

Assessment of Healthcare delivery sector in India with a focus on North India

July 2024

Consulting



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1. Macroeconomic overview of India

1.1. A review of global and India's GDP growth

Global GDP is estimated to grow at 3.2% in CY24 and CY25 amid moderating inflation and steady growth in key economies

As per the International Monetary Fund's (IMF) April 2024 update, global Gross Domestic Product (GDP) growth is estimated at 3.2% for 2023 and projected to grow at the same rate in 2024, 2025 and 2026. The latest estimate for 2024 is 0.1 percentage points higher compared with IMF's previous forecast in January 2024, mainly due to greater-than-expected resilience in the United States (US) and several large emerging markets and developing economies, as well as fiscal support in China. Emerging market and developing economies are also expected to experience stable growth through 2024 and 2025, with regional differences.

India among the world's fastest-growing large economies

India was one of the fastest-growing economies in 2018 (i.e., FY19; fiscal year is from April 1 to March 31) and 2019 (FY20). In 2020 (FY21), though, the country's GDP, along with most countries, including the USA and the UK, except China, contracted following the onset of the pandemic. India's GDP shrank 5.8%.

However, in 2021, the GDP of all major economies rebounded on a low base with the economic activities resuming. Among major economies, India, with a growth rate of 9.8%, was the fastest growing (FY22), followed by China (8.4%). The country also overtook the UK as the fifth-largest economy in the world in the April-June quarter of 2022 and registered a growth of 7.0% in 2022 (FY23).

In 2023 (FY24), India registered a growth rate of 8.2% which was higher than all key major economies. For 2024 (FY25), India's GDP is projected to grow at 6.8%. The country is forecasted to grow faster than China(4.6%) as well as the global average(3.2%).

Analysis of the India's FY24 growth reveal notable dichotomies. Growth has primarily been fueled by fixed investments, exhibiting a robust 9% expansion, while private consumption growth lagged at 4%, trailing overall GDP growth. On the supply side, the manufacturing sector experienced the most substantial growth at 9.9%, while the agriculture and Electricity, Gas, Water Supply & Other Utility services sectors exhibited more modest growth rates of 1.4% and 7.5%, respectively. These trends underscore the varied performance across sectors, highlighting the nuanced dynamics shaping India's economic landscape in FY24. Overall, real GDP of India is estimated to have grown at 8.2% in FY24 compared with 7.0% in FY23.

India's per capita GDP has grown faster than the global average

Between 2018 and 2023, global per capita GDP clocked a CAGR of 3.1% and that of Emerging Markets and Developing Asia grew at 4.4%, according to the IMF.

Meanwhile, India witnessed a higher per capita GDP CAGR of 4.8%, China 4.9%, the US 5.3%, and UK 2.6%.

GDP per capita, current prices (\$)

Regions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	CAGR (2018-23)
Australia	56,434	54,396	53,253	64,327	65,575	65,434	66,589	68,614	70,751	72,808	75,320	3.0%
Canada	46,618	46,431	43,573	52,521	55,613	53,548	54,866	57,021	58,907	60,729	62,636	2.8%

China	9,849	10,170	10,525	12,572	12,643	12,514	13,136	14,037	14,929	15,834	16,782	4.9%
European Union	36,020	35,290	34,516	38,950	37,659	41,129	42,443	43,947	45,493	46,993	48,529	2.7%
UK	43,275	42,713	40,246	46,704	45,730	49,099	51,075	53,627	56,759	59,870	63,279	2.6%
India	1,974	2,050	1,916	2,250	2,366	2,500	2,731	2,984	3,265	3,573	3,911	4.8%
USA	63,165	65,505	64,367	70,996	77,192	81,632	85,373	87,978	90,903	94,012	97,231	5.3%
Emerging and Developing Asia	5,417	5,604	5,634	6,584	6,692	6,703	7,062	7,548	8,045	8,561	9,109	4.4%
Middle East (Region)	11,915	11,364	9,648	11,544	13,757	13,366	13,818	14,286	14,735	15,227	15,701	2.3%
Advanced economies	48,191	48,481	47,476	52,853	53,562	56,243	58,258	60,382	62,616	64,852	67,227	3.1%
World	11,472	11,518	11,111	12,527	12,894	13,359	13,836	14,368	14,946	15,533	16,148	3.1%

Notes: E – estimated; P – projected

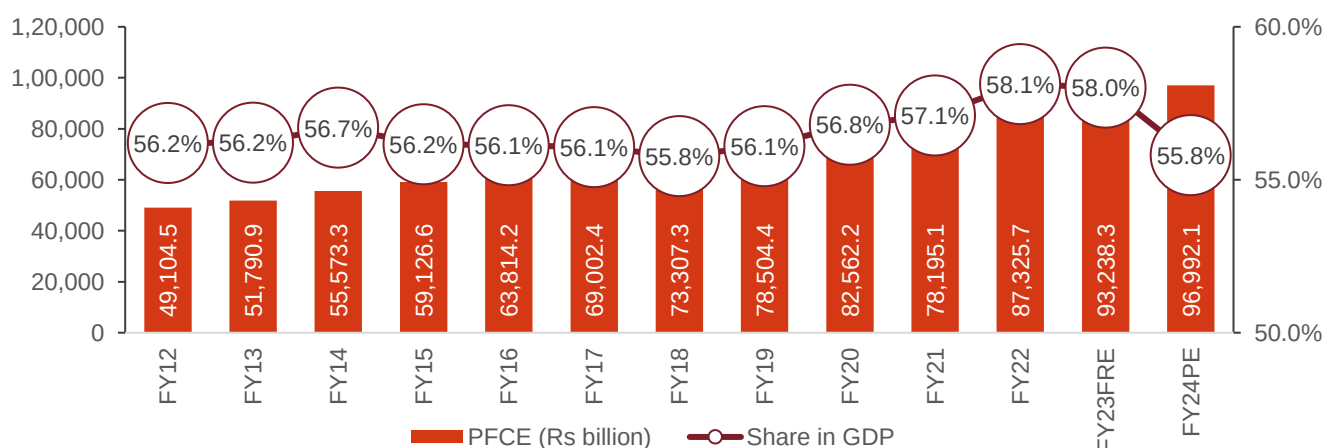
Source: IMF, CRISIL MI&A

1.2. Fundamental growth drivers of GDP

PFCE to maintain dominant share in GDP

Private Final Consumption Expenditure (PFCE) at constant prices clocked 6% CAGR between FY12-23, maintaining its dominant share of ~58.0% in FY23 (~Rs 93,238 billion in absolute terms, up 6.8% year-on-year). Growth was led by healthy monsoon, wage revisions due to the implementation of the Seventh Central Pay Commission's (CPC) recommendations, benign interest rates, growing middle age population and low inflation. As of FY24, PFCE is estimated to have further increased to Rs 96,992.1 billion, registering a y-o-y growth of ~4% and forming ~56% of India's GDP. The increasing share of discretionary spending from FY12 suggests rising disposable incomes and spending capacity of households.

PFCE (at constant prices)



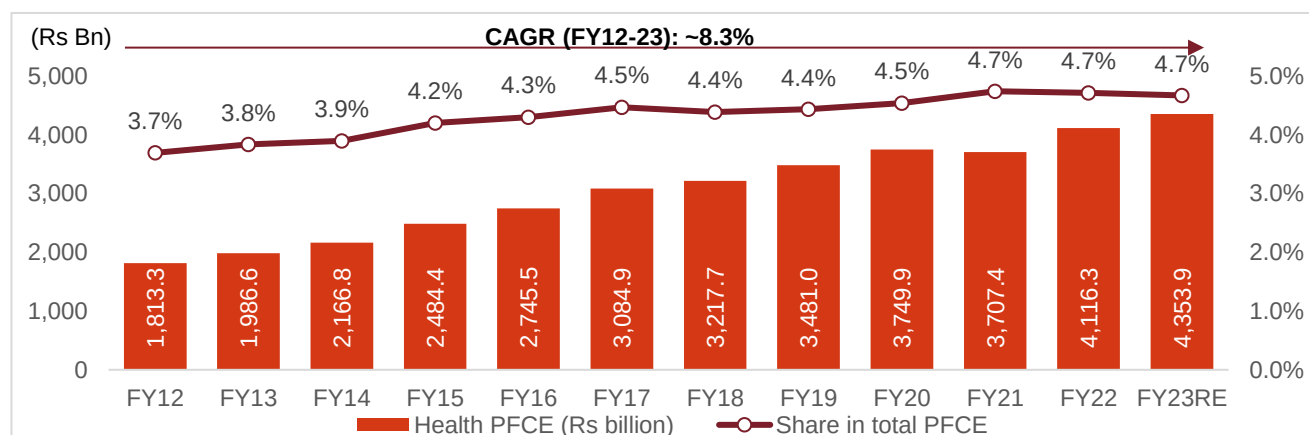
Note: FRE: First Revised estimates; PE: Provisional estimates

Source: Provisional Estimates of Annual GDP for 2023-24, MOSPI, CRISIL MI&A

Share of health expenditure in total PFCE consistently increasing

The share of health expenditure in total PFCE has been consistently increasing; it rose from 3.7% in FY12 to 4.7% in FY23. In absolute terms, health expenditure increased at a CAGR of ~8.3% from Rs 1,813.3 billion in FY12 to Rs 4,353.9 billion in FY23.

