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InnoHEALTH

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**INNOVATIOCURIS WISHES ALL ITS READERS AN YEAR FULL OF PEACE & HAPPINESS!
WELCOME 2020!**



**MEDTECH DEVICES:
REVOLUTIONIZING
DIAGNOSIS OF EYE
DISORDERS**

**INNOVATIVE BIOMARKERS
FOR EARLY DIAGNOSIS AND
TREATMENT OF LIFE-
THREATENING DISEASES**

**LITHUANIA-INDIA
COOPERATION: SYNERGIES
BETWEEN THE TWO
REGIONS!**

**HOW PMBJP IS PRO-
VIDING AFFORDABLE
HEALTHCARE TO ALL**

**INDIA - NETHERLANDS
LONG-TERM RELATIONSHIP:
NOT A ZERO-SUM GAME**

**REAL-TIME MONITORING THROUGH
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INDIAN HEMP: NEGLECTED PHARMACOLOGICAL TREASURE TROVE

Written by Dr. Sarita Jaiswal



Hemp or Cannabis sativa with limited concentration of an active psychotropic substance tetrahydrocannabinol (THC) <math><0.3\%</math> is a promising industrial crop. It is known for its use in paper industry, textile, biodegradable plastics, paint, biofuel, food and feed. Historical evidence of its use can be traced in ancient literature Atharvaveda (1500 BC); Sushruta Samhita for treatment of phlegm and diarrhea and Persian medical text of 18th century (Unani-Tibbi). Cannabis sativa, due to its close relative Cannabis indica (high THC Cannabis), always remained under shadow. It can be a useful source of non-psychotropic cannabidiol (CBD). The recent advances in CBD research and identification of Cannabinoid

receptors in human revolutionized its importance in western pharmacology. The use of flowers/buds for cannabidiol (CBD), a non-addictive substance, is extremely useful for pharmacological formulation managing chronic pain, anxiety, inflammation, depression etc.

The processing of flower and buds of Cannabis is illegal in India. Flower and bud trichomes release psychotropic substances formulated as charas, hashish and ganja. Phytocannabinoids accumulate in the secretory cavity of the glandular trichomes, which largely occur in female flowers and in most aerial parts of the plants. The seeds and leaves are permitted for usage depending on state policy though licensing. Ironically, since ages people

in India have been consuming bhong milkshake (a preparation of C. sativa or Vijaya) as sacred drink during Lord Shiva related rituals, though its cultivation was legally banned in 1985 by Narcotic Drugs and Psychotropic Substances Act. This act came after International Treaty of 1961 regarding Narcotics Substances.

Mechoulam (2005) described hemp as "neglected pharmacological treasure trove". Cannabinoids are now recognized more because of their relation with human endocannabinoid system which includes two G protein-coupled cannabinoid receptors (CB1 and CB2) and two ligands (anandamide and 2-arachidonylglycerol). They can modulate variety of physiological

responses such as pain, memory, inflammation, appetite, behavior etc. In contrast to Cannabinoids, THC is partial agonist of above mentioned receptors with higher binding with CB1. This may be associated with its known psychoactive abilities. Even though THC's are more potent as a drug which can be used for various treatment protocols, the associated side effects makes it inferior candidate of choice in contrast to CBD. CBD can also reduce THC negative effects and help in improving efficacy of Cannabis based products. CBD is very promising cannabinoid and has been successfully used in preclinical studies of nervous system related diseases (epilepsy, schizophrenia etc.). However, at present, its use in therapeutic treatments is still limited.

In India, some States have been issued license to produce hemp either in collaboration with Industrial Association, CSIR based pharmaceutical initiatives or to fulfill requirement of R&D based activity under AYUSH regulations. Hemp is considered as a source of biomass, fiber, and high-value oil. Fibers based textile market is legal in India, however, at present, it is facing fierce competition. Availability of cheaper yarn from

CBD is very promising cannabinoid and has been successfully used in preclinical studies of nervous system related diseases (epilepsy, schizophrenia etc.). However, at present, its use in therapeutic treatments is still limited.

Bangladesh (full exemption of basic customs duty) and China's favor to Vietnam (by waiving import duty) is further fueling the competition. Indian hemp based textile industry is still in nascent stages. Despite high technological advancement available in India, the use of Hemp in providing CBD moieties for new global pharmaceutical formulations is still not a reality. Even our ecosystem is not ready due to non-availability of legal backing; technological innovations for using Hemp based fabric for new quality material; lack of standardization of hemp cultivation with targeted % of CBD as being done in other parts of world and also state-wise variation in implementation of the law.

Industrial uses of Hemp provide significant business opportunity, for example some companies have

developed eco-friendly bricks made out of hemp. These bricks absorb carbon monoxide and are durable as cement bricks. The production of hemp bricks can provide economic benefit venture for Indian farmers. This brick-based material was used in preserving Ellora Caves for 1500 years. In India, the major problem in any such venture is "middlemen policy" which makes end product expensive with least benefit to the farmer (licensing cost etc.). Permission for contract farming lacks legal support. India, unlike developed countries, neither has strict regulation nor it is relaxed enough to cater as uniform business opportunity. Furthermore 'stigma' attached to hemp cultivation (confusion with marijuana) and lack of industrial linkage to farming units with direct export potential further reduces its industrial potential.

On the other hand, without proper monitoring and uniform policy, relaxation of laws might aggravate the situation at ground level. As per understanding of Ayurvedic perspective, the plant resin (especially from wild plants at 2000 or 3000 m height) is charas which is an extremely powerful banned narcotic drug. However, its leaf based formulation bhong is used in Ayurvedic preparation as stimulant, aphrodisiac and also as sedative. The use of CBD in Indian Ayurvedic Formulations (with traditionally known 191 Ayurvedic preparations for 29 different diseases), regulated and approved by AYUSH after clinical testing, are still in a nascent stage. AYUSH medicines still need to bridge gap between their standards with globally



Testimonials for InnoHEALTH 2019; New Delhi: 4-5 October 2019

Prof. S Venkataramanaiah, IIM Lucknow, India

It is our duty to support the great work that your team is doing. I commit myself that I will do my best to improve healthcare ecosystem with your valuable guidance and support.

Dr. S B Sinha, Biomedical Engineering Society of India

Congratulations for successfully organising InnoHEALTH 2019. I am grateful to you for making me a part of it.

Dr. Kamini Khillan, Sir Ganga Ram Hospital, India

Thank you very much for the opportunity. It has been my honor to be associated with InnovatioCuris - promoting talented newcomers and providing them opportunities.

Dr. Sonal Saxena, Lady Hardinge Medical College, India

Heartiest congratulations on completion of a successful event. I hope that the deliberations at the conference will give the right impetus to Indian Healthcare sector.

Dr. Sunita Chauhan, Monash University, Australia

Once again, many thanks for the invite and for the kind words. It was a great forum with interesting and valuable interactions!

Dr. Naveen Nishchal, Cygnus hospitals, India

Thanking each one of you for the great learning session today!

Dr. Tapan Shah, Voice of Healthcare, USA

It was a great experience to witness amazing showcase of talent and content discussion. I would be delighted to contribute in any capacity you wish for taking this initiation to the next step on a bigger stage.

Dr. Ravi Gaur, Oncquest Laboratories, India

Please accept my sincere appreciation & thanks for the support and being part of my panel discussion "Innovations in medical devices & diagnostics" at the conference.

Filipe Assoreira, Nano4Global, Portugal

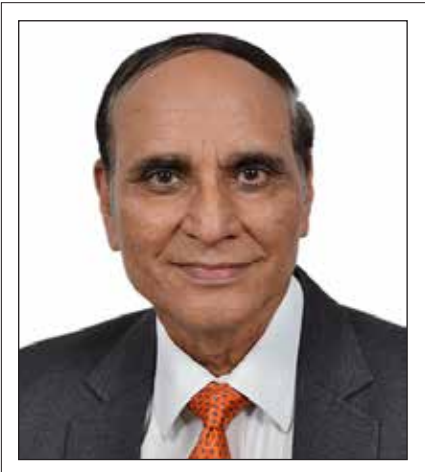
It was a pleasure and privilege to meet you all and have this fruitful panel discussion.

Dr. Ashwin Naik, Vaatsalya Healthcare, India

Thank you all for an engaging discussion today. Looking forward to continuing interaction.

Maj Gen (Dr.) Jagtar Singh, India

Thanks for the wonderful interaction during the session on "Innovations for hospitals & insurance companies".



Dr. V K Singh

Editor-in-Chief & MD,
InnovatioCuris

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“ We have been juggling with new concepts, ideas, design to achieve healthcare but failed on many accounts as fund utilization and its impact could not be monitored. We understand there are many problems and galore, we need to address cost optimization and bring regulation to monitor the quality and cost. ”

EXECUTIVE OPINION

UNIVERSAL HEALTHCARE: SWACHH INDIA, FIT INDIA AND NEW INDIA

India is a country on transition trying to leapfrog from bullock cart economy to land on moon, trying to make its place in the world from emerging economy to a developed economy. It is a country of 1.3 billion population with 276 million that live below \$1.25 per day. Its health resource indicators show: there are 65 doctors, 130 nurses and 130 hospital beds for each 1,00,000 population. WHO recommends 3.5 beds per thousand population while we have only one bed per thousand population.

India has 70% of its population in villages with only 30% of medical assets of the country and 30% of urban population have 70% of total medical resources. Public health is totally neglected, government has launched many initiatives like Swachh Bharat, Fit India, New India and Yoga etc. that seem too little and too late. The curative healthcare needs to be improved in public hospitals to provide quality healthcare to people Below Poverty Line as service in private hospitals is unaffordable and having many ills. Ayushman Bharat is trying to do a bit of what is required to strengthen the healthcare in government hospitals.

We have been juggling with new concepts, ideas, design to achieve healthcare but failed on many accounts as fund utilization and its impact could not be monitored. We could not achieve Health For All by 2000, and moved to NRHM, National Health Mission and Sustainable Development Goals which are not achieved as desired. It can thus be termed as old wine in a new bottle. **Health is a state subject hence every state has its different success story.** Every state needs to strengthen primary healthcare and quality living should be provided on war footing for its population. We understand there are many problems and galore, we need to address cost optimization and bring regulation to monitor the quality and cost.

Everyone is talking about Universal Health Coverage and Technology to move things faster. The awareness of various initiatives is not there, even for the educated class. We are trying to make people aware through various knowledge platforms of InnoHEALTH - magazines, webinars, conferences, club meetings, etc. Would like to encourage the ecosystem to share their experiences and concepts through this magazine which is not a journal but a magazine for the commoner. Would like to take up doable ideas of community at different forums. We are trying to percolate information right up to the last mile.

Vijay Singh

InnoHEALTH magazine
thanks all its contributors, readers, editors and advisors for their support
and
conveys its warm wishes for a happy new year ahead



TELEMEDICINE FORCE MULTIPLIER FOR DELIVERY OF HEALTHCARE

Written by Maj Gen A K Singh (retd)

In any developing country, there is huge inequality in healthcare distribution due to various reasons such as poor infrastructure, poor communication, inadequate transport facilities, etc. Doctors find it difficult to stay in rural centres due to the above reasons.

It is also well known that 65% to 75% of the population resides in villages which are scattered and not well connected by roads. Hence, the rural

India now has a robust information technology manpower and the established communication technology is freely available at the village level, mobile phone applications in healthcare and wellness are being used in the rural bridge.

population has to travel nearly 8-10 kilometers to access basic healthcare

in nearby towns. They spend most of their out of pocket health expenses





(L-R) Dr. M.C Mishra, President, MGUMST and Dr. R.K Sureka HOD Neurology Department, MGUMST giving telemedicine consultation at MGUMST

and at many times borrow money for these expenses.

Keeping this in the background, governments have been working on Sustainable Development Goals launched by the United Nations. Aim of these goals is to ensure healthy lives and promote well-being at all ages. Sustainable health is a huge challenge and it can only be achieved by adopting technology and innovations to improve healthcare delivery.

India now has a robust information technology manpower and the established communication technology is freely available at the village level, mobile phone applications in healthcare and wellness are being used in the rural bridge. Telemedicine is the combination of its communication network and healthcare promises to reach the rural urban divide and it is also the cheapest and fastest way to reach the unreached population.

Government Initiatives in Tele-medicine

Numerous telemedicine projects are now running in the country under the aegis of the National Health Mission. Rajasthan government has initiated PPP model telemedicine project on BOOT (build own operate & transfer) concept. The Global Health System Kolkata is the vendor who has been operating the Telemedicine project for the past

3 years. Mahatma Gandhi Medical College and Hospital Sitapura Jaipur have signed MOU with the vendor for rendering telemedicine consultations to the periphery (100/ 150 nodes).

Mahatma Gandhi University of Medical Sciences & Technology (MGUMST) Experience

The experiences gained by providing healthcare through telemedicine is very interesting, it may be noted that the telemedicine consultations have grown with each passing year. It was interesting to note that the tele-dermatology was increasing on analysis, it was realized that dermatology revolves around photography and visible rules to make a diagnosis.

The numerous efforts made over the years can be analysed based on number of consultations: while dermatologists data showed 4011 consultations in 2017, it grew to 31436 in 2019. On the other hand, general medicine was ranging 4759 consultations in 2017 and dropped down to 2889 consultations in 2019. Cardiologists/CVS/cardiac surgeon consultations were 324 in 2017 and dropped down to 238 in 2019. Obstetrician/gynecologist showed an increase from 854 consultations in 2017 to 1135 in 2019. Oncologist consultations were 33 in 2017 and dropped to 29 in 2019 while orthopedic was at 525 in 2017 and increased to 747

in 2019. Pediatrician/neonatologist was at 6260 in 2017 and drastically reduced to 585 in 2019. Overall consultations during the years 2017-2019 were 105,269.

Conclusion

Telemedicine is the future healthcare system as it reaches the unreached and it allows the remote health workers to avail consultation with territory care specialists in urban areas. The growing number seeking teleconsultations from the peripheral medical setups is a proof that telemedicine delivery of healthcare is now being adopted by the rural population.

Major General Ashok Kumar Singh (retd) from Indian Army has served all over India - Lucknow, Assam, Mizoram, Nagaland, Agartala, Delhi, Pune, Srinagar, Udhampur and many other places and been on official duties and attended conferences in Austria, Bhutan, Canada and Sweden. His area of interest is rural health through telemedicine. He is currently serving as Advisor in Health Informatics at Mahatma Gandhi University of Medical Sciences and Technology at Sitapura, Jaipur. He is also running BSc course in Hospital and Health Information Administration.



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PERSONA

LITHUANIA-INDIA COOPERATION: SYNERGIES BETWEEN THE TWO REGIONS!

H.E. Julius Pranevičius, currently the Ambassador of Lithuania to India, has also served as Consul General at the Consulate of Lithuania in New York; Ministry of Foreign Affairs in Lithuania in various capacities including Director & Deputy Director of EU Council Presidency Department, European Union Department Head/ Counsellor/ First secretary of Institutional Affairs Division, Third Secretary/Attaché of Law Approximation Division with European Integration Department, Second Secretary with Permanent Representation of Lithuania to the European Union and many more. Sachin Gaur interviews him on his viewpoint on Lithuania-India cooperation and emerging partnership between the two nations in the times to come.

Q. Tell us about your stay so far in India? What are the obvious synergies you see between the two regions?

It is my second year in India and the potential I see for Lithuania-India cooperation amazes me. I observe high interest of Indian business community in establishing economic ties with Lithuania and I view this as a mutually beneficial venture for both the countries. We see India as an emerging economic, scientific and technological superpower. It is expected to play a major role in the global economy in the 21st century. For Lithuania – as a small, dynamic and open economy – India represents a huge potential and plenty of new opportunities which are not yet fully discovered.

Though it might seem that our countries are so different in size of land and population, climate and culture, there are more synergies than one might think. The kinship of Lithuanian and Sanskrit languages, similarity of Pre-Christian pagan culture to Vedic Indian culture, popularity and application of Gandhian ideas on



Lithuania's path to independence and many more historic and cultural connections bind Lithuania and India across centuries.

Contemporary relations between Lithuania and India have also been very cordial. Both India and Lithuania are active in information technologies, financial, business consulting services and pharmaceutical sectors, we value education a lot and people are the most important natural resource for us.

Q. Lithuania has been at the forefront of biotech research. Tell us the background of this success story. What other regions can learn from it? Any lessons for India?

The history of the life sciences sector goes back to 1975 when the Institute of Applied Enzymology was established. The Institute quickly became a leader in the field of classical fermentation technology research. The name of the institute changed several times and in 1983 the focus of the institute's activities shifted to development and practical application of gene engineering methods. After Lithuania regaining its independence, the institute was renamed as Institute of Biotechnology in 1992. Due to its rich scientific heritage, Lithuania's biotechnology industry is outpacing developments in many larger central and eastern European countries.

Increasing number of companies are the spin-off from the well-established local universities. These companies became successful in the area of their activities, thereby catching the attention of several global leaders in

the area of biotechnology. As a result, successful Lithuanian biotechnology companies were acquired by foreign leaders of the market, such as Thermo Fisher Scientific, Moog, and Sicom Biotech/Teva Group.

Thermo Fisher Scientific came to Lithuania in 2010, when the company acquired a leading Lithuanian biotech company Fermentas International Inc. Fermentas had approximately 500 employees and offered a broad range of high-quality molecular and cellular biology research tools, including reagents, enzymes and kits. Thermo Fisher Scientific is one of the several large western companies, which have recently entered the Lithuanian market through acquisitions.

