

Histories of Healthcare in Jaipur

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PREAMBLE

Excellence in healthcare in Jaipur began with kings, foreign doctors, and expatriates. In mid-twentieth century, the Maharani of Jaipur needed medical care. She had problems of allergy and recurrent chest infections, both are chronic diseases. In year 1942, Sir Mirza Ismail- the prime minister, met Doctor Robert Heilig in Bangalore and persuaded him to relocate to Jaipur. He was appointed physician to the royal family and attached with the newly established state-run hospital and medical college.¹ He brought scientific and clinical wisdom with him and helped not only the royal family, but also citizens of Jaipur. Moreover, he established one of the largest medical libraries in India at the newly established Sawai Man Singh Medical College at Jaipur with his collection of books and medical journals. Science partnered clinical practice to achieve good health. Not only locals but expatriate Rajasthan citizens were benefited.

Two hundred miles away, in north-western Rajasthan, the Maharaja of Bikaner needed expert care for his asthma and a host of medical problems including a recurrent throat cancer. He had established a large group of hospitals (Prince Bijay Singh Memorial Hospital) in this desert state of India in 1935.² He employed top medical personnel from all over the country to man departments of pathology, surgery, anaesthesia, medicine, and oncology. For specialised healthcare, this wise maharaja sought doctors from USA and Europe.³ The problem of cancer at Bikaner led to the establishment of the first cobalt-based radiotherapy unit in north India. A physician, Dr Weingarten noted a strange disease among Bikaner expatriates to Assam and Bengal characterised by recurrent episodes of bronchial asthma, lung infiltrates, and high blood eosinophils. This condition of tropical eosinophilia still carries his name-Weingarten's syndrome. Expatriates rushed to Bikaner for treatment of

asthma and allergic disorders as well as cancer. Many of these expatriates came to Jaipur because of better connectivity and comforts.

Indian independence in 1947 led to reorganization of the country and the states of Jaipur and Bikaner were merged into the larger state of Rajasthan. Many pioneers in field of medicine, surgery, ear and throat diseases, and cancer relocated to Jaipur. This legacy of scientific excellence and clinical acumen led to Jaipur becoming an important destination of medical treatment for expatriate Rajasthani from all over the country. With time, sick individuals from all the neighbouring states of India as well as other regions of the country started to flock to Jaipur for medical treatments.¹ These patients also visited their families in native villages and the religious shrines in the state. This was medical tourism at its best.

EARLY YEARS

Maharaja Madho Singh (1835-1880) was a visionary ruler of Jaipur and established not only temples and new colonies but also focussed on creating centres of excellence for healthcare. Rajasthan was rife with diseases of poverty, water and air-borne communicable diseases, and mother and child health problems, and the same situation existed in Jaipur. He established a school of midwifery and nursing in Jaipur to promote science to improve healthcare. The nursing school had its share of ups and downs but established Jaipur as a choice location of excellence in medical education and healthcare.¹ After independence, the first medical college in the state and seventh in the country was established here in 1949. Almost all the faculty was from out of Rajasthan and the faculty list reflected a cosmopolitan presence. All were highly qualified specialists and taught and practiced medicine with utmost sincerity and devotion. This faculty taught medical students who went on to become leaders in medical profession not only in Rajasthan but also in other

parts of the country and the globe.

The concept of medical tourism was non-existent, but in 1960's-1970's at the medical college hospital almost 50% of the patient population on a typical out-patient's day was from out of Jaipur and almost 20% from out of Rajasthan. This phenomenon is now defined as medical tourism. Given the constraints of travel and poor connectivity of roads and railways, this was a large number and established Jaipur as a primary health and medical care destination. The situation in other large cities in north India was not the same and even in Delhi, the capital, this proportion was less than half of that in Jaipur. The factors responsible for this large inflow of non-Jaipur patients were relative paucity of healthcare facilities in other parts of the state, scientific excellence, good clinical acumen, lack of overtreatment and low cost, and of course, family-driven and religious tourism. Summer is still the most opportune period for surgeries in Rajasthan as many expatriates visit their home from Assam, Bengal, Orissa, and the South.

