





The Healthcare Index

Healthcare is one of the fastest-growing yet most dependable fields in our society. Healthcare is an ever-changing field and leaders in the healthcare industry are constantly working to innovate and improve the quality of care. In recent years, we have seen a number of significant advances in healthcare, from new treatments and technologies to better ways of delivering care.

he healthcare industry is in a constant state of flux, with new technologies and treatments being developed all the time. This can make it difficult for healthcare leaders to keep up with the latest advancements and ensure that they are providing the best possible care for their patients. Despite the challenges, there are vivid steps taken to improve healthcare delivery in our country. For this, the healthcare sector has to contrive with new innovations and it is leaders in the healthcare industry who are driving these innovations.

India also has thriving pharmaceutical and biotechnology companies, world-class scientists, and a thriving clinical trials industry, as well as world-class hospitals that attract foreign patients and treat its better-off citizens and legal aliens. Our country has been observed to treat various chronic and dangerous diseases at a cost significantly lower than the developed nations, which attracts foreign patients to visit India for their treatment at a lower cost. This structure is possible due to the latest upgrades and expenditures by

the public and private sectors in the field of healthcare.

India has the largest number of medical institutions in the world. Moreover, our country now has more medical institutions for the upcoming workforce of physicians. With over 1,000 hospitals and over 5,000 clinics, the country has the most comprehensive healthcare system in the world. India's medical infrastructure is constantly expanding and improving, and the country is home to some of the most respected and renowned medical schools in the world. India's medical institutions offer a wide range of services and treatments, and the country is quickly becoming a global leader in healthcare which would not have been possible without the emergence of these certain leaders in the healthcare sector.

These leaders are not only eminent in the healthcare profession, they have been designated as gamechangers for the healthcare sector. These leaders strive to bring innovations in the field of healthcare by seeing beyond the challenges and

are considered as trailblazers as these innovations have profound impact on the lives of patients and the healthcare system as a whole.

These leaders are often willing to take risks and make tough decisions. They are pioneers in developing new treatment methods and technologies, to improve the existing systems.

Regardless of the specific area of focus, they are driven by passion to improve the quality of care and making successful advancements in the sector of health and ailments.

In this special issue about the game changers in healthcare sector, we talk about these leaders who motivate and inspire others to do their best in this profession.

Healthcare is dependent on these leaders to improve its condition in our country. If there's one thing that is certain, it is that these gamechanger leaders will continue to be instrumental in healthcare's transformation. As the industry looks to solve some of its most pressing challenges, these leaders will be the ones leading the charge.

Harnessing Technology, Enhancing Healthcare

DR. BS AJAI KUMAR

Executive Chairman, Healthcare Global Enterprises Limited

Technology and innovation play a pivotal role towards enhancing healthcare systems, increasing access to healthcare services, and reducing costs of therapies and consultations. It is the intelligent deployment of technology that serves the larger cause of healthcare. At HCG, patient care is approached holistically based on risk and severity of disease - from pre-admission to post-discharge – and is aimed at enhancing outcomes, lowering costs, and bettering resource management. Whether Linac technology, Teleradiology, Bioinformatics, Genomics, Robotic surgery, Digital pathology, or Adaptive Al, HCG's technology adoption is unflinchingly focused on patient outcomes. An Outlook report.

CG has been one of the first movers in leveraging the power of technology to bridge biological advances with technological advances to tailor early interventions in certain forms of cancers – both preventive and therapeutic. HCG's efforts in this direction have led to the development of key biomarkers enabling precision and personalised medicine.

The thrust is to make technology a key enabler to steer measurable patient outcomes, not as a mere substitute for human intellect and imagination. HCG believes this approach is integral to scientific advancement as it can bring about breakthrough alterations in hitherto perfunctory protocols. This can also pave the way for policy reforms.

Towards enhancing cancer outcomes, HCG has formed a committed team of surgeons, oncologists, scientists, and specialized nurses to employ the most advanced techniques in cancer surgery including Robotic surgery, Laser Therapies, Ethos™ Adaptive Radio Therapy, Extended reality and Hololens with Microsoft for surgical augmentation and training, Molecular targeted imaging with Digital PET CT, Near InfraRed intraoperative imaging, Digital pathology, Radio genomics, and Cellular Immuno-oncology therapy.

HCG is well on the way to making key breakthroughs in precision diagnostics,

bioinformatics and genomic testing. They plan to take the lead in employing data-driven technologies towards developing targeted therapies in line with the specific needs of patients, as also to move up the value chain of surgical interventions aimed at organ preservation, as opposed to organ ablation.

On Ethos™ Therapy

Cancer care is fast moving towards precision therapy, with outcomes steadily improving. HCG has embraced Ethos at their Center of Excellence, Bangalore, ushering in a new era of highly disruptive innovation of adoptive radiotherapy. This technology will help answer perplexing questions like "When do you get a complete remission?" which have challenged radiation oncology over several decades.

Ethos™ Therapy, the first-of-its-kind in India and a novel technique in the world enables clinicians to efficiently deliver an entire personalized treatment in a 15-minute timeslot - significantly shorter compared with other treatment systems that take more than 40 minutes.

On HCG-Siemens collaboration

HCG has exclusively partnered with Siemens for Radiation Oncology. This winning collaboration offers seamless blend of clinical excellence and technological innovation. An instance



Siemens' unique IM-RealART solution helps HCG identify the exact location of the tumour in real time and plan the radiation treatment in targeted fashion aptly termed 'Fighting Cancer-Fast and Focused'.

On HoloLens

In March 2022, HCG officially unveiled the Microsoft HoloLens, the next-gen holographic headset that employs augmented reality to help achieve better outcomes. HoloLens has transformed the CT scan and MRI capabilities through powerful 3D views that are precisely and purposefully superimposed on the real-world positions.

On SigTuple

AI-assisted digital scanning technology has emerged as a game changer in cancer care. SigTuple's best-in-class solution has brought remarkable precision to HCG's diagnostic capabilities.

On Robotics

HCG has ushered in a paradigm shift in favour of surgical organ preservation through laser and robotics. Both help HCG surgeons probe deeper into hitherto inaccessible areas with racoonlike vision and precision, thereby taking site location, visualization, and human error mitigation to a whole new level.

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The Spirit Of Care

The nurturing spirit of Ma Amrita, 'the Mother of All', whose universe-encompassing embrace of love, compassion and humanitarian deeds continues to leave its iconic stamp of 'healthcare with a heart' in the super specialty facility opened in Faridabad, National Capital Region to serve the needy

AMMA —

Sri Mata Amritanandamayi Devi



The new super-specialty healthcare facility, a blend of modernity and spirituality will provide affordable treatment for needy patients and advance the cause of medical science. The inauguration, over which Ma Amrita presided, was attended by throngs of devotees, many dignitaries, medical professionals and educators from India and abroad. The Amrita Hospital at Faridabad will be a substantial addition to the healthcare infrastructure of the country, with its patient catchment area extending all over North India and North-East India.

Speaking on the occasion of the inauguration Ma Amrita, renowned the world over as the "hugging saint," shared her vision of the role of hospitals: "Illness creates a state of desperate unhappiness. So, more than anyone, it is those suffering from illness who need our patient and loving care. Hospitals are their



sole refuge, shelter, and sanctuary. As far as the patient is concerned, the doctor is God's visible form because they are the ones who can give the patients some relief when they are in pain. Because of this, all those serving at the hospital—be it the doctors, nurses, or other employees—should always have a heartfelt smile on their lips."

The hospital will become operational in stages, with 500 beds opening this year. When fully operational it will be staffed by 10,000 people, including 800+ doctors and will feature 64 modular operation theatres, the most advanced imaging services, a fully automated robotic laboratory, highprecision radiation oncology, the most updated nuclear medicine, and a top-of-the line cardiac and interventional cath lab for clinical services. An area of primary focus will be women and children with an entire floor dedicated to mother and child care, foetal and reproductive care, and high-risk obstetrics with a 40-bed unit of nursery and neonatal intensive care.

The hospital will be among the very few facilities in the country to conduct hand transplants, a specialty pioneered by Amrita Hospital in Kochi. It will also offer transplants of liver, kidney, trachea, vocal cords, intestine, heart, lung, pancreas, skin, bone, face, and bone marrow.

An embodiment of love, compassion, service, and sacrifice, Ma Amrita's every thought, word and deed has been dedicated to the benefit of others ever since she found her spiritual calling as a young girl, born in a tiny village in Kerala. Her special brand of spirituality, innate wisdom and compassionate deeds for uplifting humanity has touched the hearts and minds of people from all walks of life in all her travels around the world. Her charitable social services do not recognise the barriers of nationality, race, caste and religion. This spiritual therapist's matrix of humanitarian activities includehospitals for the sick, homes for the homeless, disaster relief, orphanages, hospices, free pensions, suicide-prevention, and employment programmes, among thers.

As of December 2020, Amrita Hospital and the allied medical institutions of the Mata Amritanandamayi Math have provided completely free treatment to 5.1 million patients and subsidized care to another 300,000 patients — a total of Rs. 764 crore [\$104 million US] in charitable medical care.

Amma has been increasingly recognised by the international community as a treasured repository of practical spiritual wisdom, who can guide the world towards a better, brighter future. She was invited on six occasions to feature as a speaker at the United Nations. The 2002 Gandhi-King Award for Non-Violence was also conferred upon her.

Healthcare Trends: Innovations Refining Meenakshi Mission

For over 33 years, the commitment to being "Always first, always best" has been the driving force behind the Meenakshi Mission Hospital, Madurai. The hospital's Chairman Dr. S. Gurushankar passionately believes that his patients deserve the world's most advanced technology and the highest standards of medical care. Dr. S. Gurushankar, the Chairman of a 1,250-plus-bed NABH-accredited hospital group that includes the 1000-bed Meenakshi Mission Hospital & Research Centre in Madurai and the 250-bed Meenakshi Hospital in Tanjore, has established a unique model of providing healthcare built on the pillars of accessibility and affordability for the masses. Our campaign "Aram Seiydhu Pazhagu," loosely translated as "giving begins with you," represents Dr. Gurushankar's spirit of envisioning a healthcare system that ensures equity in medical access and treatment.

Always first, always best

We have notched several firsts in the region, including South Asia's first Optical Coherence Tomography (OCT) machine integrated into a Cathlab, India's first Teladoc Health robots. Our hospital is also the home to several firsts of South Tamil Nadu like the first Robotic Surgical facility, the first most comprehensive cancer care unit for patients of all ages, the first hospital with a bone marrow transplant centre, the first PET-Scan facility, the first Electrophysiology facility, and the first to establish an Emergency Medicine service department in the region.

Records set in the pursuit of superior patient care

In India, we established a novel diagnostic technique that has the potential to alter cancer treatment. MAMMI PET is a non-invasive, painless procedure that requires a single intravenous injection of a radioactive tracer. The scan creates a 360-degree view of the breast, preventing tiny abnormalities and sick tissues from being missed.

MAMMI PET can overcome the limitations of traditional methods like mammography, CT/MRI, and wholebody PET scans, which cannot detect tiny lesions and disease sites in dense breasts. It is a boon for former patients who have recovered from breast cancer treatment and require frequent

monitoring for potential risks. Existing modalities could not deliver precise findings because they generate scarring and fibrosis.

TeleHealth at Meenakshi Mission-The game changer of the Pandemic

We acquired 16 telehealth robots from Teladoc Health in the United States to allow help our doctors to deliver virtual treatment to patients during the Covid pandemic. This is India's largest and only sophisticated virtual care installation, and it has proven to be a game changer in drastically reducing the spread of Coronavirus infection at our hospital. Teladoc Health Robots are only accessible in six of the world's top ten hospitals. And Meenakshi Mission Hospital is the first hospital in India that has adopted this technology to improve patient care.

Using these telehealth robots, we served over 40,000 inpatients and outpatients at our hospital during and after the second wave of Covid. Over 3,500 of these were Covid-positive patients admitted to our hospital's Covid ICU and Emergency departments.

We were also able to avert thousands of possible instances of Coronavirus infection that may have happened if patients and clinicians had had face-to-face contact during the critical months when the pandemic was at its peak. This saved lives and reduced the strain on the healthcare system. This effort of ours has



DR. S. GURUSHANKAR

Chairman of a 1,250-plus-bed NABH-accredited hospital group that includes the 1000-bed Meenakshi Mission Hospital & Research Centre in Madurai and the 250-bed Meenakshi Hospital in Tanjore

received a FICCI award for digital innovation.

Philanthropy as a corporate goal

During the pandemic, when oxygen was in high demand, the hospital donated oxygen concentrators to the governments of Tamil Nadu and Bihar. The hospital has completed over 150 free paediatric cardiac surgeries. And over 13,500 cleft lip and cleft palate surgeries, in collaboration with the Smile Train. The list of our philanthropic activities is long and continues to grow.