After this acquisition, Thermo Fisher Scientific continued to expand its investments in Lithuania. In September 2012, it opened a new molecular biology research centre of excellence in Vilnius, Lithuania. The new 10,000-square-meter centre supplies a wide range of life science applications, providing molecular, protein and cellular biology products. It aims to strengthen R&D and manufacturing presence in Vilnius which serves to growing biotechnology community in eastern Europe.

In 2009, Moog Medical Devices acquired Lithuanian company Viltechmeda, which manufactures, sells, and repairs medical equipments, devices for infusion and syringe pumps. The company announced investing another \$5.3 million in 2010 to establish a service centre and expand its research and technology brand.

Israeli company TEVA Pharmaceutical Industries, which is the second largest generic pharmaceutical company in the world, acquired Lithuanian biotechnological pharmacy company Sicom Biotech in 2006. Now \$30 million of foreign direct investments is being made into the development of a new multifunctional Sicom Biotech/Teva plant, TEVA's biosimilar cancer drug tbo-filgrastim, which won FDA approval is based on a technology developed in Lithuania.

Also, Lithuania has a pool of well-educated talents in biotechnology, medicine and other high-tech industries. Our start-up ecosystem grew 5 times during the last 5 years, and we have strong start-ups in life sciences sphere, who are attracting attention from global corporations with their innovative and disruptive solutions.

The mix of our early dedication to life sciences, talented people, good infrastructure, collaboration between business and academia and well-developed life sciences ecosystem made Lithuania a great place to thrive in life sciences sector.

Q. Your flagship event in Lithuania for biotech is Life Science Baltics, why Baltics, why not Lithuania?

In general, we are a one-stop-shop for life sciences as a region, even though each country developed its own scope of innovations and technologies. When it comes to genetics & heredity, personalized medicine and e-health, Estonia is on top of the ladder. Latvia has a very advanced and well-developed pharmaceutical industry, meanwhile Lithuania offers a wide range of innovative biotechnology and medical devices. Hence, Life Sciences Baltics forum has intention to represent all three countries and offers a chance to meet the leading regions' stakeholders in one place.

But Life Sciences Baltics is not only about Lithuania or Baltics – it is the second biggest conference in the region, so we can talk about all northern Europe at least. As the event proudly introduces itself – Life Sciences Baltics is the only Baltics' life sciences forum where things are put into motion. Gathering global biotechnology, pharmaceutical and medical devices leaders, the forum provides a unique opportunity to turn ideas into projects, goals into actions, new connections into contracts or small talks into hypotheses for the future researches.

Q. How can Indian companies benefit from Lithuanian partnership and vice versa? What is the opportunity?

The rapidly growing life sciences sector in Lithuania is driven by two key trends – a well-established R&D base and favourable environment for business and investments. Life sciences sector companies offer cutting-edge technologies for their partners to revolutionize this sector and find the most innovative solutions. Therefore, expanding Lithuanian businesses are very open to new partnerships. Even 90% of life sciences products and services are exported across European countries, USA, Russia, China, Japan, etc. Thus, companies of Indian origin shall be interested in a robust and growing life science industry in Lithuania. It may be a “gateway” to enter the European market and opportunity to expand business into a market of over 500 million inhabitants.

Q. There is a trivia about Indian languages like Sanskrit to be recognizable by Lithuanian people? Tell us more about it?

Lithuanian is considered the oldest surviving sister of Sanskrit in Europe. Many of the words we use in our everyday language are still recognizable to a modern Hindi speaker. For example, we say dievas (dev) when we appeal to God, labas (lābh) when we greet each other wishing wealth and prosperity, and sapnas (sapnā) when we share our dreams and visions. Common words are rooted in practically all areas of everyday life: human body parts (nakh – nagas, aśru – aśara), nature elements (agni – ugnis, vāyu – vējas), family (devar – dieveris, sasur – šešuras), household, and religion. Most importantly, our connection with Sanskrit serves as a defining element of our national identity. To promote this awareness, our Embassy, in collaboration with the Lithuanian Language Institute, has produced a small dictionary containing 108 words which are identical in Sanskrit and Lithuanian. Scholars say many more such words could be added in the future editions.

Interviewed by **Sachin Gaur**,
Executive Editor,
InnoHEALTH Magazine

INDIA - NETHERLANDS LONG TERM RELATIONSHIP: NOT A ZERO-SUM GAME



Written by Parthvee Jain

The ties and relations with the Netherlands date back to the early 15th century when the Dutch entered the Mughal empire in lieu of trading.

On 15th October 2019, the Netherlands partnered with India for the 25th Technology Summit held in New Delhi. This two-day summit was inaugurated by H.M. King Willem-Alexander of the Netherlands and Hon'ble Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare, Dr. Harsh Vardhan calling upon experts, academicians, industries, entrepreneurs and researchers of the two countries to work together towards finding solutions to not only address mutual challenges and problems of the two countries but also to address bigger global issues like climate change.

Noting that the two countries had

India has nurtured 40,000 start-ups in the last few years out of which 31 have achieved “Unicorn” status, said Dr. Vardhan. He further mentioned that the Netherlands too has a flourishing start-up system and is a great opportunity for young and budding entrepreneurs.

flourishing ties in science, technology and innovation, Hon'ble Minister Dr. Vardhan said, “today we not only mark one decade of collaboration in research, but also celebrate 400 years of friendship and 72 years of diplomatic ties with the Netherlands”. He added “countries such as ours need to combine forces to seek sustainable answers to pressing global issues. These include poverty, hunger, job creation, energy security, human rights, and gender inequality. At the same time, we need to work together on climate

change, terrorism, and depletion of natural resources”.

India has nurtured 40,000 start-ups in the last few years out of which 31 have achieved “Unicorn” status, said Dr. Vardhan. He further mentioned that the Netherlands too has a flourishing start-up system and is a great opportunity for young and budding entrepreneurs.

Keeping in mind the centuries old partnership between India and the Netherlands, this summit marked

celebration for 10 years of cooperation in Science, Technology and Innovation space, especially in the areas such as urban water management, smart energy grids, and anti-microbial resistance, among others.

The summit was organised by the Department of Science and Technology (DST) and Confederation of Indian Industry (CII) in New Delhi in partnership with the Netherlands at J W Marriott, Aerocity, New Delhi.

Professor Ashutosh Sharma, Secretary, Department of Science and Technology, Government of India stated that time was now right for the cooperation to leapfrog into new areas like artificial intelligence, big data, the internet of things, water and food processing

among others. He also mentioned that the two countries are looking forward to sign around 30 MoUs in this regard.

To make it worth the distance and to strengthen the ties and explore deeper collaborations, several B2B meetings were also organised for the Netherlands delegation accompanying King H.M. Willem-Alexander and Queen Maxima. InnovatioCuris (IC) was given the responsibility to create personalized B2B meetings for the healthcare delegation that included companies from various healthcare domains like vaccine, education, technology, digital health and public health.

With the participation of about 200 Dutch companies, knowledge institutions, thought leaders,

innovators and start-ups, the summit stimulated new opportunities by providing a platform for potential partners from the two countries.

As rightly said, entrepreneurship and technology have no borders, India and the Netherlands are ready to join India's quest for development. The two-day summit provided a high profile and wide-ranging platform for businesses to forge partnerships and boost innovation, investment and trade.

Parthvee Jain, Editor, InnoHEALTH, is an engineering graduate with specialization and interests in fields like Biotechnology, Healthcare, Food Processing and Nutraceuticals. Connecting European Healthcare innovation leaders with the Indian healthcare system and pioneers, she heads the market access program and partnerships at InnovatioCuris: impacting organizational performance through expert research, analysis and evaluating market competitive conditions, current and emerging trends, and industry-specific solutions.

With the participation of about 200 Dutch companies, knowledge institutions, thought leaders, innovators and start-ups, the summit stimulated new opportunities by providing a platform for potential partners from the two countries.





THEME

HOW PMBJP IS PROVIDING AFFORDABLE HEALTHCARE TO ALL

Written by Ruchika Puri

With the vision of providing quality Generic-Medicines to all citizens of the country, several regular and fiscal measures have been taken time to time by the government. With government's constant efforts and people's unbreakable trust, has transformed Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP) from a concept to reality, with a chain of over 5600 Jan Aushadhi Kendras.

India is the largest supplier of generic drugs in the world, and Indian pharmaceutical companies have

been trying to push down the cost of medication in many countries across the world. To ensure every Indian has access to quality healthcare at affordable prices, an initiative with the name of Jan Aushadhi Scheme was being implemented through Bureau of Pharma PSUs of India (BPPI) which is a society set up by five pharma PSUs and works under Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India.

Though 'Jan Aushadhi Scheme' was launched by Department of

Pharmaceuticals in November 2008 across the country, the scheme didn't take off and by 2014, only 80 stores were functioning.

In 2015, committee of secretaries was set up by Hon'ble Prime Minister Narendra Modi to look into the health related issues which had recommended that "Jan Aushadhi Kendra" should be expanded and the budget of 2015-16, announced a target of 3000 kendras.

For achieving the target of 3000 stores, scheme was revamped. A franchise like model was adopted



and an intensive media campaign in national and regional newspapers inviting individual entrepreneurs to apply for establishing and running PMBJP kendra was undertaken. In response, the applications received were scrutinized and eligible applicants were assisted with drug license and other infrastructure facilities to open the kendras. By December 2016, target of 3000 stores was achieved and the name of the scheme renamed as "Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana" (PMBJP). In September 2019 more than 5600 PMBJP Kendra were functional across the country.

"I have monthly income of 12,000. I had to spend 8000 to 10,000 per month for my son's health, but with PMBJP I get those medicines at 1000-1200. Now, I save 8000 to 9000 per month and can provide regular medicines to my son" shared Karni Singh Rathod, a beneficiary from Bikaner, Rajasthan.

Objectives of PMBJP

- Ensure access to quality medicines for all sections of population especially for the poor and the deprived ones.
- Create awareness about generic medicines through education and publicity to counter the perception that quality is synonymous with high price only.
- Generate employment by engaging individual entrepreneurs in opening of Jan Aushadhi Kendra.

Milestones Achieved

- As on 30th Sept, 2019, 5624 Jan Aushadhi Kendra are functional across the nation.
- 1000 medicines and 154 surgical and consumables available in the basket for sale through.
- Central Warehouse is established as per WHO guidelines for ensuring better quality storage and logistics services.
- 3 regional warehouses have been established.
- A distribution network of 8 Chemicals & Fertilizers agents and 57 distributors spread over different states is functional.
- Implementation of IT enabled (SAP based) end-to-end Supply

Chain Management System.

- 'Point of Sale' software application at all PMBJP kendras.
- 729 districts have been covered.
- A mobile application "Jan Aushadhi Sugam" to enable people to search Jan Aushadhi generic medicine stores has been launched.
- Jan Aushadhi Suvidha Sanitary Napkins are now available at Rs 4 per pack.

Prices of Jan Aushadhi Medicines as compared to branded medicines

A medicine under PMBJP is priced on the principle of a maximum of 50% of the average price of top three branded medicines. Therefore, the cost of the Jan Aushadhi Medicines is cheaper atleast by 50% and in some cases, by 80 to 90% of the market price of branded medicines.

166 medicines – cheaper by 80-90%
 073 medicines – cheaper by 70-80%
 080 medicines – cheaper by 60-70%
 383 medicines – cheaper by 50-60%

PMBJP has drastically brought down the prices of quality medicines and making medicines available within the reach of large section of population, especially the poor.

The endeavor of Bureau of Pharma Public Sector undertakings of India (BPPI) is to make available all therapeutic medicines at the PMBJKs. A list of medicines with their MRPs which are presently available are given under the heading "Price List of PMBJP medicines" on the website: janaushadhi.gov.in.

Jan Aushadhi Medicines are procured on an Open tender basis from WHO (World Health Organisation), GMP (Good Manufacturing Practices) compliant manufacturers only. Jan Aushadhi Medicines undergo two stage stringent quality check process at the nationally accredited labs.

How the PMBJP is benefiting the Jan Aushadhi Kendra owners

The Scheme is operated by government agencies as well as by private entrepreneurs.

- For PMBJP kendras run by government agencies, a financial

support of Rs. 2.50 lakh is given by Department of Pharmaceuticals of which Rs 1.00 lakh is for medicine and the rest for furniture & IT infrastructure, Space is provided free of cost by concerned state government.

- PMBJP Kendra opened by any individual entrepreneur is extended an incentive of 15% of monthly sales up to Rs. 2.5 lakh in total. Individual SC/ST and differently abled entrepreneurs are provided medicines worth of Rs. 50,000/» in advance.

"By the year 2024, 10,000 Jan Aushadhi stores will be opened in the country. The aim is to have at least one such store at every block level," CEO BPPI Sachin Singh. Urging the people to buy the generic medicines from the nearest Jan Aushadhi stores, he said the medicines sold at these stores are cheaper and consumers must take the benefit.

"Health is one sector which is on priority of our government. Government is continuously working to provide affordable treatment and medicines at cheaper prices. Today if a patient starts his/her treatment, 70% of money goes on buying medicines," Hon'ble Minister of State for Chemicals and Fertilizers Mansukh L Mandaviya said. He further said that the demand of generic medicine is growing and Jan Aushadhi stores across the country are serving 10-15 lakh people per day. He also urged the doctors to prescribe generic medicines and provide affordable healthcare.

Ruchika Puri, a Delhi based freelance writer, specializes in writing articles about the various healthcare schemes launched by the Government of India. Given her passion for writing, she likes to use her expertise and insights to create awareness among people about the healthcare system prevalent in India – like making healthcare affordable & accessible through Government's Pradhan Mantri Jan-Aushadhi Pariyojana (PMBJP).



BELLY BUMP: WITH DENTAL CARE

Written by Dr. Vishaj S. Maru

“There is an old wives’ tale that you lose a tooth for each baby, which is false, and the reasons could be due to the underlying changes during pregnancy.” Patient arrives, and you greet and ask about her health. She beams a beautiful smile and says that she’s expecting a baby! How do you reassure her that the old wives’ tale of losing a tooth for every baby is not going to happen to her?

Studies have shown that women who have tooth problems (periodontal disease) are more likely to give birth prematurely, have babies with a low birth weight, and possibly even more likely to miscarry. There are infections causing miscarriage which are Toxoplasmosis, a protozoal infection, may cause a miscarriage, death of the fetus, and serious birth defects.

If you are planning on getting pregnant, it is more convenient to have elective procedures done before you conceive. Pregnancy and dental work questions are common for expecting moms.

Listeriosis, a bacterial infection, increases the risk of preterm labor, miscarriage, and stillbirth.

Pregnancy brings a unique situation. Being pregnant comes with many responsibilities - and the way you care for your teeth is no exception. As your body progresses through each term, your cells increasingly retain fluids, including your gum tissues. Coupled with elevated hormone level, this can cause a heightened inflammatory

response to the presence of plaque, resulting in puffy, inflamed gums in expectant mothers. Those puffy gums make you more susceptible to periodontal disease.

If you are planning on getting pregnant, it is more convenient to have elective procedures done before you conceive. Pregnancy and dental work questions are common for expecting moms. Preventive dental care and annual exams during pregnancy are

not only safe but are recommended. Thus, you are less likely to have dental problems during pregnancy if you already have good oral hygiene habits. Few tips to follow - brush your teeth at least twice daily with fluoridated toothpaste, floss between your teeth, visit your dentist regularly.

Dental care precautions during pregnancy, such as cavity fillings and crowns, should be treated to reduce the chance of infection. If dental work is done during pregnancy, the second trimester is ideal and to maintain healthy circulation by keeping your legs uncrossed while you sit on the dental chair and take a pillow to help keep you and the baby more comfortable. Once you reach the third trimester, it may be very difficult to lie on your back for an extended period of time. The safest course of action is to postpone all unnecessary dental work until after the birth. However, sometimes emergency dental work, such as a root canal or tooth extraction, is necessary. Elective treatments, such as teeth whitening and other cosmetic procedures, should be

If dental work is done during pregnancy, the second trimester is ideal and to maintain healthy circulation by keeping your legs uncrossed while you sit on the dental chair and take a pillow to help keep you and the baby more comfortable.

postponed until after the birth. It is best to avoid this dental work while pregnant and avoid exposing the developing baby to any risks, even if they are minimal.

Before you have your dental appointment, check with your obstetrician to see if she has any special precautions or instructions for you. Tell your dentist the names and dosages of all drugs you are taking – including medications and prenatal vitamins prescribed by your doctor. Dentist may need to alter your dental treatment plan based on this information.

Some things which need to be taken

under consideration and are asked by expecting mom are:

Medications used in dental work during pregnancy: Currently, there are conflicting studies about possible adverse effects on the developing baby from medications used during dental work. Lidocaine is the most commonly used drug for dental work. Lidocaine does cross the placenta after administration. If dental work is needed, the amount of anaesthesia administered should be as little as possible, but still enough to make you comfortable. Lidocaine with epinephrine is safe, but as with any patient, proper aspiration is required for effective anaesthesia and



to avoid the cardiovascular side effects of epinephrine. Too rapid a heartbeat and systemic vasoconstriction can lead to fetal hypoxia. Dental work often requires antibiotics to prevent or treat infections. Antibiotics such as penicillin, amoxicillin, cephalosporin and clindamycin, are safe to use in pregnancy, which may be prescribed after your procedure. Tetracycline of any type should be avoided during pregnancy and breastfeeding to avoid any discoloration of the teeth. Aspirin and other nonsteroidal, anti-inflammatory drugs (e.g. ibuprofen) should not be prescribed. For severe pain, oxycodone is considered safe. Codeine, hydrocodone, or propoxyphene are probably safe for a short time. Nitrous oxide is controversial but probably safe as long as there is oxygen administered. But as said before, a consent form from the obstetrician is required at the dentist to check the drugs and dosages to be given.

