<table>
<thead>
<tr>
<th></th>
<th>Surgery</th>
<th>Price in CII</th>
<th>Price in FICCI</th>
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<tbody>
<tr>
<td>3.</td>
<td>Heart Surgery</td>
<td>$6500</td>
<td>$35000</td>
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<td>Bone marrow transplant</td>
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<td>Dental. Eye &amp; Cosmetic</td>
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<td>$5y</td>
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<td></td>
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<td>Replacement of bulky heart valve</td>
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<td>MRIS</td>
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<td>10.</td>
<td>Hip Resurfacing</td>
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</tr>
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Source: CII and FICCI Reports.

CHAPTER III

A COMPREHENSIVE STUDY ON SELECT MEDICAL TOURIST HOSPITALS AT CHENNAI

3.1 INTRODUCTION

This Chapter discusses the profile of the selected hospitals, namely Apollo, MIOT, Adayar Cancer Institute and Ramachandra Medical Hospitals in Chennai,
India. The profile includes origin, structure, management, treatment facilities and the like.

3.2 APOLLO HOSPITALS, CHENNAI, INDIA

The flagship hospital of the Apollo Group, Apollo Hospitals Chennai, was established in 1983. Today it is one of the most respected hospitals in the world and it is also amongst the most preferred destinations, for both patients from several parts of India as well as for medical tourism and medical value travel. The hospital specializes in cutting edge medical procedures. It has over 60 departments, spearheaded by internationally trained doctors who are skillfully supported by dedicated patient-care personnel. It is one of the few hospitals in Chennai that have state of the art facilities for various health disorders.
It has been a pioneer among the hospitals in Chennai and even in India, in many different treatments and procedures.

Apollo Hospitals Chennai – Milestones

- First donor compatible kidney transplant, performed at Apollo Hospitals Chennai by using the technique of column adsorption of blood group antibodies.
- A new dedicated, specially designed Nile Pax stent, was used to clear the blockage that was formed in the coronary artery involving two branches, at Apollo Hospitals Chennai.
- Endovascular Aneurysm Repair for 2 large aneurysms simultaneously performed at Apollo Hospitals Chennai.
- First hospital in India to perform Total Knee Replacement and the Illizarov Procedure.
- Pioneers of Birmingham Hip Resurfacing Procedure in India.
- Pioneers of multi-organ and cord blood transplants in India.
- 1,30,000 heart surgeries, with a success rate of 99.6%, on par with global standards.
- In less than three years since inception, the team at the Apollo Centre for Liver Disease and Transplantation, Chennai, completed over 100 Liver
Transplantations in June 2011, marking a noteworthy first-of-its-kind milestone in the City of Chennai.

- A 70% success rate in Bone Marrow Transplant.
- First Indian hospital to introduce newer techniques in coronary angioplasty, stereotactic radiotherapy and radio-surgery (for brain tumors)
- First Indian hospital to be awarded the ISO 9002 and ISO 14001 Certifications.
- First hospital in South India to get accreditation from the Joint Commission International USA.
- Declared as a ‘Centre of Excellence’ by the Government of India.
- Rated as the “Best Private Sector Hospital in India” by ‘The Week’ Magazine.
- Winner of healthcare awards 2008, instituted by the Express Healthcare Publications (The Indian Express Group) for Overall Best Hospital of the year, Operational Excellence and Leveraging Global Opportunity.
- Apollo hospitals Chennai has introduced an innovative healthcare delivery model – Apollo Day Surgery, which is the first-of-its-kind at Alwarpet in Chennai and a dedicated facility for minor surgeries requiring short-stay.
• Centre for liver disease and transplantation, Apollo Hospitals Chennai has completed 100 liver transplantations, in less than 4 years, over 90% success rate, creating a milestone in the history of medicine.
• Latest M guard stent technology, a specially designed Mesh covered stent, was used to save a 27 year old man from an acute heart attack. Apollo Hospitals was the first to introduce the technology in Chennai.
• Tamilnadu’s first ‘Movement Disorder Clinic’, launched at Apollo Speciality Hospital, Chennai.
• Surgeons of Apollo Hospitals Chennai performed the first simultaneous Liver-Intestine-Pancreas Transplant in India.

Apollo Hospitals – An Overview

Vision

Mission Statement

“Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit of humanity”

At the behest of his father, in 1971, Dr. Reddy left behind a flourishing practice in Boston and returned to India. On his return, he found the medical landscape in the country plagued by gaps in infrastructure, delivery and affordability. Things took a turn for the worse when he lost a young patient who
just did not have the means to go abroad for treatment. The incident was the turning point in Dr. Reddy’s life and steeled his determination to get quality healthcare to India. He set the blueprint to build India’s first multi-speciality private sector hospital.

Undaunted and unfazed by the obstacles faced, Apollo Hospitals opened its doors in 1983 and ever since nurtured a goal which read as “Our mission is to bring healthcare of international standards within the reach of every individual. We are committed to the achievement and maintenance of excellence in education, research and healthcare for the benefit of humanity”. In the 30 years since, it has scripted one of the most magnificent stories of success that India has seen. Not only is the Apollo Group one of the largest integrated healthcare groups in the region but also it did successfully catalyze the private healthcare revolution in the country. Apollo today has made every aspect of their lofty mission a reality. Along the way, the journey has touched and enriched 39 million lives who came from 120 countries.

Apollo hospitals was the forerunner of integrated healthcare in Asia, as well as globally. Today, the group’s futuristic vision has ensured that it stays in a position of strength at every touch point of the healthcare delivery chain. Its presence encompasses over 10,000 beds, across 51 hospitals, more than 1500 pharmacies, over 100 primary care and diagnostic clinics, 115 telemedicine units
across 9 countries, health insurance services, global projects consultancy, 15 academic institutions and a Research Foundation with a focus on global clinical trials, epidemiological studies, stem-cell and genetic research.

Over the past three decades, Apollo Hospitals’ transformative journey has forged a legacy of excellence in Indian healthcare. The Group has continuously set the agenda and has emerged as a leader in the blossoming private healthcare spaces. One of Apollo’s significant contributions has been the adoption of clinical excellence as an industry standard. Apollo was the first to invest in the pre-requisites that led to international quality accreditation like the JCI and also developed centres of excellence in Cardiac Sciences, Orthopaedics, Neurosciences, Emergency Care, Cancer and Organ Transplantation. Along with excellence, the Apollo philosophy rests on the pillars of technological superiority, a warm patient–centric approach, a clear and distinct cost advantage and a edge in forward – looking research. Apollo’s spectacular success rests on sustained commitment and investments in each of these pillars. The Group continues to break new ground by adopting new technology. From leveraging new age mobility, to getting futuristic equipment, Apollo has always been ahead of the curve. Currently, the Group believes in the tremendous potential of robotics and is investing heavily in making it a real and robust option for all. Apollo pioneered
Tender Loving Care (TLC) and it continues to be the magic that inspires hope, warmth and a sense of ease among the patients.

Apollo started out with the promise of bringing quality healthcare to India at a price point that Indians could afford. The cost of treatment in Apollo was a tenth of the price in the western world, Indians could afford. Today as the Group charts out its roadmap to take healthcare to a billion, the focus on driving a strong value proposition remains constant.

Apollo Hospitals has taken the spirit of leadership well beyond business metrics. It has accepted the onus of keeping India healthy. India could soon become the heart disease capital of the world if the surge of lifestyle diseases goes unchecked. Recognizing that the risk of heart disease can be significantly reduced, even reversed, Apollo Hospitals launched the pathbreaking Billion Hearing Beating, a campaign that empowers Indians with the knowledge to fight the common adversary, namely, the heart disease.

Apollo hospitals has always strongly believed in social initiatives that help transcend barriers. In keeping with this vision, the group has started several impactful programmes in this area. One among these initiatives is SACHi (Save a Child’s Heart initiative) – a community service initiative, with the aim of providing quality pediatric cardiac care and financial support to children from
underprivileged sections of society, suffering from heart diseases. Apollo also runs the SAHI (Society to Aid the Hearing Impaired) initiative to help poor children with hearing impairment and the CURE Foundation which is focused on cancer screening, cure and rehabilitation for those in need. In the area of Cancer Care, Apollo has also joined hands with Yuvraj Singh’s YOUWECAN to recognize massive cancer screenings. Apollo regularly conducts comprehensive health screening camps across the nation. The Group actively leverages its telemedicine and mHealth capabilities to take its screening programmes to even remote corners of the country.

