HEALTHCARE

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A report by Ernst & Young for IBEF

Market Overview

Healthcare has emerged as one of the largest service sectors in India. In 2004, national healthcare spending equalled about 5.2 per cent of nominal GDP, or about US$ 34.9 billion. Healthcare spending in India is expected to rise by 12 per cent per annum through 2005-09 (in rupee terms) and scale up to about 5.5 per cent of GDP, or US$ 60.9 billion, by 2009. Other estimates suggest that by 2012, healthcare spending could contribute 8 per cent of GDP and employ around 9 million (million) people.

From a pan-India perspective, presently there are more than half a million doctors employed in 15,097 hospitals. Additionally there are 0.75 million nurses, who look after more than 870,000 hospital beds. During the previous decade, the number of doctors has increased by 36.6 per cent. An estimated 30 per cent of medical practitioners hold specialist qualifications.

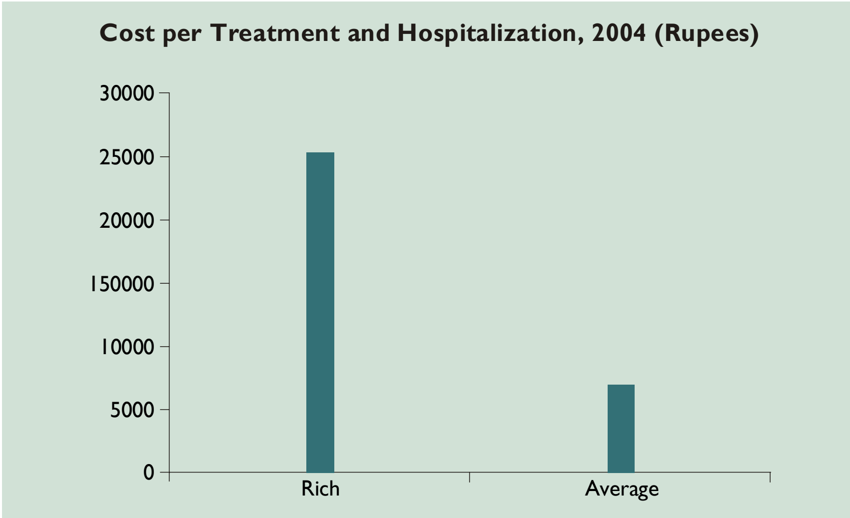
Particulars	2004	2005	2006	2007	2008	2009
Life expectancy, average (years)	64	64.3	64.7	65.1	65.4	65.8
Healthcare spending (Rs bn)	1,582	1,763	1,967	2,216	2,463	2,771
Healthcare spending (US$ bn)	34.9	40.4	45.7	52.1	56	60.9
Healthcare spending (% of GDP)	5.2	5.3	5.3	5.4	5.4	5.5
Healthcare spending (US$ per head)	32	37	41	46	49	53

Sources: US Census Bureau; Economist Intelligence Unit.

Growing incomes and literacy bode well for the Indian healthcare services market.

Much of India's healthcare expenditure comes from private patients' pockets, primarily the higher-income households.

Tertiary-care treatments tend to be expensive. The top 33 per cent income earners in India accounted for 75 per cent of total private expenditure on healthcare in 2004. Rich households (the top 8 per cent) paid US$ 578 per treatment and hospitalisation in 2004, three times the overall average of US$ 191.



Sources: Citigroup estimated based on NCAER base case.

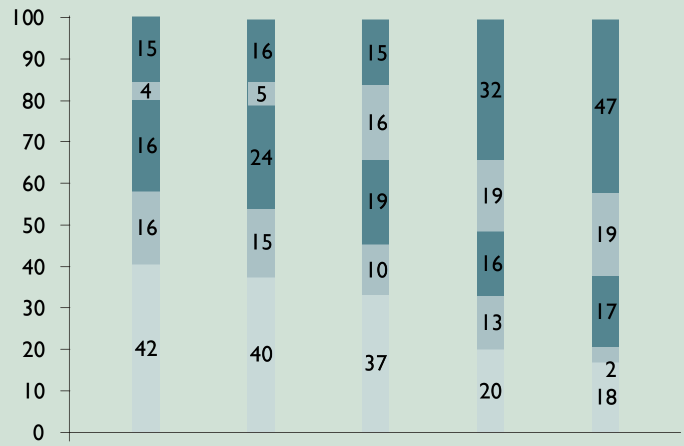
The proportion of households in the low -income group has declined significantly. Rising incomes are expanding the rich and middle-income groups, and they are expected to form 49 per cent of total households in financial year 2010, as compared with 33 per cent in financial year 2004, thus driving growth.
A survey by NCAER, an independent economics research agency, suggests that per-capita expenditures on healthcare rise with higher education levels. Households that have higher education levels tend to spend more per illness than households with lower education levels. Rising literacy in India is improving health awareness, especially about lifestyle-related diseases—which tend to be more costly to treat than infections.

Shift to lifestyle-related diseases to drive higher healthcare spends

While rising incomes and growing literacy are likely to drive higher per-capita expenditures on healthcare, the shift in disease profiles from infectious to lifestyle-related diseases are expected to raise expenditures per treatment. Lifestyle-related diseases are typically more expensive to treat than infectious ones. In 2001, the average inpatient cost for lifestyle-related diseases (cardiac problems, digestive issues etc.) was US$ 658 compared to US$ 91 for infectious diseases.

India's disease profile is expected to follow the same pattern as in developed economies. Based on demographic trends and disease profiles, lifestyle diseases - cardiovascular, asthma and cancer have become the most important segments, and in-patient spending is expected to represent nearly 50 per cent of total healthcare expenditure. In the inpatient market, the share of infectious diseases is expected to decline from 19 per cent in 2004 to 16 percent in 2008.

Disease Profile - India vs. Other Countries (Million Treatments)



Sources: Citigroup estimated based on WHO and CII-McKinsey base cases.