Share of health expenditure in total PFCE



Note: RE: Revised estimates

Source: MoSPI, CRISIL MI&A Consulting

India saw robust growth in per capita income between FY12 and FY24

India's per capita income, a broad indicator of living standards, rose to Rs 99,404 in FY23 from Rs 63,462 in FY12, i.e., 4.2% CAGR. Growth was led by better job opportunities, propped up by overall economic growth. Moreover, population growth was stable at ~1% CAGR. Also, as per the provisional estimates of annual GDP for 2023-24, per capita net national income (constant prices) was estimated to have increased to Rs 106,744, thereby registering an on-year growth of ~7.4%.

With per capita income rising to upper middle-income category by FY31, the share of PFCE is expected to be dominant in India's GDP growth.

Per capita net national income at constant (2011-12) prices

	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23FRE	FY24PE
Per-capita NNI (Rs)	63,462	65,538	68,572	72,805	77,659	83,003	87,586	92,133	94,270	86,054	94,054	99,404	106,744
Y-o-Y growth (%)		3.3	4.6	6.2	6.7	6.9	5.5	5.2	2.3	-8.7	9.3	5.7	7.4

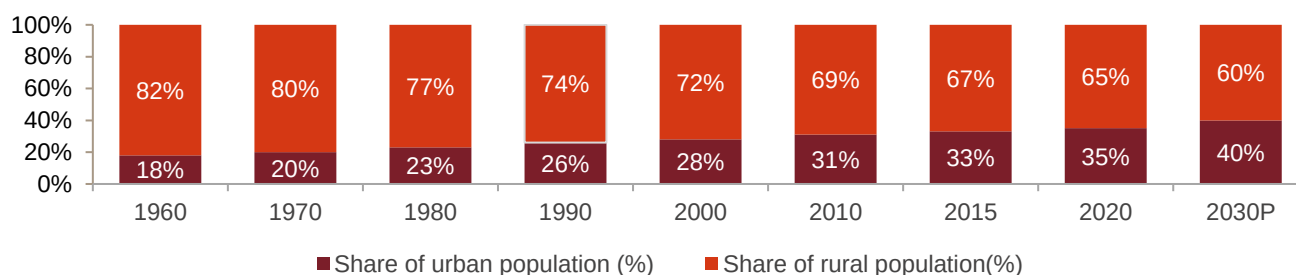
FRE –First revised estimates, PE –Provisional estimates of NNI, NNI – net national income

Source: Provisional Estimates of Annual GDP for 2023-24, CSO, MOSPI, CRISIL MI&A

Urbanisation likely to reach 40% by 2030

India's urban population has been increasing over the years. The trend is expected to continue as economic growth increases. From ~31% of the total population in 2010, the country's urban population is projected to reach nearly 40% by 2030, according to a UN report on urbanisation. People from rural areas move to cities for better job opportunities, education and quality of life. Typically, migration can be of the entire family or a few individuals (generally an earning member or students).

India's urban population versus rural



Note: P: Projected

Source: World Urbanization Prospects: The 2018 Revision, UN, CRISIL MI&A

Budget for health and wellbeing hiked by 7.0% in FY25 compared to that in FY24

Key budget proposals

Health and Wellbeing – Expenditure

Ministry/departments	Actuals FY22 (Rs billion)	Actuals FY23 (Rs. billion)	RE FY24 (Rs. billion)	BE FY25 (Rs. billion)
Healthcare	844.7	757.3	805.2	906.6
Department of health & family welfare	817.8	733.1	776.2	876.6
Department of health research	26.9	24.2	28.9	30.0
Well-being	686.1	621.0	800.3	811.0
Ministry of Ayush	23.6	24.5	30.0	37.1
Department of drinking water & sanitation	662.5	596.6	770.3	773.9
Overall (health and wellbeing)	1,530.8	1,378.3	1,605.5	1,717.6

BE: Budget Estimates; RE: Revised Estimates;

Source: Budget document, CRISIL MI&A

Key budget proposals for FY2024-25

- An estimated Rs. 877 billion has been allocated to the department of health and family welfare for FY25
- Ministry of Ayush saw an increase of 16.3% in budget allocation for FY25 compared to FY24

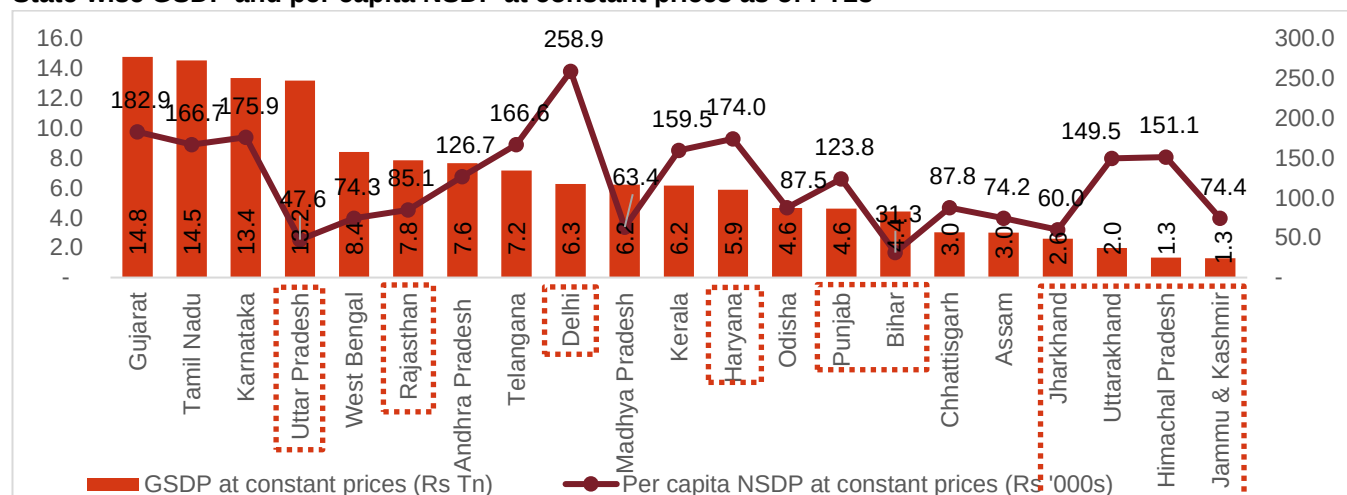
1.3. State-wise macroeconomic indicators with focus on North-India

North Region of India consists of Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

3 North Indian states – Uttar Pradesh, Rajasthan and Delhi among the top ten states in terms of gross state domestic product (GSDP) as of FY23

In FY23, Gujarat, Tamil Nadu and Karnataka were top rankers* in terms of gross state domestic product (GSDP) at constant prices. However, in terms of per-capita net state domestic product (NSDP) at constant prices, Goa (Rs 333.7 thousand) and Sikkim (Rs 259.9 thousand) led the peer states in FY23.

State-wise GSDP and per capita NSDP at constant prices as of FY23



Note: Dotted Box represents select North and East Indian states

Note: Top 21 states/UT in terms of FY23-GSDP (constant prices) have been considered to plot the above chart

Latest data available has been considered for the above chart. FY23 data is not available for Maharashtra, Manipur, Mizoram, and Andaman & Nicobar Islands

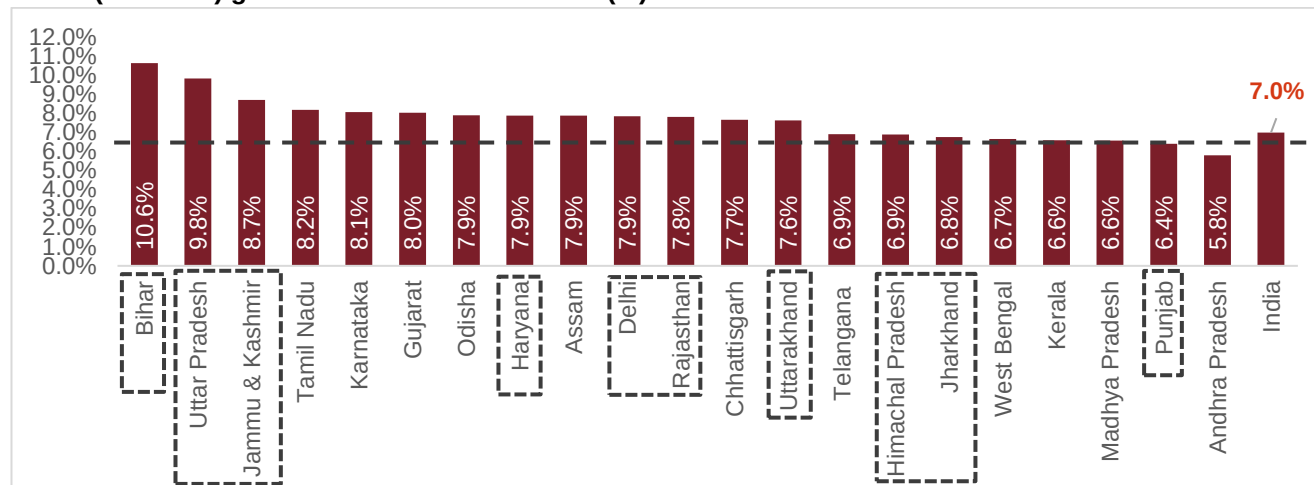
* FY23 data is not available for Maharashtra, Manipur, Mizoram, and Andaman & Nicobar Islands

Source: MOSPI, CRISIL MI&A

Bihar, Uttar Pradesh and Jammu & Kashmir have grown the fastest in FY23 among the states for which data is available

Among the top* 21 states by FY23-GSDP, Bihar, Uttar Pradesh and Jammu & Kashmir registered the highest growth of 10.6%, 9.8% and 8.7% respectively over FY22. These states were followed by Tamil Nadu, Karnataka and Gujarat which registered a growth of 8.2%, 8.1% and 8% respectively. A total of 13 states out of the 21 under consideration registered a growth rate higher than India's growth rate of 7.0% in FY23.

