

An Overview of the Medical Tourism Industry in Chennai, India



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INTRODUCTION

Medical tourism occurs when patients travel internationally to obtain privately-funded medical care. Medical tourism is a global practice, with hospitals and clinics in a diverse array of destination countries vying to treat such international patients. India is one of these destination countries. In this document we provide an overview of Chennai, India's nascent medical tourism industry. This overview has been generated based on information gleaned from media and policy sources, field notes taken during site visits to public and private health care facilities in the country, immersive observational research, and informal conversations with various stakeholders in Chennai's medical tourism industry.

Our research group is interested in developing a better understanding of the health equity impacts of medical tourism on destination countries. In other words, we are interested in understanding if and how medical tourism is helpful and/or harmful to people living in destination countries and their health. India is one of four countries that our work is focused on, which is why we have produced this profile. The medical tourism industries in Barbados, Guatemala, and Mexico are also being examined. We are studying the medical tourism industries and their impacts in these countries as part of an international grant funded by the Canadian Institutes of Health Research. You can learn more about our research by visiting: www.sfu.ca/medicaltourism/.

In the sections that follow we offer some general information on Chennai and its health system before going into detail about key developments in its medical tourism industry. Complementing the main text, two Appendices provide additional detailed insights. Appendix 1 offers a map of medical tourism facilities in Chennai, India. In Appendix 2 we provide an overview of domestic and international trade treaties that are relevant to the growth of medical tourism in Chennai and India more generally.

1. AN OVERVIEW OF CHENNAI

1.1 Geo-Political Background

Chennai, once known as Madras, is the largest city in the southern region of India and the capital of Tamil Nadu state (Tamil Nadu Government Portal, n.d.; Town and Country Planning Organization, 2006). Its northern position within the state and its development as a commercial, administrative, and military centre has resulted in Chennai becoming known as the Gateway of South India (Tamil Nadu Government Portal, n.d.; Town and Country Planning Organization, 2006). Chennai's development is due in large part to the rise of British power through the East India Company, which settled its headquarters at Fort St. George in Chennai in 1640. The city stretches 26km along the southeastern sea coast, for a total area of 178.2kms². Its official language is Tamil (Tamil Nadu Government Portal, n.d.; Town and Country Planning Organization, 2006).

Chennai has a multiparty democracy and is divided into three parliamentary constituencies: Chennai North, Chennai Central, and Chennai South. Two political parties, namely, Anna Dravida

Munnetra Kazhagam (ADMK) and Dravida Munnetra Kazhagam (DMK) dominate the political scene of this city. Elections are held every five years.

1.2 Demographics

In 2011 the population of Chennai was 4,681,087; broken down into 2,357,633 males and 2,323,454 females (Indian Census Survey, 2011). It is the fourth most densely populated city in India, with 26,553 persons per square kilometre. The sex ratio is 986 females for every 1000 males; although this ratio is slightly lower for children, with only 964 girls for every 1000 boys (Indian Census Survey, 2011). Almost 44% of its population is urban, the highest rate in all of India, and is the 33rd largest urban area in the world (Demographia, 2013). Chennai has made impressive gains in literacy rates, with 93.47% of males and 87.16% of females, literate in 2011, up from 84.7% and 75.32%, respectively, just ten years earlier (Indian Census Survey, 2011).

1.3 Economy

Chennai's economic base has shifted from a trade and commerce focus first advanced by the East India Company, to an administrative and service based economy. Chennai currently has a GDP of \$67 billion annually (PWC Economics, 2013) and accounts for 10.94% of the state's income (Chennai Metropolitan Development Authority, 2008). Their growing economy is supported by the automobile industry as well as technology, manufacturing, and healthcare. The city is the second largest exporter of information technology in the country, behind Bangalore (PWC Economics, 2013). Chennai's economy is expected to grow to \$100 billion by 2025 (Boston Consulting Group, n.d.). In 2001 only 31.79% of the population of Chennai city was participating in the workforce, 98.5% of whom were in the secondary or tertiary sector. Organized employment in the city has been gradually rising in the public sector and dropping in the private sector (Chennai Metropolitan Development Authority, 2008). It has been suggested that Chennai's growing manufacturing industry played a role in the recent collapse of Detroit. Once known as the Motor City, Detroit is now collapsing under \$19 billion of debt, partially attributable to the loss of the automobile industry that has moved in large part to Chennai. Many major automobile companies have established factories within the city, which now accounts for 60% of all the nations' auto exports (First Post, 2013).

Within the larger metropolitan area of Chennai (including suburbs outside of Chennai city), India has developed its first Special Economic Zone (SEZ) through a public private partnership with Mahindra World City Developers Ltd and the government of Tamil Nadu. The SEZ is divided into three sectors: (1) a technopark for IT and IT Enabled Services companies; (2) an apparel and fashion accessories zone; and (3) an automobile zone. Additionally the world city provides a domestic tariff area for companies catering to the domestic market and a lifestyle zone including housing, school, medical facilities, recreation centres and more. Economic activities conducted within these SEZs are subject to reduced regulation relative to the rest of the country, and are more conducive to foreign investment through corporate tax incentives, removal of quotas and investment restrictions, and relaxed labour laws (Topno, 2005).

Tourism is another important economic activity in the city of Chennai, with foreign visitor arrivals rising rapidly, with a 40% increase between 2009 and 2010 (Times of India, 2010). According to the Government of India's Ministry of Tourism, 10.8% of all India's 6.31 million annual foreign tourist arrivals enter through Chennai, and the city is the major port of entry for tourists from South and South East Asia

(Ministry of Tourism, Government of India, 2011). Medical tourism has contributed to these growing numbers; *Patients Beyond Borders* [<http://www.patientsbeyondborders.com>], a recognized website for international medical travellers, lists India as a top destination with the highest money saving potential for all destinations, and lists Chennai as a leading city. According to one source, Chennai accounts for 45% of all of India's \$2 billion medical tourism industry, and an additional 30-40% of health tourism from nationals (Macguire, 2007).

1.4 Health and Social Equity Indicators

The state of Tamil Nadu has an overall Human Development Index (HDI) of .544 as determined by income, education and health, where scores closer to 1 indicate higher human development. However, an inequality-adjustment measure drops the state's overall HDI to .396 (Suryanarayana, Agrawal and Prabhu, 2011). On the Gender Empowerment Measure, Tamil Nadu scores .498 overall with higher scores on political participation dimension (.611) and lower scores on the economic participation and power over economic resources dimensions (.480 and .404, respectively) (Ministry of Women and Child Development, 2009). Approximately one third of children in Tamil Nadu state are undernourished and over three quarters of rural households lack access to latrines (United Nations Children's Fund, n.d.).

The state of Tamil Nadu has considerably improved health and human development indicators over the Indian average. Life expectancy at birth was 67 for males and 69.75 for females, above the respective numbers, 63.87 and 66.91 for India as a whole (Dhas and Helen, 2008). Additionally Tamil Nadu has made strides over time; life expectancy at birth for males and females was only 36.2 and 37.4 from 1941-1951. The infant mortality rate is 63 per 1,000 live births in India, while in Tamil Nadu it is 44, down from 113 in the seventies (Dhas and Helen, 2008). The state has also made advances in reducing the birth rate, 18.5 per 1,000 down from 25, and the death rate, 7.7 per 1,000 down from 8.1 per 1,000. The state has a maternal mortality rate of 130 in 100,000 live births, with 11.7 still births per 1,000 deliveries; 87.6% of all births took place within an institution and 98% of all deliveries were attended by trained staff (Dhas and Helen, 2008). Almost all women (98.5%) received ante-natal care, and 90% received post-natal care. Tamil Nadu has provided extensive immunization coverage, with 100% coverage for polio, 98% for neonatal tetanus, and 92% for measles. The prevalence for tuberculosis is 479 per 100,000 people, malaria has a prevalence rate of 70 per 100,000 people, and 1.35% of the population is HIV positive (Dhas and Helen, 2008).

