



HEALTHCARE

October 2007

MARKET OVERVIEW

Indian Healthcare, a US\$ 34.2 billion market

- Indian healthcare market[#] currently estimated at US\$ 34.2 billion
- Healthcare delivery and pharmaceuticals account for nearly 75% of the total healthcare market.
- Private healthcare is estimated to be the largest component of the healthcare sector by 2012, expected to double to US\$ 38 billion by 2012

How the Healthcare Pie will evolve

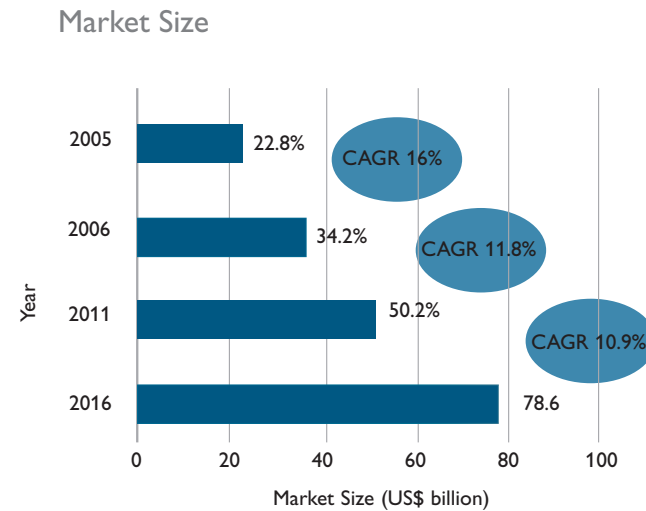
2006 100% = \$34.2 bn		2012 100% = \$78.6 bn
14%	Infrastructure	14%
5%	Medical Equipment	5%
35%	Bed Revenues	36%
18%	Pharmaceuticals	16%
2%	Health Insurance	5%
11%	Health Outsourcing	9%
1%	Medical Value Travel	2%
3%	Independent path Laboratories	3%
1%	Clinical Trials	1%
3%	Training and Education	3%
1%	Medical Textiles	1%
6%	Medical Consumables	5%

Source: The Business World, Ernst & Young Survey; June 2007

[#] including healthcare delivery, pharmaceuticals, medical and diagnostic equipment and supplies.

Indian Healthcare, a US\$ 34.2 billion market

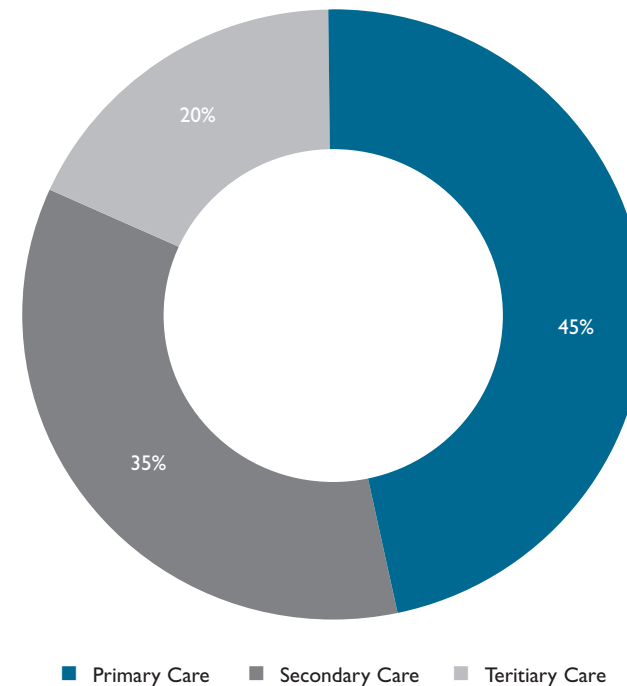
- The Indian Healthcare market has grown from US\$ 22.8 billion in the year 2005, at a CAGR of 16%.
- Market is expected to grow to US\$ 50.2 billion and US\$ 78.6 billion by 2011 and 2016 respectively.



Healthcare Market – Growth Perspective

- Share of tertiary care in the total healthcare market is around 15-20%.
- Market for tertiary care expected to grow at a faster rate, due to rise in complex in-patient ailments such as heart diseases and cancer.
- The per capita healthcare expenditure in India grew by 9.3% between the years 1993-94 and 2001-02.
- Public spending on healthcare currently at 0.9% of GDP, expected to double to 2% of GDP

Indian Healthcare Infrastructure



Source: Ernst & Young Analysis

Healthcare Market – Growth Perspective

- With rise in income levels and increasing adoption of health insurance, the demand for tertiary care is expected to grow
- The average annual growth in health expenditure by the BRIC countries is estimated at 11% for the 2006-11 period, reaching about US\$ 413 billion by the year 2011.

Snapshot of the Healthcare Market (2006) (US\$)	
India	34.2 billion
Brazil	19.1 billion
China	137.0 billion
Germany	250.0 billion.
USA	2,100.0 billion

Medical Infrastructure – Current State

- Current Hospital beds per 1000 population stands at 1.11
- Most private hospitals operate as a proprietorship or partnership business
- Corporate Hospitals account for approximately 10% of the total private ownership
- Use of technologically advanced diagnostic equipments and excellent infrastructure are making India a medical value travel hub

Public Healthcare Infrastructure

Snapshot of the Healthcare Market (2006) (US\$)	
Primary Health Centres	23,000
Community Health Centres	2,935
District Hospitals	4,400
State Owned Hospitals	1,200

Source: India Chronicle: 2007, Ernst & Young Analysis

Medical Infrastructure – Current State

Special Economic Zones

- Under the SEZ Act 2005 “Healthcare” has been defined as an approved service
- For a sector specific zone, a hospital with minimum bed strength of 25 is stipulated and this goes up to 100 beds for a multi product SEZ.
- With the latest approvals, given by an inter-ministerial Board of Approval, the total number of formally approved SEZ is now at 395, of which, 154 have been notified by the Law ministry.



