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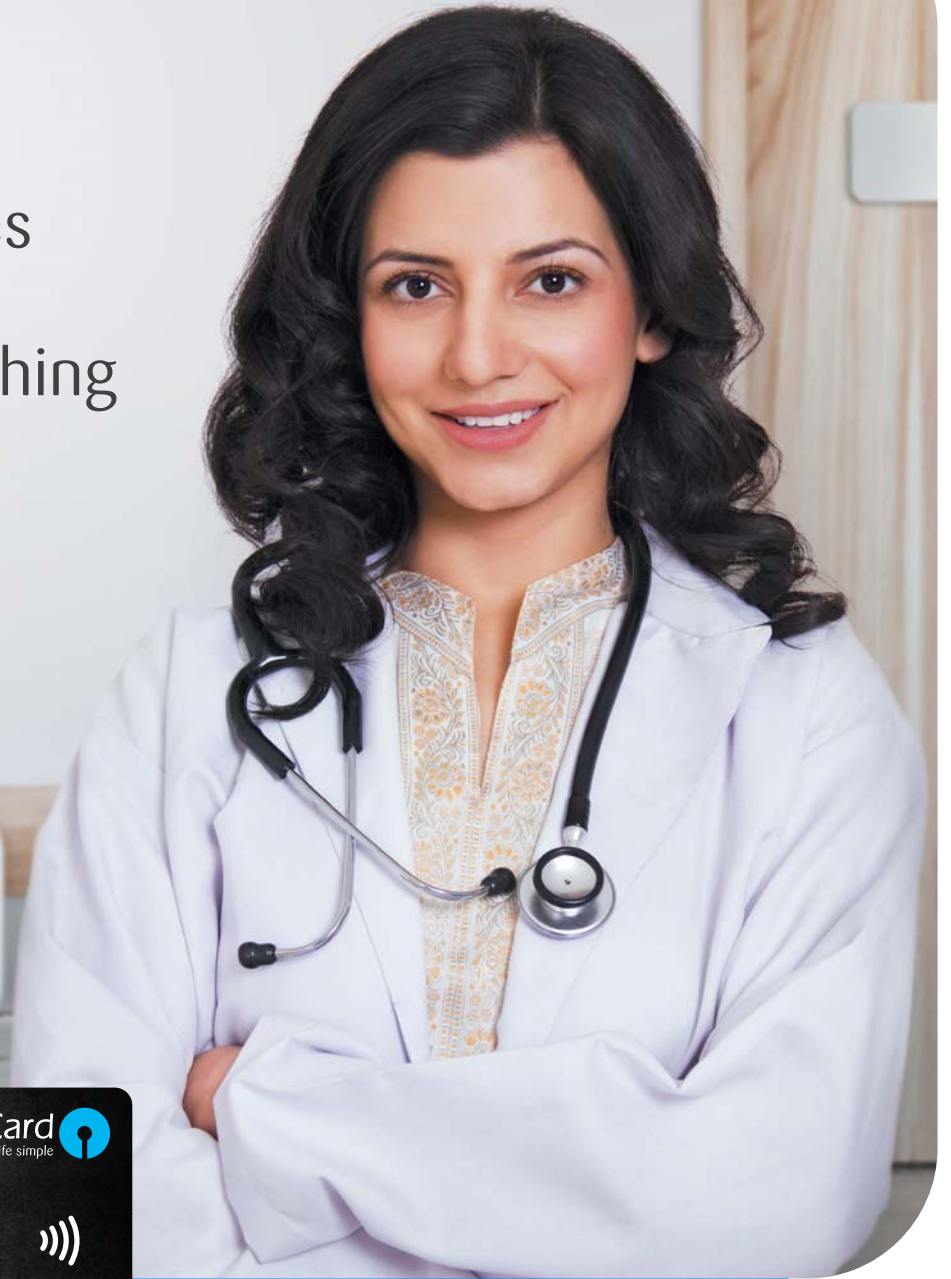
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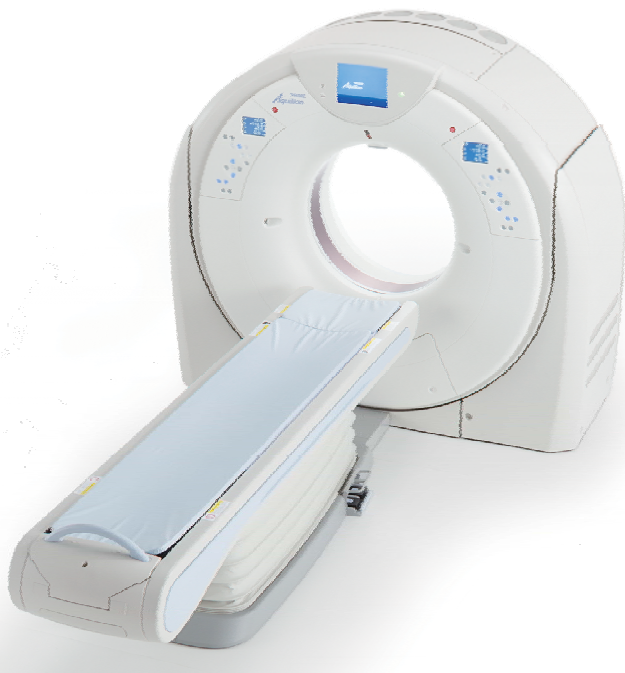
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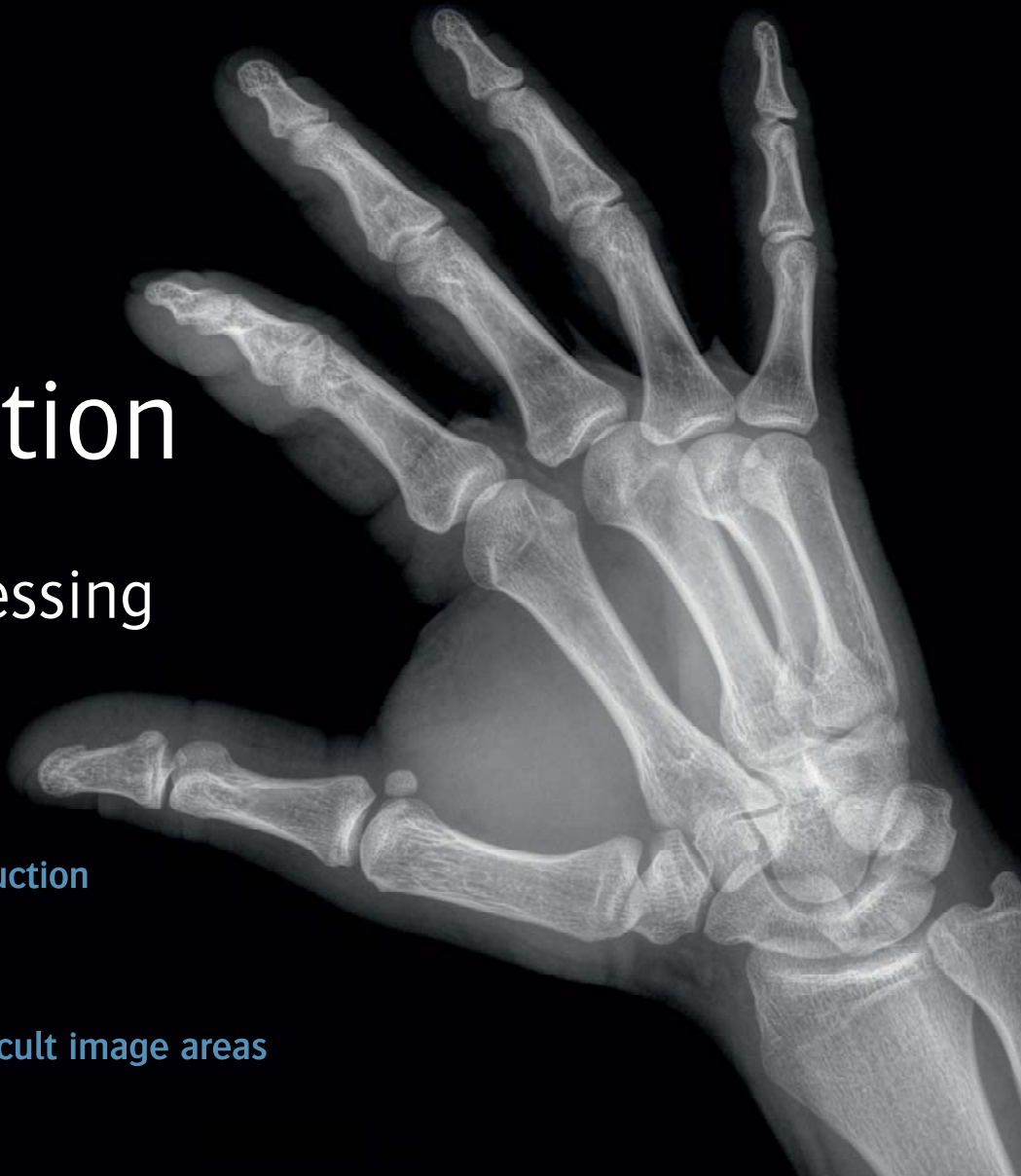
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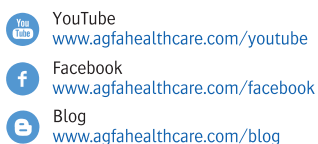
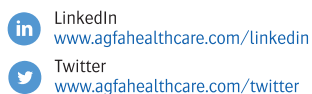
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## Is there enough incentive for hospitals to sign up for Modicare/AB?

**T**he fourth edition of Healthcare Sabha, held over October 5-6, in the national capital went way beyond Ayushman Bharat (AB), India's National Health Protection Scheme (NHPS), with the assembled public health professionals discussing and debating implementation challenges. Speaking at the conference, Dr V K Paul, Member, NITI Aayog said, "Through AB, we are building a holistic health system with a focus on creating a gamut of healthcare services available to all." Recognising the significance of collaborations with the corporate sector in AB's success, he invited private entities to explore this opportunity. (*Do catch the full coverage of Healthcare Sabha in the November issue of Express Healthcare*)

Will the corporate sector bite the bait when it is already faced with stressed balance sheets? Let's start with the insurance sector. Insurance companies are bidding for various states and their role is crucial considering that AB is an insurance-based scheme. But insurance partners to some of the existing healthcare schemes run by the different states have not had a good experience. Take for instance, Rajasthan's *Bhamashah Swasthya Bima Yojana*, which is supposed to be the template consulted by Prime Minister Modi when designing AB. Far from being a positive push, it has given the opposition many opportunities to run down Chief Minister Vasundhara Raje's governance.

The insurer, New India Assurance Company (NIAC), complained that the implementing arm of the state's health department, the Rajasthan State Health Assurance Agency (RSHAA), had not paid them their share of the premium, which had accumulated to pending dues of over ₹100 crores. Worse, when the NIAC de-empanelled hospitals where frauds were discovered, the RSHAA overturned this decision. This unseemly tug-of-war ended with a settlement as state polls are around the corner, with the RSHAA saying that the delay in payment was because they had been trying to identify and stop misuse/abuse of the scheme. These issues will definitely impact Rajasthan's state elections due in early December. And Rajasthan is not the only state to default on this score. Telangana too has reportedly not reimbursed hospitals participating in its *Aarogyasri* scheme for a year.

One hopes that lessons have been learnt and frauds in the AB scheme will not derail the scheme. Frauds increase payouts for the insurance player, making it both economically



While the government is willing to spend on health, the areas that need it most lack the infrastructure. And private players are in wait and watch mode to see how things pan out

unfeasible as well as taking away scarce resources from the truly deserving cases. With the states refusing to cease their existing health schemes, hospitals could claim reimbursement under both the state as well as central schemes. Is the IT framework capable of catching these frauds?

Moving on to the much maligned hospital sector. Theoretically, the government hopes that unused capacity in terms of beds, diagnostics facilities and services will be used for AB beneficiaries but the reality of frauds point to another story. Once the government cracks down on such practices, will there be enough incentive for hospitals to sign up for AB and stay in the scheme?

Corporate hospitals are facing their own demons as growth remains sluggish quarter to quarter. Consolidation continues, with even global players cutting their losses in certain cities. The recent example is Columbia Asia pulling out of its Ahmedabad facility and selling out to Zydus Hospitals. The lesson seems to be that while technologies and SOPs can be global, running a hospital in a sustainable manner needs attention to and expertise with local issues. India's attractiveness remains intact, with Columbia Asia now focussing on building its biggest facility in the country in Pune. According to the management, its Bengaluru facility is achieving the fastest growth in the history of Columbia Asia.

Thus, while the government is willing to spend on health, the areas that need it most lack the infrastructure. And private players are in wait and watch mode to see how things pan out.

With the general election looming next year, there is no doubt that this will be an election issue and we'll continue to track the roll out of AB. Even though US President Trump revoked Obamacare, the Democrats are using it as an example of a well run scheme which benefited common people, rather than Republican tax cuts which benefitted the corporate sector. Thus AB or Modicare, will swing the fortunes of many political parties, both at the state and the all important Centre next year. With this much at stake, politicians realise that they have to get it right. And hopefully, this will be one example of how political one-upmanship actually resulted in some lasting benefits for the citizens of India.

VIVEKA ROYCHOWDHURY *Editor*  
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POST EVENT

# SIPS 2018: Seminar on Inventory, Procurement and Supply Chain Management held in Goa

The seminar was organised by Innovation and Alkem Laboratories was the knowledge partner. *Express Healthcare* was the media partner for the seminar

An efficient inventory, procurement and supply chain management system facilitates a hospital to reduce operation costs, improve cash flow and ensure patient satisfaction. It can be a key differentiator for a hospital. The first edition of the Seminar on Inventory, Procurement and Supply Chain Management was held in Goa on September 22, 2018 where discussions were held to provide a learning ground for inventory, procurement and supply chain managers.

The seminar was organised by Innovation and Alkem Laboratories was the knowledge partner. *Express Healthcare* was the media partner for the seminar. Around 43 experts from healthcare organisations were present at the meeting.