2. UNDERSTANDING CHENNAI'S HEALTH SYSTEM

Although India has a universal healthcare system it has historically been largely underfunded with a disproportional dependency on the private healthcare system that operates alongside it. As a nation India spends considerably less on healthcare than its BRICS (Brazil, Russia, India, China, South Africa) compatriots; spending a mere 3.9% on all health expenditures as a percentage of GDP, relative to the 5.2%, 6.2%, 8.5%, and 8.9% spent by China, Russia, South Africa, and Brazil, respectively. India also has the lowest health expenditure per capita, at \$59 USD, relative to the \$278, \$689, \$807, \$1,121 spent by China, South Africa, Russia, and Brazil, respectively (WHO, n.d.). Moreover, Indians spend the largest sum of money on private expenditure as a total of all health expenditure, 69%, relative to 54.3%, 52.3%, 44.1%, and 40.3%, in Brazil, South Africa, China, and Russia, respectively (WHO, n.d.).

The Directorate of Public Health and Preventive Medicine, within the Health and Family Welfare Department is the main body responsible for healthcare delivery, policies, and planning in Tamil Nadu. Their principal duties include: primary health care, control of communicable diseases, sanitation, vital statistics and other health related services (Health and Family Welfare Department, Government of Tamil Nadu, n.d.). The state's 9th 5-year plan (1997-2002) included 'Health for All' as a main objective and focused on improving the general population's health status, access to care, maternal-child health, and control and prevention of communicable and noncommunicable disease (Dhas and Helen, 2008). Tamil Nadu has 42 teaching hospitals, 29 district hospitals, 155 taluk and 80 non-taluk hospitals, 187 employee state insurance hospitals, 1417 primary health centres, 8682 sub-centres, and 12 government dispensaries as well as numerous specialty clinics (Dhas and Helen, 2008). Although the state has a large number of healthcare facilities and infrastructure there is reason to believe that however vast the current system, it does not yet meet the current need (Dhas and Helen, 2008).

2.1 Human Resources for Health

As of 2001, India had approximately 2.2 million health workers, 31% of whom were physicians practicing allopathic medicine, 30% were nurses and midwives, 11% were pharmacists, 9% were practitioners of AYUSH, and 9% belonged to another category of care giver (Rao, et al., 2011). The country is currently meeting about half of the recommended healthcare worker to population ratio (Rao, et al., 2011). In Tamil Nadu, the allopathic system is provided by 3,622 doctors, 5,354 nurses, and 10,315 paramedical staff, with a total of 19,925 beds; while the AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homoeopathy) system of Indian medicine is considerably smaller with 735 doctors, 147 nurses and 531 paramedical staff, and only 965 beds (Dhas and Helen, 2008). The extent of shortages in human resources for health (HRH) in India varies among the states, and between urban and rural areas, such that the number of healthcare providers per 10,000 people is four times higher in urban areas relative to rural areas. Numerous initiatives have been implemented to attract qualified medical professionals to work in underserved areas, in addition to monetary incentives; the state of Tamil Nadu has introduced compulsory rural service bonds in exchange for subsidized education and postgraduate acceptance preference for those who have completed rural service (Rao, et al., 2011).

Additionally there are health personnel challenges between public and private facilities, wherein 70% of the total Indian health workforce is employed in the private sector (Rao, et al., 2011). One attempt to address this has been public-private partnerships where private physicians are temporarily employed to fill gaps and where medical services are purchased from private physicians by the

government for the poor. India also faces challenges from international migration. Between 1989 and 2000, 54% of graduates from India's premier medical college left the country. This has been exacerbated in part due the Medical Council of India (MCI) which focused on adhering India's medical training to international standards, making it easier for medical personally to emigrate and find employment (Rao, et al., 2011). Moreover, India has actively promoted the outflow of health workers in pursuit of remittances; the International Organization for Migration (IOM) recommends that India rebalance its internal interests and recognize that remittances will be unable to compensate for the loss of qualified personnel to serve its domestic population (IOM, n.d.).

2.1.1 Health and Human Resources Training

India's medical education has changed immensely since it achieved independence in 1947, increasing from 19 medical schools and approximately 1200 annual physician graduates, to 270 medical schools and 28,158 annual physician graduates (Medical Council of India, n.d.), although the quality of education within such a rapid proliferation has been called into question (Rao, et al., 2011). Tamil Nadu, along with the other southwestern states including Andhra Pradesh, Maharashtra, Karnataka and Kerala, have 31% of the nation's population and 58% of all medical colleges (Rao, et al., 2011). Publicly provided medical education is heavily subsidized by the government and accounts for 43% of all medical schools in India; however, international migration, and higher paying private sector employment are reducing the efficacy of this public investment if graduates are not serving in the public healthcare system. Nurses have seen similar increases in opportunity for education, an even higher percentage (88%), of which are private institutions (Rao, et al., 2011).

2.2 Chennai's Public Health Care Facilities

Chennai's first hospital utilizing allopathic medicine was built in 1664, the hospital continued to grow and modernize as its patient-base expanded, developing a medical school in 1835 which would later be upgraded to the Madras Medical college in 1850 (Madras Medical College, n.d.). The original building was deemed structurally unsafe and was torn down to be replaced by modern facilities and technology. The hospital facility, now known as the Government General Hospital, provides emergency medical and critical care services along with 30 outpatient departments and has a bed strength of 2,029. The facility also pioneered the Master Health Checkup, which utilizes screening and primary prevention techniques before individuals present with symptoms; currently the facility screens 30 to 40 patients each day. The next largest government hospital in the city is the Stanley Hospital, with a bed strength of 1,271, the



FIGURE 1 – GOVERNMENT GENERAL HOSPITAL EXTERIOR (CRED. GANESAN, 2005)

hospital has an 8-story surgical complex, provides the Master Health Checkup, and specializes in paediatrics. The Royapettah Hospital was established in the city 1911 and has a bed strength of 712, additionally they also provide the Master Health Checkup scheme. The government also operates three peripheral hospitals in the city all established in the late seventies, each with 100 beds and a limited range of services and operational hours.

The government also runs specialty hospitals in the city, including the Raja Sir Ramasamy Mudaliar Lying-In Hospital and the Kasthuribai Gandhi Hospital which focus on family, neonatal, labour and delivery, and post-natal care. As well as teaching facilities including the Kilpauk Medical College

Hospital and the Tamil Nadu Government Dental College and Hospital. The Institute of Child Health and Hospital for Children, established in 1984 with 537 beds at present, provides a special cardiothoracic surgery scheme for underprivileged children through the age of 12 years.

The city has several government run institutes, such as: the Institute of Obstetrics and Gynaecology Hospital for Women and Children, established in 1844 with 752 beds currently; the Regional Institute of Ophthalmology and Ophthalmic Hospital with 478 beds; and the Institute of Rehabilitation Medicine with 60 beds. The city also has an Institute of Mental Health which began as an asylum in 1794 with a maximum capacity of 20 patients and now provides mental health services for 1,800 patients including psychiatrists, social workers, clinical psychologists, occupational therapists, recreational therapists, special education teachers, and psychiatric nurses. The facility has an average of 1,651 inpatients each day and 390 outpatients. Finally, the Institute of Thoracic Medicine, which provides free care for poor patients arriving from long distances and visits to poor patients unable to attend the hospital.