Medical Education & Manpower – India’s Advantage

Manpower Statistics

- Number of Doctors - 660,801
- Number of Nurses - 1,371,121

Medical Education

- 229 recognized medical colleges of which 106 were established through the private route
- 25,000 medical graduates pass out each year
- 136 medical schools admit more than 6,000 PG trainees in their programs

Medical Institutions Pan India



Source: India Chronicle 2007, MCI, Ernst & Young Analysis

Medical Education & Manpower – India's Advantage

Indian System of Medicine :

Increased National Acceptance

- **Provision and practice of alternative medicine** like Ayurveda, Pranic Healing, Aroma Therapy, Music Therapy, Meditation and Yoga.
- Russia, US, Japan, Australia, Netherlands, South Africa, Argentina, UK, France and Italy **have accepted Ayurveda as a medical system and have shown interest in the Ayurveda curriculum and research**



POLICY INITIATIVES

Regulatory Framework

- The Union Ministry of Health and Family Welfare (MoHFW) is responsible for implementation of national programmes and sponsored schemes and technical assistance

MoHFW

Department of Health	Department of Family & Welfare	Department of AYUSH
<ul style="list-style-type: none"> • Health related activities, includes various immunization campaigns • Control over various health bodies including National Aids Control Organization (NACO), National Health Programme, Medical Education & Training, and International Cooperation in relation to health • Administers the Hospital Services Consultancy Corporation 	<ul style="list-style-type: none"> • Maternal and Child Health Services; Information, Education and Communication; • Rural Health Services, Non-Governmental Organisations and Technical Operations. • Policy Formulation, Statistics, Planning, Autonomous Bodies and Subordinate Offices • Supply of Contraceptives; International Assistance for Family Welfare and Urban Health Services • Administration and Finance for the Departments of Health, Family Welfare 	<ul style="list-style-type: none"> • Upgrade the educational standards in the Indian Systems of Medicines and Homoeopathy colleges in the country • Strengthen existing research institutions and ensure a time-bound research programme on identified diseases for which these systems have an effective treatment • Draw up schemes for promotion, cultivation and regeneration of medicinal plants used in these systems • Evolve Pharmacopoeial standards for Indian Systems of Medicine and Homoeopathy drugs

National Rural Health Mission

- Launched in April 2005 by Government of India, NRHM aims to fulfill the Government's commitment to meet people's aspirations for better health and access to healthcare services.
- NRHM's ambitious goals include the training of 250,000 women volunteers designated as Accredited Social Health Activists (ASHAs) over the next three years across 18 states with weak rural health infrastructure
- Revision and restructuring of the existing MBBS curriculum by including mandatory internship post MBBS keeping in mind the needs of NRHM

Progress Under NRHM	
• Institutional arrangements	• Merger of Departments of Health & Family Welfare completed in all states. Merger of State Level Societies • 3,49,000 ASHAs selected, 2,25,000 ASHAs Trained
• Infrastructure	• Total amount released for sub – centres in the country: US\$ 14.9 million • 10,008 Patient Welfare Committees set up at various levels • 2045 CHCs identified for upgradation; US\$ 79.6 million released for FY 2006-2007
• Human Resource Development	• 22,655 Doctors ,ANMs (Auxillary Nurse Midwives) and other paramedics have been appointed
• Training	• National Level Health Resource Centre finalized • State Level Health System Resource Centre for North East States set up at Guwahati

Progress under NRHM

Progress Under NRHM	
New Programs & Innovation	<ul style="list-style-type: none"> • RCH II (Reproductive and Child Health) Launched & under Implementation • Sterilization Compensation Schemes launched by GOI • Integrated Disease Surveillance Project operationalized
Immunization	<ul style="list-style-type: none"> • Accelerated Routine Immunization taken up in all Empowered Action Group (EAG) states • Coverage expected to be around 80 %
Polio Eradication Program	<ul style="list-style-type: none"> • Over 5 million children in transit administered polio vaccine (2005-06)
Operational Guidelines Disseminated	<ul style="list-style-type: none"> • Integrated Management of Neonatal and Childhood Illness (IMNCI) • Skilled Birth Attendants • Emergency Obstetrics Care • First referral Units and Blood Storage Units
Partnership With Non Government Stakeholders	<ul style="list-style-type: none"> • 305 Mother NGOs appointed for 409 districts till date • Providing services, Management
IEC (Information, Education, Communication)	<ul style="list-style-type: none"> • Multimedia campaign on health issues including Immunization, Ionized Salt, Save the girl child • NRHM Newsletter • Health Fairs organized in different States

National Health Policy-2002

- The National Health Policy 2002 focuses on the need for enhanced funding and organisational restructuring of the national public health initiatives in order to facilitate more equitable access to health facilities
 - Focus on those diseases that are principally contributing to the disease burden - TB, Malaria and Blindness from the category of historical diseases and HIV/AIDS from the category of newly emerging diseases.
 - Gradual convergence of health under a single field administration and emphasis on implementation of programmes through local self-government institutions
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National Health Policy-2002

- Identification of specific programmes targeted at women's health and strengthening of food and drug administration, in terms of both laboratory facilities and technical expertise
 - Greater contribution from the Central Budget for the delivery of public health services at the state level
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Budget 2007-08: Healthcare Perspective

- Increase in allocation for health and family welfare by 21.9% to US\$ 3.73 billion reaffirms the Government's commitment.
 - The AYUSH systems are also being mainstreamed into the health delivery system at all levels. Combined, they have been allocated US\$ 29.3 million.
 - Funds for the NRHM have also been increased from US\$ 2 billion to US\$ 2.42 billion.
 - Reduction in import duty on medical equipment by 5% is expected to benefit high-end healthcare providers.
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Budget 2007-08: Healthcare Perspective

- Extension of the concessional rate of 5% duty for public funded research institutions
 - Exemption of service tax on clinical trials for new drugs will help Indian clinical trial initiatives attract more foreign and domestic partners.
 - Initiatives of 'Anganwadi centres' and Associated Social Health Activists (ASHAs) will have significant impact on community health, particularly in rural areas. 320,000 Associated Social Health Activists (ASHAs) have been recruited and over 200,000 have received orientation training. Besides, 90,000 link workers have been selected by the States.
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Healthcare Budget 2007-2008, Highlights

- The Government's has announced its intention to achieve zero level disease through the National AIDS Control Programme (NACO).
 - Access to condoms would be expanded
 - Access to blood screening and safe blood would be ensured
 - More hospitals will provide treatment to prevent transmission of HIV/AIDS from mother to child
 - Support to the protocol on paediatric dosage developed by Indian doctors and launched in November 2006
 - For the year 2007-08, it is proposed to step up the provision for the AIDS control programme to US\$ 236 million.
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Healthcare Budget 2007-2008, Highlights