Sandip Dey, BU Head-Hospital Business, Alkem, inaugurated the seminar. He spoke about the role of supply chain and procurement as a success enabler for hospitals and the reason for Alkem to be part of this gathering. "There are many challenges that need to be addressed within the hospital supply chain system. Therefore, we felt the need to be part of this knowledge sharing meeting where ideas are exchanged and strategies can be developed on how we as a community can improve supply chain, procurement and inventory management within hospitals to ensure an organisations' business success," said Dey.

Next, Sanjay Bajaj, Group Head Procurement - Rainbow Group of Hospitals, Hyderabad, spoke on the essence of inventory management in healthcare. He began by explaining that the primary focus on inventory



management must be to ensure that all patient needs are met.

"Inventory management can provide a benchmark against the performance of a hospital. 30 per cent of a company's revenue is at stake inventory. It can be an effective tool in achieving a competitive advantage for the organisation. Keeping right levels of inventory management is crucial in order to meet patient commitment while minimising costs," he expounded.

While speaking on the mantra for success, he said,

"The principal goal of inventory management is to balance the conflicting economics. It is important to not hold too much stock which increases cost. Apply suitable mathematical tools and approaches designed to aid the decision makers in setting optimum inventory levels, economic orders and quality models. RFID, electronic data interchange systems etc should be applied."

This interesting talk was followed by a panel discussion on NPPA, DPCO and government

scheme implication and outcomes. The panel had Edmon Paul, Parkway Group of Hospitals, Mumbai; Naresh Agrawal, CEO and Procurement head Emami Frank Ross, Kolkata, Hazrat Ali, Head Procurement - Manipal Hospitals, Bangalore; Venkatesan, Sr GM supply-chain management, HCG group of Hospitals, Bangalore and Ajay Menon, Procurement Head Fortis, Hospitals, Mumbai and was moderated by Sandip Dey, who discussed the impact of legal and ethical pric-

ing strategies.

N Venkatesan, Sr GM Supply chain Management HCG Group of Hospital, Bangalore, spoke on the challenges in procurement strategies. He brought to light the need for hospitals and pharma companies to look at QA/QC mechanisms. In his presentation, he highlighted that business intelligence is key to ensure best practices in procurement.

The conference ended with an insightful panel discussion on Hospital Business 2025. The panellists were Jaiprakash Vastrad, Head Pharmacy Div, Sagar Hospitals Bangalore; Amrendra Singh Deo, GM-Commercial, Global Hospitals, Mumbai; Balaji Srinivasan, Chief Procurement, KDA Hospital, Mumbai; Vimal Sarin, Head of Pharmacy - Sahara Hospitals, Lucknow; Sandip Dey, BU Head Hospital Business, Alkem Lab. The panel was moderated by Raelene Kambli, Special Correspondent, *Express Healthcare*.

Panellists in this discussion unanimously agreed that hospital pharmacies and supply chain can be a great enabler for business success and accessibility, affordability and assurance will be the key to business performance. The panellists also highlighted the need for hospitals to up their game in quality performance to ensure patient satisfaction and brand value.

This programme was one of its kind which brought a lot many insights in the field of inventory, procurement and supply chain management. All the delegates were happy and delightful about the content of the programme and shared their urge for many such programmes in future.

# MARKET

## INTERVIEW

### 60 per cent of all EM physicians in India are our alumni

From 43 courses in 2016, to a current spread of over 130 courses across 13 specialisation areas, Medvarsity Online expects their portfolio to expand to 250+ courses with increased focus on skilling professionals aligned to the government's goals as part of Ayushman Bharat.

**Gerald Jaideep**, CEO, Medvarsity Online tells **Viveka Roychowdhury** that his company is looking to transform medical education through technology, constant updation, a global faculty pool and a wide circle of local clinical partners

**What were the gaps in India's medical education system that Medvarsity tried to address when it was first started by the Apollo Group 19 years ago?**

The prominent gaps that we saw in healthcare service sector almost two decades ago was a major shortage of skilled workforce. The problems of not having

enough skilled doctors and nurses to handle the ascending number of patients and diseases at that point of time was a huge issue. Even at later stages when the government started making efforts to improve the hospitals and infrastructure, knowledge building platforms and resources for the healthcare

professionals were almost negligible. Moreover, sources to develop required skills to deliver quality health was getting defeated at multiple stages of the professional workforce. The issue of lack of healthcare professionals to the patient ratio still exists, but thanks to technological advancements, there is hope for advancement.

**What was its vision /mission statement? What was the 2016 rebooting, rebranding all about?**

With the health industry being worst affected due to lack of teachers, in medical and nursing colleges, the seed to create a virtual medical university was sown and that is how Medvarsity was born, in 2000. It came

from a need to impact healthcare in India. We are looking to transform medical education through technology. Our aim is to help doctors and other healthcare professionals upskill their talents to provide better care. Our vision is to 'Impact Healthcare through Education.' By creating a



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platform where students and medical professionals can access the latest in medical education and engage with a global faculty group, we're ensuring that every Medvarsity graduate is better equipped to save lives.

The reboot of 2016 was required to integrate Medvarsity across all aspects of medical education. We launched a recognisable brand identity and established partnerships with some of the largest healthcare providers in the country. The rebirth also involved a deeper integration of technology across all aspects of our training and therefore build a better engagement with the learners of tomorrow.

**The increasing cost of medical education has been cited as one of the reasons why doctors resort to overcharging patients as a way to maximise earnings after years of expensive study. Don't the Medvarsity courses, internships/observerships add to this burden, especially since they are currently not accredited/certified by the government?**

A direct relationship between cost of education and how much doctors charge is a conjecture at this moment and we really don't have a basis for making that assumption. On the other hand, the unavailability of skilled professionals would mean that the few skilled/qualified doctors are likely to charge higher for their services. That's simple supply demand mismatch and therefore prices will go up.

Medvarsity has worked hard to democratise medical education. We have courses starting at ₹ 2500 and going up all the way to ₹ 10 lakhs for an international masters programme. Even in the case of our international masters, we are offering the courses to our students at 50 per cent of the price offered by the principal university. Therefore, one can argue that as more and more



medical professionals have access to high quality training, the cost of medical services should start declining for the general public.

**How does a graduate from one of your programmes benefit? What is the value add?**

The healthcare sector in India is predicted to have a compound annual growth rate of 22.9 per cent by 2020 and is valued at \$280 billion. These strides being made by India is palpable in the revenue and employment opportunities generated in the health sector. Healthcare organisations are making huge investments, like acquisitions of smaller healthcare organisations, expanding to every nook and corner of the country either through technology, provision of services, setting up drug stores and many

more citizen-benefitting initiatives. This boom has resulted in a great need for healthcare professionals. Thus the demand for healthcare professionals has been huge and constantly on the increase.

Courses by Medvarsity promote focussed learning, emphasise skill enhancement programmes and are regularly updated based on inputs from a global faculty pool. While our alumni often see an immediate improvement in their careers, our focus is on long-term impact on healthcare. Medvarsity courses help professionals upskill their clinical expertise, gain management and leadership skills via live virtual interactions with leading experts across the globe and open up various multiple career opportunities in management and healthcare.

**The Fellowship in Emergency Medicine seems to be one of the flagship courses of Medvarsity. Describe its pedagogy as a template for your other courses.**

Fellowship in Emergency Medicine (FEM) is a one-year programme designed to train students with the international standards of training in emergency care. This course will help doctors to enhance their knowledge and skills required for prevention, diagnosis and management of acute and urgent aspects of illness and injuries affecting patients of all age groups. It will enable students to build competencies in triaging patients, identification and treatment of life-threatening emergencies, resuscitating a critically ill patient and performing lifesaving procedures in addition to having good communication

and counselling skills.

Medvarsity has had the privilege of creating a substantial impact in the practice of emergency medicine in India. Over the last 10 years of our FEM programme, we have trained and upskilled over 3000 emergency medicine doctors. We can proudly state that 60 per cent of all EM physicians in India are our alumni.

**India's medical education system is in a transition phase, with the Medical Council of India (MCI) recently dissolved and the Board of Governors taking over. Long term, it will make way for the National Medical Commission (NMC). How is Medvarsity engaging with this ecosystem, given that it is a private sector undertaking and is not regulated by MCI/NMC and therefore cannot award a formal degree?**

The government's move to dissolve MCI was a surprise move and while we were expecting the announcement of the NMC before the dissolution of MCI, this move did catch all of us by surprise. We have been working with Niti Aayog and influencers in the government to expand the role of private entities like Medvarsity in upskilling medical professionals. Till such a time that the government doesn't constitute a national body to review this request, Medvarsity and other online education companies will need to focus on upskilling and reskilling of the professionals rather than granting a formal degree.

**Who are your global partners in terms of content, instructors etc?**

Our courses are developed and accredited by some of the top universities from across the world. We have courses for all levels of healthcare practitioners and they have different accreditations considering its forte and relevance to that particular clinical and

# MARKET

non-clinical skills. For example, we have the courses relevant for only nursing community which is powered by ATI Nursing Education (US) and ATI is the leader in nursing education. Further, we have courses designed and accredited by top universities such as eCornell, Royal Liverpool Academy, Amity University amongst others. These not only increase the credibility of each course's material and certification programme, but also puts us at the top when it comes to online medical training.

**Who are the clinical partners for the courses? How do you go about shortlisting and collaborating with such partners?**

We have partnerships with leading hospitals in India including Apollo, Columbia Asia, Max Cure and others. Our alumni are spread across most hospital groups in the country and are also spread across 38 different countries across Asia, Africa and North America.

We look at multiple aspects when we consider signing up a clinical partner. This covers their current accreditation standards, departmental staffing, leadership structure, focus/investments in education and in specific cases, review by our academic partners on their competencies in specific treatment areas. Therefore we shortlist hospitals which are aligned with our goals, training needs and the courses we offer. There is also a lot of research, inputs and feedback received from different stakeholders which also impact our selection of partners.

**What has been Medvarsity's growth over the years and your plans, targets for the next few years?**

Medvarsity has consistently been growing at 30 per cent YoY and we're a profitable, self sustaining entity. We

invest 40 per cent of our revenue in technology and new course development to ensure that our students are constantly abreast of the latest developments in the industry. In 2016, we had 43 active courses and today we have over 130 courses spread across 13 specialisation areas

and covering a large set of healthcare professionals. Over the next couple of years, we expect our course portfolio to expand to 250+ courses with increased focus on skilling professionals aligned to the government's goals as part of Ayushman Bharat.

**How does Medvarsity engage with government/public hospitals and public health professionals?**

At this point of time, we have limited engagement with government hospitals. We do offer a Masters in Public Health programme in

partnership with the University of New South Wales where the student is required to spend two weeks as part of a community health centre and we've tied up with Apollo's PHC in Aragonda for the same.

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Indo UK Institute of Health (IUIH) firmly believes that the largest PPP project by Prime Minister Narendra Modi is the way forward to improve healthcare in India

One of the major challenges for healthcare ecosystem in India is to enhance the service quality and ensure equitable access to masses besides increasing its capabilities to manage the changing disease incidence profiles. According to a recent McKinsey report, India will have a total bed density of 1.84 per 1000 people against the global average of 2.9 and WHO guideline of 3.5 by 2022.

As a country, India accounts for 20 per cent of the global disease burden and only 12-15 per cent of Indian population is under health insurance cover. Private sector caters to over 90 per cent of hospitals, 80 per cent of doctors, 80 per cent of outdoor patient and close to 60 per cent of indoor patient care services in India. This overtly high dependence on private sector has debilitating effects on the poor leading to liquidation of their assets, indebtedness etc. Two-fifth of those hospitalised in India end up becoming BPL category (below poverty line) every year owing to out-of-pocket expenses being as high as 80 per cent.

Public Private Partnership (PPP) model, on which Prime Minister Narendra Modi's flagship healthcare initiative,



Ayushman Bharat, also popular as 'ModiCare', leverages on, can address these issues very effectively. We, at Indo UK Institute of Health (IUIH), the largest PPP project, firmly believe that it is the way forward to improve healthcare in India.

Incidentally, ModiCare or the Ayushman Bharat - Pradhan Mantri Jan Aarogya Yojna (AB - PMJAY) has crossed the 100,000 mark in terms of

subscribers within a month of its launch across its network of 14,000 empanelled/in-process of being empaneled hospitals. The IT-based platform of the scheme makes it easy to track patients, maintain records and reimburse the money. The government has also devised an off-line module as an alternative to deal with the cases of internet connectivity problem. There are also fewer chances of

fraud as any duplication or another anomaly will be easily picked up by the software. The beneficiary are selected on the basis of the Socio-Economic Caste Census 2011 to further reduce the chances of exclusion and inclusion errors. ModiCare aims to provide healthcare insurance cover of upto ₹ 5 lakh per family to 10.74 crore families. The scheme would benefit approximately 55 crore people,

making it the world's largest government healthcare programme.

The healthcare industry is vast and in addition to conventional medicine and treatment of patients, comprises several ancillary and complementary areas such as education and training, clinical support, manufacturing and technology, research and development, mental health, alternative medicine

and commercial health. The confining of these within a specific land area allows for an efficient sharing of ideas and resources and creates invaluable economies of scale and size. The Indo UK Institutes of Health across India, designated for the provision of integrated healthcare facilities to over 400 million patients in India, will build a capacity of 11,000 beds, 5,000 doctors, 25,000 nurses and generate direct and indirect employment for over 300,000 Indians.

The Indo UK Institute of Health (IUIH) will provide an integrated approach to healthcare across India by partnering with the UK's best organisations in research, education, manufacturing and healthcare delivery. Each IUIH Medicity shall have a medical college, nursing college, PG academy and a training facility for allied health professionals. It shall also have a separate zone for medical equipment and device manufacturing, and pharmaceutical production. The goal is to bring healthcare to India which is available, affordable, accountable and appropriate to all.



training and research to increase the number of skilled medical professionals

**For appropriateness, IUIH will ensure:**

- ▶ No over-treatment or prescription
- ▶ Appropriate healthcare professional for the task
- ▶ Individual patient pathway concept from the NHS (National Health Service, UK)

At all IUIH facilities, 20 per cent of patients will be treated free of cost. Construction of the first IUIH Medicity, a fully integrated facility, is underway already in MIHAN SEZ of Nagpur, Maharashtra. Besides this, IUIH is also exploring how mobile diagnostic units, high penetration of smartphones and other disruptive technologies can be used for extending primary healthcare and treatment of patients.

