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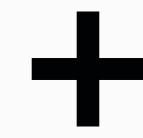
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Strategy

Richard Armstrong
Head, Health Registries, Northgate
Public Services

Public Health

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Country Director, Orbis India

UNDERSTANDING THE RELEVANCE OF HEALTHCARE RESEARCH

India as a nation has followed the west for decades when it comes to research-based treatments. The sun is fast setting on this methodology and there is a massive need to invest in healthcare research in the country

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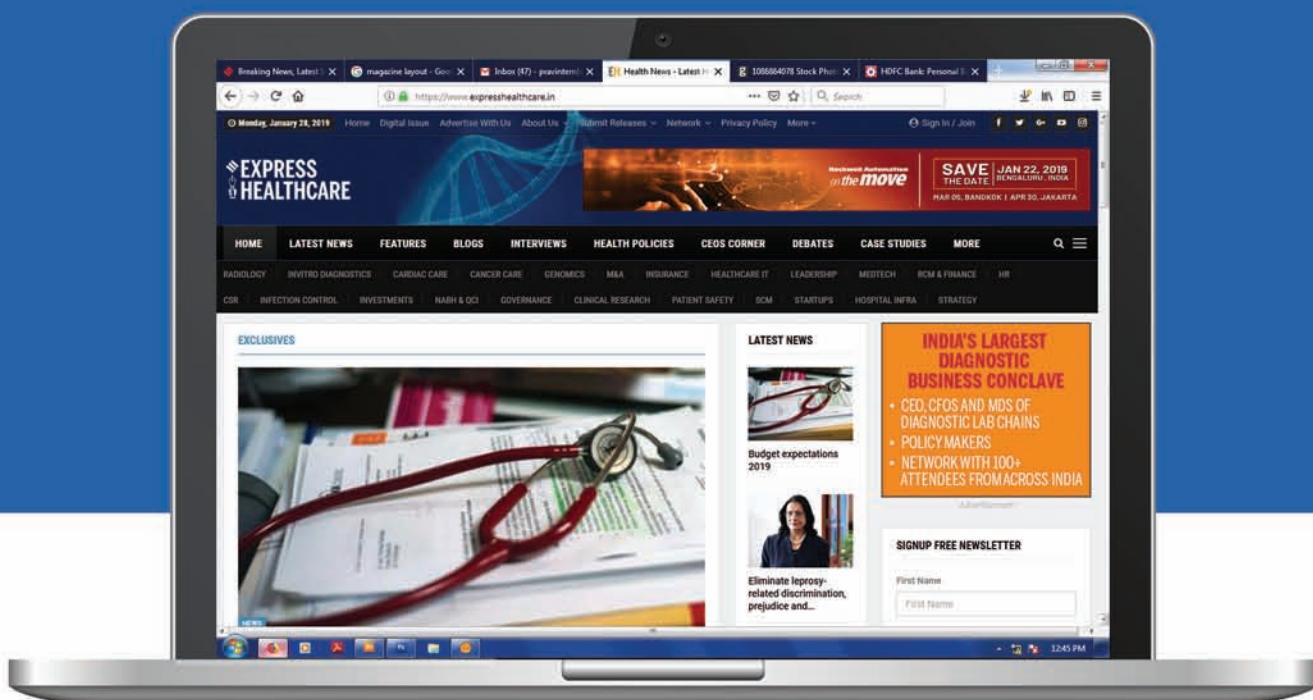
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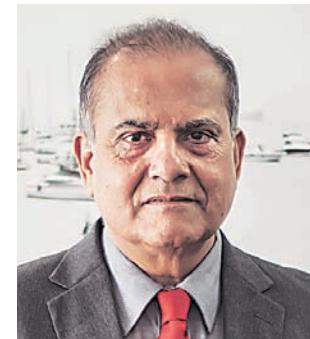
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Operation Broadsword and more

India's policymakers will have to tread a fine line between collaboration and compromise. Coordination and collaboration between the regulators of the US and India seems to be at an all-time high. Whether it was all geared up to creating 'good optics' as a build-up to President Trump's two-day visit in end February or a more long-term strategy remains to be seen. More importantly, how will these alignments impact patients in India?

For instance, on February 18, the US FDA announced that in its first bilateral enforcement operation with the Government of India, it had stopped approximately 500 shipments of 'illicit, and potentially dangerous, unapproved prescription drugs and combination medical devices from reaching American consumers over the course of an operation that took place in January.'

Codenamed Operation Broadsword, the operation targeted packages entering the US through the international mail facility from January 28 to 30.

The operation was a collaboration between the US FD's Office of Regulatory Affairs, Office of Criminal Investigations, Forensic Chemistry Center and Division of Northern Border Imports along with the Government of India's Central Board of Indirect Taxes and Customs and Directorate of Revenue Intelligence and US Customs and Border Protection.

According to a release, during the operation, investigators from both governments examined more than 800 shipments, which identified approximately 50 different FDA-regulated products, including medications intended to treat and or mitigate serious diseases, such as various forms of cancer and HIV. Many of the shipments, which included opioid drugs products, had been transshipped through third-party countries to conceal their point of origin and avoid detection.

The operation could have been a crackdown on illegal online pharmacies as the US FDA announcement goes on to caution that patients who buy prescription medicines from illegal online pharmacies, 'may be putting their health at risk because the products while being passed off as authentic, may be counterfeit, contaminated, expired, or otherwise unsafe.'

In addition to health risks posed by these products, the release points out that 'illegal online pharmacies can pose other risks to consumers. These include the risk of credit card fraud, identity theft and computer viruses.'

Balesh Kumar, Director General, Directorate of Revenue Intelligence for the Government of India comments that "such an exercise also has potential for long term capacity building" in the Directorate of Revenue Intelligence's commitment to fighting the menace of drugs and narcotics.



**India's
policymakers
will have to
tread a fine
line between
collaboration
and compromise**

While lauding such efforts to protect the health of citizens, especially the own in the US, one hopes that regulators in India do not compromise the interests of Indian citizens. This is why President Trump's visit to India had health activists on alert. Their worry was that the much-touted mini-trade deal between the two countries would dilute India's IP laws or roll back the price caps on medical devices. The unease prompted India's commerce minister Piyush Goyal to reaffirm that price cuts on medical devices and drugs would not be withdrawn.

However, this scepticism seems well-founded. India had recently signed an MoU with the US under which the latter will 'train' IP lawyers from India. While the details of the MoU were not made public, there are concerns that this training will try to make the lawyers more sympathetic to the interests of US-based companies.

This MoU is being seen as just the latest initiative to change India's stance on IPR. Another long-standing tactic is to praise India's 'progress' on the IP front using its own metrics.

For instance, India's ranking in the latest edition of the US Chamber of Commerce Global Innovation Policy Center (GIPC) IP index has improved over the last few years. From being placed last among 25 countries in 2014, India ranked 40 out of 53 countries in the 2020 edition.

But IP experts point out that this index serves the interests of the US rather than India. Thus, an improved ranking may not be an improvement for India's public health commitments, especially if it means diluting sections of India's IP laws like section 3(d) which is a safeguard against evergreening of patents. The deadlock continues but who will blink first?

President Trump's visit ended with a short announcement at a joint press conference that India and the US had signed two pacts in health. While one was an MoU on mental health between the health departments of the two countries, the second MoU between the Central Drugs Standard Control Organization with the US Food and Drug Administration was on the safety of medical products, especially generic medicines.

Medical device manufacturers are lobbying for ways to bring down prices, with each faction proposing strategies. While the government will have to collaborate to ensure medical devices remain accessible, they cannot compromise on their affordability. The deadlock continues but who will blink first?

VIVEKA ROYCHOWDHURY *Editor*
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NEWS

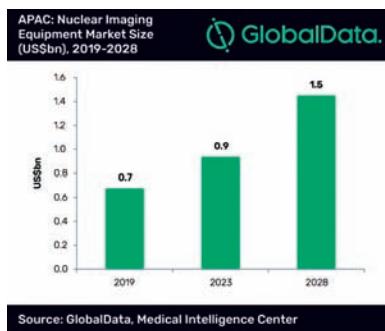
Nuclear imaging equipment market in APAC to grow at CAGR of 8.9 per cent between 2019 and 2028: GlobalData

China will be by far the fastest growing country in the region followed by the fastest growing markets, India, South Korea and Japan

The nuclear imaging equipment market in the Asia-Pacific (APAC) region is expected to grow at a compound annual growth rate (CAGR) of 8.9 per cent from \$0.7 billion in 2019 to \$1.5 billion by 2028, according to GlobalData, a leading data and analytics company.

China will be by far the fastest growing country in the region growing at a CAGR of 11 per cent between 2019 and 2028, which is closely followed by the fastest growing markets, India, South Korea and Japan, respectively.

The company's report, 'Nuclear Imaging Equipment - Diagnostic Imaging Market Analysis and Forecast Model' states that while inclination towards non-



invasive disease diagnosis will be the main market driver, the increased aging population with cardiac and neurological ailments and growing cancer patients in both younger and older population will

propel the market during the forecast period.

Manasa, Medical Devices Analyst at GlobalData, comments: "GE Healthcare LLC has remained as the market leader in APAC due to its innovation of advanced technologies by acknowledging the requirements of the patients. Regional companies like Canon Medical Systems Corp and Neusoft Medical Systems have also established themselves as competitors in this space apart from the other global manufacturers such as Siemens Healthineers AG and Philips Healthcare."

In the APAC region, positron emission tomography/computed tomography (PET/CT) systems are the major revenue

contributors within CT systems, with their market growing at a CAGR of 8.8 per cent between 2019 and 2028, followed by single photon emission computed tomography/computed tomography (SPECT/CT) systems.

Manasa concludes: "The technological advancements in the medical field will have a positive impact on the growth of nuclear imaging equipment market. The demand for the products required specifically for each of the vital organs will help physicians make more accurate clinical decisions enhancing patient safety, driving the market forward."

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WHO partners with ICMR to strengthen ethics in health research

Southeast Asia's first WHO Collaborating Centre for Strengthening Ethics in Biomedical and Health Research to be set up in ICMR-National Centre for Disease Informatics and Research, Bengaluru

Indian Council of Medical Research (ICMR), the apex body in India for health research and, its Bioethics Unit at ICMR-National Centre for Disease Informatics and Research (NCDIR), Bengaluru has been designated as a WHO Collaborating Centre for strengthening ethics in biomedical and health research.

The centre is the first in the eleven countries in the Southeast Asia Region of WHO to be recognised for the work in the area of health research ethics.

The centre will lead the work in identifying and setting priorities for the region in considering ethical values, providing guidance and leader-

ship towards promoting excellence in ethical aspects of biomedical research. It will play a pivotal role in developing tools and processes to set up research, innovation and education in ethics.

Stating the importance of the collaboration, Dr Roli Mathur, Head, ICMR Bioethics Unit said, "The collaboration will be a key to ensure that better research outcomes are achieved along with safeguarding individual preference. This centre will work to protect the rights, welfare, safety and dignity of research participants in biomedical and health research."

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CII signs MoU with MoH&FW on catalysing private sector on TB-free workplaces campaign

The three-year long campaign involves multiple stakeholders engaged across awareness and sensitisation, screening and treatment

THE CONFEDERATION of Indian Industry (CII) and the Central TB Division, Ministry of Health and Family Welfare (MoH&FW) recently signed a Memorandum of Understanding (MoU) on catalysing the private sector in a pan-India movement on TB-free workplaces. It is a three-year long campaign that involves multiple stakeholders engaged across awareness and sensitisation, screening and treatment. CII, through this campaign, will push the mandate of a TB-free workplace among its corporate membership spanning across all states in India. As part of this campaign, CII will aggregate various initiatives, innovations and linkages necessary to give a fillip to the national mandate of reducing TB prevalence significantly by 2025.

The scope under this MoU includes awareness building/sensitisation of Indian industry – it will include awareness building for a diverse cohort that includes employees, employers and medical practitioners and other specialists involved in managing and caring for TB; screening – CII will develop public-private partnership (PPP)



(L to R) Steven Parkinson, Senior Advisor, Global Fund; Dr Raghuram Rao, Deputy Director (TB), Ministry of Health & Family Welfare; Dr K S Sachdeva, Deputy Director General, Central TB Division, Ministry of Health & Family Welfare; Neerja Bhattia, Executive Director, CII and Dr Shubnum Singh, Advisor, CII Healthcare Council

models that address challenges related to local infrastructure and finances and provide referral linkages that can enable timely screening as well as treatments and treatment – these will include activities that focus more on strategic use of existing workforce, MRs, available at

pharmaceutical companies to bridge the gap between standard treatment guidelines by the Government of India and the World Health Organization (WHO) and private practitioners who are major stakeholders in treating a large pool of patients.