GSDP (constant) growth across states in FY23 (%)



Note: Dotted Box represents select North and East Indian states

Note: Top 21 states/UT in terms of FY23-GSDP (constant prices) have been considered to plot the above chart

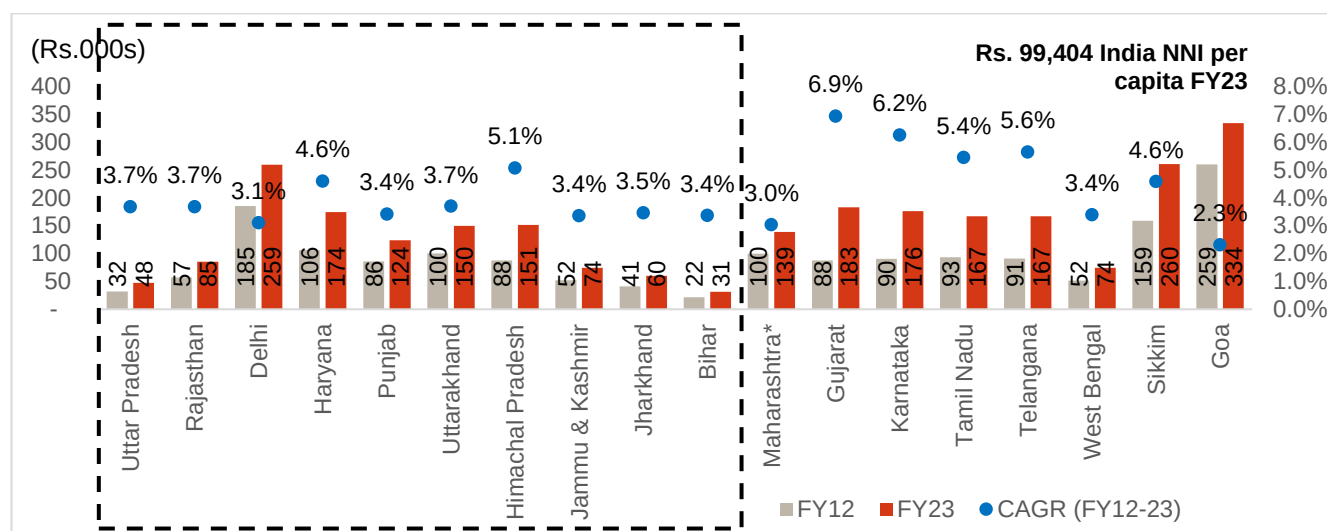
Latest data available has been considered for the above chart. FY23 data is not available for Maharashtra, Manipur, Mizoram, and Andaman & Nicobar Islands

Source: MOSPI, CRISIL MI&A

In terms of per capita NSDP, Goa had the highest value among the selected states. It stood at Rs.3,33,709 in FY23. Goa was followed by Sikkim and Delhi which had NSDP per capita of Rs 2,59,938 and Rs.2,58,941 respectively. Among the Northern states considered, Haryana had the second highest NSDP of Rs.1,73,973

Gujarat, Karnataka and Telangana were the top three states among the selected states in terms of growth, they registered growth rates of 6.9%, 6.2% and 5.6% respectively over FY12 to FY23.

Per capita net state domestic product (NSDP) per capita for selected states (in Rs '000) – FY12 vs FY23



Note: The box denotes select North and East Indian states

Note: *For Maharashtra, FY23 numbers were not available, hence FY22 numbers are used and subsequently the growth rate is from FY12-22

Source: Ministry of Statistics Programme and Implementation (MOSPI), CRISIL MI&A

Meghalaya and Uttar Pradesh have shown high focus on healthcare spending compared to overall expenditure as per FY24 budgeted estimates

As per the scale used, 1 indicates the highest rank and 28 the lowest. The scatter plots that follow juxtapose the latest available rankings on each of these metrics from independent sources (X-axis) with our rankings based on the states' spending towards healthcare as a percentage of its total spending (Y-axis).

In terms of healthcare expenditure compared to overall expenditure of the states as per FY24 budgets, Northeastern state of Meghalaya ranked 1st, while Northern states of Uttar Pradesh and Rajasthan ranked 2nd and 4th respectively.

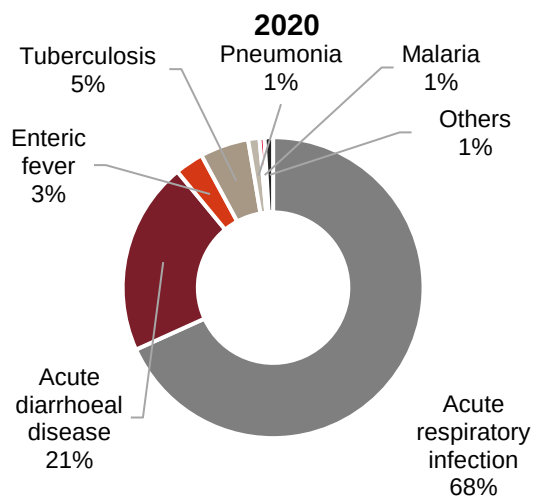
1.4. Disease profile in India

A review of communicable diseases in India

Overall, communicable diseases have been decreasing in India, especially with a considerable fall in cases and deaths due to malaria, dengue, chikungunya, chicken pox, encephalitis, and viral meningitis.

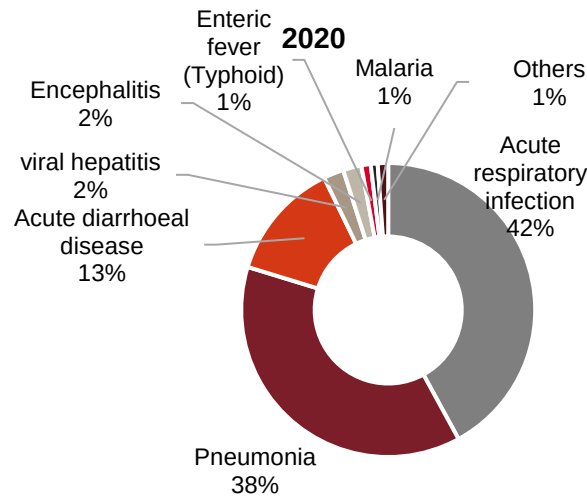
Morbidity reported on major communicable diseases

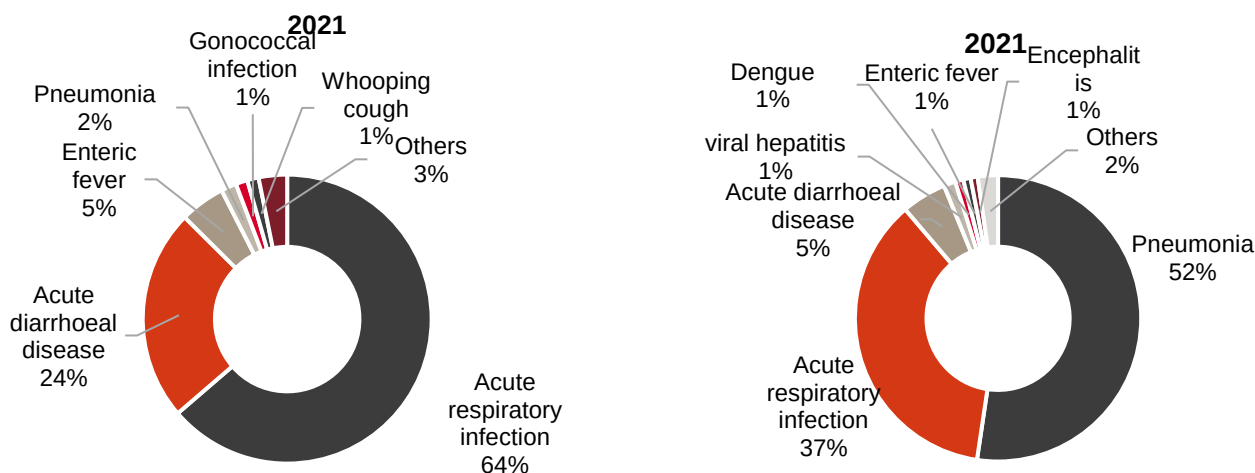
Among the various communicable diseases reported by states/union territories (UTs) in 2020 and 2021, the following communicable diseases accounted for the maximum percentage of cases reported