2.3 Key Public Health System Challenges

The public healthcare system in India faces substantial challenges. Aman Gupta, principal advisory for Indian Health Progress (IHP) recently commented on challenges to the Indian healthcare system, stating that "India is the second most populous country in the world and with an healthcare infrastructure that is over-burdened with this ever increasing population, a set of challenges that are unique to India arise (Remedios, 2013)." He describes the double burden of disease facing India: on the one hand continuing/emerging infectious diseases due to poor implementation of public health programs; and on the other rising chronic degenerative diseases due to a demographic transition and increasing life expectancy. He goes on to discuss that large segments of the Indian population continue to experience economic deprivation and inadequate access to health care (Remedios, 2013); for some in India, one hospital stay may cost more than an entire year's income (Yip and Mahal, 2008). Of residents surveyed who did not seek care when ill, 37.6% of low-income urban residents and 43.3% of low-income rural residents listed financial hardship as the primary reason (Yip and Mahal, 2008). Those experiencing economic deprivation often face a higher risk for disease due to unsanitary living conditions, lack of safe drinking water, and undernutrition. Gupta highlighted the issue of low government expenditure on health; in addition to this Yip and Mahal (2008) identify the small percentage of the Indian population covered by any type of health insurance (~15%), with out-of-pocket payments accounting for 80% of India's total health spending in 2002-2003 (Ministry of Health and Family Welfare, 2003).

Public health facilities receive the majority of their revenues from government subsidies and are able to provide services at low costs to those who are unable to afford private care. Yet, the current 'capacity crunch' in the public healthcare system has resulted in increased dependency on private healthcare providers who are presently treating 78% of all outpatients and 60% of all inpatients (Wennerholm and Scheutz, 2013). Meanwhile, private hospitals and private practices have been permitted large growth with relatively little regulation from the government. Overall, India's public health system, Chennai included, faces challenges from a growing population, large segments of whom still experience economic deprivation and a lack of access to health insurance; and an underfunded public system alongside a rising private health system based on capacity to pay.

In response to these challenges the government launched the National Rural Health Mission (NRHM) in 2005 with the mission of improving the health system and the health status of the Indian people, particularly rural residents, and with the goal of providing universal access to equitable, affordable, and quality healthcare (Wennerholm and Scheutz, 2013).

2.4 Chennai's Private Health Care Facilities

Chennai has a plethora of privately run hospitals; some lists suggest over ninety such facilities (Tamil Electronic Library, n.d.). As outlined above, the private healthcare industry in India, and ergo Chennai, is vastly more dominant than the public healthcare system, with more financial and human health resources. A subset of these private facilities have been making a name for themselves within the medical tourism industry, including: Apollo Hospitals, Billroth Hospitals, Frontier Lifeline, Fortis Malar Hospitals, Girishwari Hospital, Global Hospitals and Health City, JGHR Dental Care, the Madras Medical Mission (MMM), the Madras Institute of Orthopaedics and Traumatology (MIOT), Sankara Nethralaya, Sri Ramachandra Medical Centre, St. Isabel's Hospitals, Vasan Eye Care Hospitals, and Vijaya Hospitals.

2.4.1 Apollo Group

The Apollo Group has several facilities located in Chennai. Apollo Hospitals Chennai was the first facility they established in 1983 and has been declared as a centre for excellence by the Government of India. They have also established the Apollo Speciality Hospital, providing tertiary services such as oncology, orthopaedics, neurology and neurosurgery, head and neck surgery and reconstructive and plastic surgery; the Apollo First Med Hospital, an 80 bed hospital providing secondary medical care services; and the Apollo Children's Hospital, a 100 bed facility specializing in paediatric care. Apollo

Hospitals have received the Joint Commission International Accreditation, National Accreditation Board for Hospitals and Healthcare Providers (NABH) accreditation, and ISO 9002 certification. The Apollo Group actively seeks an international clientele through their online webpage with a dedicated section and helpline for international patients. They offer airport transportation services, direct admission arrangements, tailored cuisines, language translation, and travel related assistance. They also offer a variety of room categories with photos and descriptions online, ranging from semi-private rooms, to executive rooms, to the Apollo Suite.



FIGURE 2 – APOLLO HOSPITAL CHENNAI EXTERIOR (CRED. APOLLO HOSPITAL NORTH CHENNAI, N.D.)

2.4.2 Billroth Hospitals

Billroth Hospitals, a 600 bed Super Specialty Hospital in Chennai, was established by Dr. Jeganathan in 1990. The hospital offers services in the following medical departments: oncology, nuclear medicine, cardiology, cardiothoracic surgery, orthopaedics, gastroenterology, obstetrics and gynecology, in vitro fertilization, urology and nephrology, neurology, diabetology, plastic surgery, vascular surgery, neurosurgery, paediatric surgery, ear, nose and throat, and chest medicine. The facility offers a variety of room categories from the dormitory wards to a suite room. Their website offers a dedicated section for international patient services targeted towards patients from the Middle East, with an office in Dubai to help facilitate travel to Chennai.



FIGURE 3 – BILLROTH HOSPITALS EXTERIOR (CRED. THE MODERN BILLROTH HOSPITAL IN CHENNAI INDIA, 2008)

2.4.3 Frontier Lifeline Hospital

Frontier Lifeline Hospital, inaugurated in 2004, is a 120 bed cardiac specialty hospital. The facility provides specialized cardiology and cardiac surgery services to adults and children, as well as heart and lung transplants, cardiac diagnostic imaging and radiology. The facility promotes its services to international patients with an International Patient Services Team that will provide assistance with visas, airport transfers, and accommodation, including the guest house attached to the hospital. The facility also arranges for SIM cards for patients upon arrival; language interpreters; local sightseeing; complimentary stays for an attendant; special arrangements for religious and dietary needs; and daily updates to the patient's referring doctor and family. The hospital has received ISO 9001 certification, and accreditation from the Department of Science and Technology (NABL) and NABH. Frontier Lifeline has also begun development on India's first Special Economic Zone (SEZ) Medical Science Park, Frontier Mediville, approximately 40kms outside of Chennai. The facility will act as a hub for basic and applied research, training, and treatment, including a proposed 1,000 bed multi-specialty 'Bio-Hospital'. The facility will focus on medical tourism and intends to provide a variety of unique features including an Elders' Enclave- a think-tank for retired medical professionals-, a holistic therapy centre, a herbarium, a 5-star hotel, shopping malls, an indoor stadium, an 18-hole golf course, and a water sports facility, among other things.

2.4.4 Fortis Malar Hospital, Adyar

Opened in 1992, the Fortis Malar Hospital, Adyar in Chennai offers a 180 bed, multispecialty tertiary care hospital. Within the facility they have five centers of excellence in cardiac science, bone and joint, neuroscience, gastro science, and organ transplants. They also provide speciality services in anesthesiology, chest medicine, dental, dermatology, diabetology, endocrinology, ear, nose and throat,



FIGURE 4 – FORTIS MALAR HOSPITAL EXTERIOR (CRED. FORTIS MALAR Q1 NET UP 75%, 2011)

foetal medicine, general surgery, gynaecology and obstetrics, infertility, internal medicine, intervention radiology, neonatology, oncology, ophthalmology, paediatrics, physiotherapy, psychiatry, pulmonology, radiology, rheumatology, sports medicine, thoracic surgery, and vascular surgery. The hospital contains a variety of room categories, from multi-bed rooms with up to ten beds, to deluxe rooms and suites. The Fortis Group runs 75 hospitals (17 in India) in 11 countries with over 12,000 beds, 600 primary care centres, 191 day care speciality centres, 230 diagnostic centres and over 23,000 staff.

