Azadi Ka Amrit Mahotsav

सत्यमेव जयते

Department of Pharmaceuticals
Ministry of Chemicals and Fertilizers
Government of India

FICCI

PATIENT FIRST

INDIA MEDICAL DEVICE 2022™

25-27 April 2022
Venue: Dr. Ambedkar International Centre
New Delhi

CEOs SPEAK

TRANSFORMING HEALTHCARE THROUGH INNOVATION & INTEGRATED SERVICES

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India Medical Device 2022

"Transforming Healthcare through innovation and integrated services".

The Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India, along with the Federation of Indian Chambers of Commerce & Industry (FICCI) has been actively working towards growth of Medical Device sector. Since the objective has always been to encourage and bring forward best technology solutions and manufacturing, therefore, Department of Pharmaceuticals announced India Medical Device series of events which is an annual activity. The 7th edition of International Conference on Medical Device sector i.e **INDIA MEDICAL DEVICE 2022** is scheduled from 25-27 April 2022.

The objective of India Pharma & India Medical Device 2022 IS to:

- Endeavor to address industry issues and to create a platform to recommend solutions
- Facilitate sharing of knowledge and best practices
- Promote India as a Manufacturing hub in the Pharmaceutical and Medical Devices Sector
- Establish India as a premier global healthcare destination and attract investments
- Provide a platform to network and collaborate
- Identify new priority areas and deliberate upon them.

The medical devices industry in India consists of large multinationals as well as small and medium enterprises (SMEs) growing at an unprecedented scale. The current market size of the medical devices industry in India is estimated to be nearly $11 bn.

The Medical device sector has been growing steadily at a CAGR of 15% over the last 3 years. 100% FDI is allowed under the automatic route for both brownfield and greenfield setups. Strong FDI inflows reflect the confidence of global players in the Indian market.

The Medical Device industry is highly capital intensive with a long gestation period and requires development and induction of new technologies. It also requires continuous training of health providers to adapt to new technologies. Most of the hi-tech innovative products originate from a well-developed eco-system and innovation cycle which is yet to be fully developed in India.

The Government of India has taken several steps to ensure the growth of a vibrant ecosystem of medical devices manufacturing in India over the past 5 years, states have committed to set-up dedicated industrial parks where efficient domestic manufacturing at lower costs. The State Government of Himachal Pradesh, Tamil Nadu, Madhya Pradesh and Uttar Pradesh have been given "in-principle" approval to develop Medical Devices Parks & create a robust ecosystem for medical device manufacturing in the country.

It is imperative for all the stakeholders to converge their efforts and address these challenges to provide the required impetus that India needs in realizing its vision for **"Transforming Healthcare through innovation and integrated services".**

CEOs Speak

Overview

India has made significant strides in the healthcare sector in past couple of decades. This is reflected in progress made towards achieving lower Maternal Mortality Rate (MMR), Infant Mortality Rate (IMR), Total Fertility Rate (TFR) and other key indicators. However, with 21% of global disease burden and alarming increase in non-communicable and lifestyle diseases, incremental changes will not be enough for providing "quality healthcare to all". In fact, India envisions 'Universal Healthcare' in its National Health Policy 2017 as well as through its recently announced *"Ayushman Bharat"* scheme. Medical technologies through their disruptive solutions have the potential to provide the impetus needed to make our healthcare system more accessible, affordable and sustainable going forward.

The global medical device market, currently estimated at USD 389 billion, is expected to grow at a CAGR of 4.4% per annum. It is a highly innovative and rapidly advancing industry[1],[2] that encompasses various areas like diagnosis, treatment as well as monitoring. However, in India, most of the indigenous manufacturing is restricted to medical consumables and technologically advanced innovation has witnessed low levels of penetration and adoption.

It is crucial that strategies and measures adopted by the government provide clarity and assurance, not only to the industry but also to the most important stakeholder who is the end-user of technology i.e. the patient. "Patient-centricity", which has evolved as the key element of an effective healthcare ecosystem does not seem to find adequate focus in the current scenario. This will adversely affect the existing trust deficit in the entire healthcare ecosystem. Hence, we need to be collectively mindful that the ongoing

[1] https://www.prnewswire.com/news-releases/global-medical-devices-market-2017---us-versus-international-sales-300557677.html

[2] https://www.visiongain.com/Press_Release/498/The-global-medical-devices-market-will-reach-398-0bn-in-2017

reforms help strengthen patient engagement, safeguard doctor-patient relationship and optimize revenue in the healthcare ecosystem, which is significantly consumer and market driven.

Medical technology has the potential to create a new patient-centric business model that combines devices with big data analytics and artificial intelligence to develop innovative and personalized products. Devices can also provide a unique platform that helps us to consider the appropriateness of treatment, availability of quality healthcare and reduce the pressures of financing and accessibility. It is therefore critical to create the right environment to foster the growth of this sector by coming up with a globally harmonised approach to the regulation of life-saving medical devices.

The CEO's speak booklet is an effort to bring the voices of the industry to the forefront and re-focus our efforts on creating appropriate environment as well as building patient-centricity in our system. Some of the key industry leaders have shared their viewpoints on pressing issues and presented the solutions that can help us reshape the future of our country's healthcare landscape and development of Medical Device Sector.

Articles





Understanding the value of quality medical products for better patient outcomes

Mr Tushar Sharma, Managing Director and GM - India & South Asia, Abbott Vascular

A key objective for any country is to provide quality healthcare to its citizens. In tandem, the fundamental purpose of the healthcare industry is to enable people to live longer, healthier, more productive, and independent lives. These efforts include developing and ensuring access to quality medicines, medical devices, and diagnostics, to help provide the best possible care for patients. With the ever-increasing disease burden in India[1], and non-communicable diseases (NCDs) on the rise[1], it's clear that an important part of the solution to these challenges will be the adoption of high-quality, innovative medical technologies.

The medical devices industry in India is estimated at $11 billion, with a compound annual growth rate (CAGR) of 15% over the last three years. By 2025, the industry is poised for significant growth, with the market size expected to reach $50 billion[2]. Medical devices are an essential part of the patient care continuum for prevention, diagnosis, and treatment. Typically, this category includes any device intended for medical purposes, such as instruments, implants, machines, software and more – ranging from tongue depressors and blood pressure cuffs to cardiac stents and joint replacements to surgical robots and software.

In any healthcare facility, be it hospitals, clinics, diagnostic labs, or in-house care, medical equipment contributes significantly to the effectiveness and quality of services. High-quality, technology-driven medical devices will ensure better diagnosis, desired immediate and long-term outcomes, and help deliver better quality of care for the patient, including objectives related to effectiveness, efficiency, and patient experience.[3] The good news is that based on recent Abbott research, patients in India are more likely than the global average to feel satisfied with their patient experience (54% vs. 40%). That being said,

there is more to be done overall to improve patient experience, including timely awareness of symptoms, access to medical facilities and for those facilities to have proper technological equipment for diagnosis and treatment, more effective communication among referring and treating physicians.

Safe and quality care are critical to any healthcare ecosystem. It is essential to use available high-quality clinical tools to improve patient outcomes and prevent adverse events – as adverse events due to unsafe care is one of the ten leading causes of mortality and disability in the world[4].

A product is called a gold standard in the medical world when it is rated on the grounds of incredible safety, efficacy and excellent patient outcome for both the short and long term. As such, there are unprecedented patient, health system and sustainability benefits from safe and quality care medical devices.

When achieving gold standard status, patients will have a better experience across the care continuum from intervention and beyond. From the onset, they will experience far less complications, less time in the hospital, and a device that lasts longer, allowing for a quicker and less painful experience and the ability to return to their daily lives quicker.

Safer medical devices also have unwavering benefits for healthcare systems that can improve efficiency and reduce overall cost. With high-quality medical products, there will be lower complication rates, in turn, patients will experience a shorter length of hospital stays and are less likely to return. This will result in lower "treatment costs," including consumables, facilities and treatment time. Healthcare facilities can then focus effectively on utilizing staff and improving overall equity and trust. As such, new therapies can advance clinical trial participants from those that are significantly or disproportionately affected by a disease state and ensure products meet the needs of patients who need them the most.

The environment also stands to benefit from reliable medical devices. Sustainability is an increasingly important consideration for manufacturers, healthcare providers and patients. Many manufacturers are assessing how their medical devices are designed, manufactured, distributed and disposed of as they look for opportunities to reduce their carbon footprint and total environmental impact. High-quality

medical devices will produce less wasted products, resources and human resources – creating a healthy environment worldwide.

The benefits of ensuring high-quality medical care are innumerable. The global healthcare industry is tasked with ensuring all patients are provided with the safest and highest quality of care backed by robust clinical evidence for optimal outcomes. Here are three key ways the healthcare industry can effectively refine the quality of medical devices and create a collaborative ecosystem:

Medical device manufacturers: Adopt an Evidence-Based Medicine (EBM) centric approach to ensure the usage of scientifically proven evidence for delivering the best possible care to patients. This ensures the highest degree of quality assurance and better long-term patient outcomes.

Healthcare providers (hospitals/ other facilities): Ensure detailed quality assessment and scrutiny of claims made for the product benefits with corresponding evidence while procuring medical devices will help hospitals minimize the risks of using low-quality products. Healthcare facilities must evaluate that a newly acquired medical device does not pose safety hazards to patients; that the device, when used in the clinical situation, produces the desired results reliably and consistently with its intended purpose; and that there are appropriate means of identifying performance defects. All of these measures will contribute to long-term patient safety and holistic quality of care.

Government: Evaluating and constantly refining the regulatory policies to align with the highest quality assurance standards is of utmost importance to help lower the burden on health systems and societies. Regulatory policies and processes should be based on scientific evidence, well documented, and understood, and are quick and cost-effective to encourage device manufacturers and technology providers to continuously innovate and introduce new high-quality products that benefit the patient.

