPG cost and the investment on solar water heater will be repaid by saving of the fuel cost in less than two years. Life expectancy of the solar water heater is more than 25 years.

The company is sure as a progressive patient care establishment and growing industry, hospitals will consider this as an opportunity to partake in the nation building exercise by switching over to solar power for all the needs, thereby saving the mother earth from further deterioration.

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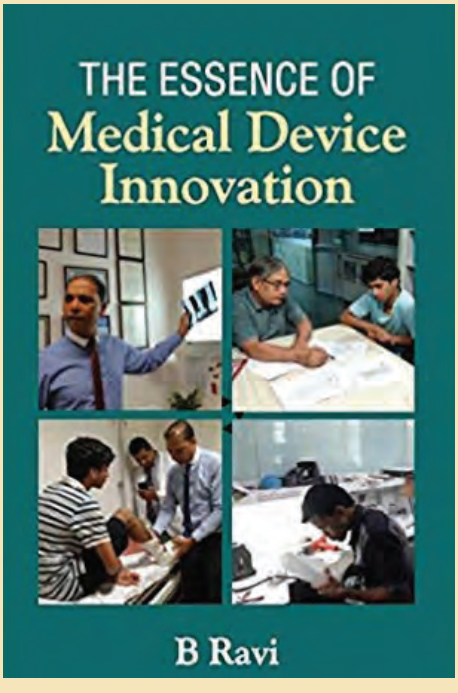
Book Review

The Essence of Medical Device Innovation



The Book: The Essence of Medical Device Innovation yields many unexplored opportunities for medical device innovation. The journey of a new device from bed (hospital) to bench (engineering) to business to bed is however, long and arduous. There are 'valleys of death' from concept to prototype, prototype to product, and product to market. It requires a capable and committed multi-disciplinary team to traverse the long path from idea to impact. The Essence of Medical Device Innovation by Professor B. Ravi narrates 16 stories of innovators from different parts of India, who created novel yet affordable medical devices at the Biomedical Engineering and Technology Incubation Centre in IIT Bombay and their partner institutes. The stories provide valuable insights about the opportunities and challenges in this field. The best ways to define, develop, deliver and deploy medical devices are laid out. There are many useful and practical guidelines for every step, making it a handy resource for all those interested in creating, supporting or using new medical devices.

The Author: B. Ravi is an Institute Chair Professor of Mechanical Engineering at IIT Bombay, Mumbai, where he heads the Biomedical Engineering and Technology Innovation Centre. This was started in 2014 with support from Government to develop affordable medical devices and train the next generation of healthcare innovators. Within a short time, BETIC has grown into a network of centres attracting both engineering and medical professionals. These collaborative teams have developed and filed patents for many medical devices for diagnosis, surgery and rehabilitation. Some of these have been licensed to start-up companies, local industry or NGOs, and have already touched many lives.

Godrej Interio launches Healthcare Experience Centre in Mumbai

Godrej Interio, recently launched 'Godrej Interio healthcare Experience Centre'. It is a hub wherein one can experience the products and services by Godrej Interio for the healthcare industry.

The healthcare experience centre was launched in the presence of Jamshyd Godrej, Chairman of the Board, Godrej and Boyce; Anil Mathur, COO, Godrej Interio along with medical experts like Dr Vivek Desai, Director, HOSMAC; Dr Vispy Jokhi, CEO, Masina; and Gautam Khanna, CEO, Hinduja.

On the launch of the new centre, Godrej said, "Our mission has always been about enriching the quality of life every day everywhere. The Indian healthcare sector is growing at a brisk pace due to its strengthening coverage, services and increasing expenditure by public as well as private players. It is, however, lacking in healing environments which focus on providing utmost comfort and safety to patients while handling the cost challenge. We are working on multiple innovations keeping in mind unique challenges faced by industry. For example, shortly we are launching world's first bed which can be converted from manual to motorised at hospital premises. It is a matter of pride to see Godrej Interio endeavouring to uplift the quality of experience at healthcare facilities through multiple innovations."