The number of cardiac-disease-related treatments in India is expected to grow from 1.5 million to 1.9 million per year over 2004-08, which would constitute 5.1 per cent of all treatments, The spend share of inpatient cardiac treatment is estimated to grow to 19 per cent of the total in 2008 from 16 per cent in 2004. This would drive a 13.4 per cent CAGR in the inpatient cardiac care market from US$ 1.2 billion in 2004 to US$ 2.04 billion in 2008. The average realisation per inpatient for cardiac related treatment is much higher than for other disease segments.

Increased life expectancy and an ageing population to play a role as well

In the domestic market, health spending will be sustained by two demographic trends: increased life expectancy and an ageing population. Life expectancy, which averaged 63.3 years in 2000-04, is expected to increase to 65.1 years in 2005-09 and to 66 years in 2006-10. The proportion of the population aged 65 years and over is also on the rise, and will increase from 4.7 per cent in 2000 to 5.3 per cent in 2005 and 5.8 per cent in 2010. Although the rate of ageing in India is slower than the developed world, the large population makes any increase significant in terms of absolute numbers, and therefore also in terms of market potential.

Rising share of the private healthcare sector

The majority of healthcare services in India are provided by the private sector. In 2002 fee-charging private companies accounted for around 82 per cent of overall healthcare expenditure, with various levels of government covering the remaining 18 per cent.

The contribution of the private healthcare sector is on the rise, with investments from the corporate sector steadily growing since the mid-1990s. In the last few years, a number of new players have entered the healthcare delivery sector, and set up specialty and super-specialty centres.

In the government sector, the states provide the bulk of healthcare. Presently, the public spending is at a level of 1.3 per cent of the GDP. Public spending on healthcare will continue to rise, but the prospect of large and sustained increases is low. It is expected to increase to 3 per cent over the next few years.

Studies by the Central Bureau of Health Intelligence has shown that a majority of Indians trust private healthcare despite the average cost being higher at US$ 4.3 than the US$ 2.7 it costs at government-owned healthcare agencies. It has further been estimated that while 59 per cent of healthcare expenditure comes from the 'self-paid' category, less than 30 per cent is contributed by the states.

Significant investment opportunities for private sector

Limited government investment provides significant opportunities for private healthcare service providers as large investments are required to scale up the country's healthcare infrastructure. India's healthcare infrastructure needs substantial investment. By certain estimates, to reach even half of China's current beds per 1,000 population over the next 10 years, India would need an additional 920,000 beds entailing an investment of between US$ 32 billion and US$ 49.1 billion, assuming that 20 per cent of those beds would be in the tertiary-care segment.

The government is likely to meet only 15-20 per cent investment in hospital beds, assuming it increases expenditures by 6-7 per cent from the current base. Assuming 10-15 per cent commitment from international donors, there would be a shortfall of 70 per cent, which could be funded by private companies.

Similarly, to match China's level of physician availability (1.1 per 1,000 population) over the next 10 years, it is estimated that an additional 818,000 physicians would be needed - which translates into a need for more medical schools. Investment is also needed in medical equipment and training facilities for professionals such as nurses and pharmacists.

India's unmet demand for healthcare facilities, rapidly changing demographics, increasing private spending on healthcare, and a readily available intellectual pool are fuelling the growth of the healthcare industry and making it highly attractive for international investors

Key Opportunities

Medical Tourism

Medical tourism has gained momentum in India over the past few years, a trend underpinned by India's low-cost advantage and the emergence of new high-quality healthcare service providers.

In India, approximately 1,80,000 patients arrived in 2004 from across the globe for medical treatment. The medical tourism market in India, estimated at US$ 333 million in 2004 grew by about 25 per cent and is predicted to become a US$ 2 billion-a-year business opportunity by 2012.

India is seeing a surge of patients from developed countries as well as from countries in Africa and South and West Asia that lack adequate healthcare infrastructure.

The emergence of low-cost, high value specialist medical care territories in India has been noteworthy. For instance, New Delhi has emerged as a prime destination for cardiac care, as has Gujarat. Similarly, Chennai has established a niche for quality eye care, while Kerala and Karnataka have emerged as hubs for state-of-the-art ayurvedic healing.

These "medical hotspots" are beginning to witness an influx of health tourists from non-traditional geographies. Among others, foreign health travellers to India comprise a large number of Non Resident Indians (NRIs).

Overburdened health infrastructure & high costs in the West, a key driver for looking at India

The healthcare systems in Europe and the United States are under severe pressure; particularly the National Health Service (NHS) in the UK, which has a long list of patients waiting for over a year for surgery. In the US the healthcare crisis has a different dimension. Around 50 million citizens are uninsured, with even the insured having to pay dearly for treatment. Further, the shortage of paramedical professionals such as nurses has aggravated the situation. Patients from the US are now regularly beating a path to India, as many of their insurance companies have entered into tie-ups with private Indian hospital chains.

India's medical infrastructure at a glance

5,097 hospitals
8,70,161 hospital beds
5,03,900 doctors
7,37,000 nurses
162 medical colleges

India's low cost of medical care, a strong value proposition

India offers highly cost-competitive medical treatment and technological advances in areas such as cardiology, cosmetic and orthopedic surgery, dentistry, eyecare and preventive health checks. India offers world class cardiac bypass surgery, hip replacements, organ transplants, cosmetic, dental surgery and vision correction.

Eye care & surgery in India

With 10,000 eye doctors in India, the status of eye care and surgery in India is impressive. India has well-qualified doctors and well-equipped eye care centres in smaller towns and metropolitan cities of the country to offer minor to highly specialised eye care treatment. For instance, there are more Lasik centres in India than in some developed countries. Cost-effectiveness and quality are the two factors driving the flow of foreign patients to the eye care centres in India. India has state-of-the-art eye care centres like Sankar Nethralaya, Chennai; All India Institute of Medical Sciences (AIIMS), New Delhi; Aravind Eye Hospital, Madurai and LV Prasad Eye Institute, Hyderabad, among others. Aravind Eye Hospital conducts the largest number of cataract surgeries in the world.

Costs of comparable treatment in India are on average one eighth to one fifth of those in the West. For instance, a cardiac procedure costs anywhere between US$ 40,000 - 60,000 in the United States, US$ 30,000 in Singapore, US$ 12,000 -15,000 in Thailand and only US$ 3,000 -6,000 in India. Likewise, the associated costs of surgery are also low. Not only are skilled Indian surgeons available for less, they are also less susceptible to costly litigation. The cost of malpractice insurance in New York is around US$ 100,000 but only US$ 4000 in India. This brings down the overall cost of treatment.