They heavily market themselves to international patients with a Patient Services team that will arrange all appointments, consultations, testing, specialized meal planning, update doctors and families in the home country, arrange visas and travel assistance, accommodations, interpreter services, and local sightseeing. The facility has accreditation from NABH.

2.4.5 Girishwari Hospital

The Girishwari Hospital, opened in 2003, has grown from a 15 bed general medicine and gynaecology hospital to a 50 bed multi-specialty hospital offering services in psychiatry, medical and surgical gastroenterology, cardiology, paediatrics, dermatology and cosmetology, ENT, ophthalmology, and preventative healthcare. The facility also provides international patient services to assist with travel arrangements, airport transfers, and accommodations.

2.4.6 Global Health City

Global Hospitals is a network of nine hospitals across India providing multi-speciality tertiary care, and India's largest transplant center. The Global Health City developed in Chennai is a 1,000 bed, NABH accredited facility specializing in liver transplants. Global Hospitals



FIGURE 5 – GLOBAL HEALTH CITY EXTERIOR (CRED. GLOBAL HEALTH CITY, 2013)

have positioned themselves as an international hospital for patients around the world. They provide online consultations through video and teleconferencing prior to travel, dedicated international patient services staff, language interpretation, custom cuisine, assistance with visas, airport transfers, concierge services including sightseeing and visa extensions. They offer a variety of luxury accommodations; including their own in-house guest house, and deals with partnering hotels. They have also partnered with local tourism operators to provide medical tourists with traditional tourism activities.



FIGURE 6 – GIRISHWARI HOSPITAL EXTERIOR (CRED. IMAGE OF GIRISHWARI HOSPITAL, N.D.)

2.4.7 JGHR Dental Care



FIGURE 7 – JGHR DENTAL CARE EXTERIOR (CRED. THE JGHR CLINIC, OFFERING TOTAL DENTAL CARE TO THE COMMUNITY, N.D.)

The JGHR Dental Care clinic was established in 1962 and provides specialized dental services, including; periodontics, implantology, orthodontics, endodontics and cosmetology, prosthodontics, oral pathology, oral and maxillofacial surgery, and teeth whitening. The facility website states that they offer services to Chennai and the rest of the world, although it does not appear to provide any special international patient services.

2.4.8 The Madras Medical Mission (MMM)

The Madras Medical Mission (MMM) is a non-profit organization opened in 1982 through the efforts of Bishop Zachariah Mar Dionysius and the Orthodox Syrian Christian community in Chennai. It is a 256 bed quaternary care centre with institutes for cardiovascular diseases; reproductive medicine and women's health; kidney diseases, urology, organ transplantation; gastroenterology and liver diseases. MMM also provides services for international patients including assistance with travel, visas, language interpreters, cultural and religious requirements, transportation, accommodation, and speciality dietary planning. The facility has received ISO 9001 certification.



FIGURE 8 – MADRAS MEDICAL MISSION EXTERIOR (CRED. MADRAS MEDICAL MISSION. 2011)

2.4.9 The Madras Institute of Orthopaedics and Traumatology (MIOT)



FIGURE 9 – MIOT EXTERIOR (CRED. MIOT, N.D.)

The Madras Institute of Orthopaedics and Traumatology began in 1992 with a specialization in orthopaedics and trauma care, however

has expanded over time to include departments of thoracic and cardiovascular care; paediatric and adult cardiology; paediatric surgery; nephrology; gastroenterology and liver diseases; liver transplant; upper GI and bariatric surgery; laboratory services; urology; oncology; haematology; neurology and neurosciences; neurosurgery; craniofacial and cosmetic surgery; plastic and reconstructive surgery; diabetology; endocrinology; general surgery; internal medicine; ophthalmology; dermatology; radiology and imaging sciences; interventional radiology; nuclear medicine; ear, nose, and throat, head and neck surgery; obstetrics and gynaecology; anaesthesiology; pulmonary, critical care and sleep medicine. MIOT markets itself as an international institution with patients from over 100 countries visiting the facility for its services. They offer an international patient care office which facilitates visas and passports, transportation, international food, linguistic services, and guided tours of the city. MIOT also offers a retreat facility with post-operative nursing care, luxury suites, a health club, beauty parlour, salon, and a multi-cuisine restaurant.

2.4.10 Sankara Nethralaya

The Sankara Nethralaya, meaning ‘the temple of the eye’, was established in 1978 as a not-for-profit eye hospital. The facility receives 1200 patients and performs 100 surgeries each day. It has 22 operation theatres, 256 beds, and offers both in-patient and out-patient services. The facility has received accreditation from both the NABH and NABL. Sankara Nethralaya offers international patient services including assistance with travel and accommodations. They have a special arrangement with Oman, wherein the consulate of Oman mediates the procedure for the patient from Oman to Sankara Nethralaya, their travel, accommodations, and translation services, and covers all costs for the patient. They also have an arrangement with Mauritius, which sends five to ten patients weekly and incurs all expenses, although Sankara Nethralaya arranges travel and accommodation for the patient.

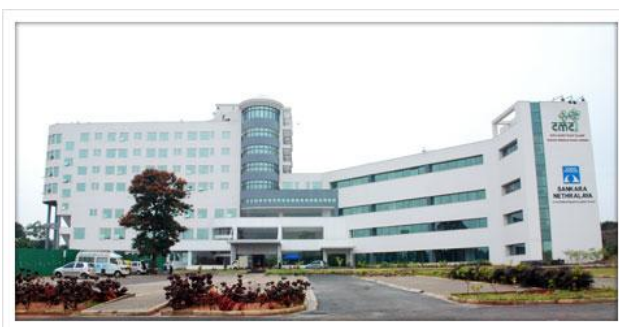


FIGURE 10 – SANKARA NETHRALAYA EXTERIOR (CRED. SANKARA NETHRALAYA, NOW, AT CAUVERY MEDICAL CENTRE, BANGALORE, N.D.)

2.4.11 Sri Ramachandra Medical Centre



FIGURE 11 – SRI RAMACHANDRA EXTERIOR (CRED. SRI RAMACHANDRA, N.D.)

Established as a teaching hospital for the Sri Ramachandra Medical College and Research Institute in 1985; the Sri Ramachandra Medical Centre is a multi-speciality tertiary care hospital. The facility has expanded to an 8-story building

with 692 beds, and 171 intensive care units. The medical centre focuses on cleft lip and craniofacial anomalies, lithotripsy, transplant services, interventional radiology, minimally invasive and day care surgery, paediatric urology, critical care, cardiac care, infertility, joint replacement and arthroscopy, and neuro-care. The Sri Ramachandra Medical Centre also offers international patient services including private rooms with beds for companions, interpreters, shopping, and travel and tourism packages. The facility has received Joint Commission International Accreditation.

2.4.12 St. Isabel's Hospital

St. Isabel's hospital is a 300 bed, acute care tertiary hospital with specialities in cardiology; pediatrics; general surgery; general medicine; obstetrics and gynecology; gastroenterology; nephrology, urology, and vascular surgery; orthopaedics and trauma; ear, nose, and throat, dentistry and ophthalmology; diabetology; plastic and cosmetic surgery; oncology; haematology; neurosurgery; endocrinology; dermatology; psychiatry; and chest and respiratory diseases. The hospital also runs outpatient clinics, a blood bank, a medical records office, and a health screening centre. St. Isabel's offers services to international patients, including specially-designed suites in a deluxe block, although they do not offer a large variety of services catered to international patients commensurate with other hospitals.