SAWAI MAN SINGH HOSPITAL: CHRONIC DISEASES AND SPECIALIZED CARE

For years Sawai Man Singh (SMS) Hospital in Jaipur was the only source of medical excellence. The hospital has been administered by legendary clinician-administrators for more than 60 years. Some of the early stalwarts who headed the medical college were Dr GN Sen (surgery), Dr SC Mehta (surgery), Dr KS Menon (surgery), Col RM Kasliwal (medicine), Dr LR Sarin (medicine), Dr LM Sanghvi (medicine), Dr Hans Kumar (chest surgery), Dr GC Sharma (surgery), Dr VM Bhandari (medicine), Dr SR Mehta (medicine), and Dr SR Dharkar (neurosurgery). All these were clinicians of national repute and helped the advancement of healthcare in Rajasthan. Dr GC Sharma encouraged development of surgical sub-specialities such as urology, cardiothoracic surgery, plastic surgery, pediatric surgery, and neurosurgery. Medicine subspecialties developed during tenure of Dr SR Mehta with development of departments of cardiology, gastroenterology, nephrology, neurology, and endocrinology. The hospital had well developed infrastructure, had astute clinicians, and the most advanced diagnostic services in contemporary health care. Local medical tourism flourished. Patients from all parts of the state and also from neighbouring regions driven by excellence, location, and cost-effective care flocked to the city. Medical personnel

were always available and provided truthful care.

Chronic non-communicable diseases such as coronary heart disease, chronic obstructive pulmonary disease, cancer, strokes, and mental diseases as well as chronic infections such as tuberculosis, hepatitis, and *HIV-AIDS* emerged as important public health problems in the latter half of the 20th century in India.⁴ SMS hospital was the first in the state to develop various sub-speciality departments such as cardiothoracic surgery, urology, neurosurgery, pediatric surgery, plastic surgery, rehabilitation medicine, cardiology, neurology, gastroenterology, nephrology, etc. Technology improved but could not keep pace with rapid advances. However, there was little by way of basic medical or health systems research in Jaipur and other parts of Rajasthan. The institutions in Delhi, Mumbai, and other large towns in north India took over from Jaipur as centres of excellence. Both intra-and inter-state medical tourism slowed to a trickle.

However, the recent decade has seen a resurgence of this government run institution. The focus has shifted from routine medical care to specialised disease management and the hospital has emerged as important destination for cardiac, neurological, renal, and liver diseases including a centre-of-excellence in organ transplantations.

JAIPUR FOOT

Collective effort of clinicians (science) and technicians (technology) led to the development of a low-cost artificial limb (now known as Jaipur foot) in department of orthopaedics of SMS Medical College, Jaipur. Scientific research is often described as a quiet art.⁵ Development of Jaipur foot took decades of effort on part of clinicians and technicians. This foot not only became popular among the Indian labour-class and household workers but also acquired an elite status after being successfully used by various high-profile individuals.⁶ Jaipur came back on the international medical tourism map with scientists and patients from countries in Asia (Vietnam, Cambodia, Afghanistan, etc.), East and Central Africa, South and Central America, and China flocking to Jaipur to learn of this amazing and versatile low-cost technology. This not only led to development of this division of orthopaedics but in overall primacy of this medical speciality as a major component of health-tourism to India and Jaipur.

Professor Pramod Karan Sethi was an outstanding

clinician and scientist. He qualified as a surgeon but devoted lifetime to rehabilitation of amputees and patients with deformities. The accolades of admiration and recognition came with the development in 1968 of the Jaipur foot, starting from vulcanized rubber to more light, elastic, and flexible material. The patients could walk, sit on the floor, run, swim, climb trees, and even dance. Having the colour and shape of a normal foot, the Jaipur foot could be used with or without shoes a tremendous advantage in the Indian subcontinent where most people go about their work bare feet or wearing chappals or sandals. Professor Sethi presented the Jaipur foot at the British Orthopaedics Association meeting at Oxford in 1971. Today, this artificial foot is patented technology, available in more than 20, mostly war-torn and impoverished countries, and, a magnet for health tourism industry in Jaipur.