With diagnostic tests in India being inexpensive, India also has the potential to emerge as a hub for preventive health screening. At a private clinic in London a health check-up for men that includes blood tests, electro-cardiogram tests, chest X-Rays, lung tests and abdominal ultrasound costs around £350. In comparison, a comparable check-up at a clinic operated by Delhi-based healthcare company Max Healthcare costs US$ 84. A Magnetic Resonance Imaging (MRI) scan costs US$ 60 at Escorts Hospital in Delhi, compared with roughly US$ 700 in New York.

The overall cost of travel and treatment in India is still far less than the expense of just the medical treatment in many western countries.

A study by the India Brand Equity Foundation (IBEF) in 2004 shows how competitive India is in comparison with Thailand, another leading medical tourism destination. Thailand has a cost advantage over India in only two categories: plastic surgery and breast augmentation. India is cheaper than Thailand across a whole range of other—and more serious — surgery categories as the chart below indicates.

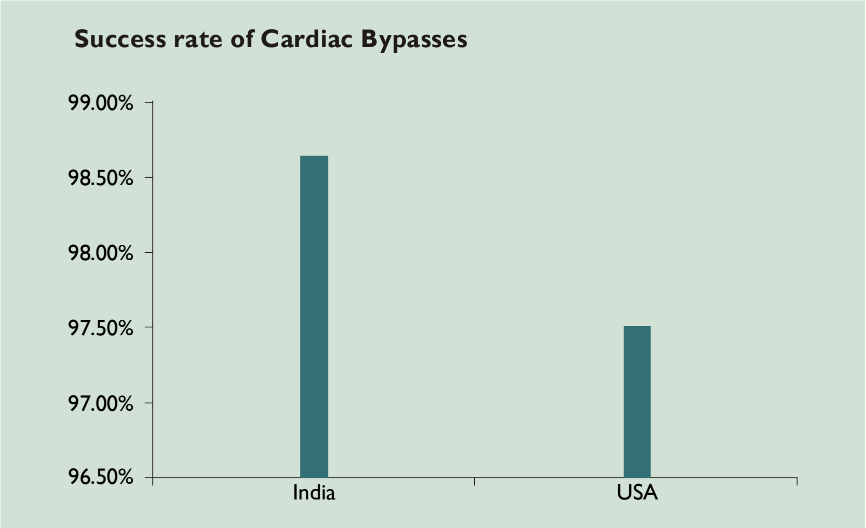
Surgery	Thailand	India
Bone marrow transplant	US$ 62500	US$ 30000
Liver transplant	US$ 75000	US$ 40000
Open Heart Surgery (CABG)	US$ 14250	US$ 4400
Hip Replacement	US$ 6900	US$ 4500
Knee Surgery	US$ 7000	US$ 4500
Hysterectomy	US$ 2012	US$ 511
Gall Bladder removal	US$ 1755	US$ 555
* cost in US$		

Source: IBEF research

The gamma knife treatment for brain tumours costs US$10,000 (for a two-day package) in Thailand while the same costs US$ 45,000 in the US and Euro 25,000 in Europe. However, India still has a cost advantage here with the same treatment costing roughly about US$ 6,000.

India's value proposition goes far beyond cost; quality second to none

Cost is not the only factor weighing in India's favour. Escorts Hospital , for instance, is one of the only handful treatment facilities worldwide that specialise in robotic surgery. The death rate of coronary bypass patients at Escorts is 0.8 per cent. By contrast, the 1999 death rate for the same procedure at New York-Presbyterian Hospital, was 2.35 per cent, according to a 2002 study by the New York State Health Department.



The overall success rate of cardiac bypasses is 98.7 per cent in India, as opposed to only 97.5 per cent in the United States.

India's healthcare industry is thus both competitive on cost and quality. It is widely believed that there is not a single surgery/procedure, which is done abroad but cannot be done in India.

Apart from being in step with changing healthcare delivery technology, leading Indian medical care facilities are increasingly complying with stringent quality standards and queuing up for international accreditations. For instance, Apollo Hospitals has already applied for Joint Commission International (JCI) accreditation, from the Chicago-based Joint Commission of Accreditation of Hospital Organisations (JCAHO) – and the coveted certification is expected to soon.

With an increasing number of Indian hospitals offering services at the cutting edge, there is a growing acceptance of India-based medical care among global insurers. For instance US-based private health insurers Blue Cross and Blue Shield and British health insurer Bupa now insure clients treated at a number of private hospitals in India.

India's private healthcare sector braces up to the medical tourism opportunity

Due to the surge in medical tourism, some of the major corporate hospital groups in India such as Apollo, Fortis, Max, Wockhardt and Manipal have made significant investments in setting up state-of-the-art hospitals in major Indian cities. Fresh healthcare capacities that are coming up will help sustain the trend.

For example, Dr. Trehan, one of India's ace cardiac surgeons is establishing a MediCity by 2007 on the outskirts of Delhi with the single objective of promoting medical tourism. The US$ 250 million project proposes to integrate super specialties such as cardiology, neuro-sciences and oncology under one roof with 2,000 beds.

Artemis Healthcare has been Promoted by the majority shareholders of Apollo Tyres Ltd, a leader in the Indian tyre industry. Supported by a team of well-reputed professional from the healthcare industry, this will be a major diversification for Apollo Tyres, and aims to harness the immense business potential in Indian healthcare.

The initial foray of Artemis would be to develop a tertiary care, 500-bed, multi-specialty hospital in Gurgaon, close to New Delhi's international airport. The hospital is expected to become operational by August 2007. The hospital will focus on Cardiology, Cardio-Thoracic and Vascular Surgery, Orthopaedics and Oncology, besides state-of-the-art Diagnostic Services, Ambulatory Care services and support of all specialties. Simultaneously, Artemis is setting up a clinical research organisation with ultra-modern laboratory facilities. Artemis Healthcare is planning to set up a Medical & Nursing College on the outskirts of New Delhi.