FIGURE 12 – ST. ISABEL'S HOSPITAL EXTERIOR
(CRED. ST. ISABEL'S COLLEGE OF NURSING, N.D.)

2.4.13 Vijaya Medical and Educational Trust

The Vijaya Medical and Educational Trust (VMET) is the owner and operator of several medical facilities in Chennai, including: the Vijaya Hospital, the Vijaya Heart Foundation, the Vijaya Health Centre, the Vijaya Institute of Trauma and Orthopaedics, the Vijaya Academic Institutions, and the Vijaya Eye Foundation. The trust was formed by Shri B. Nagi Reddy, owner of Vijaya Vauhini Studios, a film studio company in India. The hospital was the first of the Vijaya facilities, built in 1972 and providing multi-specialty tertiary care. With a total of 340 beds and 9 operating theatres they provide specialty services in cardiology and cardiothoracic surgery, dentistry, dermatology, ENT surgery, gastroenterology, general medicine, general and laparoscopic surgery, intensive care medicine, neurology, obstetrics and gynaecology, ophthalmology, neonatology, psychiatry and psychology, rheumatology, urology, and vascular surgery. The Health Centre was added in 1987 to cater to international patient clientele; it has grown to 340 beds and provides cottage-style facilities with accommodations for visiting family members. In 1989 the Eye Foundation began, followed by the Heart Foundation in 1996, which was established to provide affordable cardiac care to the community, and the Institute of Trauma and Orthopaedics in 1999. The academic institutions offer BSc degrees in cardiac technology, operation theatre and anaesthesia technology, physician assistant, and radiology and imaging technology, as well as a Diplomate of National Board (DNB) in cardiology, general medicine, obstetrics and gynaecology, and paediatrics. The VMET advertises itself as one of the best hospitals in Chennai for medical tourism and offers information about India's medical tourism industry on their site. The trust provides international patient services, including airport transfers, accommodations, specialty food arrangements, and a travel desk which arranges for tours of the city.

3. MEDICAL TOURISM FACILITIES SITE TOURS

The research team conducted on-site facility tours of five of Chennai's private healthcare facilities providing medical tourism services, including: Apollo Specialty Hospital, Billroth Hospitals, Frontier Lifeline Hospital, Frontier Mediville, and Global Hospitals' Global Health City.

3.1 Apollo Specialty Hospital



FIGURE 14 – APOLLO SPECIALTY HOSPITAL PLATINUM SUITE (CRED. AUTHORS)

The Apollo Specialty Hospital, owned by the Apollo Group, was built in 1998. It currently has 260 beds, although there are plans for expansion. The facility has national accreditation but is seeking JCI accreditation in the near future. The facility has undergone interior renovations in the deluxe, platinum and super deluxe wards, predominately utilized by international patients. These renovated wards have been modelled after high-end hotels, and offer additional luxuries, such as superior air conditioning. The facility's exterior underwent renovations in 2010. As of 2013, the Apollo group had recently purchased a building across from the main hospital that is being renovated for additional patient rooms. The orthopaedic ward is almost exclusively used by international patients,

with a separate elevator entrance, and its own waiting area equipped with leather couches and an aquarium. The rooms in this ward are very high-end, each with an additional bed for a travel companion, and a shared kitchen for the entire ward accessible by patients and their companions. Additionally, the ward has a dedicated international patient coordinator. There are two full-time Arabic translators, as well as 4-5 independent medical tourism facilitators in Canada and the

United States who regularly refer patients to Apollo, specifically for orthopaedic surgery. The hospital has tie-ups with resorts in the surrounding area, including the Taj

Fisherman's Cove luxury resort, where some international patients elect to stay during their recovery period. International patients have been attending the facility for approximately 8 years for a hip resurfacing procedure, particularly attractive to patients from high income nations, although they have been coming for longer for other procedures. Their advertising strategy has been primarily through word of mouth from patients with success stories. The majority of their orthopaedic patients are from the US, Canada, Australia, Italy and the Middle East. They receive approximately 100 medical tourists each year for orthopaedic procedures, including as many as 10-15 Americans and Canadians each month, with increasing numbers over the past five years. International and local patients pay the same fees, although locals are less likely to utilize the more costly deluxe and platinum wards.



FIGURE 13 – TAJ FISHERMAN'S COVE (CRED. [HTTP://WWW.VIVANTABYTAJ.COM/FISHERMANS-COVE-CHENNAI/PHOTO-GALLERY.HTML](http://www.vivantabytaj.com/fishermans-cove-chennai/photo-gallery.html))

3.2 Billroth Hospitals

The tour of Billroth Hospitals provided some additional information on the medical tourism activities of the hospital. The facility has been actively marketing its services to medical tourists for six years and has seen a growth in medical tourism patients. The majority of its international patients are from the Middle East, Nigeria, Tanzania, and Oman. Approximately 50-60 foreign patients attend the hospital each year, primarily for cardiology and oncology services. The tour provider discussed the issue of medical tourism patients being poached by larger hospitals. It was suggested that students are paid \$100 to pick up patients from the airport scheduled to have procedures done at other hospitals and bring them to the larger facilities, although the validity and magnitude of this phenomenon could not be confirmed.

3.3 Frontier Lifeline Hospital

Frontier Lifeline Hospital is very active in the medical tourism industry, estimating that 50% of their patients are medical tourists. The hospital specializes in pediatrics, with 40% of their patients arriving for pediatric surgery; half of all clientele will pay out of pocket. They actively recruit foreign patients, making three to four foreign trips each year to develop contacts with other doctors, who will then be able to make referrals to their hospital. They cited the success of this strategy in the case of a recent camp visit to Iraq which has led to Iraq becoming the number one source country for medical tourism patients. They also receive many patients from Oman and other Middle Eastern countries, as well as Africa (particularly Nigeria), Bangladesh, and Sri Lanka, many of whom are non-resident Indians. While they receive a small number of clientele from North America and Europe they express a desire to increase the number of patients arriving from high income countries. Within the hospital they advertise many personal testimonials from patients, as well as some highly-regarded public figures, including Al Gore and Mother Theresa. Contrary to their website the tour facilitator suggested that they did not provide tourism services, citing that the acuity and complexity of their patients' conditions would make tourism activities unsuitable. They discussed expansion plans for free-standing cardiac units, with one currently underway in Tanzania serving the East African population, with plans for similar services in Myanmar. Some doctors arrive at the hospital for training, although their doctors work exclusively at the hospital; no private practices or work within the public system is allowed.

3.4 Frontier Mediville

The visit to Frontier Mediville showed a medical complex with prodigious future intentions in the preliminary stages of inception. The progress to date has included one building currently utilized as a laboratory research centre for clinical and animal studies, as well as a space for potential partnerships with pharmaceutical companies. This building was five years old at the time and beginning to show some signs of wear and tear. There were students currently taking courses there, with plans to extend lodging for additional nursing and medical students, whether they would develop degree granting programs, or simply host student from other universities, was unknown at the time. There is also a second building currently under construction, including a 1,500 seat conference theatre and a cafeteria for up to 500 people, however the intended audience for this remains unknown. There were no hotels or accommodations in the area, and while a shuttle bus was currently being run from Chennai to Mediville, it is a three hour return trip.