EMERGENCE OF NON-GOVERNMENT SECTOR

In the late 20th century, Jaipur was losing its image as a centre for medical tourism. Too much routine clinical work, low priority to medical education, and almost no research took its toll. This period also coincided with emergence of chronic non-communicable diseases as major health problems in India.⁷ Technology was the focus in diagnosis and management of these diseases.⁶ The government sector was slow to respond to this challenge given the continuing burden of acute and chronic infections, maternal morbidity/mortality, and childhood illnesses. Precarious state of Indian economy also contributed to this sorry state of affairs.

Enter the non-governmental sector. A number of stand-alone clinics and primary health centres have been providing acute and, especially, chronic care to populations since mid 1800's.⁸ These clinics were unregistered, unregulated, and most ceased functioning with retirement or demise of the clinician. The economics of these entities are not well reported but clearly these stand alone clinics were providing useful routine medical service. The National Commission of Macroeconomics and Health reports that even now such physician-owned stand-alone health care centres and clinics in urban India provide more than 70% of primary healthcare.⁴

The first large non-governmental hospital in Jaipur was not-for-profit Santokhba Durlabhji Memorial Hospital established in 1971. This soon emerged as an important

focus of excellence in critical care medicine, cardiovascular diseases, maternity and child healthcare, orthopaedics, and other surgical specialities. Indeed, this hospital was the first in the state to set up a dedicated department of cardiology under leadership of Dr Ashok Jain. A large number of cardiology procedures and cardiac surgeries have been performed under his guidance. This hospital developed state-of-the-art department of pathology and laboratory medicine under guidance of Brig TK Narayanan and Dr BC Sangal and is a recognised national centre of excellence. Other large (>100 bed) not-for-profit hospitals include Monilek Hospital and Research Centre, established in 1986, that specialised in renal and urological diseases and pioneered renal transplantation in the state. Dr SL Tolani, Dr AK Sharma, and their teams performed the first renal transplantation in the state. Bhagwan Mahaveer Cancer Hospital and Research Centre, established in 1996, specialises in medical, surgical, diagnostic, and radio-therapeutic branches of cancer. Two non-governmental medical colleges and four non-governmental dentistry colleges and associated not-for-profit hospitals have also started functioning in the city- Mahatma Gandhi Medical College and Hospital began in the year 2000, NIMS Medical College and Hospital a year later and JNU Medical College in the present decade. The dentistry colleges include Jaipur Dental College, Rajasthan Dental College, Mahatma Gandhi Dental College and NIMS Dental college. There are smaller not-for-profit non-governmental hospitals which provide routine as well as specialised (cardiology, orthopedics, urology, gastroenterology, et.) medical care. The non-governmental sector in Jaipur has greater number of beds as compared to the government managed hospitals. Santokhba Durlabhji Memorial Hospital emerged as centre for excellence and attracts a large proportion of patients from other parts of the state as well other states and is a popular destination for medical tourism. Bhagwan Mahaveer Cancer Hospital attracts patients with all types of cancer. A multitude of physician-owned for-profit hospitals also exist in the city providing useful service in areas of maternity health, paediatrics, surgery, orthopaedics, cardiac care, gastroenterology, and others.

Second change in non-governmental health sector in Jaipur has been the emergence of corporate hospitals. These hospitals are owned by public-limited or private-limited companies and managed as for-profit hospitals.