Further, hospital chains are offering special packages, which include airport pickups, visa assistance and boarding and lodging. Apollo Group of hospitals for instance has a full fledged international patients department, which offers assistance to patients from the time they land in India to the time they depart. Apollo has about 14 healthcare facilitators, besides tie ups with two travel agents. Similarly, Escorts Hospital (now a part of the Fortis Group) has an in-house hospitality department that provides all pre and post-treatment assistance, including receiving patients at the airport, arranging accommodation and travel packages to various tourist destinations in the country.

Tie-ups and alliances are taking interesting forms. Manipal hospital has tie-ups with the governments of Tanzania and Mauritius. The health expenses of Tanzanians and Mauritians in Manipal Hospital are covered by the respective governments. Further, the hospital's agreements with foreign travel insurance providers give it significant international exposure.

Hospital Services

India is undergoing a major transition in its healthcare delivery system. The change started with the liberalisation policies ushered in the early 1990s, which began to attract private investments into the healthcare sector. Private sector dominates healthcare delivery in India

At present, India's healthcare burden has gone beyond the Government's budgetary applications and reduced public spending is leading to poor availability of services in the government hospitals. Private players (which include hospitals, nursing homes and charitable trusts) account for almost 78 per cent of the healthcare delivery market. Over the last few years an estimated 95 per cent of new hospital beds have come up in the private sector. The market for hospital services in India is estimated at over US$ 4 billion.

The increased spending power of the 250-300 million strong middle class is driving growth opportunities for corporate healthcare providers. Factors like privatisation of medical insurance, apart from giving rise to a new healthcare delivery system, are making the market more attractive for international and national corporate players.

These trends have led large corporate players such as the Apollo Group, Wockhardt, Fortis and Max Healthcare to rapidly expand their operations in India. In order to gain competitive advantage, these Indian corporate players are increasingly entering into collaborations with established global leaders.

India home to Asia's largest hospital network

In 1983, the Apollo Hospitals Group founded India's first corporate hospital in Chennai. With a network of over 35 hospitals, 6,400 hospital beds, 30 primary care clinics and more that 120 pharmacies, Apollo is today the largest private hospital network in Asia and has treated over six million patients and performed over 750,000 major surgical procedures since it was established. The Group has an integrated business model that, in addition to hospitals, includes clinics, diagnostic services, pharmacies, telemedicine, and healthcare education and training. It has a network of over 2,000 doctors, around 2,000 nurses and 1,000 paramedical personnel on its payroll. The Group's aggregate turnover is around US$ 111.1million. The company, helped by a first-mover advantage, is well ahead of other organised private players on geographic reach and breadth of services. Apollo is the only private hospital group in India with a national footprint and presence across most disease segments, which allows it to cater to a large population.

Indrasprastha Apollo in New Delhi is the largest private hospital outside the United States and the fourth largest corporate hospital in the world. The 700-bed JCI accredited hospital offers over 50 medical specialities and has 92 ICU beds, the largest number of ICU beds in India. The hospital has 19 operating theatres, five hi-tech cardiothoracic operating theatres, dialysis units and transplant facilities. It provides 24 hour emergency and trauma care and includes facilities for burns treatment, head injuries, acute cardiac emergencies, fractures and poisoning.

Several attractive projects in the offing

A number of ambitious hospital projects are in the planning stage. The Bengal Health City project envisages 100 hospitals over a sprawling 800 acres around 20 km from the city of Kolkata. A group of 12 leading private hospitals is managing the mega project. The project will have 100 hospitals, each having 500 beds and is expected to be operational by 2009. It is estimated that 20,000 beds will be ready in the first phase (2009) and the rest by 2012.

Apollo Hospitals is looking to enhance its presence in the secondary healthcare segment by setting up 'First Med' hospitals, each operating 100-120 beds in mini-metros and smaller towns. These hospitals are designed to focus on specific services such as emergency medicine, maternity and general surgery, and would be scalable to 200 beds. They could potentially be scaled up to tertiary-care hospitals. The company is setting up three such hospitals, and is expected to have seven such facilities overthe next three years. These hospitals are expected to be a significant growth driver for Apollo over the next few years given that there are more than 30 towns in India that offer opportunities for setting up secondary-care hospitals such as 'First Med'.

Apollo is also looking at increasing its presence in the high-return cardiac-care segment, and is targeting a 5 per cent market share. The company already has a reasonable presence in the segment, having performed over 50,000 cardiac surgeries so far, across its various facilities. It plans to set up two specialty secondary-care hospitals in the cardiology segment over the next three years.

International healthcare providers make aggressive Indian foray

Opportunities for multinationals to build hospitals in India are coming either through joint ventures (Parkway) or individually (Columbia Asia). There are reportedly at least 20 international players, not necessarily having healthcare expertise, from Bangladesh, Philippines and Burma to the US and the UK vying to have a pie of the Indian healthcare market. Following are some of the leading international healthcare providers present in India:

The Singapore-based **Parkway Group Healthcare PTE Ltd** is aggressively penetrating the Indian healthcare market. The group came up with its first Indian project in 2003 through a joint venturewith the Apollo Group to build the Apollo Gleneagles Hospital, a 325-bed multi-specialty hospital at a cost of US$ 29 million. The partnership will further explore collaboration in oncology and orthopedics.

The Parkway Group has also entered into a JV with the Mumbai-based Asian Heart Institute and Research Centre (AHIRC) to set up specialised centres of medical excellence in Mumbai with Parkway holding a majority stake. These super-specialty centres will be set up in AHIRC's facility and will be co-branded by both the partners. The Group is also looking for hospital projects in Chennai and other cities.

Pacific Healthcare Holdings, one of Singapore's leading healthcare service providers, is coming up with Pacific Medical Centre, an international medical centre at Hyderabad in a joint venture with Vitae Healthcare Pvt Ltd.

In the pipeline are two more medical facilities. The Pacific Women's and Children's Hospital will be a 150-bed state of the art hospital specialising in fetal-maternal medicine, reproductive medicine, gynaecological oncology, neonatology and paediatrics. The Pacific Stem Cell Bank will provide both private and public cord blood stem cell storage facilities, which has clinical applications in the treatment of blood cancers and disorders. The other cities that the group is trying to foray into are Chennai and Mumbai.