Both parties shall appoint nodal officers for steering the collaboration activities and they will have joint discretion to modify, amend or expand the scope of collaboration, and planning and implementation of intended activities.

CII will be organising a mini

walkathon which will announce several launches and a formal 'Call to Action' to catalyse the private sector on March 22, 2020 in the run up to the national celebrations on March 24, 2020 in conjunction with the World TB Day.

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Cabinet approves Assisted Reproductive Technology Regulation Bill 2020

The bill proposes stringent punishment for those practising sex selection and sale of human embryos or gametes

THE UNION Cabinet chaired by the Prime Minister Narendra Modi has approved the Assisted Reproductive Technology Regulation Bill 2020 for the welfare of women in the country.

The bill also proposes stringent punishment for those practising sex selection and sale of human embryos or gametes.

Giving details of the bill, Union minister Smriti Irani said sex selection and sex determination prohibited are under the proposed legislation.

"Ensuring confidentiality of the commissioning couples, women and donors will also be done under the aegis of this proposal of the Cabinet. The bill also has a provision that those involved in trafficking and sale of embryos will be fined Rs 10 lakh at first instance and in second instance the person could be imprisoned for up to 12 years," she said.

Irani said the bill also seeks to protect the reproductive rights of not only the commissioning couple, but also the lady who will be part of this process.

"This particular decision of the Cabinet seeks a central database in the country through which details of all clinics and banks, including the nature, kind of services provided, outcome of the services provided will be obtained on a regular basis," she said.

"The data generated from the national registry will also be used for research purposes in this particular segment of health," she added.

According to an official statement, the national board lays down code of conduct to be observed by persons working at clinics, to set the minimum standards of physical infrastructure, laboratory and diagnostic equipment and expert manpower to be employed by clinics and banks.

The states and union territories will constitute the state boards and state authorities within three months of the notification by the Centre. The state board shall have the re-

sponsibility to follow the policies and plans laid by the national board for clinics and banks in the state, the statement said.

"The bill also proposes for a stringent punishment for those practising sex selection, sale of human embryos or gametes, running agencies or rackets for

such unlawful practices," the statement said.

The major benefit of the Act would be that it will regulate the assisted reproductive technol-

ogy services in the country. Consequently, infertile couples will be more ensured/confident of the ethical practices in ARTs.

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cover





UNDERSTANDING THE RELEVANCE OF HEALTHCARE RESEARCH

India as a nation has followed the west for decades when it comes to research-based treatments. The sun is fast setting on this methodology and there is a massive need to invest in healthcare research in the country

By Prabhat Prakash

“I believe in innovation and that the way you get innovation is you fund research and you learn the basic facts,” Bill Gates.

Research is the fundamental aspect that can change the way we look at things and find answers that we are seeking or provide us with other vital information that can lead to a breakthrough in technology, market, medicine, treatment and every field that it is used in.

Over the years we have looked up to the West seeking answers for the problems faced by Indians at large. Eventually we have realised that one size doesn't fit all. We as a country need to invest in research so that we have the answers to our healthcare woes. Hence, it becomes all the more important for India as a nation to invest in clinical and technological research.

In this article we seek to examine ways by which India can create a research culture in healthcare.

Scope of research and how India can gain from it

India's healthcare scenario is quite different from the western countries. With a large and

diverse population, varied demographics and socio-economic status, our healthcare problems and demands are unique. For example, (See Box 1 and Box 2). Therefore, experts feel the need to develop a healthcare ecosystem that thrives on evidence-based research for India. Dr D Nageshwar Reddy, Chairman, Asian Institute of Gastroenterology and Asian Healthcare Foundation states, “Today by and large we follow western standards in treating patients, which may not be the right way in the changed global scenario. Therefore, conducting India centric research will lead to improving standards of healthcare. For example: We at AIG Hospitals and others have observed that Indian population does not follow the western pattern of polyp to cancer sequence in Colorectal cancers. Hence for these colorectal cancer patients in India we need to develop separate SOP's from western counterparts. Such situations are enormous.”

Ramanan Laxminarayan, Founder, HealthCube mentions “In any country, long-term growth comes from innovation and improvements in produc-

tivity, both of which are facilitated by research. Without research and innovation, India will remain a laggard in economic growth. The days of copying western products (whether in pharma or automobiles) are over. India is home to many of the world's health problems and at a scale not seen elsewhere.

Laxminarayan further adds “In cancer for instance, there is an opportunity to both study a variety of cancers but also to develop novel therapeutics and diagnostic approaches including using genomics and organoids to tackle cancer not just in India but the world over. As paradoxical as it may sound, our problems are our strength, if we choose to leverage these to create solutions that can benefit the whole world. Imagine the kind of studies we could do on mental health disorders or brain research and the value it could have to much wealthier populations! When India developed the 115E rotavirus vaccine along with the Americans, that created an opportunity to lower the cost of vaccination for everyone in the world while creating a whole industry in India. That's the kind of progress

that will take us to a \$5 trillion economy.”

As pointed out by Laxminarayan and Dr Reddy, we can gain a lot from investment in research and also provide solutions to the world. We are the pharmacy of the world and even the treatments that we offer are world class with one-third of the price charged world over, finding answers to solve large healthcare problems can make us the healthcare provider of the world.

Zoya Brar, Founder and CEO, CORE Diagnostics shares, “The most common form of research is the clinical trial, which enables the testing of medical innovations on patient volunteers. The future of research though, is going to be in data. I often say that 2020-2030 will be the decade of data in healthcare, and I am convinced that this will also be the case in research.”

Brar is of the opinion that India will only gain from this wave of innovation if we solve the fundamental challenges in data curation and collation. These include federation and quality control of data and change management so that people that work with patients

and healthcare information both understand the vision as well as the ethics of collecting such data.

Research in India is still in infancy. Though, we have made inroads in research it is still inadequate as the funds are aren't enough, there are not enough volunteers, lack of leadership and vision are some of the other reasons.

Investment in research

According to R&D Expenditure Ecosystem Current Status & Way Forward, India spends 0.6 per cent of its GDP in R&D in various sectors.* However, the research spend for healthcare is minuscule. Nevertheless, coming as a new lease of hope, the annual budget for 2020 was declared and an allotment of Rs 69,000 crore was made for the healthcare sector. But looking at the staggering 1.3 billion population in India and their need for a strong public health system, the need for more focus and investment heightens.

We as a nation need to prioritise research in healthcare as it has a direct impact on the GDP of our nation. The healthier our country, the better will

MYXOINFLAMMATORY FIBROBLASTIC SARCOMA OF EYEBALL IN AN INFANT: A RARE CASE

Myxoinflammatory fibroblastic sarcoma (MIFS) is a rare soft tissue tumour most commonly occurring in the finger, hand, wrist, foot, and ankle, etc. of adult patients. It presents as a painless, slowly growing mass and has a low rate of metastasis. We confirmed the diagnosis based on microscopic evaluation, which is rather challenging to diagnose due to its heterogeneous nature.

Worldwide, over 400 cases of MIFS are reported to date. What is unique in this case is the location of such a tumour in the eye of a child. The rare occurrence of such cancer in children, and specifically in the eye, is what makes this case unprecedented.

Following this case, we further recommend a close follow-up as the progression of such cancers is hard to predict.

Source: Core Diagnostics

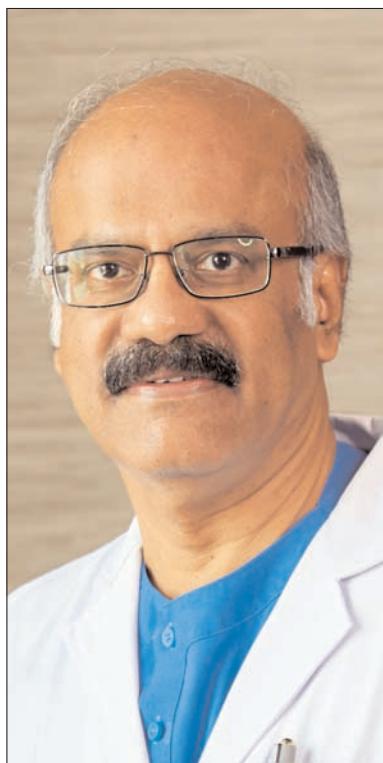
SMALL CELL CANCER OF THE CERVIX: A RETROSPECTIVE ANALYSIS OVER THREE YEARS

Neuroendocrine tumours can arise throughout the female genital tract. These tumours constitute less than 2 per cent of all invasive cervical cancers. Although it is known to be a chemosensitive tumour, to date, no specific treatment pathway has been entirely successful.

An evaluation of six cases of small cell cancer of the cervix over three years were done — all patients had irregular vaginal bleeding, with or without lower abdominal pain. Radiological scans revealed a tumour in the cervix.

Small cell carcinoma of cervix is a rare tumour with a poor prognosis. It has an aggressive course with a tendency to spread to other sites. Thus, early diagnosis is essential to increase the survival rates of the patient.

Source: Core Diagnostics



Today by and large we follow western standards in treating patients, which may not be the right way in the changed global scenario. Therefore, conducting India centric research will lead to improving standards of healthcare

Dr D Nageshwar Reddy
Chairman, Asian Institute of Gastroenterology and Asian Healthcare Foundation



The most common form of research is the clinical trial, which enables the testing of medical innovations on patient volunteers often say that 2020-2030 will be the decade of data in healthcare, and I am convinced that this will also be the case in research

Zoya Brar
Founder & CEO,
CORE Diagnostics



In any country, long-term growth comes from innovation and improvements in productivity, both of which are facilitated by research. Without research and innovation, India will remain a laggard in economic growth

Ramanan Laxminarayan
Founder HealthCube



Hospitals such as CMC vellore, SRMC in Chennai, AIIMS, BIRAC, IITs and IKP Knowledge park in Hyderabad are some of the well-known institutes that have contributed immensely to healthcare research in India

Joy Chakraborty
COO, PD Hinduja Hospital and Medical Research

be the productivity of the country leading to better GDP.

"Health research spending in India is woefully inadequate. The total budget for ICMR is about Rs1500 crore out of a government expenditure of Rs 27 lakh crore. That is 0.06 per cent of government spending! We spend as much on a single fighter aircraft as we do on the ICMR budget. This is not to say that defence is not important,

but the health of India's population is surely worth a lot as well. Even the limited spending on ICMR is used on keeping up a large base of personnel rather than funding innovative, investigator lead research. Setting up multiple institutes to satisfy political constituencies is not a good use of resources." mentions Laxminarayan.

Comparing how a research culture is developed in India,

Joy Chakraborty, COO, PD Hinduja Hospital and Medical Research centre says that abroad healthcare professional/doctors while they get trained in medicine, they get an opportunity/option to devote their time to research, education and healthcare delivery. Now when they decide to do that, they are rest assured that in a week they can see 20 patients, spend X amount of time educating

themselves or teaching and spend the rest of the time in research which needs to yield results in a given time span of 2-3 years or more. But here in India, there is no such option given to doctors. In India, the economic prosperity of doctors depends on the number of patients they see while there are hundreds and thousands of patients knocking their door. Such is the state of affairs!"

Brar opines, "Each healthcare organisation should set aside, not just money but also mental and strategic resources to focus on this issue. That is the only way the human race will have a sliver of a chance of surviving all the disease pathways that the human body is creating as we speak."

Boosting research
Research has a lot of advan-

tages associated with it. It not only helps address pressing issues but also helps in the understanding of diseases in a better manner. It helps to secure the future with better methods of treatment helping curb the disease of in totality eradicate it.

There are other learnings from research as well, it helps create public awareness, leading to better understanding and participation in the research. It even helps address the limitations and the loopholes that may have occurred during the research itself. But effective research can be conducted if a strong ecosystem is created.