The government of India has begun to take measures in the last few years to maintain quality standards in life-saving medical technologies for the betterment of the sector. This includes the introduction of the new Medical Device Rule, a classification system for medical devices, and setting up a Medical Technical Advisory Board to regularize the industry. In addition, the formation of the Indian Certification for Medical Devices (ICMED) is another example of the impressive strides the government has taken.

When we consider the current COVID-19 pandemic and the abundance of critical care administered via medical devices, today more than ever, the healthcare industry must ensure that all products meet safety standards. As India moves progressively towards assuring quality and accessible healthcare to all, we must ensure that the basic criteria that make a medical device safe and reliable are met. Therefore, the "Case for Quality" is of utmost importance and should be a strategic priority for the entire healthcare ecosystem in India and beyond.

References:

1 https://www.nhp.gov.in/healthlyliving/ncd2019

1 https://www.wbhealth.gov.in/NCD/

2 https://www.investindia.gov.in/sector/medical-devices

3 https://www.who.int/health-topics/quality-of-care#tab=tab_1

4 https://www.who.int/news-room/fact-sheets/detail/patient-safety

5 Ashish Jha, BMJ Quality & Safety, Sept 2013

6 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7047028/#:~:text=Medical%20device%20adverse%20events%20reported,and%20654%20as%20non-serious

7 https://www.trade.gov/country-commercial-guides/india-healthcare-and-medical-equipment

https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.27.3.759

https://www.oecd.org/health/health-systems/Economics-of-Patient-Safety-October-2020.pdf

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6190073/

http://nhm.gov.in/New_Updates_2018/Presentation/World_Patient_Safety_Day/Priority%20in%20Patient%20safety-%20Dr%20Subhrojyoti.pdf

https://www.researchgate.net/publication/256764438_The_Global_Burden_of_Unsafe_Medical_Care_Analytic_Modelling_of_Observational_Studies

https://qualitysafety.bmj.com/content/22/10/809

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7047028/

https://www.evidera.com/the-growing-need-for-real-world-evidence-in-medical-devices/

https://www.fda.gov/medical-devices/quality-and-compliance-medical-devices/case-quality



Health Technology Assessment in India

Mr Indranil Mukherjee, Managing Director – B. Braun Medical India Pvt Ltd

Limited healthcare spending ensuing financial toxicity in India: The Union Budget 2022-23 has allocated Rs 86,606 crore to the health sector, which is almost similar to FY 2021-22[1]. Implementation of the world's largest healthcare scheme, AB–PMJAY, has been reaching approximately 50 crore beneficiaries[2]. However, 63 million Indians are pushed into poverty per year because of their inability to meet healthcare costs[3].

Health Technology Assessment in India in MedTech Evaluations: To facilitate the process of transparent and evidence informed decision making in the healthcare, Government of India has created an institutional arrangement called the Health Technology Assessment in India (HTA In) under the Department of Health Research. To date, 19 HTA studies have been completed[4]. The findings of study of reuse prevention syringes (RUP) have been implemented in Punjab and Andhra Pradesh in the public and private sectors[5]. While current assessment parameters used in the Indian HTA studies, might be appropriate for interventions directly impacting clinical outcomes (i.e., pharmaceuticals), medical devices, usually go beyond the traditional HTA matrix. The WHO suggests that the fixed cost-effectiveness threshold should never be used as a standalone criterion for decision-making[6]. A pragmatic HTA framework inclusive of holistic measurement of costs and associated consequences (eg. overall price of therapy[7], monetized learning curve[8], life cycle assessment for analyzing carbon footprint[9]) can lead to HTA evaluations leveraging adaptation of innovative funding mechanisms such as Coverage with Evidence Development[10], Outcome/Value Based[11] Pricing and Most Economically Advantageous Tendering[12].

Industry as a collaborator and partner in global & regional HTA initiatives: Industry's role in HTA varies from being an applicant, reviewer, strong collaborator to not being involved at all. The industry not

only provides access to a wealth of evidence for a technology through its lifecycle, but it can also advise based on its understanding of different markets and/or other similar technologies. As India moves towards strengthening its HTA system, it should assess and leverage the benefits of industry involvement. An example of a collaborative model is Medical Technologies Evaluation Program (MTEP) from National Institute for Health and Care Excellence (NICE) in the UK who have successfully leveraged scientific knowledge and expertise of all key stakeholders to develop guidelines and models for evaluation & funding of several MedTech interventions[13]. Examples from Asia include nHTA program commissioned by The National Evidence-based healthcare Collaborating Agency (NECA) & Health Insurance Review & Assessment Service (HIRA) in Korea for adoption of new MedTech for medical devices & in-vitro diagnostics[14], Agency for Care Effectiveness (ACE) & Health's Medical Technology Advisory Committee (MTAC) in Singapore, China National Health Development Research Centre (CNHDRC), under the National Health and Family Planning Commission in China & Health Intervention and Technology Assessment Program (HITAP) which uses HTA to inform reimbursement & pricing decisions in Thailand[15].

Road ahead in HTA in India: Establishment of HTA within the vast and complex Indian health system is a significant step towards meeting the goal of universal healthcare. The future course could be strengthened by the following:

i. Institutionalization of The HTA Board Act, 2019 and inclusion of MedTech industry as an active collaborator

ii. Better utilization of HTA in Private Insurance

iii. Mandating evaluation of novel technologies using latest HTA techniques as a collaborative exercise between industry & HTAIn for procurement

iv. Incorporating a transparent costing system for public and private hospitals for HTA evaluations

v. Increasing healthcare spending (up to 2.5% of the country's GDP).

vi. Appropriate implementation of an HTA system can bring about maximization of health and reduce inequalities in access to healthcare in India.

References:

1. https://www.financialexpress.com/budget/union-budget-2022-health-sector-allocation-up-16-new-programme-for-mental-wellbeing-announced/2422913/
2. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1738169
3. https://www.niti.gov.in/sites/default/files/2021-03/InvestmentOpportunities_HealthcareSector_0.pdf
4. https://htain.icmr.org.in/virtual-library/hta-completed-studies
5. https://dhr.gov.in/health-technology-assessment-india-htain
6. Bull World Health Organ 2016;94:925-930. Link: https://www.who.int/bulletin/volumes/94/12/15-164418.pdf
7. https://www.medtechdive.com/news/value-based-payment-models-take-hold-in-medtech-but-barriers-slow-shift/574173/
8. Tarricone R, Torbica A, Drummond M. Challenges in the Assessment of Medical Devices: The MedtecHTA Project. Health Econ. 2017 Feb;26 Suppl 1:5-12. doi: 10.1002/hec.3469. PMID: 28139084.
9. https://www.esaic.org/uploads/2020/03/flash-display-screen1.pdf
10. https://www.cms.gov/Medicare/Coverage/Coverage-with-Evidence-Development
11. https://www.healthaffairs.org/do/10.1377/forefront.20180326.318510
12. https://www.medtecheurope.org/wp-content/uploads/2018/01/2018_MTE_2pager_MTF-2018_project-overview_final.pdf
13. https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-medical-technologies-guidance
14. Lee et al., Int J Clin Res Trials 2016, 1: 110
15. https://apacmed.org/content/uploads/2020/02/The-Evolving-Health-Technology-Assessment-for-Medical-Devices-and-Diagnostics-in-the-Asia-Pacific-Region-and-Key-Considerations-for-Value-Assessment-Frameworks.pdf



India's healthcare: Self-reliant, but in a global ecosystem

Mr Pavan Mocherla, Managing Director · Becton Dickinson India Pvt Ltd

Why Indian healthcare must harmonise its standards with the rest of the world

The common refrain in India in the aftermath of the COVID-19 pandemic was - 'to take the future of our country's wellbeing into our own hands, we must become self-reliant in healthcare and med-tech devices'. Consequently, a slew of measures were rolled out to encourage the journey of self-reliance.

Those that could be potential tailwinds were, a PLI (product linked incentive) schemes to invite multinational medical device players to make in India so that they could get an incentive of 5-7% of revenue generated from those devices. A comprehensive, forward-looking regulator, who understands the needs of multinational players who operate in 150 plus countries and dispense with quick decisions. And approval for setting up four medical device parks with a financial outlay of INR 400 crore in Himachal Pradesh, Tamil Nadu, Madhya Pradesh, and Uttar Pradesh with an objective to reduce manufacturing cost, optimise resources, build economies of scale, and create requisite infrastructure.

However, the headwinds that were generated by various arms of the Government of India were, and are, far greater than the tailwinds, and hamper the progress towards self-reliance. Some of these headwinds are: Interfering measures like price capping and export restrictions discourage multinationals from bringing new and innovative treatments or devices to India by making them economically unviable to operate. Additional burden to adopt India specific standards on players aspiring to use India as a manufacturing base for global supply (thereby minimising the benefits of operating in India). Restrictive

strategies like PPOs (Public Procurement Orders) that preclude multinationals from participating in state procurement and a de-facto interpretation of 'Aatma Nirbhar' campaign as import substitution by most of the functionaries of the Government block patients' access to modern technology.

When you consider these signals from the government, the message that gets generated becomes 'India is not a reliable partner for the global value chain' and it then becomes very difficult for Indian management of multinationals to make a convincing case for transformative investments in India.

This begets the question, 'why is a country with a population of 1.3 billion not an attractive market in the first place?' This is a million-dollar question (or shall we say a billion-dollar question) and the answer lies in the way we pay for healthcare.

In India, the insurance penetration for in-patient care is estimated at a meagre 35%, with nearly 60% of all healthcare expenditure paid by patients out of their own pockets. As a result, patients more often than not choose 'just enough care'. This forces the healthcare providers (practitioners) to choose 'what is affordable for their patients' instead of 'what is best for them'. Besides preventing patients from accessing best-of-class healthcare, it also disincentivizes companies from bringing their most modern technologies to the Indian market. This also explains why despite a similarly sized population, India's medtech market is roughly 1/5th of China's.