On this occasion, Godrej Interio also released insights from its first survey on the healthcare industry, 'Elevating Experiences, Enriching Lives'. The survey highlights prevalent challenges faced by the nursing staff while delivering healthcare services in India.

Max Healthcare launches daycare cancer centre in Gurugram

Max Healthcare recently launched a daycare cancer centre right in the heart of Gurugram. The centre marks Max Healthcare's expansion into standalone oncology care. The centre will cater to patients not only in Gurugram but also the neighbouring districts of Rewari, Jhajjar and Mewat. Abhay Soi, Chairman, Max Healthcare inaugurated the centre. Also, gracing the event with their presence, were Dr Harit Chaturvedi, Chairman, Max Institute of Cancer Care, Saket and Dr Bhawna Sirohi, Director, Medical Oncology, Max Hospital, Gurugram.

The new clinical model will be at par with the best in class available technology and clinical expertise along with personalised care in an 'un-hospital' like environment so that it can cater to the growing needs of patients in the neighbourhood. The amenities available at this centre are intended to enhance patient experience, while they are undergoing therapy for cancer. Few services include – rapid diagnostics for cancer detection on the same day, screening packages within two hours and DMG (disease management groups). Additionally, a 24X7 chemo-helpline answered by trained doctors and nurses will ensure that existing patients, many of whom are elderly, are provided free services round the clock in case of emergencies.

Kauvery Hospital, Chennai inaugurates neurosurgery unit

The neurosurgery unit at Kauvery Hospital was inaugurated by Dr C Vijayabhaskar, Health Minister, Government of Tamil Nadu and Air Marshall Simhakutty Varthaman recently, in the presence of Dr Aravindan Selvaraj, Executive Director, Kauvery Hospital, Chennai, Dr Shyam Sundar Krishna, Senior Consultant, Brain and Spine Surgeon and Dr Balamurali Gopalakrishnan, Senior Consultant Spine and Neurosurgeon.

Kauvery Hospital, a multi-speciality and tertiary care hospital chain, will provide comprehensive and advanced neuro and spine treatment using 3D and robotic technology. The neurosurgery department will be led by, a team of experts, Dr Shyam Sundar Krishnan, Senior Consultant, Brain and Spine Surgeon and Dr Balamurali Gopalakrishnan, Senior Consultant Spine and Neurosurgeon.

With the launch of advanced neurosurgical unit, Kauvery Hospital will be at the forefront for providing cutting-edge neurology treatment. The newly unveiled 3D microscope and robotic surgical device helps in enhancing safety and précising, improved quality of outcome, decreased surgical time and infection. In addition to the 3D microscope, the revolutionary neuro-navigation facility will help in effectively treating the tumour without damaging adjoining blood vessels and other tissues, in the brain and spine and high-end endoscopic removal of tumours.

Bhatia Hospital inaugurates cath lab

Bhatia Hospital inaugurated a cath lab department to cater to the increasing number of patients with heart-related issues in the city. The new facility will enable the hospital to offer angiography and angioplasty facilities within its premises now. The cardiology department will have heart specialists and anaesthesiologists on duty 24×7. The cath lab treatment will be carried out by Dr Anuj Basin and his team of professional expert interventional cardiologists and surgeons. Given the high volume of cardiovascular cases the hospital receives, the advanced lab will benefit a significant number of patients. Globally, cardiovascular disease is the number one cause of death in most countries. In India, more than 17 lakh people die every year due to heart diseases and by 2030, the figure is expected to increase with 2.3 crore deaths.

Bhatia Hospital will be using the advanced technology of Philips Azurion series new generation image guidance in diagnostic, interventional and minimally invasive surgery procedures for clinical application areas including vascular, non-vascular, cardiovascular and neuro related procedures. The technology will perform cardiac imaging applications like diagnostics, interventional and minimally invasive surgery procedures.

Aster to setup Innovation and Research Centre

To improve the ultimate health outcomes for patients and enhance their overall experience at all its facilities, Aster DM Healthcare is setting up Aster Innovation and Research Centre in GCC and India. Over the next three years, the centre will aim to achieve key milestones like introduction of innovative solutions for home healthcare with focus on digital primary care, establishing a rich ecosystem of digital health partners from start-ups to academia and starting digital health/ informatics/ medicine as a stream for future healthcare workers.