"The government needs to provide positive incentives for organisations that are investing in research. Private organisations need to prioritise this task, hire people dedicated to the job, create an inspiring vision and realistic plan and goal for the year and hand it over to the smartest in their teams to execute," says Brar.

Hospitals such as CMC vellore, SRMC in Chennai, AIIMS, BIRAC, IITs and IKP Knowledge park in Hyderabad are some of the well-known institutes that have contributed immensely to healthcare research in India, informs Chakraborty.

Collaborating to create a culture for advanced research

Well, in recent times the government has been increasing its focus on research and is encouraging private sector players to collaborate. The government through its BIRAC programme is trying to create a culture of research and lead to the formation of start-ups investing in research funded by MNCs and Vcs.

Private organisations as well are investing in research based on the geography as well as the ethnicity of the diverse Indian population. There have been breakthroughs in certain fields in delivering better healthcare but this still isn't enough to bridge gaps in making cutting edge healthcare services avail-

A LETTER FROM DR KM CHERIAN, CHAIRMAN & CEO, FRONTIER LIFELINE & DR KM CHERIAN HEART FOUNDATION



As a physician in his seventh decade of life, I am overwhelmed by all that remains to be done. The dawn of dusk has heightened my impatience and urgency. Yet, my burning passion to forge new advances in cardiac healthcare and Bio Medical Engineering are being slowly extinguished not by time but by a central government that is stubbornly apathetic to the possibility that millions could have access to better healthcare and that India could pioneer cutting-edge research. I share my plight here with the hope that my brief narrative will inspire a groundswell of support to upend a system corrupted by ineptness and indifference.

I direct Frontier Mediville, a medical science park in Thiruvallur District, Tamil Nadu that was designed to offer cutting-edge medical education and high calibre research opportunities. This initiative has enjoyed deep support from the Tamil Nadu Govt. Through collaborative ventures with colleagues in Australia and the United States, Frontier Mediville has completed challenging research designed to build and validate a bio-prosthetic valve and even an artificial heart. Likewise the ability to generate decellularised skin from animal sources. We all know large solid organs come only from human donors (supply and demand ratio as a wide disparity, hence many patients die due to lack of donated organs. Today the stage is evolving into a time where solid organs could be manufactured using your own cells and a biological scaffold where it could be grown, example shark fin and it will be available even on a shelf) We have taken preliminary steps and

able to the masses.

Dr Reddy mentions, "It is not true that Indian companies are not investing in healthcare. Best example is vaccines,

which have come out of research. 90 per cent of vaccines used all over the world are produced by Indian companies at affordable cost. AIG Hospitals

unfortunately again due to ignorance on the part of regulatory bodies and other law enforcing agencies, even the licence for growing these. Stem cells have become difficult in-spite of having the knowledge and the facilities. As a primary stakeholder, I resorted to bank loans in order to personally sponsor many of these expensive research undertakings that offered so much promise to save many lives. Such borrowing was not fiscal imprudence but based on the secure knowledge that the budget for these multiphase, multi government vetted projects had already been approved and that it was only a matter of time before funds arrived. I also believed that the agreements between our central govt and foreign counterparts as binding and meaningful. However, the repeated bottlenecks posed by different central government regulatory agencies, the unreasonable feet dragging and the lack of transparency in decision making at the highest bodies have collectively precipitated a crisis with banks threatening to tighten the noose of liquidation on Frontier Mediville being the 1st SEZ and 1st basic medical science park in India located in a village. For a researcher-physician on the cusp of major advances not just for India but for peoples of the world, my colleagues and I are deeply disappointed that our intellectual leadership and expertise are nullified by our central govt that is oblivious even to a "MAKE IN INDIA" advance at the highest echelons of medicine. No pain stings more than that of abandonment.

I do not want my waking hours to be consumed by bureaucratic skirmishes and deprive my much needed presence at the surgical theatre or research laboratory. But I seek lasting solutions to ensure that injustices that I have suffered do not recur. While there is no judicial recourse to the neglect of its own citizenry by a govt, I also know that nothing is more powerful than the voice of the people.

"I am of the opinion that my life belongs to the community, and as long as I live, it is my privilege to do for it whatever I can. I want to be thoroughly used up when I die, for the harder I work, the more I live. Life is no 'brief candle' to me. It is a sort of splendid torch which I have got hold of for a moment, and I want to make it burn as brightly as possible before handing it on to the future generations." ~George Bernard Shaw

Reference: *
<http://psa.gov.in/sites/default/files/pdf/RD-book-for-WEB.pdf>

and Asian Health Care Foundation invests large capital amounts in conducting basic research particularly with Indian context in unmet clinical

needs, the outcomes of which have translated into clinical applications. However, such an effort is not noticed by public/government at large.

There is need to enhance these investments in other areas such as medical molecular diagnostics, new drugs development based on comprehensive research to improve healthcare."

Laxminarayan is of the opinion that Indian companies do not invest much in research. "That is because the returns to creating me-too products, whether in pharma or in medical devices has been easier than coming up with new innovation. However, in the absence of innovation, there is the risk of any product being undercut by a cheaper one whether made in Vietnam or China. Products in the US or the UK command a premium and higher gross margin because they embody knowledge that is difficult to replicate elsewhere in short order. We have to decide whether to be in the commodity game and be undercut on prices or in the innovation game."

According to Brar Indian organisations are short-sighted. She further adds, "They don't understand preparing for the future. I am extremely fascinated by the Japanese way of doing things. Their plans are often a minimum of 50 years. It is only in the context of such vastness of time that we can see the evident fallacy of not investing in research."

The way forward

For India to be a leader in world class healthcare delivery, India needs to improve its expenditure in healthcare R&D. The government plans to allot 2.5 per cent of the GDP to overall healthcare by 2025 but how much will be allotted to research? And how does the government plan to improve research activities at institutional levels?

We are on the verge of surpassing China with the highest population in the world and with the rise of lifestyle diseases, the need of the hour is innovation in healthcare which is only possible through evidence based research that

solves India's complex health-care problems.

As digital technologies and personalised care takes precedence in healthcare, India will need to devise strategies that build a uniform research cul-

ture.

Brar adds, "Personalisation will, without doubt, make health research more meaningful to individuals. However, investing financial resources alone will not be enough. There

will need to be a visionary and concerted effort to educate, inspire, and communicate the need and urgency of medical research."

India certainly holds a lot of potential, we just need to work

out the flaws which can only be achieved with combined efforts of the government and private players with participation from the public.

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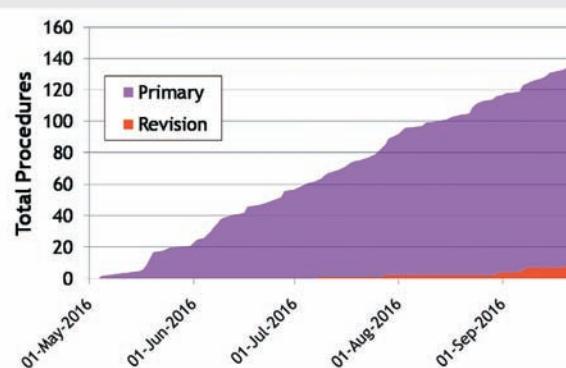
Main objective of Indian Joint Registry is to help patient safety, bring stability to the market

In the wake of several patients suffering from the impact of faulty hip implants, it is vital that India has a national joint registry to track such patients and avoid future episodes. **Richard Armstrong**, Head, Health Registries, Northgate Public Services tells **Viveka Roychowdhury** about the response to the Indian Joint Registry

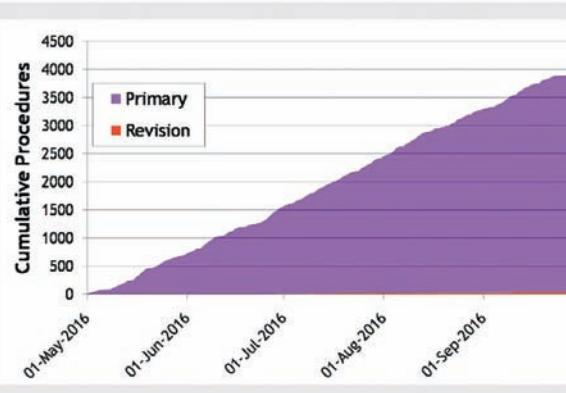


The IJR was officially launched in April 2019, since then we have registered 697 doctors and 713 hospitals as of January 20, 2020

Primary Hip



Primary Knee



Patella Resurfacing

Country	Patella Resurfaced
India	79%
England and Wales	37%
Australia	59%
Germany	10%
Netherlands	20%
Sweden	2%
USA	82%

What has been the progress since the launch of the Indian Joint Registry (IJR) in April 2019?

We have been successful in registering doctors and hospitals on IJR who have contributed 28,364 records of which 2,274 are hip procedures and 26,090 knee procedures. With the data available and tracking of the implant performance, we will be able to identify the faulty implants and get it replaced from a better performing one, saving the patient from harm. The implant tracking will ensure that the manufacturers are more careful and conduct proper research and testing before the product launch. The main objective of IJR is to help patient safety and bring stability in the market, avoiding past issues with faulty implants as we had seen with the Johnson & Johnson episode in India .

Kindly share results of the pilot study started in April 2016, which ran for 9 months with 7 doctors participating across 4 cities in India. Did the procedure need tweaking for the India market?

The pilot has evidenced that doctors in India are willing and able to document their cases, and to track the long term outcomes of patients. Whilst this requires a small amount of time and effort on behalf of the hospital staff to ensure data is entered into the system, doctors have shown that the value delivered from the registry makes this effort worthwhile to enable long term

WHAT ORTHOPAEDIC DOCTORS SAY ABOUT THE IJR



Dr Shrinand Vaidya, Registry Director and Founding Member and Trustee, Indian Society of Hip and Knee Surgeons (ISHKS)

Last three years all of us have been reading in the newspaper about toxic hip joints. You know why has this happened. It happened because India never had a registry then. Now with the launch of the Indian Joint Registry, we have a documented record of what batch of joint has been put, what material has been used, and what additional hardware has been put. All that is recorded and is online.

The Indian Society of Hip and Knee Surgeons (ISHKS) has awarded the contract to develop and maintain IJR to the world's largest medical registry supporting company, Northgate Public Services. Their team analysed the data to find out what went wrong in metal-on-metal joints. My earnest appeal to all who are involved in hip and knee arthroplasty surgery is join IJR; it is a web-based application, each and every patient of yours will be recorded. Nobody can take away your data, and only you can access your patient data and ensure your patient's safety. You can participate in the research surveys and most important you can learn from your mistake, you can learn from others' mistake.



Dr A V Gurava Reddy, Chief Joint Replacement Surgeon, Managing Director, Sunshine Group of Hospitals

Indian Joint Registry (IJR) is the need of the hour in India to ensure patient safety as well as to support the best quality of care. We had come across implant failures in India, which can be avoided if performance monitoring can be ensured through a joint registry like IJR. Local implant manufacturers can also benefit from this platform to showcase their performance and benchmark themselves against market leaders. As an orthopaedic surgeon, IJR has been immensely beneficial to me as it gives access and analytics on my complete data to give me an understanding of my practice compared to the rest of India.

tracking of patient outcomes.

The pilot highlighted trends in clinical practice across India, detailing the types of implants in common use, and the common types of procedures undertaken. This was compared across different hospitals, and also in comparison to data from other registries from around the world. (See visuals giving details of

How many surgeons, hospitals have now signed up from India?

The IJR was officially launched in April 2019, since then we have registered 697 doctors and 713 hospitals as of January 20, 2020.

How does a national implant registry work? Which are the countries which have such registries?

A registry collects information on patients undergoing hip and knee replacement in India, to monitor the performance of implants, to assure high standards of care, and to further research into best practice.

The UK has been running the Joint Registry for a decade now. Australia, US and some European nations have been successfully maintaining their joint registries for years.

What is the role of Northgate

Total Knee constraints



Public Services in these registries?

Northgate Public Services is the technology partner and has developed the Indian Joint Registry. NPS has been maintaining the IJR to enable hospitals across India to submit data securely and efficiently.

Northgate Public Services has been the technology and implementation service provider for the NHS in the UK for the National Joint Registry (NJR) since last 16 years. NPS is also the technology partner for Eurospine, the world's largest spine registry. We also are the partner for NHS for National Vascular Registry.