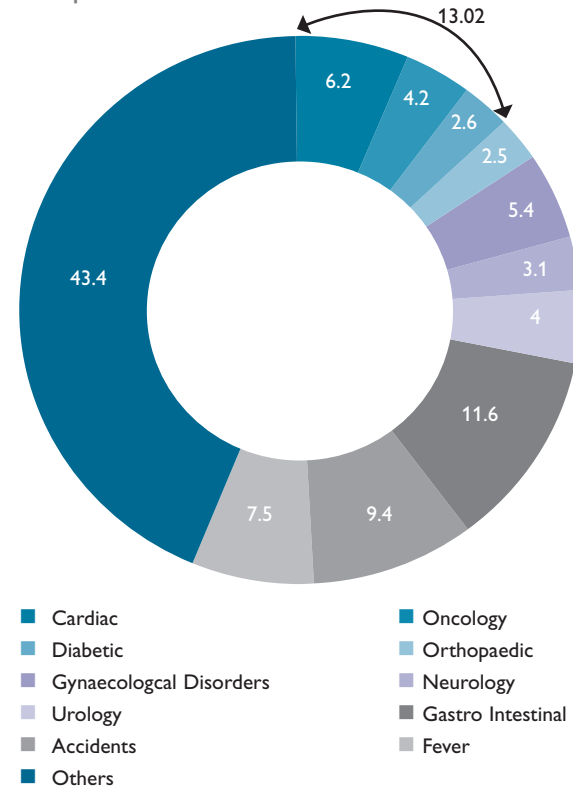
- A major outlay for immunization, especially polio eradication has been proposed. The number of polio rounds will be increased, monovalent vaccine will be introduced and there will be intensive coverage in the 20 high risk districts of Uttar Pradesh and 10 districts of Bihar. The programme has been integrated into the NRHM. The ASHAs and the Anganwadi workers will visit every household and track every child for the immunization programme. To achieve the goal of eliminating polio, it has been proposed to provide US\$ 314.6 million in the year 2007-08.
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KEY TRENDS AND DRIVERS

Shift to Lifestyle Related Diseases

- Incidence of communicable diseases likely to decrease at a fast pace, non-communicable diseases to overtake
- In 2006, cardiac, oncology and diabetes collectively accounted for 13 % of the hospitalisation cases. In terms of value, these three ailments accounted for 36 % of the inpatient revenues. These ailments are estimated to account for 16.8 % and 20.0 % of the hospitalisation cases in years 2011 and 2016, respectively.

Hospitalisation Cases, 2006

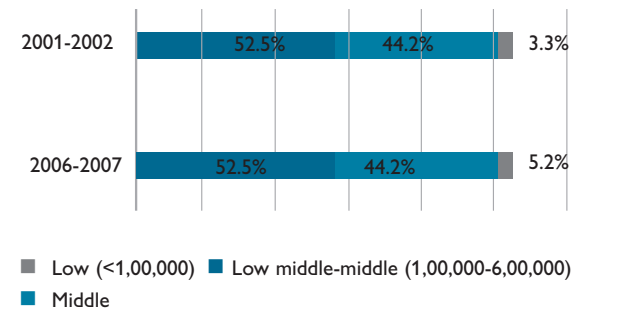


Source: Ernst & Young Analysis, Business Line: 2007

Growing Middle Class and Patient Preferences

- Favourable increase in percentage of working class population from 32% in 2006 to 36% in year 2016.
- Growing general awareness, literacy rates and patient preferences in healthcare decisions
- National Health Policy, 2002 laying strong emphasis on the policy goal of better engaging patients in their healthcare decisions

Growing Share of Urban Middle Class Group



Source: Crisinfac 2006, Ernst & Young Analysis

Holistic Wellbeing - Blend of Modern and Traditional medicine

- Hospitals and wellness centres now looking at a comprehensive and holistic approach towards treating their patients
- Tie-ups of hospitals with holistic health centres have helped combine traditional healthcare knowledge and practices with the conventional system

Wellness Centres- As Centres of Holistic Well Being

- The Golden Palms Spa And Resort Bangalore
 - The Ananda Spa in Rishikesh
 - The Ayurvedgram in Bangalore
 - The Vedic Village: Spa And wellness Centre in Kolkata
 - Soukya in Bangalore
-

Holistic Wellbeing- Blend of Modern and Traditional medicine

Services Offered in Wellness Centres

- Diet and Nutrition
 - Gym and Fitness
 - Yoga
 - Tai Chi (Chinese therapy for improving flexibility, coordination and stress reduction)
 - Herbal Medicine
 - Humour therapy
 - Healing touch therapy
 - Stress Management including Relaxation, and Meditation
 - Biofeedback
 - Acupuncture including techniques such as EFT (Emotional Freedom Technique)
 - Pranic and Crystal Healing
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Quality Driven Approach: Accreditations

- It has become an imperative for healthcare institutions in India to guarantee quality healthcare to all
- In India, QCI (Quality Council of India) operates the national accreditation structure and obtains international recognition for its accreditation schemes

International Accreditation Bodies Present in India

JCI (Joint Commission International)

- Launched in 1999, Currently JCI surveys nearly 20,000 health care programs through a voluntary accreditation process
 - The World Health Organization (WHO) designated the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and Joint Commission International as its Collaborating Centre for Patient Safety in 2005.
-

Quality Driven Approach: Accreditations

JCI Accredited Organizations

JCI (Joint Commission International)

- Indraprastha Apollo Hospital, Delhi
- Apollo Hospital, Chennai
- Apollo Hospital, Hyderabad
- Asian Heart Institute, Mumbai
- Shroff Eye Hospital, Mumbai
- Wockhardt Hospital, Mumbai
- Fortis Healthcare, Mohali

Sources: Joint Commission Resources; 2007, Ernst & Young Analysis

Quality Driven Approach: Accreditations

Accreditation Bodies In India - NABH

- Launched in 2005, NABH is a constituent board of Quality Council of India, set up to establish and operate the accreditation programme for healthcare organizations in India
 - NABH has standards specific to the Indian healthcare setting, major aspects being the assurance of uniform access, assessment, care of patients and protection of patient's rights.
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Quality Driven Approach: Accreditations