3.5 Global Health City

Global Health City, acquired by Global Hospitals in 2010, has flourished into a small city of its own under Global Hospitals' ownership, with shops, food places, markets, spas and more being developed around it. Signage around the hospital was consistently presented in English, Hindi and Arabic, with exceptional focus on the international credentials of the physicians. They actively recruit foreign patients by sending doctors to work in medical camps in source countries, either once a month or every other month. From these visits they receive approximately 200 queries a month, many relating to pediatric surgeries and transplantations. They have also developed ties with the governments of Oman, Djibouti, Bahrain, and the United Arab Emirates. They have dedicated staff of approximately 16 people for medical tourists, providing full concierge services, pick-up and drop-off at the airport, and shopping trips in Chennai. The facility has separate wards for medical tourists, but when these wards are full they will place foreign patients in other wards; additionally many medical tourism patients are on very restricted budgets, particularly when foreign governments are covering services, and will stay in local wards. Although medical tourism patients tend to get slightly more attention from staff, the nurse to patient ratios are the same in both international and domestic wards. While most patients like to spend a day in the city, only about 5% will visit a resort; the tour facilitator suggested that most are paying for their treatment and do not want to spend additional money, generally they want to get their treatment and go home. They receive the majority of their patients from Iraq, along with East Africa, the Middle East, Sri Lanka, Bangladesh, Pakistan, and Nepal, with some patients from Canada, the UK, and the US. They have also developed ties with some foreign governments primarily in the Middle East. While costs for medical tourists are slightly higher than for locals, approximately 30-40% of their patients are international and the numbers are increasing. Almost all of the doctors work full-time exclusively for the facility, although some are connected with other hospitals.

4. MEDICAL TOURISM IN CHENNAI

4.1 The Growing Medical Tourism Industry in India

India's medical tourism industry has been experiencing consistent growth, with annual increases of between 15% and 30% in medical tourists, contributing an estimated \$450 million dollars to the Indian economy (Swain and Sahu, 2008). Originally a hub for neighbouring countries, such as Afghanistan, Bangladesh, Pakistan, Nepal, Bhutan, the UAE, and the Maldives, India has expanded their clientele to more developed and distant countries, including the USA, Canada, and Europe (Swain and Sahu, 2008). They have largely attracted patients for procedures such as knee and hip replacements, hip resurfacing, bariatric procedures, cardiac procedures, and AYUSH treatment (Swain and Sahu, 2008). India has been able to attract a growing portion of the market through its considerably lower costs for medical procedures (see Table 1). It has been suggested that India's medical tourism industry has also grown due to the quality of healthcare being offered at low costs, the expertise of their medical providers, the high-end medical and health care facilities, their 100% success rate, and a perception of being 100% trustworthy (Bhadu, 2011); although the scientific rigour of this study's methods are unclear, and the assertion of a 100% success rate and a 100% trustworthiness rate are suspect. Herrick's (2007) review indicates that estimates of the total revenue from the global medical tourism industry were \$40 billion in 2004, \$60 billion in 2006, and projected to rise to \$100 billion in 2012. India is actively seeking a larger segment of this market, with the Confederation of Indian Industry reporting that their nation has the potential to attract two million medical tourists annually, (up from the 1,000,000 reported in 2013 [Kalyanam, 2013]), and provide five billion in revenue for their economy (Swain and Sahu, 2008).

TABLE 1 – COST COMPARISON OF SELECTED SURGERIES (ALL COSTS IN \$US)

Procedure	USA	India	Thailand	Singapore	Malaysia	South Korea	Mexico	Costa Rica	UAE
Heart bypass	133,000	7,000	22,000	16,300	12,000	31,700	27,000	24,100	40,900
Heart valve replacement with bypass	140,000	9,500	25,000	22,000	13,400	42,000	30,000	30,000	50,600
Hip replacement	57,000	7,020	12,700	1,200	7,500	10,600	13,900	11,400	46,000
Face lift	16,000	4,800	5,000	7,500	6,400	6,600	11,300	4,900	n/a
Lap. gastric bypass	52,000	9,300	13,000	16,500	12,700	9,300	11,000	n/a	n/a

Source [World Travel Market, 2009 in Bhadu, 2011]

4.2 The Growing Medical Tourism Industry in Chennai

Chennai has been particularly effective at increasing its medical tourism industry; in fact, India can trace its medical tourism roots to Chennai, specifically, the Apollo Hospital Group (Krishnaswami, 2010).

According to one source, Chennai attracts 40% of all medical tourists in India, with a minimum of 200 international patients each day (Kalyanam, 2013). Medical tourism is so pervasive in the city that approximately half of all patients receiving treatment in Chennai will arrive from outside of the state of Tamil Nadu (Krishnaswami, 2010). The country of origin of Chennai's medical visitors has been reported by some as predominantly coming from Nigeria, Kenya, Burundi, Congo, Bangladesh, Oman, and Iraq (Ashok and Lakshmi, 2011); and others reporting the majority originating in Sri Lanka, Myanmar, Tanzania, Oman, Fiji, Iraq, and the UK (Times of India, 2009).

Chennai has been able to draw more medical tourists than Bangalore, due in part to its increased flight connectivity with the United States, the Middle East and other countries (Kalyanam, 2013). The city has also signed several Memorandums of Understanding (MoUs) with countries such as Tanzania, Uganda, and Kenya, meaning that their citizens will automatically be sent to Chennai for government-sponsored medical tourism (Kalyanam, 2013). The city continues to increase efforts to escalate the industry, such that in April of 2013, healthcare practitioners urged more coordinated efforts from all stakeholders, including hospitals, airlines, hotels and resorts (Hindu, 2013). The Vice-President of Apollo Hospitals Group, Srinidi Chidambaram, cited the lack of uniform pricing among hospitals, a lack of insurance coverage for overseas medical care, and rigorous visa procedures, as barriers to the industry (Hindu, 2013).

5. CONCLUSIONS

Tourism is an important economic activity in the city of Chennai, to which medical tourism has been an increasingly important contributor. Chennai currently accounts for 45% of all of India's \$2 billion medical tourism industry, and an additional 30-40% of health tourism from nationals (Macguire, 2007). While the city of Chennai and the state of Tamil Nadu may have an extensive network of healthcare facilities and infrastructure, there is strong reason to believe that they are not currently meeting local needs for access to medical care. The country as a whole faces crucial health personnel challenges, with 70% of the total health workforce employed in the private sector (Rao, et al., 2011); and not surprisingly creating increased dependency on private healthcare providers who are presently treating 78% of all outpatients and 60% of all inpatients (Wennerholm and Scheutz, 2013). At the same time India has actively promoted the outflow of health workers in hopes of capturing remittances, a pursuit that may be unable to compensate for the loss of qualified personnel for its domestic population. There are still large segments of the Indian population that experience economic deprivation and inadequate access to health care, and only a very small percentage covered by any form of health insurance (Yip and Mahal, 2008). While Chennai's growing medical tourism industry may bring with it opportunities to retain health human resources and improve access to advanced medical technologies, it must not do this at the cost of achieving universal, quality healthcare for local residents.