Apollo’s remarkable story has captured India’s attention. For its service to the nation, the Group was felicitated with the honour of a commemorative postage stamp bearing its name. For his untiring pursuit of excellence in healthcare, Dr. Prathap C Reddy was bestowed with the second highest civilian award, the ‘Padma Vibhushan’, by the Government of India.

Recently, Apollo Hospitals celebrated its 30th year. The Group, led by Dr. Prathap Reddy, reaffirmed its goals and redefined their focus. With ambitious projects like Apollo Reach Hospitals, a strong focus on preventive healthcare and an unabated commitment to nurture excellence and expertise in healthcare, Apollo Hospitals envisions a new horizon – a future where the nation is healthy, where its
people are fighting fit and India emerges as the preferred global healthcare
destination.

**Growth Story**

Apollo Hospitals was inaugurated in 1983 by Shri Giani Zail Singh (President of India). The first Apollo Hospitals was in Chennai. The hospital commenced commercial operations the next year. Dr. Prathep Reddy has always maintained that comprehensive health insurance is essential to optimize the medical equation. Apollo Hospitals, under his guidance, was always the fore runner in this field. As early as 1986, a medical insurance scheme was introduced, in collaboration with United India Insurance Company Limited.

The Group showed great promise, and blossomed very fast. Within three years of operation, they announced their first dividend and by 1988, has expanded to Hyderabad.

**Dr. Prathap C. Reddy**

**Founder Chairman**

Dr. Prathap C Reddy, the visionary Founder Chairman of Apollo Hospitals, is widely hailed as the architect of modern Indian healthcare. He is best described as a compassionate humanitarian who dedicated his life’s effort to bringing world class healthcare within the economic and geographic reach of millions of patients.
The institution he built and the values and vision he inculcated led the private healthcare revolution and transformed the Indian healthcare landscape.

**Dr. Preetha Reddy**

**Executive Vice Chairperson,**

**Apollo Hospitals Enterprise Limited**

Dr. Preetha Reddy formally joined Apollo Hospitals as the Joint Managing Director in 1989 and five years later, she was elevated as the Managing Director of the Group. Inspired and guided by her father, Dr. Prathap C Reddy, the pioneer of corporatized healthcare in India, she spearheaded the Group’s growth in quaternary and tertiary care hospitals in urban and semi-urban India, primary care and diagnostic family clinics, pharmacies, health education and research endeavours, as well as sharpening Apollo’s focus in the areas of global clinical trials, wellness, healthcare consulting, business process operations and healthcare technology services. She leads the organization’s thrust on continuous quality improvement processes to achieve the highest standards of patient satisfaction. On July 2, 2014, she assumed an expanded role and elevated to the position of Executive Vice Chairperson, Apollo Hospitals Enterprise Limited.

**Ms. Shobana Kamineni**

**Executive Vice Chairperson**

**Apollo Hospitals Enterprise Limited**
A member of the founding family, Shobana Kamineni imbibed greatly from the visionary genius of her father Dr Prathap C Reddy. She formally joined Apollo Hospitals in 1982 as a Liaison and Project Executive. Her instinctive expertise in this role was instrumental in the launching of several of Apollo’s ambitious projects right from the early days – from large hospitals construction to forays into pharmacies and insurance. On July 2, 2014, Shobana Kamineni assumed additional responsibilities and re-designated as the Executive Vice-Chairperson, Apollo Hospitals Enterprise Limited. Shobana also leads all the Apollo Pharmacy related initiatives which is presently the fastest growing business within AHEL. She led Apollo’s push into Health Insurance (Apollo Munich Health Insurance) in collaboration with Munich Re in 2008.

Ms. Suneeta Reddy
Managing Director
Apollo Hospitals Enterprise Limited

A member of the founding family, Suneeta Reddy joined the Apollo Hospitals Group in 1989. As Executive Director Finance, she was instrumental in taking the organization to the international equity markets through a successful GDR and subsequently bringing the First Foreign Direct Investment into Healthcare in India. It has been her deep domain knowledge and foresight that has guided Apollo’s emergence as a formidable, financially sound hospital enterprise.
She will be steering the hospitals in its vertical growth as well as overseeing the branding and marketing portfolio.

Ms. Sangita Reddy  
Joint Managing Director,  
Apollo Hospitals Enterprise Limited

A member of the founding family, Sangita Reddy actively participated in the formation of Apollo Hospitals and formally joined the Group in 1983 as a Management Trainee. For almost two decades, as the Executive Director Operations, Sangita led the human resources portfolio and her efforts have been central to the values of the Apollo culture. Under her able stewardship, Apollo Hospitals in Hyderabad emerged as Asia’s First Health City – a model that also introduced multi-dimensional holistic healthcare to India. On July 2, 2014, Sangita Reddy was elevated to the position of Joint Managing Director, Apollo Hospitals Enterprise Limited. She has assumed greater organizational responsibilities which includes creating an IT enabled patient centric operation across the Apollo footprint and forging an unmatched continuum of care for patients.

Independent Directors
Corporate Social Responsibility

Apollo Hospitals touches a billion lives. They strive to reach out to people from every walk of life and do our bit to help them stay healthy. Apart from the major social initiatives and programmes that Apollo hospitals has initiated, every individual hospital in the group does its bit for the community it serves. Every member of the Apollo family is committed to provide care and solace to the people in their location.

The following are the social initiatives sponsored by the Apollo Hospitals.

- Apollo Dil Ki Daud, Indraprastha Apollo Hospitals, New Delhi
- “SAVE” India Campaign, Indraprastha Apollo Hospitals, New Delhi
• Adoption of the Bhat Village, Gujarat, Apollo Hospitals, Ahmedabad
• Apollo Life Saver Training Program, Apollo Hospitals, Bengaluru
• Annual Bhagidari Utsav, Indraprasha Apollo Hospitals, Delhi
• “Plant a tree this monsoon” Campaign, Indraprastha Apollo Hospitals, New Delhi
• Apollo First Aid Training programmes at Police Boys & Girls Clubs, Apollo Hospitals, Chennai
• Emergency Helpline Posters, Apollo Hospitals, Chennai
• Arthritis Awareness Programme on World Arthritis Day, Secunderabad
• Apollo Isha Vidya Rural school commenced at Aragonda village, Chittoor district, Seemandhra
• APOLLO – YOUWECAN Cancer Screening initiative launches its First Mobile Cancer Screening Unit
• Stay Healthy!! Promoting eWellness in Rural India – 2013
• Apollo Gleneagles Hospitals Free Cancer Screening Initiative
• “Apollo Total Health Nutrition Centre” at Aragonda, Seemandhra launched

Joint Commission International Accreditation

The Joint Commission International (JCI) is a U.S. based accreditation body, dedicated to improving healthcare quality and safety around the world. The accreditation is an international gold standard for hospitals.
The Apollo hospitals group achieved the unique distinction of achieving accreditation for its hospitals at Delhi, Chennai, Hyderabad, Ludhiana, Bengaluru, Kolkata, Mauritius and Dhaka. Indraprastha Apollo Hospitals, Delhi, became the first hospital in India, while Apollo Hospitals, Chennai became the first hospital in South India to achieve this unique and coveted accreditation.

JCI works directly with healthcare organizations to achieve their goals of providing quality clinical care and services in safe, efficient and well-managed facilities.

JCI assesses through a rigorous on site survey process, a healthcare provider’s quality in the following key areas –

- Access to health care
- Health Assessment and care processes
- Education and rights of individuals
- Management of information and human resources
- Safety of facility
- Infection control
- Collaborative integrated management
- Facility management
- Performance Measurement
• Education & Rights of Patients

NABH accreditation

The National Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of the Quality Council of India, set up to establish and operate accreditation programmes for healthcare organizations. The board is structured to cater to the much desired needs of the consumers and to set benchmarks for the progress of health industry. Apollo Hospitals, Bilaspur has received the NABH accreditation, making it India’s First Rural Hospital to achieve this honour and leader in modern healthcare. Apollo Speciality Hospitals, Madurai, Apollo BGS Hospitals, Mysore and Apollo Speciality Hospitals, Chennai have also been accredited by the NABH.