The states to benefit from the IUIH programme include Maharashtra, Andhra Pradesh, Telangana, Punjab, Gujarat, Rajasthan, Karnataka, Uttar Pradesh, West Bengal, Madhya Pradesh and Haryana. IUIH has also signed MoUs with two more Indian states - Assam and Uttarakhand recently.

*(Dr Ajay Rajan Gupta, Managing Director & Group Chief Executive Officer, Indo UK Institute of Health)*

**When it comes to affordability, IUIH will ensure:**

- ▶ No patient is turned away;
- ▶ Reduce costs across the value chain to make care more affordable
- ▶ Operate a tiered system of

charges  
▶ Cross-subsidise patients

**In terms of accountability, IUIH will ensure:**

- ▶ Transparency of charges
- ▶ Transparency of treatments

▶ Transparency of outcome

**For making healthcare more available, IUIH will:**

- ▶ Bring in all major specialities and treatments
- ▶ Provide outreach programmes to rural and

- semi-urban areas
- ▶ Develop digital health initiatives by providing remote consultations, advice and monitoring
- ▶ Connect with local doctors and nursing homes
- ▶ Deliver medical education,



**About the author**

Dr Ajay Rajan Gupta is a Consultant Orthopedic Surgeon at the NHS with over 20 years in the medical field. Dr Gupta is spearheading the IUIH project leading a team of Indian and UK based promoters with the support of the Indian and UK Governments. He has had extensive experience in the areas of healthcare policy, management and research and has been an advisor to various government agencies and organisations. He is a proud recipient of many awards including 'Young Entrepreneur Award' in Dubai in 2011; 'Young Scientist Award' in Las Vegas in 2013 and the 'Medical Maestro Award' at the House of Lords, London in 2014







# BUILDING THE DNA FOR A HEALTHY NATION

Healthcare Sabha's fourth edition brought together policy makers, thought leaders, Pharma CEOs, national and international health organisations, social entrepreneurs, and technology and ancillary healthcare service providers to strategise the way forward for building a strong public health system for India

# HEALTHCARE SABHA 2018

AGENDA DAY 1

October 5, 2018

## Healthcare Sabha 2018

- ▶ Address by Guest of Honour address by Dr VK Paul, Member, NITI Aayog: Strengthening India's Public Health system
- ▶ Panel discussion: Strengthening PPPs in healthcare
- ▶ Special address: Role of armed forces in making public health, a priority
- ▶ Presentation by Fujifilm India
- ▶ Presentation by NextGen eSolutions
- ▶ Panel discussion: New Age, New realities: The changing dynamics and priorities of public healthcare and methods to deal with it
- ▶ Express Public Health Awards Nite
- ▶ Panel discussion: The path ahead in public health: A Pharma perspective
- ▶ Special Address by Dr S Eswara Reddy
- ▶ Express Public Health Awards distribution

## Inaugural ceremony



(L-R) Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand, Lt Gen Bipin Puri, VSM, PHS Director General Armed Forces Medical Service, Dr Darez Ahmed, Mission Director, NHM, Tamil Nadu and Viveka Roychowdhury, Editor, Express Healthcare and Express Pharma



Welcome address by Prathiba Raju, Special Correspondent, Express Healthcare

The fourth edition of Healthcare Sabha 2018 had an auspicious beginning with a lamp lighting ceremony. Prathiba Raju, Special Correspondent, Express Healthcare gave the Welcome ad-

dress and took the audience through the vision of the event and welcomed them to two days of knowledge sharing. The theme for this year's Healthcare Sabha was 'Building The DNA For A Healthier Nation'.

# Building a strong healthcare system for India

Dr VK Paul, Member, NITI Aayog, in his address, spoke on how Ayushman Bharat will trigger quality improvement and rationalise cost and accountability within the system. He began by explaining the significance of the Ayushman Bharat scheme and said that the programme is focussed on a system change.

“Through Ayushman Bharat, we are building an egoistic health system with a focus on creating a gamut of healthcare services available to all,” he exclaimed.

He informed that the current primary health centres have a scope to provide only 15 per cent of all health services and the present government intends to change this scenario. It is an attempt to ensure that the needs of Indian citizens are met adequately. Speaking about the developments so far, he informed that around 80 per cent of population in the list for Ayushman Bharat has already been identified.

Dr Paul recognised the significance of private and public collaborations in making Ayushman Bharat a big success. “We are also connecting the pri-



Dr VK Paul, Member, NITI Aayog



Ayushman Bharat will trigger quality improvement, bring in rationalisation of cost and accountability in the system

vate and public partners to make this dream come true,” he confidently said.

Dr Paul also spoke on the opportunities for India that the Ayushman Bharat scheme can bring. At the end, he positively said that the long-term game changer in future will be comprehensive primary healthcare and this is what Ayushman Bharat brings for India.

# Quality cannot be comprised

Dr S Eswara Reddy, DCG(I), in his address, spoke on various quality related issues. “Quality is a crucial aspect of public health and the pharma sector has a huge responsibility in ensuring it,” he asserted. He then cited some examples of how quality is compromised on many occasions.

He then went on to explain the kind of work the government has undertaken in order to weed out defaulters of quality. He said that price control is just one aspect of this process. In times to come, the government will ensure that a quality conscious system is in place. “Pharma regulators in India are keen to create an ecosystem for the industry which will propel progress and deter wrong doings. They are working on enhancing quality and fighting counterfeits through various monitoring and audit measures,” he informed.

CDSO has systems in place to help pharma companies resolve their doubts, and market their solutions, he added. Help is often only a phone call



Special address by Dr S Eswara Reddy, DCG(I)

away but people overlook these available systems, he exclaimed. Dr Reddy further went on to say that pharma regulators are committed towards creating a safe and conducive environment for the growth of the industry and well being of the masses.

Directing towards some other areas of interest that the government is planning to regulate, he said, “The industry is evolving and so are the regulations in the country. They are being implemented to support innovation and build better efficiencies.”

He then drew attention towards the lack of regulation for the cosmetology and wellness products sector. He said that there are many products available over the counter at medical stores whose efficacy is questionable. These products do not have enough clinical trials done and they do not even come under the FDA scanner. These loop holes in the system will slowly vanish. The government is currently working on these areas as well.

## Strengthening PPPs in healthcare



(L-R) Raelene Kambli, Special Correspondent, Express Healthcare (moderator), Chander Shekhar Sibal, Sr Vice President, Fujifilm India, Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand, Dr Darez Ahmed, Mission Director, NHM, Tamil Nadu, Sushant Kinra, MD, Carestream Healthcare

The first panel discussion of Healthcare Sabha focussed on the way forward to build sustainable strategic partnerships between government and private partners in order to improve India's healthcare system. The discussion was moderated by Raelene Kambli, Special Correspondent, Express Healthcare and the panelists were Chander Shekhar Sibal, Sr Vice President, Fujifilm India, Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand, Dr Darez Ahmed, Mission Director, NHM, Tamil Nadu, Sushant Kinra, MD, Carestream Healthcare.

Experts on the panel drew inferences from their experiences in dealing with PPPs and informed that an outcome focus approach is a must for

the success and sustainability of such projects. PPPs in healthcare should be designed on outcomes and not on in-

puts, they maintained. We also need good tools for monitoring and evaluation framework to make PPPs work,

opined the panelists while identifying some of the challenges. They spoke on the essentials for striking the right partnership and how they can come up with sensible risk-sharing mechanisms among the public and the private partners. Further, they shared their views on the need for a regulatory framework that can be create a better ecosystem for PPPs in healthcare.

The panelists also deliberated on technologies that can be utilised to create efficient platform for tracking and monitoring the progress on PPPs in healthcare. Further, the panelists pointed out that there is a need to outline clear guidelines for more implementation of PPP projects. At the end, the panelists unanimously agreed that a good policy framework will be key to success in PPPs.

### KEY TAKEAWAYS

- ❖ PPPs in healthcare should be designed on outcomes and not on inputs. We also need good tools for monitoring and evaluation framework to make PPPs work.
- ❖ There is a need to build better synergies between government and private partners. Quick dispute resolution is also essential to make PPPs work in healthcare.
- ❖ If the intent is good and true, PPPs will succeed. The right mindset is essential. Both, the government and the private sector should ensure focus on 'value for all' and not just 'value for money'
- ❖ Effective use of technology can help in improving efficiencies, ushering transparency and bettering outcomes in healthcare PPP projects.
- ❖ Government cannot abdicate its core functions when it comes to healthcare. It can outsource certain functions for better outcomes but it also has to keep strengthening our systems.

# The role of armed forces to make public health, a priority

In his special address, Lt General Bipin Puri, VSM, PHS Director General Armed Forces Medical Service, spoke on the role of armed forces in making public health a priority. He began by saying that the armed forces has been an important pillar in building the nation. He also explained the true meaning of public health and what it means to the armed forces. According to him, public health focusses on health promotion and disease prevention and between this there are activities that are of core relevance for the success of any public health programme. He informed that the armed forces in India is one the largest medical service provider with more than 40,000 hospital beds.

Further, explaining the services that the armed forces offer, he mentioned that there are robust in-built prevention, promotive and rehabilitative mechanisms that the armed forces can provide. He also spoke on the different projects undertaken by them to promote space medicine. The Institute of Aerospace Medicine will be in charge to train people for one of biggest dream project on space medicine.

Drawing inferences from past experi-



Lt Gen Bipin Puri, VSM, PHS Director General Armed Forces Medical Service



There are robust in-built prevention, promotive and rehabilitative mechanisms that the armed forces can provide

ences and learnings from global strategies, LT General Puri informed that Amsterdam has been a pioneer in developing strategies for disease prevention in special settings. Citing this example, he mentioned that the armed forces ensure that constant learning and innovating strategies with techniques, will provide better disease management services.

At the end, he urged all public health stakeholders to focus on preventive medicine and build a system that will ensure that no citizen is deprived of healthcare services at any point of time.

# Value from innovation

During his presentation, Chander Shekhar Sibal, Sr Vice President, Fujifilm India focussed on the need and value of innovation in healthcare. He explained that India needs to be innovative in its public health strategies. He also spoke on the need for better technologies that can improve healthcare access and affordability. Speaking about the company's vision in this regard, he said that Fujifilm is striving to better healthcare in India and improve outcomes through interesting and innovative solutions.

While speaking about their solutions for Indian healthcare, Sibal also highlighted that Fujifilm is part of the Make in India initiative. In his presentation, he also cited some examples of their initiatives that will be instrumental to the Make in India campaign. While explaining the same, he mentioned that the company is working with various partners at various levels in order to fulfil the Make in India plan. It is developing many solutions in India which will be fruitful for solving some of In-



Chander Shekhar Sibal, Sr Vice President, Fujifilm India



The company is working with various partners at various levels in order to fulfil the Make in India plan

dia's pressing health concerns. Moreover, he spoke on how the company has put together a plan for increasing access to cancer screening within the country. He said that Fujifilm is trying to improve screening for cancer through its high-quality and new-age solutions as well as through endeavours such as mobile vans. He also displayed some examples of the same in his presentation.

## Empowering public health with digital technologies

Mallika Kapur, CEO, NextGen eSolutions in her presentation gave an overview of the advances and developments in the Indian healthcare IT space and how it has more potential to fix the existing public health issues of our country. She also gave an update on the solutions her company offers in the public health domain.

Kapur narrated the journey of how humans computed medical data within hospitals prior to 1950s and how these systems changed over years. She further updated the audience on the developments in medical information systems and how the focus of healthcare IT system moved from basic collation of data to quality analytics and more.

She later spoke on digital technologies that are currently shaping healthcare delivery models. She also informed on how patients today are getting empowered with various available digital



Mallika Kapur, CEO, NextGen eSolutions (P) Ltd.



Digital technologies are currently shaping healthcare delivery models

technology such as wearables, health apps and more.

Kapur also spoke on the HIS systems offered by her company. She informed that they are currently working with the Indian Army for an LIS system which has helped the army to standardise medical processes within their hospitals. Later, she shared some case studies of success stories which hospitals were able to achieve using NextGen's HIS systems.



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# New age, new realities



(L-R) Dr Ramanan Laxminarayan, Director, Centre for Disease Dynamics, Economics and Policy (Moderator); Dr Ratna Devi, CEO, Dakshama Healthcare, Dr Nimesh G Desai, Director, Institute of Human Behavior and Allied Sciences and Dr Shifalika Goenka, Head of Department, Social and Behavioral Sciences, Additional Professor, Indian Institute of Public Health, PHFI

In this panel discussion, Dr Ramanan Laxminarayan, Director, Centre for Disease Dynamics, Economics and Policy (Moderator); Dr Ratna Devi, CEO, Dakshama Healthcare, Dr Nimesh G Desai, Director, Institute of Human Behavior and Allied Sciences and Dr Shifalika Goenka, Head of Department, Social and Behavioral Sciences, Additional Professor, Indian Institute of Public Health, PHFI, deliberated on the demographic shifts and societal changes, which in turn, are giving rise to varied public health challenges and demanding new directions as well as approaches in the delivery of healthcare. The panelists also explored all-inclusive strategies to deal with these issues. They recog-

nised that the biggest challenge in public health is that the health of nation is only in charge of the health ministry. Health and healthcare is con-

nected to other industries as well, therefore a collaborative approach from other sectors is equally necessary.

Experts on this panel spoke on the patient empowerment movement across the country. They agreed that patients today are much more informed and demanding. There is a need to focus on public health initiatives in keeping with this. They discussed the need for distributive justice on healthcare financing within the country and how these aspects are slowly changing. The panelists also examined the Mental Health Act and how insurance for mental health should be at par with other medical conditions. Some panelists pointed out that in the years to come over diagnosis of illness will be the real danger. There is a danger of our psychologising the society in the future, they all agreed.