X-rays safe during pregnancy: Dental X-rays can be done during pregnancy. Your dentist will use extreme caution to safeguard you and your baby, such as shielding your abdomen and thyroid. Advances in technology have

made X-rays much safer today than in past decades.

Pregnancy gingivitis: Beginning in the second or third month of pregnancy, about half of pregnant women experience gingivitis due to increased estrogen and progesterone. Pregnancy gingivitis typically peaks during the third trimester. Women who have gingivitis before pregnancy are more prone to exacerbation during pregnancy. Thus, rise in hormone levels during pregnancy causes the gums to swell, bleed, and trap food causing increased irritation to your gums, talk to your dentist or periodontist as soon as possible. Undiagnosed or untreated periodontal disease – pregnancy may worsen this chronic gum infection, which is caused by untreated gingivitis and can lead to tooth loss. Pregnancy epulis or pyogenic granuloma – a localised enlargement of the gum, which can bleed easily. This may require additional professional cleaning, and rarely excision.

Coping with Morning Sickness: If morning sickness is keeping you from brushing your teeth, change

to a bland-tasting toothpaste during pregnancy. Ask your dentist or hygienist to recommend brands. Morning sickness is common and may cause permanent damage to the tooth enamel. The patient should rinse her mouth with water after vomiting rather than causing further damage with toothbrush abrasion. If you don't have a fluoridated mouthwash, put a dab of fluoridated toothpaste on your finger and smear it over your teeth. Rinse thoroughly with water. Erosion of tooth enamel may be more common because of increased exposure to gastric acid from vomiting secondary to morning sickness, gastric reflux during late pregnancy.

Dental caries: Brush your teeth along the gum line twice a day with a small, soft toothbrush and fluoride toothpaste. It's also a good idea to visit your dentist before you conceive. Dental treatment before pregnancy can help to keep your teeth and gums healthy and reduce the risk of premature birth, tooth decay could simply mean a woman has increased risk for premature birth and not that her tooth decay was what caused her baby's premature birth. Thus, tooth



decay would be a risk factor for premature birth but not necessarily a cause of premature birth.

Eating right for your teeth and baby:

Avoid sugary snacks. Sweet cravings are common during pregnancy. However, keep in mind that the more frequently you snack, the greater the chance of developing tooth decay. Eat a healthy, balanced diet. Your baby's first teeth begin to develop about three months

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into pregnancy. Healthy diets containing dairy products, cheese, and yogurt are a good source of these essential minerals and are good for baby's developing teeth, gums, and bones.

Some pregnant women find that brushing their teeth, particularly the molars, provokes retching. However, you risk tooth decay if you don't brush regularly:

- Use a brush with a small head, such as a brush made for toddlers.
- Take your time. Slow down your brushing action.
- It may help to close your eyes and concentrate on your breathing.
- Try other distractions, such as listening to music.
- If the taste of the toothpaste seems to provoke your gag reflex, switch to

another brand. Alternatively, brush your teeth with water and follow up with a fluoridated mouthwash. Go back to brushing with fluoridated toothpaste as soon as you can.

Increase your calcium during pregnancy: You need to increase your daily amount of calcium during pregnancy. Sufficient calcium will protect your bone mass and meet the nutritional needs of your developing baby, but it is possible that mom may lose some of her bone density to help supply the baby's skeletal requirements. This calcium loss is quickly made up after breastfeeding is stopped. Good sources of dietary calcium include products such as milk, cheese, unsweetened yoghurt, calcium-fortified soymilk, fatty fish,

such as salmon, eggs.

Post Pregnancy: After you have had your baby, in case you experienced any gum problems during your pregnancy, see your dentist soon after delivery to have your entire mouth examined and periodontal health evaluated.

'A woman has two smiles that an angel might envy, the smile that accepts a lover before words are uttered, and the smile that lights on the first-born baby, assures it of a mother's love.'

Dr. Vishaj S. Maru is a dental surgeon. She studied dentistry at the D.Y. Patil School of Dentistry. She does clinical practice in Mumbai with a keen interest in academia and clinical dentistry.

5 THINGS TO WATCH OUT FOR WHEN FILING HEALTH INSURANCE CLAIM

Written by Anuj Jindal

The insurance company lives with the lurking fear of being trapped into fraudulent activities. And therefore, they follow the strict evidence checking rule in the claims process. Only when the insurance company is satisfied with all the evidence and proof, they will allow the claimant to get out of the line of fire.

You don't need to find an escape route as you are not a fraudulent instead you need to know how to get out of the line of fire like a hero. To know-how, read the 5 things to watch out for when filing a health insurance claim below:

1. Dully filled claim form

A medical claim form is an application form that every insurance company demands to start the claim process. Generally, the claim form comes with two sections Part A & Part B. Part A

includes A to G sections that needs to be filled by the claimant and Part B is filled by the hospital. Part A of form informs the insurer about the incident, medical expenses, and details of the policyholder and dependent who needs coverage, details of hospitalisation, and a checklist of documents that one needs to submit with the claim form to the insurer. To avoid mistakes, fill the medical reimbursement claim form with the help of SureClaim expert.

2. Intimation & claim within time limit

The insurance company expects the insured to intimate the insurance company about the hospitalisation 3 days before for planned hospitalisation and within 24 hours in emergency hospitalisation. Once the intimation is done, you can file a claim within 30 days from the date of hospitalisation.

On exceeding this time limit, you will have to submit the reason for the delay with your claim, failing which your claim can get delayed.

3. Whether treatment is covered or not

Having a health insurance policy doesn't mean that you can claim for any medical expenses arising out of any medical conditions. Every health insurance plan comes with certain limitations mentioned in the terms and conditions of the policy. Before filing a claim, you must read the policy wordings which include the exclusion list and all the terms and conditions of your policy. Claim filed for anything that falls under the limitation or exclusion list will be rejected by the insurance company.

4. Documents

After filling a claim form, you need to





submit the documents as the evidence and proof of the incident. The documents should be in the order that it should include the first consultation letter to all the medical bills related to medicine, hospitalisation, lab reports and for which you are covered under the policy. The documentation process plays a very crucial role in your claim process as the entire decision of approval depends upon the documents you have submitted to your insurer. When people fail to justify the medical expenses by not submitting the supporting documents, the insurance company raises query which makes the process complex and time taking. It is important to note that all the supporting documents are to be submitted in original to the insurance company.

5. Submit it to the right address

Now when you are ready with your duly filled claim form and all the supporting documents, it is time to verify the correct address of your insurer to send your claim. This point might sound like obvious but let me tell you insurance companies have a specific address to receive the claim and process them. Make sure you find the correct address

Every health insurance plan comes with certain limitations mentioned in the terms and conditions of the policy. Before filing a claim, you must read the policy wordings which include the exclusion list and all the terms and conditions of your policy. Claim filed for anything that falls under the limitation or exclusion list will be rejected by the insurance company.

and send your claim via mail or submit by hand to the right address.

Insurance companies take somewhere around 5 to 7 weeks to process your claim. Wait, your job is still not complete, you will have to do regular follow-up of your claim with your insurer. First, you will have to verify if the insurance company has received your claim. Second, you will have to follow up for your claim id, which is usually generated by the insurance company within 3 to 4 days after receiving your claim documents.

Third, take regular follow-up with your insurer for your claim status via call or online.

Anuj Jindal co-founded SureClaim to fix the broken claim experience of insurance customers. He believes technology can play a major role in empowering customers. His understanding is shaped by his decade long stint in healthcare and health-tech companies.



TRENDS

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‘WAKEFIT’ – ANNOUNCES SLEEP INTERNSHIP

A Bengaluru-based start-up named “Wakefit” which sells mattresses has recently announced ‘sleep internship’ where a person sleeps on the job for nine hours at night and seven days a week. This unique internship runs for 100 nights. The stipend slated for the internship is rupees 1 lakh. In terms of qualifications required for the internship, the company is looking for someone who has a history of falling asleep during the class and misses the alarms. The ideal candidate would be the one who would go off to sleep within 10-20 minutes of hitting the pillow. Preferred candidates include the ones who like cozy environments, lazing, napping and lounging, alarm



snoozers and those who can sleep through multiple alarms. Wakefit says that the successful candidate will display the ability to sleep just about anywhere

be it in a meeting, in traffic or even very noisy places like the bus stop. The ideal candidate for the job is someone who can thrive in a slow-paced environment, conceptualise and deliver effective strategies on how to get themselves and their team members to sleep longer and deeper. The selected candidates will be provided with a mattress and a fitness tracker by wakefit. The start-up aims to recruit the best sleepers in the country who are willing to go to any lengths to make sleep a priority in their lives and bring back the focus on sleep health by celebrating and applauding people who obsess about sleeping well.

SOURCE: www.livemint.com

TOSHIBA ANNOUNCES NEW TECHNOLOGY FOR DETECTING 13 TYPES OF CANCER WITH 99% ACCURACY USING A SINGLE DROP OF BLOOD

Toshiba Corporation, in collaboration with National Cancer Centre Research Institute and Tokyo Medical University, has recently developed a diagnosis method to detect 13 types of cancer from a single drop of blood with 99% accuracy. The trials for this newly developed technology will begin from 2020 and then the company will commercialise it soon after. The developed method could be a breakthrough in cancer management as it can be used to detect and treat cancer in its early



stages. The test will be used to detect various cancers like gastric, lung, liver, oesophageal, pancreatic, prostate, ovarian, bladder, biliary duct and

breast alongwith sarcoma and glioma. The method is used to examine the types and concentration of microRNA molecules which are secreted by the cancer cells in blood. The USP of this new method in comparison to those already present in the market is the degree of accuracy in cancer detection, the time required for the detection and the cost. The test gives an output with 99% accuracy, the time taken for the test to give results is less than two hours and the test is expected to cost 20,000 Japanese yen or less.

SOURCE: www.japantimes.co.jp

'ARISE' – INDIA'S FIRST INDIGENOUSLY DESIGNED STANDING WHEELCHAIR

Indian Institute of Technology, Madras, in collaboration with Phoenix Medical Systems, has very recently launched India's first indigenously designed standing wheelchair. This unique wheelchair was designed and developed by the TTK Centre for Rehabilitation Research and Device Development (R2D2) which was headed by Sujatha Srinivasan, a Professor in the Mechanical Engineering Department at IIT-Madras. Welcome Trust, United Kingdom supported the commercialisation of ARISE. ARISE will be available in the Indian market at an affordable

price of rupees 15,000. It is definitely a gamechanger in the medical equipments market and is surely a delightful aid for the differently abled people offering them a feeling of liberation. The USP of this wheelchair is that it has a safety feature in the form of its interlocking mechanism which ensures that the wheelchair remains in a locked state even if the knee block is not in position. The assistive device helps the wheelchair bound person move from sitting to standing position and vice-versa, independently.

SOURCE:
www.hindubusinessline.com



1BALANCE IS FOR THE NATURAL SUPPLEMENTS

1Balance, US and India based personalised supplements company, founded in 2018 recently raised 2 mil dollars in seed funding led by Accel partners. 1Balance is a natural supplements company which offers personalised healthy living products on a subscription basis. The company aims to utilise the newly raised money to put in place its production facilities, product team and a distribution network to create the best quality personalised supplements. The company has a unique approach

and positioning in the healthy living segment. It delivers robust health and wellness products by unifying latest technology and traditional herbal sciences like Ayurveda. Its USP is its personalised approach to healthcare delivery based on a person's metabolic profile which it arrives at by asking various questions to the users online. The company also offers other personalised products like tea made of herbal ingredients and goods specifically for ones' metabolism.

SOURCE: www.yourstory.com

MEXICAN RAINFORESTS— HOME TO THE NEWLY DISCOVERED ANTIBIOTIC IN SOIL



Antibiotic resistance is proving to be a huge area of concern in the field of medicine and agriculture. So, the researchers and scientists around the world are continuously working in the direction of finding or discovering new antibiotics which are the leading dots for future anti-bacterial agents. In view of this, scientists from Rutgers University and around the world have discovered a new antibiotic known as Phazolicin in the soil of tropical rainforests of Los Tuxtlas, Mexico. The study was published in 'Nature Communications'. This newly discovered antibiotic prevents harmful bacteria from getting into the root systems of bean plant and also seems to strike against several types of bacteria. The unique properties of this antibiotic could prove to be very useful in agriculture. This antibiotic is produced by a symbiotic soil bacterium (Rhizobium) that fixes nitrogen for the plant and keeps harmful microbes away and found in the root nodules of wild beans (*Phaseolus Vulgaris*) unlike other rhizobia, this particular bacterium also produces Phazolicin which is a class of peptide produced in the ribosome. Scientists found that Phazolicin not only could attack a diverse group of bacterial cells but could also enter the bacteria and bind it to its ribosomes, disturbing its ability to synthesise proteins. Phazolicin is a part of a diverse class of natural products with a variety of biological uses and is claimed to be used as a plant probiotic as it will prevent other potentially harmful bacteria from growing in the root system of agriculturally important plants like beans, chickpeas, peas, peanuts, lentils and soyabeans.

SOURCE: www.sciencealert.com

SAATHI – AN ECO-FRIENDLY, NATURAL APPROACH



Non-biodegradable waste is of concern to all. In order to address this problem, four graduates from MIT (US), Harvard and Nirma came together with innovations in the field of healthcare by making use of alternative materials and zero-waste production. They got together with the mission to create hygiene products that are good for the body, environment and community. They created fully eco-friendly, biodegradable and

compostable sanitary napkins by using locally sourced banana fibre from the state of Gujarat. Saathi wanted to improve women's access to sanitary pads in India. The napkins are a sustainable product made by using natural materials and are women friendly. The makers used an engineering approach focused on ecology and sustainability. The leak-proof outer layers of the napkin are made from plant-based materials.

Banana fibre is the material of choice in making these pads because of their high absorbent properties and the environmental and social benefits of its supply chain. After the fibre is extracted from the stem, residue is fermented and used by farmers as organic fertilizer. The banana fibre uses six times less water per ton produced than cotton and ten times less fertilizers. The pros of such natural made pads are many: compostable, biodegradable, skin-friendly, chemical free, plastic free. It degrades within six months which is nearly 1200 times faster than plastic pads. The average conventional sanitary pad on the other hand also contains 3.4g of plastic and an average woman in her lifetime generates nearly 60kg of plastic waste from sanitary pads alone. The business model is cradle to cradle, that is completely sustainable and also embodies circular economy. It seems to create a win-win situation for all the involved parties like the manufacturers, farmers, users and our environment. Such endeavours are the need of the hour and need to be supported by all.

SOURCE: www.indiamart.com

HOLOGRAPHY IN MEDICINE – A GAMECHANGER

Global market insights speculate that the augmented reality (AR) market is likely to grow around 65% from 2017 to 2024. Different industries are likely to use augmented reality to provide their client with far better service in times to come like healthcare assistance, high-quality rescue services and decent and precise education. AR is ready to go, penetrate and become a standard for all industry fields. In healthcare too, holography is clearly a gamechanger when it comes to improving healthcare as it enables users to achieve high productivity gains and also makes abstract concepts around smart environments super apparent. A jaw-dropping technology known as Enhanced Medical Mixed Reality (EMMR) has been developed by



Silver Chain Group, a Melbourne-based company to empower nursing staff while on home visits with hands-free data and also to improve access to consultant's advice and evaluation from remote doctors. EMMR is the world's first holographic doctor's

visit which allows the nursing staff to see all the patient data floating in front of them. In a holographic form, the doctor can see what exactly the nursing staff is doing with the patient, the live biometric data and also talk to his patient as if they were in the same room through a Microsoft HoloLens. Face-to-face consultations and discussions regarding treatments are done in real time without the need for both the doctor and the patient to be present in the same room. The doctors will effectively and seamlessly see their patients through the eyes of the nurse. The EMMR application is definitely going to revolutionize the healthcare sector facilitating treatments and consultations to the needy, even in the remotest areas.

SOURCE: www.healthhorizon.com

EXERCISE MAKES YOU MORE HAPPY THAN MONEY

Seems that researchers are bent upon proving that health is the true wealth. In this context, researchers at Yale and Oxford have come out with the findings of their study that exercise makes you happier than money and exercise is more important to your mental health than your economic status. The research was published in 'The Lancet' and the scientists collected data about the physical behaviour and mental mood of more than 1.2 million Americans. The participants could choose from 75 types of physical activities from childcare, lawn-mowing and house hold work to cycling, running and weightlifting. The participants were asked questions like "how many times have you felt mentally unwell in the past 30 days maybe due to stress, depression or emotional problems?" They were also asked questions on their income and

physical activities. The team of scientists found that while people who exercise regularly tend to feel bad about 35 days in a year and the non-active participants on an average felt bad for 18 days more. Another finding was that certain sports that involve socialising like team sports can have more of a positive effect on your mental health than others. In spite of the fact that neither cycling nor aerobics and fitness technically count as team sports, but these activities too can have a considerable positive effect on ones' mental health. They also found that physically active people feel just as good as those who don't do sports but who earn about \$25,000 more a year. But this does not mean the more sport you do the happier you are. Exercise is clearly good for a person but how much is too much is also the question? The answer to this question is also given in the study

which states that the relationship between sport duration and mental load is U-shaped. It means that the physical activity contributes to mental well-being only when it falls within a certain time frame. As per the study, three to five training sessions, each lasting between 30 to 60 minutes are ideal per week. The mental health of those participants who exercised for longer than three hours a day suffered more than that of those who were not particularly physically active.