Any initial success stories of how the information gained so far in the registry has

helped orthopaedic surgeons to recall implants, or better their clinical practice?

We have developed the National Joint Registry (NJR) in the UK, the world's largest joint registry which has over three million records. Our team has been working closely with the NJR team to study and analyse the data. Through this data, NJR identified higher than expected revision rates among patients with metal-on-metal hips, which led to a global recall of a number of implants.
(<https://www.theguardian.com/society/2018/nov/26/firm-pays-out-nhs-defective-hip-replacements>)

How can patients be assured that their data is not compromised?

The data is stored and processed securely by the technical partner, Northgate Public Services. Strict rules and secure procedures are in place to ensure that information is kept safe. Patient's personal details are only shared with surgeons directly involved in their care.

Northgate Public Services comply with Indian law, and also apply the same rules and procedures for handling data as it does for NHS data, in accordance with UK and European laws on data protection. The patients are asked to sign the consent form, which gives permission to the IJR to use their data for the following purpose:

For monitoring the performance of implants,

ensuring patient safety, improving the outcomes of joint replacement surgery, and enabling orthopaedic research in India

Allowing your personal details to be used for the purpose of contacting you to ask you to complete the questionnaire about how you are getting on after your surgery. We may also invite you to take part in research projects.

How do patients benefit from such an initiative?

IJR will benefit patients in a number of important ways. It will:

- Monitor the performance of implants so that potential problems can be identified early.
- In the case of failing implants being identified, assist hospitals in the recall of patients for review.
- Provide information to patients so that they can make informed decisions about the types of treatment available and where to get it.
- Provide assurance to patients about the safety and the quality of care that they receive.
- Provide information to surgeons, hospitals, and implant manufacturers to ensure that the highest standard of care is given to patients.

viveka.r@expressindia.com

INTERVIEW

I have witnessed the steady technical advances in ultrasound

Dr BS Rama Murthy, Consultant Radiologist, Srinivasa Ultrasound Scanning Centre and Chief Patron, Medical Ultrasound Society of Karnataka, Coordinator – Fetal Foundation of India, talks about the evolution of ultrasound and how foetal imaging has improved over the years, in an interaction with **Express Healthcare**

You have been practising foetal imaging for a long time. Can you shed light on the advancements in this field and how obstetric ultrasound has been a key modality in enhancing prenatal screening?

I am amongst the first radiologists who introduced the modality of ultrasound imaging into the country. Over the last 34 years, I have witnessed the steady technical advances in ultrasound. The ultrasound image of the foetus over the years has incredibly improved. For example, we started out looking at a few landmarks in the midline of the brain and today we have exquisite images which enable us to see the surface folds of the brain, the optic chiasma and so on. The foetal heart can be studied in great detail regarding the chambers, vessels and their connections. The spinal cord in the vertebral column can be seen very well. The abdominal organs and limbs can be seen. In the first 10 weeks of pregnancy, we can now see the embryologic developmental milestones. With the introduction of Doppler scanning, we are able to map the blood flow in the heart and the blood vessels of the foetus. With 3D and 4D, we are now able to display the foetal interiors in three planes simultaneously. Surface rendering helps us to create pictures of the face limbs etc.

Regarding screening, we should include diagnosis. With years of research, we are now able to screen for chromosomal abnormalities in the foetus, pre-eclampsia in the mother,



With years of research, we are now able to screen for chromosomal abnormalities in the foetus, pre-eclampsia in the mother, premature labour and so on

premature labour and so on. Screening means using ultrasound imaging for the entire pregnant population to pick up certain findings called markers. Presence of a marker increases the risk of the abnormality. On the other hand, diagnosis implies determining normality or abnormality in a particular foetus.

How has ultrasound helped in improving pregnancy outcomes in patients?
When a lady undergoes ultrasound screening for

chromosomal abnormalities and found screen positive, we recommend a definitive test to check for foetal chromosomes. If the foetus is found to be chromosomally abnormal, the parents have the option of termination of pregnancy. Similarly, if the pre-eclampsia screen is positive, the lady is put on aspirin and this improves the pregnancy outcome.

From a patient perspective, how has patient experience improved?

The greatest benefit that I see is for couples who have had foetal abnormalities in the previous pregnancy. Through ultrasound in subsequent pregnancies, we can show that the foetus is normal. This gives tremendous relief to the couple. Also, the couple is reassured on a routine basis that the foetus is normal.

What difficulties do you face concerning the sex determination act/policy in India? How have patients reacted to this and what kind of pressures have you faced?

The PC & PNDT Act is one of the best things to have happened in our country. This act points out that determining of foetal sex is against law. This is because this information was being used to selectively terminate female foetuses. The law prohibits this to prevent this inhumane practice. The law has imposed a set of rules and regulations to be followed by every hospital or diagnostic centre doing pregnancy ultrasound. Under this Act, we have to upload the case details on the same day for all the cases done during the day. This means additional work. Once we know what is expected of us by the act and once we comply with all the requirements there is no pressure. From the patient's point of view, it means bringing a bonafide requisition slip and photo id.

Do you think fusion imaging (MRI and Ultrasound) may improve prenatal examination in future? What should radiologists know about fusion imaging?

Certainly yes. The prospects are exciting. If you are talking about fusion technique it has to be between ultrasound and MRI and not between any other two modalities. The penetration of ultrasound has been huge, for example, it has gained entry in the taluk levels whereas the MRI has not been able to gain entry and restricted to city limits. When you talk about fusion you need to have equal access to MRI and ultrasound to make the application a reality. At the moment it looks like a research technique. This can open up newer areas of research and we have to wait and watch.

From the technology point of view, what improvements you would like to see in ultrasound that can assist you in better patient outcomes in future?

There are two aspects to this. One is the technological advances happening in the machinery and this is a continuing process. The second aspect is that there is a lot of research happening across the world in this field and thanks to the Internet we are able to know about the good things and able to do our own research to contribute to the world research. We will wait for researches in the field of foetal imaging as well as technical advances in the future.

You have a long association with technology providers such as GE. So how has GE been a catalyst in enabling the progress in foetal imaging

Continued on Page 22

INTERVIEW

Radiology has a bright future and has been at the forefront of healthcare

Radiology has a major role to play when it comes to healthcare. **Dr Piyush Saxena**, Consultant Radiologist and Chief of MR imaging, Vishesh Hospital and Diagnostics, Indore, MP in an exclusive conversation with **Express Healthcare** discusses the impact of radiology on healthcare and how newer innovations from GE Healthcare has helped improve healthcare delivery as well as patient comfort

How has modern technology impacted imaging nuances? What are the technological advancements that Vishesh Hospital introduced lately?
Radiology has always been driven by technology and over the years this has improved with faster machines, better images and less radiation. With the latest innovation in imaging, we have been able to get consistent high-quality images, with lesser radiation in CT imaging specifically.

Vishesh Hospitals recently commissioned a state-of-the-art 300-bed facility in Indore with the latest technology in radiology and cardiology. We have acquired an advanced 3T Signa architect MR scanner with the latest MR coils and a patient experience suite, high-end CT and Ultrasound scanners, a direct radiography system with a capability of full limb and full spine imaging, high definition endoscopy machine and the latest flat panel cath lab with most of the equipment being from GE Healthcare. We have the latest modular operation rooms, with a 24x7 pharmacy with pneumatic chute system. We have set up a state-of-the-art pathology lab along with the latest critical care equipment in our hospitals. We have been awarded the 'Best Design Award For The Best Healthcare Facility in India'.

Your thoughts on the phenomenal growth of medical imaging in India?
Radiology is the key to modern healthcare and has definitely come of age and advanced to a



Phenomenal growth is being witnessed in healthcare and radiology in India, which has lead to better imaging facilities in Tier II and Tier III cities

stage that it has become the basis of modern healthcare. Hence, most systems of medicine require radiology. With advancements in radiology and technology, imaging quality has improved, which has lead to better diagnosis, resulting in better

treatments and outcomes. Phenomenal growth is being witnessed in healthcare and radiology in India, which has lead to better imaging facilities in Tier II and Tier III cities. This has increased the demand for low-cost imaging equipment in India and this is pushing

equipment providers to innovate and help in bringing affordable healthcare to smaller cities in India and countries alike.

You have been ahead of your peers in technological advancements. One of your

most recent additions was the Air Coil from GE Healthcare. How has technology like Air Coil changed the patient experience?

MR is a dreadful experience for patients. The examination is long where patients have to sit in a tunnel. The coils used are usually heavy and uncomfortable. Considering all of this, the Air Coil is very helpful as it is ultra-lightweight, very flexible and is adaptable to the patient's form or anatomy. This provides the technologists with positioning freedom, which helps in positioning the patients easily, especially patients who dread MR examinations. Thus making patient experience better and comfortable.

The technology used in these coils provides better form factor which translates into better images. These are unique and different from other conventional coils. GE has really minimised coil coupling between the elements of the coil giving them better element density due to which there is no or minimum signal drops.

GE Healthcare is your turnkey equipment provider. How has this benefited your hospital?

With the recent commissioning of our hospital, we are looking to provide the best and most comprehensive facilities in this region. For a project of this scale, the acquisition of the latest technological innovation and having a great service team backing us up 24x7 is very critical. Keeping all of the above factors in mind, we made a

STRATEGY

great decision to go ahead with GE Healthcare as our turnkey equipment provider.

With all the latest equipment in place, our management is assured of a great service backup team from GE Healthcare. The service team is located in Indore which makes our task easier. The acquisition of the latest equipment from GE Healthcare has made our work easier and also helps us to go out about having the latest technology in central India. With the help of the equipment from GE Healthcare, our work has become simpler, leading to better productivity, MR scanning has become faster, examinations are done in one go, no rescanning is required, patient movement is very less, the image quality is high even when the patient moves and the patients are co-operative and are happier with the examination.

According to you, where do you foresee the future of radiology? What realistically are the key areas of radiology that you undoubtedly see maximum innovations?

Radiology has a very bright future and has been at the forefront of healthcare for quite some time now. The future will be faced with increasing demand versus limited healthcare professional scenario very soon. Healthcare facilities are going to get ever-increasing requests for radiology exams. More people will be required with system-specific or modality-specific training to cater to this ever-increasing demand. Technology is going to very pivotal in bridging the gap between the increasing demands and limited well-trained professionals in the field of radiology.

New innovations should be

able to reduce the dose reduction in CT examinations, making CT exams safer than it already is. Secondly, patient comfort in MR imaging and mammography, with advancements in both these modalities, the image quality is pretty impressive but there is a lot of scope for improvement. Lastly, there are going to many more new transformative technologies backed by AI which will help to reduce errors, provide consistent images and improve and increase productivity.

AI and deep machine learning have the maximum impact on radiology as of now and professionals are deploying this technology to do more number of cases, diagnose better, take better and consistent images over time which makes the job of a radiologist easier and accurate.

I have witnessed...

Continued from Page 20

through its ultrasound technologies?

GE has been a leader in this front. Companies like GE not only provide us with the cutting-edge machines, they also help in disseminating the latest knowledge to facilitate clinical application of the technology. The company has some machines which are dedicated to the foetus. GE has been able to bring in a lot of innovation in various capabilities every year. They even follow up with clinical research and through webinars, conferences and exchange programmes, GE has been able to disseminate clinical research, thereby facilitating knowledge transfer.

How have you leveraged a

partnership with industry players like GE to expand education?

Being a senior member of the profession, I am a committed teacher. Teaching helps me to learn. I participate in many of the educational initiatives of the company, be it workshops, webinars, lectures and so on.

This year, Wipro-GE completes 30 years in India. In your view, how have they impacted the healthcare ecosystem in this country? Especially in ultrasound, they have made a great mark. The company has been able to bring in technology across the world at the same time be it in the US or in India. Their strength is in their support to their users in terms of up-gradation of technology and education.