NABH accredited Hospitals

- B.M. Birla Heart Research Centre, Kolkata
- MIMS Hospital, Calicut
- Max Super- Speciality Hospital, New Delhi
- Max Devki Devi Heart and Vascular Institute, New Delhi
- Kerala Institute of Medical Sciences, Thiruvananthapuram
- Moolchand Medcity, New Delhi

NABH: Accreditations to be launched

- Blood Banks
- Diagnostic Centres
- Dental Hospitals/Clinics
- Ayurveda Hospitals PG trainees in their programs

Health Cities: The Evolving Concept of Healthcare in India

NABH accredited Hospitals

- Major corporate hospital groups in India are making significant investments in setting up state-of-the-art Health Cities in major Indian cities
- Around 15-20 Health Cities are expected to come up in India in the next 5 years
- Health Cities are looking at catering to larger populations by offering facilities such as hotels, residential facilities, recreational facilities of spa, gym and even golf courses
- Greater emphasis on Education, Research & Development

Upcoming Health Cities

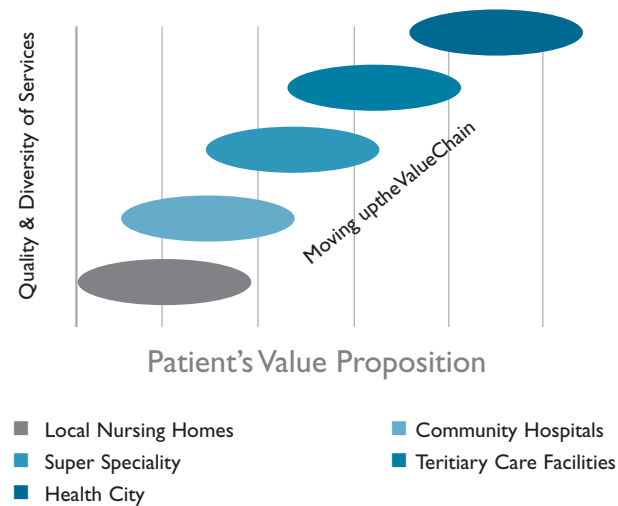
Health City	No. of beds	Area (acres)	Investment (US\$ Million)
Dr.Naresh Trehan's MediCity ,Gurgaon	1,600	93	293
Fortis MediCity, Gurgaon	600-800		293
Fortis MediCity, Lucknow	800	52	122 – 195
Apollo Health City, Hyderabad	700	33	243
Nagpur Health City, Nagpur	2,000	100	N.A.
Chennai Health City, Chennai by Global Group	1,000	46	245
Bengal Health City Near Durgapur	50000	800	487
Narayana Health City, Bangalore	5,000	100	488

Source: The Economic Times, Realty Plus: July 2007

Health Cities: The Evolving Concept of Healthcare in India

Other Health City Plans in the Pipeline

- **MIOT hospitals, Chennai** have plans to set up a multispecialty medical city
- **Reliance ADAG** has expressed interest in building a 60 acre health city in **Kolkata**
- **CMCH, Ludhiana** has initiated a US\$ 12.2 million MediCity project in Ludhiana



Hospotels- An Emerging Novel Concept

- There is an increasing trend of hotels being included within the hospital campus.
- Medical centres want to provide comprehensive services to their visitors and patients' attendants in addition to basic health services.
- Several large hospitals now also have tie-ups with leading star hotels and airlines for their international patients

Hospital	Food Major in Campus
Indraprastha Apollo Hospital, Delhi	Nathu's
Max Healthcare, Gurgaon	Café Coffee Day outlet
Max Heart And Institute, Delhi	Subway Outlet
Ganga Ram Hospital, Delhi	Chopsticks Express Outlet

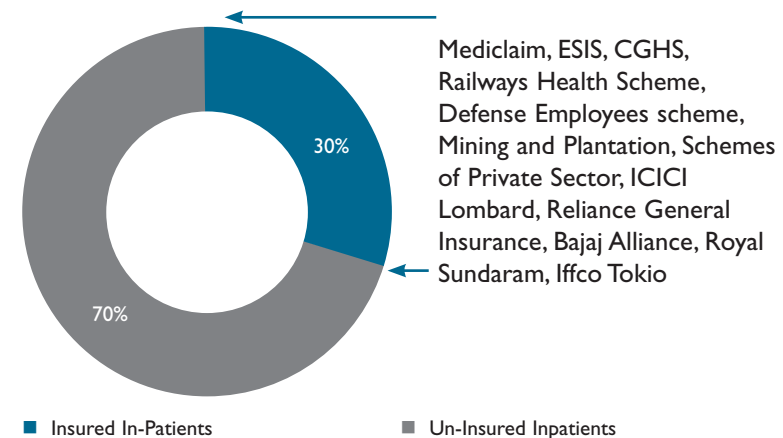
Food Majors Looking at Hospitals for their Outlets

- Value added service to patients and attendants
- Hotel and restaurant chains are actively getting into opening food outlets at hospitals

Health Insurance: Current and Future Scenario

- Revenue attributable to insurance or Third Party Administrators (TPAs) has grown from 2% in 2001-02 to 16% in 2005-06
- Total credit billing has increased to 32% in 2005-06 and it is further likely to increase to 50% by 2011-2012
- Domestic health policy premiums have shown a 47% increase in the first quarter of 2006
- The number of policies issued as Mediclaims, ESIS, and CGHS are 4,631,534, 8,400,000 and 1,040,000 respectively

Insured patients as a % of total patients

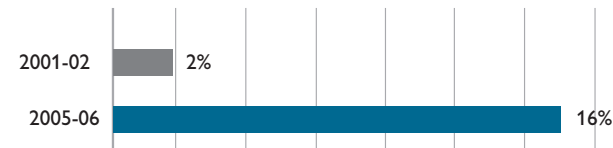


Source: *The Hindu: Healthcare, 2006, Ernst & Young Analysis*

Health Insurance: Current and Future Scenario

- Voluntary health insurance market, estimated at US\$ 86.3 million currently, is growing fast.
- Total medical insurance premium income to grow to US\$ 3.8 billion by 2012.
- Over 80 % of private health insurance is concentrated with four leading players — ICICI Lombard, Bajaj Allianz, Royal Sundaram and Iffco Tokio

Health Insurance Revenue
(as a % of total healthcare revenue)