Considering the same situation through the lens of a decision-maker sitting in an MNC HQ, if they only have a single dollar to invest, they will choose the most optimal return location by taking into consideration all the factors like 'price attractiveness for technology', 'growth opportunity', 'government interference', 'ease of operations', 'insurance coverage' et al. To sum up, India already has a very small med-tech market with practically minuscule innovation system; (only 15% of medical devices consumed are even Made in India much less innovated in India) and in conjunction with restrictive government rules and poor prices, we are further aggravating the situation. However, it's not an impossible task to plug this.

Few suggestions to consider based on various factors highlighted above, include – an increased focus on strengthening the demand side equation of India's healthcare ecosystem thereby making it attractive for both MNCs and domestic players to invest for attractive and competitive returns vis-a-vis other sectors like FinTech, FMCG, technology to name a few.

Bringing efficient metrics to evaluate government spending in healthcare. Irrespective of the size of our healthcare spending, we need to standardize how we spend whilst standardising what we buy. We need to move from the lowest cost to 'the best outcomes for patients' basis. This will offer economies of scale and transparency to med-tech players. This might require the eventual moving of healthcare as a legislative subject into the Centre's ambit, away from the state list and into the concurrent list.

Actively facilitating a culture of innovation by establishing a supportive industry ecosystem with inputs from academia, research and government systems. The way to do this is innovation adoption by the government health system first which will ensure Indian innovators have a home in India first before looking at global markets.

Work on ensuring ease of doing business in India. The following solutions will benefit in this endeavour: single window approvals for regulatory clearances, as opposed to multiple government bodies involved in the due process before a license to operate, can be obtained.

One nodal officer for prompt resolution of bottlenecks working in tandem with the industry Harmonisation of Indian standards and regulations with the rest of the world as opposed to creating a moat around India.

As critical as healthcare is for citizens and a country, it is also a complex subject from a policy perspective. In such a scenario, an attempt to improve access and standards of healthcare for patients through arbitrary or excessive measures is akin to trying to fit a square peg in a round hole. No amount of force or coercion can make it work, if anything, it could do more damage than good. So, the need of the hour is a careful, considered and collaborative approach between the government, med-tech players and other stakeholders to mould the industry in a way it benefits patients in the long run.

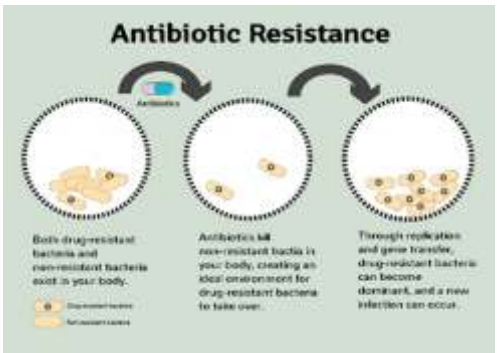
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https://www.thehindubusinessline.com/specials/pulse/indias-healthcare-self-reliant-but-in-a-globalecosystem/article 64968998.ece



Antimicrobial Resistance – The Silent Pandemic

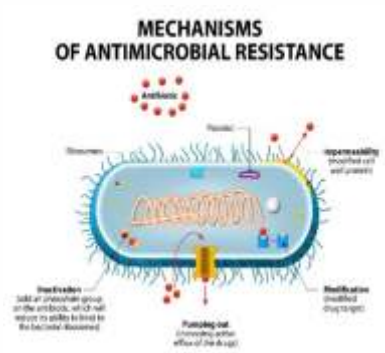
Mr Rajan Nagar, Vice President and General Manager, South Asia, BioMerieux India Pvt. Ltd.



Antimicrobial resistance (AMR) is one of the major threats to global health, food security and development as it threatens the effective prevention and treatment of infections caused by bacteria, parasites, viruses and fungi. About 700,000 people die each year from bacterial infections, according to the World Health Organization (WHO).

How does AMR occurs ?

AMR occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines/antibiotics making infections harder to treat and increasing the risk of disease spread, severe illness and death. As a result, the medicines become ineffective and infections persist in the human body, increasing the risk of spread to others. Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".



Antibiotics are supposed to save millions of life, but today its pervasive use is leading to increase in resistance of these lifesaving drugs. Factors

such as over-prescription of antibiotics, lack of awareness amongst patients to complete the dosages, overuse of antibiotics in livestock and fish farming, poor hygiene and infection control measures in the society, contributes majorly towards this cause. Another area of concern is the absence of new antibiotics development, which makes it more difficult to overcome this issue.

Impact of AMR

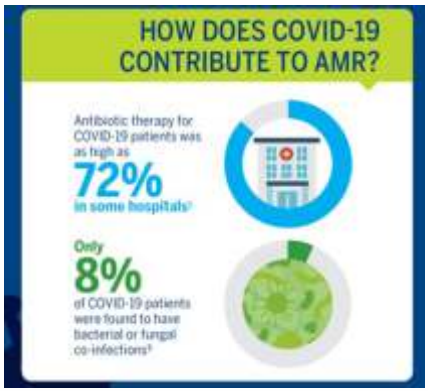
As per WHO data, it has been estimated that every 45 seconds someone dies[1] from an infection caused by a resistant bacteria. Also, it has been attributed that around 1·27 million deaths[2] are cause due to bacterial AMR. The number is equivalent to the deaths caused due to HIV/AIDS and Malaria together. There is also an estimate of 10 million deaths by 2050 due to AMR.

The impact of AMR goes well beyond health as it can have serious implications on poverty reduction and inequality, animal welfare, the environment, food safety and security. As per an estimate by The World Bank, 28 million people could be pushed into extreme poverty every year by 2050 and overall cost to the global economy of US$1 trillion per year.[3]

How COVID- 19 has accelerated the impact of AMR

The world is seeing the worst pandemic in so many years, as COVID 19 is still prevailing across the globe in form of new variants. In 2020, when the outbreak of SARS-CoV-2 virus started, the world was unaware about the virus behaviour and its treatments. This has led to trials of many treatment protocols which included the overuse of antibiotics. Many hospitalized COVID-19 patients received antimicrobials, but relatively few actually had bacterial co-infections or secondary infections. This means that many antimicrobials may have been administered to patients unnecessarily, therefore contributing to the spread of AMR. Some studies have shown that antibiotics have been administered to the majority of hospitalized COVID-19 patients, and 80-100% of COVID-19 patients in the ICU.

[1] Antimicrobial resistance testing, multidrug resistant organism infection | bioMérieux (biomerieux-diagnostics.com)
[2] Publication - GLOBAL BURDEN OF BACTERIAL ANTIMICROBIAL RESISTANCE IN 2019: A SYSTEMATIC ANALYSIS
[3] Antimicrobial resistance; an emerging crisis | United Nations Development Programme (undp.org)



Much remains unknown about how the pandemic is directly impacting overall levels of antimicrobial resistance (AMR), but a review of data from covid-19 cases, mostly in Asia, found that more than 70% of patients received antimicrobial treatment despite less than 10%, on average, having bacterial or fungal coinfections. The same study also found frequent use of broad spectrum antibiotics-designed to kill a wide range of bacteria-that can spur AMR through overuse. Such findings give weight to researchers' concerns that increased antibiotic use during the pandemic could increase the long term threat of AMR.

Act now: It's the only way we will reduce the threat of resistance

Antimicrobial Stewardship (AMS) is critical to fight the AMR crisis. AMS programs help fight antimicrobial resistance by providing a framework for responsible antibiotics prescribing and use, optimizing individual therapy, helping reduce the spread of resistance and raising awareness & education.

Successful antimicrobial stewardship programs require a continued and diligent interaction between all levels of healthcare providers, including physicians, infectious disease specialists, infection control practitioners, nursing staff, pharmacists, microbiologists, pathologists, lab directors and healthcare administrators.



The core elements of antimicrobial stewardship programs include:

- Implementation of national and international guidelines and clinical pathways for the diagnosis and treatment of infectious diseases
- Limiting the use of antibiotics where not needed or not indicated
- Delivering the most appropriate antibiotic, with the correct dose established according to the type and site of infection, patient's age, weight and clinical situation
- Switching antibiotics from parenteral to oral form as soon as possible
- Timely conversion to the most narrow antibiotic spectrum according to the organism susceptibility
- Use of the shortest effective antibiotic course and discontinuation of antibiotic courses as soon as possible

Role of Diagnostics (Diagnostics Stewardship)

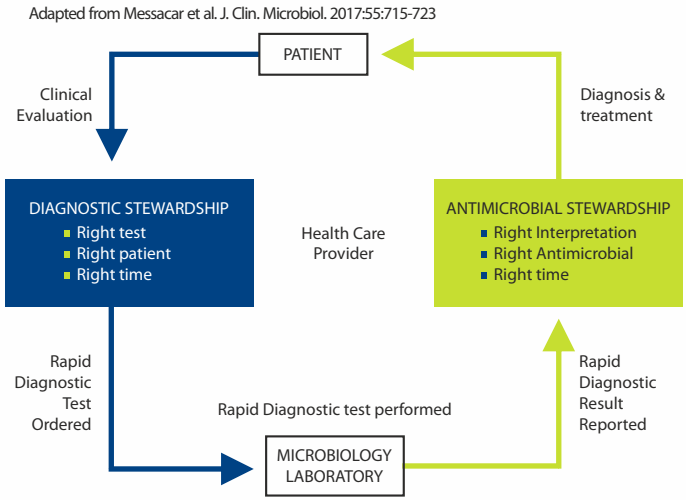
Quick and timely actions in understanding the causes of serious infections such as sepsis, pneumonia and meningitis and starting the right antibiotic therapy is a matter of life or death of the patient. Hence, it is important to identify the etiological pathogen and to differentiate between viral and bacterial infections, to identify the antimicrobial resistances in microbes, and to find out which antimicrobial agent should be used for the cure. Thereby the unnecessary use of antibiotics could be minimized and the spread of antibiotic resistance better controlled.