Joining as the Chief of Innovation, Dr Satish Prasad Rath, MD would be spearheading the innovation projects that will aim to leverage the advances in digital health research like AI, cognitive psychology, blockchain, IoT, behavioural economics etc. and on-board startups which can drive innovation. The centre will also work in a collaborative manner focussing on applied research with academia, start-ups and industry partners.

Aster DM Healthcare has the unique positioning of providing an integrated service offering that ranges from primary care (aster clinics and pharmacy) to quaternary care, along with an in-house research centre as MIMS Research Foundation and a medical college as DM Wayanad Institute of Medical Sciences (DMWIMS). The new centre will accelerate various ongoing innovation projects being led by different units, like the diabetes, sepsis and dialysis projects; and will be working to introduce an interdisciplinary subject on digital health/ medicine at DMWIMS.

ACI Cumballa Hill Hospital Opens Door for Patients

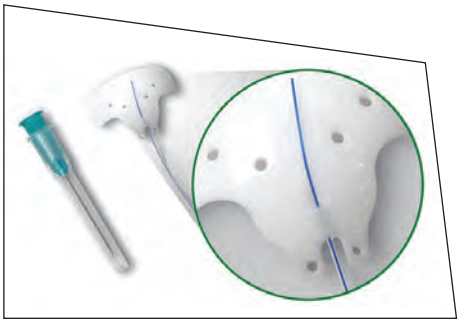
After two years of interruption in service Cumballa Hill Hospital at the Kemps Corner has finally re-opened its door for the needs of patients. The 60-bedded multi-specialty hospital near Kemps Corner will be run by the management of the Asian Cancer Institute (ACI) and will be known as ACI- Cumballa Hill Hospital.

ACI Cumballa Hill Hospital which occupies about 22,000-square-foot area with 11 ICU beds and four operation theatres offers services like the various tertiary cancer services coupled with general diagnostic radiology, paediatric healthcare, urology, orthopaedics, rheumatology, and many more. Furthermore, the hospital will also offer laser surgery and complete endoscopy suite and minimally invasive surgery including robotics.

Renowned oncologist Dr Ramakant Deshpande, who was a consultant at the Hospital before it shut down, is also a part of the new management of the ACI, feels that the completely rehauled look, equipment's and management with excellent consultant panel will benefit the people as it will be one the best of medical set-ups. "I am happy that after two years, the hospital with the seniors of the past and new team of doctors is operating in full swing, and is dedicated to providing the finest care, and best of facilities."

Dr Deshpande added, "The re-opened hospital will offer tertiary care, and the focus will be on key specialties along with a well-organised cancer-setup consisting of a specialised team of doctors from ACI.

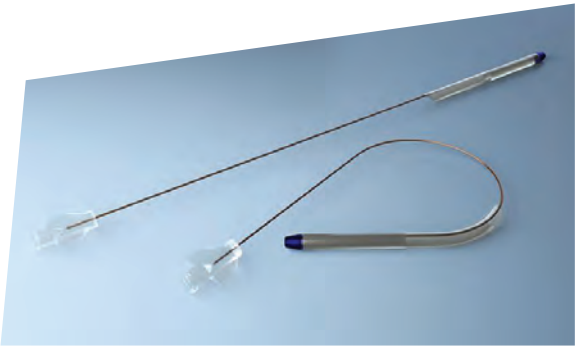
Medical Wizard



ClearPath Glaucoma Drainage

The Ahmed ClearPath glaucoma drainage device has been commercially launched in the United States. Available in 350 mm2 and 250 mm2 sizes, the implant includes a flexible plate with a contour that conforms to the curvature of the eye and suture fixation points positioned more anteriorly on the device in comparison to other valveless drainage devices. It is designed to address tube shunt surgery challenges and comes with an optional pre-threaded ripcord and a 23-gauge needle. One feature of the Ahmed ClearPath implant is a flexible plate with a contour that closely conforms to the curvature of the eye. In addition, the suture fixation points are positioned more anteriorly on the device compared to other valveless drainage devices. By making the suture points more visible and accessible, the company said the surgeon may find securing this implant to the eye more convenient. The device or procedures are reserved for mild to moderate glaucoma cases. ✚