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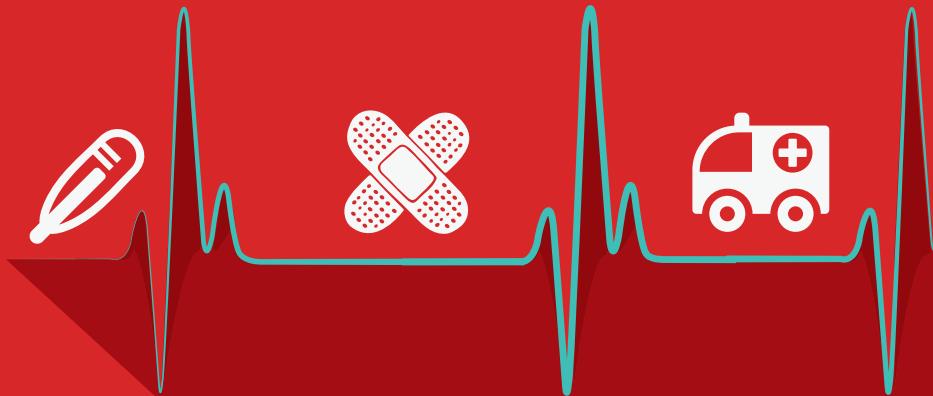
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INTERVIEW

'Time is very crucial for a sports player'

Dr Neeraj Adkar, Medical Director, Saishree Hospital and President Pune Orthopaedic Society, explains the scope for sports medicine in India in conversation with **Raelene Kambli**

Can you take us through your journey as a surgeon and share your experience as president of Pune Orthopaedic Society?

After finishing my degree from King Edward Memorial Hospital, Pune (KEM), I went to pursue my fellowship of arthroplasty (joint replacement) under Dr Vikram Shah, Shalby Hospital, Ahmedabad, further, I went to Spain and Australia to do fellowships in arthroscopy and computer-guided joint replacement surgery respectively, to take national and international practical knowledge of my specialities.

I was associated as an orthopaedic surgeon with various hospitals. To name a few like Poona Hospital, Sahyadri Hospital & Ruby Hall Clinic. Currently, I am the managing director of SaiShree Hospital, Pune where we do a maximum of orthopaedic cases which includes and not limiting to joint replacement surgery, arthroscopy surgeries, trauma (road accidents) and minimally invasive spine surgery.

Talking about my experience as a president of Pune Orthopaedic Society, Pune is considered as a hub for orthopaedic surgeries across the globe. Pune Orthopaedic Society was commenced in the 1970's and since then it is an organisation which is very active and academic-oriented society. It has been involved in arranging academic activities by surgeons who are attended by not only national but also by international delegates.

During my tenure as a president of Pune Orthopaedic Society, I initiated different fellowship programmes to train the fresh certified orthopaedic surgeons from various institutes to get trained under the guidance of other senior orthopaedic surgeons, to enable them to attain practical

guidance under the seniors.

Good response was received for the same and was appreciated by many group members.

What is the scope of sports medicine in India?

The popularity of sports is growing exponentially since the past decade. With the growing popularity of cricket, tennis, hockey, badminton and kabaddi leagues in India, all players are now striving hard to be a part of their favourite sports leagues.

As a result, there is an increased physical as well as a mental burden on the players.

Players train for longer hours with higher intensity by most of the time putting themselves under high physical and mental pressure, making them prone to injury.

Thus, with the growing zeal in sports amongst Indians, the scope for sports medicine, which consists of sports surgeon, sports physiotherapist, sports nutritionist and sports psychologist has grown.

Do you think that sports medicine is an important field to explore and why?

Certainly yes, with the prevalence of interests of sports in the youth, sports medicine is an equally vital domain to be explored.

The involvement of a sports medicine practitioner can help one prevent injury. A sports physiotherapist can guide the player gain more stability, flexibility and help in the development of core and strength, proper diet could be given by sports nutritionist, as well appropriate counselling by a sports psychologist could enable the players to perform better. Sports medicine is not just limited to injury rehab where a surgeon operates the player, but it has more relevance for injury prevention awareness amongst the coaches, players



and their respective parents.

How matured is the sports medicine industry in India and where does it stand in comparison to the rest?

Sports medicine in India is a recently developed branch under medicine. There are very few dedicated centres in India which provide end-to-end sports personnel care services. With the growing popularity of sports in India, today we don't only need good infrastructure for sports medicine centre, but also good/expert professionals to take a player to the highest of its potential.

Thus, with the growing interest of sports among the youth and their parents, and their understanding towards taking expert guidance, I believe soon this industry of sports medicine would be at power with any other medical branch in India.

What contributions can sports medicine bring to medical tourism in India?

With internationally recognised players and athletes like Abhinav Bindra, Sania Nehwal, PV Sindhu and Hima Das — the golden girl, India is getting a base in other sports as well, apart from cricket and hockey. Thus with such amazing brand ambassadors representing us in the world, medical tourism for

sports injury could also attain popularity. Since it's a team effort of the player and its medical/physical experts which helps them attain medals and popularity in their respective field by performing in their the sport.

With the Olympics coming up soon, can this event bring the necessary impetus to the field of sports medicine?

Olympics is a performance showcasing event for a sports personnel and its whole backend support team (medical and physical advisors). For any player being a part of Olympics and performing in the same, itself acts as a catalyst and a motivating factor to perform better day by day.

When we see a player/athlete perform, it's not just the player performing, it's the unanimous efforts of the whole sports medicine team, who has trained and motivated him/her to reach to that stage of the final performance.

In fact, Prime minister Narendra Modi has initiated a lot of activities on sports medicine front for the Indian players/athletes for Olympics participation.

Tell us about your experiences in the field of orthopaedics and sports medicine?

I feel orthopaedics is one of the most happening surgical branch. In fact every year there is some technology or implant upgrade that comes up. In return, it acts as a boon for the patients by giving them either long-lasting implants or a new technology for surgery which helps in early mobility and recovery.

We can even say something like #NewGen Technology, where we have everything minimally invasive procedure for ligament reconstruction to spine surgeries. Talking about

the implants used in the surgical procedures, their durability and flexibility are quite lasting in comparison to the primitive implants which were used. Time is very crucial for a sports player, with the developing technology to operate. In case of any injury, a player can have a quicker recovery and return to the practise and match performance phase again. Since surgeries being minimally invasive in nature, there is less blood loss during the surgery, less tissue damage during surgery resulting in quicker healing and recovery.

Recently, I operated upon a national level karate player with a major ligament reconstruction surgery and she was able to get back to performance in less than 45 days.

With the industry being dogged by controversies about implants causing long-term side effects etc., what can healthcare providers do to ensure that inferior quality implants are out from the market?

Sadly in India, we still do not have standardisation and set protocols in using and selling implants. Unfortunately, some of the surgeons rely on the US FDA implant certification to use a different set of implants.

Standardisation, setting up proper guidelines and regulations from the government can surely make a difference. There should be proper research and some regulatory process set before commercial use of implants is done in hospitals by the surgeons. Thus the government can take different initiatives in the same and allow guidelines to enable uniformity in implants and eliminate the usage of inferior quality usage of implants in the market.

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Uplifting nurses and caregivers in India

Sameer Joshi, Associate Vice President, Marketing (B2B), Godrej Interio, gives an insight on the current work environment and work pattern of the nurses in India, the challenges faced and how they can be overcome

Healthcare is one of the largest sectors in this country in terms of both revenues as well as employment. Nurses and caregivers are the single largest health professional group and they practice in nearly every setting of the healthcare system, including hospitals, long-term care, home health, ambulatory care, diagnostic and treatment facilities and clinics.

Nursing is a calling of care, which offers a pool of challenges. Despite urbanisation and globalisation in the country, the healthcare system in the country continues to face challenging changes.

To meet this changing demand, the well-motivated and well-prepared workforce is required. We can achieve this by meeting the requirement of nurses and taking care of their challenges which can lead to empowered and encouraged nurses who can continue to excel to do best without any barriers.

India has a shortage of an estimated 600,000 doctors and two million nurses. With this above objective in mind, we at Godrej Interio tried to understand the current work environment and work pattern of the nurses in India.

The work culture in the Indian is immeasurably diverse. The Indian healthcare system is undergoing a transformative change. In adjusting with a change system and responsibilities, challenges faced by them needs to be addressed on a priority basis.

Challenges

The job tasks of nurses consist of pushing heavy trolleys, patient beds, lifting the patient to make them sit upright or give lateral position, moving pa-



tients from one surface to other, bending while delivering patient care such as bed making and feeding or infusing IV fluids, transferring the patient from bed to wheelchair and vice versa, delivering personal hygiene, etc.

All these tasks are strenuous and involve a lot of physical effort on the part of the nurses.

► Stressed and pressed for time

Long working hours, overtime and work overload contribute to their physical and psychological wellbeing. According to our initial study, 88 per cent of nurses work for 8-10 hours a day along with doing overtime at least twice or thrice a month (35 per cent do over time more than three times a month).

► Skewed patient to nurse ratio

The Godrej Interio's Work-space and Ergonomics Research Cell study 'Elevating ex-

periences, Enriching lives' reveals that 53 per cent of the nurses in departments like medicine and surgery (especially general wards) are observed to have staff-patient ratios of more than six patients per nurse.

As per Indian Nursing Council (INC) norms, the nurse-patient ratio should be 1:3 for general wards in medical colleges and 1:5 for district hospitals, one in each clinic room of the OPD and 1:1 in ICU, ICCU and other critical care areas.

► Infrequent breaks

28 per cent take breaks after four hours of continuous work while 26 per cent take no breaks in a workday (eight or more hours of work).

► Posture stress

Nursing as a profession requires the nurses to provide their services in a standing posture.

However, 74 per cent of the nurses stand for more than

four to six hours a day at a stretch while delivering the services which could cause stress on their lower limbs.

► Mechanical help

Transferring a patient from one surface to another is one of the major and important job responsibilities of the nursing staff. In view of this, we tried to understand which transfer techniques are being used by the nurses and whether those are safe for patients as well as the staff.

We found that some of the large private hospitals do have mechanical lifters, however, it was observed that the staff was either not trained to use the same or was hesitant to use the same sighting time-consuming process. This too can have a direct impact on the health of the back of the nursing staff. Nurses during the study highlighted the following issues:

- 44 per cent of the nurses lift the patient alone with the help of gait belt
- 58 per cent lift the patient alone without the help of gait belt
- 43 per cent reposition the patient in the bed alone
- 57 per cent shift the patient from one bed to another with the help of one person
- 74 per cent reported that they don't use mechanical lifters while transferring a patient from one surface to other

Hospital space design involves factoring in many different facets of work, including physical elements (e.g., medical equipment design, workspace, workstation and physical environment) and psychosocial elements (e.g., job content, workload, autonomy and participation). All these elements impact the nursing staff's stress and efficiency.

The design of the hospital

spaces and infrastructure plays a major role in the job satisfaction of the nurses. Designers need to capitalise on design thinking methods to ensure a technologically advanced; ergonomically fit and design led healthcare setup that centres around the patient and their caregivers. These spaces must be designed according to the job hours and tasks of nurses. The design must ensure that they have space to relax, recover, and rejuvenate themselves. Reducing the stress and fatigue of the nursing staff and providing ergonomically supportive spaces should be given importance while designing the hospital infrastructure.

Various steps can be taken while designing these spaces like furniture adjustability, obstacle-free placement of medical equipment and furniture in the room, light in the room, ventilation in and around, and maintaining optional acoustics levels. All these are important for patient recovery and staff efficiency. Considering the long hours spent on the job, work-spaces must be optimally designed to support ergonomics, efficiency, access, comfort, and productivity.

Overall, there should be a clear distinction between the staff areas and the patient-facing zones to allow mental relief to the workers. The materials, furnishings, colours, and style could be different to provide diversion and visual interest.

The participation of nurses in the design or redesign of their workspaces is crucial to make them feel involved. It can act as a motivator and enabler of high-quality performance. Besides being a key work design criterion, participation is also an important characteristic of any big change.

INTERVIEW

Constant exposure to electromagnetic radiation causes loss of immunity

Growing number of researchers have been raising concerns about the innumerable ill effects of electromagnetic radiation (EMR), which range from poor immunity, higher fatigue and poor sleep quality to serious issues like risk to heart's health, reproductive health failures in men and women and much more, informs **Ajay Poddar**, Managing Director, Syenergy Environics to **Akanki Sharma**

How did you think of coming up with Enviroglobe? Explain its functioning.

Enviroglobe has been a result of regular client queries about the electromagnetic radiation (EMR) emanating from the sources they have no control over like mobile towers on their neighbour's roof tops, electronic gadgets and other wireless devices in their vicinity. The globe helps to protect an area of approximately 300 sq ft (10 ft radius) from the ill effects of radiations.