Mortality reported on major communicable diseases

Among the various communicable diseases reported by states/UTs in 2020 and 2021, the following communicable diseases accounted for the maximum percentage of deaths reported



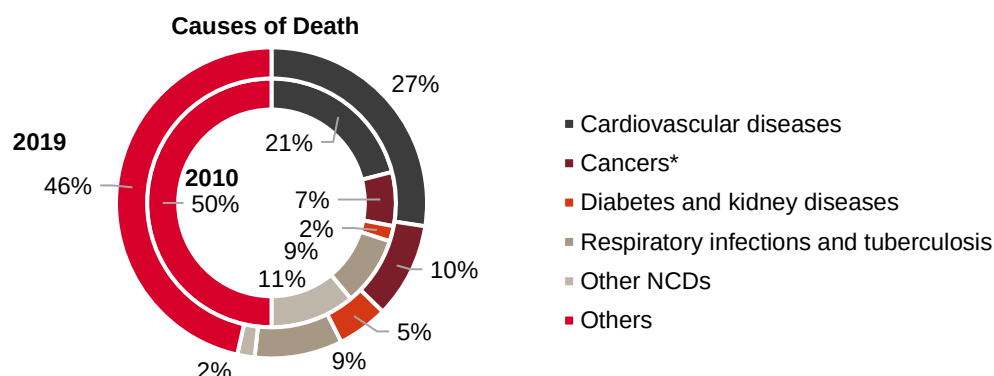


Source: National Health Profile-2021, National Health Profile-2022, CRISIL MI&A

From 2020 to 2021, Pneumonia deaths have increased from 38% to 52%, while the acute respiratory infection deaths have seen a decrease from 42% to 37%. Taken together, Pneumonia and acute respiratory infection deaths account for ~90% of the mortality for major communicable diseases. In terms of morbidity, acute respiratory infection has seen a decrease from 68% to 64% while acute diarrhoeal disease saw its share increase from 21% to 24%. Communicable diseases such as enteric fever, tuberculosis, pneumonia, malaria and others formed a smaller share of the total morbidity reported during these two years.

A review of non-communicable diseases in India

Disease epidemiology shifting towards lifestyle diseases



Note: Inner pie represents 2010 data, while outer pie represents 2019 data; *Neoplasms which are tumors are considered as cancer in the above chart; Others include digestive diseases, HIV/AIDS, transport injuries, mental disorders, neurological disorders, sense organ diseases etc.

Source: WHO global burden of disease, CRISIL MI&A

As opposed to the decreasing rate in communicable diseases, lifestyle-related illnesses or non-communicable diseases (NCDs) have been increasing rapidly in India over the past few years. The contribution of NCDs to the disease profile rose from 30% in 1990 to 55% in 2016. Recent statistics show these illnesses accounted for nearly 66% of all deaths in India in 2019.

As per the World Economic Forum, the world will lose nearly \$30 trillion by 2030 for treatment of NCDs and India's share of this burden will be \$5.4 trillion.

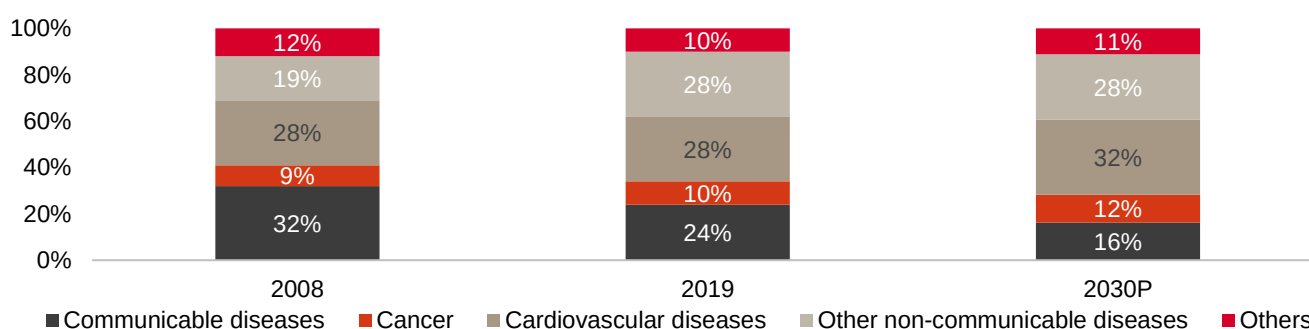
Consulting

In 2019, of the total disease burden, the contribution of the group of risks (unhealthy diet, high blood pressure, high blood sugar, high cholesterol, and overweight) which mainly cause ischemic heart disease, stroke and diabetes rose to ~27%.

Non-communicable diseases: A silent killer

CRISIL MI&A believes NCDs exhibit a tendency to increase in tandem with rising income levels. WHO projects an increasing trend in NCDs by 2030, following which CRISIL forecasts demand for healthcare services associated with lifestyle-related diseases such as cardiac ailments, cancer and diabetes to rise. Another emerging market in the country is orthopaedics, which currently comprises a very small proportion compared with NCDs, but has a potential market in the country. The orthopaedics market can be classified into four different segments, viz., knee, hip, trauma, and spine, of which the knee replacement market holds the biggest share, followed by trauma and spine. Hip replacement in India is still a very small segment compared with knee replacement in contrast to the worldwide trend.

Causes of death in India

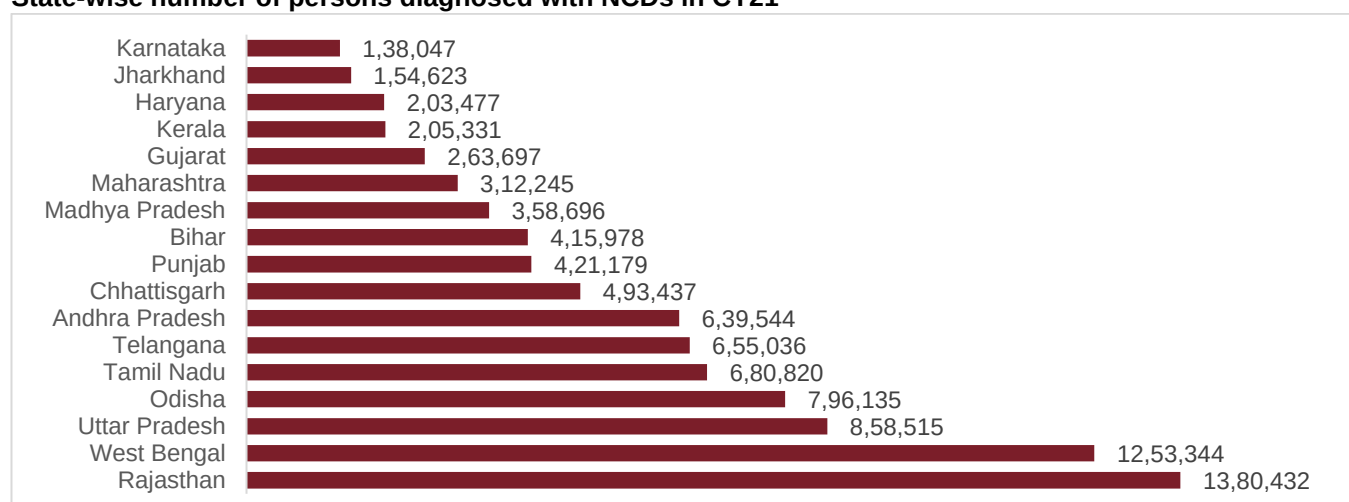


Source: WHO global burden of disease, India: Health of the Nation's States, CRISIL MI&A

Uttar Pradesh had the third highest NCD cases in CY21

As per the National Health Profile 2022, out of 59,100,228 patients who attended NCD clinics in CY21, 5.9% were diagnosed with diabetes, 7.6% with hypertension, 2.5% with both diabetes and hypertension, 0.3% with cardiovascular ailments, 0.1% with stroke, and 0.2% with common cancers. Out of the 17 states compared, Rajasthan, West Bengal, and Uttar Pradesh topped the number of persons diagnosed with NCDs out of those screened in CY21 whereas Jharkhand and Karnataka were at the bottom.

State-wise number of persons diagnosed with NCDs in CY21



17 states under the non-special category given by the RBI (except Goa) have been considered for analysis - Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal.

Data for National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) from January 2021 to December 2021.

* Telangana excludes data for cardiovascular disease as it was not reported by the state.