> *"Diagnostics are the single biggest potential game changer in the fight against AMR"*
>
> Lord Jim O'Neill

The microbiology laboratory therefore plays a crucial role in identifying the infectious agent, as well as any potential resistance to antibiotics, in order to help clinicians prescribe the most appropriate treatment with the shortest time delay.

Therefore, the need of the hour is to bring diagnostics closer to the general practitioners and hence to the patient would cause a paradigm shift from empirical to evidence-based treatments of infectious diseases in outpatient clinics. Rapid diagnostics are needed for both pathogen identification and resistance

testing. The prevalence of AMR may be very high for some species in certain geographic locations. According to the current recommendations on AST (antimicrobial susceptibility testing), pure culture isolates are used to test the effect of antimicrobial drugs.



These diagnostic tools help to:

- Identify patients who have a bacterial infection which would require antibiotic treatment,
- Identify the organism causing the infection in order to determine the appropriate patient management,
- Determine whether the pathogen is resistant to one or more antibiotics as a critical step to help the clinician prescribe the most appropriate antibiotics as early as possible.



Conclusion:

Since it is well known now that AMR is major concern for the human kind and could be the next pandemic in making, there is a need for global coordination, especially in developing relevant guidelines for the management of infectious diseases, using diagnostics, novel antimicrobials & implementation of National Antibiotics Policy. In addition, creating awareness and increasing education amongst all stakeholders (healthcare workers, the general public and politicians) about the dangers associated with inappropriate use of antimicrobials should be made mandatory.



"Innovate In India": A Future of Possibilities for the MedTech Sector

Mr Manoj Madhavan, Managing Director, Boston Scientific India Pvt Ltd.

India is well-recognized as the pharmacy of the world. Globally, the country is among the largest producers and exporters of active pharmaceutical ingredients (API) and generics. By being at the forefront of COVID-19 battle, the country has further cemented his position as one of the world's biggest vaccine manufacturing hubs. At the same time, the medical devices sector in India has shown impressive growth over the years. With the growing demand, increasing investment and policy backing, the sunrise sector is well poised to become a global force for driving better health outcomes in a post-pandemic world.

The sector has been growing steadily at a CAGR of 15% over the last 3 years with over 6,000 types of medical devices in India. At present, India is among the top 20 markets for medical devices worldwide. Furthermore, the market is expected to grow at a 37% CAGR from Rs. 75,611 crore (US $10.36 billion) in 2020 to US $50 billion in 2025. With the help of digital healthcare delivery, there is a greater emphasis on making the med-tech supply chain resilient to healthcare crises in the future.

While giving a clarion call for 'Make in India, the Hon'ble Prime Minister had highlighted that India can only achieve self-reliance in pharmaceuticals and medical devices by strengthening its R&D infrastructure that would drive expansion of access to life-saving medical products and help India become a global pharmaceuticals and medical devices hub. One of the key policy measures to achieve this objective is to increase attention and enhance capabilities in India for R&D and innovation, which accounts for 2/3rd of the global pharmaceutical opportunity. The total global medical technology industry's market size is currently valued at $456.8 billion and is further projected to grow at a rate of 7.7% to $62.0 billion in 2025.Established centers of this industry include the United States and Western Europe.

But industry trends show that Asia Pacific is about to play a more prominent role in the years to come.

Medical devices play a role not only in screening, diagnosing, and treating patients but also in regularly monitoring health indicators to prevent diseases. With technological advancements, the role of medical devices is now expanding to improve quality of care across each stage of the healthcare continuum.

If we look at the patent trends within medical devices sector in India - the last 10 years have witnessed an average [4]8% increase in patent filings in the field of medical devices. The estimation specifies the ongoing and consistent IP awareness, indigenous innovation and the tactical strategies of the global MedTech manufacturers to capitalise on the growing medical device market in India.

This has been made possible because of the government's focus and investment in R&D which is instrumental to boost India's strength in the healthcare sector. Through the support of agencies like the Department of Pharmaceuticals (DoP), Department of Biotechnology (DBT), Indian Council of Medical Research (ICMR), Biotechnology Industry Research Assistance Council (BIRAC) etc., there is a strategic opportunity for India to establish itself as a preferred destination for R&D followed by manufacturing of high-quality medical devices.

Moreover, to support the scientific acumen of the country, specifically in the medical devices sector, the Government of India has provided the Production Linked Incentive (PLI) Scheme of ₹3,420 crores between FY21 to FY28 to boost domestic manufacturing of medical devices. To add to this, the layout and financial assistance associated with four medical device parks have been established to support the local development and manufacturing of medical devices in Himachal Pradesh, Madhya Pradesh, Tamil Nadu, and Uttar Pradesh.

Despite these achievements, one of the biggest challenges hindering the growth of R&D in India is the dearth of talent with the requisite training, expertise and skills across the entire research and development life cycle in the realm of the MedTech sector. To overcome this challenge, India's med-tech

[1] https://innovations.bmj.com/content/3/3/167

sector comprising global and domestic manufacturers have a key role to play in closing the demand-supply gap by. Some of these ways are:

1. Integrating digital technologies to accelerate skill development through simulation-based training
2. Building quality-based competencies in the manufacturing ecosystem with interdependence between local suppliers, manufacturers, and healthcare providers
3. Investing in IT infrastructure, logistics and upskilling distribution partners for the last mile delivery of med-tech products into Tier II/III/rural India
4. Collaborate with partners and stakeholders under Make in India and Innovate in India schemes to produce low-to-medium technology products to cater to the underpenetrated domestic markets

[5]India spends less than one percent of its GDP on research and development, lower than most of its global peers. One of the related aspects is the lack of acknowledgement and incentivization of incremental innovations. At present, prices of many devices in India are either fixed (by schemes like CGHS, PMJAY) or controlled (NPPA) by Govt. By and large incremental innovations have not been rewarded with differential pricing. This has discouraged such innovations. In most developed markets, there are well defined provisions like Health Technology Assessment/ Health Economics Models to reward such innovations.

For India to evolve as the epicenter of MedTech research, it is imperative to focus on nurturing high risk device (class C & D) innovation, incentivizing incremental innovations, upskilling talent, and strengthening government-industry-academia partnerships while providing opportunities for investments.

Differential pricing for incremental innovations should be adopted by policymakers. Additionally, quality and value should drive procurement of medical devices as against the cost (L1 rule). Using a value-based

[5] https://www.business-standard.com/article/economy-policy/no-jugaad-businesses-must-raise-r-d-spend-says-economic-survey-121013000063_1.html#:~:text=India's%20gross%20expenditure%20on%20R%26D%20is%200.65%20per%20cent%20of,gross%20domestic%20expenditure%20on%20R%26D).

purchasing approach not only helps in providing the best care to the patient but also increases the chances of innovation adoption. For instance, in many developed countries, most devices used in the hospital setting are covered as part of an existing procedure or diagnosis-related group (DRG) code. However, breakthrough products or innovative therapies that provide value outside of existing procedures are likely to require separate reimbursement coverage. In this case, if such a framework is devised, companies will engage with purchasers (e.g., physicians or hospitals) of the innovation to understand their decision criteria for adopting the product into practice.

At Boston Scientific, Investing in R&D and clinical science is critical to the development of medical technologies and solutions that support patients around the world. After the success of our first R&D center in Gurgaon which has contributed to more than 100 patent filings since 2014, Boston Scientific recently launched its second R&D center in Pune and with these two R&D Centers, India has the largest R&D footprints outside Americas for Boston Scientific.

In addition to this, Boston Scientific also invests in conducting skill-building workshops for young technicians and engineers. Keeping in mind the complexity of the endoscopy procedures as an area of intervention, in July 2021, Boston Scientific partnered with Society of Gastrointestinal Endoscopy of India (SGEI) and Healthcare Sector Skill Council (HSSC) to upskill GI Technicians in Endoscopy area.

The organization has also pioneered programmes like Start Up Grand Challenge in partnership with NIPER Ahmadabad, Department of Pharmaceuticals, Invest India and Startup India to encourage start-ups, academic institutes, and non-profits to develop affordable and sustainable solutions to improve health, in India and across the globe.

The time is now right to develop breakthrough solutions to transcend from a 'Make in India' to 'Discover, Develop and Deliver from India'. This would mean engaging with relevant stakeholders and providing competent training to facilitate the thrust needed to achieve the vision of India as the preferred destination for medical devices in the world.



PARADIGM SHIFT IN HEALTHCARE

Dr Shyam Vasudevrao, Co-Chair, FICCI- Medical Devices Committee,
Founder and Director Forus Health, Renalyx and Rx DHP

There is a big change in the paradigm of healthcare system in India and following the global trend very rapidly. Preventive healthcare and wellness gaining importance and taking big market share. Instead of patient going to hospital, hospital go to patient is another shift leading to increased home care solutions and remote monitoring. All this is enabled by keeping the continuum of care by digitization and Electronic medical records. Tele services are increasing access and making healthcare more affordable and available to the population at large in remote places.

PREVENTION BETTER THAN CURE

This is an age old saying easily said than done. However, this gained more importance in the recent years as non-communicable disease a better managed in early stages and much better if the population at risk can prevent/delay the onset of these diseases. Environment Pollution and sedentary lifestyle has accelerated the onset of these NCD and hence to keep NCD at bay, wellness is gaining importance. Awareness of NCDs has drastically increased during this pandemic, people have realized how the risk factors increases during infections if one is diabetic. Managing NCDs, which is also termed as lifestyle diseases, requires continuous management, it is more a continuum of care which is only possible if

1. People are aware of the onset of the disease, so regular screening becomes essential
2. Digitization of healthcare continuum, EMR is key enabler
3. Tele medicine for periodic consultation and emergency handling

4. Intelligent systems to aid Self-management of NCDs at Home and use the doctors time very optimally – AI/ML can play a big role in such systems

Self-management needs smart assistance and lifestyle changes need motivators. This has led to intelligent watch, wearable gizmos, mobile apps for fitness, wellness, increase in "athons", walkathon, swimathon, marathon etc., as never before.