## KEY TAKEAWAYS

- ❖ Distributive justice on the healthcare financing aspect is slowly changing
- ❖ Mental Health Act is a good initiative as it recognises mental health as a right
- ❖ Insurance for mental health should be at par as other medical conditions
- ❖ Biggest challenge in public health is that the health of nation is only in charge of the health ministry
- ❖ National safety framework for health was launched this year but needs support from state governments for further progress
- ❖ Over diagnostics is the real danger of the 21<sup>st</sup> century
- ❖ The role of family is immense in curbing and controlling mental diseases. There is a danger of our psychologising the society

## The path ahead in public health: A pharma perspective



(L-R) N Rajaram, MD, Sanofi India; AG Prasad, VP-Cluster Head, Sales & Marketing, Glenmark Pharma; Viveka Roychowdhury, Editor, Express Healthcare & Express Pharma (moderator); Umang Vohra, MD & Global CEO, Cipla and Anuja Kadian, Head, Government Affairs, AstraZeneca Pharma India

During this discussion, experts on the panel shared their company's vision toward building a strong healthcare ecosystem and ensuring quality medicines reach every Indian citizen. The panelists were N Rajaram, MD, Sanofi India; AG Prasad, VP-Cluster Head, Sales & Marketing, Glenmark Pharma; Viveka Roychowdhury, Editor, Express Healthcare & Express Pharma (moderator); Umang Vohra, MD & Global CEO, Cipla and Anuja Kadian, Head, Government Affairs, AstraZeneca Pharma India. They also deliberated on the challenges they face in doing so. Health is not only the responsibility of the health ministry. It is a social matter and so every industry and every company needs to contribute to health and healthcare, the panelists believed.

### KEY TAKEAWAYS

- ❖ Pharma sector is a major stakeholder of public health and has an important role to play in improving access to quality healthcare
- ❖ Access is not necessarily equal to affordability. It is beyond that and involves creating a conducive ecosystem for healthcare.
- ❖ As major stakeholders of public health, the pharma sector needs to be very vigilant about the safety and efficacy of their products.
- ❖ Ayushman Bharat is a bold initiative but it should not stop at UHC, cannot be solely driven by cost and should not be just about medicines and hospitalisations but also diagnosis.
- ❖ Every stakeholder of the healthcare system will have a role to play in making Ayushman Bharat a success. Hence, it is paramount to create capabilities to implement it effectively
- ❖ Ayushman Bharat is a bold initiative but it should not stop at UHC, cannot be solely driven by cost and should not be just about medicines and hospitalisations but also diagnosis

Organisations should ingrain the philosophy of understanding what is good for the country is good for the company. There is a need for pharma companies to have a social vision within working in public health. The experts also discussed on ways that will ensure quality and efficacy of medicines. Access is not equivalent to affordability, it is much beyond this, it's like building an ecosystem for healthcare where no citizen is deprived of medical aid, they maintained. Further, the panelists also spoke on the scope of the Ayushman Bharat scheme to strengthen the public health system in India. There is a need for pharma companies to focus on solving India's health issues, they said. Additionally, they highlighted the need for more investment both by the government and private sector in public health.



# 4th edition of Express Public Healthcare Awards laud state governments for their public health initiatives



Express Public Health Awards Nite welcome address by Viveka Roychowdhury, Editor, Express Healthcare & Express Pharma

**A**t the fourth edition of Healthcare Sabha, Express Healthcare also honoured state governments for their exemplary work in public health. Express Public Health Special recognition were given to some very deserving public health projects across the country to acknowledge their efforts towards making India a healthy nation.

The awards night began with a Welcome Address by Viveka Roychowdhury, Editor, Express Healthcare & Express Pharma, who welcomed the

delegates and explained the vision and mission of Express Public Health Awards. She also explained the methodology for the special recognition and informed how the editorial team of Express Healthcare went into a search mode to find the well deserving projects of public health from various states. She then thanked the jury members for the team come up with this well deserved list.

Next, Dr S Eswara Reddy, DCG(I), who was present at the awards ceremony gave a special address on build-

ing a quality conscious public health system. He drew attention towards the growing need for quality medicines and healthcare services.

His address was followed by the awards ceremony. Eight special recognition awards were presented to eight state governments for their various initiatives in improving public health within their respective states.

- ▶ Government of Kerala : For their Nipah Virus control programme
- ▶ Government of Assam: For their boat clinics initiative

- ▶ Government of Manipur: For maximising incremental progress on health indicators

- ▶ Government of Tamil Nadu: For best implementation of reproductive and child health schemes

- ▶ Government of Gujarat: For successful outcomes of its vaccine programme

- ▶ Government of Jharkhand: For incremental progress on health indicators

- ▶ Government of Odisha : For improved health indicators with the state

- ▶ Government of Haryana : For efficiently run maternal health programme

### Healthcare Sabha 2018

- ▶ Keynote address by Sujata Rao, Former Health Secretary, Ministry of Health & Family Welfare, Government of India on ethical dilemmas and emerging challenges in India's healthcare sector
- ▶ Case study: Jharkhand's public health scenario
- ▶ Panel discussion: Why healthcare schemes in India fail?
- ▶ Case study: The Gujarat wellness centre model
- ▶ Case study: The Odisha Model of healthcare
- ▶ Special address: Ayushman Bharat: Connecting the dots
- ▶ Special address: Tribal Health in India – Bridging the gap and roadmap for the future
- ▶ Panel discussion: Addressing the quality paradox
- ▶ Case study: The burden of oral cancer and its management at Central Hospital
- ▶ Case study: Retired employees health scheme

## Ethical dilemmas and emerging challenges in India's healthcare sector



Sujata Rao, Former Health Secretary, Ministry of Health & Family Welfare, Government of India

“Many successful countries who have achieved Universal Health Coverage (UHC) have been driven by ethical concerns. So ethical dilemmas and its emerging challenges needs to be addressed,” said Sujata Rao, Former Health Secretary, Ministry of Health & Family Welfare, Government of India at the 4<sup>th</sup> edition of the Healthcare Sabha.

As the keynote speaker on the second day of the event, Rao addressed the august audience of public healthcare leaders and pointed out on the various ethical issues and emerging challenges faced by the India healthcare sector.

“Many countries like Brazil, South Africa, Turkey, Thailand, Malaysia, Vietnam and China have achieved UHC or they are in the advanced stage of achieving UHC. For example; in Turkey and Thailand, 80 per cent of healthcare services are provided in the public sector, largely to keep the cost of care low and also to keep up the quality of care on par with the private sector. India inherited such an ethical basis at the time of independence yet we are on par with the African countries on our journey towards realising UHC due to various reasons viz. lack of healthcare budgets, corporate sector monopoly among others,” Rao said.

Briefing about various government sponsored healthcare schemes and talking about the roll out of

Ayushman Bharat – Pradhan Mantri Jan Arogya Yojana (PMJAY), Rao said, “Since hospitalisation is very resource intensive it is feared that the roll out of Ayushman Bharat may result in the diversion of funds being spent on population health. If we really do not spend two to three per cent of GDP that is required for healthcare and if we are still stuck with 1.1 per cent then a substitution effect comes in. As people go to hospitals, the private sector will be extend bills within the specified time, if it is not reimbursed on time, penalties can be levied, so there will be a compulsion to adhere to contracts and pressures of reimbursement under government health schemes will override the focus of the public health programme, leading to ethical dilemmas.”

Discussing various ethical dilemmas that the current healthcare sector is facing, Rao also listed out few basic challenges in the health sector:

Summing up the session, Rao said, “The government should take a systematic view and needs to regulate the market. Public policy needs to ensure a system that is based on rationale care. Incentivise the providers to practice ethically, rationally and cost-effectively. We need to build an India that cares so that its people live long, are healthier and lead a productive life. They should get treatment without going through a lot of pain. We have a long way to go in the journey and we all need to take it together.”

# Jharkhand's public health scenario

“Jharkhand's healthcare scenario has faced challenges and adversities due to superstitious beliefs, outdated social practices, lack of education and other factors. There was no health seeking behaviour we had to gradually build it,” informed Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand.

Speaking on the second day of 4<sup>th</sup> edition of Healthcare Sabha, Khare explained how National Health Mission (NHM) has helped the state to build better capabilities for healthcare, be it in terms of infrastructure, better healthcare resources and more trained personnel.

“More and more flexibility came into public health services after NHM was launched in Jharkhand and we were able to address more maternal and child health related issues. Day care centres, more institutionalised deliveries, better health information programmes, etc., are some of the measures that are improving health outcomes in the state,” she informed.



Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand

Khare further added that the government is striving to take several measures to improve awareness about diseases, enhance the effectiveness of screening programmes and reach out to the underserved populations in the state.

“Jharkhand has only three medical colleges and we have only 350 doctors per year as of now. The state government has planned to increase the number of medical colleges and increase the number of doctors to 1200 per year and we hope this will address the lack



The government is striving to take several measures to improve awareness about diseases

of doctors in the state,” she said.

Pointing out that Jharkhand faces very peculiar healthcare challenges connected to the mining occupation, Khare said, “As a lot of people work in the mines of Jharkhand, they face very peculiar healthcare challenges like silicosis, high burden of tuberculosis and leprosy. The healthcare sector in the state needs to take these aspects into account as well while designing healthcare programmes and policies.”

# The Odisha model of healthcare

Dr Hara Prasad Patnaik, Director of Health Services, Odisha, spoke about healthcare initiatives by the Odisha government. He began by informing the audience about how the state government is improving its health indicators by implementing several public health schemes.

Presenting various examples on how the state has been in the forefront in implementing various health schemes, Prasad said, “Odisha is focussing on improving women health, particularly by empowering ASHAs, the frontline workers, on how they will help in strengthening the public health.”

Informing that the state government is improving its indicators through several innovative healthcare schemes, Prasad said, “Schemes like Niramaya (free medicine), Nidan (free diagnostic service), Sahay and Sunetra are all innovative health schemes. We have also tied up with Tata Group to develop infrastructure, training for cancer care at all levels including the district and block level



Dr Hara Prasad Patnaik, Director Health Service, Odisha

healthcare centres. Kidney related ailments are also treated free of cost in government hospitals as per the

existing schemes. NCDs are on the rise, therefore the state has begun with special health programmes to



Odisha has PPPs in areas focussing on cardiac and ophthalmic care

address this issue.”

“The new health scheme called Biju Swasthya Surksha Yojana (BSSY), is the most promising scheme under which free diagnostic, treatment and medicines worth up to ₹ 5 lakh will be available per family per year. We are targeting to cover a population of 70 lakh families,” he said. Odisha also has PPPs in areas focussing on cardiac and ophthalmic care, he added.

## Why healthcare schemes in India fail?



(L-R) Ashish Modi, Joint CEO, Rajasthan State Health Assurance Agency, M Prakasamma, Executive Director, ANSWERS (Moderator), Nidhi Khare, Principal Sect, Dept of Health and Family Welfare, Govt of Jharkhand, Dr Hara Prasad Patnaik, Director of Health Services, Odisha

The panel discussion on ‘Why healthcare schemes in India fail?’ was moderated by M Prakasamma, Executive Director, Answers, Nidhi Khare, Principal Secretary, Dept of Health and Family Welfare, Govt of Jharkhand, Ashish Modi, Joint CEO, Rajasthan State Health Assurance Agency and Dr Hara Prasad Patnaik, Director of health services, Odisha.

Each members in the panel expounded on how better collaboration, improved synergies, more healthcare resources, effective use of technology, are crucial to improve the success rate of health schemes in India.

Beginning the discussion, Prakasamma said that the programmatic flaws kill the very purpose of a

healthcare initiative in India and how we are going to deal with it is one of the key question to be answered. She asked Modi to share what are the shortcomings in certain healthcare scheme which end up not doing well.

Highlighting that healthcare schemes should be designed as per people’s need, Modi cited the example of Bhamashah Swasthya Bima Yojana

(BSBY), a health insurance scheme by Government of Rajasthan, and added that good leadership will help in designing proper health schemes.

Voicing his views, Patnaik informed that programme-based incentives can be a good way to motivate doctors and other healthcare workforce.”

Going further, Khare informed that public health is not only about the num-

ber of doctors but it is also about the strengthening of paramedics and front-line workers. She also mentioned that many times, lack of adequate knowledge, system gaps, lack of evidence, resource scarcity, poor planning and execution strategies lead to failure of health schemes.

Panelists also observed that often schemes that the centre devises do not often suit the needs of states, especially those with difficult terrain.

The discussion highlighted that healthcare schemes need to be planned and built after considering the geographical and social conditions. Therefore, state-specific schemes might be more successful. Implementing robust technology will be an ideal solution to curb frauds in healthcare schemes.

### KEY TAKEAWAYS

- ❖ Healthcare schemes need to be planned and built after considering the geographical and social conditions.
- ❖ how better collaboration, improved synergies, more healthcare resources, effective use of technology, are crucial to improve the success rate of health schemes in India

# Tribal Health in India - Bridging the gaps for the future

A very interesting and informative address on tribal health was delivered by Dr Abhay Bang, Director - SEARCH, Gadchiroli, who informed that knowledge is the best pill, best weapon to empower tribal population. He illustrated various issues pertaining to tribal health and ways to address it.

“Though the health status of tribal population has improved over the years, it continues to be among the worst in comparison with other sections of the population. There is abysmally low amount of data on tribal health. It needs to be ramped up to improve the health indicators of this population,” he said.

Bang also briefed the audience that there are ‘black holes,’ when it comes to funding for tribal areas.

He said, “The allocated funds under existing Tribal Sub-Plan (TSP) guidelines put in place by the Planning Commission, mandates that each state should spend a stipulated amount on tribal population. But many states do not spend the allocated amount.”

Noting that tribal population suffers from major disease burdens he informed that the economic burden due to poor public health is around ₹ 6000 crores.



Dr Abhay Bang, Director, SEARCH

“Deficit in health infrastructure adversely affects tribal health. Moreover, functional deficit and lack of adequate human resources to serve this population worsens the situation,” he said.

He further touched upon few other aspects on having at least one ASHA worker for 50 households and their payment should be 50 per cent fixed and other 50 per cent performance oriented. He also insisted that each tribal community should have health volunteers and Grama Sabha should

be involved in health related activities.

Highlighting about the Primary Health Centres (PHC), Bang informed that tribal communities does not want additional PHCs but they want the existing ones to be functional.

“A stationery health centre model is inappropriate for tribal areas to reach out to the villages that are far. Each PHC should have atleast two mobile medical units. So each tribal village gets a medical unit visiting them once a month,” he added.



More data, sufficient political representation, better governance, adequate funding and financing mechanisms, ramping up the pool of human resources, are ways to improve tribal health

He also added that to galvanise tribal healthcare, a cadre called Tribal Health Officers (THO) needs to be created.