SOURCE: *businessinsider.com*

Compiled by:

Dr. Avantika Batish, working as the Director Strategy and Healthcare at International Health Emergency Learning and Preparedness. She is also a guest faculty for MBA (HR) and MBA Healthcare Management at various B-Schools and is a soft skills trainer.

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MEDTECH DEVICES: REVOLUTIONIZING DIAGNOSIS OF EYE DISORDERS

Written by Dr. Mahipal Singh Sachdev

In recent years, Indian healthcare industry has been growing at a double digit rate. The sector grew at a rate of 18 percent from 2010 till 2016 and is expected to reach USD 280 mil by 2020. The medical technology (medtech) plays a crucial part throughout the healthcare lifecycle and has been instrumental in transforming healthcare ecosystems across the world. For India too, it offers the potential to address healthcare issues by using a mix of nascent as well as advanced technologies.

Medtech is defined as any device, procedure, system developed to solve and improve quality of life. There are an estimated 1.5 million medical devices

used worldwide. These devices are very crucial for the diagnosis and treatment of eye ailments.

A helping hand in the treatment of several eye disorders

In today's world, with the availability of modern technology and advancements in technology and devices, serious eye ailments can be picked up much earlier than what was possible a few years back. Some of the major advancements that help in the treatment of eye disorders include:

■ ReLEx SMILE or Lasik Surgery

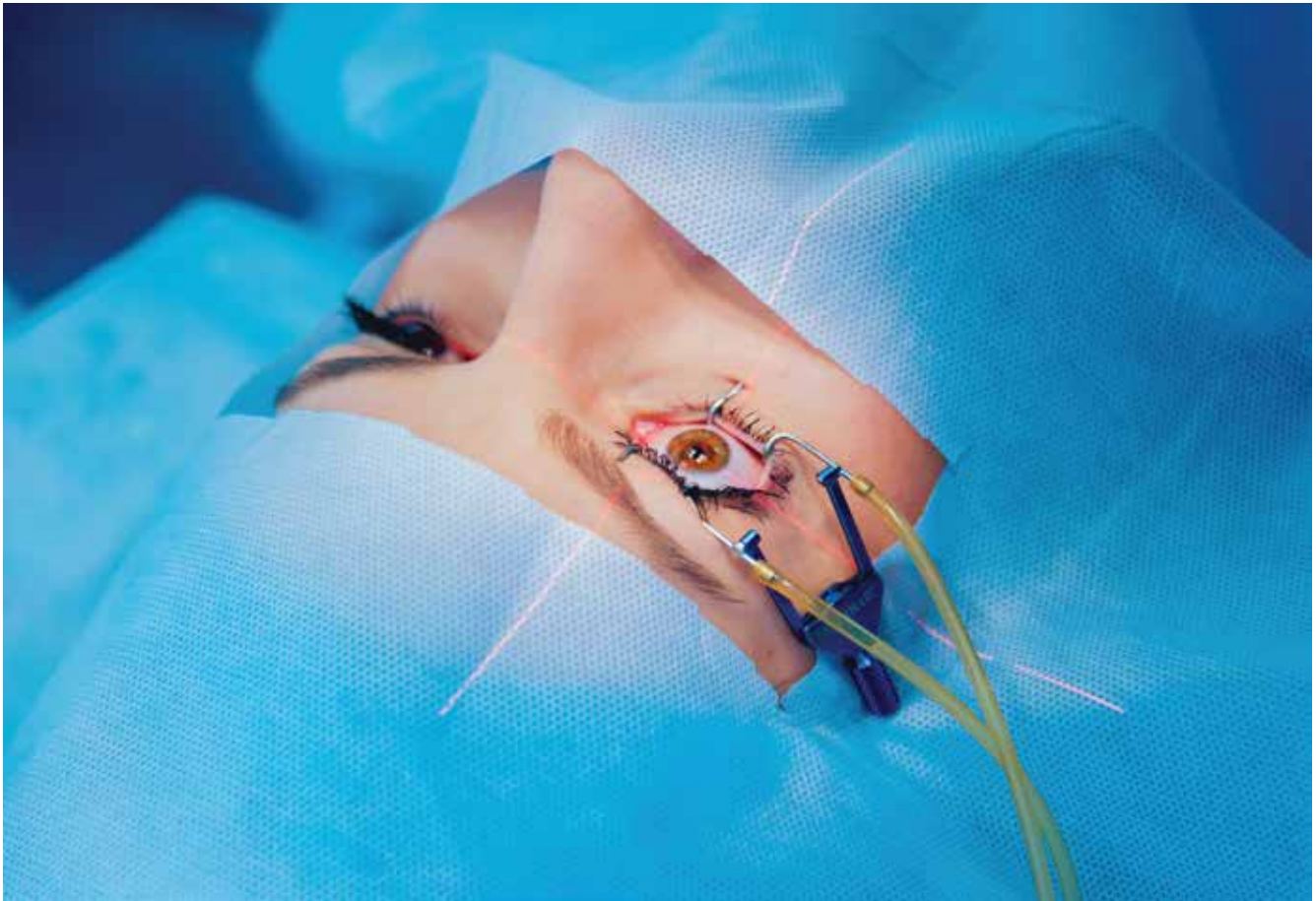
Long working hours and par use of electronic gadgets have led to sudden

rise in the patients with refractive errors. According to World Health Organization (WHO), approximately 150 mil people live with visual impairment due to refractive errors. These include myopia (nearsightedness), hyperopia (farsightedness) and cylindrical refractive errors (astigmatism). With the advent of technology, ReLEx SMILE, the new generation laser vision correction offers clear, crisp vision without glasses. Being a blade-free & flap-free procedure, it helps you live a hassle-free life and say goodbye to glasses. The quality of life reported by patients who had undergone lasik procedure are feeling similar to patients who never wore glasses, and this has remained stable even 10-15 years later. This shows how comfortable patients feel after they have undergone this non-invasive correction to avoid wearing glasses and contact lenses. Compared to people who wore glasses and contact lenses, refractive surgery patients had a much higher quality of life. People who need glasses to see clearly resent their dependence on glasses which they feel restricts their lifestyle.

■ Implantable Contact Lens (ICL)

Not everyone is fit for the lasik surgery. People with high powers and thin corneas have ICD to correct their refractive problems. An ICL is an ultra-fine lens made of collamer, a bio-compatible material with high water content and anti-reflective properties. It transmits light just like the natural lens and has the added advantage of blocking out the harmful ultraviolet rays, thereby protecting the eye from further damage. The spherical ICL is available in a wide range of powers from -3 to -20 diopters and for people with astigmatism, the toric ICL can correct powers from -3 to -23 diopters and a cylinder upto 6 diopters. Most significantly, thin corneas are not a contra-indication at all. The





lens is placed inside the eye between the iris and the natural lens and is invisible to both the patient and the observer. The cornea is not touched at all, so complications related to thin corneas are totally eliminated.

For the patients with thin cornea and high powers, there is no hope beyond lasik. Apart from ICL there are other viable options like other options include SBK or Sub-Bowman's keratomileusis using the IntraLase femtosecond laser and surface PRK using Mitomycin C or Epilasik in which a thin sheet of corneal epithelium is removed to allow laser ablation, thereby saving more corneal tissue. Clear lens extraction with multifocal or toric IOL implantation may be considered in selected patients. For people with keratoconus with progressive thinning and steepening of the cornea, Collagen Cross Linkage (C3R) and INTACS can help to stabilize the disease process and improve the vision respectively.

■ OCT (Optical Coherence Tomography) and other innovative devices

Some of the latest computer programmes include Laser Polarimetry (GDx), Heidelberg Retinal Tomogram (HRT) and Optical Coherence Tomography (OCT) of Optic Nerve Head (ONH)/ Retinal Nerve Fibre Layer (RNFL) and Ganglion Cell Complex (GCC macula). Also, faster techniques (Matrix/FDT) for assessing the functional loss are now available which take half the time taken by conventional visual field testing for glaucoma detection.

■ Laser Photocoagulation or Laser Treatment

Laser Photocoagulation is a boon for the diabetic patients. The treatment can save existing sight loss but cannot make it better. It seals the micro aneurysms that are leaking fluid into the retina. This is called the Focal or Grid laser photocoagulation and is done in a single sitting. If new blood vessels are growing, then more extensive laser treatment has to be carried out which is called Pan Retinal Photocoagulation (PRP) and is carried out over two or three sittings spread over a few weeks. In most cases, laser treatment causes the new blood

vessels to regress and the swelling to subside. Laser treatment usually takes three to four months to be fully effective.

Dr. Mahipal S. Sachdev, Chairman & Medical Director of Centre For Sight, was honored with Padmashri Award in January 2007. He is a renowned Ophthalmic Surgeon, recognized for his expertise in the area of Corneal, Refractive & Cataract Surgery, both nationally and internationally. He is widely credited to be a pioneer in India for propagating the technique of Phacoemulsification for cataract surgery and Lasik Laser for removal of glasses. Dr. Mahipal was among the first to introduce Lasik and Phakic IOLs & Femtosecond laser technology for lasik. Dr. Mahipal also has pioneered blade free Femt Cataract technology in India.

GUIDELINES RELEASED FOR EVALUATION OF NANO DRUGS

Written by Sunderarajan Padmanabhan

On 24th October 2019 in New Delhi, the Minister for Science & Technology, Earth Sciences and Health & Family Welfare, released the guidelines for evaluation of nano-pharmaceuticals, which are emerging as more potent tools for treating various diseases.

The document, which covers all the aspects of evaluation from the definition and categorization of nano-pharmaceuticals to pharmacovigilance of the new set of therapeutics, has been prepared as a joint project by the Department of Biotechnology in the Ministry of Science and Technology, and Indian Council of Medical Research and Central Drugs Standard Control Organisation in the Ministry of Health and Family Welfare.

Nano-pharmaceuticals, which are derived by application of nanotechnology in medical therapeutics, are expected to bring about a revolution in the treatment strategies as they would enable

target specific delivery of drugs and therapeutic molecules and thus offer higher efficacy and lower toxicity in many disease conditions. They are expected to be of great use particularly in cancer treatment.

Every year, several new nano-pharmaceuticals are being developed and marketed across the world. India too has a sizable pool of nano-scientists generating large number of scientific publications in this domain. However, regulatory approval is the most important factor for translating laboratory research into bedside medicine. The new set of guidelines is designed to facilitate this process.

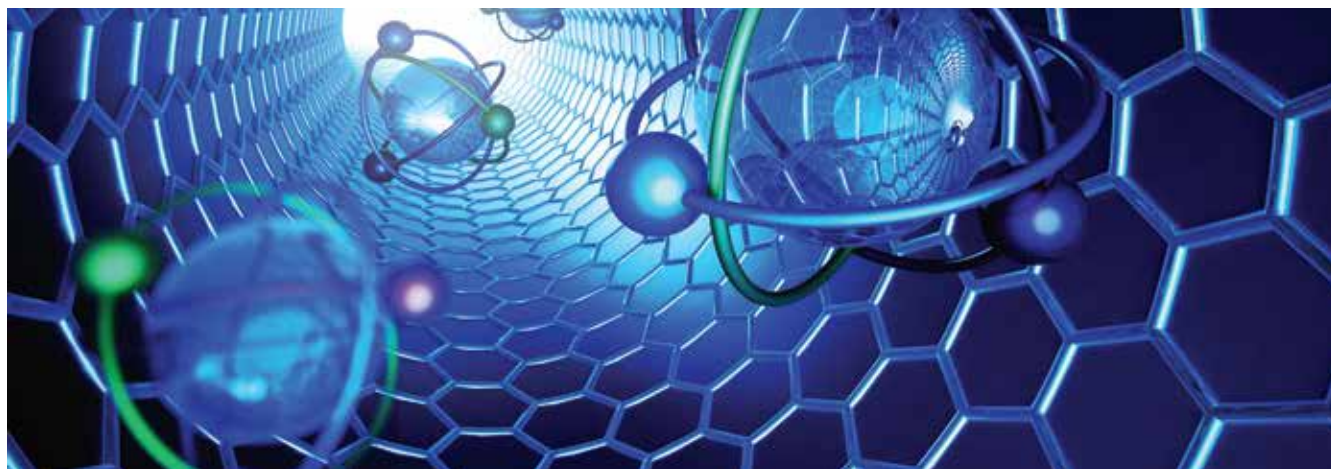
Noting that the document has been prepared by domain experts in consultation with representatives of the industry, Dr. Harsh Vardhan, Hon'ble Minister of Health and Family Welfare expressed confidence that it will give a big boost to innovators and drug manufacturers to optimize their research and come out with medicines that would

be safer and more affordable.

Hon'ble Minister Dr. Vardhan also announced a three-day international conference that was organised by the Department of Biotechnology and Confederation of Indian Industry in New Delhi from November 21-23, 2019 in collaboration with the Association of Biotech-Led Enterprises (ABLE) and Biotechnology Industry Research Assistance Council (BIRAC), which is a public sector undertaking under DBT to showcase India's prowess in the area of biotechnology and help build new partnerships and investment opportunities.

Titled Global Bio-India 2019, the meet deliberated on opportunities and challenges in the areas of bio-agriculture, bio-industry, bio-energy, bio-services and bio-pharma sectors. It had several components including policy dialogues, investors' round table, a meeting of regulators across the world and an exhibition.

Credits: India Science Wire





NUTRITION FOR MENSTRUATION

Written by Dt. Shalini Kukreti

Menstruation, also commonly known as Periods is a major transition phase in the life of every woman. It is often recognized as a sign that a “Girl is turning into a Woman”. It is the regular discharge of blood and mucosal tissue from the inner lining of the uterus through the vagina. It is a natural phenomenon where every month our body prepares itself for pregnancy and if no pregnancy occurs, the uterus or womb sheds its lining. Menstruation generally starts from the age of 11 to 14 years (some may get it earlier or later) and continues until menopause. It usually last for 3 to 7 days.

Apart from the blood loss, the body shows many other symptoms like:

- Abdominal or pelvic cramping pain
- Lower back pain
- Bloating

- Soreness in breasts
- Food cravings
- Fluid retention
- Mood swings and irritability
- Fatigue

Eating smartly and cautiously during these days can help in making this phase smooth and comfortable. Since bloating is one of the most prominent symptoms, which is being experienced, try to avoid foods that may enhance bloating like carbonated drinks, fried foods, processed foods, refined grains, high-fat and high-sodium foods.

The foods to choose are fresh fruits, leafy vegetables, dark chocolates, nuts, whole grains, fish, fiber rich foods and above all keep a check on the daily water intake.

Some instant tips that may help in relieving menstrual cramps are:

- keep yourself hydrated
- have ginger in hot milk, it has an amazing effect on menstrual cramps
- exercise can help, go for a walk
- opt for different herbal teas
- avoid foods high in caffeine

Menstruation is a delicate interaction of hormones and physiological responses. Keeping the body in a healthy state is very important as it is a natural way of body detoxification and taking charge of the nutrition is of a smart move.

Dt. Shalini Kukreti, Clinical Nutritionist & Dietician, is a Gold medalist Nutritionist experienced in product development and diet management. She is a Post graduate in Nutrition and Dietetics with the student scholarship from Manav Rachna International University, India.

REAL-TIME MONITORING THROUGH 3D NAVIGATION, MAKING SPINAL SURGERIES EASIER

Written by Dr. Arvind G Kulkarni

Generally traditional spinal surgeries like laminectomy and lumbar fusion involves scars, complete exposure to patient's anatomy and requires high expertise skills to treat the spinal deformities. But with the rapidly growing advancements, Spinal Navigation Technology has completely changed the treatment modules and it is used by neurosurgeons to perform delicate and complex spinal surgeries. This image-based technology has made things easier for the spine surgeons as now they are able to operate with better visualization and more accuracy than ever before.

What is Spinal Navigation Technology?

The image-based technology used in spinal surgery utilizes scans of the patient's anatomy and instruments that are tracked by the Navigation

System's camera. The specialized software creates a virtual, 3-D model of the patient's spine, essentially a digital roadmap or blueprint to help guide the surgeon. The surgeon can use this model to plan the details of the surgery including the number, size and location of implants. Much like a GPS system in an automobile, the surgeon is then able to track in real time the position of surgical instruments and implants in relation to the patient's true anatomy. For this reason, the computer assisted surgery may also be referred to as surgical navigation. Spinal Navigation Technology used during complex spinal surgery enables faster, precise and less invasive spinal procedures in a reduced radiation environment.

What are the advantages of navigation technology?

Similar to what GPS has done for geographic navigation, 3D image-guided surgery has revolutionized the spine surgery. There are several benefits of a minimally invasive spine surgery combined with spinal navigation system as it proves to be beneficial for both the surgeon and patients. This highly effective navigation system assists surgeons with some of the most complex spine surgeries. During a conventional spine surgery, without the use of surgical navigation, surgeons may take multiple X-ray images to verify the location of instruments and placement of implants throughout the procedure while this modern surgery eliminates the need for repetitive X-ray images, helping to reduce radiation exposure to both the patient and medical team. The use of the equipment to pre-plan the operation, such as determining the size





Surgical navigation does not replace the skill of the surgeon, but this enhancement technology provides the surgeon with real-time guidance in placing implants in the spine where visibility with the human eye may be challenging.

and location of screws to be implanted, saves valuable time and uncertainty associated with spinal surgery. Besides, image-guidance may increase a surgeon's confidence in difficult cases, especially in revision cases where the patient's anatomy may be changed from previous operations.

Who can be benefitted by this advanced technological system?