Setting the pace for India's healthcare sector

Tomotherapy- Tomorrow's therapy- In the near future, we are introducing the Radixact X9 Tomotherapy system in our hospital. Driven by Clear RT (CT imaging) and Motion Management with Synchrony, we are bringing accuracy and perfection to enhance cancer care. It delivers treatment tailored to suit everyone's individual needs.

The hospital has been a pioneer in technology adoption and is playing an important role in increasing the standards of healthcare services throughout the state, particularly in the southern zone. It showcases to the world that a tier-II city like Madurai can flaunt world-class technology and deliver treatments that are only accessible at the finest of the best hospitals in the world.

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Embarking on a Bold Mission of Change and Excellence

② You are closely associated with SRGH since 1984. Could you share what makes SRGH a phenomenon in its league?

Sir Gangaram Hospital has consistently retained a reigning position in the world of healthcare in the country for many decades on the strength of its ingrained values, which are absolutely ethical practise, charity as its ethos, emphasis on teaching and focus on scientific research with cutting edge-technology. That absolutely sums up the hospital and therefore no drastic or dramatic changes are needed. As they say "you don't change a winning combination", but having said that resting on one's laurels impedes progress. We are aware of the changing milieu so the focus would now be on maintaining the basic ethos of the hospital, but change our outlook.

Q What efforts are you making to cope with a tech-driven media world?

Frankly speaking, publicity has never been a priority because we survived by word-of-mouth publicity, but with the digital media explosion, we have to

accept change and work towards adopting them. Also, today India is a young country where the older generation which remembers Gangaram with reverence is fading out. Youngsters are totally dependent on Google search and ratings of a hospital to seek help, so if we don't innovate and don't move with the times, we will be soon lagging behind. That's my biggest challenge to start with. As far as my consultants, nurses, technicians, and rest of the staff are concerned, I am proud of their loyalty which is totally unflinching over the last 40 years, and it remains so because we are a big united family with a common mission- to serve humankind with compassion.

Q Organ transplantation is developing as a specialty in itself. How is SRGH looking at it?

The time has come that organ transplantation by itself develops as a branch. So keeping that in mind it is planned to have one floor and two theatres totally dedicated to organ transplantation in the upcoming new block. We will then have a compact and

It was a significant moment for SRGH when its eminent ENT surgeon, Dr Ajay Swaroop Mathur, was appointed as Chairman of the premier healthcare institution of the country. Having seen the hospital grow in many ways for the last 38 years, he is keen to strike a balance between the hospital's value-based traditions and the new tech dominated environment, to steer SRGH to its next level of growth.

DR AJAY SWAROOP MATHUR

Chairman (Board of management), Sir Ganga Ram Hospital

composite transplantation team of diverse expertise to look into a gamut of things that is involved in the fledgling speciality. Another significant achievement would be the inauguration of a dedicated cancer centre, which was missing in our portfolio, and hopefully in 2023, we shall be talking about oncology in a big way!

② Standing at the threshold of 2023, do you envisage expansion plans in the near future?

Our quality medical care attracts a lot of traction that compelled us to acquire the City Hospital and Kolmet Hospital in the vicinity of the main SRGH premises. Unlike other healthcare brands, we have not leveraged our brand value to its optimum and did not branch out simply for the reason that we do not work on hard-core business model. SGRH is typically a no-frills conventional hospital focused only on treating people and so we are not aggressive as corporate driven hospitals. Nevertheless, SRGH's goodwill is such that we get many offers to start a semi-philanthropic organization on our time-tested pattern, which is under the purview of the Trust of the Society, who are seriously looking at a few projects. We definitely would want to move atleast into the NCR region.

Continuing with the Ethos, Ethics and Excellence to Lead the Way Forward for SGRH

A visionary and a pioneer in Nephrology, Dr D.S. Rana, is eminently known for introducing nephrology, kidney transplantation and dialysis in the private healthcare sector. As an acknowledgment to his immense and invaluable contribution to the medical field, coveted awards and recognition have been conferred on him, including the Padmashri award by the Government of India. His passion, diligence, excellence and compassion have taken him from humble beginnings to become the longest serving Chairman of SRGH Board of Management. A new honour bestowed on him this year is entrusting of the Chairmanship of SGRH Trust Society which comes with added responsibilities, including taking the nation's premier hospital to explore new horizons.

• What growth map do you have for SGRH on assuming the Chairmanship of SGRH Trust Society?

I believe that I have played my role very well to establish department of Nephrology, Dialysis and Kidney Transplantation as a Chairman of department. During last 11 ½ years as Chairman, Board of Management, we have done our best to modernize the old buildings and create new buildings like Multi-level Car Parking and new Cancer Block. As Chairman of Sir Ganga Ram Trust Society my priorities will be as follows: -

- To oversee that the legacy of the hospital is maintained and carried forward
- To find means and ways to expand our brand beyond the boundary of present hospital.
- To set up state of art medical college nursing college and training facility for paramedics.

And of course, I will continue to take care of my patients, which is my passion and core strength.

Occupied Could You elaborate on the SGRH brand model?

Sir Ganga Ram Hospital is a selfsustained model, where rich patients pay little more to take care of economically weaker section. All surplus generated is utilized for taking care of our charitable activities of running free OPDs in all specialities in the morning with free or highly subsidized diagnostic facilities and to provide healthcare for free patients on 20% indoor beds. Our doctors and all employees work with dedication to provide quality, ethical and affordable services to all sections of the society with "Patient First Policy". The hospital is managed by Board of Management consisting of experienced and eminent doctors, who have contributed towards the growth and enhancing the image of the hospital. The Board of Management works under overall supervision of Sir Ganga Ram Trust Society.

② You have got small charitable hospital after the name of your mother in your village. Can you elaborate more on this?

I will like to elaborate my concept on this. Doctors do not prefer to settle in village because of various reasons. However, enough specialists are ready to join tertiary care hospitals in government and private sectors. I feel, all tertiary care hospitals should adopt small hospitals in rural area and render quality and ethical healthcare services at the doorsteps of under privileged. In order to give back to the society, I established a charitable society named



DR. DEVINDER SINGH RANA

Chairman, Sir Ganga Ram Trust Society Chairman of Nephrology

"Parvati Education & Health Society" in my village in Himachal Pradesh. To begin with, this society in collaboration with Sir Ganga Ram Hospital and Department of Science & Technology of Govt of India, established a Telemedicine Kiosk in 2008. In 2018, 30-bedded hospital (Parvati Hospital) was established in the village and Sir Ganga Ram Trust Society was very kind to understand this concept and provide all help. Since then, the center has made steady progress and today surgeons from Sir Ganga Ram Hospital do 100 plus surgeries at that center at a very nominal cost under various govt schemes like Avushman Bharat, HimCare, ECHS. Sir Ganga Ram Hospital will have such more centers in near future.

• What do you envisage for the healthcare sector and your message as you step into a new phase of growth?

My message to my fraternity and the people is to focus on prevention of diseases and focus on promoting wellness. Both the private and public sector must work in tandem to build a synergy of their strengths to provide healthcare to all citizens. The government should do pragmatic costing of private stakeholders and should rationalize the MRP of drugs and medical disposables.

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The Heart of Health

His humanitarian spirit, his commitment to providing affordable healthcare to thousands of poor Indians and his abiding faith in technology to reimagine ways of delivering affordable healthcare have powered Dr Devi Shetty's contributions to India's healthcare ecosystem

DR. DEVI SHETTY

Founder-Chairman, Narayana Health

ardiologist Dr. Devi Shetty, Founder-Chairman. Narayana Health, has a dream-a dream to democratise healthcare through technology. The Covid-19 pandemic has put many things in perspective in India for healthcare providers, not the least being the power of Information Technology and how it has transformed India's healthcare landscape in the last couple of years. A vigorous proponent for application of technology in healthcare delivery, Dr. Shetty has been lauded for his expertise in developing innovative methods for affordable healthcare.

Over the course of his career, UK-trained Dr. Shetty has pioneered inexpensive cardiac surgeries by these innovative cost-cutting solutions, gained world fame for performing highly complex heart surgeries, mostly on newborn babies, and built one of the world's largest heart care hospitals; he has also launched the world's cheapest health insurance scheme for making healthcare affordable to the weaker sections of society.

Dr. Shetty is the founder of the Bangalore-based chain of affordable multi-speciality and super-speciality hospitals under the brand Narayana Health (NH), formerly known as Narayana Hrudayalaya. From those early days in 2001 in Bommasandra, Bangalore, Narayana Health under Dr. Shetty's steerage has grown to be one of India's largest healthcare

groups delivering world-class, affordable, safe and quality care for all. It has performed the largest number of successful paediatric heart surgeries in the world. With 31 hospitals in 19 cities in India along with its international subsidiary in Cayman Islands, North America, Narayana Health positions itself as 'one of India's largest healthcare service providers'. In 2015, Dr. Shetty took the company public.

Dr. Shetty firmly believes that quality healthcare is not the privilege of the rich; it is the right of every poor Indian. And, in designing solutions to make heart surgery accessible, he showed one could do so without compromising on quality. His findings, that healthcare costs can be reduced by 50 percent if hospitals adopted economies of scale, have propelled his particular brand of affordable healthcare solutions.

India's most renowned cardiac surgeon, called 'The Henry Ford of Heart Surgery' by The Wall Street Journal for the unique assembly line of cardiac surgeries his doctors perform with seamless precision, proved repeatedly that these surgeries could be performed at a fraction of the cost at hospitals in the United States.

By leveraging economies of scale and keeping an eagle eye on keeping costs down of purchases of equipment, Dr. Devi Shetty has created a range of innovative processes and materials to create a hospital-for-profit model built



around making healthcare solutions affordable.

In 2003, in collaboration with the Karnataka government, Dr. Shetty set up the Karnataka Yeshasvini healthcare scheme for the poor farmers of the state; it is the world's cheapest comprehensive health insurance. Millions of farmers have benefited from the scheme since its inception.

The Narayana group has one of the largest telemedicine networks in the world. Over 53,000 heart patients have been treated by NH using telemedicine. Dr. Shetty is looking at technology to further bring down healthcare costs, as he believes that technology is the next game-changer. In the next five to ten years, he opines, a lot of healthcare will be delivered online. Amongst the disruptive healthcare financing schemes, he is looking at an all-India insurance scheme linked to the large. ubiquitous mobile phone customer base. In his opinion, technology can democratize healthcare-make it preventive, predictive, accessible, and more affordable than it is at present.

Dr. Devi Shetty is of the firm belief that that not money but "political will" is needed to revamp India's healthcare. Going forward, as he sees it, within a decade, India will prove to the world that the wealth of a nation has nothing to do with the quality of healthcare its citizens can enjoy.



VETERINARY

TELE SOLUTIONS

MONITORING

DENTAL IMAGING

Credit And Credibility

What makes Kauvery Group of Hospitals one of the most trusted names in the healthcare landscape of Tamil Nadu? What enables Kauvery to provide quality healthcare at accessible and available price points to more and more people? Outlook talks to Dr. Manivannan Selvaraj, Founder and Managing Director of the Kauvery Group to find out.

DR. MANIVANNAN SELVARAJ

Founder and Managing Director, Kauvery Group

atient first. Personal touch.
Process and technology. The three pillars on which the Kauvery Group of Hospitals has built its strong reputation of quality healthcare delivery at affordable cost. A multi-speciality hospital chain based in Trichy, it is these pillars that have converged to make the Group hospitals among the most trusted in the region, says Dr. Manivannan Selvaraj, Founder and Managing Director, Kauvery Group of Hospitals.

The origin story

A small 30-bed hospital in Trichy, Tamil Nadu was the first facility set up by the Group in 1999. In 2012, a hospital in Chennai was set up, which today is the nerve-centre of the Group. This significant and successful journey from a small town to a metropolitan city signalled the inception of the Group's further progress and expansion. Today, the Group has expanded to own and operate eight hospitals over seven locations including Chennai, as well as in other towns in Tamil Nadu and in Bangalore.



Pillars to boast

How has this growth been achieved? "With a no-compromise policy on our pillars", Dr. Manivannan responds. Says he, "In the first two-three years, as we grew from a 30-bed hospital to a 200-bed facility, most of our patients were friends and relatives. And then, relatives and friends of friends and relatives. As a result, the personal touch was a default. But then, we strived very hard to maintain this personal touch and it became the first pillar of the Group."

Dr. Manivannan continues, "When we started off, we did not

know what a balance sheet was! We did not have a structured Board. We had an outcome-based approach of course, but for us, as doctors, this was a patient-based outcome. This led us to closely monitor bills, scrutinise prescriptions to see if less expensive medicines could be prescribed, if diagnostic tests could be minimized, if length of stay was unnecessarily long - all to lessen the cost burden on patients. The Group has a strict policy of never asking for unnecessary investigation or tests, that are not going to make a difference in the patient's outcome or the diagnosis. Only the optimal

number of the tests required for treatment are undertaken. Even in the case of surgeries, no unnecessary tests, surgeries or procedures are done. Actually, our ethics paved the way for our affordable service, creating our patient-first pillar. Today, this is one of our core values."