**TABLE 3.1**

**NABH ACCREDITED APOLLO HOSPITALS**
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<th>No.</th>
<th>Location</th>
<th>Year</th>
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<td>Madurai</td>
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<td>2013</td>
</tr>
<tr>
<td>7.</td>
<td>Bilaspur</td>
<td>2013</td>
</tr>
<tr>
<td>8.</td>
<td>Bhubaneswar</td>
<td>2013</td>
</tr>
<tr>
<td>9.</td>
<td>Pune</td>
<td>2014</td>
</tr>
<tr>
<td>10.</td>
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</table>

NABL Accreditation

Apollo Hospitals, Chennai was assessed and accredited, in accordance with the Standard ISO 15189:2003 “Medical Laboratories – particular requirements for Quality & Competence”, for its facilities in the field of Medical Testing.

ISO 9001:2008

The International Organization for Standardization (ISO) is a network of the national standards institutes of 151 countries, on the basis of the member per
country. A Central Secretariat based in Geneva, Switzerland, co-ordinates the system.

Apollo Hospitals, Chennai was the first hospital in India to be awarded an ISO 9001:2008 certification.

The ISO 9000 series is concerned with ‘quality management’. It is a certification affirming the organization’s ability to enhance customer satisfaction by meeting customer and applicable regulatory requirements and continually to improve its performance in this regard.

The ISO standards are a guarantee of quality across boundaries and geographies. They are an assurance to the international patient of the safety and reliability of Apollo’s services against global benchmarks.

Superbrand

The Indian Consumer Superbrands Council includes some of the most eminent marketing, media and advertising professionals. As the council members agree, “Obtaining Superbrands’ status puts the brand in the circle of an elite group that is seen to represent the best practices in brand management. In short, it can be likened to a brand Oscar. Apollo Hospitals entered the ‘Superbrand’ category in 2004.
Neuro Sciences - Treatment

Neurologists, neurosurgeons, critical care specialists, nurses and researchers at the Apollo Institute of Neurosciences, collaborate with each other seamlessly like a single entity. To the patient it means better diagnosis and better treatment. They are renowned for providing specialized care when it comes to stroke, head & spinal injuries, brain tumors, seizure disorders, movement disorders and headaches.

- Brain & Spine Surgery
- Micro – Neurosurgery
- Complex Spinal Surgeries & Minimal Access Spine Surgery
- Surgery for Spinal Cord Tumors
- Surgery for the Acute Head Injury and Spinal Injuries
- Neuro Navigation
- Surgery for Stroke/Stroke Prevention
- Skull Base Surgery
- Functional Neurosurgery
- Neuro – Endoscopic Surgery for Pituitary Tumors and CSF Leaks
- Endovascular Coiling of Aneurysms and Vascular Malformations
- Paediatric Neurosurgery
- Vertebroplasty
- Stereotactic Radiosurgery
- Stereotactic Biopsy/aspiration
- Cyberknife
- Neuro – Radiology Services
• Robotic Neurorehabilitation
• Integrated Neuro – Physiology Laboratory
• Neuro – Intensive Care

• **Brain & Spine Surgery**

  Neurosurgery which includes surgery on the brain, spinal cord, skull and the bony spinal column, is a highly advanced superspecialty which requires specialized training. With technology becoming the prime driver in most areas of healthcare, tremendous strides have been made in Neuro Care. Apollo Hospitals is recognized as a leader in acute neurosurgical care and it is ranked among the top hospitals specializing in Neuro Care in the world. Ably supported by modern neuro-radiology service, neuro-intensive care facility, medical and radiation oncology services, specialists at Apollo Hospitals achieve outcomes matching those of the leading institutions across the globe.

• **Micro – Neurosurgery**
  *(Surgery Performed using an operating microscope)*

  With five operating microscopes in six operating rooms, Apollo Hospitals offers the best in micro-neurosurgery. Almost all procedures in brain and spine are done under the magnification provided by the microscope. With the use of a
microscope, there is less damage to a normal brain or spinal cord surrounding the area of abnormality. Patients have a smooth recovery and lower incidence of surgery-induced deficits. The hospital stay is reduced and thus the cost to the patient is lower.

- **Complex Spinal Surgeries & Minimal Access Spine Surgery**
  (Microsurgery for Disc Prolapses, Stabilization for Spinal Instability and Deformity)

  With the increasing rates of high speed vehicular accidents, the incidence of Spinal Injuries are on the rise. If the patients do not receive effective treatment at the earliest, they may be left with debilitation neurological defects (paralysis of hands and legs/inability to control urination and defecation). Complex spinal stabilization procedures are performed at Apollo Hospitals to achieve a high degree of spinal stability as rehabilitation often depends on it. Microsurgery (Micro-Discetomy, Corpectomy [removal of vertebral body], Laminoplasty) is used to treat Spondylosis, where the spine gets degenerated and causes pressure on the Spinal Cord and Spinal Nerves.

- **Surgery for Spinal Cord Tumors**

  Spinal Tumors are among the tumors most difficult to treat, as the spinal cord is highly fragile and controls functioning of the limbs. Using micro-
neurosurgery, tumors in and around the spinal cord are removed, with minimal risk to the spinal cord.

- **Surgery for the Acute Head Injury and Spinal Injuries**

  With one of the highest incidences of poly-trauma occurring in India, Apollo Hospitals leads in managing these complex problems. With a team of Orthopaedic, Facio maxillary, Plastic, Neuro capitals, prompt and efficient treatment is available to all these patients. Reconstructive surgery is also available for patients with deformity.

- **Neuro Navigation**

  Neuro-Navigation, also termed Frameless Stereotactic Surgery, is the ability to perform real time, intra-operative guidance, during the cranial and/or spinal surgery. This ability increases the accuracy and safety in neurosurgery and such technology is becoming a standard in neurosurgery. At Apollo Hospitals, the faculty is able to use the Brain Lab Frameless Systems. Such technology is able to guide the surgeon to the surgical targets without the use of external frames. The stereotactic or localization aspect of this technology is based on external or surface fiducials and internal or anatomical landmarks.

  The major role of frameless systems or Neuro Navigation in neurosurgery is in cranial surgery. Such localization can limit the size of the bone opening or
craniotomy and help remove safely intra-axial lesions like brain tumors. Thus, the frameless stereotactic systems have been used primarily for tumor resection. Such systems are especially useful in accurately localizing and then resecting tumor near important areas of the brain, like the motor strip. The Radionics CRW System in Apollo Hospitals is complete with the full range of accessories to include the ability to carry out Frame Based Stereotactic Surgery.

Micro Surgical Instrumentation: Two complete sets of Microsurgical Instruments are available at each Centre of Excellence for skilled surgeons to carry out the full range of microsurgery for cranial as well as spinal surgery.

- **Surgery for Stroke/Stroke Prevention**

  *(Evacuation of intra-cerebral hemorrhage, carotid endarterectomy)*

  Apollo Hospitals is one of the few centers where surgery is performed for stroke-bleeding into the brain or for very large cerebral infarcts to remove the clots. As part of the comprehensive stroke prevention program, carotid endarterectomy surgery is offered to patients, with carotid atherosclerotic disease where there is high risk of a stroke.

- **Skull Base Surgery**

  *(Complex procedures at the base of the brain involving the bone and blood vessels)*
Tumors of the skull base are often the most difficult to treat. Surgery is complex due to the critical location of the tumor in terms of proximity to vital blood vessels, nerves and requires a team of surgeons – Neurosurgeon, Head & Neck surgeon, Plastic surgeon and Vascular surgeon. With the latest in high-speed drills and saws, Apollo Hospitals is indeed well equipped for these procedures.

- **Functional Neurosurgery**

  Chennai has been in the forefront of surgery for Parkinson’s Disease from as early as ‘60s and ‘70s. Apollo Speciality Hospital has brought the latest in surgery for Parkinson’s disease like Sub Thalamic Nucleus (STN) and Deep Brian Stimulation (DBS). Similar to a Cardiac Pacemaker, here also a pacemaker is implanted into the brain. The procedure is done under local anesthesia. The results are visible immediately and are sustained. Deep Brain Stimulation (DBS) is a complex procedure, which involves inserting an electrode into the STN (deep in the brain) done under local anesthesia, where the main focus is on patient safety and adherence to a patented algorithm. This treatment is based on the premise that high frequency stimulation of the Sub-Thalamic Nucleus (STN), deep in the brain, alleviates symptoms of Parkinson’s disease. Stimulating electrodes are implanted in the STN, using stereotactic neurosurgical navigation, supported by intra-operative neurophysiological monitoring. The electrodes are connected to a battery
operated pulse generator, fixed under the skin (none of them is visible from the outside). The implanted pulse generator is programmed, from the outside, for optimal stimulation and to be switched on/off by the external programmer. Protocol beginnings from imaging to implantation, the steps of which are standard across all centers adapting the process, are followed rigidly. These procedures are highly technical, sophisticated, and elaborate and require extensive training.