A revolutionary proprietary technology, the globe consists of a combination of inert materials used to generate 'random' wave forms at higher natural frequencies, which 'carry' the radiation from the wireless devices making them compatible to the human body. It simply changes the nature of radiations making them harmless to the human body, ensuring no impact on the signal strength of your devices.

One needs to charge it with sunlight or a direct artificial light sources (table lamps) for about 15 minutes, once a week. A tested and certified solution, Enviroglobe is CE-certified and has also been certified by Singapore Green Building Council as a 'green product.'

Made to last for a minimum of five years, bearing in mind the regular wear and tear, it is advisable not to expose it to rain, snow and other similar extreme conditions.

Shed light on e-pollution/e-smog and its harmful effects. Share some statistics (India-



A revolutionary proprietary technology, the globe consists of a combination of inert materials used to generate 'random' wave forms at higher natural frequencies, which 'carry' the radiation from the wireless devices making them compatible to the human body

as well as world-specific) to support your answer.

In the year 2011, World Health Organisation's (WHO) International Agency for Research on Cancer (IARC) had classified mobile phone radiation as possibly carcinogenic (cancerous) and slotted them in the same

category as lead, engine exhaust and other deadly substances.

Constant exposure to electromagnetic radiation causes loss of immunity in the long term which leads to serious ailments. Growing number of researchers have been raising concerns about the innumerable

ill effects of EMR, which range from poor immunity, higher fatigue and poor sleep quality to serious issues like risk to heart's health, reproductive health failures in men and women and much more. They are more detrimental to the health of children and old-age people alike.

What all markets are you active in across the world?

Who are your consumers?

Both individuals and corporates are our customers. The USP of the globe is that it takes care of the e-pollution that we don't have control over like mobile towers in the vicinity, Wi-Fi routers, servers, high-tension wire-lines and other wireless gadgets around us. While our enterprise solutions have been implemented in 13 countries, we are currently concentrating on India and Singapore.

In what ways does your product stand out in the crowd? Also, how cost-effective is it?

Enviroglobe is a smart health and wellness, and lifestyle solution for neutralising the harmful effects of radiation emanating from various devices. It has been created using high-quality premium grade stainless-steel shell. Globally, there is no similar product yet. However, it is cost-effective for the protection it provides. There is hardly any maintenance required and you are good to go for a minimum of five years for sure. It's a deal worth much more than the price!

Is this product environment-friendly? If yes, how? If not, why not?

Yes, this product is environment-friendly. It has been certified as a 'green' product by the Singapore Green Building Council (SGBC).

Anything important you want to add?

Additionally, we also create healthier and more productive spaces for people to work and live in through various radiation management solutions. Our solutions have been implemented in more than 2,000 establishments, including airports like Mumbai, Hyderabad, etc., over 18 PSU oil refineries, large manufacturing units, hospitals, social and educational institutions, hotels, corporate offices of many MNCs and even individual residences.

Post our services, we have delivered improvement in the heart rate (upto eight per cent - known to be massively significant in the medical community) of the occupants of the building. Pulse/heart rate is the indicator of stress level of the human body. The consequent effects are enhanced productivity and better health of the employees. In cases of factories and manufacturing units, there have been lower machinery breakdowns and mishaps in accident-prone zones directly affected by negative radiation. Till date, our solutions have helped more than three million people across the globe.

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INTERVIEW

India is home to over 20 per cent of the world's blind population

Childhood blindness refers to a group of diseases and conditions occurring in childhood or early adolescence, which, if left untreated, results in blindness or severe visual impairments.

Rishi Raj Borah, Country Director, Orbis India, reveals more to **Akanki Sharma**

What is the current scenario of child eye care in India?

Since children constitute only three per cent of the world's blind population, childhood blindness has not been given its due importance as compared to other causes of blindness and visual impairment. However, if childhood blindness is measured in blind-person-years, it is second only to cataract blindness.

What are the major causes of blindness? In what ways can it be prevented in children?

Childhood blindness refers to a group of diseases and conditions occurring in childhood or early adolescence, which, if left untreated, results in blindness or severe visual impairments that are likely to be untreatable later in life. The major causes of blindness in children vary widely from region to region, being largely determined by socio-economic development and the availability of primary healthcare and eye-care services. In high-income countries, lesions of the optic nerve and higher visual pathways predominate as the cause of blindness, while corneal scarring from measles, vitamin A deficiency, the use of harmful traditional eye remedies, ophthalmia neonatorum and rubella cataract are the major causes in low-income countries. Retinopathy of prematurity is a major cause in middle-income countries. Other significant causes in all countries are congenital abnormalities such as cataract, glaucoma and hereditary retinal dystrophies.

What are the other major eye diseases people get affected?

Refractive errors are the

largest cause of moderate and severe visual impairment and it is on the rise. Reduced outdoor play and exposure to the sun are increasingly replaced by indoor activities and games for children. This increases the chances of children developing myopia.

Globally, where does India stand when it comes to the visually-impaired population?

India is the second most populous country in the world and home to over 20 per cent of the world's blind population. Unfortunately, it is also home to the largest number of blind children in any one country. In addition, the divide between the rich and the poor continues to increase, leaving a significant portion of the population without access to basic healthcare services — most of whom live either in rural India or urban slums. A majority of ophthalmologists in India live and practice in urban areas.

How can India be a leader in paediatric eye care? How is Orbis India contributing to this cause?

In 2000, there were only four comprehensive tertiary paediatric eye-care centres in India. At that time, with a population of one billion, India needed 100 Children's Eye Centres (CECs) as per the World Health Organisation (WHO) guidelines of one centre per 10 million population. Building India's capacity for paediatric eye-care presented itself as a mammoth challenge. Examining that children need special skills and their treatment protocols require specific training, knowledge and equipment. This meant we had to build the infrastructure



included standardisation of the curricula for different cadres of eye health professionals for the CECs and community work.

POLTCs offer fellowships in paediatric ophthalmology, short/long-term training programmes and periodically conducted workshops/refresher training as well as continuing medical education (CME). Conducting impactful research on child eye health is an integral part of a POLTC.

What challenges do you face in your journey and how do you overcome them?

The India Childhood Blindness Initiative (ICBI) began by identifying tertiary-level eye hospitals where CECs could be established. Further, a country-wide survey was undertaken to generate evidence for human resource and infrastructure requirements for elimination of avoidable childhood blindness. This was the first time that such an extensive survey was undertaken in India. The easier part was the development of infrastructure and systems. The challenging aspect was identifying staff and creating the paediatric ophthalmology teams at a time when paediatric ophthalmology was not recognised as a distinct sub-specialty in India. This resulted in limited career options and therefore, initially, not many individuals were willing to undergo the training. However, today, after almost two decades, we can proudly say that we have played an important role in establishing paediatric ophthalmology as a distinct sub-specialty in the Indian ophthalmology landscape thereby making sure that children across India have access to quality care for generations to come.

Kindly elaborate on the 'sight saving initiative in India.' Also, tell us how is Orbis India funded?

Orbis India launched ICBI, our flagship programme in 2002, to help ensure that India's children across geographies have access to quality eye-care for generations to come. Till date, 33 Children's Eye Centres (CEC) have been developed across 17 states of the country, and the good work is continuing at these child-friendly facilities.

Orbis is fighting the problem of Refractive Error – the largest cause of moderate to severe visual impairment – through the REACH (Refractive Error Among Children) programme across 15 districts of India.

We have also worked in the areas of eye banking, diabetic retinopathy and quality assurance. Building on our work in quality assurance at eye hospitals, we have developed a Quality Resource Centre which is now supporting eye-care facilities across India and internationally.

Today, we train doctors, nurses, other cadres of eye health professionals, community outreach teams and medical technicians to save and restore sight and leave a lasting footprint everywhere we go. We treat patients with a variety of eye health conditions to preserve and restore sight, expand access by supporting local hospitals and clinics with the infrastructure and systems to provide primary and tertiary care as well as build and improve public awareness around eye health. We stay connected through our digital telemedicine and tele-education platform, cyber-sight, and other initiatives.

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EFFECTIVE COMMUNICATION

Healthcare communication in India

Dr Alexander Thomas, President, Association of Healthcare Providers - India (AHPI) and **Divya Alexander**, Research Consultant, in a first of a series provide detailed insights on healthcare communication that explores its different aspects in an Indian context

Let us trace the journey of a patient visiting a hospital as an outpatient. As the patient walks into the hospital, the first person that he or she comes into contact with is usually the security staff and the front desk or reception desk. Thereafter, he or she is directed to go to the registration section to register his or her file. After consultation with the doctor, the patient is referred to the laboratory or the radiology department for diagnostic tests. Prior to actually getting the tests done, the patient comes into contact with the cash and billing staff to pay for the investigations. Once the investigations are complete, the patient goes back to the concerned physician for a follow-up and prescription. The medication is procured from the pharmacy and then the patient leaves the healthcare facility.

The dynamics are quite different for the patients when they are admitted as inpatients. Once admitted, they must visit the cash and billing section to pay an advance prior to admission, and if health insurance, too, is involved, then meeting the administrative office is also mandatory. The patients then get in touch with the support staff – including customer service and security – who guide them to their respective wards. During the course of the hospital stay, numerous visits by allied health professionals and dieticians are inevitable. Finally, at the time of discharge, a second visit must be made to the cash and billing counter to settle the final bill, and to the pharmacy to claim refunds for returned medication and to purchase medication prescribed at discharge.

As one can see, there are numerous ways for patients to lose their way and run from pillar to post if hospital systems do not work properly. The very thought of having to do this while physically unwell is distressing.



Dr Alexander Thomas



Divya Alexander

The low global ranking of the Indian healthcare system re-emphasises the need to assess and strengthen the way healthcare services are delivered. The approach is important since healthcare services, more than any other, depends on the human touch. On one hand, the communication that doctors, nurses, and other healthcare personnel establish with patients is crucial in aiding the patients to adopt life-changing healthcare practices. On the other hand, communication among the members of the healthcare team plays an important role in ensuring a smooth and error-free approach to healthcare. Errors can easily be prevented by adopting small

changes in the system.

Communication affects the foundation of quality care with its direct bearing on the accuracy of diagnosis, the patient's acceptance of treatment, patient safety, patient satisfaction, and the healthcare team. Communication in a hospital setting can be grouped into several strands. The patient interacts with healthcare providers, that is, doctors, nurses, physiotherapists, dieticians, etc. He or she will also, inevitably, interact with the supporting staff such as those involved in billing, customer care, food services, housekeeping, and others. Communication of healthcare providers with other healthcare providers, supporting staff, administration,

and external agencies is common. Effective communication among each of these subgroups is essential for sharing information accurately and in a timely manner.

With the increasing emphasis on quality in healthcare, doctors and all other healthcare professionals are expected to demonstrate competency in communication. But in the Indian context, the resources required to equip healthcare providers in communication are few and far between. For decades, communication had not been given enough importance in medical, nursing and allied health training, as it was assumed that students would

simply imbibe these essential skills through observation and without the need for structured training. Until recently, medical colleges in India did not have a formal curriculum for teaching and learning communication, imparting ethics, or inculcating the right attitude in students. The lack of formal training in these skills and the resulting inability of medical students to communicate effectively cause a large amount of stress, frustration, anger, resentment, misunderstanding, and disappointment. This is one of the contributing factors to the increased amount of distrust in healthcare.

The Medical Council of India



has revised its curriculum for the academic year beginning in 2019, with the introduction of the Attitude, Ethics, and Communication Module (AETCOM), which is now being implemented across the country. This module is intended to prepare medical graduates for the role of a clinician, communicator, leader, lifelong learner, and professional. This module is a welcome step towards better communication by healthcare professionals, but there is a long road ahead in implementing competency-based medical training and ensuring sustainability, the principal responsibility of which lies on the shoulders of medical school leaders. Since the competency-based training programme and assessment methods differ in many ways from the traditional curriculum, it is crucial to sensitise and prepare the faculty for this change. The next important challenge is to change the student's attitude towards medical education: moving from the mere internalisation of knowledge and scoring marks towards adopting the finer AETCOM skills in order to deliver quality medical care. It is a tremendous task to attempt to change the be-

haviour of medical students in the 4.5-year tenure of the medical course.