In conclusion, he stated that more data, sufficient political representation, better governance, adequate funding and financing mechanisms, ramping up the pool of human resources, are ways to improve tribal health.

# Mobile hospitals will improve healthcare in rural areas

Dr K Narasimhan, Director, Sri Sathya Sai Mobile Hospital in his session mentioned that India is the land of villages, yet, healthcare services in rural India is lagging. Therefore, there is an urgent need to ramp up access to healthcare services in the country.

Emphasising that mobile hospitals could be an effective way to improve healthcare facilities in rural India, he informed that Sri Sathya Sai Mobile Hospitals is serving as an example to improve medical facilities in rural India, deal with the scarcity of healthcare facilities in rural areas, support CHCs, provide adequate training to rural medical practitioners and more.

“Stage of awareness, stage of acceptance and stage of implementation are the three major stages of



Dr K Narasimhan, Director, Sri Sathya Sai Mobile Hospital



There is an urgent need to ramp up access to healthcare services in the country

public health reform. We need to improve awareness and education about health at the family and community level to improve our outcomes,” he added.

## Power discussion: Why quality matters?

The hour-long discussion, at 4<sup>th</sup> edition of Healthcare Sabha, was presented by Glenmark, a research-based global pharmaceutical company. The power discussion focussed on how hospitals should assure quality medicines to the common man.

Initiating the discussion Bejon Misra, Founder, Partners for Safe Medicines, who was also the moderator, pointed out that the quality of medicines is a continuous process. He went on to say how important it is to shift from assumed quality to assured quality of drug.

Misra referred to an incident where 1.5 lakh oral polio vaccine vials, manufactured by a Ghaziabad-based Biomed company, have been found to be contaminated by Type 2 polio virus. He said, "I look such incidents as a quality challenge. Such incidents happen as we don't focus on quality. For example if ₹100 is spent on healthcare, then ₹40 is goes on paying salaries and establishment, ₹24 spent on nursing, ₹22 spent on OT and other processes and ₹14 on medicines. The element which needs to get predominant share in expenditure gets the least. I'm not saying that a huge amount needs to be spent on medicines but procurement should be based on quality standards and good manufacturing practices.

He asked the public health experts to share their outlook on this subject.

Taking the discussion further, Dr VK Shukla Director, Institute of Medical Sciences (IMS), Banaras Hindu University



(BHU), said, "When it comes to quality assurance of drugs, we need to strictly follow certain pattern like go for the first party license and WHO- GMP certified drugs should be procured. We in BHU give utmost importance to the quality of the drugs."

Highlighting various incidents in which quality of medicines were contaminated, Dr Suresh Saravdekar, Honorary Sect, IPA, informed there should be a detailed account on how quality of medicines need to be checked from the initial stage till the end product.

Raising few concerns, Dr BK Mohapatra, GM (Procurement), Odisha State Medical Corporation Ltd (OMSCL) said, "To ensure the quality of drugs, we do have a system to inspect all the drugs be-

fore it reaches the end users. But the constraint is that we have only one drug testing laboratory run by government in our state and reports come in late. In Odisha, we have issues like infrastructure, HR, which we are addressing. As a whole to ensure quality, we need to have more robust drug control mechanism."

Further, AG Prasad, Vice President-Sales and Marketing, Glenmark, said, "Countries like Nepal and Bhutan are more stringent with regulations. They use products which are WHO GMP and COPP certified. Compared to them, the standards and guidelines set by Government of India is not stringent. Other challenges which our country faces is that we do only the quality test for drugs to check their potency. But we do not conduct bio-



Delegates from the public healthcare unanimously agreed that investment on quality of drugs, and an in-depth analytical test report and good practices will assure quality medicines

equivalence, impurities and residual substance studies, as they are expensive. Also, regulators are liberal."

Participating in the discussion, the delegates from the public healthcare unanimously agreed that investment on quality of drugs, and an in-depth analytical test report and good practices will assure quality medicines.

Prasad concluded the discussion by thanking all the participants for sharing their views on this extremely important subject.

## The burden of oral cancer and its management

Anjana Malhotra, Additional Chief Health Director (plastic surgery) and Chief of Plastic Surgery Services at Central Hospital, South Eastern Railway, presented a case study on the burden of oral cancer, at the second day of Healthcare Sabha.

"Tobacco is the leading cause of cancer and the railways is committed to curb cancer in India. We have started a new programme for detection and treatment of cancer," she said.

Soon after Malhotra's presentation, a case study on retired employees health scheme was presented by Dr Bhudev Sengupta, Additional Chief Health Director, South Eastern Railway.



Anjana Malhotra, Additional Chief Health Director (plastic surgery) and Chief of Plastic Surgery Services at Central Hospital, South Eastern Railway



Dr Bhudev Sengupta, Additional Chief Health Director, South Eastern Railway

# Addressing the quality paradox



(L-R) Bejon Misra, Founder, Partners for Safe Medicines; Dr Madhumita Dobe, Director-Professor (Public Health) & Dean Head, Department of Health Promotion & Education AIH&PH, Kolkata (moderator), Rajiv Kumar Jain, Additional Chief Medical Director, Health and Family Welfare, Indian Railways, Dr Suresh Saravdekar, Honorary Sect. IPA and Dr V Kalaiselvan, Principal Scientific Officer, IPC

The panel discussion on 'Addressing the quality paradox', at the second day of the 4<sup>th</sup> edition of Healthcare Sabha, brought to fore that transparency, awareness, health literacy etc. are very essential to improve quality of healthcare in India.

The panel consisting of Dr Madhumita Dobe, Director-Professor (Public Health) & Dean Head, Department of Health Promotion & Education AIH&PH, Kolkata (moderator), Bejon Misra, Founder, Partners for Safe Medicines; Rajiv Kumar Jain, Additional Chief Medical Director, Health and Family Welfare, Indian Railways, Dr Suresh Saravdekar, Honorary Sect. IPA and Dr V Kalaiselvan, Principal Scientific Officer, IPC, highlighted how often people talk of quality in healthcare but do not know how to go about

ensuring it.

Jain also emphasised how hygiene and sanitation are pivotal aspects of public health. He said that environment, water and food are also connected to healthcare and we need a proper quality inspection of these factors.

"Quality in healthcare encompasses several aspects. For instance, sanitation

is a major aspect when it comes to enabling and ensuring quality in healthcare. It is essential to have a 360 degree approach to improve quality in healthcare," he informed.

Speaking next, Dr Misra informed that patients need to be more aware about the quality of medicines they consume. Going forward, Dr Kalaiselvan briefed the audience on how pharm-

covigilance has evolved in the country and said, "We are trying to address various Adverse Drug Reactions (ADRs) pan India and trying to implement a lot of specific tools and techniques like helpline, mobile apps to monitor ADRs. We analyse them scientifically and clinically and the outcomes report is sent to the drug controllers."

Sharing their views, panelists informed that there are resources and mechanisms in place but they are not effectively deployed, which is one of the paradoxes that hinder quality adherence in healthcare.

They recommended mapping of resources, a robust feedback mechanism, improved skilling and training of human resources, encouraging pharmacovigilance etc. as aspects crucial to quality assurance in healthcare.

## KEY TAKEAWAYS

- ❖ Mapping of resources, a robust feedback mechanism, improved skilling and training of human resources, encouraging pharmacovigilance etc. are crucial to quality assurance in healthcare
- ❖ Transparency, awareness, health literacy are very essential to improve quality of healthcare in India.

# HEALTHCARE SABHA 2018



Winners of Express Public Health Awards



Government of Assam receiving the award



Government of Gujarat receiving the award



Government of Tamil Nadu receiving the award





Government of Haryana receiving the award



Government of Jharkhand receiving the award



Government of Kerala receiving the award



Government of Odisha receiving the award

# PPPs, precision diagnostics to carry GE Healthcare forward

As a champion of localisation to bring down the cost and modify medical equipment for local needs, GE Healthcare built up a 65 per cent share of radiology PPPs in India, with a pole position in the private sector as well. What will the 2019 spin out mean for the company's India operations?

**Viveka Roychowdhury**  
Mumbai

Home to its largest R&D centre outside of the US, GE's John F Welch Technology Centre (JFWTC) in Bengaluru was innovating and making in India long before it became a catchy slogan. "India serves as a model for the rest of the developing world," says Kieran Murphy, President and CEO, GE Healthcare (GEHC), during a recent trip to the JFWTC.

He believes that more precise diagnosis of disease is the fundamental way to reduce the cost of healthcare. Cautioning that the way healthcare is practiced in the developed world is unsustainable, he refers to India's public health initiative, Ayushman Bharat (AB), indicating that if it can be successful, everyone could look at it for success stories.

GEHC has been one of the earliest participants in Public Private Partnerships (PPPs) in public health, testing out its first proof of concept from 2004-2008. This resulted in its first radiology PPPs set up in three medical colleges. A decade later, GEHC has the highest number of installed bases under PPPs in India, totalling more than 120+ projects, across 17 states in the country. It is reportedly the largest technology partner (80+ hospitals) for radiology PPPs in India. This translates into a 65 per cent share of the radiology PPPs in India, says Rajat Ghai, Business Head, Wipro GEHC's government business and PPPs for Indian and South Asia. He declined

to share corresponding revenue figures.

This thrust on PPPs as a way to expand market share as well as make diagnosis more affordable and accessible, is supported by investments like its latest MoU, through with JV with Wipro, with SAMEER (an R&D unit under Department of Electronics and Information Technology (DeitY), Govt of India) will collaborate on research, design and development of a MRI platform to include whole-body MRI, portable MRI and digital, to increase access to MRI technology in India. With a clear strategy to support AB and the government's initiative to indigenously develop key medical technologies like MRI, GEHC is clearly on a strong wicket.

GEHC has a history of industry firsts in India, designed for the country's needs and tapping into similar requirements across boundaries.

## Designed for India, exported to the world

For instance, the Revolution-CT (RevACT), launched in mid-2015 and billed as the first 'Made in India' CT, has a 50 per cent smaller footprint, consumes 47 per cent less power, has a 28 per cent lower scanning time and cuts down radiation dose by 36 per cent. The compact size and lower power consumption make it ideal for smaller clinical settings in non-metros. Thus 75 per cent of orders are for non-metro, non-Tier 1 locations, with first time CT users making up 60 per cent of customers.

The RevACT may have been designed in India for India but is now approved to sell



**Kieran Murphy,**  
President and CEO, GE Healthcare

in 56 countries, primarily in Africa, ASEAN, APAC and LATAM markets. GEHC's eCube design studio has delivered over 25 such new product designs across various sections of GEHC's global product portfolio in the past five years, with over 35 patents filed.

But not all of India needs frugal innovations. At the other end of the spectrum, the design studio has designed a cath lab in Kolkata with a spa-like ambience to put patients at ease. Paediatric radiology units have been designed around popular story book themes, where an MRI tunnel becomes a cave in an adventure story.

The India team also supports global projects. For instance, India provided the soft-

ware for Senographe Pristina, the first US FDA approved self-compression mammography platform designed by a globally located all women team. Embarrassment, pain and discomfort are the biggest barriers to women taking breast examinations. This platform addresses all three of them, leading to better diagnosis, with the woman self adjusting the amount of compression pressure using a remote.

Other innovations under development and clinical testing include a stethoscope incorporating an USG which allows the doctor to see as well as hear, and imaging devices integrated with 3D printers for patient-specific prostheses, bio-compatible implants etc.

## In reset mode

According to GE's 2017 integrated annual report, revenues of its healthcare segment grew revenue by 5 per cent, and margins by 70 basis points, with a nine per cent segment profit growth in the same year. GEHC comprising healthcare diagnostic imaging and clinical systems, life sciences products and services, and digital solutions, contributed revenues of \$19.1 billion, and profit margins of 18 per cent in 2017.

While the numbers look positive for GEHC, GE is in reset mode, with 2018 set to be a year of reckoning. As part of a strategic review announced this April, GE will focus on three main areas (aviation, power and renewable energy) while GEHC will be hived off into a standalone company. GE expects to monetise 20 per cent and distribute remaining 80 per cent of GEHC

to shareholders tax-free.

Steering the transition to a standalone unit is Murphy who joined GEHC in 2008 through GE's takeover of Whatman, took over as President and CEO of the life sciences business in 2011 and as President and CEO of GEHC in June 2017. Murphy stressed that the spin off of GEHC would not be impacted by a transition in global CEOs (On October 1, John Flannery, with three decades in GE, made way for H Lawrence Culp, Jr who was previously head CEO of Danaher Corporation).

What will the 2019 spin out mean for the company's India operations? Murphy indicated that India was one of the top five markets for GEHC and diagnostics imaging accounts for the biggest share of GEHC's revenues. The government's drive to bring down the cost of healthcare, including a rationalising of diagnostic testing, could drag revenues but this may be set off if GEHC manages to snag a lion's share of the AB pie.

Thus besides the private healthcare sector, radiology PPPs will continue to be one of the major growth drivers, more so as AB rolls out. Thus the spin out could mean more focus on GEHC cementing its leadership position in key markets like India, where it is reportedly already has maximum market share in ultrasound and is the biggest player for molecular imaging/PET CT.

*(The writer was at GE's technology centre on the invitation of the company)*

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## INTERVIEW

# ‘With advances in science, treating breast cancer isn’t as frightening as it might have been earlier’

OncoStem Diagnostics has launched CanAssist-Breast, a test which can reportedly predict the likelihood of cancer returning by analysing samples of a patient’s tumour through a machine learning-based algorithm. **Dr Manjiri Bakre**, CEO & Founder, OncoStem Diagnostics, reveals how the test can revolutionise breast cancer treatment, help avoid chemotherapy for low-risk patients and prevent breast cancer recurrence with personalised treatment protocols, in an exclusive interview with **Lakshmipriya Nair**



Advances in science and technology have led to the development of immune- and gene-based therapies that have changed the way cancer patients are treated

### How does CanAssist breast make the diagnosis of breast cancer recurrence more accurate and affordable?

CanAssist breast from OncoStem Diagnostics is a test that can spare early-stage breast cancer patients from chemotherapy by accurately predicting the risk of recurrence.