Deep Brain Stimulation is also effective for other movement disorders like dystonias, essential tremors, some psychiatric disorders like Obsessive Compulsive Disease and chronic depression, severe alcoholism, severe chronic pain, uncontrolled seizures etc. Apollo Specialty Hospital has the expertise and the equipment to take up treatment of these complex diseases and help thousands of such patients.

- **Neuro – Endoscopic Surgery for Pituitary Tumors and CSF Leaks**

  This procedure has reduced the hospital stay of the patients and has helped in quicker recovery from hormonal problems. Patients, who have a leak of the brain fluid through the nose, can also be treated by this relatively less invasive technique. Neuroendoscopy Equipments are also used routinely for minimally invasive endoscopic removal of certain tumors (eg. intraventricular and pituitary
tumors), third ventriculostomy in the treatment of hydrocephalus, drainage of brain abscesses and cysts.

- **Endovascular Coiling of Aneurysms and Vascular Malformations**

  With the help of a dedicated Cath Lab and a full time Neuro-Interventional Radiologist, Apollo Hospitals has to its credit for having treated numerous aneurysms, carotico-cavernous fistulae, Dural AV fistulae, AVM’s of brain and spinal cord. Therapeutic embolisations of brian tumors and tumors of the spine are done routinely.

- **Paediatric Neurosurgery**
  *(For anomalies and tumors of the brain and spinal cord in infants and children)*

  For children born with anomalies of the brain, spinal cord, skull deformities and spinal deformities, Apollo Hospitals offers the best care, in the form of programmable shunts for hydrocephalus, repair of meningo-myelocelses, correction of cranio-synostosis (early abnormal closure of skull bones) and correction of spinal deformities. Children with tumors of the brain and eyes are also treated

- **Vertebroplasty**

  Vertebroplasty is an image-guided, minimally invasive, nonsurgical therapy used to strengthen the vertebra (spinal bone), weakened by osteoporosis, or cancer.
Vertebroplasty can increase the patient’s functional abilities, allow them to return to the previous level of activity, and prevent further vertebral collapse. It is usually successful at alleviating the pain. Performed as an outpatient procedure, vertebroplasty is accomplished by injecting a bone cement mixture through a needle into the fractured bone.

- **Stereotactic Radiosurgery**
  (Delivering a single dose precise radiation to any part of the brain, for tumor or AVM)

  The closed skull destruction of an intracranial target in a single session, using ionizing beams of radiation, focused with the help of an intracranial guiding device, avoids significant concomitant or late radiation damage to adjacent tissues. An X-Knife SRS procedure is completed in one day and the actual treatment time typically takes less than 30 minutes. Exclusive departments in the hospitals house these machines, which are the first few dedicated X-Knifes outside the United States. X-Knife has the added advantage of being used for fractioned treatment (Stereo Tactic Radiotheraphy-SRT) for benign and malignant tumors.

- **Stereotactic Biopsy/aspiration**

  Stereotactic biopsy/aspiration involves no opening of the skull and is suitable for small, deep seated tumors. It is performed under a CT/MRI scan guidance, having precise computer calculations. Over 1000 stereotactic biopsies
and craniotomies (open surgeries with precise localization of the tumor by stereotaxy) have been performed.

- **Cyberknife**

  The latest in the arsenal is the Cyberknife which is the highly precise Radiotherapy which is non-invasive. It is robotic LINAC which has real time imaging guidance to treat patients with brain and spine disorders like tumors (benign and malignant), AVM’s and metastatic cancer. It is the first of its kind in Asia. A team of Radiation Oncologists and Physicists form the core team behind this new technological marvel to assist the neurosurgeons. This is available at Apollo Speciality Hospital Chennai.

- **Neuro – Radiology Services**

  For Interventional Neuro Radiology, separate departments and separate machines are available for this crucial area. More than 150 therapeutic procedures and more than 300 diagnostic procedures are being done annually.

  The following radiological services are at the disposal of the Neurosurgical Department- Neuro-sonogram Trans-cranial Doppler, 24 slice, 64 slice and 320
slice CAT scans. PET CT Scanner, 1.5 Tesla MRI with provisions for Spectroscopy, Tractography and Functional studies.

- **Robotic Neurorehabilitation**

  Neurological disorders leave most with devastating disabilities such as the loss of movements in an arm or leg and the accompanying loss of freedom of movement. Not so long ago, these disabilities were considered incurable and therapy often focused on training people to use their “good side”.

  Fortunately, research shows that the concept of “task-specific learning” in neuro-rehabilitation, based on neuroplasticity, suggests that activities of daily living may be trained and improved through continuous repetition in neurological patients. Robotic Therapy meets this demand and enables intensive functional locomotion therapy, with augmented feedback.

  Michael Brady (1985) Robotics has come a long way in the past few years and while they not yet creating bionic men and women, they can atleast claim to make people “better, stronger, and faster.” Robotics can compensate for the patient’s inadequate strength or motor control, at speeds individually calibrated on the residual motor functions while continuous feedback provides the patient with subjective perception of improvement. These characteristics make robotics a
potential support in the rehabilitation domain for both trainers and patients, whose role remains central to the process. Robotics Neurorehabilitation is attractive because of its potential for easy deployment, its applicability across a wide range of motor impairment and its high measurement reliability.

Apollo Hospitals provides robotic Neurorehabilitation, a scientific innovation, helping the patients on their way to recovery and a better quality of life. Apollo Hospitals is the only institution in the country to have the latest in robotic neurorehabilitation.

- LOKOMAT for intensive locomotion therapy
- ARMEO for functional therapy of the upper extremities
- ERIGO for early rehabilitation and patient mobilization

Facilities

Cardiothoracic CCU

The Centres have dedicated Cardiothoracic CCUs, with 1:1 nursing ratio, round the clock. They are well equipped with bedside color Doppler, echocardiography system, continuous oxygen supply, infusion pumps, defibrillator, ventilators, invasive as well as non-invasive pressure monitoring systems, temporary pace maker (transdermal as well as transvenous), intra aortic balloon pump, Blood Gas machine and electrolytes analysis machines.
Electrophysiology

Electrophysiological studies have been used for decades to evaluate cardiac arrhythmias and to get a basic understanding of their mechanisms. Ventricular tachyarrhythmias are the commonest cause of Sudden Cardiac Death (SCD). The patients are investigated by an EP study and if required, provided with Implantable Cardioverter Defibrillator (ICD) as a life saving device. Apollo Hospitals has capabilities for multi-site pacing for patients of heart failure and dilated cardiomyopathy. Recently, a bilateral pacing was performed for intermittent Atrial Fibrillation.

Non-Invasive Cardiology

Non-invasive Cardiac Laboratory is run by senior cardiologists who are dedicated to the work in the field. The procedures done here include stress echoes, dobutamine stress echoes, vascular dopplers, trans-oesophageal echoes, intra-operative TEE and fetal echoes.

Diagnostic Services

Apollo Hospitals believes that the first step to cure is accurate diagnosis of the disorder. Investment in the latest medical and diagnostics equipment, along with upgradation of skills of personnel, is always ensured.
The following are some of the Cardiac Diagnostic Services:

**320 Slice CT Scanner**

The 320 Slice CT Scanner is the 7th of its kind in the world and the first for India. It is available only at a few leading hospitals across the world. The 320 Slice CT Scanner can image the entire heart in a single rotation, providing volumetric temporal resolution that is superior to multi-slice temporal resolution available today, resulting in clearer image quality. It shows not only whole organ anatomy but also the changes in the entire organ over time, resulting in a better, faster, more complete diagnosis. In addition, it can perform a comprehensive neurological examination, providing arterial, venous and whole brain perfusion in a single study, with both less contrast and radiation dose. It is especially helpful in identifying the level of heart diseases in people with high cholesterol levels and high blood pressure but with few overt signs and symptoms. This facility is currently available at Apollo Hospitals Chennai.

**64 Slice CT Angiography**

64 Slice CT Angiography is a non-invasive procedure that helps in detecting minute blockages of the arteries of the heart. The images obtained through this procedure are sharp and crystal clear, enabling cardiologists to spot even the smallest of blockages at a very early stage. It is also used to determine the
conditions of the stents and bypass surgery grafts of patients who have had angioplasties of CABG. Apollo Hospitals, India was the first in the country to introduce this sophisticated cardiac investigation. This facility is currently available at Apollo Hospitals Chennai and Kolkata.