As per the WHO report in 2011, the 4As to manage the mismatch in healthcare are Affordability, Availability, Accessibility and Appropriate technology. Digital health strategy can address all these 4 As and enable preventive, precession precision, and personalized healthcare.

SHIFT FROM INSTITUTIONAL TO HOME CARE

We see that healthcare costs are always on a raise and institutional overheads contribute a lot to these costs. As all the healthcare resources are concentrated in the urban cities it is a double taxation for the people in rural areas as they not only suffer from direct costs at the hospitals but also indirect costs like travel, loss of productivity and costs not only for the patient but also for accompanying care giver. While this is creating a rural vs urban divide, there is also a huge divide in the urban area itself between the affordable and non-affordable category. Given the connectivity, smart self-management systems and special connected bedside monitors or medical devices, there are several treatment and care which can be shifted to homes.

Globally, home healthcare is preferred, encouraged, and even incentivized due to its cost effectiveness and reach. Indian home care has also matured similarly with respect to its ability to deliver digitally enabled, reliable, and advanced care at home. This industry is one of the fastest growing segments in

Globally, home healthcare is preferred, encouraged, and even incentivized due to its cost effectiveness and reach. Indian home care has also matured similarly with respect to its ability to deliver digitally enabled, reliable, and advanced care at home. This industry is one of the fastest growing segments in healthcare and holds the potential to become a hyper-scaled care delivery model. This segment, strengthened by the adoption of digital and virtual care technologies, now delivers acute and critical care at home.

In India there are multiple home healthcare players providing healthcare across preventive, promotive, chronic, acute rehabilitative, and palliative care in the comfort of the patient's home. Traditionally, 60–80% demand for home care has been driven by geriatric population seeking supportive long-term care at home. In fact, the second wave of the COVID-19 pandemic in India, has highlighted Indian Home Healthcare, as a sturdy pillar of support to the Indian Healthcare continuum, by providing advanced and safe care at home.

Telemedicine has introduced the possibility of new avenues of care delivery to health seekers during this pandemic, with advanced, specialized healthcare customized to their specific needs and available on-demand, now accessible outside institutions. The emerging health seeker segment with a higher disposable income has the proclivity to pay for care that is personalized, less disruptive to their fast-paced lifestyle as well as accessible at their doorstep. Technology enabled, integrated home care is emerging as a reliable, outcome measurable, and scale-ready solution to bring high-quality healthcare to the patient's doorstep.

The promise of home healthcare holds the key to unlock sustainable solutions to address the long-standing global challenges of shifting disease profiles, changing population pyramid, transitioning family structures, and the ever growing cost of care.

India is now at a similar evolutionary tipping point. We must evaluate scalable, cost-effective, and sustainable solutions to navigate effectively through these challenges. This can only be done with newer technologies for optimisation of care delivery and intelligent workflows.

DIGITISATION OF HEALTHCARE

"Harnessing the power of digital technologies is essential for achieving universal health coverage. Ultimately, digital technologies are not ends in themselves; they are vital tools to promote health, keep the world safe, and serve the vulnerable." Dr Tedros Adhanom Ghebreyesus, WHO Director-General

Emergence of health technologies such as wearable tech, telemedicine, genomics, virtual reality, artificial intelligence and Machine learning are changing the landscape of the Indian healthcare system. Like many other markets, India too is at the cusp of a 'digital health' revolution.

Digital health technology is a pivotal pillar in delivering value- based care across the healthcare continuum in India. Adaptive intelligent solutions can help lower the barriers between hospitals and patients, improving access to care and enhancing overall patient satisfaction, particularity in tier II and III cities in India.

Increasingly we see Healthcare companies are ready to embrace innovation and emerging trends to successfully steer new-age technologically driven business strategies by capturing consumer interest. As the pace of digital innovation in healthcare accelerates, this is followed by the opportunities for healthcare companies and medical devices manufacturers across India who are willing to embrace the digital health space over the coming years.

Growth in this sector is driven by lifestyle diseases, an ageing population, rising income levels, increasing access to insurance and growing health awareness. This rapidly increasing need and demand for healthcare services puts immense pressure on various stakeholders to efficiently manage the scarce human resources like clinical specialists, technicians, radiologists and inadequate infrastructure while controlling the increasing cost burden on consumers and simultaneously providing better quality care and increased accessibility. More from less is the right mantra for health economics as well.



Introducing Digital Innovations to Upskill and Train Healthcare Professionals in India

Mr Sandeep Makkar, Co-Chair FICCI Medical Device Committee & Managing Director at Johnson & Johnson Medical India

Increased MedTech consumption and impact requires equitable acceleration of infrastructure projects, adoption of innovation, and future-ready healthcare workforce in all parts of India

Success of the MedTech sector is a lagging indicator of widely accessible, quality based, equitable, and effective primary and tertiary health services to address the rising burden of non-communicable diseases.

Significant public and private investments are underway to bolster the primary care and hospital infrastructure projects, focused on the Tier 2-3 cities/towns, including the 22 new AIIMS hospitals. With funding from central and state government schemes, 75 government medical college upgrades are approved for increasing medical training and specialty/super-specialty infrastructure, primarily in these locations[1]. It is estimated that an additional INR 2 lakh Crore worth of private sector opportunities are available for hospital infrastructure expansion. Government is amending regulations for increasing public-private partnerships (via Viability Gap Funding Scheme), allowing private consortiums to establish medical colleges, and expanding intake capacities of medical colleges. While healthcare capital infrastructure projects and health insurance schemes are critical foundational building blocks and leading indicators of demand generation and innovation for MedTech, the key opportunity continues to be in building capacity, equitable distribution, and resilience of the healthcare workforce to serve this rise in demand.

Patients' needs and expectations are fast changing, and we have both a demand-supply capacity and knowledge gap in healthcare workers

Healthcare worker capacity building and training is still focused on the treatment of disease and delivery of care via traditional healthcare models, when patients are increasingly seeking preventative health,

convenience, and personalized and connected care. Medical knowledge is growing exponentially and doubling in less than 3 months vs. 3.5 years just over a decade ago[2]. As diseases get more complex and their management protocols evolve, more healthcare practitioners are feeling overwhelmed and unprepared to meet the needs of the patients. In countries like India, this is compounded by the acute shortage of healthcare workers to manage even the conventional delivery of care today. At an estimated availability of 27.1 professional health workers for every 10,000 people, currently India is just halfway near to the global standard 44.5[3]. Patients in Tier 2-3 locations by far are significantly disadvantaged in seeking high quality specialized healthcare and must travel far to metros/Tier 1 locations adding cost, increasing treatment times, creating economic hardship, and delaying the management of complex conditions.

Going from playing catch-up in 2022 to building a future-ready healthcare system by 2047

We are making progress, but more must be done at a rapid pace. The Union Budget 2022 lays special focus on the training of healthcare workforce, apart from digitization of the sector for it to become more efficient, real-time, and swift. In addition to the hospital infrastructure expansion, India is not only increasing the number of new healthcare workers being trained but has started to develop capacity for implementing new healthcare models, enabled by digital programs. The undergraduate medical seats increased by 53%, post-graduate seats by 80%, BSc. Nursing and MSc. Nursing by up to 25% when comparing admissions between 2014 and 2020[4]. During this period, Auxiliary Nursing Midwifery (ANM) and General Nursing and Midwifery (GNM) capacity was also developed to build preventative screening, triage, home healthcare and post-hospitalization follow-ups—the building blocks of preventative, personalized and connected care. More specialty technician capacity such as radiotherapy technicians will need to be expanded fast—India has a staggering 70% and 77% shortfall of radiotherapy technicians and medical physicists respectively for the management of cancers. Almost all capacity is in Tier 1 markets[5].

While aspects of medical learning increasingly shifted online with hybrid learning during COVID, the last two years also saw the acceleration of training of non-ICU healthcare workers in the training of general ICU care including management of ICU equipment. Institutions like AIIMS implemented online training on essentials of critical care management for ICU and non-ICU physicians and healthcare teams. Hospitals and institutions are implementing hub and spoke tiered delivery models with partnerships to optimize specialist resources, increase patient catchment areas and leverage technology for early disease management and specialized care to Tier 2-3 locations. The concepts of central tele-critical care units

connected to peripheral ICUs, or digitally connected supply chain networks for product flow and pricing visibility are gaining traction.

New models such as home healthcare are being enabled with digital technology and a new cadre of trained healthcare workers. This is resulting in not only increasing capacity but also improving clinical, functional and economic outcomes for patients and their caregivers. Home healthcare has the potential to replace up to 65% of unnecessary hospital visits in India and reduce hospital costs by 20%[6].

How MedTech can participate in changing the game in healthcare workforce skill development

Medical diagnostics, imaging, consumables, devices, and technology industry has a significant role to play in accelerating skilling, upskilling and reskilling of the healthcare workforce.

Leveraging the incentives provided by state governments, companies can enter into public private partnerships to increase screening, early detection and specialist referral and treatment capabilities in the already existing infrastructure of over 3200 First Referral Units (over 95% have operating room and labour room facilities), over 5600 Community Health Centres (each has required staffing of four medical specialists) and over 30,000 Primary Healthcare Centres (each has required staffing of a medical officer and 14 paramedical and other staff). Recent examples are setting up E-ICUs in PHCs using central hub and spoke models in a few districts that can be scaled widely to include over 160,000 sub-centres[7].

Technologies such as telemedicine, remote monitoring using sensors/wearables/apps, and Augmented Reality/Virtual Reality training tools are gradually seeing adoption in both metros and Tier 2-3 locations. Start-ups such Synapsica, Qure.ai, Predible Health and Deeptek.ai are creating new frontiers in radiology workflows to increase efficiency and accuracy of diagnoses across the public and private sectors.