Impelling Technology

- **Life cycles of high end medical equipments becoming shorter** due to high level of innovation
- **Telemedicine being used by major healthcare providers** to provide quality care especially in eye, cardiac and other surgeries for the rural poor in India
- **Teleradiology** being used to leverage the time difference advantage with other developed nations

IT Driven Tools and Services in Healthcare

- Hospital management systems
 - Decision support systems that improve diagnosis and treatment
 - Telemedicine and electronic record generator
-

Impelling Technology

Current Trends in Medical Technology

- Micro-processor based implantables in patients
 - CPU-driven technology supported by artificial intelligence
 - Robotics in OTs, Path-labs/Research
 - Laser Technology in surgery
 - Instrumentation in medical and surgical practices
 - Biotechnology, Genomics, Molecular Biology and Stem cell research.
-

Impelling Technology

Current Trends in Medical Technology

- “Five on five innovations” for cardiac and diabetic patients to be monitored with sensors installed in homes or devices such as mobiles
 - Helping Hand Pill dispenser
 - Virtual Doctor Checkups at home
 - Digital Pen
 - Electronic Medical Records
-

Reverse in Brain Drain

- Encouraging reversal of trend. Medical professionals of Indian origin, working in other nations are willing to come back and settle in India

Factors for Top Medicos to Return

- Significantly improved international grade healthcare infrastructure in India
- Increase in medical value travel to India
- Improved salary levels, almost at par with the west
- Growing restrictions on licensing and practicing in the UK and other EU countries

For Instance

- Apollo Hospitals Group receives about 15-20 applications per week from NRI doctors
 - At Aditya Birla Memorial Hospital (ABMH), Pune, 15 to 25 % of the applicants are NRI doctors, depending on their field of specialization
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Healthcare Players Now Targeting Smaller Cities

- Increasing focus on unexplored regions of India in terms of healthcare
- Growing need for improved healthcare infrastructure in tier II & III cities
- Better access owing to development of new national/international airports e.g. Visakhapatnam, Nagpur

Healthcare Players, expansion to smaller cities	
Apollo Hospitals	Vishakhapatnam, Bhubaneswar, Ahemadabad, North East
Wockhardt	Nagpur, Surat, Bhavnagar, Nasik, Ludhiana, Jabalpur
Max Healthcare	Eastern India
Global Hospitals	Dehradun

Mergers And Acquisitions

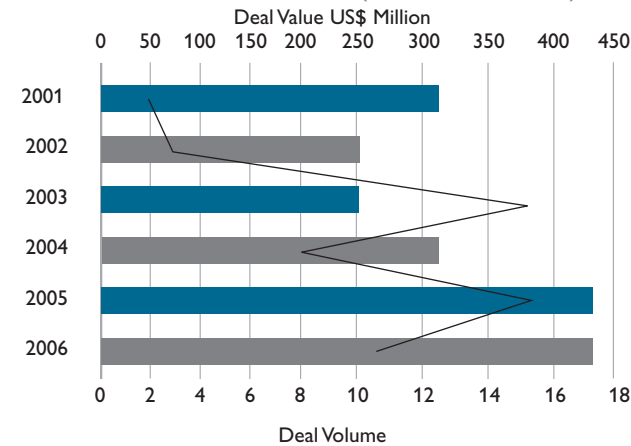
- M&A route allows healthcare providers with immediate brand recognition and an aggressive scale up in new geographies
- With M&A, new standards in healthcare services have been ushered in by large corporate hospitals
- Merger of smaller hospitals and nursing homes with larger healthcare entities has led to better healthcare service delivery
- Singapore-based Parkway Group Healthcare PTE Ltd. has firmed up plans of acquiring tertiary care hospital projects in Class A and B cities of India, especially in the South with one operational in Hyderabad
- The Asian Heart Institute, Mumbai plans to invest US\$ 7.32 million for expansion activities and is actively exploring acquisition targets outside Mumbai

Healthcare Players - M&A activity	
Fortis Healthcare	Has Acquired Hiranandani Hospital for US\$ 6.1 million, Navi Mumbai
Vasan Healthcare	Sea Horse Hospitals Ltd. ,Trichi
Wockhardt Hospitals	Stake in 100 bedded Hospital in Nagpur
Reliance KDAH, Mumbai	Dr. Mandke Heart Hospital, Andheri, Mumbai

Funding By Private Equity

- VC&PE investors have matured considerably in their understanding of the Indian healthcare sector and are now able to identify and invest in the right deals.
- In terms of volume and deal value, there is an upward trend
- Emerging healthcare segments like diagnostic chains, medical device manufactures as well as hospital chains are increasingly attracting investments from a variety of venture capitalists.

Indian PE Healthcare Market (Deals & Volume)



Source: Biocentury 2006, Ernst & Young Analysis

Funding By Private Equity

Recent PE Funding Deals In Healthcare

- **Warburg Pincus'** total investments in Max Healthcare stands at US\$ 34.15 million
 - **George Soros'** fund Quantum and Blue Ridge bought 10 % in Fortis Healthcare
 - **Manipal Health Systems Private** Limited has raised over US\$ 20 million of equity from IDFC Private Equity Fund
 - **Bangalore-based HealthCare Global Enterprises** Limited (HCG) has raised over US\$ 10 million in equity from IDFC Private Equity Fund
 - **Metropolis Health Services Ltd.** (Metropolis), India's leading corporate diagnostics chain, raised over US\$ 8 million in equity from India Advantage Fund-I managed by ICICI Venture Capital
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KEY PLAYERS

Select Players in India

Apollo Hospitals Enterprise Ltd

- Manages a network of 41 specialty hospitals and clinics with a bed capacity of over 9,000 across the country and abroad
- Besides the recently launched Health City in Hyderabad, plans to launch similar facilities pan India
- Has tied up with insurers like BUPA (UK), Vanbreda (Belgium) and Mondial (France) to direct inflow of foreign patients to India
- Joint venture with Singapore-based Parkway Group Healthcare PTE Ltd.
- Has tied up with Indian Oil Corporation (IOC) to set up its pharmacies at the latter’s petrol stations.