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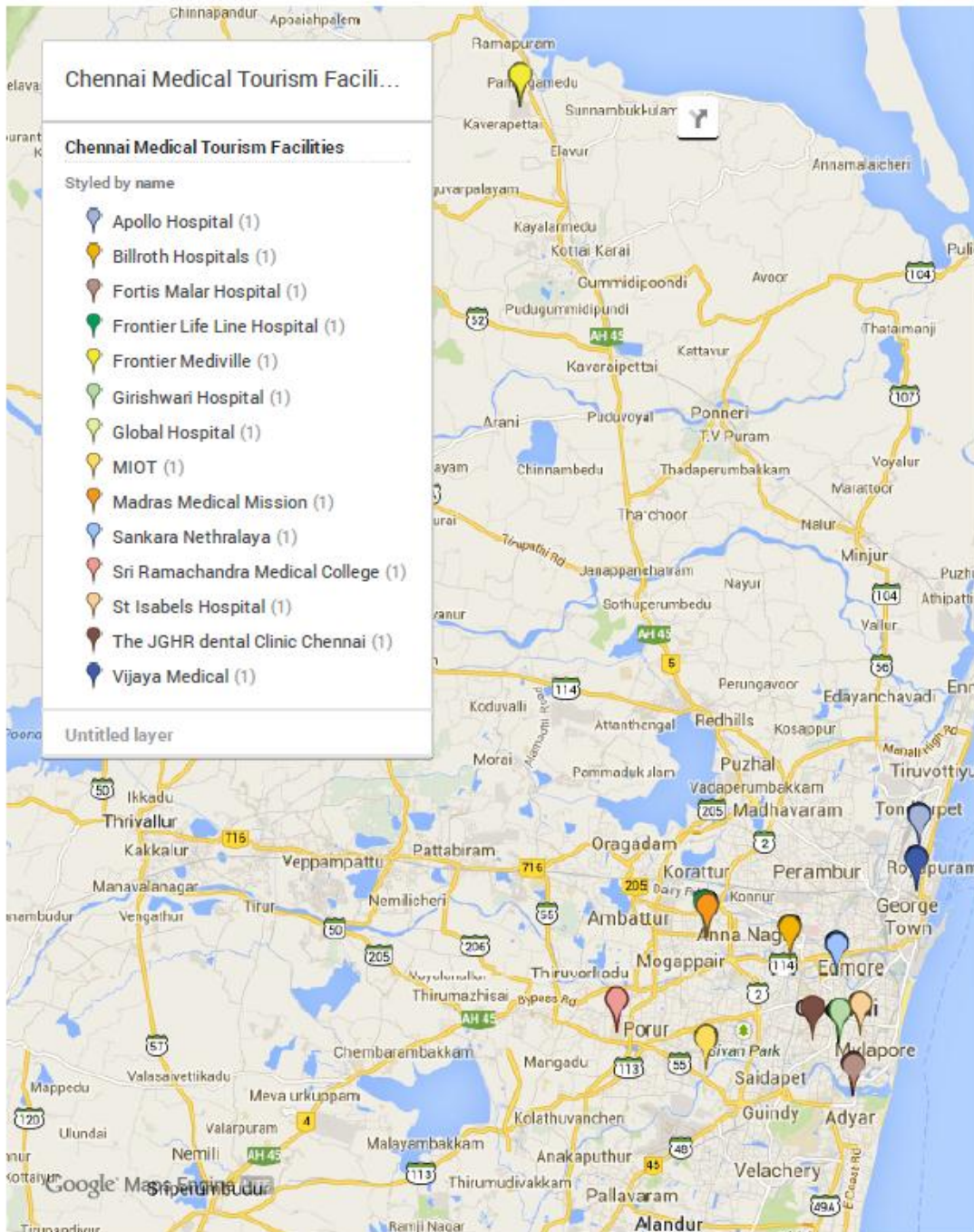
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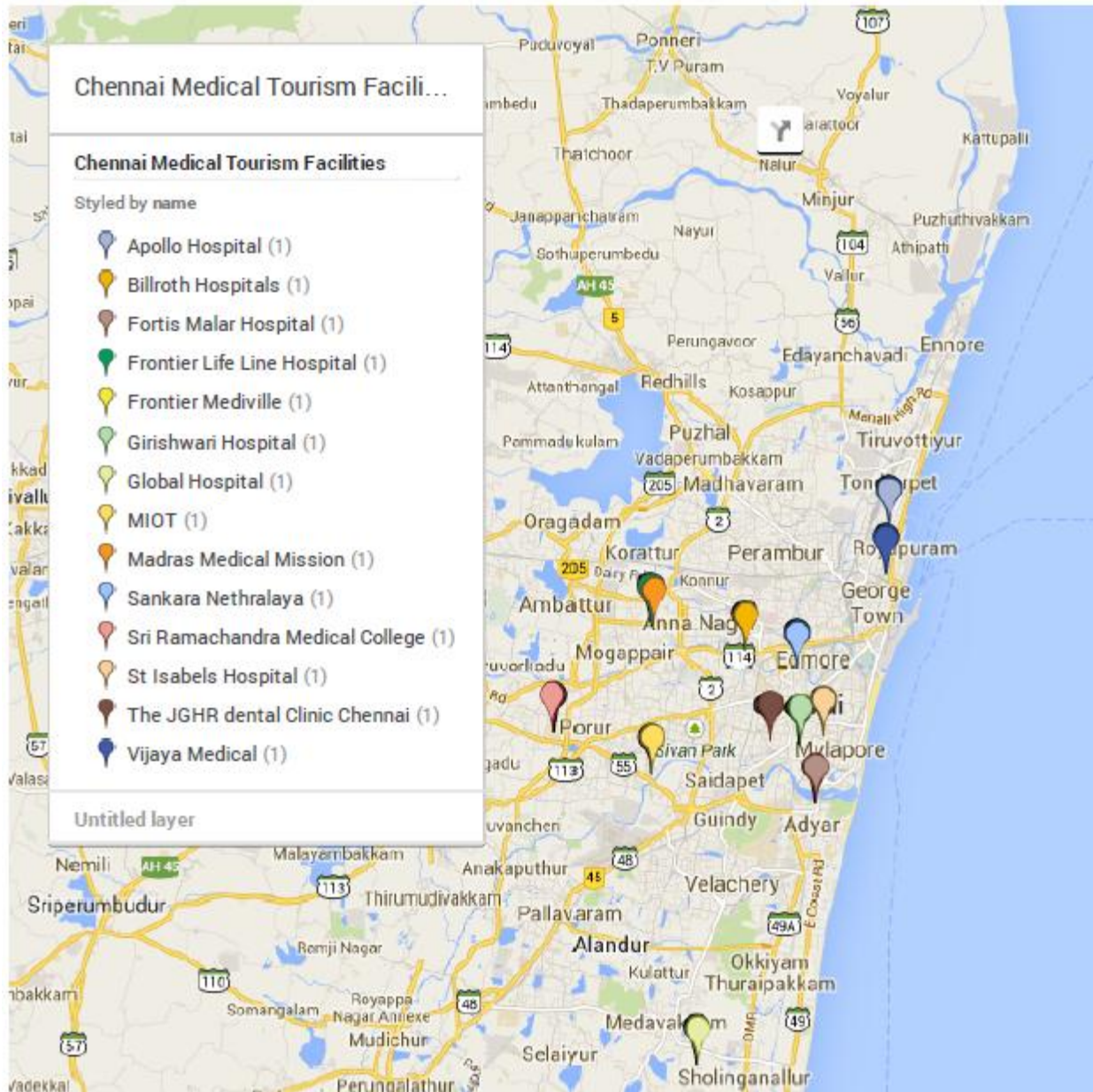
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APPENDIX 1 – MAP OF MEDICAL TOURISM FACILITIES IN CHENNAI