Surgical education leaders such as Johnson & Johnson India are pioneering hybrid training technologies for skilling surgeons and their surgical teams. Building on the fixed training infrastructure of state-of-the-art J&J Institutes in Mumbai and Chennai, and over 30 skills labs in partnerships with medical colleges, which over the years have trained over 300,000 healthcare workers, J&J Institute has also led the way with reaching Tier 2-3 locations with J&J Institute on Wheels and digital education. J&J Institute on Wheels has successfully trained doctors and HCPs in over 145 towns, covering 79,329 kms by 2021. In 2021 during COVID, J&J trained over 50,000 healthcare professionals using digital technologies such as Augmented Reality for safe and effective use of their stapling devices in cancer surgeries, hybrid training programs for medical students for basics in surgical suturing and integrated Virtual Reality training for orthopaedic

joint replacements. In addition, surgeons in Tier 2-3 locations in India were engaged and trained through simultaneously connected hybrid programs led by renowned faculty from India, Korea, Japan, USA, UK, and other countries. Increasing healthcare skills in all locations of India keeps us rooted to our Credo, which is a constant moral reminder to put the needs and welfare of our patients first.

The industry also needs to bring a greater focus on diversity and inclusion in the healthcare sector. Women constitute a significant portion of the health workforce globally but are underrepresented in India. The Global Gender Gap Report by the World Economic Forum ranked India 140 out of 156 countries, down 28 places. As an innovative approach to increasing women representation and bridging the skill gap, Johnson & Johnson launched the Reignite program to accommodate women who took time from their careers to take care of their families. The program offers six-month internships, training, and placement to women to build their confidence and skills as they re-enter the workforce.

These and many such innovative solutions across Johnson & Johnson and other companies are aligned with Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Skill India vision. And initiatives like these contribute to the government's National Digital Health Mission (NDHM) that envisages an integrated digital health infrastructure where existing gap amongst different stakeholders of the healthcare ecosystem are met through digital highways.

References:

1. http://pmssy-mohfw.nic.in
2. Trans Am Clin Climatol Assoc. 2011; 122: 48-58. Peter Densen.
3. WHO report: Health Workforce in India. Where, Why and How to Invest.
4. Pib.gov.in. 10 Aug 2021.
5. Indian Journal of Cancer. 2019. Radiotherapy in India: History, current scenario and proposed solutions. Anusheel Munshi, Tharmarnadar Ganesh, Bidhu K Mohanti.
6. Note on Home Healthcare. Nidhi Saxena. Founder and CEO, Zoctr.com.
7. MoHFW. Statistics Division Report. 31 March 2019.



Lessons learnt from the COVID-19 pandemic can help us fight the silent pandemic of NCDs

Mr Madan R Krishnan, Vice President & Managing Director Medtronic

Non-Communicable diseases (NCDs) are rising globally largely due to demographic and lifestyle changes associated with rapid industrialization and urbanization. Much before the COVID-19 pandemic, in 2016, the World Economic Forum had highlighted the need for a global action to stem this silent Pandemic of NCDs. It was estimated that the cumulative direct and indirect costs of NCDs over the following 15 years will be about five times the costs triggered by the global financial crisis in the 15 years following 2008. [6] Over the last three decades, India has also witnessed a sharp rise in the burden of NCDs. The contribution of NCDs to disease burden- disability adjusted life-years (DALYs) has grown from 30% in 1990 to 55% in 2016. Similarly, the proportion of deaths due to NCDs has increased from 37% in 1990 to 61% in 2016. [7] However, majority of population doesn't have access to timely preventive and curative care with many innovative therapies and procedures which could have reduced the morbidity and mortality burden due to NCDs.

On the other hand, country has shown exceptional resolve and success in fighting the COVID-19 pandemic by taking leadership in ensuring wide access to vaccines, health infrastructure and other essential supplies such as medical oxygen and personal protective equipment. Vaccine story is particularly remarkable as it involved coming up with new vaccines and faster ways to take the vaccine to all adult citizens. This became possible due to the proactive and open approach of the government which

[6] The silent pandemic that threatens the global economy. World Economic Forum. Accessed at https://www.weforum.org/agenda/2016/02/the-silent-pandemic-that-threatens-the-global-economy/

[7] Non-Communicable Diseases. National Health Portal. Ministry of Health and Family Welfare (MoHFW), Government of India. Accessed at https://www.nhp.gov.in/healthlyliving/ncd2019#:~:text=Non%2Dcommunicable%20diseases%20(NCDs),physiological%2C%20environmental%20and%20behaviours%20factors.

enabled all stakeholders such as healthcare workers, civil society, and industry to work together for the common goal. There are countless other examples where India has achieved excellence in the face of adversity because of sheer determination and mission driven approach of all the stakeholders ranging from polio elimination to many landmark projects under the space program.

Can India replicate this success in dealing with the silent pandemic of NCDs? In the past this problem may not have been perceived with the same sense of urgency as some of the others mentioned above. Now, we do have some of the building blocks in place. Over the last four years, nearly 1.17 lakh existing primary health centres and sub-health centres have been upgraded to Health and Wellness Centres and their scope has been expanded with a focus on preventive and primary care for NCDs. Pradhan Mantri Jan Arogya Yojana (PM-JAY) has the potential to reform the health system financing for curative care from being focused on the supply side to being driven by demand and becoming more efficient as a result. If implemented well, PM-JAY can address the issue of access to care for NCDs. However, utilization of the scheme has been suboptimal. It is widely believed that the major barriers have been low

package prices under this scheme and lack of sufficient consideration given to cost variations arising due to quality, geography, and complexity of care. This made it unattractive for private sector especially the larger hospitals to join this scheme resulting in the current situation. The package prices may not have been evidence based as Government had only limited capacity and resource allocation to conduct costing studies and systematic economic evaluation and relied mainly on expert opinion and anecdotal inputs from public sector.

Fight against COVID-19 has given a new sense of hope and confidence to India's health sector. National health Authority (NHA) which runs the PMJAY program gave the country another success with COVID-19 vaccination by developing a COWIN application to interface with the beneficiary which has been recognized globally for its innovative approach. It is heartening to note that recently, NHA seems to have also understood the critical problem with PMJAY. NHA's efforts to overhaul the provider payment mechanism and price setting methodology under the scheme with a vision to provide more value-based care, is indeed laudable. Value-based care is much more effective as it takes a lifecycle view focused on health outcomes vis-a-vis the episodic care prevalent currently. The new system will also be cognizant of heterogeneity in costs due to various factors such as location and level of healthcare facilities. This should

help engage more hospitals and consequently reach more beneficiaries. The existing Health Technology Assessment (HTA) agency is proposed to be complemented by another new institution so that assessments can be done in a faster manner including through new and innovative ways such as adaptive HTAs. NHA is also trying to develop a structured and transparent mechanism for inviting nominations for inclusions and price negotiation of medical products to be used under the scheme. They are looking at global best practices to create a system fit for the country and keep it evolving with the times.

We could be at a critical juncture in the India's healthcare journey. We just need to learn from our successes in dealing with COVID-19 pandemic and follow the time-tested principles of being proactive and open so that all stakeholders could come together to achieve the common goals and make that magic can happen again. This may revolutionize not just the healthcare regime to deal with NCDs but also have a sustainable impact on the entire health ecosystem.



The 500 B US$ Global Diagnostic Imaging, Critical care Space: Where are we and what's our Future?

Mr Vishwaprasad Alva
Chairperson, FICCI- Medical Devices Committee,
Founder and CEO, Skanray Technologies Ltd.

I have tried to capture here the space of Diagnostics Imaging, Critical care, Surgery, Home and Geriatric care devices where Skanray has established a strong domestic and export position in just a decade which can be leveraged and replicated by a lot more startups, Domestic player, MNCs through Indian investments.

This 500B US$ sector has been a forte of just the US, Germany, Netherlands, Japan, Korea, China and few other European countries while the rest of the 180+ countries are importers. India is just emerging in the last few years and is poised to take at least a 25% share within the next decade with a strong industry – Govt partnership. Unlike in Pharma, Med device Consumables market, there are very few players.

System Medtech (Diagnostic Imaging, Critical care, Surgery) devices are a very complex blend of Electromechanical systems, Specialty Plastics & Metals, Controls and automation, High end computing, Signal processing, embedded, Imaging, User interface and Applications HW and SW covering all fields of Engineering, Medicine, and pure Science.

That is making it special to India, Its cost structure, skills and capabilities. Unlike in Pharma, Consumer Goods, entertainment, automobile, Communication sectors, Systems Medtech is Low Volume, High Complexity, High Mix and quick obsolescence. The worlds developed countries and even China that is strong in bulk manufacturing is facing challenges of escalating input costs.

Let me take you through with a specific product example of an Advanced Surgical imaging C- Arm / Mobile Cath lab. The typical R & D investment for this project from concept to Serial production is between 75 and 100M US$ and 3 to 5 years. The annual volumes ranges from a thousand to around 5000 units and product obsolescence kicks in around 3 years. The amortization of the R & D, Prototyping,

Reliability studies, Verification and Validation, Safety and Regulatory costs, Pre-serials, Clinical trials, Supply chain, parts mfg., tooling, testing capex will make up for about 25 to 40% of the product transfer pricing. Here the Indian costs can be just about 5 to 12%. The basic raw material and metal costs are almost the same world over, but India has a 40% cost advantage in Low volume component processing, tooling, product engineering, installed base management, spares and service, part obsolescence and end of life management. Overall, India can give a 60% cost and Technology out of most products in this segment over Europe US, Japan and atleast 30% over Chinese costs.

With its English speaking professionals, access to cutting edge technologies from across the Globe, India can make Med Tech affordable and self-funded for the country and the Globe. Currently world over the healthcare subsidies are a huge burden on the economy. What Chinese and Indian Cell phone volumes did to the otherwise expensive Europe/Scandinavian technology can be done to the Healthcare sector as well.