Apollo Group : Business structure			
Service	Brand name	No. of units	Details
Hospitals	Apollo Hospitals	Owned	Has hospitals all over India and abroad
		Managed	
Clinics	Apollo Clinics	50	
Pharmacy	Apollo Pharmacies	415	Retail Pharmacy- Direct access to patients, low capital requirement for hospital pharmacies, higher bargaining power with pharma companies.
Tele-medicine	Apollo Telemedicine Networking Foundation (ATNF)	Over 60	Access to huge medical network; helps expand reach and achieve growth
Insurance	(As a TPA)	-	Access to patients, medical network, and claim processing
Outsourcing (BPO)	Apollo Health Street	-	Caters to health Information needs of U.S. based Physician groups and hospitals

Select Players in India

Fortis Healthcare

- Has a chain of hospitals with an installed bed capacity of about 1,790 beds
- Operations across North India - Delhi, Noida, Mohali, Amritsar, Faridabad, Raipur and Srinagar
- Expansion plans through mergers and acquisitions
- Has a joint venture with Real Estate player DLF to set up hospitals across the country with an investment of about US\$ 1.5 billion
- Owns a pharmacy chain by the name of Fortis Health world and plans to open 250 outlets with an investment of US\$ 195 million all over India
- Has announced the signing of a definitive agreement (the “pre-IPO”) for allotment of 670,000 equity shares to VASCO Inc. for an investment amount of US\$ 2.6 million



Select Players in India

Wockhardt Hospitals

- 8 hospitals across India, of which 5 are owned
- Total bed size of the group is 1,390.
- Has tie-ups and association with Harvard Medical International: USA, Blue Cross And Blue Shield: USA, Bupa: U.K., AEA International: Singapore and others.
- Plans to build 15 new multi speciality hospitals in Tier-II cities in the country.
- Public-Private Partnership with the Government of Gujarat to manage the 275-bed Palanpur Civil General Hospital in Gujarat
- Company plans an IPO by the end of this year



Select Players in India

Manipal Health Systems

- Chain consists of
 - 9 primary centres at 7 rural locations
 - 8 secondary hospitals at urban and semi-urban locations
 - 3 tertiary hospitals at urban and semi-urban locations.
- MHS is building another 600-bed multi specialty hospital in Devanahalli, Bangalore
- Joint venture with Pantaloon Retail for comprehensive retail healthcare foray
- Plan to invest over US\$ 195 million in healthcare business in the next five years.



Select Players in India

Narayana Hrudayalaya

- First-of-its-kind cardiac care hospital in Bangalore, set up by the Asia Heart Foundation (AHF)
- Capability to perform 25 major heart surgeries and over 20 cardiac catheterisations a day
- Hub for telecardiology networks with a Joint Venture between the Governments of seven hill states and West Bengal, Karnataka Health Systems and ISRO
- A 5,000-bed Health City is coming up at, Bangalore, which will comprise of 10 hospitals



Select Players in India

Max Healthcare

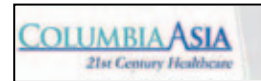
- MHC operates 8 healthcare centres in the National Capital Region (NCR)
- Bed capacity of around 765 beds and is expected to increase to 1,500 -1,600 beds in the next few years
- Collaborated with Singapore General Hospital in the areas of medical practices, nursing, paramedical research and training
- Plans to raise US\$ 85.36 - 97.56 million to expand its hospital chain



Select Players in India

Columbia Asia

- First healthcare provider to enter through the FDI route
- Opened the first community healthcare multi-specialty facility at Bangalore
- Planning to invest US\$ 15.85 million to set up more hospitals in Bangalore
- Tied-up with GE, to collaborate on a number of initiatives for creating a medical institute of world-class standards



Select Players in India

Global Hospitals

- The US\$ 9.75 million facility functions from 2 locations in Hyderabad
- Invested US\$ 36.58 million to set up 'BGS Global Hospital' in Bangalore
- Tied up with the Sureka Group, to set up a 300-bed transplantation and tertiary care centre in Kolkata
- Planning to establish a US\$ 240 million 'health city' in Chennai on the 46-acre hospital site



New Entrants/Key Foreign Players

Artemis Health Institute

- Delhi-based Apollo Tyres has made a foray with the launch of its US\$ 48.78 million project, Artemis Health Institute in Gurgaon
- First hospital in entire northern India to offer Image Guided Radiation Therapy (IGRT) to its patients
- Artemis plans to grow into a 10-hospital chain by 2012



New Entrants/Key Foreign Players

Naresh Trehan's MediCity

- Reputed medical professional, Dr Naresh Trehan, is promoting a US\$ 250 million world-class integrated healthcare facility known as 'MediCity'
- Has been envisioned as a multi-disciplinary high-tech medical institute spread over 43 acres in Gurgaon
- Apollo would examine the possibility of investing in the proposed MediCity and merger of the MediCity with Apollo Group may also be considered in the future

New Entrants/Key Foreign Players

Aditya Birla Memorial Hospital

- A multi-speciality hospital located at Pimpri-Chinchwad in Maharashtra
- The quaternary healthcare centre with 500 bed facility is spread over 16 acres



New Entrants/Key Foreign Players

Reliance ADAG Healthcare

- A 700 bed facility in Mumbai inaugurated in 2007
- Planning a pan India chain of hospitals; has begun talks with leading private hospitals in Delhi, Mumbai and Bangalore for possible acquisitions and joint ventures



New Entrants/Key Foreign Players

Foreign Players

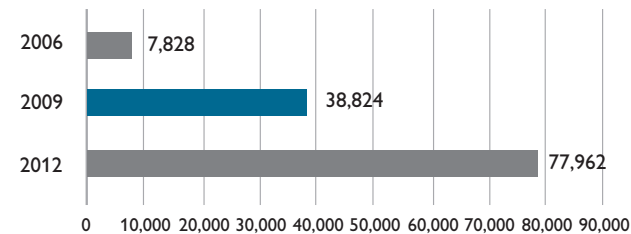
- Harvard Medical International and Cleveland Clinic have entered the country through joint ventures
 - Pacific Healthcare Holding has opened their first hospital in Hyderabad
 - Parkway Group from Singapore, Emaar from the Middle East and Prexeus Health Partners from the US have announced plans
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KEY OPPORTUNITIES

Medical Infrastructure Development

- Medical infrastructure market expected to grow at 14.5 %
- To achieve a bed to population ratio of 1.98 a total investment of US\$ 88 billion would be required
- Revenues from private beds in 2012 estimated at US\$ 38.8 billion.
- Leading Real estate players are looking at new business areas such as hospital properties to maximize amenities in their integrated townships