Found in translation

But, how did the Group manage the translation and inculcation of these values throughout the nine centres? "Through our third pillar - processes and technology", responds the good doctor. "Our processes have been designed and have evolved as patient-centric as opposed to doctor-centric. Especially when multi-speciality teams operate, this is a must. We have ensured that at the very minimum, 90 per cent of our processes are the same across locations. We have a very stringent system in place to identify and audit process deviations. This has also been one of my personal focus and thrust areas."

Process and pride

What is it about processes that enthuses Dr. Manivannan? "The sheer potential of efficient processes to reduce the cost burden for patients", is the immediate response. While about 70 parameters are mandated for clinical quality standards, the Group tracks around 160. This not only enhances the quality of delivery but also helps lower costs significantly. Says Dr. Maniyannan, "Once I realized the potential of streamlined. consistent processes to optimize the quality-cost differential, I took a deep dive into this world. As I kept learning, we kept implementing."

Robust Management Systems were put in place, along with the creation of a centralized control room run by a 30-member team that tracks around 160 parameters across all the nine Group hospitals, collates and analyses the data and reports their findings

directly to Dr. Manivannan. For instance, if in one critical care unit a high-end antibiotic is used for a concern which is not indicated, this immediately gets red-flagged to the Central Support Team. The medical administrator then probes the reason why that particular antibiotic was used and if a different antibiotic of lower dose and lesser cost could have sufficed. Every single consumable that is highly priced, gets redflagged to the Central Support Team. This central monitoring of processes is another key practice that enables affordability, ensures swift measures are taken to correct delivery gaps and process deviations. The overall aim is to maintain ensure at least a 90 percent system synchronicity. Smiles Dr Manivannan, "This idea came to me when I heard of the 100-member PMO team that reports directly to Modiji and it has served us very well."

Pay it forward

Even after leveraging the latest technology and putting in strong processes, it is a tough task inculcating similar values and implementing synchronicity across centres, especially in a high-stakes industry such as healthcare. "That is precisely why we also have a motivating Rewards and Recognition programme across departments", says Dr. Manivannan. "Dedication. commitment and efficiency that result in improved patient care is acknowledged and rewarded appropriately."

In the balance

But what is really impressive about the Group are the numbers thrown up by their balance sheets. We are not just talking profits here but the inspiring story that their balance sheet has to tell about a business entity that has grown exponentially not by passing on costs to those they serve but on the exact antithetical principle – of curtailing costs for those who come to them by leveraging

technology, putting the patient first and never compromising on the trust reposed in them.

Dr. Manivannan says, "We implemented lean methodology, a concept propagated by the automotive industry to reduce costs without compromising delivery. In fact, we have received awards for our lean practices. And our results are testament to these."

What exactly are these results? "If we are to talk numbers, our operational efficiencies rose. resulting in a 35 per cent EBIDTA (Earnings before Interest, Depreciation, Tax and Amortization) increase. With an average price increase on only 3 per cent, we have grown our turnover almost three times in 5 per cent, registering an EBIDTA increase of 100 per cent, in spite of not increasing cost-to-patient." And this is not as if the group is offering only basic care. High-end surgeries across specialisations are performed on a daily basis, including in critical care.

Changing the game

As we come to the end of our interaction, we ask Dr.

Manivannan what has been the driving force behind the Group's growth. Dr. Manivannan says, "My co-founders and I are all first-generation doctors and entrepreneurs. Our parents worked hard to make us doctors in the hope that we would come back and serve the community. I think we are well on the way to have done that."

That is a modest assessment of the achievements of the Group. Dr Manivannan and his co-founders have not only succeeded in their endeavour to provide better clinical outcomes than other hospitals and that too at affordable costs to residents of Tier II and Tier III cities, they have ensured that the hope of accessible high-quality healthcare for all is not just a dream, all while changing the rules of the healthcare game.

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Leading The Change

Recipient of the Padma Bhushan and the Padma Shri, Dr. Naresh Trehan has channelled his energies into creating institutes driven by optimum delivery in terms of patient care

DR. NARESH TREHAN

Founder-CEO & MD- Medanta-The Medicity

uring the delivery of the convocation address at the sixth convocation of IIM-Visakhapatnam, Dr. Naresh Trehan, one of India's leading cardiovascular and cardio-thoracic surgeon urged students to: "Have trust and confidence in yourself and keep moving forward on what you want to do. In life, there are always ups and downs, but there will also be game-changing triggers one should grab and build on. Those will be turning points in one's life."

With over 50.000 cardiac surgeries and innumerable contributions in cardiovascular and cardiothoracic surgery. Dr. Trehan who also served as the personal surgeon to the President of India, is the Founder-CEO & MD Medanta- The Medicity in Gurgaon, Harvana with co-founder Sunil Sachdeva. Modelled along the lines of the US-based Mayo Clinic, Cleveland Clinic and Johns Hopkins Hospital, Medanta has been tasked to go beyond the levels of excellence of every conventional medical institute to achieve the highest standards of medical care along with clinical research, education and training.

Driven by the aim of helping India create better healthcare infrastructure and higher benchmarks of services, Dr. Naresh Trehan, recipient of the Padma Bhushan and the Padma Shri, has channelled his energies into Medanta to serve this purpose for optimum delivery of patient care. Global Health Ltd (Medanta) was

incorporated on August 13, 2004 and became operational in late 2009; it also provides facilities for research, teaching, development, molecular biology. Dr. Trehan's vision of creating Indian medicine which combines traditional medicine (Ayurveda, acupuncture, homeopathy and unani) and modern medicine is being pursued with great zeal.

The Gurugram-headquartered multi-speciality hospital chain is backed by private equity firm Carlyle and Singapore's Temasek Global Health Ltd, which owns the 'Medanta' brand, is one of the largest private multi-speciality tertiary care providers operating in the North and East regions of India.

During his years in the US, Dr. Trehan had important stints at Veterans Administration Hospital, the New York University Medical Center, and Bellevue Hospital where he honed his skills as a cardio surgeon, a discipline he chose over Neurosurgery which was the other upcoming stream in medicine. He thought cardiac surgery was more result-oriented; he took the residency programme under Dr. Frank Spencer, Chairman of New York University Hospital.

During his tenure in the US, Dr. Trehan received many Indian patients for coronary bypass surgery as at the time, India had not developed this branch of surgical procedures. This also inspired Dr. Trehan to return to India and help develop the field of



cardiac surgery with the skills he had gained during his career in the

Dismissing invitations by some hospitals to join them, on his return to India, Dr. Trehan opted to set up his own heart hospital, which he did in collaboration with H.P.Nanda of Escorts in 1981. The USP of the Escorts Heart Institute and Research Center (EHIRC) was to have the best cardiac treatment in India, to arrange for better training of doctors and to pioneer new research projects focusing especially on Indian patients.

With the completion of the hospital. Dr. Trehan returned to India in 1988, helped put together a formidable team of eminent cardiac surgeons and doctors and set the ball rolling for a slew of experiments with new procedures and therapies. Dr. Trehan presided over these as the Executive Director and Chief Cardiovascular Surgeon of the institute for 20 years. When EHIRC was acquired by the Fortis Healthcare Group in 2005, Dr. Trehan had a brief spell at Apollo Hospital as Senior Consultant Cardiovascular Surgery. After two years, he left to set up Medanta — The Medicity in Gurgaon, Haryana, aimed at providing such highmargin services as oncology and cardiac care.

While the success of Escorts underpinned Dr. Trehan's vision to make India a hub for cardiac surgery, he firmly believes that India will soon achieve similar success in medical research and education.

Our Journey-from Coronaries to Structural and Neurointerventions

Do not follow where the path may lead. Go instead where there is no path and leave a trail

DR. ROHIT MODY

Director (Cardiology) of Max Super Specialty Hospital, Bathinda (Punjab) (MSSH)

uman life has become more mechanical today due to which we have no time to destress ourselves and, therefore, are more prone to disease." These are the precious nuggets of wisdom shared by renowned cardiologist Dr. Rohit Mody, Director (Cardiology) of Max Super Specialty Hospital, Bathinda (Punjab) (MSSH), which is world-class healthcare service providers across the country.

Pursuing a career in medicine was my own decision as there was no pressure from my parents or peers. My father was a civil engineer, and my mother was a government school principal. My mother is my source of inspiration in academics as well as life. During my childhood, I would go gaga over watching a doctor with a stethoscope stuck in his hand and attending on a patient. I fell for it at first sight.

It is with a sense of immense humility that I am describing our journey in interventional cardiology in Max Hospital, Bathinda. We started our journey in 2017 when a new cath lab was installed. In 2018, we installed IFR, IVUS, and CAG Co-Triregistration by Philips. In 2020, we were the first to use optical coherence tomography in patients with restenotic lesions in the Malwa region.

In 2020, stent grafts of aortic aneurysm were used for the first time in the Malwa region. In June 2020, we first used shockwave lithotripsy for calcified coronaries in the entire northern region. In 2021, we initiated ECMO therapy and saved a few patients from lethal poisoning.

In the middle of 2021, we initiated three clinical trials: TUXEDO-2, iCaReMe registry, and SHOCK India registry. In the late 2021, we installed software for QFR. Since 2020, we had delivered 78 international lectures as faculty of various international conferences and published 35 articles in renowned journals and earned 10 editorial board memberships and two fellowships. We are also planning to install a catheter laser therapy device in interventional cardiology for coronaries by Philips.

We also use SyncVision by Philips, which again helps in angioplasty with accuracy. In February 2022, we delivered MICRA-AV dual-chamber pacemaker by Medtronic. Recently, we performed treatment of severe aortic stenosis with transcatheter method called transcutaneous aortic valve replacement by the femoral route. We are also planning to install a catheter laser therapy device in interventional cardiology for coronaries by Philips.

My success "mantra" is hard work. "Accept both compliments and criticism. It takes both sun and rain for a flower to grow."

My vision is always forward looking. First, I am identifying the areas, like technology artificial intelligence and clinical research applied to medical sciences, originating from India. I am looking for help from my foreign businessman to reduce the cost of equipment and science, which we borrow from other countries at huge price. While I do this, I remember the lines, "We need 'strength' while doing the possible. But we need 'faith' while doing the impossible."

Editorial Member Of Journals

• Journal of Heart Health, Sci Forschen Inc., USA



- Research International Journal of Cardiology and Cardiovascular medicine
- Frontiers Journal of Cardiology and Cardiovascular medicine (FJCCM)
- International Journal of Innovative Research in Medical Science
- Journal of Cardiology and Cardiovascular Research.
- Journal of Clinical cardiology and cardiovascular interventions.
- Stephy publishers Journal of cardiology and current trends in surgery
- McMaster Textbook of Internal Medicine South Asian Edition, Canada
- Journal of Current Research in Vaccines Vaccinations
- Journal of Acta Scientific Cardiovascular System
- Annals of Medicine and Medical Sciences Journal

Awards and recognitions

- Pioneers in Healthcare by India Today 2017.
- Susruta award 2021 for clinical excellence Pan Max.
- Best interventional cardiologist and heart failure specialist of PUNJAB (2022) by outlook magazine and News India TV by honorable Union Minister of Health.
- Article published in India Today 2022
- Most Iconic Cardiologist of North-West India by News India Outlook magazine and medgate digital platform by honorable Union Minister of Health.
- Legends of Malwa region by honorable social welfare minister
- Phenomenal Healthcare award in Interventional cardiology 2022 by honorable Governor of Maharashtra.

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Yashoda Super Speciality Hospital stands reassuringly to heal the sick flocking to the strategically located and easily accessible medical hub in the bustling industrial town of Kaushambi/Sahibabad. Since its establishment in 1990, the NABH and NABL accredited hospital has set several milestones in the field of medical excellence and is attracting medical tourism to the region. Under renowned leadership of Dr Upasana Arora, Managing Director, Yashoda Hospitals, will soon unveil an ultra-modern dimension offering global healthcare with its upcoming centre in Indirapuram, Ghaziabad.

MRS UPASANA ARORA

Managing Director, Yashoda Hospitals

Yashoda-The Cradle of Medical Excellence, Cure and Compassion

② Yashoda is recognised to have emerged as a growth driver in healthcare in the region. What have been the developments in the recent times?

We are now adopting all the latest technology in the existing hospitals, which are simultaneously undergoing a complete revamp and up-gradation of medical equipment for more efficiency and for providing diagnostic facilities such as ECHO, which is not available anywhere in near-by hospitals. We have also procured an X1, a new equipment for gastroenterology, which with its high precision is a boon that is also detecting early cancer. We are observing a weird phenomenon where people who come to us for other disease end up

being detected for cancer, increasingly lung cancer due to pollution, smoking and poor lifestyle. In addition, the hospital has a state-of-the-art screening equipment for detection of TB. Another venture in the making is a new addition to the Yashoda Group of Hospitals, which will happen soon and be unveiled.