Each year about 1,50,000 women are detected with breast cancer in India. A majority (~95 per cent) of early stage (Stage 1 & 2) breast cancer patients get chemotherapy to avoid cancer recurrence. Currently, there is minimal awareness about tests that predict the risk of cancer recurrence. As a result, patients with low risk of recurrence are often overtreated and consequently bear various toxic effects of chemotherapy treatment that reduces their quality of life. The benefit that early-stage patients receive from chemotherapy is usually low. Since most early-stage patients do well without chemotherapy, this makes accurate risk prediction an all-important prerequisite for effective treatment. It is therefore necessary to detect low-risk instances to avoid

overtreatment in the form of chemotherapy, given its side effects and the toll it takes on the patients’ quality of life.

With all the advances in science, treating breast cancer isn’t as frightening as it might have been earlier. Today, not all women diagnosed with early-stage breast cancer need to undergo chemotherapy. OncoStem’s CanAssist-Breast is designed to classify patients depending on the risk of cancer recurrence. By analysing the patient’s tumour biology, CanAssist-Breast identifies ‘low-risk’ patients who will have minimal benefit of adding chemotherapy to their treatment and ‘high-risk’ patients who will benefit the most by adding it.

CanAssist-Breast test provides additional information about the tumour by looking at the expression of proteins present in it. Along with the existing pathology report, CanAssist-Breast can help identify the likelihood of the cancer returning post-surgery and whether the patient is likely to benefit from adding chemotherapy to her treatment. It is important to remember that each patient is different and there is a chance they will not have to undergo

chemotherapy at all.

CanAssist breast provides information about tumours, which is otherwise unavailable from standard tests. Since the test looks at critical information pertaining to the tumour, it helps doctors design custom-made treatment plans.

OncoStem's

CanAssistBreast uses machine learning to solve the problem of over treatment of Breast cancer by accurately predicting the risk of recurrence. CanAssist Breast is performed on the patient's tumour tissue. This proteomic test result is then fed into the company's machine learning-based statistical algorithm. This, at the end, gives a code that is a number between 1 and 100. If the number is below 15.5, it is a low risk patient and not prone to recurrence.

### How is it different from other tests in the market for breast cancer recurrence?

Tests which predict 'risk of recurrence' exist in the West and have helped to identify which early stage patients are in need of chemotherapy, while helping many avoid over treatment. However, these tests are prohibitively expensive and are not well validated on Indian/Asian patients. Therefore, majority of early stage breast cancer patients in India and SE Asia get treated with Chemotherapy and have to bear toxic effects of the treatment which reduces 'quality of life' and can be a

monetary drain for the patient or society.

OncoStem's CanAssist Breast is a cost-effective test which is well validated on Indian patients. It uses proteomic technology so can help in targeted drug discovery in future which is another added advantage.

Our test is priced in such a way to make it cost-effective for our patients to use. The cost of CanAssist-Breast is a fraction of the cost of competing tests from the West which range anywhere between ₹ 2-3 lakh per test.

CanAssist-Breast can spare potentially over 60,000 breast cancer patients in India and about one million patients worldwide every year from the perhaps unnecessary severe side effects and associated costs of chemotherapy.

### How are you marketing this product? Are you in tie-ups with any healthcare providers?

We operate through a partner based approach to the market. The partners are generally large diagnostic chains that have an established sales team and a strong support network to collect samples. These partners give us seamless reach including access to clinicians globally and help connect with patients in the remote geographies for sample collection. Through partners, we currently have access to 100+ sales personnel who reach out to 1500+ clinicians on a regular basis. SRL and

Dr Lal Path are two of the big chains currently partnering with us. With the partners, we have set up a robust network to enable easy test ordering, sample collection and report delivery. The same model can be implemented globally.

The clinicians order a test through the sales team. The team interacts with the patient, and collects the required samples/reports. Upon completion of the test, the report is delivered to the patient. We collect the payments from the partners on a monthly basis.

We are also making efforts to reach out to insurance companies to get their buy-in on the product since it will potentially help insurance companies save unnecessary chemotherapy reimbursement costs.

### How is healthcare moving towards more tailor-made and personalised therapeutic strategies?

The basic premise of tailor-made strategies is to ensure maximum efficacy and minimal side-effects of therapy based on each individual patient's disease characteristics. Over the last few decades scientists have learned that not all breast cancers look the same, with certain subtypes of breast cancer requiring specific types of treatment. For example, breast tumours that are positive for expression of hormone receptors and those overexpressing the HER2

receptor are treated differently than triple negative breast cancers. Trastuzumab (Herceptin) has changed the treatment paradigm for HER2+ breast cancers leading to decreased mortality and improved quality of life for this sub-set of breast cancer patients.

With the growing realisation that each patient is unique with inherent genetic differences combined with differences in lifestyles and environment, a clear move away from the one-size-fits-all approach is evident especially in the treatment of cancer patients. Advances in science and technology have led to the development of immune- and gene-based therapies that have changed the way cancer patients are treated.

### Is OncoStem looking at developing any other tests? If yes, please elaborate?

OncoStem is currently working on second test for breast cancer and similar tests for oral and colorectal cancer. Research is underway towards identifying and characterising novel drug targets for breast and oral cancer.

### What are your growth strategies for the next five years?

We intend to touch every patient who can potentially be spared of perhaps unwanted chemotherapy treatment in cancer. Our go-to-market strategy involves partnering with large diagnostic chains

that have access to patients pan-India, cancer focussed hospital chains and other regional centres for cancer care. In addition, we will also be talking to private and government insurance companies about reimbursing the cost of the test to patient.

Funding: We have raised a total of \$9M from two investors (Sequoia Capital and Artiman Ventures.)

### How to avail CanAssist-Breast?

CanAssist-Breast is prescribed by clinicians to the patients. The patient can avail the test by directly contacting OncoStem Diagnostics, Bangalore or our channel partners.

The patient will not have to go through any additional surgery to get CanAssist-Breast test done. Once the doctor prescribes CanAssist-Breast test, the hospital/ laboratory/patient will send tumour blocks (comprising of the tumor tissue, removed during patient's original surgery) to OncoStem Diagnostics' laboratory. OncoStem's NABL accredited central laboratory performs the test and computes risk of recurrence using their proprietary machine learning algorithm. The results are made available to the doctor and the patient to discuss the report and personalise the treatment within 10 working days.

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INTERVIEW

# ‘Digital technologies are the backbone of delivering good diagnostic services to our customers’

E-diagnostics has the potential for positively disrupting the Indian diagnostic sector, opines **Satkam Divya**, CEO, KlinikApp. In a conversation with **Raelene Kambli**, he explains his vision and the current opportunities for such a concept

**What is your opinion on the advances in the Indian diagnostic industry?**  
 India is experiencing a great shift in technology adoption. With tech-enabled platforms coming in to provide to ease in day-to-day life issues and also provide better service in the on-demand space; things have really changed in the recent past. Diagnostic industry is also not untouched with this change and have seen advancements in these areas. Some of these advances include: core diagnostic techniques in early detection and accurate detections of wider variety of diseases; and service delivery to increase accessibility and give customers a better service and control on taking care of their health. With advancement in early detection and new diagnostic techniques, diseases can be caught early and accurately which increase the survival rates and also new techniques and rapid testing drastically reduces turn around



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times for results and dependency on blood by relying on other bodily fluid as well. Traditionally, healthcare accessibility has been a challenge for a country as diverse as India but startups working in this area are making it more accessible to a larger population. Also, with so much thought being spent on the accessibility, the pricing have also been brought down considerably to help a wider population get tested at affordable rates.

### How do you see digital technologies shaping the diagnostic sector?

Digital technologies are the backbone of delivering good diagnostic services to our customers. Now online bookings are increasing bring diagnostics at home, removing the need of a collection centre altogether. Efficient management of a fleet of phlebotomists collecting blood samples, live tracking of the temperatures at which the samples are kept during transport and uniquely connected testing process so that reports are not mixed up, these all operations are enabled by digital technologies. Also reporting has seen a lot of changes from hand written to PDF to interactive reports. Also, a major shift has been in the area of awareness and self help. People like to study and improve their knowledge on health related issues. With digital content discovery of these self help and awareness material has increased. A lot of our users choose preventive health packages as they want to take charge of their health earlier, this is due to increase awareness among youth. Another important aspect is the 24-7 presence, which being a digital platform helps us achieve, our customer can book test anytime, can connect with us anytime, can also access their reports which are saved in their profiles on app and web. This is very relevant to chronic patients who need all their reports in one place. Our proprietary platform helps us deliver these propositions to our customers.

**Tell us about your rational**

### behind bringing in a concept of an e-diagnostic platform?

It was a decision which I took after very closely experiencing this industry. My sister and father-in-law underwent kidney transplant within a spread of two years. There are a lot of tests involved both before and after the transplant; so diagnostic tests had become a routine thing for us. But, my experience with getting the tests done were very inconsistent. Be it variable prices at different POS of same brand, sample collection experience, phlebotomist who visits for sample collection. The whole system was just so broken and not customer centric. We wanted to be always present for our customer so that they can always connect with us to book test, see reports and give feedback, being an e-diagnostic service provider helped us achieve this. Today, people research online to know more about their health issues and also about diagnostic tests. They check the purpose, availability and pricing of these tests before booking them, so it was important for us to position ourselves in a way that we are able to resonate more with our customers. You really can expect your customers to walk upto your collection centres and wait for their turn in today's time. Things have become 'on demand' and 'at home' now a days.

### How does your model work?

We keep customer experience at the centre of our universe and design all our processes around it. When I was thinking about starting KlinikApp, I visited a lot of labs to know how they operate. Most of them were only 20-30 per cent utilised. So, this got me thinking that capacity is not the issue, service delivery is. Right from the start we focussed on two things: listening actively to our customers and analysing data to answer a lot of questions for us scientifically. These two things later helped us become who we are today. As an e-diagnostic company, we serve our customers end to end i.e. we design the products which includes tests and packages, we



decide the pricing, we take the customer booking and our team takes care of the post sales support. At no point customers need to call any external entity to get their test done. At the moment, we are outsourcing our tests to high quality labs because as I said earlier, capacity was not an issue. We operate via distributed lab capacities which help us reach more geographies. For sample collection, we use our fleet of phlebotomists are hired and trained by us to give a good sample collection experience. Our automated process which has deep technology integrations with our labs help us seamlessly deliver customer reports on time accurately. So we never leave our customer high and dry.

### Tell us about your financial performance so far? How much funds have you raised in the last three years and how have you utilised them?

We have a very stellar performance for a start-up that is so young. Our revenue till date is ₹ 13 crore, serving almost ₹ 1 lakh customers and doing more than six million tests. We have largely been profitable and have burned only about ₹ 1 crore to achieve this revenue.

### How is this model better than a brick and mortar model?

Brick and mortar model has served so well for so many years but increasingly agile companies are doing away with them for one reason: it is not

the most efficient use of funds. Relying on this model, companies have invested deeply in building lab facilities and collection centres as well as have amassed enormous assets which are under-utilised. Also to source customer they have to work via franchisees. Also, it is very difficult to drive new customer engagement initiatives through them as there is a resistance to change the way they deal with customers. Along with this they don't want to take the additional cost burden. This whole thing makes this model very uninteresting and bulky. We have 'customer first' approach and we don't source customer via franchisees or trade. We source our customers online or organically thereby in the absence of any middleman, we are 40 per cent cheaper. This is how we bring down the prices as there are only two parties involved: customers and us. This is also to the benefit of ecosystem as we are putting to use the under utilised capacities. Also, rolling out any new initiatives or technologies becomes easier as we control the fleet. Needless to say it saves a lot of costs in terms of having no collection centre as all of our collection happens at customer's home.

### How do you ensure that the labs you tie-up with follow highest quality standards?

We have a very stringent lab onboarding process and we work with very handful of high quality labs. We do this for two reasons; first being availability of sufficient capacity at these labs and second we don't want to overlook quality by stretching us thin with managing multiple labs. The process typically begins with finding qualified labs with certifications like NABL, ISO and CAP. This is followed by a personal visit cum inspection of the facility. We have a long list of stringent SOPs which a lab has to agree before on-boarding. Our SOPs broadly covers labelling, handling, processing and reporting of a sample along with instruments and devices checkups. Our SOP additionally also covers record management for proper

storage of the samples so that it can be retested again if required within a stipulated time. We also have SOPs for keeping the digital records of the reports and instances of processing. After on-boarding also we routinely visit these facilities to check and inspect on their adherence to our SOP. We also look for technology capability available with our potential lab partners, as our processes are highly tech driven. In some cases, we also help them achieve these technological capabilities.

### How many diagnostic centres have you tied up with?

We have tied up with 10 diagnostic labs all of them are highly certified like NABL, ISO and CAP. They provide us with good coverage geographically.

### In five years time, how do you see your company shaping the diagnostic business model in India?

The next five years are going to be very exciting for us. We are actively working on cutting edge technologies in building predictive models using AI to help customers know how susceptible are they to contracting lifestyle related disorders like diabetes, hypertension, thyroid, asthma and many more such diseases based on age, gender, location, lifestyle choices and many more intelligent aspects affecting overall health. We are also working on service delivery solutions to have consistent and scalable model of delivering great experience to our customers along with uncompromising focus on sample handling and processing. Our focus on continuously working quality, affordability and accessibility will definitely motivate others to come up with creative ways to find and solve customer's concerns regarding diagnostics.

### Any immediate plans for expansion?

We plan to strengthen our phlebotomist fleet and enter newer geographies. Also we'll add a few labs to maintain the distributed lab structure.

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## AI, Big Data Analytics and Cyber Security: Key drivers transforming life sciences companies

**Subhro Mallik**, SVP, Global Head Life Sciences, Infosys, speaks on how lifesciences companies are leveraging disruptive technologies to harvest and leverage data to make intelligent decisions

**WHEN** A last-stage cancer patient visited a hospital with fluid flowing in her lungs, an artificial intelligence (AI) algorithm was more accurate than traditional clinical models used by the hospital to determine her life expectancy. The algorithm could do so by sifting through 175,639 data points from the patient's electronic as well as handwritten medical notes<sup>1</sup>.

This instance not only demonstrates the possibilities of new discoveries in patient care, but also how emerging technologies – AI, big data, machine learning (ML) and deep learning (DL) – have the potential to fundamentally change the way individuals, companies and governments work. The digital transformation across industries is enabling an era of unprecedented change, driven by a more informed consumer.