Physical Infrastructure Investments



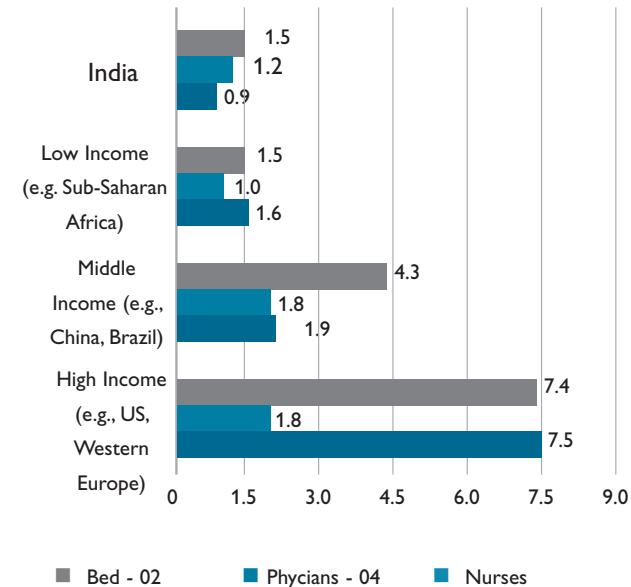
Source: *Opportunities in Healthcare "Destination India"* Ernst & Young Report 2007

Medical Infrastructure Development

Real Estate Players in Healthcare

- **DLF** inking a 26:74 joint venture with **Fortis Healthcare** for setting up hospitals in its 200-acre-plus integrated townships across the country, at an investment of around US\$ 1.5 billion. The JV plans to set up a chain of 200-450 bed hospitals in 31 cities in India within three to five years.
- **Fortis’s Lucknow MediCity, is being set up in Ansal’s 1,500 acre upcoming mega township.**
- **Hinduja Group and Limitless LLC**, the realty arm of Dubai World, are putting in about US\$ 1.1 billion in their 51:49 JV to build hospitals and medicare cities
- **Ambuja Realty Development Ltd (ARDL)** plans to develop a couple of feeder hospitals in Siliguri (North Bengal) and Bardhaman (South Bengal) for its proposed multi-specialty hospital in Kolkata. ARDL had formed a joint venture — Neotia Elbit Hospital Venture Ltd — with the Elbit Group of Israel.

Headline



Source: Opportunities in Healthcare, HEAL-2007

General Insurance Companies Looking at Healthcare

- More number of insurers are promoting insurance policies that provide comprehensive health coverage. Multiple channels, including banks are being used to sell group and individual health insurance policies
 - Three factors have changed the face of the medical insurance market
 - **Privatization in 2000 ending the monopoly of the public sector.**
 - **Introduction of Third Party Administrators (TPAs)** by the Insurance Regulatory and Development Authority in 2002 has made the medical insurance segment more attractive through provision of cashless hospitalisation facility
-

General Insurance Companies Looking at Healthcare

- Third, the **'detariffing' of general insurance from January 1, 2007** has also been a growth booster for the industry.

- Insurance companies are in consultation with NABH to identify hospitals and diagnostic centres that will be allowed to process cashless claims

New Products in Health Insurance

- **ICICI Prudential** is looking at introducing a policy where the premium will remain the same year after year irrespective of the age of the policyholder
 - **Introduction of Crisis Cover** by insurance companies, which provides for payment on detection of any of the 35 diseases covered
-

Medical Value Travel

- Medical value travel is one of the most lucrative segments of the healthcare sector and is expected to grow into a US\$1.5 billion industry by 2010
 - Potential to contribute US\$ 1.2 - 2.4 billion additional revenue for up-market tertiary hospitals by 2012, and will account for 3-5% of the total healthcare delivery market
 - In 2006-07, India was able to attract approximately 150,000 patients to the country, up from 10,000 patients about five years ago
-

Medical Value Travel

- With an annual growth rate of 30 percent, India is already inching closer to Singapore and Thailand, which are established medical care hubs that attract millions of medical tourists a year
 - The Ministry of Tourism (MOT), Government of India has further enhanced the Mvisa and MXvisa (Medical Visa) by extending it to three years from 6 months
-

Public Private Partnerships

- Various State Governments are **collaborating with the private sector through PPP** to address the inefficiency and inequity in the health system
 - Partnership initiatives **range from super-speciality tertiary-care hospitals** (Apollo Hospital, Raichur; SMS hospital, Jaipur) to primary care (Karuna Trust in Karnataka) and slum communities (Arpana Swasthya Kendra, Delhi; urban slum care in the district town of Adilabad, Andhra Pradesh).
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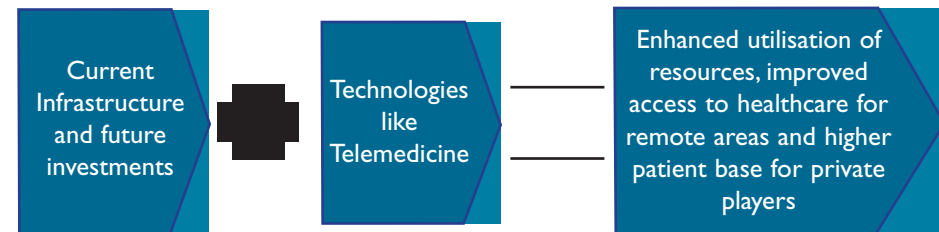
Public Private Partnerships

- **Community health insurance** initiatives have also been undertaken in Arogya Raksha scheme in Andhra Pradesh; Yeshasvini scheme in Karnataka.
- **Chiranjeevi Yojna** is a public private partnership which has dramatically reduced maternal and infant mortality in the state of Gujarat
- The **NHS** (National Health Service) of Britain, **with an annual budget of US\$ 100 billion**, is also eager to invest in PPP ventures in India, starting with West Bengal in the initial phase

Public Private Partnerships

Benefits of PPP

- Cost Effectiveness, Higher Productivity
- Accelerated Delivery, Clear Customer Focus
- Enhanced Social Service, Recovery of user charges



Source: Ernst & Young Analysis

Hospital Planning and Consulting

- Special skill sets required for orchestrating a hospital projects from ideation to implementation.
 - Major hospital chains are now hiring hospital planning consultancy firms for a better and faster scale up of their facilities
 - Established firms provide services ranging from a one stop solution; new and emerging players prefer to work on few specialised areas
 - Need for a statutory body to monitor hospital planning firms
-