The use of image-guidance technology in all types of spinal surgery is rapidly growing. Spinal fusion surgeries alleviating pain resulting from injury, degenerative disk disease, spinal curvatures or arthritis are the most common navigated surgeries. Most people who undergo spinal fusion surgery can have significant reduction in pain and an improvement in performing the common activities of daily living.

How Navigation Assisted Surgery is performed?

Prior to the surgery, the patient

undergoes a pre-operative CT scan inside the OT after properly positioning the patient, and these images are downloaded into the navigation computer. The software uses these images to build the virtual, 3-D model of the spine. In a process called registration, the surgeon uses Smart Instruments to match pre-defined points on the 3-D computer model to the patient's true anatomy.

Once the registration is complete, the navigation camera tracks the movement and position of Smart Instruments in the surgical field and real-time images of the instruments are displayed on the 3-D model. The surgeon is then able to see the exact position of the instruments, aiding in surgical precision. It helps to avoid potential damage to the surrounding tissues and structures such as the spinal cord, nerves and arteries. In spinal fusions, the surgeon may also use the 3-D model to plan the position,

length and diameter of pedicle screws, and then navigate instruments to ensure the screws are implanted exactly as planned. This greatly reduces the risk associated with this surgery.

Surgical navigation does not replace the skill of the surgeon, but this enhancement technology provides the surgeon with real-time guidance in placing implants in the spine where visibility with the human eye may be challenging. It's like diving a nail down a pencil, without breaking the pencil.

Dr. Arvind G Kulkarni heads the Mumbai Spine Scoliosis and Disc Replacement Centre as a Consultant Spinal Surgeon, one of the oldest and largest hospitals of India. He has vast experience in spinal surgery having trained in some of the top spinal centers across the globe including KEM Hospital Mumbai, National University Hospital Singapore, Westmead Adult & Children's Hospitals Australia, St. George Hospital Australia and Toronto Western Hospital & Hospital for Sick Children Canada. He is one of the pioneers of Minimally Invasive Spinal Surgery in India.



PREVENTING VIOLENCE AGAINST HOSPITALS

Written by Dr. Indu Arneja

Violence against hospitals is nothing new but the way it has spread in the last few years is a matter of worry. It really needs deeper understanding and prevention by attending to the root causes of violence in healthcare. The present article has been written with the idea to explore the possible causes of violence and thereby help us identify and prevent violence in our workplace.

The first question that needs to be answered is “Why patients/their family become violent?”. Considering the socio-culture, demographical and financial arrangements of Indian population, some of the apparent

causes of violence are:

1. **Disease can change the way we behave:** Disease and sickness completely alters the way we see the world. The term ‘Disease’ itself explains it is ‘Dis-ease’. It makes one feel low and depressed. It changes the way one reacts to situations and people. Heightened anxiety is reported among the patients and their attendants during their stay in the hospital leading to weird reactions. The individual and family is under a constant pressure of dealing with a condition that they are not prepared as most of us never think of falling sick and therefore
2. **Hospital is a strange place:** Actually, nobody likes to come to the hospital. It’s a very scary place full of smell and strange machinery. The whole milieu of the hospital can throw people out of their comfort zone and can lead to unexpected behaviour and reaction to stress. Most of us become more cranky seeking attention and extra care when we are sick. Hospital psychosis is very common among patients and attendant with increased anxiety.
3. **Family of the patient is equally stressed out:** When the patient

are not prepared to deal with it.

is admitted in the hospital, the family experiences equal or more stress than the patient as they are out of their comfort zone. Basic facilities like arrangement to sit, ventilation, air conditioning, clean toilets, safe drinking water and food are at times missing in the facility. Stay in the hospital premises can lead to compromised biological, physiological and emotional needs. The attendants are under constant discomfort and are stressed out. This may last sometimes for days and add to their frustration leading to aggressive reaction to even trivial issues.

4. **Expectation of prompt care:** When patients come to hospitals, they expect prompt care and attention. Especially in critical care areas, the family expects instant attention and care. Any delay in the care is viewed as increased risk to patient's life, dimming the chances of patient's survival. In most of the instances the patient is attended promptly but even a little delay can be viewed as callousness on the part of the healthcare professionals leading to anger and aggressive reaction. In the critical care areas like emergency care or ICU the emotions are heightened. Family is looming

under a huge fear i.e. fear of death. Fear of death is one of the most intense emotions and can instantly lead to unexpected reaction from even an otherwise a very calm and reasonable person.

5. **Unaddressed concerns of the patient and family:** Patients and their families have concerns about the diagnosis, treatment options available, expenditure on the treatment, recovery, prognosis and many other aspects. Their concerns need to be addressed and questions need to be answered. All this requires time, effort and arrangement from the healthcare team. We need to keep additional time to counsel and explain the patient's family. Studies have shown our communication with the patient is not adequate. We do not address these concerns of the patients. For some of us, it

is not even part of the treatment and is not our responsibility. Some of us do it but in a very superficial manner. Some of us are not comfortable answering questions related to expenditure, prognosis, second opinion, or questions that seem to be challenging our clinical decision or competency. As a result, we either avoid the discussion or become annoyed and aggressive while attending to such questions. All such behaviours break down the communication between the patient and the doctor and leave the patient feeling disgruntled.

6. **Seeing is believing:** In the critical care areas, the family is not able to see and know completely what is being done in the patient care. Places where we do not regularly update the family of the patients' condition and inform what all is being done

Places where we do not regularly update the family of the patients' condition and inform what all is being done in patient care, the family remains ignorant of it. As a result, they may feel that enough is not being done to save the patient.





The role of the therapist has changed from decision maker to facilitator of decision making by providing required information to make a realistic decision.

in patient care, the family remains ignorant of it. As a result, they may feel that enough is not being done to save the patient. They are likely to assume neglect in care on the healthcare professionals' side.

7. **Cold and insensitive behaviour of staff:** A study of the expectations of the family of critically ill patients has revealed that family expects the care-providers to express empathy, care, concern and compassion towards the family of the patients. They expect the care providers to be sensitive to their suffering and be considerate while dealing with them. They like to be regularly updated about the patient's condition and involved in patient care. Studies have shown that whenever care

providers fail to respond to these expectations of the patient's family and demonstrate a cold behaviour, it leads to resentment among the family members. Behaviours they don't like but take with a pinch of salt. This accumulated anger commonly comes out as aggressive reaction later.

8. **Unrealistic expectations of the family:** Patients and their family have sometimes unrealistic expectations. They wish quick recovery and recovery at any cost. At times, they relate recovery with the money spent. They ask for guarantee for recovery. Patients and family at times, equate deterioration with carelessness in care. All these expectations lead to frustration

and feeling of burden among the healthcare professionals.

9. **Financial unpreparedness for the medical expenditure:** Only 44% of the population is covered under medical insurance. Rest of them have to bear it as out of the pocket expense. Most of us do not keep any special reserves under medical expense. As a result, any expense on treatment is like a burden and is not a welcome idea. The families with no medical cover experience more stress than those with medical cover. Healthcare expenditure in India has grown multi-fold in the last few decades leaving a big hole in the patient's pocket. Some of the genuine costs when transferred to patients by the healthcare facility seem like unexplained charges and really pinch the patient. On enquiring about the reason for some of the charges when the patient's family do not get satisfactory response, they feel cheated and overcharged leading to unhappiness and aggressive reaction. Financial reasons are one of the commonest reasons for aggressive reactions coming from patient party.

10. **Loss of trust:** Unethical and malpractice by some of the fellow colleagues is enough to taint the image of the whole profession and loose the trust of the patient party. This has majorly affected the faith of the society and has added an element of doubt in people's mind.

These changing relationships ask for review of the situation and finding out ways to rebuild the trust to prevent violence in healthcare.

How can we rebuild the relationship and prevent violence at workplace?

1. **Explain the patient and family about the illness:** Once the treating doctor has made an assessment of the patient's illness and has a mental plan of managing the condition, it is essential to explain the same to the patient party. Patient and their attendants wish to know about their

illness, options available to deal with the condition. It is important to let them know of the differential diagnosis, line of management, investigations planned etc. it helps them understand the seriousness of the condition.

2. **Change the overall way of decision-making:** Patients today wish to participate in planning and management of their health condition by discussing and choosing from the available options of treatment. Discussing the possible options with patients enhances their cooperation and agreement to stay in the treatment. The role of the therapist has changed from decision maker to facilitator of decision making by providing required information to make a realistic decision. One of the leading causes of violence is when a treatment modality does not bring desired results. Involving the patient in decision making helps avoiding the complete blame of the decision on the clinician. The usual blame that I was not informed, or I was not asked can be avoided by keeping them in the loop of decision making. This makes them feel in control and empowered. While

choosing a treatment modality, it is important to inform the patient/family about the advantages and disadvantages of the treatment modality. Sharing all the details without withholding anything is important to help them make a fair decision. Discussing the risks and disadvantages of the treatment in detail helps create transparency and build trust. The therapist is expected to develop a mutually acceptable agenda of treatment keeping in mind the patient's preferences and essential clinical goals. While explaining about the options of the treatment, it is essential to give them a fair idea of the expected expenditure. It is important to know the affordability of the family. Can the family arrange the funds to meet the treatment expenditure? Also, many procedures and treatment modalities have a long-term post procedure expenditure associated with it. For e.g. in bariatric surgery, the patient has to spend lots of money on the diet and supplement after the procedure. All this should be explained properly before the selection of procedure.

3. **Prognosticate clearly:** It is very important to prognosticate honestly

as the family should know the seriousness of the situation and the likely outcome of the treatment. When we fail to prognosticate clearly, the family assumes the outcome of the treatment to be good and overreacts when patient deteriorates. While prognosticating it is important to be sensitive but straight forward as any attempt to give unrealistic hope can be counter-productive and create confusion. Answering their questions with patience and honesty will further help them take a realistic decision and build trust on the treating team. Their decision for second opinion, shifting the patient to another set up or going LAMA should not be viewed as an insult and offense.

4. **Update the family about the patient's condition on regular intervals:** Once the patient is admitted under our care, the family needs to be updated on regular basis. They wish to know about the effect of treatment. Updating the family on regular basis helps in informing them about the condition, ask and clarify their doubts about the treatment, have an understanding of future plans and also prepare them for any eventuality, especially





when the condition of the patient is critical and has poor prognosis. Regularly updating the family about the condition of the patient including changes made in the treatment and its impact on the condition is an important way to keep the family informed about all the developments. It gives the family a chance to clarify their doubts and raise their concerns. Regular updating of the family helps prepare the family for any eventuality. Especially when the condition is serious, and chances of recovery are less. Their request for second opinion, transfer to other hospital or dissatisfaction to the services can be amicably addressed during this regular update. This can play a very crucial role in preventing aggressive reaction. Regular updating also creates familiarity between the doctor and the family and helps build rapport. Studies have shown that patient and their family are less likely to be aggressive with the doctor, they are familiar with.

Fair and competitive charges with a rate list displayed near the reception and billing-counters help demonstrate transparency and build confidence. Avoid using expensive and fancy drugs to keep the expenditure to minimum.

established medical practices with evidence in the past is imperative as otherwise patient can challenge the practitioner in the court of law. This can go to the extent of cancellation of practitioner’s license. It is also important to know and practice within the scope of one’s speciality. With the advent of new treatment modalities, one feels like trying new ways to manage the condition. It is advisable to inform the patient and the family before implementing anything new. Their informed consent is essential to respect their rights, earn cooperation and avoid any legal hassles.

bone of contention between the patient and the healthcare facility. It is important for the patient to know the expected expenditure. At least a rough estimate of the cost of treatment has to be shared to give them an opportunity to decide whether they can afford the treatment or not. Having a rate list (although we don’t like the idea) at the reception and at the accounts department is a good way to give them a fair idea of the expected expenditure. The price of the consumables has to be promising. When everywhere the pharmaceutical suppliers are giving 25-30% discount on the MRP, we charging the MRP actually pinches the patient and feel being

- 5. **Practicing evidence-based medicine:** Knowing and practicing
- 6. **Transparent and fair billing:** Treatment cost is another common

overcharged. It is important to make the patient feel not being cheated or over-charged. Fair and competitive charges with a rate list displayed near the reception and billing-counters help demonstrate transparency and build confidence. Avoid using expensive and fancy drugs to keep the expenditure to minimum. Healthcare cannot be considered a money-making business. Any new modality of treatment with not so well-established results should be done carefully after proper explanation and written consent to avoid any dispute over the additional cost of the treatment. Daily billing and payment to avoid huge bills is one of the good ways to avoiding leaving not too much to chance and a reason for dispute at the end.

7. **Address their concerns:** Patients have lots of concerns about their illness. They may be apprehensive about the diagnosis, treatment and outcome. They would have multiple questions to ask and clarify. Their major concerns are about condition of the patient, expected outcome, duration of treatment and expected expenditure. It is very useful to answer these questions with patience as this will help in establishing rapport, winning their trust and earning their cooperation.

8. **Address the financial concerns of the patient and family:** One of the major concerns of the patient and family is the expenditure on the treatment. Only 40% of the population is covered under medical insurance. Rest of them have to bear it as out of the pocket expense. As a result, any expense on treatment is like a burden and is not a welcome idea. The families with no medical cover experience more stress than those with medical cover. Addressing family's financial concerns should be part and parcel of daily counselling. In case the family expresses inability to continue the treatment under the existing facility due to financial constraints, do not hesitate to facilitate their shifting to another centre where the cost of treatment is affordable for the

family for e.g. government set up or some charitable set up. They will definitely respect your cooperation. A family that has exhausted all its funds and cannot afford further treatment has to be assessed and helped to find a suitable place to shift the patient rather than keeping the patient and later fighting over the bill. Transparent charges, giving expenditure estimate, regular discussion about the patient's condition and expenditure during the stay of the patient in hospital and assessing family's ability to pay are some of the ways to address family's concerns and avoid conflict.

9. **Address their realistic / unrealistic expectations:** When the patient is hospitalized, the patient and family expect the patient to come out fit and fine. Even in extreme serious condition the family expects miraculous results. These might seem like unrealistic expectations. But the reality is –this is how human brain functions and has a wishful thinking. Rather than being annoyed about it we need to help the patient and family accept the reality. They need to be given a reality check with the help of reports of investigations and other findings, while demonstrating all the efforts to save the patient and do your best. Patient and family will express denial, anger, anxiety and shock. These are all emotional reactions to the diagnosis and fear of loss. These need to be dealt in a therapeutic way, without taking it personally. One needs to learn and practice empathy to deal with these situations where we address these reactions sensitively while avoiding emotional involvement.

10. **Facility to meet the basic comfort and safety of the attendants:** It is essential to look after the basic comfort and safety of the attendants of the patient. Basic facilities like place to sit and rest, clean water, ventilation, clean toilets for the attendants and visitors are must to make their stay in the hospital possible. This would also help reduce unnecessary irritants. Safety of the attendants and their

belongings is also the responsibility of the healthcare facility by making sufficient security arrangements.

11. **Prompt handling of their complaints and grievances:** We collect feedback from our patients but how many of us take it seriously? How many of us implement it or do the follow up of the same? Patients and their family would give some feedback and suggestions to improve the services of the facility. These should be taken seriously as these usually cover the needs and expectations of the patients. If implemented can definitely improve the patient satisfaction. They would also come up to the staff with certain complaints. The staff should be trained to attend to these complaints promptly and not ignore them. Prompt handling of complaints demonstrates professionalism and can help nip the issue in the bud as “a stitch in time saves the nine”. Most of the aggressive reactions are outcome of trivial unattended accumulated complaints and grievances.

12. Some other remedial steps:

- a. Counselling under CCTV recording
- b. Documenting all the communications meticulously
- c. Security guards round the clock
- d. Emergency button to inform your team
- e. Networking with fellow practitioners
- f. Rapport building with police and other important people in the vicinity
- g. Social triage – identifying people who can create ruckus at your place and handling them proactively

Dr. Indu Arneja, Director, Indian Institute of Healthcare Communication has a PhD in Psychology and MBA in Hospital Administration. She is a Core Group Member (Health & Mental Health) with National Human Rights Commission, NABH Assessor (IRCA), External Assessor NQAS (MOHFW, Govt. of India), and Master Trainer - Communication in Healthcare.

MARKETING APPROACHES IN THE ERA OF DIGITAL HEALTHCARE TRANSFORMATION

Written by Satyam Mishra and Pranjal Joshi

Healthcare Transformation

Healthcare delivery has been a reactionary based delivery system. Largely seen as a product-based concept, healthcare delivery has been focused towards prescription of a drug by a doctor and subsequent treatment paradigm for the patient. The best experience in the yesteryears would mean immediate access to a doctor and a nearby medicine store for availability of the drug. For critical cases, hospitals and nursing homes were the places for treatment without much probe into details of care quality. Delivery of care is like a maze where patient's access to care depends on timely availability, affordability and effectiveness of medical care.

While customer satisfaction in healthcare continues to be measured by the clinical outcomes, digital health makes a strong case for innovation by service providers with a renewed focus on patient engagements for a better experience.

Much has changed in the past decade with the advancement of digital technology in healthcare space and rising consumerism of services. With rapid digital transformation, the importance of service-based marketing approach to healthcare systems could not be further emphasized. Healthcare

delivery through caregivers, providers is now aimed at finer details of customer satisfaction. While customer satisfaction in healthcare continues to be measured by the clinical outcomes, digital health makes a strong case for innovation by service providers with a renewed focus on patient engagements





With the emergence of digital technologies that engulf the healthcare services, a connected care paradigm for patients is the next step in healthcare innovation practices.

for a better experience.