NCDs include addition of positive cases of diabetes, hypertension, both diabetes & hypertension, cardiovascular ailments, stroke and common cancers

Source: National Health Profile (NHP) 2022, CRISIL MI&A

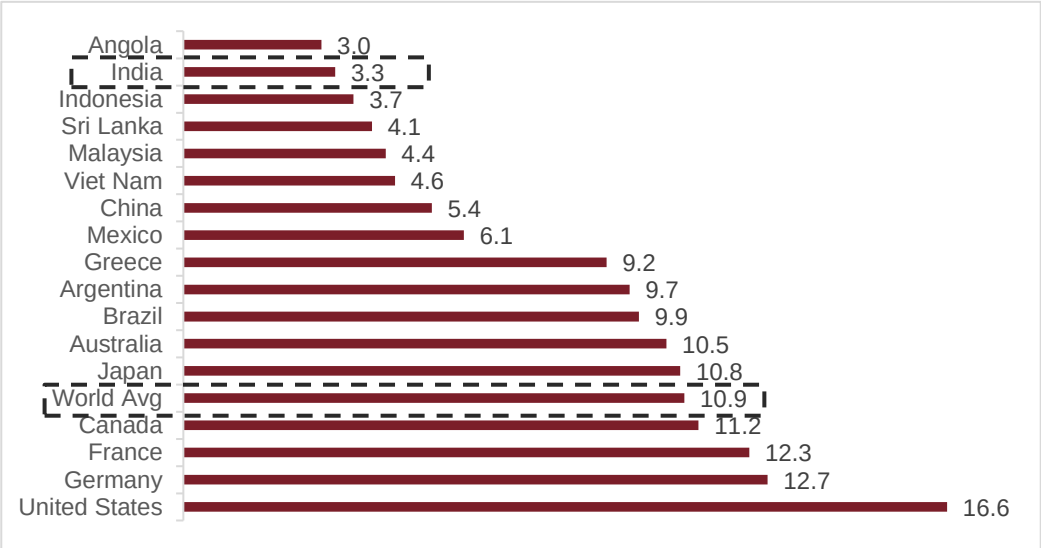
1.5. India’s social and healthcare parameters

Along with the structural demand existing in the country and the potential opportunity it provides for growth, provision of healthcare in India is still riddled with many challenges. The key challenges are inadequate health infrastructure, unequal quality of services provided based on affordability and healthcare financing.

India lags peers in healthcare expenditure

Global healthcare spending has been rising faster in keeping with the economic growth. As the economy grows, public and private spending on health increases, too. Also, greater sedentary work is giving rise to chronic diseases, which is also pushing up healthcare spending. Fast-growing economies with low spending on health are seeing chronic diseases increase dramatically as they move up the income ladder. Developed economies such as United states, Germany, France, Japan, United Kingdom, spend higher on healthcare as compared to developing nations such as India, Vietnam, Indonesia, etc.

Current healthcare expenditure as % of GDP (CY21, CY22)



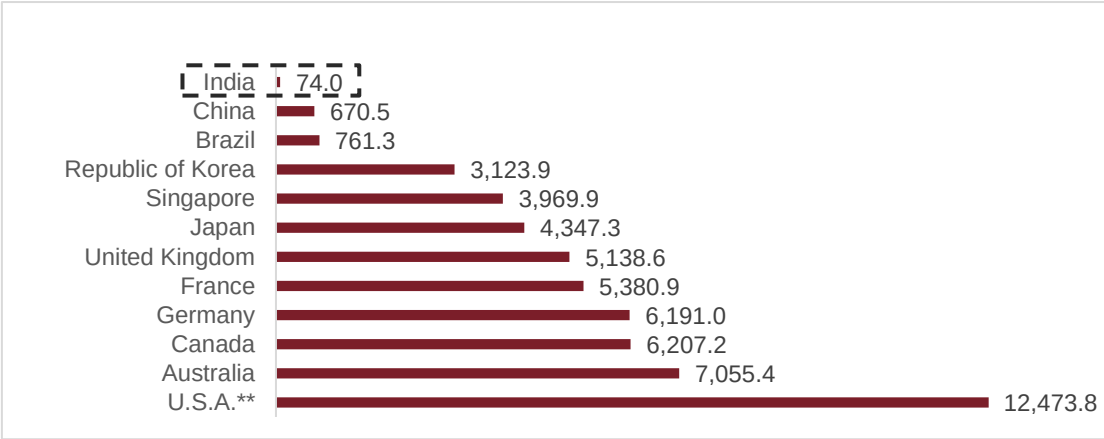
Note: Latest data has been considered. Data for Canada, Germany and United States is as of 2022, rest 2021
World average is for the year 2020

Source: Global Health Expenditure Database accessed in May 2024, World Health Organization; CRISIL MI&A

According to the Global Health Expenditure Database compiled by the WHO, in CY2021, India's expenditure on healthcare was 3.3% of GDP. As of CY2021, India’s healthcare spending as a percentage of GDP is less than not only developed countries, such as the US and UK, but also developing countries such as Brazil, Vietnam, Sri Lanka and Malaysia.

India spends too little on healthcare

Per capita current expenditure on health in USD (CY21, CY22)

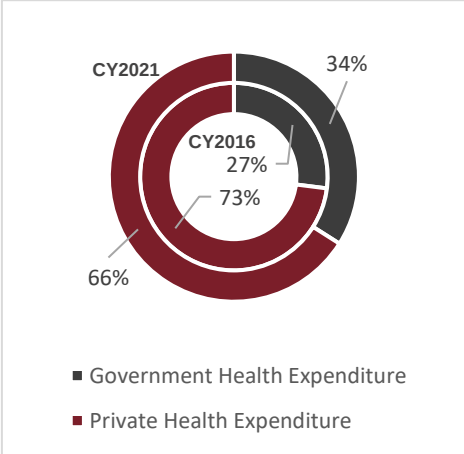


Note: Latest data has been considered. Data for Republic of Korea, United Kingdom, Germany, Canada, United States of America is as of 2022. Data for India, China, Brazil, Singapore, France, Australia is as of 2021; **United States of America Source: Global Health Expenditure Database accessed in January 2024, CRISIL MI&A

India’s public spending on healthcare services remains much lower than its global peers. For example, India’s per-capita total expenditure on healthcare (at an international dollar rate, adjusted for purchasing power parity) was only \$74.0 in CY2021 versus the United States of America’s \$12,012.2 (CY2021 data for comparison purpose) and Australia’s \$7,055.4 (CY2021)

Public healthcare expenditure is low, with private sector accounting for a lion’s share

Domestic general expenditure on health as % of CHE (CY2021)



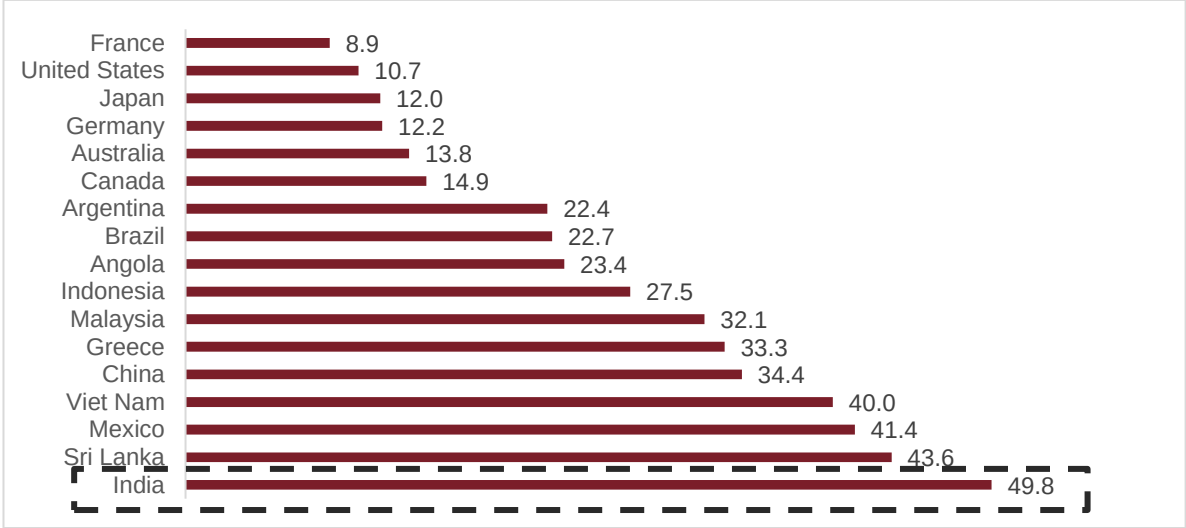
India’s current healthcare expenditure (CHE) is skewed more towards private expenditure compared with public expenditure. Government expenditure on healthcare has remained range-bound at 20-30% of the current healthcare expenditure from CY10 to CY16. From CY16 to CY21, the government expenditure has increased from 27% to 34%. Rest of the expenditure is private in nature (expenditure from resources with no government control such as voluntary health insurance, and the direct payments for health by corporations (profit, not-for-profit and non-government organisations) and households. However, the government aims to increase public healthcare expenditure to 2.5-3% of GDP by 2025 from the current 2%, as per the National Health Policy.