Malaysia-based **Columbia Asia** has set up its first 75-bed hospital in Hebbal, Bangalore through the FDI route. The company has chosen India to expand as private healthcare is recognised here by consumers and the government as a necessary supplement to the public healthcare system and also because there is a presence of a large and growing middle and upper income groups, options for quality healthcare are relatively limited or under served, growing number of third party payors and increasing health-insurance penetration.

In the pipeline, the group has two more hospitals in Bangalore: a 150-bed tertiary care facility and another 75-100 bed. The group is also exploring markets in the southern and northern parts of the country.

Medical devices

The medical devices market in India is highly promising. The market size for medical devices in India is expected to touch US$ 1.7 billion by 2010, against US$ 1.2 billion presently. The demand for hi-tech products constitutes close to 80 per cent of the overall market in India. Since domestic production comprises primarily of low-tech devices; there is a higher involvement of foreign companies in sourcing hi-tech devices, which alone account for US$ 770 million of market value. Presently, nearly 90 per cent of the demand is being met by imports from countries like USA, Japan and Germany.

Huge market opportunity for multinationals

A growing population, changing patterns of diseases, rising income levels, unmet clinical needs, growing awareness about health issues, increasing demand for quality healthcare at affordable prices and the growth of medical tourism are all expected to further drive the potential for hi-tech devices. The demand for hi-tech devices in India is growing between 12 - 15 per cent annually. With no significant domestic initiative for manufacturing hi-tech devices in India, the sector offers great potential for multinationals to enter the country to tap the growing demand for hi-tech devices. Some foreign companies conduct the first 500 surgeries in India after approval of a medical device or surgical treatment by US FDA.

Several international medical device majors have been quick to recognise the Indian opportunity and are lining up their investments for setting up a local base.

The Israel-based US$ 2 billion Europe-Israel Group of companies has evinced interest to set up an US$ 222.2 million medical equipment factory in the state of West Bengal.

Steris, a US$ 1.1 billion healthcare equipment company, plans to set up a wholly-owned arm in India to sell its devices and products in the country's booming medical device market. Steris plans to make an initial investment of US$ 1,00,000 to set up the wholly-owned subsidiary. The Indian arm will also be involved in servicing of medical, surgical and other sterilisation products.

The German medical device company BSN Medical GmbH— a joint venture of Beiersdorf and Smith and Nephew — plans to set up a new joint venture in India with 61 per cent foreign equity. The joint venture will be involved in manufacturing and importing products, as well as in distributing, marketing and sales.

Siemen's success story in India

German electrical engineering major Siemens plans to source medical equipment from the Goa facility in India for the regulated markets. The Goa facility earlier used to work as a component manufacturing unit and the products were integrated in Germany from where they were exported. The company has recently completed 40 per cent capacity expansion at its Goa unit and is in the process of receiving regulatory approval from the US FDA and European authorities.

While the global orders will be placed through Siemens, it will be serviced out of India once the regulatory approvals are in place. The Goa plant will now operate as a global production hub. The facility will export products to about 30 countries and is targeting export growth of about 45-50 per cent. Siemens currently exports four models from India and will increase the product portfolio to 8-10 models by the end of next fiscal. The main focus will be on X-ray systems and it will also undertake all global R&D activities for this product segment in this unit. The company's medical solutions division currently generates sales of about US$ 111.1 million for it in India.

Pathology Services

The US$ 500 million domestic pathology industry has been growing over the last five years at an estimated Compound Annual Growth Rate (CAGR) of 20 per cent per annum. It currently comprises almost 2.5 per cent of the overall healthcare delivery market. With 40,000 independent pathology laboratories in the country, the industry is highly competitive and price-driven.

Pathlabs beginning to be corporatised

Presently, the lab testing market is largely serviced by small unorganised players and hospitals. Believing that diagnostics is a high-margin and asset-intensive business, many focused players are in the process of developing national networks - such as Dr. Lal's Pathlabs, Metropolis, SRL Ranbaxy, Thyrocare, and Nicholas Piramal.

Most renowned path labs are expanding regionally and foraying into the international markets as well. For instance, SRL Ranbaxy Ltd has signed outsourcing contracts with several UK hospitals to provide pathological services. The Group with 17 labs, 550 collection centres distributed in 350 towns across the country and seven franchisee labs is looking for both franchisees and acquisitions in all the major cities of the country. Metropolis Health Services too plans to increase its collection centres and franchisee systems. It currently has 13 laboratories in India and plan to open at least another 9 labs by the end of next year.

Some national players have been successful in attracting the interest of foreign investors. For instance, WestBridge Capital Partners picked up a 26 per cent stake in Dr. Lal's Pathlabs for US$ 9.7 million. Dr Lal PathLabs plans to build South Asia's biggest laboratory in Delhi besides expanding in the country. The chain currently has 13 laboratories in the country and plans another 50 labs in the next five years. It plans to double its sample collection centres from 250 at present, in the next five years. These collection centres would be in addition to the 500 pick-up points like major hospitals, nursing homes, other pathology laboratories, doctor's offices etc.

Molecular diagnostics and pharmacogenomic testing to be future growth drivers

Molecular diagnostics is the fastest growing segment of the in-vitro diagnostics (IVD) market with a projected growth of 25 per cent per annum. Viral diagnostics, immune system disease diagnostics, bacterial, parasitic and fungal identification, cancer diagnosis and monitoring are the segments where molecular technologies enjoy significant cost-benefit advantage. Similarly, pharmacogenomic testing too is believed to usher in an era of personalised medicine where diagnostic tests that will help in selecting the best of the several therapies will be a prerequisite for prescribing a therapy. With the Government expected to bring in a relaxation on customs duty and service tax, molecular diagnostics and pharmacogenomic testing too are touted as the future drivers of the diagnostic industry. By 2010, two million patients are expected for clinical trials in India; translating into 20 million tests.