Medical errors, inaccurate diagnoses, inaccurate treatment, compromised patient safety, and patient non-compliance are some of the immediate results of poor communication. Integrating effective communication skills with the regular medical education curriculum through AETCOM is an important milestone in the journey of reducing medical errors, improving patient compliance, and creating greater patient satisfaction.

The doctor-patient conversation must take place with the understanding that the patient is an equal partner in the interaction, with the doctor leading the interaction through his or her knowledge and understanding of the subject. Medical students need to acquire skills to quickly build the initial rapport, make patients comfortable, ask open-ended questions to facilitate the patient's narration of the problem, and identify the reason for the visit. They also need to learn how to gain a patient's trust by exhibiting empathy and using the appropriate verbal and non-

verbal communication such as greeting the patient, making eye contact, using the correct body language, smiling whenever appropriate, and demonstrating effective and active listening skills. The patient's concerns may be completely different from his or her existing health issues, and these need to be addressed during the consultation. The medical student has to learn how to establish the patient's priorities in the list of problems, state his or her clinical goals, and negotiate a mutually agreeable agenda for the consultation. This requires an understanding of the patient's perspective without losing the sight of important clinical goals and the ability to help the patient understand the clinician's point of view.

All these skills can be learnt through role-play and practice. In western countries, the students are assessed on these skills with standardised/simulated patients. These skills need to be inculcated meticulously as they are a very important part of any clinician's career. For example, in the US, the communication and interpersonal skills of the physician-in-training are no longer viewed as personal styles

that emerge during residency but are seen as a set of measurable and modifiable behaviours that can evolve. Medical students and postgraduates are increasingly instructed on techniques for listening, explaining, questioning, counselling, and motivating.

What is crucial in meeting patient expectations, therefore, is adherence to basic communication courtesies and etiquette by all members of the healthcare team. A common misconception among healthcare providers is that the responsibility for effective communication lies only with doctors and nurses. In actual fact, what makes the overall patient experience memorable is the quality of communication not just with the doctors and nurses but also with less-recognised but equally important members of the healthcare team. These include the paramedical staff (the laboratory and radiology departments) and the support staff (at the reception, registration, admissions, cashier and billing desks; in the dietary department, the pharmacy; and at the security cabin).

Ineffective communication in healthcare, where accuracy

and timeliness regarding patient information are vital, is dangerous. Poor healthcare communication has far-reaching effects on the economics of healthcare service organisations. A study published in the Journal of Healthcare Management (Jul-Aug 2010, 55 (4): 265-281) indicated that US hospitals suffer a \$12 billion loss annually and that a 500-bed hospital may need to bear a loss of \$4 million annually. Patient compliance can also be affected adversely, resulting in distrust, distress, misunderstanding, and misinterpretations. Unfortunately, in some instances, this leads to litigation against the institution or the care provider.

Fostering a culture of effective communication in these complex settings, therefore, has various benefits – increased trust between patients and doctors, greater comfort for the patient, ease in the disclosure of important information, a better understanding of patient expectations, and the prevention of medical errors. The remaining columns in this series will address different aspects of communication in the healthcare setting.

VIZI: Medikabazaar's AI-algorithm tool changing the face of procurement

Vivek Tiwari, Founder and CEO, Medikabazaar, gives an insight on VIZI, Medikabazaar's proprietary AI tool, which is going to be the 'next-gen' procurement solution for hospitals

Technology is a key element of healthcare. Be it clinical, operational or patient journeys in a healthcare facility, all pivotal aspects have been positively enhanced by technology. In recent times, technologies like Artificial Intelligence (AI), blockchain and machine learning have been implemented in both diagnostics and hospital administration efficiently and with a well-defined purpose. AI is quite prominently being used in the Indian healthcare industry, and it's making processes more streamlined, disciplined while reducing the chances of error which is decisive when dealing with patients.

According to a study conducted by The Centre for Internet & Society, a Bengaluru-based non-profit organisation working on digital pluralism and public accountability in Internet and society, titled, 'Artificial Intelligence in the Healthcare Industry in India,' AI is predicted to bring approximately \$957 billion to the Indian economy by 2035. The report specifically identifies the healthcare sector as one of the industry verticals who are investing heavily in AI. This is not unfounded.

In India, AI is already being implemented in breast cancer screenings which have resulted in earlier detections as compared to more traditional processes. This has resulted in improved survival rates. AI is also being utilised in preliminary-symptom based diagnosis to help doctors prioritise their appointments based on the symptoms of the patients.

At Medikabazaar, we asked ourselves; apart from our platform, what else can be done to streamline the procurement process for hospitals? The key quandary which we realised was that hospitals face a con-



stant unpredictability of demand which leads to inefficient purchases, understocking and overstocking in their inventories. This further results in financial loss, surgical case cancellations (poor quality patient care) and capital blockage respectively.

We also did some research where we found out that around 40 per cent of surgeons had to postpone/cancel surgeries due to the lack of vital supplies. We also spoke to our customers where they stated that they only did an average calculation be-

fore procuring supplies which also led to ill-informed purchase decisions.

After understanding this scenario, we thought of devising a product which could be a solution for all these hindrances.

VIZI, Medikabazaar's proprietary AI tool is the "next-gen" procurement solution for hospitals. The tool provides medical establishments with precise stock projections helping them to procure supplies timely and in adequate quantity. The tool also notifies hospitals about the status of their

safety/reserve stock usage so that they can purchase the necessary stock-keeping units (SKUs) so they don't have to cancel/postpone surgeries due to stock-out situations.

One of the key aspects which VIZI provides is an actionable purchase list of products for the medical establishments. Using this list they can directly access Medikabazaar's one-stop platform, order the same and receive the products at their desired location PAN India.

The cost of procurement is a crucial factor as it's the second-

highest financial entity in a hospital's total cost of operations (TCO), just behind staff salaries. However, as per an article by Definitive Healthcare, a medical data publication, procurement costs will overtake staff salaries by the year 2020 to become the largest expenditure for medical establishments. VIZI is a solution which will not only enable hospitals to save significantly in procurement costs but will also give them an intelligent inventory which is bereft of any SKU excesses, shortages, and expiries.

With VIZI, medical establishments can make informed purchase decisions which will help them save at least 30 per cent in procurement costs. In turn, doctors will be able to conduct surgical procedures and diagnosis at the right time as there will be no stock-out situation. In the end, patient care is not compromised.

Medikabazaar started out as being only a marketplace for medical supplies. With time we understood that there were more severe and complicated problems which afflicted the medical supplies procurement space in India. Be it a lack of information regarding what and when to buy, or what price to purchase, we believe that this vital information is essential towards building a streamlined and cost-effective procurement strategy. With our AI tool, we are helping hospitals build a concrete and effective procurement process.

VIZI emerged from Medikabazaar, where we constantly motivated ourselves towards planning and creating innovative ways to help hospitals procure efficiently in order to realise our vision of enhancing and improving the healthcare industry in India.

An innovation that improves patient outcomes

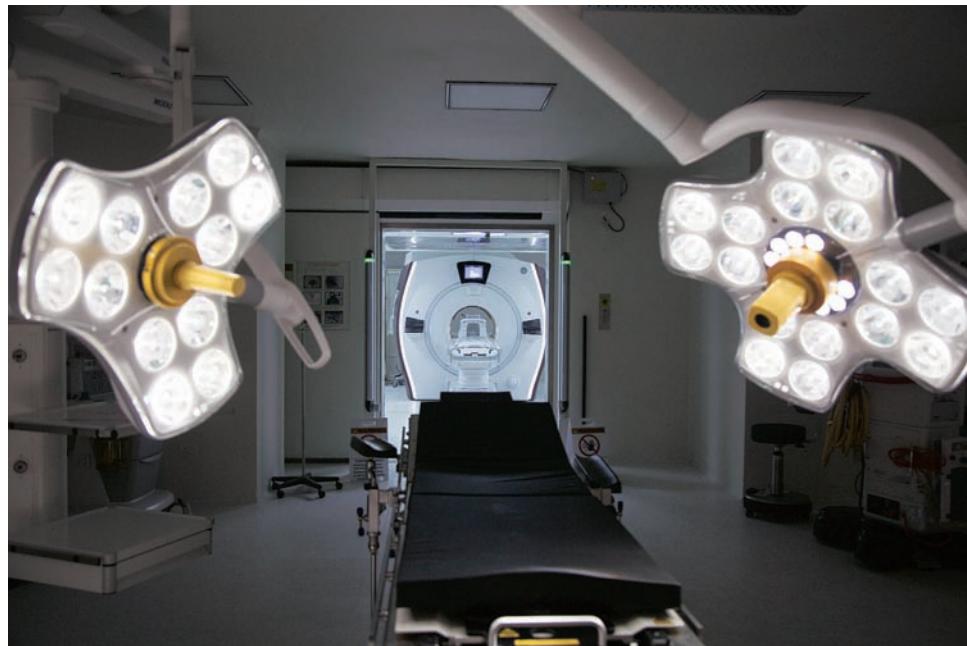
HEALTHCARE innovations are transforming patient treatment and addresses complex scenarios using disruptive technologies. For instance, during epilepsy surgery certain lesions cannot be seen under a microscope, that is when an MRI facility in an OT helps neurosurgeons with real-time view of the brain. This results in exact diagnosis of tumours and improved accuracy of treatment for patients.

In 2017, NIMHANS commissioned GE Healthcare with building an Intra Operative MRI (IOMRI) facility in South Asia. The turnkey project called for a ground up construction of three operation theatres (OTs) and integration of two of the OTs with the GE 1.5T Widebore MRI in a sterile environment. The OTs were specially designed and

equipped with a neuro-navigation system from Brainlab (a third-party software), which allows transfer of images from equipment to monitors through touch screen panels. This revolutionary technology helped doctors ensure a much safer and efficient procedure which removes causative tumours and lesions without touching any other part of the brain. Through this, there was a significant drop in the risk involved during procedures.

Technical nuances that IOMRI brought about:

- Neurosurgical procedures now minimise morbidity and increase the extent of tumour removal from critical areas of brain
- Enables surgeons to use neuro-navigation techniques and intra-operative imaging



during neurosurgery

- Increases operational efficiency and optimise working costs
- Widens scope of research in neurosurgery

Modern-day neurosurgery has advanced immensely with cutting-edge technologies and state-of-the-art modalities. GE Healthcare is at the forefront of this innovation as they improve quality of life and create access to advanced healthcare in the country.



Revolutionising critical care infrastructure with Centricity

MARKED BY sustained economic growth over the past two decades, India's critical care infrastructure has improved significantly. However, availability of quality critical care services continues to be disparate. While the exact number of intensive care unit (ICU) beds in the country remains unknown, the global norm of maintaining one ICU bed per ten hospital beds has been a challenging proposition in India. This is mainly attributed to the high cost of managing optimal standard of care including nurse to patient ratio, equipment and robust infrastructure.

With critical care at the

crux of its services, Kainos Hospital, Rohtak, incepted in 2016, has more than 30 specialities. Spiralling cost of private hospitals in the region along with the need for improved speciality services including critical care, formed the core of the hospital's genesis.

While pioneering digitalisation of critical care services in the region, the hospital has been facilitating access to revolutionary equipment and software in the segment. Equipped with Centricity – High Acuity Critical Care patient management solution, the hospital strives to raise the bar of clinical excellence.

"The intensive care units at private hospitals in small towns typically have lower standards thus begetting high mortality rate. The main challenge is lack of awareness among hospital management around ICU being a high-end super speciality."

The department ideally should have strict and consistent protocols and efficient workflow. To ensure uncompromised standard of care without transferring the cost to patients, an efficiency enhancing solution like Centricity is needed. It allows me to keep the cost minimal yet provide best quality of care. It helps me maintain the balance

between cost and sensibility of care," says Dr Arvind Dahiya, Director, Kainos Hospital and Intensive Care Specialist.

CHA (Centricity High Acuity) is an integrated, user-friendly ICU & OT management solution which provides proven strategies (clinical, operational, etc.) to healthcare providers with the aim to improve the quality of care, optimise the resources management and minimise risks. The solution covers the whole clinical and operational workflow thanks to deep device connectivity and smooth integration with other hospital solutions (such as EMR, HIS, etc.). Clin-

ical informations are delivered to care givers in a natural and intuitive way which supports multidisciplinary team approach and speed up the decision-making process. Some of our esteemed customers that have implemented Centricity are AIIMS NCI-Jhajjar, Genesis Hospital-Kannur, Apex Group of Hospitals- Jaipur, Sum Ultimate Hospital-Bhubaneshwar, FMRI-Gurgaon, Apex Hospitals, Hyderabad.