Service Marketing in Healthcare

A contemporary approach known as Service Dominant logic states that demarcation of product and services is artificial, and more relevant than ever. Value creation in this context means creating value for the customer by the firm, which in turn enhances firm's value. For example, in case of a patient admitted in the hospital for a cardiac arrest, clinical outcomes would remain essential success factor, however ease of care, shortened administrative formalities, responsive grievance redressal, and simplified payment mechanisms are just few of the additional services that can contribute to a satisfied customer.

Services management has been

practiced since long in industries such as hospitality, tourism, but lately evolved to almost all types such as in financial services, telecommunication, and professional services among others. The democratization of healthcare, internet explosion, and onset of digitally active consumer are major contributors to deepen the service aspect in the healthcare delivery value chain. Popularly known as service marketing mix, it comprises of 7Ps, product, pricing, place, promotion, people, process and physical evidence. Healthcare delivery system today offers opportunity at every step to enhance the services offered.

Digital Health and Service Marketing

Advancement of digital interfaces in value delivery starting from information search to post treatment experience

has revolutionized the healthcare system. A comparative study by PwC showed that while it took 75 years for the telephone to reach 50 million users, a gaming app such as Angry Bird did so in mere 35 days. This rapid appetite for the consumers to embrace digital technologies is changing the mindset of companies who want to integrate digital offerings to enable new value drivers. The change in digital landscape in health has also transformed the business models as companies, providers, and caregivers strive to improve the connectivity to the consumer through social media, mobile platforms, etc. This ensues opportunity to explore healthcare services such as screening, diagnosis and care to be more commonplace through digital mediums than it is currently. With the emergence of digital technologies that engulf the healthcare services, a connected care paradigm for patients is the next step in healthcare innovation practices.

Healthcare Delivery and Innovation in Services

Traditional Patient Journey starts with a symptom identification leading the patient to a nearby physician. Lab tests are done at the recommendation of the

physician post which the treatment phase begins. If the disease recedes, the loop is closed with the patient returning only if there are further symptoms. In case of complexities, the patient is referred to specialists' treatment. Digitally enabled patient journey is where multiple stakeholders get added as touch-points to the patient. It is here the digital players such as apps for online consultation, online medicine purchase, lab tests, online appointment booking, etc. come into picture. Digitally enabled patient journey creates immense opportunities for service marketers in terms of consumer outreach. Service excellence for the providers, caregivers, points of delivery and innovative players would evolve even further with adoption of digital technologies.

Providers/ Caregivers - Hospitals such as multi-specialty, super-specialty, and other providers both public and private have seen many barriers for the patients starting from the point of entry till the billing stage. Beginning from administrative procedures, waiting times, medicine procurement, etc. there exist many points where value creation for the customer by the firm could be improved in the current

context of digital health.

One of the classic examples is Mayo Clinic. Counted as one of the best hospitals in the world, Mayo Clinic has extreme focus on patient needs through high levels of data integration in terms of patients' medical records, and seamless information flow among various points of delivery. For instance, a patient with cystic breast disease suspected a lump. She turned up at the breast clinic in Mayo to the specialists who took her medical history and performed an exam, which was immediately followed by a mammogram in the nearby breast imaging center. The breast ultrasound followed next and the results confirmed lump was a cyst and not cancer. The radiologist communicated the findings to the specialist and recorded it in the patient EMR. Patient returned to the specialist who discussed the findings with her, wrapped up the visit and recommended follow-up care. This entire exercise which could have taken days, if not weeks, was completed in few hours in Mayo Clinic.

This is one instance where digitization of healthcare is playing a significant role in improving customer services

in the context of institutions that provide care. Other potential areas in digital connected care include faster payment systems (claim processing) where insurance provider pre-empts the patient whether the hospital is in network before admission, reduced hospital days due to seamless information flow among nurses, physicians and other caregivers for quick turnaround, early screening and diagnosis for patients and so on. Enhanced patient experience contributes to service excellence and digital transformation could act as a significant enabler for providers and caregivers reducing barriers in patient care.

Points of Delivery - In the healthcare value chain, points of delivery such as pharmacies, diagnostic centers also act as major areas where value creation for a customer is imperative. Traditionally the pharmacy has been a place for product promotions by the pharmaceutical firms. However, with the expansion of chain pharmacies such as CVS, Walgreens, Apollo, and the use of digital systems, the effect has gradually become more towards patient engagement and convenience driven access to care.





From discount coupons on drugs to provide additional services such as immunization, and vaccination, digital transformation is aiding the pharmacies to spend more time with patients. Along with improving operational efficiency to quickly fill prescriptions, pharmacies focus on patient support programs such as health screening, improving patient adherence using customized programs for patients where patients could register using apps, get regular updates regarding prescription filling, vaccination reminders, and other such services. As the role of the pharmacies evolve more from a product-based approach to a more service oriented one, digital enablers would assist in marketing approaches to improve customer experience.

Innovative Digital Solutions - Digital transformation in patient buying behavior has chartered a new territory for innovative digital solution providers in healthcare. This ranges from the beginning of the patient entry as to identification of symptom to the end of patient journey which is post treatment

experience. Customized apps for information or symptom search, smart medical devices that track physical activity, remote monitoring solutions, and telehealth are just few players in the fast-increasing segment of healthcare that adds to consumerism of services. From a service marketing perspective, these digital devices serve as means for the firms to acquire customers, retain them and add more services to the solutions which would result in one-stop shop for the patient in its journey. As patient centricity becomes further positioned, the next steps could be connected solutions through which the consumer could make an appointment, order lab tests, purchase medicines on prescription, integrate its health insurance plan for payments, register in disease specific adherence program and get updated about the next prescription fill and nearby available pharmacies.

In a nutshell, a key aspect of service marketing is the people orientation and with the onset of digital health platforms, value creation is focused towards patient

engagement strategies and personalized care. The healthcare industry is poised to expand its reach from just treating the patient with a drug to a more wholesome patient experience. Thus, an evolving digital landscape creates immense opportunities for existing and novel players to enhance patient centricity and service excellence in healthcare delivery.

Satyam Mishra, Principal Author, is a healthcare enthusiast and has been in the profession for around 6 years. He is currently working as a Consultant in Digital health in one of the global management consulting firms in Gurgaon. An MBA in Marketing and an undergraduate in engineering, he loves to read and explore about health.

Pranjal Joshi, Co-Author, is an avid writer and passionate about communication. He is leading a venture into professional talks and is based out of Jaipur.



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RESEARCH

NEWSCOPE

INNOVATIVE BIOMARKERS FOR EARLY DIAGNOSIS AND TREATMENT OF LIFE-THREATENING DISEASES

Written by Amit Chopra



From the inception of medical science, there is heavy reliance on research to find ways to detect and combat dreadful medical conditions. While many of the diseases known are curable, thanks to the advances in technology and innovations in research, there are still some that call for more attention and a more precise treatment plan.

One such medical condition is Sepsis

- a life-threatening disease affecting more than 30 million people globally every year. Sepsis is a medical condition when the body's response to a present infection damages its own tissues and organs resulting in death or serious illness. If not treated at the initial stages, Sepsis can trigger low blood pressure resulting in organ malfunction or even worse, a condition called Septic Shock.

Antibiotic treatment of Sepsis patients

often relies on clinical observation and educated guesswork as clinicians wait for a culture to determine whether the infection is bacterial, viral, or possibly fungal. But with the U.S. Food and Drug Administration's (FDA) recent approval of automated platforms for procalcitonin assays and mounting evidence of PCT's value as a biomarker, hospital laboratories are turning to PCT to diagnose Sepsis and guide antimicrobial stewardship.

There is a sheer need to develop and manufacture novel diagnostic testing tools that not only improve early diagnosis and treatment of life-threatening diseases.

The world has acknowledged Sepsis as a life-threatening condition and a challenge for the medical industry to combat. The Global Sepsis Alliance is an organisation working at the forefront, to increase awareness about the disease globally.

Over the past six years, Thermo Fisher has worked with the Global Sepsis Alliance and other advocates to raise awareness of the signs and symptoms of Sepsis.

Thermo Fisher Scientific - a world leader in serving science, is committed to providing exceptional laboratory tools to assess the risk of bacterial infection relating to Sepsis with the B-R-A-H-M-S PCT (Procalcitonin) biomarker assay. The B-R-A-H-M-S PCT assay provides information on the presence and severity of bacterial infection, helping physicians in emergency departments, intensive care units and other critical care units to decide whether to initiate antibiotic therapy in patients and when to safely discontinue antibiotics in patients with lower respiratory tract infections (LRTI) and Sepsis, without compromising patient's safety.

B-R-A-H-M-S PCT (Procalcitonin) supports responsible use of antibiotics. The overuse of antibiotics is a global problem but the B-R-A-H-M-S Procalcitonin assay can help guide the judicious use of antibiotics. Credible evidence from several reproducible,



randomized clinical trials with more than 10,000 patients support B-R-A-H-M-S PCT as an effective tool to safely reduce antibiotic exposure in patients. It has a proven utility across diverse clinical settings. In addition to other clinical criteria, these assays enable quick decision making by the clinicians, be it for starting antibiotic therapy or its safe discontinuation. B-R-A-H-M-S PCT greatly helps to reduce prescriptions, tailor the therapy duration to individual patient needs and finally supports to save costs.

There is a sheer need to develop and manufacture novel diagnostic testing tools that not only improve early diagnosis and treatment of life-threatening diseases like Sepsis, but also to provide high-quality immunodiagnostic assays to immensely support medical professionals and patients to get closer to a future without such dreadful infections.

About Thermo Fisher Scientific

Thermo Fisher Scientific is the world leader in serving science, with

revenues of more than \$24 billion and approximately 70,000 employees globally. Their mission is to enable the customers to make the world healthier, cleaner and safer. They extend help to accelerate life sciences research, solve complex analytical challenges, improve patient diagnostics, deliver medicines to market and increase laboratory productivity. Through their premier brands - Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific and Unity Lab Services – they offer an unmatched combination of innovative technologies, purchasing convenience and comprehensive services.

Amit Chopra, Managing Director India and Middle East, Thermo Fisher Scientific has been with the company since May 2007 as MD for their Laboratory Products Group in India, and was named Managing Director & VP/GM for Thermo Fisher's India operations in March 2011 and took on additional responsibility for the Middle East region starting 2017.



CURE TO DIABETES MELLITUS – PEEPING INTO THE FUTURE

Written by Mahan Shome

The number of people with diabetes has risen from 108 mil in 1980 to 422 mil in 2014. The global prevalence of diabetes among adults over 18 years of age has risen from 4.7% in 1980 to 8.5% in 2014. Diabetes prevalence has been rising more rapidly in middle- and low-income countries. Diabetes is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation. In 2016, an estimated 1.6 mil deaths were directly caused by diabetes. Another 2.2 mil deaths were attributable to high blood glucose in 2012. Almost half of all deaths attributable to high blood glucose occur before the age of 70 years. WHO estimates that diabetes was the seventh leading cause of death

in 2016. This article discusses how diabetes can be treated in future, the whole new possibilities that are under research and might be implemented in the near future.

What is Diabetes Mellitus? Increased blood glucose level caused due to the lack of insulin produced by the beta cells of pancreas. Simply saying, the function of insulin is to transfer glucose from blood to inside of our body cells. It has two types. Type I Diabetes Mellitus (Insulin Dependent) is characterized by inability of the pancreatic beta cells to produce any insulin (80% of these cases are due to the destruction of pancreatic beta cells by auto antibodies). These patients are completely dependent

on insulin injections that have to be administered several times a day. Type II Diabetes Mellitus patients are a bit lucky in this case. Their pancreas are able to produce some insulin. Hence their pancreas can be stimulated to release insulin with the help of several medicines daily. But eventually as the age progress they lose all their abilities to produce insulin and become insulin dependent. In most of the cases, onset 40 years of age.

But the question is – can't we provide these patients with some better treatment plan? Can't we cure this deadly disease completely? The article introduces step-by-step possibilities which might change the whole approach towards the

treatment of Diabetes Mellitus in future!

Those patients who are completely dependent on insulin shots daily several times, might receive some comfort by the 1st technique. It is 'Artificial Pancreas'! As the pancreas works by estimating the blood glucose and then secreting insulin into the blood, it has similar functions. More specifically it is called 'Continuous Glucose Monitor' or CGM in short. CGM monitors the blood glucose 24 hours a day and the patient can have the readings on his digital watch or smart phone or may be in a device which can be kept in his wallet. It is less invasive because it is placed just under the skin and it measures the glucose level in the interstitium, and one need not prick himself several times a day. An alarm will ring automatically whenever the blood glucose goes up thereby making the patient alert. It has two more components. 1. Insulin Pump which delivers required amount of insulin into the body on its own when the blood glucose level decreases. The patients need not worry about anything. Blood glucose level will be monitored all the time and insulin will be delivered when required. 2. Control Algorithm is controlled by the patient himself. During meal, he can direct the device to infuse insulin in order to avoid increased blood glucose level after meal. This whole device is a result of 40 years of long research and has been implemented successfully. This is



also approved by FDA for clinical use. The only known disadvantage is that it has skin rashes and allergies due to the tape. In near future, this particular technology might solve a bunch of problems of diabetes patients who are completely insulin dependent.

But this was not a permanent solution! Patient is still dependent on insulin. How can he be cured completely? The cure is possible only if we can regenerate the beta cells of pancreas and provide them enough protection so that they are not destroyed by the auto-antibodies again. This seems to be possible again. Gene Therapy is the key. Firstly, it is important to mention that even though this was a success in other animals, it is yet to be tested on human. But the test results on rats are satisfying enough to give us hope. The scientists introduced insulin producing and controlling genes through a plasmid into the alpha cells

of pancreas! It might sound weird, but it actually worked. Upon inclusion of insulin producing genes some of other pancreatic cells started producing insulin in rats! Advantage of this therapy can be a step towards complete cure. Most satisfying thing is as these cells are still antigenically different from beta cells, they will not be destroyed by autoantibodies and still can be able to produce insulin. Major disadvantage of this technique is that still they are not tested on human and we do not have any evidence how human body would react to these. Another limitation would be – doctors need to target specifically pancreatic cells. Otherwise it might go elsewhere and eventually result in insulin production from heart or kidney or even brain! That can be deadly.

But the previously discussed technique was about turning other types of cells into insulin producing cells. What about the regeneration of beta cells itself? Well, it is the most recent advancement in research. Though very little has been found till date but still those are enough to make researchers interested. While studying a benign pancreatic cell tumor (insulinomas) scientists came to know that a DYRK1K inhibitor called harmin is able to promote beta cell growth at a rate of 2% in in vitro. A combination of two distinct classes of molecules has been shown to induce proliferation in adult human beta cells at a rate of 5% to 8% in in vitro and 2% in vivo transplant





models, a rate far exceeding pancreatic beta-cell replication rates from other experimental drugs (0.2%). Sometimes the rates even attain 15-18%. The two drugs - a DYRK1A inhibitor (harmin) combined with a transforming growth factor (TGF)-beta superfamily inhibitor - worked synergistically to induce “previously unattainable” rates of human beta-cell proliferation in human islet donors, human stem cell-derived beta cells and stem cells from people with type 2 diabetes. The main advantage of this technique can be – the actual beta cells can be regenerated and that can be the best cure because some pool of beta cells is always left atleast in type II diabetes. But there are a lot of hurdles that need to be overcome. First obstacle is that those inhibitors must be guided to the right location through chemical tags. As harmin is halucinogenic, it might cause many neurological problems if not guided properly. Secondly the newly generated cells most probably will attract auto antibodies and might be destroyed again in case of type I diabetes. There are a lot of questions that have to be answered. If this research gains success, certainly

While studying a benign pancreatic cell tumor (insulinomas) scientists came to know that a DYRK1K inhibitor called harmin is able to promote beta cell growth at a rate of 2% in in vitro. A combination of two distinct classes of molecules has been shown to induce proliferation in adult human beta cells at a rate of 5% to 8% in in vitro and 2% in vivo transplant models, a rate far exceeding pancreatic beta-cell replication rates from other experimental drugs (0.2%).

it will be a game changer in Diabetes Mellitus treatment.

Medical science is marching forward day-by-day. Hence, we must be optimistic. We must believe in the abilities of the researchers. The day is not far when diabetes, the deadly killer, will be curable.

Mahan Shome is a young medico studying medicine abroad. In his leisure time, Mahan likes to read innovative scientific health articles. His dream is to be part of healthcare research that brings about advancement in medicine. He hails from Howrah, West Bengal.

Timeline of events

InnoHEALTH 2018

October 5 - 6, 2018

EWS project was launched during InnoHEALTH 2018. The team has around 15 volunteers expert in different fields focused on bringing awareness to the 70 million diabetic people in India by September 2021.

ESICON 2018

November 15 - 18, 2018

The EWS team participated in ESICON 2018 - A conference hosted by Endocrine Society of India. The EWS team conducted diabetes expert video interviews and session recordings of role play activities. The team covered experiences of endocrinologists and also captured the general view of the public about dealing with diabetic situations.

SPEEDCON 2019

February 2 - 3, 2019

The EWS team participated in SPEEDCON 2019 where Dr. Sanjay Kalra, mentor to the EWS project, curated a panel of people living with diabetes with diabetologists as audience on unmet needs.

FTR4H, Medical Fair India

February 22, 2019

EWS team hosted a panel in FTR4H on type 2 diabetes as part of Medical Fair India 2019. The panel had experts in diagnostics and digital health on how technology can help in diabetes management. Dr. Mukul Bagga, Dr. Vibha Jain, Dr. V K Singh and Sachin Gaur were part of this panel.