Sinusleeve



Sinusleeve is a single-use, disposable device used for treating chronic sinusitis, according to the Miami-based company. Sinusleeve is an FDA 510(k)-exempt Class 1 device that the company said it will begin marketing immediately to otolaryngologists in Florida. The patented device fits over rigid, flexible and reusable positioning and suction devices by way of a conforming sleeve. It can accommodate instrumentation of varying sizes and curves, allowing access, simultaneous suction and balloon dilation all in one. It accommodates instruments of varying sizes and curves and its long inflation tube provides positioning options by adapting its reach to a variety of instruments. This allows the surgeon to gain access to hard-to-reach blocked sinuses. During a balloon sinuplasty, the Sinusleeve will be dilated within the patient's nasal cavity, opening up closed or blocked sinuses to provide relief from the associated chronic pain. When the device is removed from the patient the sinus remains open, with an enlarged ostium to allow trapped fluid to drain. ✚

'SAVIOUR' blood donation app

Transasia Bio-Medicals, unveiled 'SAVIOUR', a location-based blood donation app that is available free to everyone. The new app is likely to empower those who have the resources to acquire blood but lose out on timely help due to inadequate blood bank infrastructure. It connects patients to the nearest donors, and notifies the patient in real-time on the number of donors who accept the request. Additionally, it sends out notifications to the registered donors on the need for blood based on their type. Reminders sent by the app, ensure that the donors do not forget about their commitment. Once a donation has been made, a donor is advised to not donate blood in the recovery period. At this time, the app goes into a precautionary dormant state, in order to ensure complete safety of the donor. Moreover, the app makes it very convenient for donors; they just need to check-in at the nearest hospital through the app, a step that helps save time and ensure credibility. Donors are incentivised with personal goodwill points, based on the number of donations and lives saved. ✚

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FORTHCOMING EVENTS

Expodent Mumbai
Location: Bombay Exhibition Centre (BEC), Mumbai
Date: 12th to 13th October 2019

World Dental Show
Location: MMRDA Grounds, Mumbai
Date: 18th to 20th October 2019

Asia Labex The Laboratory Show
Location: Gujarat University Convention and Exhibition Centre (GUCEC), Ahmedabad
Date: 07th - 09th November 2019

Lab Expo India
Location: Gandhi Ground, Ambala Cantt
Date: 15th to 17th November 2019

Medical Expo Lucknow
Location: International Convention Center, Lucknow
Date: 21st - 23rd November 2019

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

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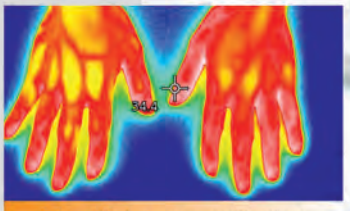
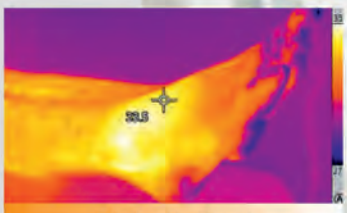
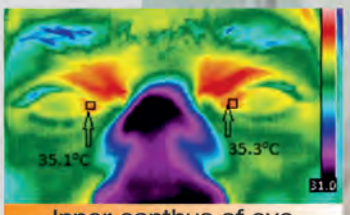


Identifying vasodilation



Diabetic Foot



Inner canthus of eye in Diabetic patient

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Thermal Imaging - A Boon to Medical & Clinical Research

- Mass fever detection
- Varicose vein
- Anthropometric measurement
- Identifying Vasodilation
- Detection of Breast Cancer
- Identifying blood circulation disturbances
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- Monitoring of emitted energy during Yoga therapy
- Screening of joint inflamation and rheumatoid arthritis
- Determining symptoms of Diabetes

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Thermal Imager

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