Occurrence Could you elaborate on the new hospital and its USP that Yashoda is building?

An exciting development that we are eagerly waiting to achieve is the completion of Yashoda's most ambitious project of building a 1200 bedded hospital in Indirapuram, Ghaziabad. Work is progressing rapidly to meet the target of inaugurating the hospital by 2023

year-end or beginning of 2024. We can convincingly say that this new hospital of Yashoda Group will be a game-changer not only for Ghaziabad, but for the entire north India. This centre will cater exclusively and extensively to highend specialities such as oncology, heart transplant, neuro surgery, lung transplant and liver transplant, a gap that exists and we would help bridge that gap. To optimise professionalism and efficiency, the best of talent will be hired so that when the hospital becomes operational, we will have the support of highly qualified and experienced team of doctors, nurses and technicians to run the hospital as one of the best in the country and globally, as well. We will start with 600 beds and in the second phase

increase it to 600 beds more.

What are the protocols that you follow at your hospital? Yashoda is a NABH accredited hospital and we strictly follow its mandatory norms. When a new staff joins us they are fully vaccinated and we get their titre done, because if a needle injury accidently happens, which is rare, it protects the staff from any infection or harm. We believe that along with patient care, staff care is as important, because only a healthy, safe and trained staff can run a hospital efficiently. My rapport with my staff is such that I know them by their first name. They can approach me for any help or advise

while maintaining a protocol decorum that we follow because it is impossible to meet so many people in one day. I strongly believe that a human approach is very essential to run a hospital where people come with physical, mental and emotional trauma, hoping for cure.

Q Your philanthropic initiatives are many. Could you share some of the social work that you are closely involved with?

In my own small ways, I contribute as much possible in building an enabling synergy for benefitting society as member of several national and international organizations such as Regional President, of the North India Council Indo-American Chamber of Commerce, Chairperson- Indo-US Chamber of Commerce Healthcare Division, Chairperson Special Olympics Delhi Chapter to name a few. On 3rd December, we organised a programme to mark the disability day where children with special needs painted and they were also invited to Yashoda half marathon to encourage them to feel that they are part of normal activities. We are the only hospital to have adopted entire Ghaziabad for TB patients to meet their

nutritional need which is approved by the government. The community is screened and the TB office and CMO office informs us about the number of TB patients and accordingly we are now serving healthy diet to 5100 patients every month because one of the causes for TB is malnutrition. I am also part of Pokshan abhiyan to eradicate anaemia. I have adopted a school and shall hold an awareness camp there, and try to do so where ever people are not aware of it. I believe that nutritional food must be provided to girl child right from a young age, because they are the ones who will become mothers in the future. If they are malnourished, then off- springs too would be born malnourished and a healthy society would be a far cry.

• Much thrust is being given to medical tourism by the Indian Healthcare sector. Could you elaborate on this? Indian healthcare not only provides

robust healthcare, but also attracts a sizeable medical tourism and earns forex for the country. Indian health services are the best and most affordable than anywhere else in the world. The biggest advantage is that there is no long waiting time for surgeries in any speciality, so people from abroad prefer to come to India for treatment. As Co-chairperson of healthcare for medical travel, I am part of many discussions with government officials, and our PM wants that we give emphasis to medical travel to earn foreign exchange and spread the culture of India to the world. In India, we are providing holistic treatment comprising of different streams of medical practices from the traditional Ayurveda, Yoga, Unani, Siddha and Homeopathy to create AYUSH, apart from modern system of allopathy.

• Clearly, Yashoda has attracted sizeable medical tourism with its excellence and affordable offerings.

Could you elaborate on this aspect?

As Panel Member Medical Tourism, Emirates International Accreditation Centre (EIAC), Dubai, Co- Chair Medical Tourism Committee, FICCI, Chairperson-Indo-US Chamber of Commerce Healthcare Division, I got to observe that other countries are eager to hire healthcare personnel from India, which is a matter of pride because it speaks of our high standards of skill and services. Add to it the emotional quotient where our health care staff are so passionate about their work and they do so with so much compassion when treating a patient. We are proud that our foreign patients return to their homes happy and spread the good word which rates us high on credibility and all that one expects from an ethical hospital.

• With what future objective is Yashoda Group of Hospitals moving forward?

To build a healthy society, our vision is to upscale manifold our healthcare offerings, to be the best of medical care, make it accessible and affordable to maximum people irrespective of their economic strata. The government has started many good initiatives, but for quality care which comes with quality indicators, Yashoda ranks among the top names. We want that medical care is affordable even for people with no deep pockets and we are not looking at big profit margins because we come from humble service class families and have reached this far from a supportive society that has reposed faith in us. We have reached a stage where we want to pay back to society. Our mission is to procure latest technology, best care with personnel touch at affordable cost to build a brand name where in case of healthcare the only one name that should instantly come to a person's mind is Yashoda!

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The Change Factor

As one of the key persons leading the government's response during the COVID-19 pandemic, Dr Guleria's many contributions in healthcare underpin the agenda for delivering the highest standard of clinical care

DR RANDEEP GULERIA

Chairman, Institute of Internal Medicine and Respiratory and Sleep Medicine, Medanta Hospital

n a recent move, Padma Shri awardee Dr Randeep Guleria, former Director All India Institute of Medical Sciences, has joined superspeciality Medanta Hospital, Gurugram as Chairman of the Institute of Internal Medicine and Respiratory and Sleep Medicine.

Dr. Naresh Trehan, Chairman and Managing Director, Medanta said: "The appointment of a senior doctor like Dr. Randeep Guleria reflects our commitment to always delivering the highest standard of clinical care by expanding our team of highly accomplished and respected clinical faculty. Committed to strengthening our clinical and academic capabilities, we welcome Dr. Guleria to the Medanta family."

Dr Guleria, while commenting on the new direction his career is taking says: "I am a clinician at heart, and I love seeing patients and I would continue to do that. The other thing I like is academics. The future of healthcare is new doctors, and we need to train them for the future. Medical field is going through a revolution and we need to train doctors to incorporate these advancements in their practice while maintaining empathy for patients."

One of India's leading pulmonologists, Dr. Guleria, who has also served as the personal physician to the former Prime Minister of India, Shri Atal Bihari Vajpayee has been attached to AIIMS for over three decades.

Central to his achievements is his pioneering work in the field of lung cancer, asthma, COPD, respiratory muscle functions and sleep disorders. Dr. Guleria was instrumental in setting up establishing India's first centre for pulmonary medicine and sleep disorders at AIIMS, in 2011. The Department of Pulmonary Medicine and Sleep Disorders was ranked as the best department in Pulmonary Medicine in 2014, 2015 and 2016 by the NIELSEN survey. He headed the department before taking over as AIIMS director for a five-year term on March 28, 2017.

Dr Guleria was one of the key persons leading the government's response during the peak of the COVID-19 pandemic. Dr. Guleria became a household name playing a major role in creating awareness about various aspects related to the pandemic.

Lauded for his vast experience and exceptional contribution to India's COVID response effort, Dr Guleria is also a member of many critical committees anchored by the Government of India, including the Joint Monitoring Committee, to monitor outbreaks of new diseases, including pandemics, bird flu, Ebola and so on, to formulate national policies to control antibiotic resistance in India.

Dr Guleria is a recipient of the prestigious Dr. B.C. Roy Award. A dedicated academician and researcher, Dr Guleria completed his MBBS from Indira Gandhi



Medical College, Shimla and MD (General Medicine) and DM (Pulmonary Medicine) from the Post Graduate Institute of Medical **Education and Research** (PGIMER), Chandigarh. He is the first Indian to receive a Doctorate of Medicine (DM) in Pulmonary and Critical Care Medicine.

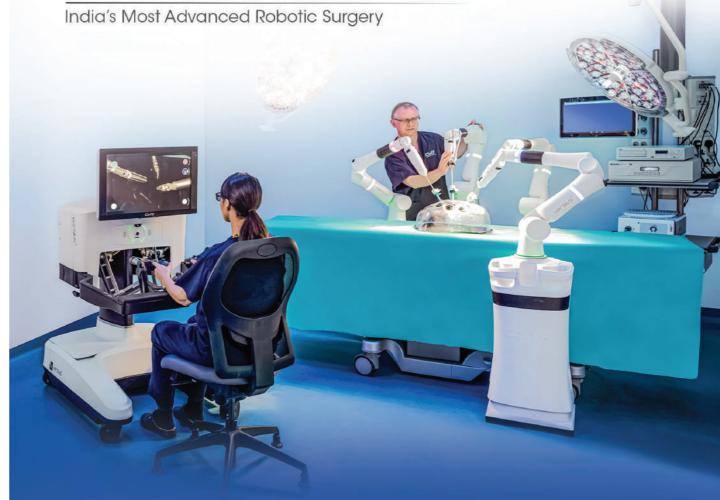
He joined the All India Institute of Medical Sciences and progressed through the ranks to become a Professor and the head of Department of Pulmonary, Critical Care and Sleep Medicine, which he established in 2011. He headed the department before taking over as AIIMS director for a five-year term on March 28, 2017.

Dr. Guleria also serves as a consultant to the International Atomic Energy Agency (IAEA), Vienna on issues related to radiation protection. Dr. Guleria is also associated with the World Health Organization (WHO) as a member of its Scientific Advisory Group of Experts (SAGE) on immunization and influenza vaccination, and is part of editorial boards of several medical journals such as the JAMA: The Journal of the American Medical Association (India), Indian Journal of Chest Diseases, Lung India and Chest India.

He is co-author of the book 'Till We Win: India's Fight Against The COVID-19 Pandemic', with Chandrakant Lahariya, a leading Public Policy and Health System expert and Dr. Gagandeep Kang of Christian Medical College, Vellore.

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Manipal Hospitals: At the Forefront of Digital Revolution in Healthcare

f there's one word which is synonymous with the 21st century, it's technology. We have seen the multiple ways technological evolution has impacted everything from food delivery to education, and the healthcare sector is no exception. From electronic health records and telehealth to novel surgical technologies, internet of things (IoT), and artificial intelligence (AI)-powered chatbots, technology has been one of the biggest growth drivers of the healthcare industry over the years and this trend is expected to continue in the future as well.

Moreover, cutting-edge technologies, such as machine learning (ML), AI and data science, are rapidly becoming integral to the advancement of the healthcare sector owing to their ability to solve complex challenges, reduce inefficiencies, improve access to quality care, automate workflow and help doctors prescribe more personalized medications to patients.

Besides, the COVID-19 pandemic has also accelerated the adoption of telemedicine, video consultations, remote patient care and other virtual solutions by creating new urgencies, such as the care and treatment of patients away from hospitals and other acute care settings. The pandemic has also highlighted the need for an ecosystem where patients can consult doctors, seek medical advice and buy medicines from the comfort

of their homes.

Thus, to bridge the existing gaps in the healthcare space and improve access to healthcare as well as the quality of post-surgery patient care, Manipal Hospitals, India's 2nd largest hospital chain with 28 serving centres across 15 cities, has launched several digital initiatives in the last few years.

Committed to its ethos of clinical excellence and patient centricity, the multispecialty healthcare provider has focussed on incorporating advanced digital solutions including e-pharmacy to its integrated range of healthcare services over the past few years to deliver cutting-edge treatment and comprehensive care to patients.

In addition, the healthcare provider has recently announced a strategic partnership with ConnectedLife built with Google Cloud to use Fitbit's wearable



technology with the tech leader's virtual platform to monitor patient progress and empower 'continuity of care post-high-risk surgeries'. With presence in Singapore, Australia, Canada and the U.K., ConnectedLife is a global leader in the application of motor state diagnostics to digital, mobile, sensor and AI technologies. The partnership will allow the healthcare provider's clinical team to gain a holistic view of the patient post-discharge, curate treatments as per the patient's needs and assist them better in their journey towards a quick post-surgery recovery.

To further maximize its remote care capabilities, the company has partnered with Google Cloud to leverage the latter's AI technology to enhance patient experience. The partnership involves the use of the Amwell telehealth platform for enabling virtual visits to Manipal's chain of hospitals across the country. Amwell has been Google's preferred telehealth partner to expand access to virtual care delivery across the world since August, 2020.

The ConnectedLife platform will allow the hospital to replace lengthy manual processes with 24/7 insight-based care & monitoring, enabling recovery outside of hospitals

MR. DILIP JOSE
MD & CEO, Manipal Hospitals



Mr. Ananta Kunwar, an international patient from Nepal, now wears a smartwatch that helps his doctors remotely monitor his vitals and facilitate a quick post-surgery

In addition to providing virtual care, Manipal's partnership with Google Cloud will also help the former create a digital platform for ordering medicines and leverage the latter's conversational AI tools for improving patient interactions including appointment bookings and searching for doctors.