**TEE**

TransEsophageal Echocardiography (TEE) is used to determine whether a patient who has an abnormal heart rhythm is at high risk for stroke. The procedure also reveals any blood clots present in the heart.

**Stress Echocardiography**

Stress Echocardiography uses exercise or medication to make the heart work harder than when at rest. This helps to obtain more detailed pictures of the heart and how well or poorly it is functioning. Echocardiography assesses the overall function of the heart, determines the presence of heart diseases, follows the progress of valve diseases and evaluates the effectiveness of medical or surgical treatment.

**Electrophysiology [EP] Study**
An EP study is a specialized procedure conducted by a trained cardiac specialist. In this procedure, one or more thin, flexible wires, called catheters, are inserted into a blood vessel (usually the groin) and guided into the heart. Each catheter has two or more electrodes to measure the heart’s electrical signals as they travel from one chamber to another.

EP studies are done to diagnose the cardiac rhythm abnormality to help determine the best treatment and to pinpoint the site where therapy may be useful.

**CANCER INSTITUTE**

**Apollo Expertise**

The Apollo Cancer Institutes are some of the best cancer hospitals in India, having comprehensive state-of-the-art facilities and a coordinated multidisciplinary approach for the treatment of patients suffering from cancer. The Positron Emission Tomography (PET) scan at Hyderabad and Chennai [a powerful imaging technique for the diagnosis of cancer], the CyberKnife® at Chennai that provides unparalleled access to tumours anywhere in the body, and now the Novalis radiosurgery platform at Hyderabad. Delhi and Kolkata provide better treatment of cancer aiming at greater precision, faster treatment delivery, more flexible treatment scheduling and a higher level of patient comfort, all of these undoubtedly making the Cancer Centres of the Apollo hospitals Group the best
cancer hospitals in India. The blood and bone marrow transplantation centre at Apollo Hospitals, India, has performed over 500 transplantations with an excellent success rate.

**Milestones**

- In 1995, Apollo Hospitals performed its first Bone Marrow Transplantation, as well as the first multi organ transplant in the country. Early in 2001, The Apollo Speciality Hospital, Chennai completed 100 Bone Marrow Transplants.
- Apollo Hospitals was the first Indian hospital group to introduce Stereotactic Radiotherapy and Radiosurgery for cancer treatment.
- Was the first hospital group in South-East Asia to introduce the 16 Slice PET-CT Scan.
- Introduced the most advanced CyberKnife® Robotic Radio Surgery System in the Asia Pacific, region, the world’s first and only robotic radiosurgery system designed to treat tumors anywhere in the body with sub-millimeter accuracy.
- Novalis Tx™ Radiotherapy & Radiosurgery, one of the most precise, non-invasive and fastest treatments available for cancerous and non-cancerous conditions of the entire body, was launched at Apollo Cancer Institute
Hyderabad in 2009 and at Indraprastha Apollo Hospitals, New Delhi, in 2010. Treatments are delivered from outside the body to destroy tumors without an incision. This protects the patients healthy tissue, so patients can avoid hospitalization, lengthy recovery periods and many of the complications often associated with conventional surgery.

- Apollo Gleneagles Cancer Hospital, Eastern India’s first Super Speciality Cancer Hospital, was inaugurated on March 23, 2010. It is the first comprehensive cancer care hospital in Eastern India, equipped with the latest radiotherapy – Novalis Tx, Unit, Chemo-therapy Unit, Onco-Surgical Unit, Bone Marrow Transplant Unit with specialized wards.

**Leaders in Clinical Excellence**

Clinical Excellence is Apollo’s USP (Unique Selling Proposition) and the hallmark of its healthcare practice. A combination of highly skilled and experienced doctors and detailed protocols, has effected superior patient outcomes and clinical practices. A standing proof to this excellence is the number of JCI accredited hospitals under the Apollo flagship.

The Joint Commission International (JCI) is a U.S. based accreditation body, dedicated to improving healthcare quality and safety around the world. The accreditation is an international gold standard for hospitals. The National
Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of the Quality Council of India, set up to establish and operate accreditation programmes for healthcare organizations.

Sustained clinical excellence is made possible only by effective medical management. At Apollo, quality is a practice, a way of life. Healthcare quality metrics which can influence measurable changes in process, protocols, and behaviours, help Apollo Hospitals to provide the best medical treatment possible. Over 30 million patients, from over 120 countries, stand testimony to this all important pillar of success.

**The Apollo Standards of Clinical Care (TASCC)**

The Apollo Standards of Clinical Care (TASCC) comprises of sets of process requirements and outcome measures which underpin the Apollo Hospital’s approach to clinical care. TASCC focuses on delivering uniform high quality clinical care to all patients alike, across all group hospitals irrespective of location and size.

Apollo Clinical Excellence @25[ACE @ 25], Apollo Quality Program [AQP], Apollo Incident Reporting System [AIRS], Apollo Mortality Review [AMR], and Apollo Critical Policies Plans and Procedures [ACPPP] together form TASCC.
Apollo Clinical Excellence @ 25 (ACE@25)

Apollo Clinical Excellence@25, the revolutionary clinical balanced scorecard, incorporates 25 clinical quality parameters, involving complication rates, mortality rates, average length of stay after a major procedure, hospital acquired infection rates, pain management and medication errors in a dashboard called Rocket ACE (RACE). The numerators and denominators, inclusions and exclusions are defined clearly and the data collection methodology is standardized across all participating hospitals in the group—currently 31 in number. The data collected are validated by a 20 member Clinical Audit Team. Trends on a quarterly, half yearly and annual basis are analysed and benchmark our performance with some of the world’s best hospitals.

ACE@25 embodies our commitment to continuously challenge ourselves in the face of a changing environment, and stimulates us to keep raising the bar in our clinical performance.

The Apollo Quality Program (AQP)

The Apollo Quality Program focuses on patient safety practices in all Apollo hospitals, regardless of accreditation status and covers four broad areas. Safety during clinical handovers, Surgical safety, Medication safety and the Six
International Patient Safety Goals of JCI. Trends have shown a positive trajectory over the last year and compliance rates have improved steadily in all areas.

**The Apollo Mortality Review (AMR)**

Another important review, launched in 2012, was the Apollo Mortality Review (AMR). Using important trigger criteria, all deaths in the hospital are identified. Categorized, systematically reviewed and analyzed to identify ways of improving outcomes and follow up actions and protocols are devised to minimize such occurrences. AMR is now standard operating procedure across 31 hospitals in the Group.

**Apollo Critical Policies, Plans & Procedures (ACPPP)**

Apollo has standardized various clinical and non-clinical processes from clinical care to nursing care, managerial processes, utility systems, and infrastructural requirements by implementing the Apollo Critical Policies, Plans and Procedures (ACPPP)-25 policies in all hospitals in the Group. This assures that patients receive optimal clinical care under any circumstance.

**3.3 MIOT HOSPITALS – a leading Multi-Speciality Hospital in India, known for its adoption of professional standards, both nationally and internationally**
Belong the leading centre for orthopaedics and orthopaedic research, MIOT Hospitals has world class specialities in the field of Joint Replacement Surgeries, Orthopaedics and Trauma Care. MIOT also has specialized centre for Nephrology, Thoracic & Cardio Vascular Care, Neurology and Neuro Surgery Paediatric Cardio Surgery, Gastroenterology & Liver Diseases and Cancer Treatment (Surgical, Medical and Radiation Oncology) and many other specialties.

MIOT HOSPITALS
TrueBeam STx - Revolutionary and the most advanced radiotherapy in the world

MIOT Hospitals was created by an exceptional physician who could not find the ideal environment for healthcare in India. Today MIOT is a leading Multi Specialty Hospital, with 46 specialties, serving 129 countries across the world.

- **Joint Replacement Surgery:** Leading centre for Joint Replacement Surgery, with 37,000 successful Hip Replacements Surgeries, Knee Replacement Surgeries, shoulder Replacement Surgeries and Revision Surgeries through its Joint For Life Programme.
- First hospital in Asia pacific region and second hospital in the world to have Computer Integrated Navigation System for Joint Replacement Surgery.
- It is a leading Cardiac Centre in Endovascular Grafting (treating aortic aneurysm by Keyhole Surgery procedures) and Beating Heart Surgery. This
center performs more than 1000 surgeries annually. It has performed more than 15000 cardiac surgical procedures, including more than 500 aneurysm surgeries, with a success rate of 97% to 98% which matches results among the best across the world.