Poised at a similar intersection of innovation, science and business, life sciences companies are ready to make the journey into the transformative space of technology, driven by patients ready to play a bigger role in their treatment processes and quality of care. Today's digital patient is more accepting of virtual clinicians, wearable medical devices, medical apps, and home-based diagnostics<sup>2</sup>. And, is willing to share the data that these tools collect.

### Trends and opportunities

This digital service revolution leaves no room for today's episodic, unconnected and unintelligent medical scenarios, and in turn unravels a multitude of opportunities in patient care, drug discovery and health outcomes. So, what's the way ahead? The answer is simple – a real-time assessment of patient engagement services across therapies. A more collaborative and personalised service that continuously monitors health parameters, is capable of

taking preventive measures and action, in a closed loop delivery care. It has become imperative for life sciences companies to band together their internal units, assess digital maturity and digital engagement roles essential for their business to derive new business models, transform digital trials, and get a competitive edge.

### Key technology drivers

The life sciences industry, just like any other, has turned to digital technologies to improve their existing operations, solve new problems and create new opportunities. With breakthrough drugs, valuable data and stiff competition, it is new-age technologies like AI, big data and cybersecurity that will play a crucial role in transforming the life sciences technology landscape and business acceleration.

A survey<sup>3</sup> conducted by Infosys reveals that life sciences companies are well aware of the digital trends, be it 3D printing of drug doses or digital clinical trials. In fact, life sciences combined with pharma is the most mature in AI adoption. And, 90 per cent respondents agreed that AI plays a significant role in the company's success. However, the vast amount of data that the industry generates and the importance of keeping it safe from hackers and competition ensures that big data and cyber security are equally important.

### Impact of AI, big data analytics and mitigating cyber-attack risk

Life science companies generate volumes of complex data related to research and development of new drugs and machines, and risk management. And, the magnitude of this data deluge is only going to escalate. The process of drug discovery/development and clinical trials could take decades and drain millions. Add to it the uncertainty over the



Subhro Mallik, SVP, Global Head Life Sciences, Infosys

the data in systematic ways can help companies identify a new potential drug that can be utilised for effective medicines. For instance, the MIT Clinical Machine Learning Group is developing algorithms to create more effective treatments for Type 2 diabetes.

Unlike humans, AI-led models curate medical insights without cognitive biases and make decisions based on strong data analysis. For instance, new-age technologies have improved the

data is said to be valued at about 10 or 20 times<sup>4</sup> more than the value of a credit card number. Despite the awareness of such breaches, 43 per cent life science executives surveyed by a premier consultancy firm said they have not ramped up their cybersecurity investments. There are varying reasons for this from workplace attitude to considering cybersecurity as an 'IT problem.' This is a massive task and one that everyone needs to be thinking hard about.

### Digital service design to take the digital leap

At Infosys, we utilise cutting-edge tools and metrics to ascertain digital as a value generator for life sciences companies. Our digital service design<sup>5</sup> aligns key digital touch points in the care continuum to identify the benefits driving value to patients and measuring the return on digital for the enterprise. This digital service design can unleash a wave of opportunities in digital innovation to simplify future patient journeys and enable better patient care.

We will continue our efforts to make a difference with our tools based on Infosys Nia, our purposeful AI platform that is capable of transforming the life sciences landscape. It offers a single-point entry for AI with a complete spectrum of capabilities to accelerate business transformation.

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outcomes, older legacy systems, compliance and funds for development!

Here's where AI and big data play a significant role by providing agility and efficiency needed for better treatment outcomes, drug development with improved return on investment, faster market time. The technologies harvest and leverage the data to make intelligent decisions. This enables efficient research and clinical trials for a more individual-centric approach. The trials can be more focused and predictive analysis could crunch gigantic volumes of diverse data from varied sources to suggest the most suitable candidate for clinical trials. Utilising

survival rate of melanoma patients from 16 per cent to significant 98 per cent by successfully detecting fatal symptoms at early stages.

While data sharing and analysing is the key to innovation, however, the gigantic amount of confidential and sensitive data makes the life sciences industry a prime target of cyber-attacks. The data arising from research and development (R&D), clinical trials, valuable details about products, pricing and promotion, and connected medical devices are at a potential risk of being hacked.

In the wake of increasing cyber-attacks on enterprises and governments, the stolen health

# BPL Medical Technologies' delivers medical devices as part of 'Care for Kerala' campaign

These products were delivered to Kerala Medical Services Corporation Ltd (KMSCL)



**B**PL Medical Technologies recently delivered medical devices including BPL Oxygen Generators, nebulizers, BP Monitors & Pulse Oximeters in addition to monetary contribution as part of the 'Care for Kerala' campaign. These products were delivered to Kerala Medical Services Corporation Ltd (KMSCL).

"Our hearts go out to everyone affected by the flood. As people are still recovering medically in various hospitals, we understood the need of these devices for their well-being. We pledge to do what we can to help alleviate grief and distress experienced by the victims, and pray for their safety and well-being in this hour of crisis, to stand beside the

flood-affected people of Kerala," said Sunil Khurana, CEO and MD, BPL Medical Technologies.

Beginning on August 15, 2018, severe floods affected the south Indian state of Kerala, due to unusually high rainfall during the monsoon season. Over 483 people died, and many are still feared missing. At least a million people were evacuated. Accord-

ing to the Kerala government, one-sixth of the total population of Kerala had been directly affected by the floods and related incidents. The Indian government had declared it a Level 3 calamity, or 'calamity of severe nature.' It is the worst floods in Kerala after the great flood of that happened in 1924.

These community invest-

ments are part of BPL Medical Technologies' commitment to advancing humanitarian action by combining its philanthropy with the resources and volunteer spirit of its employees across the country.

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# Maulana Azad Institute of Dental Sciences operates first mobile dental clinic project in Delhi

Each mobile clinic has its dedicated staff, dental surgeons, dental hygienists and paramedical staff

**MAULANA AZAD** Institute of Dental Sciences (MAIDS), Govt of NCT of Delhi, is currently operating the first mobile dental clinic project in India, under National Health Mission. The project has been running strong since four years since its inception since April 2014, and has delivered positive dental health to the underserved and needy beyond measure. Through its fleet of six mobile clinics, the performance of this initiative is tremendous.

Each mobile clinic has its dedicated staff, dental surgeons, dental hygienists and paramedical staff, who work on a predetermined schedule in collaboration with the concerned Delhi Govt dispensary, government schools and community for general dental procedures. Complex cases are referred to the nearby hospital or MAIDS with a special referral slip, which is regarded for further dental care.

This programme has achieved many milestones since its inception. Serving 18 dispensaries (in four districts), mobile dental clinics have screened 1.25 lakh people and over 60 per cent of them have received treatment. Additionally, 16000+ school children have been examined for common dental diseases and 4000+ are treated. These numbers form a staggering total of approximately 1.40-lakh populations examined and approximately 80,000 treated.

Awareness is an indispensable part of the programme, and each visit is complemented with regular educational activities, along with pertinent messages through leaflets and audio-visual interactions. Additionally, 1500+ ASHA workers and 900+ school teachers have been trained for identifying and referring dental patients. This workforce enhancement has surely made a mark.

World Cavity-Free Future Day marks an important day for



awareness pertaining to caries free populations and healthier future. It has been said that dental caries is the second most common disease in the world, second only to common cold. Initiated by a not-for-profit organisation 'Alliance for Cavity Free Future', the World Cavity-Free Future Day is observed on October 14 each year. On this occasion, Dr Vikrant Mohanty, M.O.I/C, Mobile Dental Clinic Project commemorated this day and has served the needy and created a benchmark for awareness regarding dental caries prevention.

The team organised awareness campaigns at various dispensaries under Govt of NCT of Delhi. At Delhi Govt dispensary Seelampur as well as Kanti Nagar, the team conducted one-to-one interaction with the mothers reporting at the dispensary and informed about the campaign

'Cavity-Free Future' as well as the importance of saving teeth from caries right from the childhood. The theme of the campaign was 'Early Childhood Caries.' Importance of preserving milk teeth and the correct brushing technique was emphasised. Dr Shekhar Grover, Consultant, Dental Public Health, led the events. More than 150 people attended the session. Further, a special training session on prevention of dental caries was conducted for the staff at respective dispensaries.

In addition to this, another team, led by Dr Swati Jain, Consultant, Dental Public Health, team visited GGSS School, Yamuna Vihar, and organised sessions for primary school children under the able guidance of Kanchan Jain, Principal, GGSS, Yamuna Vihar. This was followed by demonstration of proper tooth brushing technique



wherein the students themselves practiced proper way of brushing. Various games and quizzes were organised for the school children. Almost 380 students and 45 teachers attended the event. The school teachers were explained about the need and importance of caries prevention, as well as provided supplementary education materials

for future benefit of the children.

With such perseverance and dedication, the event was truly a success.

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# Government Medical College in Kozhikode installs Carestream digital radiography room

New system enhances image quality, expedites workflow and reduces dose

**GOVERNMENT MEDICAL** College in Kozhikode, India, installed a CARESTREAM DRX-Evolution System, to expedite imaging procedures for a wide range of complex exams, while enhancing image quality and lowering patient dose. This hospital and its associated institutes have 3,000-plus beds and serve almost 40 percent of the more than 36 million citizens of Kerala, India.

The DRX-Evolution system is installed in the hospital's radio-diagnosis department that performs 1,000 patient exams a day. In addition to the new digital radiography system, the department has three CT scanners, two MRI scanners, two catheterisation labs and 10 X-ray systems.

"This new system expedites the imaging process, which saves time for patients and also allows our staff to perform more patient exams during high-volume periods," said Dr VR Rajendran, Principal, Government Medical College, Kozhikode. "It also offers extremely high-resolution image quality, which can help enhance diagnostic accu-



racy, and automatic exposure control dramatically reduces dose for patient exams.

The new imaging system is equipped with two CARESTREAM DRX 43 x 43 cm detectors. One detector is installed in the wall stand and the other detector is used in the table and for tabletop exams. This automated imaging system has a ceiling unit with auto positioning, autotracking and the ability to perform standing or supine long-length imaging exams.

The DRX-Evolution system can capture multiple images

that may be combined to create a long-length exam. "Long-length studies equip our hospital's orthopaedic surgeons with the detailed diagnostic information they need to deliver the best possible outcome for our patients," said Dr Rajendran.

Installing the new DRX-Evolution system required room renovations. "The Carestream team worked day and night to complete the installation in just two weeks. We are pleased with the dedicated effort we received from Carestream's service, sales and support staff," Dr Rajendran



added.

"We are happy to work with the hospital's radiology staff to support their commitment to deliver excellent patient care," said Sushant Kinra, Managing Director, Carestream Health India. "The DRX-Evolution system can improve productivity and

image quality while delivering a rapid return on investment."

The hospital also has CARESTREAM DIRECTVIEW Classic CR Systems and uses CARESTREAM DRYVIEW Laser Imagers to print images captured by the hospital's MRI and CT imaging systems.

## Great Place To Work Institute re-certifies Carestream Health India a Great Place To Work

Scores high on Trust Index and the Culture Audit

**CARESTREAM HEALTH** India has been re-certified as a Great Place to Work, based on a rigorous assessment conducted by the global research and consulting firm, Great Place to Work Institute. The assessment primarily evaluates two parameters, the Trust Index and the Culture Audit. The Trust Index measures the employee perceptions of the workplace environ-

ment. The Culture Audit is rigorous audit of our various people practices, programmes and initiatives within the organisation under 15 practice areas. To qualify, the company needs to score, above 70 per cent positive response in the Trust Index and a rating above 2, on the scale of 1 to 5 for the Culture Audit.

Together, these parameters reflect the trust the employees

have in the organisation and its management, the camaraderie, and pride in what the company does and what their contribution is to the big picture.

"Carestream strongly believes in enhancing our customer's satisfaction through innovation and excellence. All this can be achieved through our people who are core to our values and strategy. Great Place To

Work certification is a validation for the same. We are proud and will continue our drive towards excellence," says Sushant Kinra, MD, Carestream Health India.

Carestream India began their journey with Great Place to Work Institute in 2017 when the organisation was certified for the first time. They participated in the assessment this year too, with a drive to continue the hon-

our of being a Great Place to Work, certified organisation.

"The foundation of a happy organisation is the respect for people. At Carestream Health, we treat employees like they make a difference and they do. The team is proud to be a 'Great Place to Work' yet another year," says Leena Dabholkar, Head - Human Resources, Carestream Health India.

# Trends in patient monitoring

**N Manogaran**, Vice President – Sales, BPL Medical Technologies, gives an insight on various parameters available for patient monitoring which has seen a demand in the last few years

**PATIENT MONITORS** with advanced parameters and connectivity solutions are gaining importance in recent times. However, five para monitors are minimally needed for bed-side monitoring.

During the last few years, there has been a significant increase in demand for additional parameters like IBP and ETCO<sub>2</sub>. Cardiac Output, BIS, NMT and Gas Monitoring (AGM) are few other important parameter options that are available with patient monitors.

Cardiac Output (CO) comes with two technologies one with invasive and the other non-invasive. Invasive technology (Thermodilution) is more in demand than non-invasive (ICG). CO has become important parameter for monitoring cardiovascular function.

There are few companies of

fer 12 Channel ECG monitoring/printing for cardiovascular monitoring.

BIS (Bi Spectral Index) is used to measure depth of anaesthesia. BIS uses EEG signals to assess Patient's status of consciousness under anaesthesia. Prevent awaking during surgery, drug saving and faster wake-ups as it avoids over-dosage, Less PONV (Postoperative Nausea and Vomiting) are the benefits of BIS. Neuromuscular Transmission (NMT) is the transfer of an impulse between a nerve and a muscle in the neuromuscular junction. It is used to locate nerve precisely for giving regional anaesthesia. This reduces the time of procedure and provides Patient safety and comfort.

AGM (Gas Monitor) module is used to measure the anaesthetic and respiratory gases of the patient under anaesthesia.



Auto-identification of agent, MAC (Minimum Alveolar Concentration), AWRR (Air Way Respiration Rate), Et and Fi values are the measuring parameters for anaesthetic agent. It also provides Et (End tidal) and Fi (Fraction Inspired) values of respiratory gases CO<sub>2</sub>, O<sub>2</sub> & N<sub>2</sub>O.