Mr. Jose believes that the partnership with Google Cloud will enable the hospital to solve some of the most complex medical issues using innovative technology, better anticipate the needs of people, and improve access to care.

Apart from launching the aforementioned initiatives for enhancing virtual care, the

organization has also focussed heavily on bolstering its state-of-the-art facilities with next-generation equipment to provide holistic care.

For instance, the healthcare provider has recently announced a partnership with Isansys Lifecare for an initiative to focus on monitoring vulnerable and high-risk patients across its hospitals with the Isansys Patient Status Engine. The patient status engine (PSE) is a Food and Drug Administration (FDA) and EU medical devices regulation (MDR) approved solution. It is deployed for wireless, remote monitoring and management of patients with borderline sickness with the need for regular health updates.

The machine will allow doctors and nurses to continuously monitor the patient outside the intensive care unit, thus helping our clinicians deliver holistic care. Additionally, the device will live stream a minute-by-minute EWS (Early Warning Score) to the central monitoring station and the mobile phones of clinicians and also help doctors continuously monitor the

basic vitals of patients, such as temperature, heart rate, blood pressure, ECG and saturation.

Manipal Hospitals is first in India to deploy this advanced solution (Patient Status Engine) in its hospitals that will create alert if the patient's health deteriorates. This platform displays changes in the parameters that require prompt medical treatment or intervention.

With the adoption of such advanced medical equipment and the launch of several strategic partnerships with some of the world's tech giants, Manipal Hospitals intends to maximize its ability to deliver effective and personalized healthcare to patients across genders and age groups. Furthermore, the burgeoning adoption of new age digital tools backed by ML and AI is another giant leap taken by the pan India healthcare provider to help clinicians provide quicker and more accurate diagnosis, improve treatment efficacy with detailed and precise reports and deliver remote care for quicker postsurgery recovery.

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Lighting Hope, One Patient at a Time

One of India's most respected oncologists for his clinical and surgical skills, Dr Harit Chaturvedi has been a passionate champion for cancer awareness and a crusader against tobacco

DR. HARIT CHATURVEDI

Chairperson, Max Institute of Cancer Care

t was at the Cancer Institute, Adyar (Chennai) that Dr Harit Chaturvedi began his glittering career as an oncologist who would work in some of India's most prestigious hospitals to share his skills as a clinician and surgeon. Dr Chaturvedi, who now serves as the Chairperson for Max Institute of Cancer Care which he joined in 2009, has had a fulfilling journey which has been a build-up to creating one of the largest and finest oncology programmes in the country, from the grassroots, and continues to raise its standard year after year.

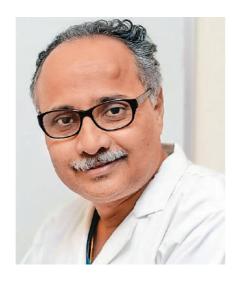
Impelled by his own areas of speciality-Surgical Oncology, Abdominal Cancer Surgeries and Breast Cancer Surgeries, Dr Chaturvedi has put together a formidable team of over 100 accomplished oncologists, (who are at par with any of the groups of oncology centres in the country) at Max healthcare units spread across 12 healthcare centres, and other standalone centres across Delhi and North India. Centric to Dr Chaturvedi's oncology vision is the emphasis on people, processes, and systems. He has a pivotal role in clinical quality processes, clinician recruitment, and longterm vision and strategy for the Group. The Disease Management Group (DMG) model he has created is driven by several factors, the most important being specialisation, clinical quality, research and academics. This has helped position Max Institute of Cancer Care (MICC) as one of the

most respected brands in the oncology arena.

Max Healthcare and GE Healthcare have recently announced a strategic partnership to advance the standard of cancer care in India through collaborative research and co-creation of futuristic, multifaceted cancer management solutions. "With this collaboration with GE Healthcare. we aim to bring together clinical and basic research to find new solutions to cancer. The virtual tumour board will enable experts from different geographies and time zones to review each case of cancer and propose specific solutions for patients," shared Dr Chaturvedi.

Dr. Chaturvedi's primary aim has been to build a sub-specialty wise build- up of oncology specialties to improve the clinical outcomes across the Max centres. He was also focused on providing quality care through various initiatives like the virtual tumour boards. A passionate champion for cancer awareness in different fora, Dr Chaturvedi has been a lively crusader against tobacco use over many years through various cancer foundations.

Dr Chaturvedi who has also propagated his surgical skills while performing at live surgical workshops, has an excellent track record as a teacher and mentor with his consummate ability to inspire and nurture young talent. His visionary outlook was richly evident again at the national level, when he could create a grand



vision and execute it while building the brand of the Indian Cancer Congress as its first organising secretary. The Indian Cancer Congress brings together oncologists, scientists, Allied Specialists, Ancillary Service Providers, Advocacy Groups and Policy Makers involved in cancer care in India. Dr Chaturvedi's has also served as the President of the Indian Association of Surgical Oncology as President.

In 2004, Dr Chaturvedi joined the Rajiv Gandhi Cancer Institute and Research Centre as a Senior Consultant, Surgical Oncology, and worked with the surgical team towards institutional building. As a major step they could subspecialise, and, being the facilitator of this process he took on the breast, thoracic and sarcoma unit. Earlier, in the year 2000, Dr Chaturvedi was attached to the Indraprastha Apollo Hospital, Delhi at the time they were looking to install their radiation therapy equipment with a detailed plan of oncology service structure. His zeal to strengthen oncology awareness among primary physicians motivated him to conduct a full day conference for them. Under the aegis of Delhi Medical Association, they organized 'Oncocon 2003'.

What drives Dr Chaturvedi's mojo as a dedicated cancer specialist is the opportunity to directly improve the health and wellbeing of his patients and to develop professional and personal relationships with them.

Leading the Way

They say, quality healthcare comes at a steep cost. Dr. MI Sahadulla, Chairman and Managing Director of KIMSHEALTH, begs to differ. In his years as a leading healthcare professional with a rich global experience, Dr. Sahadulla has perfected the delivery of top-notch healthcare at an accessible price point. Outlook profiles a true thought leader and change maker.

DR. M. I. SAHADULLA

MD, F.R.C.P (Ireland), F.R.C.P (Lon), M.B.A (Hull, UK) Chairman & Managing Director, KIMSHEALTH

r. Sahadulla's experience in the healthcare industry exceeds 45 years, across several countries including India, UK, USA, and the Middle East. An internist by profession and a Fellow of the Royal College of Physicians, Ireland, London, Dr. Sahadulla also holds an MBA in General Administration from the

Dr. Sahadulla also holds an MBA in General Administration from the University of Hull, the United Kingdom. His vision has pioneered a revolution in healthcare delivery in the country, making quality healthcare affordable and accessible to everyone.

In 2002, Dr. Sahadulla established KIMSHEALTH, Trivandrum, the flagship facility of KIMS Healthcare Management Ltd. He further expanded the footprint of hospital networks in Kerala and GCC offering end-to-end healthcare and becoming one of the biggest private healthcare organizations. KIMSHEALTH is one of the leading healthcare providers in South India with a strong presence in GCC countries especially in Bahrain and Oman with a workforce of about 6560. The group initiated as a Public Limited Company currently has 8 hospitals, 19 medical centres, 2000 bed facility, 1060 doctors and 3500 employees.

During the Eighties and Nineties, Dr. Sahadulla has served in Aramco, Saudi Arabia, one of the leading medical organisations in the world. During his 25-year tenure with them, he had served in various capacities -Physician, Internist and in a leadership role as Administrator for the organisation.

Prior to joining Aramco, he was a member of the faculty of General Medicine at Government Medical College, Kerala, India, worked with National Health Services, the UK and some of the best Medical Centers in the United States. His academic expertise is reflected in the fact that he is an MRCP Examiner of the Royal College of Physicians of London.

He was awarded the prestigious "ACHSI Gold Medallion Award 2015", the first Asian to receive this accolade. This recognition was based on his efforts and contribution in understanding global standards in healthcare, quality, accreditation and experience in managing industrial medical disasters and designing emergency readiness.

His passion and commitment to deliver quality healthcare service resulted in KIMSHEALTH receiving accreditation from National Accreditation Board for Hospitals (NABH) and the Australian Council on Healthcare Standards International (ACHSI) in 2006, the first hospital in India to earn both national and international accreditations.

Dr Sahadulla holds a pivotal role in the industry with his contributions in various capacities;

- Co-Chair, FICCI, Kerala State Council
- President, Association of Healthcare Providers of India



(AHPI), Kerala Chapter

- President, AASHI (Association of Specialty Healthcare Institutions)
- CII Healthcare Convener, Kerala Chapter
- National Steering Committee Member CII & HSCC
- Member, NATHEALTH
- Patron, Trivandrum District Shuttle Badminton Association

Awards and achievements

- Golden Peacock Award for Business Excellence and Quality (2013 & 2014)
- Entrepreneur of the Year Award from Modern Medicare (2006)
- Leadership Award from Trivandrum Management Association (2010)
- Entrepreneur of the year (2015), TiE Kerala
- ACHSI Gold Medallion Award 2015, the first Asian to receive this award

Dr Sahadulla has made his mark in the literary field as well with his memoir titled Vital Signs, Reflections on a Life in Medicine and Management published in the year 2018. The medical profession widely accepted his medical publications titled 'Comprehensive Textbook of Infectious Diseases', editions 1 and 2, and 'Compendium of the Pandemic Era'.

Please refer to KIMSHEALTH website www.kimshealth.org for more detailed information about the group operations and business review reports and personal profile.

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"Providing Advanced Healthcare at affordable costs"

This vision has guided us to build a 264 bedded hospital with modern infrastructure and a team of around highly qualified doctors on our panel. Our Doctors share amongst themselves decades of experience and enjoy the trust of the patients and their families.

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Saifee Hospital has been continuously acquiring new ways and means and concepts to deliver better healthcare for its patients which is driven by patient safety as its backbone. We have State of the art, cutting edge technology to support patient care.

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Endocrinology	Neonatal ICU	Respiratory / Chest Medicine
Gastroenterology	Neurology	Rheumatology
Haematology	Nephrology	

SURGICAL

Bariatric Surgery	Gastro Intestinal Surgery	Onco Surgery
Cardiac Surgery	General Surgery	Ophthalmology
Colo-Rectal Surgery	Gynaecology & Obstetrics	Oral and Maxillofacial Surgery
Cosmetic & Plastic Surgery	Head & Neck Surgery	Orthopaedic Surgery
Dentistry	Liver and HPB Surgery	Paediatric Surgery
Ear, Nose and Throat (ENT)	Laparoscopic Surgery	Renal Transplant Surgery
Excimer Laser	Minimal Invasive Surgery	Robotic Surgery
HIPEC Surgery	Neurosurgery	Urology Vascular Surgery

DIAGNOSTIC & THERAPEUTIC

Endoscopy	Liver Clinic	Sleep Study
Lab Medicine / Blood Bank	Nuclear Medicine	Physiotherapy & Rehabilitation
Cardiac Rehabilitation	Sports Injury clinic	Speech Therapy & Audiometry
Cathlab	Health Checkup	Transcranial Magnetic Stimulation
Dermato Cosmetic Clinic	Urodynamic Studies	Neurophysiology (EEG,EMG)
Imaging (CT/MRI/USG/DEXA/Mammo/XRay)	Non Invasive Cardiology (TMT,ECHO)	Ayurveda

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Birthing Hope

Her inspirational role as a catalyst that changed the face of women's health against all odds in Ladakh has won her many plaudits

DR TSERING LANDOL

Pioneering Ggynaecologist Ladakh

he challenges of cultural myths and superstitions surrounding childbirth, misapprehensions around family planning, maternal and child health, abortion and contraception notwithstanding, Dr. Tshering Landol has persevered with her pioneering work as the first female gynaecologist in the icy cold desert region of Ladakh. Another major challenge was the high neonatal mortality rate because of the climatic conditions in the region where temperatures can drop to over -20 degrees Celsius.

Winner of the Padma Bhushan and the Padma Shree for her pioneering role in women's health, she is immensely proud of the changes she has brought about over four decades while bringing in critical advancements in women's health in Ladakh. Dr Landol's initiatives have been pivotal in changing the traditional childbirth systems in Ladakh.

It has been a long and deeply rewarding journey for Dr Landol, inspired at the tender age of 13 to become a doctor. Having graduated in Srinagar from the Government Medical College, specialising in Obstetrics and Gynaecology, in 1979, she joined Leh's SN Memorial Hospital the only major district hospital at the time as the first and only practising gynaecologist in the region. Working in the most remote areas during field emergencies, in case of irregular deliveries, and medical camps, she also spent time to fortifying

women's health, advocating for family planning, campaigning against health-related taboos and leading adolescent health awareness programmes. She was driven by her ability to connect with the people being a Ladakhi herself—and because she understood the need to consider the background of each person: their family situation, their economic class, climatic conditions, dietary habits and so on.