Preventive healthcare and health insurance drive domestic opportunity

Increasing health consciousness among common people has created avenues for preventive healthcare. Hospitals have started witnessing a number of patients who visit for health check-ups as a preventive measure. The various health check-up packages offered include a combination of CBC, blood sugar, cholesterol, urine, stool, digital chest X-Ray, ECG, general examination, blood group, blood sugar, liver profile, proteins, lipid profile, cholesterol, and renal profile. Around 70 per cent of treatment decisions in the country are based on lab results. This trend has further led to newer avenues for companies involved in carrying out diagnostic tests.

The entry of foreign health insurance companies in India is proving to be an important driver of the domestic diagnostic industry as coverage of pathology services is inevitable in the policy.

Outsourcing opportunity for hospitals in the west

Outsourcing of pathology and laboratory tests by foreign hospital chains is becoming is a huge opportunity because of the high cost differential in India. A thyroid profile blood test costs anywhere from US$ 30-50 in the US, the same can be analysed by Indian companies for less than US$ 5 per patient.

The outsourcing opportunity from UK alone is about 450 million pounds or US$ 800 million. Chennai-based Metropolis Labs has inked a partnership with a US-based consortium to bid for outsourced pathology work from the National Health Services (NHS) of the UK. The consortium, which bagged US$ 600 million of outsourced work last year, is aiming for US$ 1 billion this year. Metropolis would be investing approximately US$ 1 million on technology up-gradation in its Mumbai lab for handling outsourcing jobs.

SRL Ranbaxy has tied up with a large UK-based private hospital to outsource work to India.

International players beginning to eye Indian diagnostics pie

Apollo Hospitals Enterprise Ltd has entered into a joint venture with Amcare Labs, an affiliate of Johns Hopkins International of the US, to set up a diagnostic laboratory in Hyderabad. An initial amount of US$ 2.2 million is to be invested and the laboratory is likely to be operational by mid-2006. General and high-end tests such as tests based on genetic mutation and tests to assess the effect of particular drug on a patient would be done in the lab.

Telemedicine

In India, only about 27 per cent of the population lives in urban areas, while a sizeable 73 per cent of the population is rural. While 72 per cent specialist doctors practice in urban areas, only 25 per cent reside in semi-urban areas and a mere 3 per cent in rural areas. The outcome of this lop-sided distribution is that 80 per cent of the medical facilities are concentrated in urban areas and a mere 20 per cent in rural areas, which continue to remain deprived of proper healthcare facilities. The answer to patient treatment in inaccessible areas in India with fewer medical facilities, is telemedicine.

The exponential growth in the ICT (Information & Communication Technologies) sector and the plummeting telecom costs are making India highly competitive in telemedicine. The early successes of pioneers such as Apollo Hospitals, Narayana Hridulaya, AIMS Kochi, SGPGI Lucknow, and SRMC Chennai has resulted in increased acceptance and proliferation of telemedicine. At present, there are around 120 telemedicine centres spread in the country.

Government and public sector initiatives lend credence to telemedicine opportunity

Though India is yet to pass legislation on telemedicine related issues, a beginning has been made. 'Guidelines & Standards for Practice of Telemedicine in India' has already been recommended by the Ministry of Information Technology, Government of India, to standardise digital communication in telemedicine. The Medical Council of India has also constituted committees to look into this and other legal aspects of telehealth.

The role played by the Indian Space Research Organisation (ISRO) in not only providing VSATs but also telemedicine hardware and software has also contributed immensely to the growth. ISRO has taken the initiative to establish telemedicine centres across India. It plans to set up 100 telemedicine centres across the country. ISRO plans to have a minimum number of 650 district hospitals across the country to be networked through telemedicine by 2008.

Leading corporate hospitals take the lead in telemedicine

Among private players, the Apollo Hospitals Group established India's first formal telemedicine centre in a village in Andhra Pradesh, linking it to its hospital in Chennai. The Group has further established a telemedicine link between Indraprastha Apollo Hospitals at Delhi and Apollo Information Centre, Lahore.

Asian Heart Institute (AHI) is planning to establish 60 telemedicine satellite centres across the interiors of Maharashtra. The company plans to expand its telemedicine operations across the country. Africa and Middle East are next on the company's radar.

Escorts Hospital (now part of the Fortis Group), Wockhardt Hospital & Heart Institute and Max Healthcare are other private players providing telemedicine services.

Teleradiology emerging as a major niche

The global demand for radiology services in is growing rapidly while the supply of radiologists is not growing enough to match the requirements. Such professionals are is short supply world-over. For instance, reports claim that one in every seven radiology positions in the UK is vacant. On the other hand, in India, there is a relative abundance.

By outsourcing teleradiology to India, overseas hospitals can be assured of competent & trained professionals, time zone advantages, skill set availability, HIPAA mandates adhered to and year-round, round-the-clock services. Patients can be diagnosed and effectively treated at any time of the day or night, with a diagnosis provided from across the globe within 30 minutes. It is cost-effective to the overseas hospital, as the need to recruit night shift personnel is minimised.

According to an estimate, approximately 50 per cent of the 6,000-odd hospitals in the US still do not have the technology for teleradiology, and this represents a huge potential market to be tapped.

Indian health care providers have recognised the opportunity to deliver quality radiology services arising out of this shortage of radiologists internationally. Manipal Education and Medical Group (MEMG) has a global radiology centre jointly operated with Wipro that employs five Indian radiologists and four technologists to read CT scans and MRIs for US patients. Metropolis Clinical Laboratories, which is already in the pathology space is looking to enter teleradiology.

The Indian health imaging market is expected to double from the existing US$ 350 million by 2010. X-ray, ultrasound, CT, and MRI are expected to collectively account for 68.6 per cent of the health imaging market.

Case Study: Teleradiology Solutions

Teleradiology Solutions, started in 2002, was the first company in India to provide US hospitals with teleradiological services and is today a leader in the imaging markets field .The company today serves 50 hospitals in the US and boasts of an accuracy rate of 99.8 per cent — above the accepted US standard of 96-97 per cent —Teleradiology Solutions has recently become the first Indian. healthcare company to be fully accredited by the Joint Commission of Accreditation of Healthcare Organisations (JCAHO).