Hospital Planning and Consulting

Key Hospital Planning Consulting Firms In India

- Hosmac, Mumbai
 - Medicontrivers India Pvt Ltd, Mumbai
 - Ace Vision Health Consultant Pvt Ltd, Jaipur
 - Professional Health Planners, New Delhi
 - Hospic, Mumbai
 - H-PAMCO, New Delhi
 - KSA Technopak, New Delhi
 - NOUS Hospital Consultancy (P) Ltd, New Delhi
 - Apollo Hospital Enterprise Ltd, Chennai
 - Total Hospital Solutions, Jaipur
 - Dr. Kamle's Prescription
-

Medical Equipment Manufacturing and Leasing

- The demand for equipment and devices in India is growing between 12-15 % annually.
- Great potential for multinationals to enter the country to tap the growing demand for hi-tech devices
- Medical Equipment leasing still in a nascent stage
- Global medical device majors such as GE , Siemens, Toshiba etc. have an established presence in the Indian market

Medical Device Market, 2006 (US\$)	
India	1,505 million
Brazil	2,585 million
China	3300 million
Russia	1,075 million

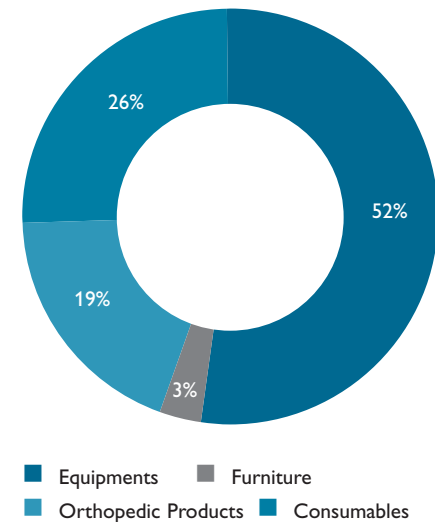
Source: BRIC Report: 2006, Ernst & Young Analysis

Medical Equipment Manufacturing and Leasing

Medical Equipment Leasing: Advantages

- Increased use of equipment
- Flexibility
- 100% cost coverage
- Conservation of capital
- Easier cash flow forecasting
- Keeping pace with the technology
- Fixed payments
- Preserve credits

Medical Equipments: Market Distribution



KEY OPPORTUNITIES

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Medical Equipment Manufacturing and Leasing

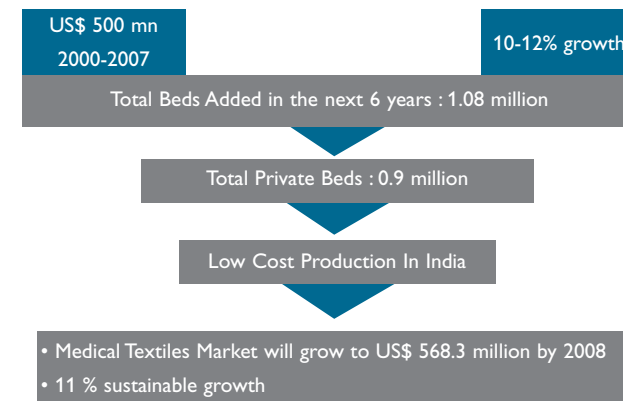
Some of the companies looking at India		
Europe - Israel Group	Israel	To set up US\$ 222.2 million medical equipment factory in West Bengal
BSN Medical GmbH	Germany	To set up a new JV in India with 61 % foreign equity. The JV would be involved in manufacturing, importing sales and distribution
Philips	Indian Subsidiary	To manufacture some of its medical equipment brands in India
Steris Healthcare Equipment Co.	Germany	Set up wholly owned subsidiary with an investment of US\$ 1,000,000

Medical Textiles and Clinical Trials & Hospitals

Medical Textiles

- Indian market for medical textiles is worth US\$ 500 million; global market is worth US\$ 8.2 billion
- India's market for medical textiles growing at 10–12%, likely to grow to US\$ 568.3 billion by 2007-08

Medical Textiles Market



Medical Textiles and Clinical Trials & Hospitals

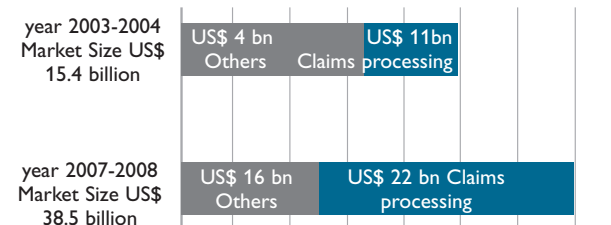
Clinical Trials and Hospitals

- Indian clinical trials market in 2006 was US\$ 140 million and is growing at a CAGR of 40 % for the last 3 years
 - Several hospitals are setting up clinical trial centres
 - National Centre for Clinical Trials has been established at Tata Memorial Hospital
 - A Clinical Research in Cancer (TMC) is one of the avowed objectives of the Tata Memorial Centre and Department of Atomic Energy (DAE) funded cancer centres (DAEFCC)
-

Healthcare Outsourcing

- Medical services outsourcing from the US has seen a CAGR of 150% in the last two years
- Indian service providers accounted for US\$ 115 million worth of outsourcing and offshoring services during 2005-2006
- India has an estimated share of 65 % in the global IT services offshoring segment and around 46 % of the global BPO market
- India's large pool of skilled IT manpower and the fast growing broadband connectivity and secure networks provide robust infrastructure for IT-enabled healthcare services

Outsourcing Scenario
2003-2004 and 2007-2008



Healthcare Outsourcing

Factors making India the preferred destination for Healthcare outsourcing

- HIPAA-compliant processes
 - AAPC trained medical coders
 - Thorough understanding of US medical coding and billing procedures and processes, including government regulations
 - Software applications to streamline workflow
 - A college-educated, trained and experienced operations team
-

Healthcare Outsourcing

Healthcare BPO Services

- Medical Coding
 - Medical Billing
 - Patient Demographics
 - Charge Entry
 - Payment entry or Cash posting
 - Claims Processing
 - Accounts Receivable
 - Teleradiology
 - Medical Transcription
 - Patient Record Management and EMR (Electronic Medical Record)
-

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