Having progressed to become its head obstetrician, she worked at SN Memorial Hospital till 2003; three years later, she won the Padma Shri for the incredible work she had done in Ladakh's women's healthcare space. There has been a sea change at the hospital since she first joined and worked there in freezing conditions, lack of heating, shortage of oxygen cylinders and irregular electricity supply. From just five or six hospital deliveries at the beginning of her career, she was handling over 1,000 at the time of her retirement. SN Memorial Hospital now even has pathologists, ophthalmologists, dermatologists, and psychiatrists.

Women's health and hygiene was once not a point of focus in Ladakhi society, but with constant efforts, this changed. Besides working at the district hospital, Dr. Landol also travelled to the far-flung areas of Ladakh like Turtuk and Bogdan, where they conducted camps, mobilised people, spread awareness on health and hygiene.



Another of her pioneering initiatives was talking about adolescent healthcare education in schools across Leh, helping young girls understand the process of puberty, which would bring about changes in their body, hormones, thought process, and so on. Another significant achievement has been the work she has done to promote family planning and institutional deliveries in Ladakh.

Post-retirement, she still sees patients at the Ladakh Heart Foundation Hospital, founded by Lama Thupstan Chogyal, who hails from a family of traditional medical practitioners. Once a week, Dr Landol attends to pregnant women with heart issues here. She also screens, counsels and guides women patients.

Though she is grateful for the work that foreign and national NGOs have done so far — for doctors from abroad, like the UK and Singapore, conducting camps in areas that are difficult to access — she emphasises that the need to train local doctors is more important.

She is also of the firm belief that: "Communication is the most important element in the medical profession. Allowing people to speak with total honesty, listening closely, maintaining their trust and professional secrecy, besides giving them confidence that we will resolve their problem are critical elements. Merely writing a quick prescription is nothing when you can't communicate."



Understanding Brain Tumors

With more than 22 years of experience and over 20,000 neurosurgeries to his credit, Dr. Manas Kumar Panigrahi, Head of Neurosurgery and senior consultant at KIMS Hospitals, Hyderabad is one of the most sought-after neurosurgeon in India. He answers some of the most frequently asked questions about brain tumors here.

DR. MANAS KUMAR PANIGRAHI

Head of Neurosurgery and Senior Consultant, KIMS Hospitals, Hyderabad

• What is the incidence of brain tumor?

The incidence of central nervous system (CNS) tumors in India ranges from 5 to 10 percent in every 1,00,000 population.

Q What are the risk factors for brain tumors?

The difference in lifestyle, dietary habits, and environmental exposure are among the many risk factors. The etiology of cancer is complex and has multifactorial risk factors. Doctors are still in process of thoroughly evaluating & understanding brain tumor risk factors in people with different ethnicities.

• What are the complaints of brain tumors patients?

Presenting complaints of brain tumors usually are Persistent headache, Vomiting, Limb weakness, Seizure, Speech & memory disturbance, Blurring of vision and Decreased hearing.

● How are brain tumors diagnosed?

Diagnosis of brain tumors is commonly done with CT scan and MRI of brain.

Q Are all brain tumors life threatening in the short duration after diagnosis?

Common belief that all brain tumors are life threatening in short

duration is a wrong perception. In our perspective brain tumors when identified and treated early can significantly improve the chances of patients getting cured completely.

Q What is the difference in treatment of Benign and Malignant brain tumors and its outcome?

Treatment of brain tumors primarily is maximum safe resection. Malignant brain tumor needs radiotherapy and chemotherapy after surgical excision of tumor.

• What if a brain tumor is located in an important part of the brain?

For tumors which are located in an important part of the brain, surgeries are carried out with the help of Neuro-navigation (fig E), Stereotaxy (fig D), Robotic guidance, Awake craniotomy (patient will remain awake and conscious during surgery) and Cortical stimulation.

• What if surgical removal of a tumor is not possible?

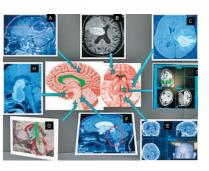
If complete removal is not possible, then stereotactic guided biopsy is used to help in establishment of diagnosis.

What is the survival duration of patients with brain tumors? Outcome of survival depends on

WHO Histopathology grade of tumors. Grade 1 and Grade 2 tumors have longer survival (approximately 7-10 years) compared to Grade 3 and Grade 4 (1-5 years).

Q What are the newer advances in brain tumor treatment?

Latest Advances in Neurosurgery are available at KIMS Hospitals, Secunderabad. These include Diagnostic imaging - Functional MRI brain & MRI Spectroscopy. Latest Surgical Techniques include - Microscope, Endoscope and Neuro-Robotic System. Radiotherapy Equipment - SRS, Gamma knife. Newer Chemotherapeutic, Immunotherapy and Targeted agents over the past few years have helped improving treatment outcome.



A-Glioblastoma Tumor, B-Meningioma, C-Lymphoma, D-Stereotactic Procedure, E-Neuronavigation, B-F-Medulloblastoma, G-Brain Stem Glioma.

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Caregivers : The Anchors of a Cancer Patient

Caregivers/carers are defined as people who "provide unpaid care by looking after an ill, frail or disabled family member, friend or partner". Cancer is rapidly becoming one of the commonest scourge of medicine in recent times. It brings with it a whole spectrum of lifechanging events that not only the cancer sufferer . but also his immediate circle of family and friends go through. From the point of diagnosis , through the long journey of hospital visits for tests and treatments and to the point of a stage of palliation and death, the patient and those involved in their care get pulled into a vortex of unending physical, financial and emotional demands.

DR KANCHAN KAUR

MBBS,MS(Surgery),Gold medalist. MRCS(Edinburgh)Specialist Oncoplastic breast surgeon Director, Medanta, the Medicity



are of a cancer patient can never be in isolation and most certainly cannot be met in a hospital based environment alone. A well established cancer set up can provide the necessary medical and initial pschycological support. However the physical and emotional scars that the patient carries home, can only be dealt with by the presence of a round the

clock support system. This is where caregivers step in.

Worldwide, there is a common pattern in that in majority of cases, it is a family member or a friend who takes on the role of a care provider.

The primary carer of a cancer patient plays a multitude of roles. These include tasks like helping the patient with routine day to day activities of personal care. They help to co-ordinate visits to the hospital by booking appointments and providing transport. Some carers go on to provide nursing support by helping with wound dressings and also in some cases, administering injectables and i/v fluids.

As the carer is involved in an almost continuous cycle of activities for the patient, it begins to affect them by causing anxiety,d epression,fatigue,sleep disturbances,physical injury etc. This has a significant impact on their quality of life and their routine work/job.

It is essential to understand these challenges and create a framework within which a carer finds support for the enormous task that he/she has taken upon themselves.

However, there is huge discrepancy in the support that the caregiver gets in different countries.

In the western world, caregiving is recognized as a formal arrangement rather than an obligation. There is a well established social support structure specifically to target the needs of a carer. This is government funded and helps a caregiver by providing physical, emotional, medical and also to some degree financial backup.

Physical respite and help is very much needed at a lot of times. For this, the carer can enroll the service of a social worker who can come in at particular times of the day to help with tasks like bathing/dressing etc. They can also help with transportation of the patient for hospital visits. For patients who are terminally ill and require injectables or even for patients with fungating cancers requiring dressings, there is a robust General practitioner(GP) and community nurse system, which helps in meeting the basic medical demands of the patient.

Caregivers can entail the services of a multitude of both governmental and non-governmental organisations, which guides them through every step along the way.

Unfortunately, none of the above systems is in practice in India.
Cancer cases in India are on a phenomenal rise. A majority of them present at a late stage.

Hospital based management of these cases is for limited indications for a limited period of time. The immediate family members end up becoming their carers by default, with little understanding of the disease process or its future implications. Sadly, there is very little help at hand to guide them. What compounds matters is that religious and cultural beliefs play a very strong role in deciding treatment.

The financial burden of treating a cancer patient can be significant even for most middle class families. For the poorer section of the society, which constitutes a majority of the population, the scenario becomes even more bleak. To add to this, if the main earning member of the family is the primary carer, it takes a toll on their work and earnings, compounding the matter further.

Another common difficulty faced across all classes is the lack of any pschycological support for the family and careers as they live through the emotional effects of the cancer with the cancer patient.

What adds to the anxiety is a lack of information. There is very little understaniding on what to expect in a terminally ill patient and how to manage the medical issues that can arise in these patients. The carer along with facing the above mentioned difficulties also begins to experience a fear that he may miss to recognize an emergency or not be able to help the patient in an appropriate manner. This anxiety is probably lesser in the educated carers, who by their own research are able to formulate a sensible plan for their patient.

As the detection of cancer cases in India continues to be on the rise, there needs to be a parallel increase in the framework of support that is provided to the patient and his/her carer. It is important to come up with a simple basic setup which is standardized and is reproducible across the population .

So what is the way forward.?

A strong government will forms the pivot of what needs to be a major change in the way cancer is perceived and cancer care sevices are organized. A major public information campaign is the need of the hour. This needs to target two major issues ,one is of late presentation, which in turn increases the burden of palliative care populaiton. Secondly, an understanding of the disease so that cultural beliefs do not override sensible treatment decision making process. A significant proportion of patients choose to opt for alternative treatments with doubtful curative value. This wastes precious time and makes their condition unsalvageable .As carers in India play a major role in deciding the treatment for the patient, they require extensive counseling, to help choose the line of management which is in the patient's best interest.

Revamping of cancer care services on hospitals is important so that it becomes more holistic and guides the patient and the family in a systematic manner.

Psychotherapist, Dr. Denholm, states that caregiving has been awarded the nickname of "rollercoaster ride from hell" because every day is brought with new challenges, demands, and adjustments". This is even more true in the Indian setting where a caregiver lives in isolation without any form of systematic support. A wake up call is needed to change this and allow Indian cancer patients and their hapless caregivers to cope in a dignified manner.

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The Heart Card

His pioneering work in Interventional Cardiology over the past three decades has won many plaudits and global recognition for Padma Bhushan and Padma Shri awardee, Dr Ashok Seth

DR. ASHOK SETH

Chairman, Fortis Escorts Heart Institute, New Delhi

Ranked amongst the top 10 cardiologists in India, Dr. Seth has built up a sizeable body of work in cardiology, particularly Interventional Cardiology, which has provided a fresh impetus to India's technological advancement in healthcare. Dr. Ashok Seth who is Chairman of Fortis Escorts Heart Institute. New Delhi, Chairman of Fortis Healthcare Medical Council, and Adjunct Professor of Cardiology at JN Medical College (Aligarh Muslim University) and National Board of Examinations has gained world fame for the many firsts in his area of interest-Angioplasty, and excels in Bioabsorbable stents, Angioscopy, Stents and Drug-Eluting Stents, Directional Atherectomy, Impella heart support for failing hearts, Thrombectomy devices, and percutaneous valve replacement (TAVR).

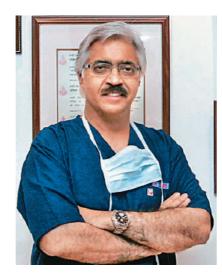
During the course of his career, Dr. Seth has contributed extensively to the development, scientific progress and education in Interventional Cardiology in India and across the world. He has pioneered many angioplasty techniques for India and the Asia-Pacific region. Dr Seth was the first cardiologist in the region to introduce new procedures to treat Coronary Artery Disease. Sharing his views on the development of interventional cardiology, he tells how it has revolutionised cardiac care since the late Seventies and early Eighties, by finding ways of

opening up blockages in arteries without surgery. "It is a nonsurgical way to treat heart diseases, that too under local anaesthesia... These procedures are safer and less traumatic. The patient gets discharged within 48 hours. It gives similar and safer results as bypass surgery in many patients," he says.

Dr Seth was the first cardiologist

in the region to perform an angioscopy and directional atherectomy. He is also counted amongst the few cardiologists in the world to perform the Percutaneous Myocardial Laser Revascularization procedures. He was the first to use Drug-eluting stents. Bioresorbable stents and thrombectomy devices in India. As a member of the Advisory Group, he contributed to the development of Bioresorbable Scaffold. Dr Seth was the first one to use the Impella pump in the Asia-Pacific, and to demonstrate it in the biggest [medical] meeting in the world in the US. "After the FDA approval, it became less available to us because of the demand in the US. We reintroduced it in the country in 2018," says Dr Seth.