The larger hospitals (>100 beds) of this type are Jaipur Hospital, Tongia Heart and General Hospital, Soni Hospital, Apex Hospital, and Khandaka Hospital established in 1980's and 90's and Fortis Escorts Hospital, SK Soni Hospital, Tagore Hospital, and Narayana Hrudyalaya Hospital established in 2000's, and Eternal Heart Care Centre in 2010's. Many more hospitals of this type are under development and it is likely that this model of healthcare would add to healthcare system diversity of the city. The Rajasthan Clinical Establishment Registration and Regulation Act (2010) has just been approved by the government and is being implemented. This act would lead to better understanding of numbers, functioning, and contribution of non-government healthcare system to the overall healthcare.

NON-GOVERNMENTAL SECTOR AND MEDICAL RESEARCH

An important change that has happened over the years in Jaipur is emergence of non-governmental sector as centres of excellence in medical research. More than 50% of medical professionals are outside the government health care system and given the inquisitiveness of medical professionals and favourable policies of national and international health research organizations, self-generated medical research (in contrast to sponsored clinical research) has developed. One of the important studies has been in cardiovascular research. Jaipur Heart Watch study started as epidemiological study of cardiovascular risk factors in urban and rural populations of Rajasthan in 1991.⁹ This study has continuously studied many heart disease risk factors in Jaipur, and is now the longest ongoing cardiovascular epidemiological study in the country. This study placed the investigators (Dr Rajeev Gupta and associates from University of Rajasthan) and Jaipur on the world map and a number of national and international students visit Jaipur to participate in research activities. Academic and research activities received a boost with opening up of Indian Institute of Health Management and Research at Sanganer in late 1980's. This institute is recognised by World Health Organization as Centre of Excellence in health systems research and for many years was the only centre in India to impart health management courses.

All the medical colleges and affiliated hospitals in the state were affiliated with University of Rajasthan until the year 2005. To foster better teaching and research, the state

government has developed Rajasthan University of Health Sciences as a separate entity. This university has already emerged as important hub of medical education in the state. The university has also started an affiliated medical college which is now in fifth year of operation. A large hospital has been developed and this 500-bed hospital (to be extended to 1500 beds) is available for clinical care and shall support medical research. Intramural and extramural research programmes have commenced and with support of the existing extensive medical manpower in the state it is hoped that this shall evolve into a premier research organization leading to better primary, secondary, and tertiary care in the state. This would act as magnet for health education-related as well as care-related medical tourism in the state.

CARDIOVASCULAR AND OTHER SPECIALITIES

A paradigm shift that happened with changing healthcare scenario in Jaipur is emergence of infrastructure for sub-speciality care that support dedicated medical professionals. Cardiovascular diseases are now the major health problem in India¹⁰ and the non-governmental sector was the first to take a lead in this field at Jaipur. Santokhba Durlabhji Memorial Hospital was the first to set up a dedicated cardiac department with non-invasive and invasive investigations, cardiac catheterization laboratory, and a regular cardiac surgery programme. This was followed by development of similar units at SMS Hospital and Tongia Heart and General Hospital. Cardiovascular critical care in the state is primarily in the non-governmental sector. There are a large number of dedicated coronary care units manned by qualified medical professionals. With time a number of cardiovascular units opened up and now there are more than a dozen cardiac catheterization units in the city. Jaipur has again become a hub of tertiary care in the state with patients with these diseases arriving in large numbers. Collateral benefit of advanced healthcare in a single speciality is development of other sub-specialities of medicine and surgery. Along with cardiology and cardiovascular surgery many more sub-specialities such as neurology and neurosurgery, nephrology and urology, gastroenterology and gastrointestinal surgery, medical and surgical oncology, and others, have developed.