- **MIOT Heart Revive Center**: 24x7 dedicated center for comprehensive cardiac care, with experienced cardiac specialists on call 24x7, dedicated emergency ambulance, door to balloon in 90 minutes, cutting edge equipments and treatment from heart attack and arrhythmia (palpitation & slow heart beats).

- **MIOT International – Department of Adult Cardiology and interventional Cardiology** is a state of the art facility, with all the ultra-modern technology, including coronary imaging facilities like the Optical Coherence Tomography (OCT). The interventional division has 2 catheterization labs where approximately 6000 procedures are performed annually, which includes EVAR, complex coronary angioplasties like Rotablaton-angioplasty, By-pass graft angioplasties, Left main and bifurcation angioplasties and chronic total occlusions, in addition to routine primary angioplasties and elective angioplasties, with proficiency in performance via the radial route (through the hand) too. They also perform numerous non-coronary interventions as Percutaneous-Trans Mitral
commissurotomies, Balloon Aortic and Pulmonary Valvuloplasties, Atrial septal device closures, Patent doctus arteriosus device closures, Renal, Carotid artery stenting and Lower limb and other peripheral interventions. MIOT offers the most high-end skilled cardiac care and state of the art technology which is available only in a few centres in the country, with ultra-modern global equivalence.

- **MIOT Institute of Cancer Cure:**
  - Is a comprehensive one-stop center for cancer detection, diagnosis and treatment
  - 24-hour world class Histopathology lab, Digital Mammography, dedicated 64 Slice PET-CT – all to detect and diagnose early incidence of cancer cells
  - 35 member tumor board team to discuss and decide on cancer treatment plan
  - Experienced team of surgical, medical and radiation oncologist
  - TrueBeam STx a revolutionary radiation technology for cancer treatment (MIOT was the first in Asia Pacific, and only the third hospital in the world to commission TrueBeam STx during 2010)
  - Largest, Comprehensive, diagnostic and therapeutic Cancer for total care of all forms of Cancer
• MIOT has also pioneered **Haplo-Identical Bone Marrow Transplant** in India.

• **MIOT Institute of Nephrology:** It is the largest Nephrology unit in the country, with state-of-the-art dialysis unit which caters to around 50 patients per day and performs renal (kidney) transplants for 5 patients per month. The Institute, in collaboration with Japan, has performed kidney transplants across blood groups – from “B” blood group donor to “O” blood group recipient.

• **MIOT Centre for Children’s Cardiac Care:** Leading and dedicated Paediatric Cardiac Centre for treating children, with congenital heart disorders, from just born to children.

• **MIOT Advanced Center for Gastrointestinal and Liver Diseases:** A centre of excellence for the treatment of digestive and liver disease with state-of-the-art infrastructure, including revolutionary technology like Spy Glass and Double Balloon Enteroscopy, overseen by one of the country’s leading experts in this field and supported by a hand picked team of specialists.

• **Department of Hepato-Pancreatico-Biliary (HPB) Surgery and Transplants:** It is one of the most preferred referral center or any complicated Liver & Pancreatic surgeries and transplants across India by
expert physicians & primary care institutions. The facility is equipped with dedicated Liver ICU & ward to provide focused care by designated specialists. *The team with exceptional expertise has performed over 400 Liver Transplants and more than 1000 complex Pancreatic surgeries.* The department is also one among the very few centers in India to have complex HPB Surgery & Laparoscopic Liver surgery.

- **Pioneer in Pinhole Surgery and Keyhole Surgery**
- **Has one of the best equipped Imaging Sciences Departments in the country**
- **Department of Transfusion Medicine:** It is the first of its kind that brings together Component Separation, Aphaeresis and Leucocyte Filtration under one roof. In today’s world of auto immune disease and complex bone marrow, kidney and liver transplants, the armamentarium and scope of transfusion medicine has transcended to the next level.

- **Clinical Laboratory Services** is proud to claim **NABL Accreditation** *(National Accreditation Board for Testing and Calibration Laboratories)* and **Certificate of Compliance** *(Quality Council of India)* which testify to the international quality standards adhered to at MIOT Hospitals. The centre houses state-of-the-art technology to perform most of the routine and complex testing process. The laboratory has fully automated analyzers in clinical chemistry, hematology, clinical pathology, serology and
immunoassays. The clinical microbiology has state of the art, automated blood culture systems which can alert growth as early as three hours. The Transplantation Immunology and Molecular Diagnostics is the first in South India to employ Start-Luminex based Multiplex technology and aid high resolution tissue typing, Donor Specific Antibodies and Panel Reactive Antibodies. MIOT Lab has implemented ISO 15189:2007 standards in quality management services and has been consistently ranked within 10 among 720 global participating laboratories.

- Favored destination for International Patients, from 129 countries around the world.
- Equipped with the most modern and infection-free recuperating facility
- About 200 – experienced and full time Doctors, 600 trained nurses and 1000 committed staff.
- Widening its excellence in Research (Stem Cell Research), Education (School & College of Nursing for high standards). The MIOT Academy of Allied Health Science offers various hospital related technical courses.
- MIOT also shoulders social responsibility by setting up CHIME which is a part of MIOT’s corporate social responsibility programme, offering free heart surgeries for children with congenital heart problem, from lower
economic background. 470 children have benefited in 5 years through CHIME.

- 1000 Bed capacity hospital

**Centres of Excellence**

MIOT is always committed to providing the best possible patient care. Being patient-centric means that they are always looking for ways to make procedure safer and more comfortable for patient, with better outcomes. As a result, MIOT has emerged as a key centre for innovations, forming many Centres of Excellence, all made possible by their physicians and other healthcare professionals.

**Joint for Life**

The key to a successful Hip and Knee Joint Replacement Surgery is matching the perfect implant to the joint. There are a wide range of implants in the market in all shapes, sizes and materials. But only one of them is perfect for the patient. So where can you find it? The answer is MIOT.

The “MIOT Global for Ideal Joints” is such a centre. After performing 35,000 Hip and Knee Joint Replacement and Revision Surgeries, this centre is the only centre in India, working on providing an ideal joint for a patient, based on their anatomy and lifestyles.
MIOT Hospitals gives world standard environment, equipment and personnel

The modern laminar flow theatres and an incredibly sophisticated sterilization suite, occupy an entire floor, ensuring a completely bacteria – free cocoon for the patient. Operating hoods, with dedicated air supply, shut off any chance of droplet-laden bacteria from even the surgeon entering the vicinity during surgery.

MIOT Hospitals, a leading Multi-Speciality Hospital in India, is known for its adoption of professional standards, both nationally and internationally.

MIOT Institute of Nephrology has been founded by a team of doctors, headed by one of the leading Nephrologists of the country, Dr.Rajan Ravichandran.

Dr.Rajan Ravichandran has 30 years of experience in treating patients, with various kidney ailments, including general nephrology, dialysis and kidney transplants. He has treated more than 20,000 patients from all over India and neighbouring countries like Maldives, Srilanka, Malaysia and Bangladesh.

- **One of the Largest Nephrology Units**
- The MIOT Institute of Nephrology is one of the most modern and largest units in the country. The Department takes care of patients with
  - Acute Renal Failure
  - Chronic Renal Failure
• Hypertensive and Diabetic Kidney diseases
• Obstructive kidney disease
• Immunologically medicated kidney diseases
• **The Nephrology Department also provides**
  • Dialysis services for patients in the ICU, dialysis patients undergoing cardiac or orthopedic procedures.
  • Diagnosis and treatment of primary kidney diseases by assessment.
  • Renal biopsy is done using ultra sound guidance.
  • Outpatient consultancy services are available.
  • Consultancy for general nephrology care for diabetic, hypertensive and patient with immune kidney disease, is done.
  • Pre dialysis and pre transplant care are also co-ordinated.

**Dialysis Unit**

MIOT Institute of Nephrology has state-of-the-art Dialysis Unit which caters to around **65 patients per day**. The haemodialysis unit is well supported by a trained technologist. It has one of the best water treatment plants and is supervised by a trained Medical Officer. They take care of patients’ morale by maintaining a cheerful ambience in the dialysis unit. Since its inception, this Institute has performed around 27,000 cases of dialysis.
The dialysis unit also provides a **private room for patients who want to get dialyzed in private.**

**Kidney Transplants**

The Department of Transplant and Immunology, a sub unit of the MIOT Institute of Nephrology, has the expertise to provide the best Kidney Transplant programme. The unit has experience in handling transplants and problems arising from them, for over many decades. The success rate of a transplant here is comparable to the best in the world today.