Medical devices providers are creating awareness programmes to emphasise the im-

portance of the above parameters monitoring for increasing patient safety and comfort. This means more users looking for patient monitors beyond basic 5 or 7 parameters.

Exclusive Neonatal Monitor is another segment which is rise in demand with focussed neonatal care centres and special wards.

## Trends in defibrillator

Defibrillator is used in case of ventricular fibrillation (VF) and non-perfusing ventricular tachycardia (VT).

Defibrillators of the current age comes with optional parameters like NIBP, SPO<sub>2</sub> and ETCO<sub>2</sub> apart from AED and Pacing. SPO<sub>2</sub> and ETCO<sub>2</sub> help in monitoring respiration of the patient during CPR process. Guidelines 2010 by AHA (American Heart Association), ERC (European

Resuscitation Council) give strong recommendation on usage of CO<sub>2</sub> monitor with waveform in Advanced Cardiac Life Support (ACLS).

Remote charging, Easy to use like 1-2-3 steps, Clear display, paediatric/adult paddles, quick charge time are some of the preferred features.

Standalone AED (Automated External Defibrillator) have gained importance in past few years, however, due to increased urbanisation, there is further scope for AEDs to be installed in areas of high population density (such as malls, apartment complexes, railway stations etc) to avoid any death due to sudden cardiac arrest. Strict regulatory framework for mandatory installation of such life saving devices at critical places could lead to reducing life risks.

# Procalcitonin as diagnostic tool: Marker for sepsis and antibiotic therapy

**Dr Rajesh Rengarajan**, Product Manager-Clinical Chemistry, DiaSys Diagnostic India, gives an insight about the recently launched Procalcitonin, which is a pro-inflammatory marker that could be useful in the diagnosis of infection

**SEPSIS IS** a global healthcare problem, characterised by whole body inflammation in response to microbial infection, can be lead to organ dysfunction. Sepsis is a potentially life-threatening complication of an infection. It is becoming a frequent complication in hospitalised patients. Early and differential diagnosis of sepsis is needed critically to avoid unnecessary usage of antimicrobial agents and for proper antibiotic treatments through the screening of biomarkers that sustains with diagnostic significance.

Inflammatory response is one of the primary responses to a

microbial invasion, which leads to the systemic illness which is referred to as sepsis. Its severity correlates with mortality. It may occur as a result of infections acquired from community, hospitals or other healthcare facilities. There are an alarming number of 18 million new sepsis cases reported each year worldwide with mortality rate ranging from 30–50 per cent.

Procalcitonin is a pro-inflammatory marker that could be useful in the diagnosis of infection. In the past, procalcitonin levels have been evaluated to diagnose sepsis or guide antibiotic therapy, but it was not deter-

mined if it would differentiate between sepsis and other causes of inflammation. Procalcitonin (PCT) is a 116 amino acid protein, the prohormone of calcitonin. Whereas hormonally active calcitonin is produced exclusively in the C-cells of the thyroid gland after specific intracellular proteolytic procession of the prohormone PCT, PCT is ubiquitously and uniformly expressed in multiple tissues throughout the body in response to sepsis. In healthy conditions, the PCT levels in circulation are very low (< 0.05 ng/ml). Elevated circulating levels of PCT are important indicators in response to

microbial infections and a powerful tool in the early detection of sepsis. Elevated PCT may not always be caused by systemic bacterial infection. PCT Assay is a latex particle enhanced immunoturbidimetric method intended for the quantitative determination of PCT in human serum, EDTA or lithium heparin plasma. Measurement of PCT in conjunction with other laboratory findings and clinical assessments aids in the risk assessment of critically ill patients on their first day of ICU admission for progression to severe sepsis and septic shock.

Recently Diasys launched



Procalcitonin in reagents portfolio and the main features of DiaSys Procalcitonin are given below:

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- ▶ Two reagent system
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- ▶ Calibrator included in the kit
- ▶ Fast test results (10 minutes) for a rapid turnaround time
- ▶ Reagent on-board stability: Four weeks

# Understanding the trends affecting medical supply chain

A streamlined supply chain is essential for hospitals to attain a high degree of operational efficiency. Although, Indian healthcare centres are still operating on manual supply chain procedures, there are certain trends which are starting to appear in the medical supplies industry as technology is gradually getting integrated into the system. An insight by **Vivek Tiwari**, Founder & CEO, Medikabazaar.com

**GLOBALLY THERE** is a pressing need in the healthcare industry to automate inventory systems and analytics to reduce revenue leakages. Excess or shortage of stock, expiry loss, low inventory turnover, high inventory carrying cost affect the cost of healthcare delivery. When it comes to cost reduction and improve efficiency, three words that strike are 'supply chain management.' Businesses typically focus on improving the bottom line by streamlining the supply chain. However, bringing in operational efficiency is relatively new in the healthcare industry.

Medical supply chain management is one of the most pivotal functions of medical establishments. The function needs to ensure that the patients are treated on time as planned with the availability of required and adequate medical supplies. The supply chain process starts with hospitals contacting vendors to inquire about medical supplies to receiving the requirements at the facility. Hospitals need to ensure that every step of the process is streamlined and transparent so that they don't end up spending disproportionate finances, purchase the wrong products and jeopardise patient care.

In India, procurement of medical supply has been more or less handled manually. Hospitals connect with multiple dealers, distributors or manufacturers for their supplies which not only take a significant amount of time but at times can lead to wrong purchases, excesses, shortages of supplies.

However, due to technology,



the supply chain process is now shifting to online platforms. It not only ensures a consistent and smooth supply of medical essentials for hospitals but also assures savings. Following trends are emerging in the medical supply industry because of this shift.

## Consolidation

One of the significant advantages of an online supply chain process is the consolidation of medical supplies at one place i.e. a single point of purchase. Hospitals no longer have to contact multiple vendors for their supplies. Also, on online platforms, they can choose the same product from a variety of different brands and manufacturers, compare them and then purchase accordingly. Via a single purchase point from

an online platform, they can buy their requirements without the hassle of having to work out between numerous quotations. This way medical institutions can make their purchase process more simplified.

## Reduce cost

As mentioned above, online platforms empower the buyer with detailed information on product and pricing. Medical facilities can choose from a big catalogue of

medical products and can compare them. They can clearly distinguish between specifications, prices which can assist them in making an informed purchase decision. Such a process prevents hospitals from buying mediocre supplies at disproportionate prices which can not only affect their Total Cost of Operations (TCO) but more importantly, patient care. Online platforms provide hospitals with notifications and reminders which can help them to procure well in time. All these aspects help medical institutions to reduce their OPEX without compromising on patient care.

## Efficient distribution

One of the core problems of a fragmented medical supply chain is a broken distribution system. In India, especially in tier 2, 3 cities and rural locations, healthcare centres suffer from a lack of essential supplies. Geographically, they are placed in such locations where conventional distribution chains don't reach. Online procurement systems, with last mile delivery services, cut across distances and ensure that supplies can reach in remote areas. As medical institutions gradually make use of online procurement systems, their supply chain will become more efficient and stream-

lined. It can make healthcare more accessible.

## Data-based planning

To plan the purchase of medical supplies, it is imperative that hospitals analyse their inventory. Data is the central theme here. Data regarding patient inflow, equipment, and medical supplies inventory must be recorded. The same can be used for procurement planning. Advanced technologies like artificial intelligence and machine learning can help predict the requirements of hospitals. Such predictive analysis can be helpful in preventing the unavailability of medical supplies on regular days and also during emergency situations. A consistent and high-quality patient care service can also be ensured. Also, based on such analysis, hospitals can allocate the right amount of funds for procurement. This will help medical institutions to avoid shortages and excesses of stock and also manage their operational costs efficiently.

Medical establishments need to understand the benefits of data, analytics, and technology in supply chain strategy. They must focus on better processes, treatment, and supplies to bring patients the best care possible. The healthcare industry is always going through changes where medical establishments are continually looking to enhance their supplies and treatment procedures. Implementing an integrated system and gathering crucial data for projections, innovations and quality standards is critical to increase accessibility and affordability of healthcare.

Globally there is a pressing need in the healthcare industry to automate inventory systems and analytics to reduce revenue leakages. Excess or shortage of stock, expiry loss, low inventory turnover, high inventory carrying cost affect the cost of healthcare delivery. When it comes to cost reduction and improve efficiency, three words that strike are 'supply chain management'.



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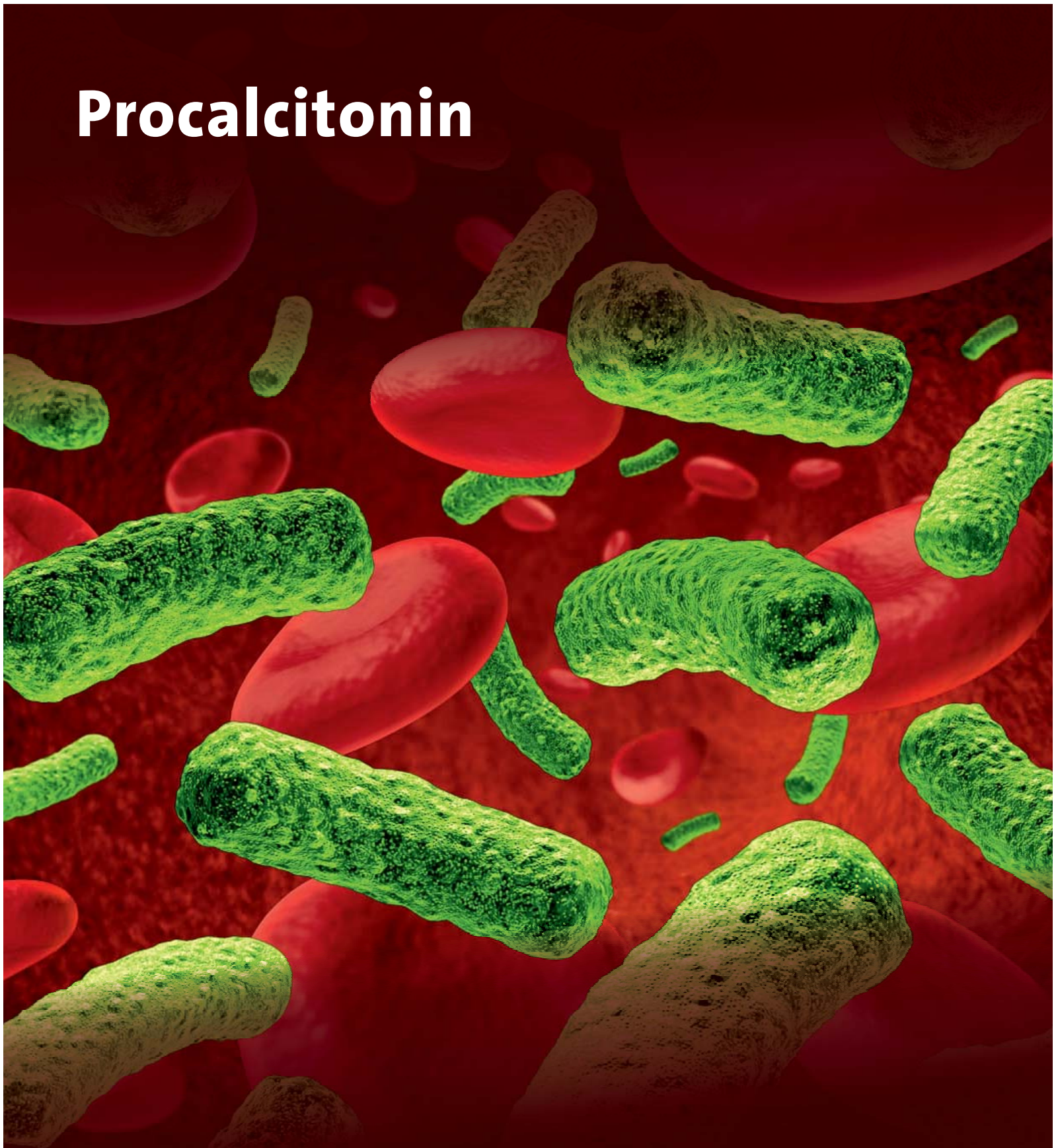
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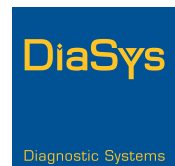




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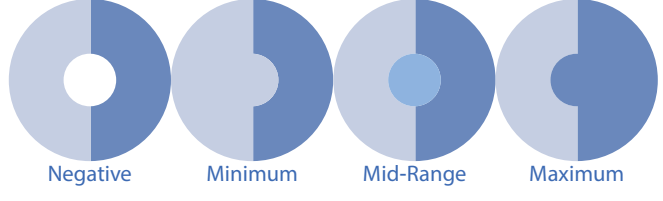
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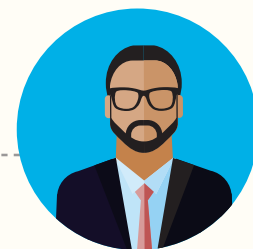
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**BOOK YOUR STALL**

- KEY HIGHLIGHTS**
- Exhibition to present and promote exclusive medical services and expertise
  - International Conference on Medical Value Travel
  - India-Africa Regional Forum; India-Middle East Regional Forum; India-CIS Regional Forum; India-SAARC Regional Forum
  - Reverse Buyer-Seller Meet and planned B2B & B2G sessions
  - Visitors and Hosted Foreign Buyers from over 70 countries of Africa, Middle East, CIS and Asia (Including SAARC)
  - Medical Value Travel Awards
  - Hosted Buyers from 70 Countries
  - Regulators meet will be organised during the event in which the Ministers from the 10 important countries will be invited for G2G interaction.

- EXHIBITOR PROFILE**
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  - Medical Insurance Companies
  - Third Party Administrators (TPAs)
  - State Govt. Tourism Departments
  - Hotels
  - Airlines
  - Tour and Travel Operators
  - Medical Tourism Facilitators

**ADVANTAGE HEALTH CARE INDIA 2017 - HIGHLIGHTS**

<b>171</b> TOTAL EXHIBITORS	<b>73</b> COUNTRIES	<b>45+</b> SPEAKERS	<b>705</b> FOREIGN HOSTED BUYERS	<b>6000+</b> BUSINESS VISITORS	<b>12,543</b> B2B MEETINGS
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