Eternal Heart Care Centre (which is an affiliate of Mount Sinai Hospital, New York) and Fortis Escorts Hospital

have emerged as the most important hub of specialised healthcare in the state of Rajasthan in recent years. Cardiovascular surgeons here perform the largest number of heart surgeries in the state of Rajasthan. Other areas of excellence at this hospital are critical care, cardiac electrophysiology, neurosurgery, and orthopaedics. Recent medical technologies such as transcatheter aortic valve replacement, non-operative mitral valve replacement, and extracorporeal membrane oxygenation technologies are being practiced at these hospitals. Bhagwan Mahaveer Cancer Hospital has developed the latest technologies for cancer treatment and attracts a large number of patients. Joint replacement surgeries were initially dependent on visiting surgeons from neighbouring states but now orthopaedic surgeons locally have perfected this technology. Critical Care and Emergency Medicine have developed as new medical branches and many hospitals have devoted more than 30% beds to critical care. Smaller hospitals have also developed critical care units and attract large number of patients from other parts of the state. Epidemiological evolution in India in recent decades has led to changed disease patterns with triple burden of diseases-non-communicable chronic diseases, communicable infectious and maternal diseases, and injuries and accidents. Healthcare sector in Jaipur reflects this diversity and is an important centre of excellence in all these diseases.

21st CENTURY MEDICINE

Medicine of the future shall not be confined to hospitals and healthcare system. It has been predicted that this century shall be the era of personalised medicine with individual patient empowerment and greater use of information technology and genomics. Jaipur has already started investing in both these technologies.¹¹ The city has emerged as important hub for information technology and a number of universities and corporate entities have established firm footings here. BM Birla Science and Technology Centre, Jaipur has devoted significant funds to isolation of disease related genes and could be a centre of advanced functional genomics as well as pharmacogenomics. These technologies are also in focus of Rajasthan University of Health Sciences, SMS Medical College, and some private hospitals. Another focus area is use of cell-based therapies (popularly known as stem-cell treatment) in treatment of acute and chronic diseases.

SMS Medical College is a centre-of-excellence of Indian Council of Medical Research supported stem-cell therapy programme. A number of in-vitro fertility centres are making hesitant steps in this direction. Basic research is required in these areas.

Future of tertiary care in Jaipur is secure. The municipal infrastructure of the city is an attraction for healthcare professionals from all over the country and, indeed, from all over the world. A number of healthcare facilities are coming up in the city and it is expected that most shall practice 21st century medicine. This shall involve focus on better acute medicine, critical care, mother and child care, better diagnostic methods, minimally invasive surgeries, advanced neurosurgery and orthopaedics, and latest neonatal and paediatric care. Innovative healthcare models are being developed. Rajasthan University of Health Sciences is proactively focussing on better teaching and training in health services research as well as basic medical research. There is talk of development a centre-of-excellence in molecular biology. SMS Medical College is focussed on improving acute and chronic medical and surgical care. Innovative technologies are being developed at non-government charitable and corporate hospitals. Santokhba Durlabhji Memorial Hospital is currently focused on gastrointestinal sciences and critical care medicine. Doctors at corporate hospitals have been using robotic and microsurgical techniques for heart surgeries and have developed expertise in computer-simulation based orthopaedic surgeries. A number of in-vitro fertilization centres in the city are helping infertile couples to achieve happiness.

THE FUTURE

Excellence in routine care is obtained when one excels in a specific field. This epitomizes scientific excellence. Genuine medical care is impossible unless we gear up to excellence in healthcare- at administrative, clinical, and scientific levels. Ultimately healthcare is translation of scientific research and methods to practice and unless genuine scientific methods are used to assess and implement changes, success cannot be achieved. Better healthcare in Jaipur shall also need vertical integration of health policy and healthcare delivery as well as horizontal integration of governmental and non-governmental systems of healthcare.¹² This is a continuously evolving process and is influenced by polity and prevailing practices. For example, disease prevention and better

disease management needs integrated approach to health system development and involve not only ministries of health, family welfare, and medical education but also planning, finance, commerce, insurance, industry, chemicals and drugs, social development, education, urban and rural development, power, human development, agriculture, public works department, sanitation, water supply, and others. Ultimately, Jaipur needs to develop into a healthier city and that would involve not only existence of basic (primary and secondary) and advanced (tertiary) healthcare services with harmonized government and non-government sectors but also focus on better health infrastructure.¹³

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