Medicated stents have been a real game-changer, according to Dr. Seth. Angioplasty with medicated stents is a life-saving treatment for heart attacks and severe blockages. Dr. Seth has performed over 20,000 angioplasties and 50,000 angiograms. He has performed live transmissions of complex



angioplasty techniques from India to international meetings in Singapore, Malaysia, Paris, China, Australia, Korea, Sri Lanka, etc. He also had the unique honour of been invited to demonstrate and teach complex angioplasty techniques via the satellite transmission from New Delhi to the 'Transcatheter Cardiovascular Therapeutics in 2003 & 2007' meeting in Washington DC (USA) and to EuroPCR in Paris in 2006 (from Bangkok) & in 2003 (from Chennai), which are the most important and biggest meetings of interventional cardiologists across the world. This was a matter of great prestige and privilege for India.

Another significant achievement for Dr. Seth was to become the first ever Indian doctor to be invited to Washington to present his experience on the use of bioabsorbable stents to the US Foods & Drug Administration (FDA) Panel. Dr. Seth's tally of angioplasty and angiogram performances has found mention in the Limca Book of Records as one of the highest in the world.

Dr. Seth's extensive experience, expertise and techniques in interventional cardiology are widely recognized and respected in India and around the world. His rich contributions have significantly added to the unprecedented growth and development of cardiology in the Asia-Pacific region.





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Giving a Tough Fight to Cancer

A pioneering cancer care specialist with over two decades of experience, Dr Sajjan Rajpurohit, Director & HoD, Medical Oncology, BLK Super-speciality Hospital, New Delhi, has treated an incredible over one lakh cancer patients. He warns that though the official records mention that per year about 16 lakh patients are being diagnosed with cancer in India, and 9-10 lakh people are dying annually due to cancer, the actual numbers are much higher than the documented ones. Dr Rajpurohit is passionately mobilising every aspect of technology in Oncology for making treatment more effective and affordable.



DR SAJJAN RAJPUROHIT

Director & HoD, Medical Oncology, BLK Super-speciality Hospital, New Delhi

• Medical advancement has happened across specialities. How do you envisage the future of Oncology?

In Oncology, there are two-three pathbreaking developments. First, the most commonly being used over the last five years or so is immunotherapy in oncology. It is heartening to see that every year, 20-25 indications are coming up in a big way in immunology in Oncology. Second, is a very novel therapy, which still in its nascent stage is the CAR-T Cell Therapy, where the body's own cells are being genetically modified, expanded outside and then they are reinfused into the body to fight the tumorous cells. Normally, our body's immunity has two ways of killing the malignant cells i.e., by anti-bodies or the inherent capability of cells to fight cancer. But the fascinating T-Cells are known as living drugs, which can mask themselves preventing from being recognised, and they can then kill the cancerous cells. Third, is the gene editing and gene therapy where oncolitis viral therapies are being used, which is still in the trial and development stage and is on the brink of extensive use in the next couple of years for anti- tumour and anti-cancer treatment.

Q How have you strategized the use of Immuno Therapy for treating cancer patients?

I am one of the pioneers of immunotherapy in India because I was fortunate to have witnessed the development of this therapy when I was working in the melanoma lymphoma unit at the MD Anderson Cancer Centre in America, 2011. Also, my guide was one of the pioneers in developing immune

therapy. I take pride in sharing that we have given more than 15,000 immune therapy cycles in my department, which is one of the highest in India.

• What is the success rate of these three therapies mentioned above?

One must understand at which stage of cancer are the three immune therapies being used for treatment? If it is early tumours, it can be cured in the local form of surgery or radiation and additional chemo is given from stage one to stage 3 at the most. Once the cancer has reached stage four, the general notion is that it is not curable. But with immune therapy even in case of advanced tumours about 30-40 per cent of patients can get functionally cured, meaning people are able to live longer than otherwise. Today, it is very common for a stage four cancer patient to live for another five-10 years with immune therapy, as against a life span of not more than 6 months. The smallest number of immune therapy cycles are about six, and sometimes it has to be given for 2-3 years. Normally, the therapy is given every two-three days a week on a day care basis of 2-3 hours and doesn't require any hospitalization.

Q How accessible and affordable are these three Immune therapies?

The Immune therapies are expensive, but in the next 2-3 years, generic medicines will make them affordable. Presently, per Immuno therapy cycle costs anywhere between INR 1.50-2 lakh. The CAR-T Cell Therapy is available only in the US and costs close to INR 5 crores. In India, the trials for CAR-T Cells are running at Tata Memorial Hospital, Mumbai and IIT Mumbai. India is a very cost sensitive market, so when we are able to invent indigenous drugs or therapies the cost of the treatment will be much less as compared to the western world. This therapy is expected to be available for about INR 30-40 lakhs. Gene Therapy, is still under trial stage as earlier attempts have failed. The focus now is on Oncolytic viruses therapy and gene transfer therapy and in another 5 years affordable gene therapy shall be a reality.

• What initiatives have you taken for screening, early detection and treatment of cancer?

We have been working relentlessly towards cancer awareness and screening for more than a decade now. I keep myself updated on the latest what is coming in technology and try to use it in my practise. Technology in healthcare involves detection, diagnosis and treatment. I have a dedicated team of doctors in preventive oncology in my department, who conduct cancer awareness and screening camps. As part of detection or screening, I am the pioneer to use no-touch or thermal mammograms. In my district, Jodhpur, I pioneered this unique technique at health camps, besides Sonepat. I have started using infrared mammograms which are very effective, with no radiation exposure to the breasts and also the results can be got quickly based on Artificial Intelligence. In diagnosis, I am increasing using gene based diagnosis i.e. using next generation sequencing, cell free DNA, and circulating tumour cells for exact disease identification and treating the patients according to these data.

What is the response that you get to see by using advance technology in Oncology?

I face a lot challenges in my practise because I am heading two big referral centres, which are the largest centres for oncology in the Max Group i.e., Max BLK, and Max Shalimar Bagh. Therefore, a lot of difficult and complex cases come to me where it is every important to define which specific drugs or targeted therapy will work for the specific case and here technology is proving to be a boon. One has to use technology, one's experience and clinical acumen give the best results to your patients. I am supported by a team of 8 oncologists, who are into screening, treating, clinical research and publishing.

! How are you influencing government progammes for cancer?

I am on the ICMR body which makes guidelines for the Indian Government where I work closely with the government officials. On the treatment front, I am working closely with the IMA and other medical bodies for educating our peers, so that they can refer the patients to us on time for early diagnosis and treatment of the patient. We are also

exploring opportunities to work on a PPP model with the government because somewhere the government needs our forte. We are empanelled on the CGHS and DGHS and a lot of government employees are being served by us.

• What are your personal initiatives in strengthening Oncology?

I run Spring Hope Foundation, where I do a number of activities for both cancer prevention and talks on cancer awareness. Our focus is on educating doctors, who are not from the oncology speciality, as a consequence it delays the referral of such patients to the right doctors. I am also the Managing Editor of the pioneering international journal titled -Asian Journal of Oncology, and feel proud to say that across the globe people are publishing their data with us making our editions authentic and documented referral sources. Apart from running advanced clinical trials in both my departments, I am involved in drug discovery, besides innovating new drugs for future for which we are conducting clinical trials. We have also written a book on Oncology titled 'Clinical Oncology', which has been well received by the fraternity. In my pursuit to spread cancer awareness, I have set a world record as the highest responder for all the cancer queries from across the globe with more than 800 responses on Ouora.

Q Your vision forward for the speciality of Oncology?

We need to be prepared for the next decade, but shortage of manpower and machines for cancer treatment are posing impediments. The government has also to work for affordable cancer treatment because most of them come with heavy costs and are not within the reach of the public. Government must have insurance cover for critical illness like cancer because cancer is a dreadful disease affecting the entire family and their finance, pushing them to poverty. There is need for an effective PPP model for rapid research of indigenous drugs as was done during the Covid pandemic. There has to be more engagement of clinicians, scientist and indigenous drug development, which will be a great achievement if we are able to do that.

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Touching A Billion Lives

Driven by his dream to bring world-class medical standards to millions of Indians, Dr Prathap C. Reddy shook up India's healthcare sector by establishing a hospital chain that symbolises the birth of the private healthcare industry in the country

DR PRATHAP C. REDDY

Founder-Chairman, Apollo Hospitals



Established in 1983, Apollo Hospital set the gold standard for world-class healthcare in the country as the first corporate healthcare provider in India. A multinational hospital chain, Apollo Hospitals is worldrenowned as one of Asia's largest healthcare providers with a network of hospitals, clinics, and pharmacies.

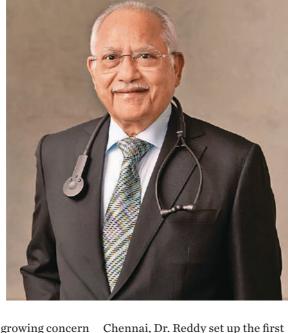
Armed with exposure to worldclass healthcare standards during his medical pursuits in the United States, Dr. Prathap C. Reddy returned to India in the Seventies and set up his private cardiology practice in Chennai, then known as Madras. For Dr. Reddy, the inspiration behind his grand vision for healthcare in India was the deep anguish of losing a patient who couldn't afford the funds to go to the US for an open-heart surgery.

His burgeoning practice, with patients coming from all over India, fuelled Dr. Reddy's growing concern about how healthcare is delivered in a country like India. It gave impetus to his determination to open a corporate hospital to provide quality healthcare on a much larger scale and within the economic and geographic reach of millions of patients.

At that time, many conversations were happening about the braindrain from India and how healthcare was one of the key industries afflicted by this malady. Private healthcare institutions were virtually a non-existent component in the medical field in India in those days. This crystallised Dr. Reddy's vision to set up an institution that would provide the standards of services and quality of care available abroad. His idea of setting up Apollo Hospital was in sync with then Prime Minister Indira Gandhi's agenda of reversing brain drain.

Funding was a major obstacle for Dr. Reddy as hospitals in those days did not qualify for many funding mechanisms. Unfazed by the hurdles he encountered, Dr. Reddy was able to successfully negotiate with and convince the government that hospitals should be funded like other trade or industry; this set the ball rolling for a different approach to acquiring funds for setting up private hospitals in India.

Spurred on by his humanitarian bent of mind and the spirit of a corporate entrepreneur, Dr. Reddy continued to grow his practice to establish a chain of hospitals. In 1983, with Apollo Hospital,



brick in the wall of what would transform into the world-class chain of Apollo Hospitals. Apollo Hospitals became India's first corporate hospital, which flagged off the country's burgeoning private healthcare industry on its irreversible journey. Indraprastha Apollo Hospital, Delhi was the first PPP (public-private partnership) in healthcare in the country.

What made Apollo the poster child for the pivot in India's private healthcare industry was its investment in the latest technology and specialists to advance its growth. Its state-of-the-art set-up, treatments at a fraction of what one would pay aboard, and its ability to pull together a formidable team of non-resident Indian doctors from hospitals in the US and UK, made Apollo a force to reckon with in shaping the new healthcare landscape of India. From a single hospital, Dr. Reddy became India's largest healthcare entrepreneur and founder of Apollo Hospitals Ltd with over 71 hospitals with a total capacity of 10,033 beds. It includes 44 owned hospitals, including joint ventures, and subsidiaries and associates with 8,660 beds.

Apollo Hospitals has set a blistering path in maintaining leadership in medical innovation, clinical services and innovative research. Dr. Reddy's relentless pursuit for excellence in healthcare continues to accelerate the group's momentum to 'touch a billion lives'.

Modern approaches to breast cancer treatment

DR. GARVIT CHITKARA -

Senior Consultant Surgical Oncology (Breast) Nanavati Max Institute of Cancer Care Nanavati Max Super specialty Hospital, Mumbai.



Professor. I currently work as a Senior Consultant in Breast Surgical Oncology and Oncoplasty at Nanavati Max Institute of Cancer Care. Between then and now there has been a sea change in how as an oncosurgeon I approached breast tumors.

ts been a long journey since I

Memorial Hospital to train as a

joined the famous Tata

breast cancer surgeon, I grew up

there as an oncosurgeon and

became an Associate

Breast Cancer is now the most commonly diagnosed cancer amongst women in India. It amounts to over 25% of all cancer diagnoses amongst Indian women.

In Breast diagnostics the advent of Digital Mammography (DM) has completely changed how breast imaging was done. DM is a painless method of examining the breast with the help of X rays. Tomosynthesis which is a part of most modern DM machines improves the pick up rate of suspicious lesions. Contrast Enhanced Digital mammography has improved in the characterization of the breast lumps. Another valuable addition to breast diagnostics is Vacuum assisted breast biopsy (VABB). VABB is not only used for conducting biopsy procedures of

suspicious lesion but can be used for completely removing biopsy without any scars on the breast. These procedures are done under local anesthesia and do not require admission thereby improving the acceptability of the procedure to the patient.