**Renal Transplantation at MIOT hospitals**

So far 214 kidney transplantations have been done at MIOT Hospitals, since June 2008.

The Department also provides supportive care to critically ill patients who might be in need of a special dialysis called CRRT – **Continuous Renal Replacement Therapy.** Only few centres in India have this specialized form of dialysis. Procedures like Plasmapherises and Haemo filtrations are also performed, along with specialized diagnostic procedures like kidney biopsy, cyst aspiration & angioplasty.

**Facilities**
The Nephrology Department is supported by the best technology like the
Latest 4D USG machine
MRI
750 HD CT Scan
Nuclear Radiography
Immunology Institute & Histopathology department.

**MIOT INSTITUTE OF CANCER CURE (MICC)**

**Comprehensive Treatment plan from the ‘Tumour Board’**

There are three primary treatment approaches to cancer – Medical Oncology (chemotherapy), Onco-Surgery and Radiotherapy. The MIOT Institute of Cancer Cure (MICC) offer us either one or a combination of these treatments.

At MIOT, the ‘**Tumour Board**’ with specialists from these three treatment modes, works with doctors from MIOT’s other specialties like Orthopaedics, Liver Specialists (Gastro), Neurosurgeons, Cosmetic Surgeons etc. At MICC, these doctors, armed with the fullest information that modern diagnostics can provide, form the ‘**Tumour Board**’ which meets thrice every week to plan the most effective treatment for each case.

**Centre for Thoracic and Cardiovascular Care (CTCC)**

The MIOT – CTCC is a tertiary referral centre, for the treatment complex heart diseases, not only nationally but also in the South East Asia.
**Mission**

The primary mission of MIOT – CTCC is to deliver high quality cardiovascular care, at an affordable cost, with human care.

To achieve this mission, the CTCC has a team of highly qualified medical personnel with a varied and vast experience in the treatment of cardiac disorders. A patient-centric approach, by a team of doctors, ensures optimal decision making, with dedicated care and treatment to the individual patient. State-of-the-art diagnostic equipment and treatment modalities are available in CTCC our centre which matches international standards. The successful results of procedures and surgeries rate them amongst the best in the world.

**Scope of surgeries**

All areas of adult cardiovascular diseases are treated by the CTCC, namely

- Coronary artery disease
- Valvular heart disease
- Heart failure
- Diseases of the aorta
- Peripheral vascular disease
- General thoracic disease
- Adult congenital heart disease

**Areas of expertise**
- Off-pump beating heart CABG’s
- Complex mitral valve repairs
- Re-do cardiac surgeries
- Aortic aneurysm surgeries
- Endovascular stenting of aortic aneurysm
- Hybrid procedures for aortic aneurysms
- Minimally invasive cardiac surgeries (MICS)
- Video assisted Thoracic surgeries (VATS)
- Surgery for heart failure

3.4 ADAYAR CANCER CENTER

Cancer, in the beginning of this century, meant fear and death. In our country, very few knew about Cancer but for those who had the misfortune to see some one dear attacked insidiously, devoured slowly but surely, have had to witness the long drawn out agony of the last stages. Vital statistics in our country was not accurate to know how many died of cancer every year.

In 1886 on the 30th of July, a girl was born in a middle class family in a State called “Pudukottai”. She was named Muthulakshmi. One hardly realized that she was God’s own special creation who would rise in this world to fight Cancer.

Muthulakshmi went on to become the First woman in India to graduate in medicine in 1912. She, along with two Europeans, founded the Women’s India
Association (WIA) in 1918. In 1927, she became the first woman in the world to preside over a legislative body. She was an active member in the freedom struggle.
In 1922, Dr. Muthulakshmi Reddy detected cancer in her sister’s rectum. From that day, she stayed by her bedside of agony till she passed away a year later. This incident motivated her involvement in cancer and she proposed to build a cancer hospital in Madras. She formed a Cancer Relief Fund in 1949 and with the support of the WIA, she established the Cancer Hospital in 1954 in a small hut.

She made sure her son, Dr. Krishnamurthy, after completing his medicine in the US, stay back in India and serve the cause of poor cancer patients. The rest is now seen in the form of one of the best state-of-the-art Cancer hospitals in the world today. The Cancer Institute (WIA) is a symbol of man’s eternal quest to conquer disease and an inspiration that reaches out to humanity.

The Institute is spread over 9 acres in Chennai, South India. The hospital houses 423 beds of which 297 are free. Over 1,25,000 patients are treated annually.
They are drawn from all over India, parts of South and South East Asia. Over 66% of them are indigent and they are treated free of change. The hospital has state-of-the-art facilities for diagnosis, evaluation and treatment of cancer as well as rehabilitation.

Living its mission of providing the state-of-the-art treatment to people with all types of cancers, the Institute is equipped with world class medical facilities. It houses a hospital, College of Oncological Sciences, an exclusive division for Preventive Oncology and a research center.

**Brief History & Milestones**

The Institute was founded in 1954 by Dr. (Mrs) S. Muthulakshmi Reddy, the first woman in India to graduate in medicine. She was awarded the Padma Bhushan in 1956 in recognition of her services to the nation.

Right from the very inception, it has been a fundamental article of faith to provide the finest diagnostic and therapeautic oncology, to the poorest in the land. Consistently over the years, the Institute has sought and obtained support from all over the world, to set up world class facilities.

**Milestones**
The Cancer Institute-WIA was the first comprehensive cancer center in South India and the second one in the country.

The Institute was the first center to install a Cobalt 60 Teletherapy unit in Asia in 1956. This ushered in the Super Voltage Therapy Era in Asia. The Institute was the first center in India to establish a Department of Nuclear Medical Oncology in 1956, six years before the DAE established its Isotope Division.

The first indigenous Therapy Simulator was designed in 1965 and fabricated by the I.G.E. and installed in 1968.

Padiatric Oncology, as a speciality, was introduced in the country in 1960. The Institute introduced the technique of Lymphangiography in the diagnosis of lymphoid tumours in 1960 and the technique of Mammography in the diagnosis of breast tumours in 1965, for the first time in India.

The Institute is a world pioneer in the combination therapies of oral cancer with radiation, surgery, chemical sensitisers and cytotoxic drugs, raising the cure rate from 19% to 60%.

The first Linear Accelerator in India was installed at the Institute in 1976. The Institute introduced for the first time in the country, Hyperbaric Oxygen Therapy in the treatment of Cancer in 1978, and is at present the only place where this facility is available.
- Blood Component Therapy, using the blood cell separator, in the supportive treatment of high dose Chemotherapy, was introduced into India by for the first time in 1978.

- The Institute established the first PEPA programme in the country in the chemotherapy of cancer.

- The Institute was the first to offer Post Graduate Courses, leading to M.Ch in Surgical Oncology, D.M. in Medical Oncology and M.Sc., in Physics as applied to Medicine.

- It was the first and at present, the only center in India, to introduce Hyperthermia in the treatment of Cancer (1984).

- The first ND-YAG Surgical LASER in the country was installed at the Institute in 1985 and it was the first to perform Endoscopic LASER Surgery.

- The first (1992) and at present it was the only center in the country where Intra-Operative Electron Therapy in the treatment of cancer, is available.


**Services at the Institute**

The facilities for patient treatment at the Institute can be compared with the best anywhere in the world. The Institute has been a leader in the field of oncology
right from its early years. There is a list of firsts, including the first telecobalt unit in Asia, the first linear accelerator in the country, the first Paediatric Oncology unit, the first nuclear medicine unit in oncology, the first intra-operative radiation unit and the list goes on. The Institute was the first to offer courses in Medical and Surgical Oncology in the world. It was the first to propound the concept of multimodality treatment that is universally accepted today.