3D - Safe & Smart event

April 20, 2019

Sachin Gaur from the EWS team gave a talk to doctors from 13 countries on artificial intelligence in diabetes at 3D - Safe & Smart event.

InnoHEALTH 2019

October 4 - 5, 2019

The EWS team hosted a session on "Fighting diabetes with technological innovations" as part of the 4th annual international healthcare conference InnoHEALTH 2019.

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TELEMEDICINE

Written by Lavanya Rathi, Sukriti Gupta and Vrinda Bhola



In India, nearly 86% of all medical visits are made by people belonging to rural households with majority still travelling more than 100 km to avail basic healthcare facilities.

In order to combat this problem of deficiency in rural healthcare, the concept of TELEMEDICINE was introduced. It is a branch of e-health that allows healthcare professionals to evaluate, diagnose and treat patients at a distance using information and communication technologies.

Although initially considered “futuristic” and “experimental,” telemedicine today is a reality and has come to stay. Telemedicine has the potential to bridge the distance between doctor and patient and also facilitate healthcare in remote areas. Telemedicine can be particularly beneficial for patients in medically underserved communities and those in rural geographical locations where clinician shortages exist with the nearest medical centre is 20-plus miles away.

The importance of telemedicine can

be felt particularly in a country like India where many people living in smaller towns and rural communities do not have access to the best medical experts. However, with the emergence of telemedicine, these dynamics are changing because the best doctors are being brought together with patients through information and communication technologies.

Taking Uttar Pradesh as an example. Government data shows that UP has a shortage of 33% Sub Centres and 35% Primary Healthcare Centres (PHC) but a suspicious surplus of 190% Community Health Centres (CHC) compared to what is required. Further scrutiny shows that these CHCs have a severe shortage of human resources and basic infrastructure. Not even half of these CHCs have a functioning X-ray machine. Fundamentally, this suggests gross misallocation of resources and wastage of public funds.

The data from the government’s Rural Health Statistics 2016 shows that there is an overall 84% shortage of specialists,

77% shortage of lab technicians and 89% shortage of radiographers in the Community Healthcare Centres of UP. Many of PHCs and CHCs do not have regular supply of drugs for common ailments. This raises concern about the ability of the public health institutions to treat common ailments such as diarrhea.

Faced with this rural healthcare situation, a programme was initiated in Mathura district of Uttar Pradesh to provide primary healthcare for the rural population. This initiative was born out of the partnership between Tata Trusts Mumbai and Ramakrishna Mission Sevashrama hospital (RKMS), wherein the Tata Trusts provide all the funds necessary to run this project. Under this project, 11 telemedicine units (TMUs) and two mobile medical units (MMUs) have been set-up in nine blocks of the district.

TMUs: The telemedicine units work on a hub-and-spoke model: a patient-side unit established at a tele-medicine facility that is connected to a central hub – the Ramakrishna Mission Hospital in Vrindavan. Doctors based in the central

hub consult virtually with patients at these telemedicine units. The consultation is facilitated by a trained nurse at the unit. TMUs are also equipped with diagnostic services, equipment for NCD screening and a well-stocked pharmacy.

MMUs: The mobile medical units are equipped with trained medical officers and nurses, and provide consultations free of charge. The MMUs run day-long medical camps in various villages, providing consultation, NCD screening and diagnostics as well as

NCDs and enhance awareness in all villages in the intervention area.

In addition to this, the project also aimed at creating awareness about non-communicable diseases and telemedicine so that its benefits can be availed by the public. Telemedicine in Mathura has changed the lives of many people and they have expressed how the telemedicine units have helped them get access to primary healthcare. This has helped to decongest the hospital and enhance the utilization of medical resources.

Today there are tens of millions of Indians living in remote corners of the country who don't have access to some of the basic healthcare facilities that city dwellers take for granted. Thus, this problem can be resolved if other projects like VIMS are inaugurated in rural and inaccessible areas. Viewing VIMS as a bellwether for telemedicine and keeping in mind the example of VIMS, many other organizations can contribute in bringing these healthcare facilities to the doorsteps of such people in a country like



medicine dispensing services.

The project had a massive outreach, covering more than 700 villages and targeting a population of 26 lakhs. It has impacted 3 lakh people till now and the services are not only free of cost but also provide healthcare in rural and remote areas. The project focuses on faster detection of non-communicable diseases like cancer, hypertension and diabetes as compared to the conventional ways of detection. The intervention focuses on non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, hypertension, cancers, etc.

The intent is to improve screening of

Smaller hospitals in rural areas are also able to provide intensive care services with the help of specialists in other facilities via remote patient monitoring systems. Telemedicine models have worked wonders in the US and some European nations and have been a topic of wide interest. India, on the other hand, is even more suited for telemedicine than the US or EU due to the unequal distribution of doctors. Despite this, over a span of 19 years only 175 telemedicine units have been set-up in India. Thus, the numbers are dismal and there is a dire need to understand that Telemedicine is a roadmap for improved medical care in rural areas.

India where there is a lot of room for development and the communication industry is rapidly expanding.

Lavanya Rathi, Sukriti Gupta and Vrinda Bhola got together to write this article to create awareness about the very important issue of Telemedicine. Sixteen-year old students, studying at Modern School Vasant Vihar, New Delhi, have been researching passionately on telemedicine for the past eight months and truly believe this can be the future for rural healthcare in India.



LATEST NEWS IN HEALTHCARE!

MEDICAL DEVICE REGULATIONS TO BE REWIRED TO IMPROVE THE QUALITY AND SAFETY

The government is looking to put all medical devices under the administration of the Central Drugs Standard Control Organisation (CDSCO). This step is being taken to improve the quality and safety of the medical devices. Health Ministry has issued a draft notification asking to define all medical devices under Drugs and Cosmetics Act wef 1st December 2019. This draft would seek and record the information on import, manufacture and sale of all medical devices to be certified by CDSCO and

manufacturers will have to get a license from the Drug Controller General of India (DCGI). Once these devices are classified under drugs, it would be the Central Drugs Standard Control Organization's (CDSCO) responsibility to regulate them. Industry sources claimed that there were plans afoot to create a separate statutory body for medical devices regulations that would run on the lines of the FSSAI, an autonomous body under the Health Ministry. As food is different from drugs, FSSAI was created

to monitor it. Thus, NITI Aayog is also considering the option that a separate body could be created for medical devices. A draft Medical Devices Bill has been formulated and would be shared with all stakeholders within a quarter to take their viewpoint on same. Industry may be in favour of having a separate statutory body as devices were different from drugs. Now the government has to decide on overhauling of regulation for the medical devices.

SOURCE: www.business-standard.com

REDEFINING HEALTHCARE: THE FUTURE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE

When we first try to implement a new technology to an existing field, we tend to think within the present scaffolds leading to an extensive (horizontal) growth rather than an intensive one (vertical). Today, a number of powerful technologies allow us to define some of healthcare's greatest challenges in terms of data and how we manage it. Artificial Intelligence (AI) is emerging as a rapidly evolving technology and is being seen as widely accepted technology in many fields. Healthcare being one of those areas that hold lots of promise for the application of AI. World-famous companies like IBM, Microsoft, Google and other big healthcare companies are using AI as a technology for the development of cutting-edge solutions. Not only the big players but start-ups belong to this list too. With increasing awareness and usage of



Internet of things, wearables, and digitally connected consumers, health data can be generated and collected at a scale we had never dreamt of. Through advances in machine learning (ML) and AI, we have the ability to reason about and utilize this data at an unprecedented scale in order to predict, prevent, and treat more and more diseases and even more efficiently. AI, when applied

in healthcare, has the potential to improve the quality of services and lower the cost of quality care. India is perfectly positioned to come up with solutions that could solve the need of hour issues, with its enormous resource of unstructured health data and population diversity, combined with the vast pool of talented healthcare stakeholders with a right kind of awareness and knowledge in this field. AI in healthcare has huge and wide potential including mobile coaching solutions to drug discovery falling under the umbrella of what can be achieved with machine learning. With this growing technology, we need to figure out ways to harness the power of it and to prevent the misuse of it at the same time.

WOULD CLIMATE CHANGE BE ADDING TO HEALTH BURDEN IN INDIA

While the air pollution in Northern India, specifically in National Capital Region (NCR) are well known and are at alarming levels. The air quality condition is acute in some other metro cities too and the depleting air quality is posing an increased health hazard, especially to those with respiratory malaise. Not only the people with respiratory disorders are being affected but also as the polluted air contains low oxygen levels it can damage the sperm. Leaving aside the numbers, it deteriorates the sperm quality if you are exposed to pollution on a long-term basis, like many of us in Delhi are. Women's reproductive health, too, is jeopardized by polluted air by adversely impacting the ovarian

follicles. Another question of concern amongst people is, can an increase in the chances of falling ill due to the increasing air pollution, impact health insurance premiums? So to answer this, Amit Chhabra, Head - Health Insurance at Policybazaar.com, an online insurance marketplace says "A few health insurers already have slightly increased premium rates in Delhi-NCR and most parts of north India because the loss ratio in this region is higher compared to the rest of the country,". This air pollution consists of PM 2.5 particles can that have the capability to reach deep into the lungs. Particulate Matter (PM) 2.5 are tiny, less than 2.5 microns in diameter. Not only the healthcare industry, but also

the aviation industry is playing its part to cater and fight this adverse scenario. AirAsia India on 19th November 2019, said it is entering into a partnership with a health technology start-up called Mfine to provide pollution masks to all its passengers taking flights from Bengaluru, Delhi-NCR, Hyderabad, Kolkata and Mumbai. "The campaign will commence on 19th November 2019, and end on 29th November 2019," it said in a statement. To tackle this, doctors are advising to wear masks, install air purifiers at homes, offices and wherever possible in automobiles as well and stay indoors as much as possible.

SOURCE: www.livemint.com;
www.news18.com

COUNTRY'S MOST EXCITING LIFE SCIENCES INNOVATION HUB'S LATEST INITIATIVE TO SUPPORT MED-TECH START-UPS

Centre for Cellular and Molecular Platforms (C-CAMP, a Department of Biotechnology, Government of India initiative, with support from National BioPharma Mission (NBM), Biotechnology Industry Research Assistance Council (BIRAC) and Department of Biotechnology (DBT), has announced a first-of-its-kind national MedTech rapid prototyping facility with a focus on Microfluidics technologies to be launched formally in 2020.

A call for pre booking of the facility will be announced soon. The facility is to ideate design and prototyping support to med-tech start-ups in developing low-cost, rapid and point-of-care Microfluidic Device solutions with applicability in both human and animal healthcare. Through this Rapid Prototyping facility, C-CAMP will open its doors to researchers from across academia, industry

and start-ups for fabricating plastic microfluidic devices from design to pilot scale bolstered also by basic testing capabilities. C-CAMP is the country's most exciting life sciences innovation hub that brings together

academia, industry and the start-up ecosystem - all on one platform with a mandate to enable cutting-edge research and innovation in the life sciences.

SOURCE: www.biospectrumindia.com





INDIA TO GET 4 MEDICAL DEVICE PARKS

The government has given approval for setting up four medical device parks with a view to support Make in India initiative and provide world-class products at an affordable price for treatment. The four parks will be set up in Andhra Pradesh, Kerala, Tamil Nadu and Telangana, sources said, adding that Uttarakhand and Gujarat have also approached the Centre for a go-ahead for such parks. These parks will provide necessary infrastructure, where companies can easily plug and play, sources said. This will not only cut import bill but will also help in easy

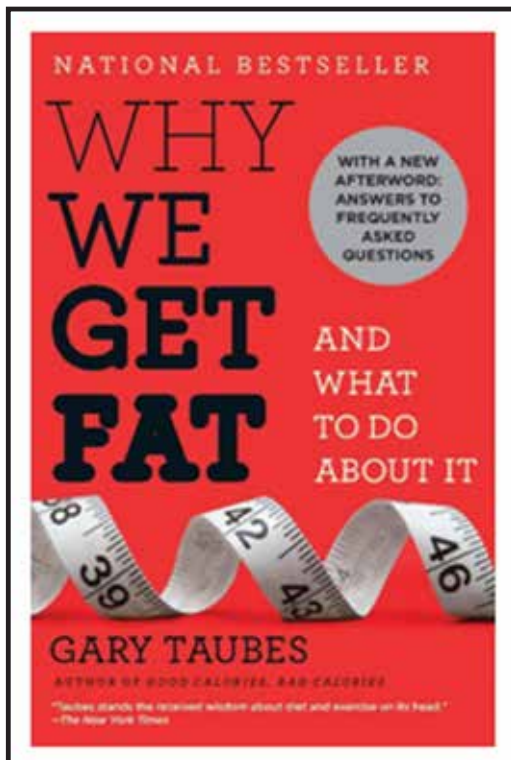
access to standard testing facilities and reduce cost of production, they said. The project of Andhra Pradesh Medtech Zone for creation of Common Facility Centre (CFC) for Superconducting Magnetic Coil Testing and Research was given in-principle approval recently. The scheme proposes to provide Rs 25 crore or 70 per cent of the project cost of setting up of CFCs, whichever is less, for creation of common facilities in any upcoming park. According to estimates, the medical devices retail market in the country is around Rs 70,000 crore. The do-

mestic medical devices industry is very small even though India is the fourth largest market in Asia. India is largely an importer of medical devices, with domestic industry accounting for about 2 per cent of the global industry which stands at USD 250 billion, as per the estimates.

SOURCE: www.economicstimes.indiatimes.com

Compiled by:
Parthvee Jain, Editor,
 InnoHEALTH Magazine

BOOK REVIEW



By Sachin Gaur,
Executive Editor,
InnoHEALTH Magazine

As a type 2 diabetic and interested in reversing the same!!!

A big part of my quest is to lose weight and 'right' diet. As they say you start with 'why' when you are looking to solve a problem. Hence, I started with this book with the title apt to my quest by Gary Taubes. Gary makes a case for improved understanding the body biochemistry processes and how carbohydrates have become a major part of our diet and responsible for the menace.

Insulin free period in the blood are the times when fat could be burnt for energy. So, not only do we need less carbohydrates

in our meals but also those gaps when insulin is not secreted. As insulin secretion suppresses fat metabolism. So, intermittent fasting could be one method to have those longer gaps when fat metabolism can happen.

As someone said, "Let food be thy medicine, and let medicine be thy food", Gary Taubes book provides a solid foundation and I must say a myth buster when it comes to understanding of human requirements for food. I encourage you strongly to pick up the book if you are looking to shed those extra kilos. For me, the next step is to convert the understanding to practice and make progress in diabetes reversal. You may check progress on our website: www.ExperimentsWithSugar.in

Bridging innovations across continents

InnoBRIDGE, an initiative of InnovatioCuris (IC), aims to bridge the gap between the Indian and Global healthcare stakeholders by hosting Indian delegations to different countries to strengthen the healthcare ties and showcase the best of global healthcare



InnoBRIDGE
USA 2020

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UNMET NEEDS - LEADING TO INNOVATION: INNOHEALTH ANNUAL CONFERENCE 4- 5 OCTOBER 2019

Written by Dr. Jasmeet Kaur

While winter started knocking the doors of North India, the vibrant city of New Delhi observing a gradual plunge in its morning temperature, was witnessing one of the most remarkable events of the year where eminent thought leaders shared their astounding ideologies on innovations in healthcare.

The fourth InnoHEALTH conference was the latest milestone in the series of InnoHEALTH Annual Conferences which marked its success in creating new landmarks in healthcare innovations. Together with Indiattitude, team InnovatioCuris through this conference, put forward the burning issue whether innovations can achieve healthcare at optimum cost and improved quality. The theme for this year was “Unmet Needs - Leading to Innovation”.

The conference aimed at identifying the pain points that arise from gaps in the

healthcare sector and the innovations that will be crucial to strengthen the healthcare in India, better prepare us for healthy lives and to effectively manage our health crises across the country borders and beyond. A huge participation from across the globe made the conference a great success

which included healthcare providers, doctors, and innovators. The report that follows will provide the readers, the important messages of the key speakers along with their recommendations to address the unmet needs.

The inaugural session was addressed



Fighting diabetes with technological innovations session



by Dr. V K Singh, Managing Director, InnovatioCuris Pvt. Ltd., who set the tone for the conference by raising the genuine questions as how one can create healthcare delivery at optimum costs. He emphasized on working with grassroot innovators. In his speech, he also warned the young innovators to trust the technology only up to a limit.

Our guest of honor, Lt General (Dr.) Rajesh Pant, National Cyber Security Coordinator, Prime Minister's Office, Government of India, in his special address quoted Mark Twain's quote, "Gutenberg's invention created heaven, and along with it a new hell". He related this saying by how it applies equally to technology. As the technology has given us new horizons and ways to live, it has alongside created problems too. Dr. Yasmin Ali Haque, UNICEF India Representative in her introductory address, gave a brief overview on the how unmet needs, especially in health sector become the mother of innovations and how technology can be a solution to address those innovations. She insisted on the use of scalable technology as to how it can be made accessible to millions of people. Referring to this, she talked about the 2030 agenda for sustainable development. The world has resolved to leave no one behind in fighting extreme poverty and preventable child deaths.

Mr. Karnal Singh, Ex-Enforcement

Director, India raised during his speech Narayana Murthy's concern that there have been no recent innovations from India. "Are we so bad?" He said we would have to think differently for finding solutions. The education which we receive in our country is more competitive than collaborative.