In breast cancer therapeutics, Surgery has seen a major change. Breast surgery has evolved as a stand alone specialty. A specialist Breast surgeon is able to offer you breast conservation surgery (removing only the tumour and not the whole breast) and also oncoplastic procedures which are helpful in partial/total reconstruction of the breast. These procedures give a good cosmetic outcome and have been proven to be oncologically safe. Less is now more in breast surgery like breast the axilla surgery (armpit) has also been reduced. Only guided biopsies (Sentinel lymph node biopsy) are conducted to do the staging of the disease which help in decreasing the side effects of the surgery.

Modern medical oncologists now try to avoid or minimize the chemotherapy as much as possible. Genomic testing of the tumour e.g. oncotype DX etc. have helped the oncologists understand

the tumour and its risk of recurrence better and it is due to these tests that avoidance of chemotherapy has now become possible. Other than chemotherapy other therapies like hormone therapy, targeted therapy and immune therapy have also evolved by leaps and bounds in the last decade all trying to improve the outcomes of the patients and decreasing the side effects associated with the treatment.

Keeping abreast with the theme of less is more, radiotherapy has also become extremely targeted and is given with much more precision as compared to earlier. The dosage and sessions have also been reduced for select cases in early breast cancer. With multidisciplinary approach in breast cancer we are now able to offer fertility preservation and genetic testing which are a great help to the young breast cancer patients.

What we need to work on now is improving the awareness of breast cancer because with awareness we will be able to diagnose it early and early diagnosis saves lives.

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Making healthcare accessible in Jammu & Kashmir

Nestled in the lap of Shri Mata Vaishno Devi Shrine in Kakryal village is one of Jammu's most trusted Hospital – Shri Mata Vaishno Devi Narayana Superspeciality Hospital(SMVDNSH).

The holy temple of Shri Mata Vaishno Devi is amongst the busiest shrines in the country with daily average of 13,000 devotees from world-over paying their obeisance to the deity. A record-breaking over 90 lakh pilgrims are expected by year-end of 2022 to seek divine blessings of the Goddess. Run by Shri Mata Vaishno Devi Shrine Board, the administration collects all the offerings and invests it in philanthropy and temple development. The Board partnered with the country's leading Hospital chain – Narayana Health, to establish the world-class Shri Mata Vaishno Devi Narayana Superspeciality Hospital in Jammu; inaugurated on 19th April 2016, by Prime Minister of India, Shri Narendra Modi, the hospital has emerged as a preferred medical destination for the residents of the region.

Making healthcare accessible

Shri Mata Vaishno Devi Narayana Superspeciality Hospital, the only fully NABH Accredited hospital in the region, is a shot in the arm for the state which was struggling with average healthcare facilities. Today, this state-of-the-art tertiary care hospital offers high quality healthcare care to patients across over 20 specialities and superspecialities with a special focus on Cardiac Sciences, Gastro Sciences, Orthopaedics & Joint Replacement, Renal Sciences, Oncology (Cancer Care) and Critical Care Medicine among others, abiding by the vision and mission that Narayana Health stands for. Under Private Hospital Category, this iconic hospital is serving highest volume of Ayushman beneficiaries in the state and has become one of the most preferred hospitals in the region despite being located on a hill 50 km away from the city, offering a salubrious backdrop to

heal the sick. It is also worthwhile to note that the hospital reinvests the profits into the development and improvement of infrastructure and services.

Enabling Healthy Premise

The hospital has been established by the Shrine Board in a sprawling campus at an investment of about INR 300 crore. The hospital commenced with 230 beds and has now increased its bed capacity to 310 bed and poised to expand further to meet increasing healthcare demands of the region. The current hospital occupancy is over 80 per cent and a Day Care Chemotherapy and Dialysis Wing has also been planned in Jammu Clinic enabling high quality secondary care in Jammu itself. The hospital is fully equipped with state-of-the-art computerised diagnostic and treatment equipment, including Linear Accelerator, Brachy Therapy, Gamma Camera, MRI, two PET Scan and two LINAC, among others, which are installed at this hospital. The crucial need for their proper maintenance and optimum utilisation

is taken care of diligently in the best interest of patient care. Two well-equipped Critical Care Ambulances installed with state-of-the-art dialysis unit reach people in emergency and ferry them to the hospital. Within a year of starting operations and understanding the demographics and challenges of Jammu, The Hospital has also launched Free Pickup facility through 2 Ambulances available 24/7 in city of Jammu.

Gifting Lives with Medical Expertise

SMVDNSH has set several benchmarks, some of which are the first of its kind feats, across different specialities. The slimmest cochlear implant surgery was successfully carried out by the ENT Team of the Hospital on a 1.5-year-old girl from the valley giving her the gift of hearing. The Cardiology department performed a rare heart revival surgery by implanting a CRT-D(Cardiac Resynchronization Therapy with Defibrillator) device, saving the life of a 60-year-old patient. The hospital is also credited with its first ever Heart Valve Replacement surgery. Leveraging the clinical synergies across its hospitals in North India, the hospital did its first Endovascular Flow Diverter to manage a critical case of haemorrhage for which one of Interventional Neurologists flew from Gurugram to attend to this case in Jammu. Before long the path breaking healthcare initiatives and the talent pool of the hospital attracted attention from far and wide that hosted a wellattended national seminar on cardiac sciences. The Hospital constantly strives to achieve higher standards of care through innovation and clinical excellence.

Curbing Cancer

To provide easy access to affordable and high-end cancer care facilities in the region, Shri Mata Vaishno Devi Shrine Board, launched its Cancer Institute at the Jammu unit. With the addition of Superspecialized Cancer Experts in Onco-plastic Breast Surgery, Gynaecology-Oncology, Hemato-Oncology, Head & Neck Onco-Surgery, Paediatric Oncology as well as Pain & Palliative Oncology the hospital has positioned itself as a Centre of Excellence in Cancer Care. The cancer specialists are backed by skilled

paramedical staff working in tandem to support patient care. Apart from this, the hospital offers Cancer Combat Clinic for counselling of patients and second opinion clinics as well. For terminally ill patients, a Pain and Palliative Care Clinic was introduced. The Cancer Institute is equipped with cutting edge technology and includes the state's first Linear Accelerator and advanced technology for Radiation Oncology. The hospital has proved its edge in Oncology expertise by treating over 1000 patients through the LINAC.

Academic Pursuit

Aimed at strengthening the healthcare sector with trained doctors skilled in their specialization, SMVDNSH has a robust academic ambience and offers Medical Education Programs like DNB Program in anaesthesia and Critical Care, Fellowship Program in GI Surgery and Emergency Medicine producing clinical talents to serve the community at large. The hospital also has a 60-seat nursing college at its campus to address the gap in availability of trained nursing staff in supporting the clinical care.

Supporting Social Causes

This one of its kind of medical hub provides accommodation for medical and paramedical staff within the hospital premises for a wellcoordinated and functional ecosystem that has helped the region through the Covid, which has not just been handled with commendable efficiency but also been featured on Forbes for saving lives during the pandemic. The hospital has also treated those affected by natural calamity, landslides, terror attacks and saved lives during the tragic stampede at the divine temple. Free treatment is provided to pilgrims coming to the Vaishno Devi temple. With the hospital employing about 90% of its 1000 employee workforce from the local communities, the emergence of this hospital also brought about economic upliftment of people in the village with locals setting up small shops, pharmacies etc.

Sustainable Facilities

Among the many novel features of the hospital project is the provision for rainwater harvesting, solar energy utilisation, incineration of waste material, generators for power backup, two sewage treatment plants, shopping complex, parking facility and various other required ancillary services, all adding up to facilitate an integrated, comprehensive, and sustainable ecosystem for providing world-class healthcare to the people of Jammu and Kashmir.

Setting Milestones

SMVDNSH has been conferred with several awards and recognition for its path-breaking and leadership role in bringing about a paradigm shift in the quality and range of accessible affordable healthcare. The AHPI Awards for Best Hospital to Work for, Nursing Excellence, Outstanding work during COVID-19, Nursing - Singapore award and 4.9 Google Rating are amongst a few to take note of. The success of this hospital has also attracted other healthcare institutions to explore the state and bring in newer modern facilities which could enable better tertiary or superspecialised care further reducing the need for the residents to travel outside for high end

"Shri Mata Vaishno Devi Narayana Superspeciality Hospital has been at the forefront of healthcare delivery in the region during natural calamities, catastrophes and overtime become a preferred medical destination for complex healthcare solutions in the region. Not only has this hospital brought healthcare equity in Jammu & Kashmir but also reduced the need for people to cross state borders for medical care. Through our outreach program the specialists visit far flung villages of Jammu & Kashmir to provide primary consultation to the residents who can then be treated.

The planned commencement of Dialysis and Chemotherapy in the better equipped clinic in Central Jammu will enable the residents to access better healthcare closer to their homes. The digital push of Narayana Health especially through the adoption of NH Care App to book appointments and seek tele consultations is also helping improve healthcare accessibility to all in the region."

Commander Navneet Bali Regional Director - North Narayana Health

Taking ENT Speciality to Prominence

What makes SRGH's ENT Department a well-equipped speciality?

The ENT Department, which I head, is rated amongst the best in the country. We have a very robust cochlear implant programme, and do a lot of work on speech. Few of our consultants are among the best and are known for endoscopic sinus surgery. However, there is always scope for improvement as new developments emerge along the way and we keep abreast of them to live-up to our reputation as a centre of excellence.

☑ The ENT issues commonly seen in the community?

Things have changed drastically since the time when I was a junior consultant some two decades ago. We used to see a lot of ear problems like ear discharge, deafness and that was due to poverty and unhygienic living conditions. But today, especially in urban areas, we are seeing more of sinus and allergy related problems because of high pollution level. Also, long exposure to sound or high decibel sound is producing deafness in early age groups. So that is the gradual

shift that we are witnessing moving the focus to these sort of conditions. In Irwin Hospital, where I was trained in the late 70's, they are still seeing a lot of ear problem because in a huge country like ours, a sizeable population is still poor and living in slums, in unhygienic conditions.

■ What are the latest technologies that your speciality has procured?

The ENT has two well-defined departments i.e., diagnostic and the other is therapeutic. In diagnostics, a lot of audiology work in going on to detect new-born babies with hearing defect. Infact, we have an on-going programme with the Department of Gynaecology where high risk mothers with history of deafness in the family, their new-borns are screened, picked up if there is anything suspicious, backed by regular follow- ups. As far as therapeutic is concerned laser is the most important tool that we have at the moment. In fact the ENT department is well-equipped with all the latest armamentarium for diagnostic and therapeutic applications.



DR AJAY SWAROOP MATHUR
Chairman (Board of management),
Sir Ganga Ram Hospital

• Awareness is the first step towards cure, and your efforts in this direction?

Probably, awareness initiatives is one aspect that we are lacking as a hospital. But we have people from the Hearing centre, an NGO, who help us in cochlear implant work, they organise camps where we give talks, but as a concerted effort we are not doing enough. It's high time we have done so on a larger and more regular scale augmenting our publicity campaign efforts exploiting technology to its fullest.

Pioneering the Speciality of Nephrology

Oculd you share your pioneering work of establishing Nephrology as a speciality in India?

After passing MD Medicine from PGI Chandigarh in 1976, I joined AIIMS as first postgraduate student in Nephrology and qualified MNAMS Nephrology in 1980. I joined SGRH in 1981 and became pioneer to establish comprehensive services in Nephrology, dialysis, and kidney transplantation in nongovernment sector in Northern India, which is one of the largest centre in the country.

In 2009, with the help of District Rotary Club, a standalone hemodialysis unit was set-up as a facility for patients suffering from kidney failure at my village Dasmal in Parvati Hospital in Hamirpur, Himachal Pradesh. It was first rural hemodialysis unit in the country. Today, we have got a successful, 10 bedded dialysis unit providing quality hemodialysis services. In this context I just want to mention that I had an interactive meeting with our beloved

President Late Dr Abdul Kalam, who agreed to be our Chief Guest during our annual Hemodialysis Conference at New Delhi, with the condition that I should take initiative to establish hemodialysis services in rural India. I am very glad that our visionary and dynamic Prime Minister Sh. Narender Modi has taken a very big initiative to provide these services all over the country in all districts.

■ What is the current situation of kidney ailments?

According to the latest data, 2 lac kidney patients are now getting dialysis facility in the entire country. But that is the tip of the iceberg. And out of that number of many people require transplantation and even today only 10,000 people get kidney transplant done every year. 90 percent of kidney transplant are live, and 10 percent is cadaver unlike other developed countries where it is 90 percent. In India, even today cadaver transplant is a mere 10 percent and has still not gathered



DR. DEVINDER SINGH RANA

Chairman, Sir Ganga Ram Trust Society Chairman of Nephrolog

momentum even after making law in 1994 which is called The Human Organ Transplant Act. There is need to raise public awareness using all platforms including the print, electronic and social media. However, greater need is to stress the prevention of kidney diseases.