1) Instead of incentivizing production, we need to incentivize Exports from India, Getting products to Global safety and quality standards. We need to incentivize investments in product R & D and core research and not assembly and screw driver technology , back-end services and low end S/W unconnected to the applications and product. We need to build Supply Chain eco system and Component/ Sensor/ Application skills domestically through incentives or Govt support. This sector won't and can't grow with just customs duty, mfg., tax incentives and sops. The challenges are very different.

2) Robust Domestic demand. No investments will come in unless there is a robust domestic demand triggered by Public and private spending in increasing the healthcare over in urban and rural areas of the Country. Ayushman Bharat is a very important driver for the Med Tech Self-sufficiency program. We need to work on the execution plan, timelines and ways to overcome the healthcare retail, insurance, delivery challenges that the country is facing today. Budgetary allocation is the first step but execution isn't easy.

3) Transparency in Tendering process and payments to manufacturers on time. Bring the state procurements also under a common acceptable process to encourage domestic manufacturing irrespective of them being an MNC, a foreign company or a domestic grown industry that invests in R & D and Manufacturing in India.

4) Form a task force consisting of the Pharma/MED Tech ministry, MEITY, External affairs ministry and ministry of health to brainstorm, identify the gaps and get to execution. EAM is important to identify and forge partnerships with countries that can be long term partners and manage the imports from countries where we have risks of supply chain. Med Tech cuts across ministries and coordination between ministries is always a challenge for the industry. There is no nodal agency that is active.

5) Med tech is low volume, High complexity and High Mix which is the strength of India. We will attract investments from Europe, US and Japan that have currently invested in China and looking for a second source. We need a Task force to enable these investments as single window agency and specific to med tech.

6) Rural health programs won't kick off unless we bridge the gap between retail, delivery, Technology, Telemedicine and homecare. Rural health, Mass wellness, Homecare, Health Tourism. Med Tech and rural health combination will drive great demand and industrial activity, Quality enhancement, Employment generation, rural employment and prevent migration to cities.

7) China has attracted western, Japanese and American talent to bridge their med tech starting 2 decades ago. India has severe skill gaps and supply chain gaps that can be overcome in less than a decade. Clusters, Tests labs, Simplified Talent immigration into India, Med Tech universities co located with Clusters for high tech and scientific staff is an important area of focus.

8) Semiconductor Fab, Electronics mfg. sector infrastructure is key to Med Tech. A lot has been spoken and it's time to deliver results.

9) Certain laws like PNDT, Legal framework and simplification for homecare, telemedicine, Health tourism needs to be reviewed and formalized in parallel.

The first step is to have a work out between the Health/Pharma/ Med tech ministry, MEITY, Finance ministry, PMO and EAM. This is long due and critical. Can we see this happen??



Cancer Care Challenges in India and Way Forward

Mr Ashok Kakkar, Senior Managing Director India, Varian-A Siemens Healthineers Company

Nearly 4.5 million Indians suffer from cancer and are in various stages of treatment and follow-ups, with an average of 1.5 million cases being added every year. As per WHO's Globocan 2020, nearly 8,00,000 deaths in India are attributed to cancer. Cancer is the second largest cause of death in our country after cardiovascular diseases. Cancer treatment is of mainly three types—surgery, radiation therapy and chemotherapy. A facility that is equipped to provides all the three types of treatment could be considered as Comprehensive Cancer Care (CCC) facility. Depending on the type of cancer and the kind of patient, these options can be used either alone or in combination.

There is a constant need to support the patients and ensure that they benefit from the new technology and changes in policies. Radiation therapy is one such therapy that has proved to be beneficial in controlling the growth of cancer and without a radiation therapy unit a comprehensive cancer care facility is incomplete. Radiation therapy is found to be one of the major pillars in the treatment of the cancer diseases and almost 60% of the cancer patients need radiation therapy as a part of treatment other than surgery, chemotherapy, immunotherapy. While 50 to 60 per cent of cancer patients require advanced treatments such as radiotherapy, in India, less than 20 per cent end up receiving the access.

The majority of cancer care facilities are in urban areas, while 70% of the population continues to reside in rural areas. Most developed countries have at least 4 radiation therapy units per 1 million population, while the World Health Organization recommends at least 1 radiotherapy unit per million population for developing nations. India has only 0.53 units per million people.[8] Our country falls short by more than 700

[8] Mallick S, Giridhar P. Is radiation oncology in India today ready to meet the challenge of increasing cancer incidence? India: Cancer epidemiology and cancer control programme. Journal of Cancer Policy 2020;25: 100232

units. Most of the available units are present in urban areas and private institutions.[9] Out of the 718 districts in India, radiotherapy facilities are only available in less than 100 districts. This results in only 18 to 20% of patients being able to access radiotherapy treatments. Though there has been an increase in radiotherapy units over the past decade, 8 out of every 10 installations have been in private institutions which are again urban-centric[10]. Patients from rural areas need to travel long distances to access cancer care, affecting their livelihood and continuity of care. The skilled manpower needed to provide effective radiation therapy is also low in India against international figures. Bridging these resource gaps will help make cancer care affordable and accessible for patients across the country.

The other challenge is lack of awareness. Despite awareness campaigns, most patients who suspect cancer do not reach an oncologist on time. Breast cancer, for example, is completely curable if detected at Stage I. However, social stigma, negative perceptions of the disease and anxiety about disfigurement prevent the patient from reaching out to their family, peers, or general practitioners. The fear of the treatment and its cost contribute to the patient's reluctance to begin and sustain treatment. Due to their inability to cope, patients may turn to traditional forms of treatment and when they finally reach out to an oncologist, the disease has often progressed beyond the curable stage. This is a key concern area in a vastly populated country

According to the National Cancer Registry Programme (2020), 1 out of 9 Indians will develop cancer during their lifetime. Prioritising comprehensive cancer care delivery at the grassroots level will facilitate early diagnosis and treatment. India can prepare for an increase in cancer patients by strengthening the screening process at the rural level, while improving the facilities at district-level hospitals so patients can receive treatment closer to home.

It is time for all healthcare stakeholders to synergise and strategize to navigate the complex maze of cancer care to ensure delivery of affordable and equitable cancer care in India through investments in infrastructure and access, looking at partnerships to ensure every Indian can get access to the latest and

[9] Munshi A, Ganesh T, Mohanti BK. Radiotherapy in India: History, current scenario and proposed solutions. Indian J Cancer. 2019 Oct-Dec;56(4):359-363.

[10] Munshi A, Ganesh T, Mohanti BK. Radiotherapy in India: History, current scenario and proposed solutions. Indian J Cancer. 2019 Oct-Dec;56(4):359-363.

most innovative healthcare that technology can deliver. Every district hospital should have the basic infrastructure to diagnose and treat cancer.

Given that access to cancer care facilities, including radiotherapy centres, is the biggest challenge in our country today, to address this huge gap, the public and private sectors must work in unison and come up with innovative solutions that can provide inclusive care in the country. Setting up radiotherapy centres in the Government Hospitals under a Public Private Partnership (PPP) could be one of the approaches. In this model, the State is expected to provide space in their hospitals, where a private clinical service provider will set up the radiotherapy centre to treat patients at a cost previously agreed with the State. This will help the States to adopt this model much faster and eventually help cancer patients in their region.

Technology could also be a great enabler to address the growing cancer burden. Cancer care is becoming more intelligent using biomarkers, personalised drugs, precision radiotherapy, proton therapy and targeted immunotherapy. Technology can facilitate the flow of information and remove some of the divisions that currently exist between care specialists and primary care physicians. The use of artificial intelligence (AI) and machine learning (ML) to screen cases can help practitioners detect and treat early and provide a personalised care and treatment plan.

Advanced cancer care should be available to all Indians. A holistic approach is required to provide scalable and sustainable solutions. Collaboration of various stakeholders and especially policy interventions could help to improve the cancer care infrastructure in the country.



The Power of Integration: Fueling Future Healthcare Needs

Dr Shravan Subramanyam, Co-Chair FICCI Medical Device Committee & Managing Director, Wipro GE Healthcare and President NATHEALTH

The COVID 19 Pandemic was the tipping point for the world in many ways and more so for the healthcare sector where the best in the world failed to address the fallout of the pandemic. The need for integrated healthcare systems that supports continuum of patient centric care linking preventive & promotive, primary, secondary and tertiary care was more evident than before.

The pandemic also made it extremely evident the critical role of medical technologies and digital technologies in the healthcare integration through the entire patient's journey for diagnostic, therapeutic and post care monitoring.

World Health Organization's 2030 Agenda for Sustainable Development underpins, "the spread of information and communications technology and global interconnectedness to bridge the digital divide and to develop societies that understand digital."

With the digital paradigm, we are entering a new era where AI, data, and innovative tech are leading the way— a promising response to the existing fragmented healthcare.

The Need to Integrate

While India has made great strides in bringing healthcare reforms through implementation of Ayushman Bharat and National Digital Health Mission, there is still much desired in terms of accessibility and quality of healthcare infrastructure particularly in rural areas where 70% of India resides. There is also limited internal spread of modern technology and IT services in healthcare. About 44,000 secondary and primary care centres lack state-of-the-art IT facilities, IT personnel, and high bandwidth (International Telecommunication Union 2011).

Appropriate and timely implementation of National Digital Health Mission would trigger an integrated and systematic health infrastructure that can enhance healthcare systems to reach the last mile. This will also facilitate clinicians to efficiently access real-time health records of the patients and provide informed decisions to finalize a logical line of care management.

The Digital Shift: Data Matters

The National Digital Health Mission (NDHM) provides the building blocks i.e. Digi Doctor, Health ID, health facility registry and personal health records. Simply put, from a repository consisting of all health-related information of all citizens to a comprehensive repository of all doctors practicing or teaching systems of medicine, we already have tools to digital help patients. The next leg of this development are tech-enabled solutions that further strengthen the integration. For instance, how are these repositories made available to patients? Can we design systems which further use AI to help doctors to achieve greater efficiency, improve patient outcomes and increase access to care?