The company provides teleradiology-based services such as diagnostic interpretation of all emergently and non-emergently performed non-invasive imaging studies, including computed tomography, MRI, ultrasound, X ray, nuclear medicine studies and conventional plain films (digital format). These services are provided with a turnaround time of less than 30 minutes in the emergency setting.

The 75 people-strong company counts among its employees eight US and 14 Indian radiologists, apart from support staff like IT people, transcriptionists, data entry professionals and call centre staff.

The company transmits digital images over a distance using standard telephone lines, satellite connections, or wide area networks (WANs). Further, the company is in constant communication with the client hospitals and is readily accessible to all the referring physicians/hospitals at all times. The company is currently expanding its operations to Europe and Asia.

Healthcare BPO

Spiraling healthcare costs, unbearable squeeze on margins, process inefficiencies, acute talent shortage and an aging population are compelling healthcare establishments in the US and Europe to look at Indian healthcare BPOs. Outsourcing healthcare business processes to Indian service providers can result in cost savings to the tune of 20-30 per cent.

The global market for outsourced services from the healthcare industry was estimated to be worth US$ 3.6 billion in 2004 and is projected at US$ 24 billion in 2008. The estimated opportunity for India is US$ 4.5 billion by 2008, employing about 200,000 people.

India capable of offering a wide spectrum of outsourced Healthcare services

The types of services being offered by Healthcare BPOs in India include:

- Data capture– include reporting of diagnostic tests and radiology reporting
- Documentation– data coding, medical transcription, billing and data migration
- Commercial– invoicing, disbursal, expense reporting, procurement, cash management, general ledger and receivables management
- Administration– claims processing, adjudication, mailroom services and records management
- Human resources– employee assistance, training and payroll
- Customer care– dispatch and activation services, technical support

Companies are further involved in various functions such as converting existing data to HIPPA format (Health Insurance Portability and Accountability Act), USA, administrative functions, billing and coding tasks, processing forms, including scanning written documents, converting them into an electronic format, and sending them back. BPOs are further involved in claims forms processing for health insurance companies.

Number of Indian healthcare BPOs eyeing the US opportunity

The Apollo Group was one of the early entrants in the healthcare BPO business. Its IT and BPO division – Apollo Health Street (AHS) is set to expand to other countries. Having invested about US$ 3 million in its BPO operations, Apollo is now planning to expand its US operations and is actively looking at a greenfield venture in the UK. The company is currently doing about US$ 100 million worth of transactions. At present, it has a workforce of 20 people in the US and about 600 in the Hyderabad facility. The company is planning to double its workforce in India in the next few months. The company was also reported to be planning investments close to US$ 10 million for its medical BPO expansion. Among others, AHS has a US$ 6.7 million multiple year contract from a 600 bed hospital in New York. Apollo Health Street's back office work for the provider is primarily revenue cycle management, which includes billing and coding services. The company is also doing billing and coding work for three more providers in the US.

Manipal Education and Medical Group (MEMG) provides medical billing and coding services to US hospitals. Here, trained US-approved coders in India work with hospitals to prepare patient bills formatted in a manner required by US insurance companies. Other firms such a Hinduja TMT work with insurance companies on the other side of the chain doing medical claims verification.

Foreign healthcare BPOs scaling up Indian presence

Integreo Inc., an Atlanta based healthcare BPO, is in the process of ramping up its operations in India. Integreo India was formed with the acquisition of Symphony Data in February 2005. The company plans to invest US$ 10 million in its facility at Hyderabad. Integreo is establishing a 60,000 sq. feet facility in Hyderabad and it expects to increase its headcount from 600 employees currently, to 3,000 people by January, 2008. It is further planning to set up a second centre in India, which is expected to be in Pune.

Bangalore-based healthcare BPO HealthScribe, which is today a fully owned subsidiary of the Spheris, a US-based medical transcription company, has opened its facility at the STPI IT Park in the Kumaraguru College of Technology campus at Coimbatore under its new name - Spheris India Pvt Ltd. The Coimbatore-arm is the second location for Spheris in India. The company has invested about US$ 2. 2 million on this facility, which covers an area of 35,000 sq feet. The company is planning to add another 15,000 sq feet. It has commenced operations with a workforce of 300, but by the end of 2006, it intends to ramp up its headcount to 3,000 from the existing 2,000 in India. The company expects to see a 30-50 per cent growth over the next two years, consequent to expanding its operations.

Health Insurance

India offers tremendous opportunity for private medical insurance players. Increasing awareness levels and large-scale group insurance policies have pushed growth in the health insurance segment in recent years.

Health insurance making fast penetration in India

In the year 2004-05, while the four public sector players collected a health insurance premium of US$ 317.3 million registering a growth of 24 per cent over 2003-04, the eight private players collected a total health premium of US$ 67.6 million, growing by a phenomenal 148 per cent.

Health business across various insurers during (2004-2005)

Insurer	Health premium (In Rs. Crores) 2004-05	Health premium as percentage of total non-life business 2004-05	Growth of Health premium (2003/04-2004/05) (%)	Growth of total premium (2003/04-2004/05) (%)
ICICI Lombard	118.78	13.4	257.0	74.7
Bajaj Allianz	70.93	8.3	242.2	79.0
Royal Sundaram	30.02	9.1	88.8	28.5
IFFCO-Tokio	28.37	5.6	73.3	56.0
Tata AIG	26.64	5.7	35.3	32.7
Cholamandalam	20.12	11.8		75.3
Reliance	7.98	4.9	2.4	0.3
HDFC Chubb	1.97	1.1		59.2
Private sector	304.27	8.6	148.0	55.3
New India	504.28	11.9	43.9	4.5
National	364.29	9.5	26.3	11.9
United India	294.19	10.0	5.2	-3.8
Oriental	265.19	8.7	13.9	5.9
Public sector	1,427.9	9.8	24.0	5.2
Total	**1,732.17**	**9.6**	**36.0**	**12.3**

Source: Express Healthcare Management, Issue dated September 2005

Health insurance premium is set to touch US$ 533.3 million by the end of 2005-06 as against US$ 385 million in 2004-05, primarily due to growing awareness. Industry analysts believe the figure could even go up to US$ 777.8 million by 2007, in case the insurers decide to increase the premium rate while tapping virgin markets. With escalating medical costs, companies are already looking at the option of increasing the premium by about 15 per cent to 20 per cent for health insurance.