Source: Global Health Expenditure Database- World Health Organisation, CRISIL MI&A

Nearly 17% of the rural population and 13% of the urban population are dependent on borrowings for funding their healthcare expenditure for July 2017- June 2018 as per NSS 75th Round Health in India Report. And nearly 80% of the rural population and 84% of the urban population use their household savings on healthcare-related expenditure as per “Health in India – 2018, NSS 75th Round”. Health expenditures incurred by people contribute to nearly 3.6% and 2.9% of rural and urban poverty, respectively. And annually, an estimated 50 to 60 million people fall into poverty due to healthcare-related expenditure. However, with measures like Pradhan Mantri Jan Arogya

Yojana (PMJAY), the problems with regards to affordability of healthcare is expected to ease especially for the deprived population.

Out of pocket spending as % of CHE (2021)

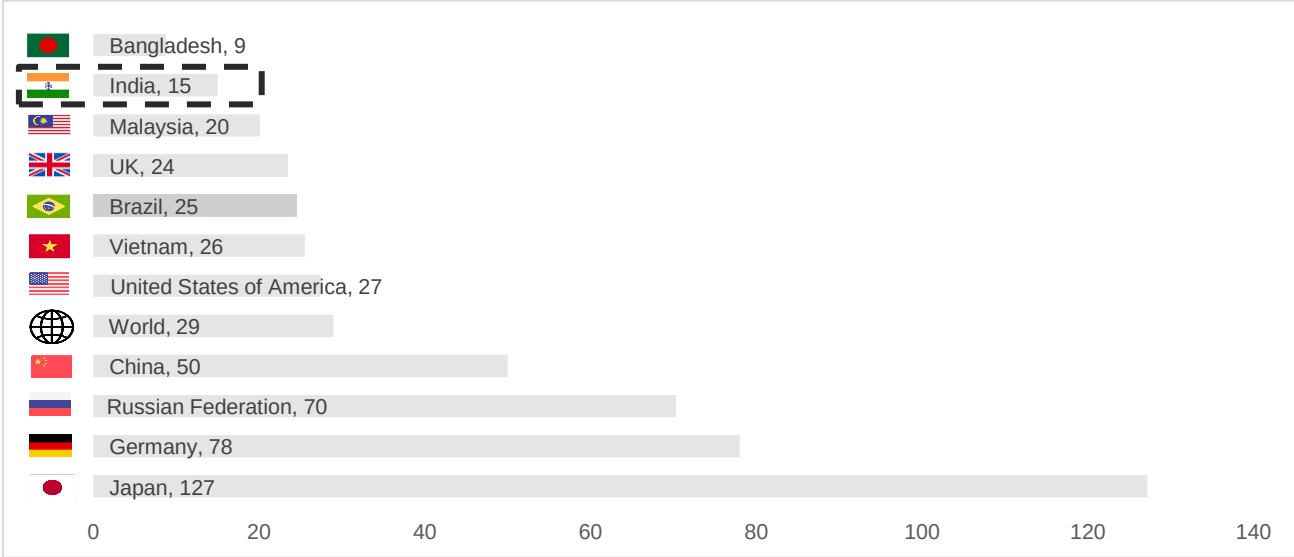


Note: Latest data has been considered. Data for Canada is as of 2022, rest 2021
Source: Global Health Expenditure Database accessed in May 2024, World Health Organization; CRISIL MI&A

Health infrastructure of India needs improvement

The adequacy of a country's healthcare infrastructure and personnel is a barometer of its quality of healthcare. India accounts for nearly a fifth of the world's population but has an overall bed density of merely 15 per 10,000 people, with the situation being far worse in rural than urban areas. India's bed density not only falls far behind the global median of 29 beds, it also lags that of other developing countries such as Brazil (25 beds), Malaysia (20 beds), and Vietnam (26 beds).

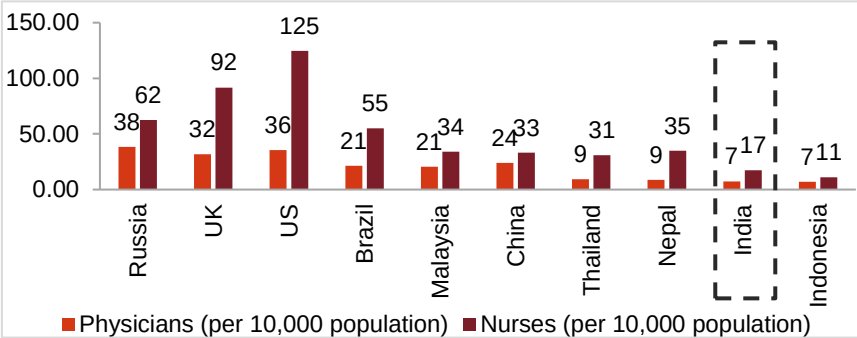
Bed densities across countries - hospital beds (per 10,000 population)



Note: India bed density is estimated by CRISIL MI&A for FY 2022, CY2019 figure for Bangladesh, CY2020 figures for Japan, Germany, China, United States and World, CY2021 figures for Russian Federation, Brazil, UK and Malaysia, CY2017 for Vietnam

Source: World Health Organization Database, The World Bank, CRISIL MI&A

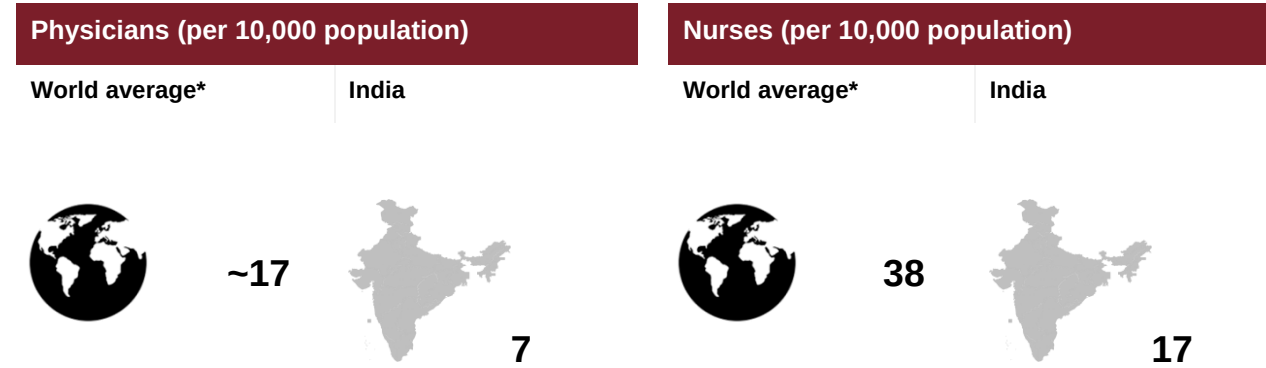
Healthcare personnel: India vs other countries (latest as reported by each country)



The paucity of healthcare personnel compounds the problem. At 7 physicians and 17 nursing personnel per 10,000 population (CY2020), India trails the global median of 17 physicians and 38 nursing personnel during the same period. Even on this parameter, India lags developing countries such as Brazil (21 physicians, 55 nurses), Malaysia (21 physicians, 34 nurses) and other Southeast Asian countries.

Note: CY21 figure for UK, Brazil, Nepal, Indonesia CY20 figures for India, China, Russia, US; CY19 figures for Malaysia, Thailand; CY19 figure for world average

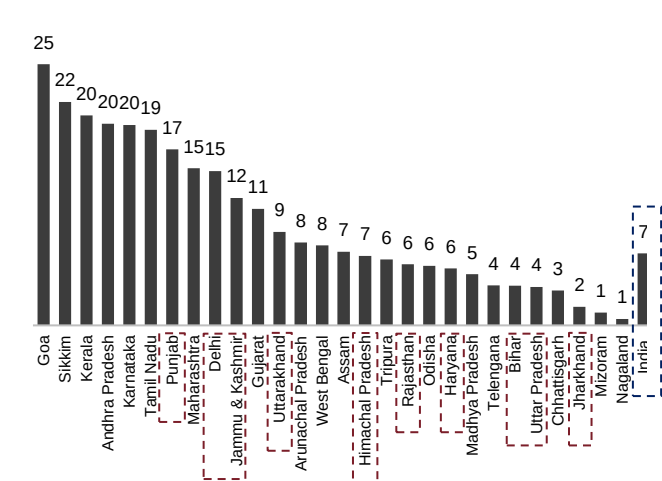
Source: World Health Organization, World Bank, CRISIL MI&A



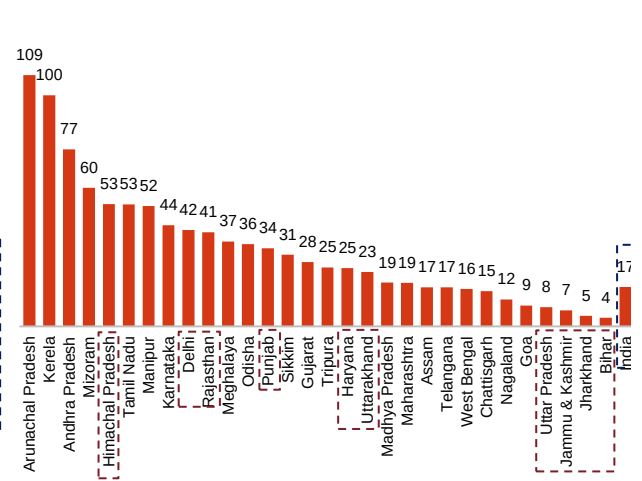
Note: * World average as of CY19, India average as of CY20

Source: WHO World Health Statistics, World Bank

Select state count of doctors possessing recognised medical qualifications (under I.M.C Act) per 10,000 population – CY 2020



Select state count of registered nurses per 10,000 population – CY 2021



Note: Dotted Box represents select North and East Indian States Highlights India

India data for doctors and Nurses is as per world bank data for CY20 while statewide data is from National Health Profile 2022.