References

<https://qrius.com/why-india-needs-to-move-towards-effective-utilisation-of-critical-care-facilities>

High flow oxygen therapy solutions by nice Neotech

HEATED HUMIDIFIED high-flow (HHHF) therapy, often also high flow nasal cannula(e) (HFNC) or high flow nasal oxygen (HFNO), is a type of respiratory support method that delivers a high flow (litres per minute) of medical gas to a patient through an interface (nasal cannula) intended to create a wash-out of the upper airway. The applied gas is heated to best match human body temperature (37 Celsius) and humidified targeting ideal body saturation vapour pressure. It is used in acute and chronic breathing problems.

Medical uses: High-flow therapy is useful in patients that are spontaneously breathing but have an increased work of breathing. Conditions such as general respiratory failure, asthma exacerbation, COPD exacerbation, bronchiolitis, pneumonia, and congestive heart failure are all possible situations where high-flow therapy may be indicated. HHHF has been used in spontaneously breathing patients with during general anaesthesia to facilitate surgery for airway obstruction.

New-born babies: High-flow therapy has shown to be useful in neonatal intensive care settings for premature infants with infant respiratory distress syndrome, as it prevents many infants from needing artificial ventilation via intubation, and allows safe respiratory management at lower FiO₂ levels, and thus reduces the risk of retinopathy of prematurity and oxygen toxicity. Due to the decreased stress of effort needed to breathe, the neonatal body is able to spend more time utilising metabolic efforts elsewhere, which causes decreased days on a mechanical ventilator, faster weight gain, and overall decreased hospital stay entirely.

High flow therapy has been successfully implemented in in-

fants and older children. The cannula improves the respiratory distress, the oxygen saturation, and the patient's comfort. Its mechanism of action is the application of mild positive airway pressure and lung volume recruitment.

Benefits: HFT, the clinician can deliver higher FiO₂ to the patient than is possible with typical oxygen delivery therapy without the use of a non-re-breathe mask or tracheal intubation. Heated humidification of the respiratory gas facilitates secretion clearance and decreases the development of bronchial hyper-response symptoms. Some patients requiring respiratory support for bronchospasm benefit using air delivered by HFT without additional oxygen. HFT is useful in the treatment of sleep apnea. During use of HFT the patient can speak. As this is a non-invasive therapy, it avoids the risk of ventilator-associated pneumonia in situations where it can supplant the use of a ventilator.

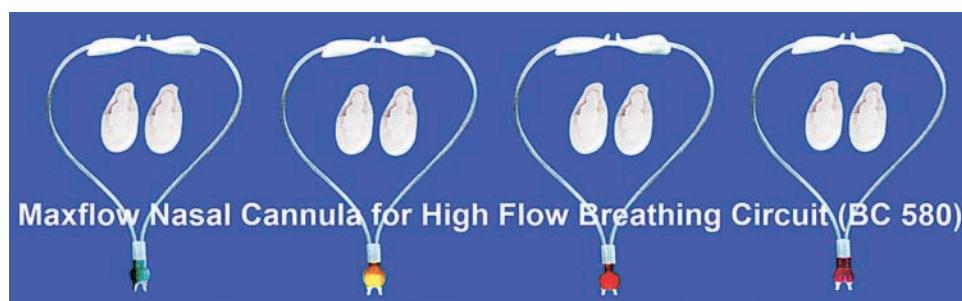
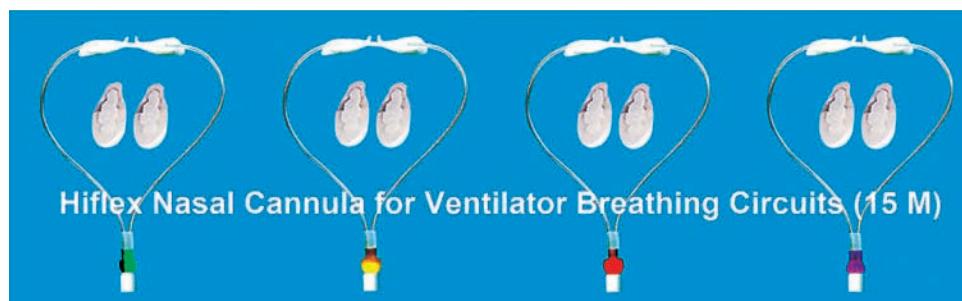
Use of nasal high flow in acute hypoxic respiratory



failure does not affect mortality or length of stay either in hospital or in the intensive care unit. It does however reduce the



High Flow Oxygen Therapy
(nice 8050 & nice 5005)



need for tracheal intubation (by 15 per cent) and escalation of oxygenation and respiratory support. However, the certainty that this result is reliable is low, as different studies were less precise than they could have been. People on nasal high flow feel more comfortable, less breathless, and there was little evidence of harm.

www.niceneotech.com

► High Flow Oxygen Therapy with nice 8050: Servo Control Heated (Respiratory) Humidifier, nice 5010: High/ Low Flow Air Oxygen Blender / nice 5005: Low Flow Air Oxygen Blender and BC 585: Infant/ Neonatal Single Limb - Single Heated High Flow Oxygen Therapy Tube with Humidifier Chamber, Preset Pressure Manifold & Cannula!

► High flow oxygen therapy is a form of respiratory support used in the hospital where oxygen, often in conjunction with compressed air and humidification, is delivered to a patient at rates of flow higher than that delivered traditionally in oxygen therapy.

► Traditional oxygen therapy is up to 15 LPM and high flow oxygen therapy is up to 60 LPM.
► High flow oxygen therapy is usually delivered using a blender gas outlet, a humidifier, heated tubing and nasal cannula.

The growth story

Himanshu Baid, Managing Director, Poly Medicure elucidates on how Poly Medicure has served the medical fraternity for over 22 years and owns more than 215 patents and continues to file new patents for new technologies and devices they are developing with the help of its R&D team

TO ADDRESS the need of growing healthcare market, Polymed is investing in new technologies and enhancing its R&D capabilities to deliver high quality medical devices. Poly Medicure is a leading Indian manufacturer and exporter of medical devices with focus on innovation, safety and quality. The company has served the medical fraternity for over 22 years. Since 1997, the high-quality standards of our product continue to make us the preferred choice of healthcare professionals across the globe. The company has nine ultra-modern manufacturing facilities out of which six facilities are in India and one each in China, Italy and Egypt (through a joint venture). These are equipped to manufacture over three million devices per day which includes many patented devices confirming to latest global norms. Polymed owns more than 215 patents and continues to file new patents for new technologies and devices they are developing with the help of its R&D team. It also drives the academic initiatives in collaboration with Infusion Nurses Society (INS), India on good nursing practices and nursing care. This programme is aimed at developing the foundational elements of nursing care, primarily liked to infusion therapy and to create awareness about the standards of practice.

Polymed produces more than 125 different types of medical devices. Today we offer a complete solution in vascular access and infusion therapy domain which includes Peripheral IV Cannula, needle free connectors, extension lines, mini mid lines, mid lines, central venous catheters,



With state-of-the-art technology, we have developed the third generation IV cannula with blood control technology which enhances the safety of healthcare professionals and infection control practices

PICC line, ports and PICC Ports. With state-of-the-art technology, we have developed the third generation IV cannula with blood control technology which enhances the safety of healthcare professionals and infection control practices. The company

has recently introduced new products in renal care/ dialysis segment which include dialysers, blood lines, fistula needles and haemodialysis catheters. This is one of the fastest growing healthcare segments in India with a growth rate of over 20 per

cent PA. All the products introduced by Polymed in this segment are import substitute and have helped in reducing overall treatment cost for the dialysis patients. Polymed also has vast product range under transfusion systems and diagnostics consumables.

To further strengthen our vascular access/infusion range, Polymed had also acquired Plan 1 Health, Italy in 2019. Through this acquisition, Polymed becomes one of the few companies in the world to offer complete solution across peripheral and central vein access. Plan 1 Health products are manufactured in Italy and cater the fast-growing oncology segment too. Through its sustained R&D efforts Plan 1 Health has recently developed Tip Navigation Software which will be a useful tool for healthcare professionals.

The company has registered a growth of over 15 per cent in the first nine months of current financial year and continues to increase its market share in India and overseas markets. The company's products are exported to more than 110 countries worldwide and conform to best regulatory standards. The company also plans to launch some new devices in next few months in the respiratory care segment.

Recently the company has received an award for one of the Top 25 Innovative Company in 2019 by CII Industrial Innovation Awards. The company is also largest exporter of consumable medical devices from India for last eight years. In Feb 2019, the company was recognised with 'Medical Devices Company of the Year 2018' award, by the Department of Pharmaceuticals Ministry of Chemicals & Fertilizers, Government of India.

The company continues to focus on its vision to serve people through innovative healthcare solutions and make medical devices more affordable for the global community.

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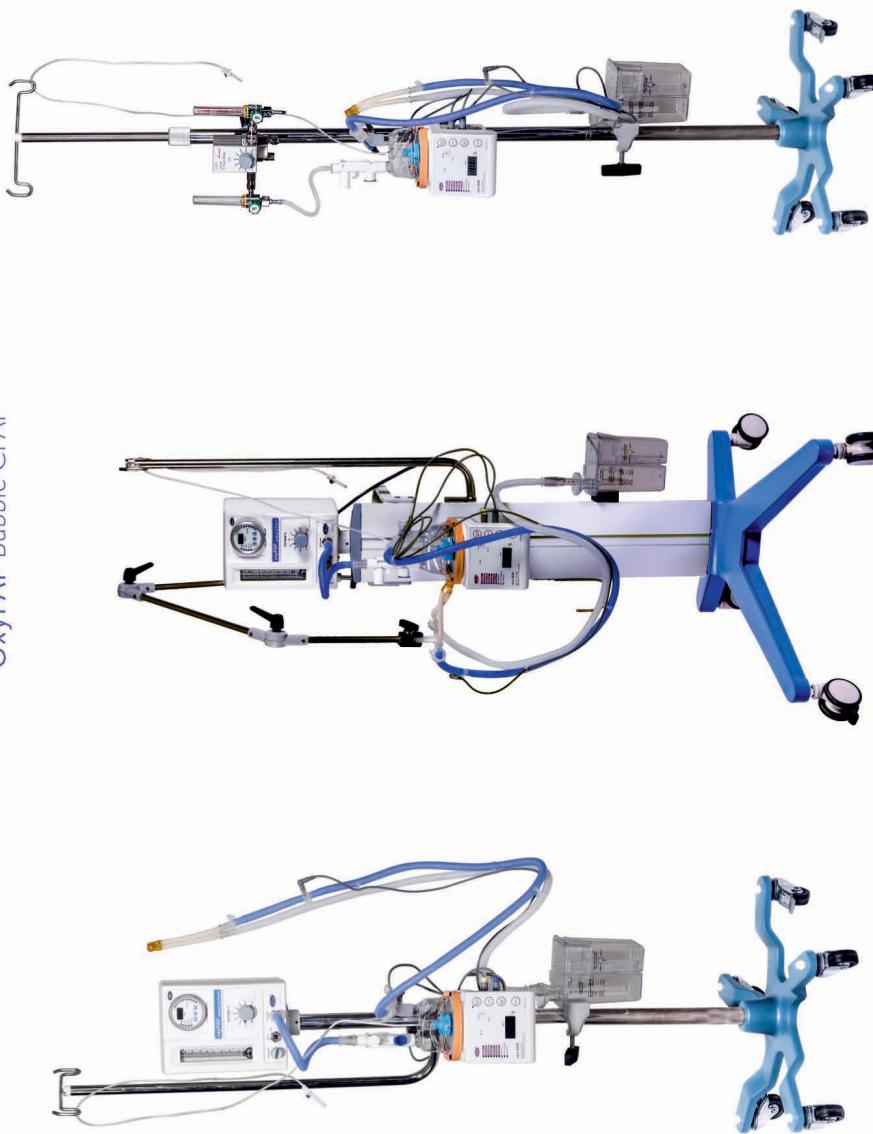
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