3.5 SRI RAMACHANDRA MEDICAL CENTRE (3.5)

Sri Ramachandra Medical Centre (SRMC) is a tertiary care multi-speciality hospital. The medical centre was founded as a teaching hospital of Sri Ramachandra Medical College and Research Institute in 1985 (now Sri Ramachandra University established under Sec.3 of the U.G.C. Act 1956), with the intention of translating the experience and expertise in medical education into tangible and affordable health care to the community. Today, SRMC is a leader in health care delivery in South India, providing cutting edge state-of-the-art care for patients who walk through its portals daily. The medical centre is located in a sprawling 175 acre University Campus that is lush green throughout the year. The medical centre is an 8 storied building with around 692 beds and 171 intensive care units. It is a multi-speciality hospital, with some of the best doctors in the country.
Focus of Excellence

- Cleft lip and craniofacial Anomalies
- Critical Care
- Lithotripsy
- Cardiac Care
- Transplant Services
- Infertility
- Interventional Radiology
- Joint Replacement and Arthroscopy
- Paediatric Urology
- Neuro Care Centre

Cleft Lip and Craniofacial Anomalies

SRMC is the Southern Centre for the ‘Smile Train Program’, a multinational service that helps children with cleft palate and cleft lips smile back to normal. Over a thousand children each year undergo corrective surgery that restores facial features and good speech. The centre also specializes in burns and aesthetic surgery.

Sri Ramachandra Cleft and Craniofacial Centre has been functioning since 2000, as a part of the Sri Ramachandra Medical Centre. This is located on the beautiful 175 acres campus of the Sri Ramachandra University at Porur, on the outskirts of Chennai City. Through the Cleft and Cranio-facial Centre, an
interdisciplinary team of dedicated professional are working together to provide high quality holistic management to individuals with cleft lip and palate.

**Critical Care**

SRMC has the largest intensive care facility in South Asia. With over a 100 intensive care beds and the latest in monitoring and ventilating equipment, the team of dedicated intensivists provide life saving care to many critically ill patients. The neonatal intensive care unit takes pride in rescuing severely premature children, with complex congenital problems. The specialty neuro and cardiac ICUs provide advanced care to patients, with cardiac illnesses and neurovascular conditions.

**Lithotripsy**

Lithotripsy is a convenient, non-invasive technique that literally pulverizes renal stones. With the help of the lithotripter, the Urologist is able to treat stones without need for prolonged hospitalization and complicated surgery. Treatment of stones also includes special care to exclude hormonal and other problems and offering dietary and medical therapy to prevent recurrence of stones.

**Cardiac Care**
SRMC has created centers of excellence that provide focused expertise of a quality that is unparalleled in the region.

The Cardiac Care Centre provides ambulatory care for patients, with rheumatic and coronary artery disease, disturbance of cardiac rhythm and cardiomyopathy. Besides curing ailments of the heart, the center has outstanding programs that focus on preventing heart diseases.

Using a balloon and cath lab, the interventional cardiologist provides a safe and easy approach to treating diseases of blood vessels and heart valves, which would otherwise require surgery.

The cardio thoracic program has gained a special reputation for its expertise in treating children, with heart ailments, including children with complex congenital anomalies. The Cardiac Care Center is one of the few centers in the country to perform cardiac transplantation, provide life support and assist devices and artificial hearts.

**Paediatric Urology**

Paediatric Urology is a speciality, dealing with surgical problems of kidneys, bladder and genitalia in children. Often these problems can be detected antenatally and the parents may need counseling. Some of the problems require urgent management immediately after birth. It is a complex field and needs specialist
experience and careful investigation to decide when a surgical intervention is required and when it can be avoided. SRMC has a full time dedicated paediatric urologist who has specialized in tackling urinary problems in children. The following facilities are available.

**Antenatal Counselling:** Advice is offered to parents of children whose problems are detected before birth. They can benefit from information like what is the possible outcome, what are the treatment options etc.

**Endoscopic Surgery:** Endoscopic treatment is available for conditions like posterior urethral valves, urinary stones, ureterocele, vesico ureteric reflux and many similar problems that can occur in children.

**Laparoscopic Surgery:** Laparoscopic surgery is being performed successfully for several paediatric urology problems like undescended testis, varicocele, nephrectomy for multi cystic dysplastic kidneys, laparoscopic pyeloplasty for PUJ obstruction.

**ESWL:** Stones in children can be broken without surgery with the help of ESWL. They can also be removed with the help of URS or PCNL.

**Urodynamics:** This special test provides information about a bladder that is not functioning well. This can be a problem in children with spine abnormalities.
Infertility

The Women’s Health Center in SRMC provides state-of-the-art care for couples who have difficulty in having children. With modern technology and expert medical specialists in gynaecology, endocrinology and andrology, the infertility center helps couples, walk through a traumatic phase in their lives, with care and empathy.

Interventional Radiology

SRMC has the most modern interventional radiology facility in South Asia. Without need for surgery, radiologists can “coil” aneurysms, fix broken vertebra and open up closed blood vessels with the help of highly sophisticated technology and tremendous skill.

Joint Replacement and Arthroscopy

The department of orthopaedics specializes in hip and knee replacement. Arthroscopic procedures provide a minimally invasive diagnostic and therapeutic approach to joint problems. The center also focuses on sports medicine.

Minimally Invasive and Day Care Surgery

Through a small incision and sophisticated laproscopic, the surgeon at SRMC can operate on almost any organ, without much disturbance to surrounding
tissues. Because of small incisions, high technology and great attention to sterile techniques, long hospitalizations and convalescences have become a thing of the past. Many patients can come in the morning, have their surgery and go back home the same evening to sleep in their own beds.

**Neuro – Care Center**

The neuro-care centre focuses on care of patients, with problems with circulation of the brain, epilepsy, disorders of sleep and movement. The neurosurgical team is one of the few in the country, with expertise in treating aneurysms and malformations of the blood vessels of the brain. Care of patients with brain tumors and complex epilepsy are other important areas of focus.

**Transplant Services**

SRMC is one of the pioneers in transplantation services. Backed by a world-class nephrology and dialysis service, the transplant team is one of the few in the country to routinely do cadaveric kidney transplants. SRMC also has expertise in cardiac and liver transplantations. The department operates a Quality Management System which complies with the requirements of BS EN 9001 :2000.
Mission Statement

“Sri Ramachandra Medical Centre will actively promote and preserve the highest standards of quality and ethical values in patient care, education, training and research and will pursue excellence in all these areas while consciously meeting the expectations of the people it serves, without prejudice and in all fairness stay socially meaningful in its propagation of health and the science to humanity at large.”

International Patients

Sri Ramachandra Medical Center has an International Patients Care and Services Department known as International Patients Facilitation Centre to cater to the needs of international patients from across the world, including from advanced nations of the West for over a decade.

This Centre is headed by the Chairman, with an excellent team of an Executive, Coordinator/Translator & Office Assistant.

- Trained Specialists

A large percentage of our doctors and surgeons have been educated, trained or have worked in leading medical institutions around the globe, including the United States, United Kingdom and other countries in Europe. Their
commitment to providing top class medical care has won several of national and International awards and recognitions.

- **New – age Equipments**

  State-of-the-art equipments (manufactured by world leaders like GE, Toshiba, Medtronic, Philips, Siemens etc), for all diagnosis and therapeutic procedures, are available under one roof at the Medical Centre, adding to the efficiency of diagnosis and treatment and also adding to patient comfort and convenience.

- **Price – Value Equation**

  Advanced western technology at Asian prices is what one gets at Sri Ramachandra Medical Centre. The total of the cost of treatment at Sri Ramachandra Medical Centre and all other expenses, including travel, is significantly lower than for similar services in the USA, UK or any European country, without compromising the quality of treatment or the standards of facilities.

- **No Waiting Period**

  There is no waiting period for treatment at Sri Ramachandra Medical Centre. Our International Patient Services Department ensures that appointments for consultation and surgeries are confirmed even before one leaves his country. Also the ready availability of the large pool of specialists
across several medical disciplines, assures immediate access to top consultants.

- Excellent Patient Care Facilities

Cutting edge medical treatment and services apart, Sri Ramachandra Medical Centre also goes out of its way in making sure that the patient has a comfortable and hassle free stay. Airconditioned private rooms, with attached washrooms, cable televisions showing several channels, beds for companion, room service, laundry service etc add to the convenience. High speed internet is also available for international patients to communicate with their kith and kin.

Exclusive guest relations executives are available to meet other needs like arranging interpreters, accommodation for the companion, assistance in shopping, currency exchange, organizing travel and tourism packages etc. A trained medical assistant can also be provided to take care of the patient during and after the treatment unit full recovery.

CHAPTER IV

TRENDS IN MEDICAL TOURIST ARRIVALS AND HOTEL ACCOMMODATION IN CHENNAI

4.1 INTRODUCTION