17 states under the non-special category given by the RBI (except Goa) along with our key states of study have been considered above. Amongst our key states, doctor numbers for Manipur and Meghalaya are not available, while nurse numbers for Nagaland are not available

For Nurse data, :

Data up to December 31, 2019, for the following states: Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Punjab, Telangana, Uttar Pradesh

Data up to December 31, 2020, for the following states: Bihar, Maharashtra, Odisha, Rajasthan, Uttarakhand

Andaman and Nicobar is combined with Tamil Nadu; Lakshadweep combined with Kerala; Daman & Diu and Dadra Nagar Haveli combined with Gujarat

Source: National Health Profile 2022, CRISIL MI&A

There are 1,300,290 number of doctors with recognised medical qualifications (under I.M.C Act) registered with state medical councils/the Medical Council of India as of CY 2020. There are 2,474,319 registered nurses and registered midwives (RN & RM), 982,932 auxiliary nurse midwives and 57,122 lady health visitors serving in the country as on December 31, 2021.

Maharashtra leads in terms of absolute number of registered doctors as of CY 2020 with 188,540 registered doctors. Among the states considered, Goa had the highest number of registered doctors per 10,000 population. At 25 doctors per 10,000 population. Goa is followed by Sikkim and Kerala at 22 and 20 respectively. Among the northern states, Punjab has the highest number registered doctors per 10,000 population at 17 followed by Delhi at 15.

As of CY 2021, Andhra Pradesh had the highest number of registered nurses per 10,000 population at 109. It was closely followed by Kerala at 100 nurses per 10,000 population. Among the northern states, Himachal Pradesh fared better than the rest of the states. Himachal Pradesh had 53 registered nurses per 10,000 population. It was followed by Delhi which had 42 registered nurses per 10,000 population.

Region wise doctor and nurse density

Region	States covered for doctors and nurses' data	Avg. doctors per 10,000 (CY20)	Avg. registered nurses per 10,000 (CY21)	Estimated bed density per 10,000 (CY20)
East India	Bihar, Jharkhand, Odisha, West Bengal, Chhattisgarh, Sikkim, Arunachal Pradesh, Assam, Tripura, Mizoram, Nagaland*, Manipur**, Meghalaya**	5.2	14.4	7-8
North India	Jammu & Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Uttar Pradesh, Haryana, Delhi	6.2	15.4	15-16
West India	Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Goa	10.0	25.4	10-11
South India	Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Telangana	17.3	56.4	26-27

Note: 17 states under the non-special category given by the Reserve Bank of India (except Goa) along with our key states of study have been considered above. Amongst our key states, doctor numbers for Manipur and Meghalaya are not available, while nurse numbers for Nagaland are not available, *Nurse data for Nagaland is not available and hence is excluded from nurse density calculations, **doctor data for Manipur and Meghalaya is not available and is excluded for doctor density calculations

For Nurse data :

Data upto 31st December 2019 for the following states: Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Punjab, Telangana, Uttar Pradesh

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Data upto 31st December 2020 for the following states: Bihar, Maharashtra, Odisha, Rajasthan, Uttarakhand
Andaman Nicobar is included with Tamil Nadu; Lakshadweep included with Kerala; Daman & Diu and Dadra & Nagar Haveli is included with Gujarat
For bed density calculation, Chandigarh has been included in North India, Dadra & Nagar Haveli and Diu & Daman in West India, and Puducherry and Lakshadweep in South India.
For Nurse Density calculation, Auxiliary Nurse Midwives, Registered Nurses & Registered Midwives, Lady Health Visitors have been considered .
Source: National Health Profile 2022, CRISIL MI&A

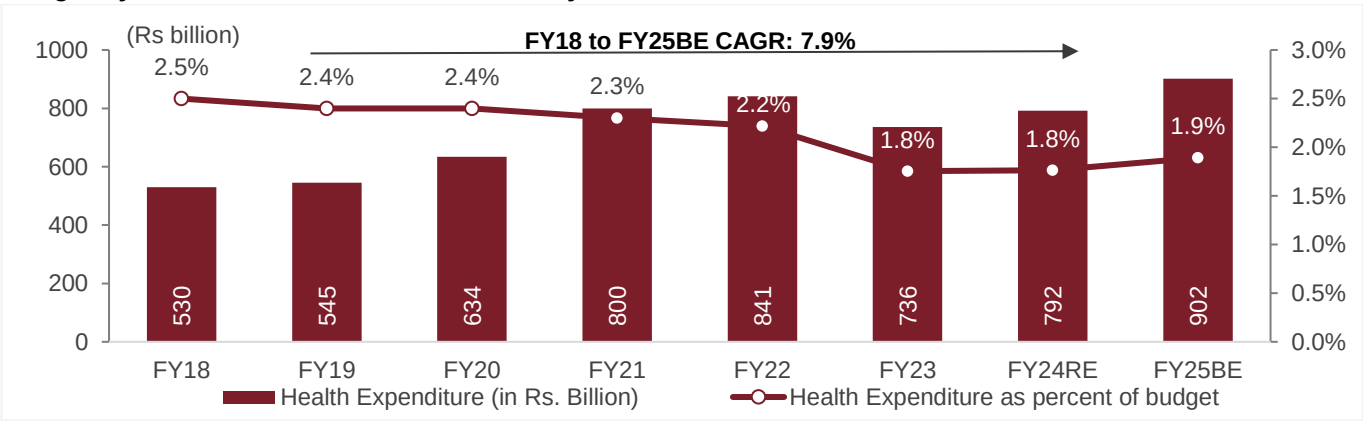
Government health spend up in absolute terms, but down as % of total budget

In absolute terms, the government’s allocation to healthcare has increased from Rs 530 billion in FY18 to Rs 902 billion for FY25 (budgeted estimates), at a CAGR of 7.9%. However, as a percentage of the Union Budget 2024-25, the allocation has decreased from 2.5% in FY18 to 1.9%.

Although healthcare expenditure increased significantly by ~26% on-year in FY21 due to fund allocation for pandemic-related measures such as vaccination drives sustaining in FY22, it declined ~8% on-year in FY23 with the withdrawal of pandemic support.

In FY24, healthcare allocation in the budget rose ~7.7% on-year, driven by increase in expenditure on schemes such as Pradhan Mantri Atmanirbhar Swasth Bharat Yojana, which aims to establish primary healthcare infrastructure, Pradhan Mantri Swasthya Suraksha Yojana, which focuses on setting up new All India Institute of Medical Sciences hospitals and enhancing facilities at government medical colleges in states, and PMJAY, a health insurance scheme. In addition, the budget’s allocation to healthcare has increased ~13.8% on-year FY25, improving the share of healthcare allocation in the total budget to 1.9%.

Budgetary allocation for healthcare over the years



RE: Revised estimates; BE: Budget estimates
Source: Budget documents, CRISIL MI&A