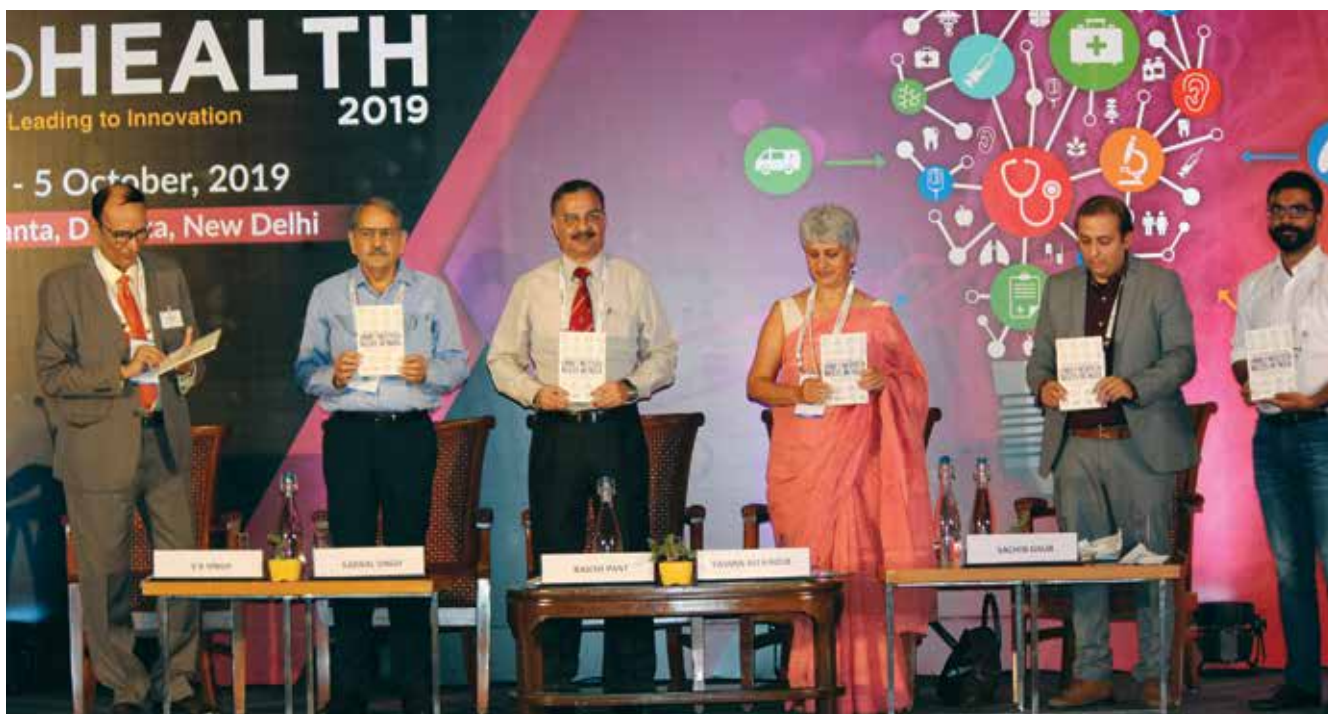
There are many unmet needs in health sector, for example, for majority of injections, cold chain is not maintained. It's been a long time that we could have insulin tablets rather having the existing insulin injections. India, prominently being an agricultural land faces a major unmet need of water requirement, which is only 50% against the 80% requirement. He

acknowledged that 2010-2020 has been the decade of innovations for India. To everybody's pride, the ranking of India in the global innovation index has improved by five places to 52nd in 2019 from 57th position last year. Sachin Gaur, Director Operations, InnovatioCuris, took the opportunity to drive everybody's attention towards the trust deficit which persists in medical community and equity of stakeholders. He insisted on developing a common language within the medical fraternity to which Artificial Intelligence (AI) can be a probable answer.

The forum manifested remarkable heterogeneity with its speakers from various realms across the globe.



Digital health: Giving birth to new delivery models through Mobile, IoT, Block Chain and Artificial Intelligence session



InnoHEALTH 2019 conference inauguration by (L-R) Dr. VK Singh, MD, InnovatioCuris (IC), Sh Karnal Singh, Ex- Enforcement Director, India, Lt Gen (Dr.) Rajesh Pant, National Cyber Security Coordinator, PMO, Gov of India, Dr. Yasmin Ali Haque, UNICEF India representative, Sachin Gaur, Director, IC and Ravi Jangir, author of the book being released

The second session on “Innovations for hospitals and insurance companies” was very interestingly structured as a free-style discussion. Mr. Mohan Krishnan introduced the discussion with a brief presentation on the global trends in healthcare and their affordability. He particularly emphasized on access to healthcare resources and quantity shortage in India. He highlighted how lifestyle associated diseases have taken over the communicable diseases. He discussed the key trends in supply dynamics, their relationship to healthcare sector, and the challenges and opportunities for their future implementation. The functional and central aspect of this session was majorly about healthcare which is accessible and affordable to the masses. Other key points that emerged during the session are outlined as:

- switching of communicable to non-communicable lifestyle associated diseases
- lack of medical care in rural areas
- Ayushman Bharat Yojana or Pradhan Mantri Jan Arogya Yojana or National Health Protection Scheme: one of the largest and promising healthcare initiatives

Dr. V K Singh raised some very genuine issues: how can one create healthcare delivery at optimum costs. He emphasized on working with grassroot innovators and also warned the young innovators to trust the technology only up to a limit.

which aims to address healthcare holistically

- patient feedback must be a pre-requisite while thinking of the innovations which can fulfill the unmet needs
- biggest challenge in healthcare is information symmetry
- one of the most remarkable point that came up was that the healthcare provider should be “paid to prevent”, and not paid to cure
- 5 P’s should be prioritized: People, Plant (equipment in hospitals), Processes, Premises, Patient care

This enlightening session focused on four most important factors, viz., better health outcome, better patient experience, better staff experience and better costs.

The tone of the next session on “Innovations in medical devices and diagnostics” was set by majority of doctors. The diagnostics could be done by the help of paramedics or people other than doctors and then they could be replaced by automated systems or AI. There are schemes such as Ayushman Bharat, which give accessibility to each one. The innovations could be patient centric, healthcare centric or in terms of sustainability. The focus was on trends impacting medical devices and diagnostics, for example lab-on-chip, wearable health monitoring devices, AI, 3D printing, etc.

The brainstorming session provided meaningful insights to the remedies which innovations can bring to the unmet needs in healthcare. Prime

Minister's health and wellness program was much talked about. Challenges in the not-much-explored area of management of blood banks were discussed. The lack of a centralized system of blood banking is a major concern.

The role of medical robotics, which is a type of disruptive technology, is very fascinating. The thought of switching from open surgery to key-hole-surgery to no-hole surgery is in fact very intruding. Another major concern across the globe is diabetes and how the diabetologists across the nation are ignorant in not examining the feet of their diabetic patients as 30% of the diabetics suffer from severe foot diseases. There are ample cases of diabetic amputation, which must raise an alarm within the diabetologists.

The fourth session was a very inspirational one wherein the dais had seven women innovators, each one unique in their own fields. As Prime Minister Modi once said, "The progress of humanity is incomplete without the empowerment of women."

InnovateHER gave a common platform to few wonderful women where they shared their stories of inspiration, falls, and experience. This session was indeed a beautiful stretch of one hour where these women from varied backgrounds

The session on Innovations for hospitals and insurance companies was very interestingly structured - the discussion focused on the global trends in healthcare and their affordability with particular emphasis on access to healthcare resources and quantity shortage in India. The paramount issue of how lifestyle associated diseases have taken over the communicable diseases. The functional and central aspect of this session was majorly about healthcare which is accessible and affordable to the masses.

and aspirations showcased their expertise and their words gave hope, path and motivation to everybody present in the auditorium. They were an epitome of women empowerment and proved it greatly "Komal Hai Kamzor Nahi Tu, Shakti Ka Naam Hi Naari Hai, Jag Ko Jeevan Dene Wali, Maut Bhi Tujhse Haari Hai".

Ms. Shriya Sethi, presented detailed statistical data on women entrepreneurs, about emerging trends in healthcare innovations, the existing lacunae and

the current scenario of general well-being of people. Ms. Priya Prakash, Founder & CEO, HealthSetGo, was one of the youngest innovators, who herself realized at a very tender age, the importance of good health. This drove her to initiate her existing foundation, which focuses on the wellness of children. "If the kids are healthy in the first place, the coming young generation would be disease-free", was her take on the evolution of her organization. Another eminent panelist Ms. Preeti Rao, Founder & CEO, Weljii, inspired



India Global Collaboration in Health Sector: Start-up opportunities and challenges session



InnovateHER: Inspiring Women Entrepreneurs in Healthcare session

everybody around to focus on being healthy. Instead of talking about the illness, she emphasized more on how people must take care of their wellness which includes both physical and mental health.

Ms. Veena Sehgal, a pharmacist and entrepreneur mentioned the gap in the availability of medicines which the doctor prescribes. They are most of the times available on area-specific basis which makes it difficult and time consuming for the patients. There should be an emphasis on generic medicines, rather than brands.

Amidst such tech gathering which had brought together so many thought leaders and experts alike; we had between us few young innovators. These innovators with their priceless ideas and vision delivered their pitches to make their candidature remarkable in its unique way. The candidates included Priya Prakash (HealthSetGo), Yogesh M (Hybrid effluent water system technology), Saiprasad Poyarekar (spray-on skin tissue), Ashish Sharma (Drip monitoring system) and Vijay Kumar Kumawat

Dr. Arjun Dang, CEO, Dr. Dangs Lab, who was chairing the session referred India as the “diabetic capital of the world”, referring to the alarming scenario of the affected Indians wherein around 16 million Indians are affected with Type 2 diabetes, and this number is expected to rise to more than 100 million in the next ten years.

(Microporous implants). With their unique set of products/services, the candidates made it difficult for the jury to decide on the winners. Saiprasad with his technological advancement of spray-on skin tissues to get rid of minor-to-severe burns grabbed him the award for best innovator pitch. He was followed by Vijay Kumar, as 1st runner-up and Priya Prakash as 2nd runner-up.

The book “Unmet Medtech Needs in India” by Mr. Ravi Jangir, launch became the major highlight.

The next session was a special one

dedicated to diabetes, one of the most worrisome chronic diseases across the globe. The speakers talked about how to monitor, control and manage the disease.

Dr. Arjun Dang, CEO, Dr. Dangs Lab, who was chairing the session referred India as the “diabetic capital of the world”, referring to the alarming scenario of the affected Indians wherein around 16 million Indians are affected with Type 2 diabetes, and this number is expected to rise to more than 100 million in the next ten years. He also insisted not to commoditize healthcare, rather consider it as a service which requires a lot of

compassion and empathy.

One very relevant question that came up was that “Why Indians are most prone to diabetes?”. Probably it is because of the harmful oils and highly processed foods available in the Indian markets. Stress is a huge component in diabetes management. Exercise and breath-management (pranayama, etc.) have a major impact on diabetes management. One of the major contributors of diabetes is non-nutritional food. Sleep which is often understated has a direct impact on blood sugar level which increases due to lack of proper sleep. Diabetic patients can improve only to fall back again into the same pit and destroy their health, hence it is of utmost importance to rescue them.

Among the highlights of the next session, “India Global Collaboration in Health Sector: Start-up Opportunities and Challenges” were the long-term Australia-India collaboration goals in the field of Science and Technology. To seek the answer to the question, “What can India offer to countries in the panel and what do the countries have to offer for India?”, let’s read next.

Dr. Jukka Holappa, Commercial Counselor, Country Manager India at Business Finland, shared the current status of healthcare in Finland. He spoke about the excellent condition of R&D in Finland, among which ten large companies are Indian. Dr. Shibani Ganju, shared that he has come to India because India is “where all the action is happening right now”. He talked about traditional medicines in India, differential pricing of products across various countries. The innovators must focus on “frugal innovation”, for providing the best of healthcare.

Ms. Sharda Balaji, a lawyer by profession highlighted the importance of mobile penetration which is the largest in the world in India. There have been tectonic shifts happening in technology. She discussed how India is all about affordability and value consciousness. The concept of “jugaad” or making things doable work well in

The generic thought which probably each one had was on the affordability and accessibility of good healthcare. If the innovations are not scalable, easily accessible and cost-effective to the masses, they cannot persist for long.

India. This is where a lawyer is needed to license the product(s). The major challenge she mentioned in India is lack of connectivity with deep science and research across geographical locations within the country due to its enormous size.

Much was talked on the existence and emergence of the digital health in the intriguing session on “Digital Health: Giving Birth to New Delivery Models through Mobile, IoT, Blockchain and Artificial Intelligence”. Mr. Jacky Ovadia, General Manager, IDEA (International Innovation & Business Development expert), Israel shared with the audience his viewpoint on advancement in telemedicine. There must be portable medicine devices which can effectively check pulse and nerves very easily. He mentioned about remote monitoring for ultrasound, pregnancy, pulse checking, and clinically approved digital urinalysis. He said that a concept which uses GPS to monitor patients’ activities and habits can have varied impact on people’s lives.

Way forward

With such inspirational, informative and interactive sessions, the two-day conference came to an end, raising too many new questions and challenges that may impact healthcare, especially in India. It also gave answers to many existing issues through the numerous innovations that were presented. The generic thought which probably each one had was on the affordability and accessibility of good healthcare. If the innovations are not scalable, easily accessible and cost-effective to the masses, they cannot persist for long.

Of utmost importance were the views on how AI can save lives, and the importance of end-to-end affordable healthcare. IoT can connect to anyone,

anytime, anywhere in rural and urban areas where reach is low, and how AI helps in diagnosis and innovation. Early intervention can resolve health problems and there is a huge scope in the use of the apps which can enable timely and real time intervention. With highly potential schemes like Ayushman Bharat, we can create value chain in affordable and accessible healthcare for everyone.

The healthcare sector sees immense opportunities with the innovations happening across the globe. Innovation pitches from global and Indian companies that were conducted wherein organizations from various sectors came forward to present their portfolio of services and products.

Innovators and researchers are working on various aspects wherein they can target various chronic as well as lifestyle associated diseases. For example, the Nano 4 TB kit helps detect TB easily. There are various state-of-art laboratories across the nation which are deployed and use high-end technology, for example next generation sequencing is used to perform operations to detect aneuploidy or any kind of anomaly which is responsible for spontaneous miscarriages and mental retardation in live born babies. In the light of technology, innovation and healthcare, we must look at technology with a business view; how technologies work in society, sustainability of the model with traditional delivery, and about new models in healthcare.

Dr. Jasmeet Kaur is a Doctorate in Immunology and whenever she gets free time from her full-time job, she loves to read and write about imperative issues in healthcare.

IC InnovatorCLUB

A not for profit initiative

About

The IC InnovatorCLUB is created for innovators and its mission is to support the growth of its members in their roles as Innovators, mainly through education, local and global networking, and strategic alliances and partnerships.



@InnoHEALTH 2017, Delhi, India

Benefits

To encourage the knowledge dissemination within the healthcare community, we are providing the following benefits to the members of the club.

- *Free access to theme based bimonthly club meetings*
- *Upto 50% discount on conference /master class ticket prices*
- *Complimentary InnoHEALTH magazine digital format yearly subscription*
- *Free access to embassy meetings and foreign delegation visits*
- *Exclusive perks with respect to B2B and B2G meetings*

Membership details

The membership for the IC InnovatorCLUB is open for individuals, organisations and institutions. Enthusiasts can fill the form available at <http://bit.ly/ic-club-membership>. If the club management approves the application, a payment link will be sent to the individual/organisation. Post the payment process, the club administration will get in touch with you to brief you regarding the calendar of the club activities.

Typical club meeting includes tea, lunch and themed discussion on various topics and experience sharing desired by the club members.

The club's Bengaluru chapter will be launched in early 2020.

If you are interested to launch IC InnovatorCLUB's local chapter in your city, feel free to contact us immediately.

Fee details

Benefits	Individual			Corporate / institutional*
	Full membership	Virtual membership <i>(For outstation members)</i>	Walk-in	Full membership
Club meetings	5 meetings / year	1 physical meeting per year and other meetings can be viewed on YouTube	2500 INR / meeting	5 meetings / year
Conference / training ticket price discount	50% off	30% off	N A	50% off
Magazine yearly subscription (Digital)	Free	Free	Free copy of the quarter's magazine issue	Free
Access to embassy meetings	Yes	Yes	No	Yes
Access to delegation visits	Yes	Yes	No	Yes

Pricing **

1 year	9,000 INR / 130 USD	1,500 INR / 20 USD	N A	20,000 INR / 300 USD
2 years	15,000 INR / 220 USD	2,500 INR / 35 USD	N A	35,500 INR / 500 USD
3 years	21,000 INR / 320 USD	3,500 INR / 75 USD	N A	50,000 INR / 700 USD

* The fee for corporate / institutional members is applicable for 3 members only. If more members desired to be registered from the corporate / institution, the fee can be adjusted accordingly.

** All prices mentioned above are inclusive of applicable taxes

Associated institutional members



InnovatioCuris

Finding methods, tools and techniques to deliver qualitative healthcare at optimum cost at all levels

Our activities include

1 **InnoHEALTH**
Annual international healthcare conference
inohealth.in

2 **InnoHEALTH**
Quarterly magazine
inohealthmagazine.com

3 **Training & Consulting**
innovatiocuris.com/training-and-consulting

4 **Healthcare innovation**
Market access
innovatiocuris.com/market-access

InnovatioCuris Foundation of Healthcare & Excellence (not-for-profit)

Our activities include

1 **IC InnovatorCLUB**
Fostering innovations
icfhe.in/icinnovatorclub

2 **Webinars**
icfhe.in/webinars

3 **Experiments with sugar**
experimentwithsugar.in

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