Government policy spurs private initiatives

In order to spur the private health insurance sector, the Insurance Regulatory & Development Authority (IRDA) has increased the FDI limit from 26 per cent to 51 per cent. It has further reduced the minimum capital requirement to US$ 11.1 million. The government is mulling over a proposal to further lower the minimum threshold limit for standalone health insurance companies to US$ 5.6 million.

India becoming increasingly attractive to global health insurers

Health insurance is a rapidly growing market in India. The number of lives covered under health plans has improved from 4-5 million about six years back to over 12 million today. With benefits being offered to private players in the health insurance market, a number of international insurers are making their presence felt in India. Along with offering general insurance, Iffco Tokio has made an entry into the health insurance market. Chubb is another entrant into India. It has formed an alliance with HDFC for offering health insurance. Miliman is the latest multinational to make a foray into the Indian health insurance sector. A large number of companies are also waiting in the wings to make a foray into the market, including leading global players such as Aetna, Brooke Shield, and Blue Cross, among others.

Policy Initiatives

Hospitals and Healthcare Centres

The Government of India has formed a task force consisting of experts from the Ministries of Health and Family Welfare, Tourism, Railways, External Affairs, Civil Aviation, and the Director-General of Health Services. This task force has been set up with the objective to suggest policy measures and norms for the National Accreditation Board to provide accreditation to all public and private hospitals to ensure quality and timely health services. The draft on standards of healthcare accreditation, prepared by the technical committee of National Accreditation Board of Hospitals and Healthcare Providers (NABH), is ready. The draft would ensure uniform access, assessment, care of patients and protect patient's rights.

The Government is further expected to release a Clinical Establishment Act by 2006 to make sure that fair and quality health services are provided to all concerned.

The Ministry of Health and Ministry of External Affairs have reached a policy decision so that 'medical visas', which are issued to overseas patients seeking medical care in India, are granted within a month or in even lesser time to all incoming patients.

Allowing 100 per cent FDI subject to approval by the Foreign Investment Promotion Board under the Department of Industrial Policy and Promotion in the Ministry of Industry and Commerce has assisted in opening up the Indian healthcare market for international investors.

Medical Devices

Health Ministry has finalised a notification amending the Drugs and Cosmetics Rules to include medical devices.

It has further finalised regulations related to medical devices wherein companies manufacturing or importing stents, pacemakers, valves, catheters, and other such implants would have to seek prior approval from the regulator. Implants for hips and knee replacements will also be brought under the ambit of licensing.

While in vivo devices will be regulated initially, it is planned that in vitro implants would later be added.

The Drug Controller General of India (DCGI), which gives clearances to medicines before they are introduced in the market, will be the nodal agency. Special evaluation committees would be constituted to regulate the

quality of the devices and ensure that the manufacturing facilities are GMP (Good Manufacturing Practices) compliant.
Though the regulator will set the parameters and will intensely monitor the manufacturing practices, companies importing medical devices would also have to seek licenses.

National Rural Health Mission

Launched in April 2005, the National Rural Health Mission seeks to provide effective healthcare to rural population throughout the country. A special focus will be given on 18 states which have weak public health indicators and/or weak infrastructure.

States identified under the National Rural Health Mission

- Arunachal Pradesh
- Assam
- Bihar
- Chattisgarh
- Himachal Pradesh
- Jharkhand
- Jammu & Kashmir
- Manipur
- Mizoram
- Meghalaya
- Madhya Pradesh
- Nagaland
- Orissa
- Rajasthan
- Sikkim
- Tripura
- Uttaranchal
- Uttar Pradesh

The Mission aims to undertake architectural correction of the health system to enable it to effectively handle increased allocations as promised under the National Common Minimum Programme. It will further promote policies that strengthen public health management and service delivery in the country.

The Mission envisages devolution of powers and functions to Panchayati Raj Institutions (PRI) by training and enhancing their capacity to own, control and manage public health services. Under the programme, every village/large habitation will have a female Accredited Social Health Activist (ASHA), chosen by and accountable to the Panchayat, to act as an interface between the community and public health system.

Sub-centres will be strengthened through a fund of US$ 222 per year to enable local planning and action, and more Multi Purpose Workers (MPW). In addition, existing Primary Health Centres (PHCs), and Community Health Centres (CHCs) will be strengthened.

The National Disease Control Programme for Malaria, TB, Kala Azar, Filaria, Blindness and Iodine Deficiency, and the Integrated Disease Surveillance Programme will be integrated under the Mission for improved programme delivery.

Further, the Mission will strengthen capacities for data collection, assessment and review for evidence based planning, monitoring and supervision.

Public-Private Partnership

The Government has taken an initiative to institutionalise a mechanism of public-private partnerships (PPP) in healthcare, right up from the district level. The Government is in the process of developing guidelines for public-private partnerships, and areas for partnership that are need based, thematic and geographic have to be identified. The public sector will play the main role in defining the framework and sustaining the partnerships. It will further design the management plans for public-private partnerships initiatives at the District/State and National levels.

Regulation and Institutional Infrastructure Building

The Government has undertaken certain initiatives with the objective of developing institutional capacity with multivariate skills in order to reorganise and finance the health system in the country. The skills will range from enforcement of regulations to designing flexible and innovative approaches.

The National Commission report has recommended the formation or reorganisation of several institutions. These institutions should be autonomous and self-financing.

1 Federal Drugs Authority

2 Indian Medical Devices Regulatory Authority

3 Expanding Public Procurement Systems of drugs, devices and vaccines

4 National Institute for Health Information and Disease Surveillance

5 National Commission for Quality Assurance

6 National Institute for Health Research

7 Commission for Excellence in Medical and Health Education

CONTACT FOR INFORMATION

Information on the market and opportunities for investment in the healthcare sector in India can be obtained from the Confederation of Indian Industry (CII), which works with the objective of creating a symbiotic interface between industry, government and domestic and international investors.

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