Tele health or e-health got a great fillip during COVID 19 pandemic as need for isolation and protection of doctors, healthcare workers and patients became paramount. The use of chatbots and predictive modelling tools can improve patient safety and outcomes, as well as support clinician and patient decision-making capacity, using the electronic healthcare record (EHR) data, artificial intelligence (AI), and machine learning (ML) approaches.

At GE Healthcare, we are using tech to integrate and assimilate data from disparate sources. For instance, by integrating AI into CT scan, we could reduce the RTPCR turnaround time from 48 hours to 10 minutes thereby giving clinician the crucial advantage of golden hour to treat the patient. Through these innovations, we are leveraging advanced algorithms to generate operational, and clinical insights.

As India rides the digital wave, we must harmonise our strategies with the global digital strategy for ease of technology transfer and research & development collaborations. For instance, the WHO global digital strategy underlines that health data must be classified as sensitive personal data and requires a high security standard. Hence, defining the need for strong regulatory measures to protect privacy, confidentiality and integrity of data.

Collaborating through Public Private Partnerships

With launch of Ayushman Bharat and push to create a network of 1,50,000 Health and Wellness Centres (HWCs), India will see an upgrade in the current Sub Centres (SCs) and Primary Health Centres (PHCs) and a thrust on preventive and promotive care thus adding the crucial forth tier. That said, to realise these programs to their full potential, an active collaboration between the government and the industry would go a long way in addressing India's healthcare infrastructural gaps.

Recent studies have demonstrated that the number of ICU beds is disproportionately low in public and private hospitals (MOHFW 2015) and particularly missing from most District hospitals due to shortage of budgets, availability of appropriate infrastructure and trained manpower. Tele-ICU is another GE Healthcare solution which is a connective, integrated piece of technology that links a critical-care team of nurses, doctors, and intensivists from a remote hospital to a large, multispecialty facility. This system allows the remote facility to avail the multispecialty services available in the larger hospital and ultimately deliver quality care and better patient outcomes. Case in point is the Karnataka Government's MobileOne initiative in collaboration with GE Healthcare and Columbia Asia Hospital to implement Tele-consulting services at Tumkur District hospital delivering sub-specialty advice, conducting e-Rounds for ICU patients, providing round-the-clock monitoring, and training staff on protocols and procedures.

The Determinants of Integrated Health

We live in a connected world where mechanisms for strengthening national digital health strategies and implementing key collaborations will help us achieve the goals we are aiming at. From telemedicine to electronic medical records, digital adoption of tech to the farthest reaches to remote monitoring systems, the journey of integrated healthcare is unfolding.

Whether we speak of a digital revolution in healthcare or the policy changes, at the root of integration stands digital literacy, access to equipment, strategic digital foundations within national strategies and the dire need to work with stakeholders at every level.



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SIPCOT

State Industrial Promotion Corporation of Tamil Nadu (SIPCOT) is the lead agency of Government of Tamil Nadu to plan, develop, promote and operate industrial infrastructure landscape in the State of Tamil Nadu. Established in 1971 and now is in its Golden Jubilee Year, SIPCOT, has developed over 35000 acres of industrial land spread across 24 industrial estates/parks and 6 Special Economic Zones and is championing sustainable and equitable industrial development in the State of Tamil Nadu.

SIPCOT provides comprehensive physical infrastructure facilities including road network, stormwater systems streetlighting, water supply system, waste management, parking infrastructure, round the clock security etc. In addition, social infrastructure in terms of worker's hostels and other amenities are provided on a shared basis.

SIPCOT, to transform the State Government's vision as a Trillion Dollar economy by 2030, has embarked on a series of new initiatives to support the growth of new industries and transform the enterprises in Tamil Nadu.

- **Industrial Land Bank**: SIPCOT, to cater to the future demand, is creating an additional land bank of 45000 acres for industrial purposes spread across the state.
- **Transforming the Industrial Landscape of Tamil Nadu**: SIPCOT is developing greenfield industrial clusters for PV Manufacturing, Furniture, Medical Devices, Electronics Manufacturing, E-Vehicles, Future Mobility, Textiles, Leather, etc. sectors. These clusters are envisaged as comprehensive self-contained ecosystems comprising of physical infrastructure and state-of-art common facilities, ready build factories and social infrastructure and specialised services.
- **Built Environment**: SIPCOT has embarked on providing solutions for Just in-Time manufacturing through creation of plug & play factory buildings for manufacturing and logistics.
- **Supporting Innovation**: SIPCOT is establishing Industrial Innovation Centres at the Sriperumbudur & Hosur Industrial Parks. Through this initiative, SIPCOT intends to accelerate the adoption of new technologies in the industrial landscape of Tamil Nadu.
- **Sustainability**: SIPCOT endeavors to promote eco-industrial parks by promoting sustainable use of water and waste water, rejuvenation of water bodies, greening of industrial estates.
- **Business- Doing Easy**: SIPCOT plays a major role in doing business "Easy" through a transparent land allotment policy.

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GE Healthcare

Wipro GE Healthcare (WGE) is a Joint Venture between General Electric Company, USA and Wipro Enterprises Limited, India. Established in 1990, it is one of the most successful and longest running JVs in the region with operations spread across India, Bangladesh, Sri Lanka, Nepal, Maldives and Bhutan. The company is the largest Medical Technology player in the South Asia region.

WGE is in the business of manufacturing and distributing medical devices – from Baby Warmers, ECGs, Anaesthesia Machines and Ultrasounds to Cath Labs, CT and MRI systems. It also provides software services and technology solutions to GE Healthcare for products manufactured worldwide. The Company's focus is on addressing on some of the toughest healthcare challenges– lowering maternal and infant deaths, enabling early detection of cancer, addressing heart diseases early and driving better outcomes for trauma patients among others.

WGE is the first company to design and manufacture medical technologies 'In India for India and the world', the first company to start healthcare technology R&D in India, and is a leader in the Healthcare PPP space in India, actively engaged in National Health Mission funded projects and PPP projects of various state governments.

About GE Healthcare

GE Healthcare is a leading global medical technology and digital solutions innovator, enabling clinicians make faster, more informed decisions through intelligent devices, data analytics, applications and services, supported by its Edison intelligence platform. With over 100 years of healthcare industry experience and around 50,000 employees globally, the company operates at the center of an ecosystem working toward precision health, digitizing healthcare, helping drive productivity and improve outcomes for patients, providers, health systems and researchers around the world.

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J&J Institute has also led the way with reaching Tier 2-3 locations with J&J Institute on Wheels, a specialized mobile surgical training center designed to upskill healthcare professionals across India. So far, the two JJIWs successfully trained doctors and HCPs in over 145 towns, covering 79,329 kms by 2021. During COVID pandemic in 2021, J&J trained over 50,000 healthcare professionals using digital technologies.

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Medtronic began its operations in India in the year 1979. With over 1500 employees, India Medtronic Pvt. Ltd. is a wholly owned subsidiary of Medtronic Plc. It is headquartered at Mumbai. We have four business portfolios- Diabetes, Cardiovascular, Neuroscience, Medical Surgical.

Medtronic has two Research and Development (R&D) centers in India-

- **Medtronic India Development Centre (MIDC)** – the R&D facility at Bangalore focuses on new product development for Renal Care Solutions business of Medtronic.
- **Medtronic Engineering and Innovation Center (MEIC)** - It is Medtronic's largest R&D center outside the US. The Center focuses on software and engineering solutions across multiple product portfolios.

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2. **Surgical Robotics Experience Center in Gurgaon** – SREC in India is 1 of 10 Medtronic training centers across the world today where clinicians can experience and train on the Hugo™ robotic-assisted surgery (RAS) system. † SREC provides a multi-layered curriculum for training surgeons, assistants, and paramedical staff on the Hugo™ RAS system.

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Philips India Limited (Philips) is a subsidiary of Royal Philips of the Netherlands (Koninklijke Philips N.V), a leading health technology company focused on improving people's health and enabling better outcomes across the health continuum from healthy living and prevention, to diagnosis, treatment, and home care. Philips leverages advanced technology and deep clinical and consumer insights to deliver integrated solutions. The company is a leader in diagnostic imaging, image-guided therapy, patient monitoring and health informatics, as well as in consumer health and home care.

Philips also have a Research and Development Center - **Healthcare Innovation Center (HIC)** located at Maharashtra, Pune which was incorporated in the year 2010, Philips via HIC was involved in the design and development of Mobile Surgery Equipment and Diagnostic X-Ray for both local and global markets.

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In India, Stryker began its commercial operations in **1999**, with its headquarters in **Gurugram**, and regional sales offices in **Mumbai, Chennai and Kolkata**.

With a vision to drive global innovation and accelerate product development, we established our **Stryker Global Technology Center (SGTC) R&D in 2006** in **Gurugram**. The technical talent of the center spread across in the diverse fields of systems, mechanical, software, embedded, electronics and computer science, collaborates with the global teams to develop products and solutions that strive to make healthcare better.

Today, our talented teams of more than **1,000 employees** spread across the country are comprised of commercial leaders, R&D engineers and IT professionals who works closely with our customers, to understand their needs and provide innovative products and solutions that help them deliver better patient outcomes and make healthcare better.

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About FICCI

Established 90 years ago, FICCI is the largest and oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

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FICCI Medical Devices Contact

Mr Praveen K Mittal
Senior Director, FICCI
praveen.mittal@ficci.com

Ms Pallavi Thakur
Deputy Director, FICCI
pallavi.thakur@ficci.com

Mr Sourabh Shekhawat
Senior Assistant Director, FICCI
sourabh.shekhawat@ficci.com

Ms Beena Mulani
Executive Officer, FICCI
beena.mulani@ficci.com