APPENDIX 2 – TRADE AND INVESTMENT TREATIES: INDIA

GATS Commitments

Worldwide, most trade and investment pertinent to medical tourism takes place outside of bilateral, regional or international trade and investment treaties. Such treaties, however, can influence growth in medical tourism and international patient flows. The World Trade Organization's (WTO) General Agreement on Trade in Services (GATS) is one such treaty. GATS requires WTO members to progressively remove barriers to trade in health services. This can include trade in health services through four specific channels (known as 'modes') (WTO, n.d.):

1. The supply of cross-border health services (such as telemedicine, or laboratory testing)
2. The supply of health services for international consumers (such as medical tourism)
3. The presence of foreign direct investment in health services (such as foreign direct investment in a health facility)
4. The movement of health workers (such as allowing foreign health professionals to practice within the country)

There are two categories in which barriers to trade can be altered: market access (removing barriers to foreign goods, investors or service providers) and national treatment (regulating foreign goods, investors or service providers the same as domestic ones). GATS allows WTO member countries to choose which of the four modes and the two categories they will 'liberalize' (the formal term for removal of trade barriers), and for which service sectors – these are what are known as the country's 'GATS commitments'. Countries can also apply specific limitations to these GATS commitments. GATS commitments are binding, which means that they cannot be ignored or altered. These commitments lead to a trade dispute if another WTO member country believes that a government is deviating from them, with obligations for compensation should the offending country lose the dispute.

India has made liberalization commitments under GATS. One commitment allows cross-border hospital services, primarily for diagnostic assistance (obtaining 'second opinions' from foreign medical institutions) and research (Mode 1). Another commitment removes restrictions on the entry of foreign patients (Mode 2). These commitments make it easier for Indian medical tourism facilities to arrange pre- or post-treatment services across borders. It also encourages referral programs for patients so that, if required, their medical diagnoses can be done online, which helps to create a client base in foreign markets and thus contribute to growth in medical tourism. India has also opened its private hospital market to foreign investors (Mode 3), nominally imposing a ceiling of 74% foreign investment but in practice allowing it to be 100%, which has been the case with some private hospital chains in the country. India also requires that foreign investment "bring in [the] latest technology for treatment" (WTO, 1994). This same conditionality applies to its many bilateral agreements (described below) and is consistent with the country's intention to develop leading edge medical facilities for its own citizens, as well as to attract foreign patients. India also requires that "publicly funded services be available only to Indian citizens or be supplied at differential prices to persons other than Indian citizens" (WTO, 1994), which opens the possibility that earnings from medical tourism could be used to cross-subsidize services for Indians.

Regional and Bilateral Trade Agreements

India has concluded several regional and bilateral trade agreements.

Regional treaties include:

- Association of Southeast Asian Nations (ASEAN)
- Asia Pacific Trade Agreement (APTA)
- Global System of Trade Preferences among Developing countries (GSTP)
- MERCOSUR (the South American Common Market)
- South Asian Free Trade Agreement (SAFTA)
- SAARC (South Asian Agreement for Regional Cooperation)
- South Asian Preferential Trade Arrangement (SAPTA)

Not all of these regional treaties have implications for health services. For example, only some South Asian countries (under SAARC) have committed to liberalize their health sectors; other countries are liberalizing only some of their health sub-sectors; and others are making no commitments at all (Khatun and Ahamad, 2011).

Bilateral treaties include agreements with: China, Chile, Afghanistan, Bhutan, Finland, Japan, Malaysia, Nepal, Singapore, Sri Lanka, Republic of Korea, New Zealand, Australia and with some African countries. India has made extensive liberalization commitments under market access and national treatment in its agreements with Singapore, Malaysia, Japan and the Republic of Korea. All five countries have fully liberalized trade in GATS Modes 1 (cross-border health services) and 2 (health services for international consumers), with the one exception of Singapore's exclusion of Mode 1 trade. The agreements also call for negotiations for mutual recognition of the education or experience, licenses, and certification of doctors, dental and nursing personnel, and other health professionals (Department of Commerce, n.d). Agreement on this would make health professional movement across borders much easier (Mode 4 trade). Mutual recognition negotiations are part of several other bilateral agreements to which India is a party. Several of these treaties also include some liberalization in foreign investments (Mode 3) in health, tourism and social services (Department of Commerce, 2009), similar to India's multilateral (WTO) GATS commitments.

In 2010, India reported receiving around 1612 foreign tourists for medical purposes from Malaysia, 645 from Singapore, 168 from Japan and 96 from the Republic of Korea, though these figures do not capture all MT flows into India (Ministry of Tourism, 2010). Interestingly, all five countries are considered emerging markets for medical tourism (so there may be some competition amongst them based on cost as well as quality), and India's full liberalization with these countries is indicative of its interests in tapping these markets for its own medical tourism growth.

India's regional and bilateral trade commitments are thus indicative of interests in gradual liberalization of its health care. Its focus on Modes 1 and 2 (cross-border services, and international patients) is clearly intended to increase the flow of foreign patients.

Bilateral Investment Promotion and Protection Agreements (BIPAs)

BIPAs (also known as BITs, or bilateral investment treaties) serve primarily to guarantee the rights of foreign investors, and were created to protect the investments of capital exporting countries in developing economies and the former socialist republics (Dhar, Joseph, & James, 2012). Of particular concern with BIPAs is the inclusion of investor-state dispute settlement procedures, allowing foreign private investors to initiate arbitration against a government when they believe their investment has been expropriated due to regulatory or legislative change. This is worrisome as it may shift authority over dispute resolution away from local jurisdictions and shift power to relatively wealthy investors.

GATS contains a list of general exceptions to its commitments that a country can use to justify new measures necessary to protect human, animal or plant life or health. Moreover, individual investors or companies cannot initiate a dispute under WTO rules, only another member country can. With BIPAs, however, private foreign investors can initiate a dispute, and even when an expropriation is considered to be for a public purpose, and does not discriminate against foreign in favour of domestic investors, there is a requirement for "fair and equitable compensation."

According to UNCTAD (2012), while expropriation includes traditional concepts such as nationalization, it has also been extended to include regulatory measures enacted by the state in the protection of public interest that may diminish the economic value of the investment. As a result, attempts by India to increase regulatory protections for its citizens could be undermined or made financially prohibitive by the requirement that compensation be paid to private foreign investors.

India has signed 82 BIPAs since 1994, effectively overriding protections put in place under WTO trade treaties such as GATS. While GATS may permit the temporary nationalization of private health care investments (such as private health care facilities) during a public health crisis, BIPAs would demand compensation for lost revenue during this time to private foreign investors, paid with interest. Furthermore, foreign investors wishing to dispute a nationalization or regulatory change affecting their investment would be able to 'cherry-pick' from the most favourable conditions among the 82 BIPAs in effect (Egli, 2006).

One area of concern for India pertains to the deviation from their model BIPA surrounding the language of an investment, which has been broadened in BIPAs signed with France, Korea, Italy, Kuwait, and Mexico in particular (see Dhar, et al., 2012). As Dhar et al. (2012) note, "the definition of investment holds the key to the determination of expropriation (p.117)." They suggest that the more exacting countries are in their definition of investment, the fewer claims of expropriation they are likely to have brought to arbitration. Dhar et al. (2012) conclude that India's desire to attract foreign investment led to frequent deviations from their model BIPA language, which in a time of recession has opened them up to numerous arbitration cases from companies seeking ambiguities in these investment agreements to compensate for their reduced profit margins.

For a full list of India's BIPAs see: http://finmin.nic.in/bipa/bipa_index.asp?pageid=3

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