1.6. Key healthcare schemes and programmes under implementation/announced

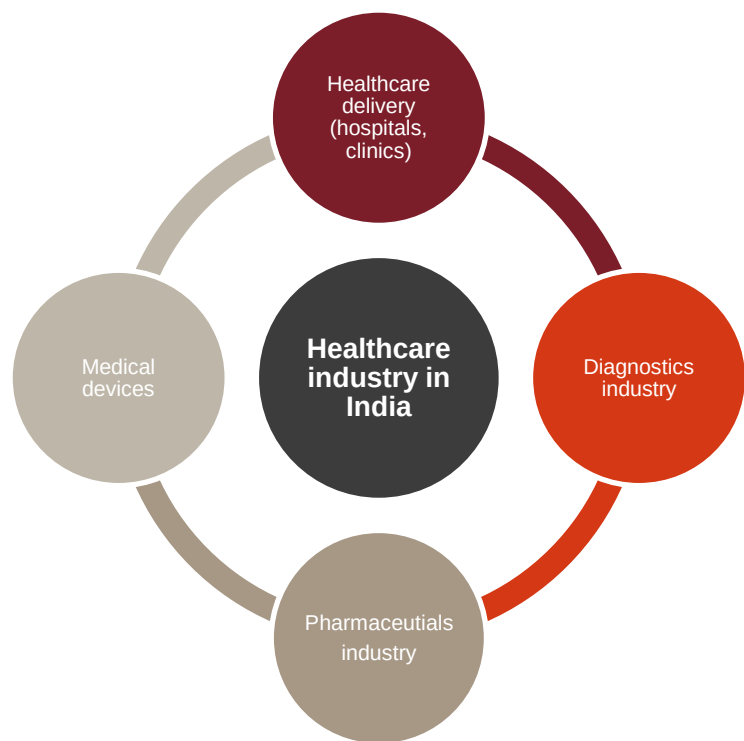
Key government healthcare schemes

S No		Scheme	Launched	Purpose
1		National Health Mission (NHM)	-	Envisages achievement of universal access to equitable, affordable and quality healthcare services that are accountable and responsive to people's needs
	1.1	National Sickle Cell Anaemia Elimination Mission	2023	Focuses on addressing the significant health challenges posed by the sickle cell disease, particularly among tribal populations of the country
	1.2	Free Diagnostics Service Initiative	2015	Provides accessible, affordable and quality diagnostic services in all public health facilities up to district hospitals by utilising the capacity of the private companies in supporting NHM to provide essential diagnostic services, thereby having a positive impact on reducing OOP expenditure on diagnostics
	1.3	National Urban Health Mission	2013	Addresses the healthcare needs of the urban population with a focus on the poor, by making available to them essential primary healthcare services and reducing their OOP expenditure for treatment
	1.4	National Rural Health Mission	2005	Provides accessible, affordable and quality healthcare to the rural population, especially the vulnerable groups
2		Ayushman Bharat Digital Mission	2021	Aims to develop the backbone necessary to support an integrated digital health infrastructure by bridging the gap between various stakeholders in the healthcare ecosystem through digital highways
3		Pradhan Mantri Ayushman Bharat Health Infrastructure Mission	2021	Focuses on developing capacities of health systems and institutions across the continuum of care at all levels, viz. primary, secondary and tertiary, and on preparing health systems to respond effectively to the current and future pandemics/disasters
4		Ayushman Bharat		
	4.1	Health and Wellness Centres	2018	Aims to deliver an expanded range of services to address the primary healthcare needs of the entire population in their area, expanding access, and ensuring universality and equity
	4.2	Pradhan Mantri Jan Arogya Yojana	2018	Aims to provide Rs 5 lakh health cover per family per year for secondary and tertiary care hospitalisation to over 107.4 million vulnerable families (approximately 500 million beneficiaries.)

Source: Budget documents, CRISIL MI&A

2. Structure of the healthcare delivery industry in India

2.1 Overview of healthcare industry

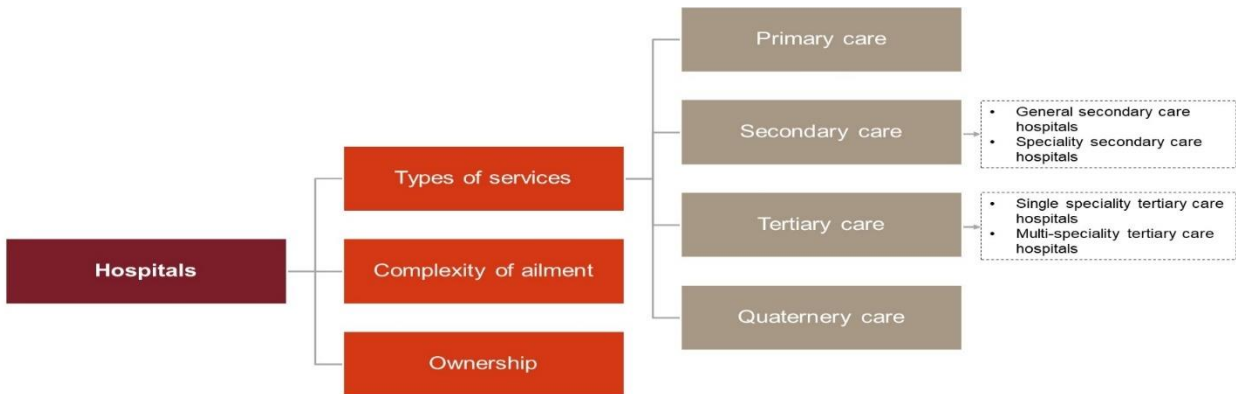


Source: CRISIL MI&A

India’s fast-growing healthcare industry has become one of the leading contributors to the economy. A combination of economic and demographic factors is driving healthcare demand in the country. Factors such as an ageing population, a growing middle class, increasing incidence of lifestyle diseases, and the adoption of technology are some of the key drivers.

The domestic healthcare industry comprises the following segments: healthcare delivery (hospitals, clinics), pharmaceuticals, medical devices, diagnostic services, medical equipment, and other support services to the healthcare players.

2.2 Classification of hospitals



Classification of hospitals based on services offered

Primary care/ dispensaries/ clinics

Primary care facilities are outpatient units that offer basic, point-of-contact medical and preventive healthcare services, where patients come for routine health screenings and vaccinations. These do not have intensive care units (ICU) or operation theatres. Primary care centres also act as feeders for secondary care/ tertiary hospitals, where patients are referred to for treatment of chronic/ serious ailments.

Secondary care

Secondary care facilities diagnose and treat ailments that cannot be treated in primary care facilities. These act as the second point of contact in the healthcare system. There are two types of secondary care hospitals - general and specialty care.

General secondary care hospitals

These hospitals are approached for common ailments, and attract patients staying within a radius of 30 km. The essential medical specialties in general secondary care hospitals include: internal medicine, general surgery, obstetrics and gynaecology, paediatrics, ear-nose-throat (ENT), and ophthalmology. Such a hospital typically has one central laboratory, a radiology laboratory, and an emergency care department. Generally, secondary care hospitals have 50-100 in-patient beds, a tenth of which are allocated for the ICU segment.

Specialty secondary care hospitals

These hospitals are located in district centres, treating patients living within a radius of 100-150 km. They usually have an in-patient bed strength of 100-200, 15% of which are reserved for critical care units. The balance is for private rather than general ward beds. Apart from medical facilities offered by a general secondary care hospital, specialty secondary care hospitals treat ailments related to gastroenterology, cardiology, neurology, dermatology, urology, dentistry, and oncology.

Tertiary care

Tertiary care hospitals provide advanced healthcare services, usually on referral from primary or secondary medical care providers.

Single-specialty tertiary care hospitals

These treat a particular ailment (such as cardiac, cancer, etc). Prominent facilities in India include: Escorts Heart Institute & Research Centre (New Delhi); Tata Memorial Cancer Hospital (Mumbai); HCGEL Oncology (Bengaluru); Sankara Nethralaya (Chennai); National Institute of Mental Health & Neuro Sciences (NIMHANS, Bengaluru); and Hospital for Orthopaedics, Sports Medicine, Arthritis and Trauma (HOSMAT, Bengaluru).

Multi-specialty tertiary care hospitals

These hospitals offer all medical specialties under one roof and treat complex cases such as multi-organ failure, high-risk, and trauma cases. Such hospitals are located in state capitals or metropolitan cities and attract patients staying within a 500 km radius. They have a minimum of 200 in-patient beds, which can go up to 1,500 beds. About one-fourth of the total beds are reserved for patients in need of critical care. Medical specialties offered include: cardio-thoracic surgery, neurosurgery, surgical oncology, endocrinology, plastic and cosmetic surgery, and nuclear medicine. In addition, these hospitals have histopathology and immunology laboratories as a part of its diagnostic facilities. Lilavati Hospital and Hiranandani Hospital in Mumbai, Medanta

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hospitals in NCR region, Paras Hospitals in North India, KIMS in Hyderabad are multi-specialty tertiary care hospitals.

Quaternary care hospitals

Quaternary care hospitals are an extension of tertiary care in reference to advanced levels of medicine which are highly specialised and not widely accessed, and usually only offered in a very limited number of hospitals which are highly advanced. It involves complex and innovative treatments, surgeries and procedures that require cutting-edge technology and expertise. Quaternary care hospitals offer specialised surgical procedures such as organ transplants and robotic surgery, innovative treatments like gene therapy and stem-cell therapy. Examples of quaternary care services include neurosurgery, transplantation, oncology etc. Max super speciality hospital, Vaishali, Apollo Hospital, Navi Mumbai, Paras HMRI Patna are some examples of quaternary care hospitals.

Classification of hospitals by facilities/ services offered

	Primary care	Secondary care	Tertiary care
Services	Provides all services as required for the first point of contact	Provides all services as required, including organised medical research	Provides all services as required, including provision for experimental therapeutic modalities and organised research in chosen specialities
Multi-disciplinary	Yes	Yes	Single- or multi-speciality
Type of service	Only medical services and excludes surgical services	Overall medical and surgical services	Complex surgical services with sophisticated equipment
Type of patient	Only outpatient	Inpatient and outpatient	Primarily inpatient
No of beds	0 beds	50-200 beds	>200 beds
Dependent on	Secondary and tertiary care hospitals for further diagnosis and support	Tertiary care hospital for diagnostic and therapeutic support on referral and for patient transfer	Tertiary care/secondary hospital for referrals for its workload
Investment	Low investment required	Medium	High

2.3 Review of business models for healthcare delivery

Emerging business models



Source: Industry, CRISIL MI&A

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Lease contracts

In the hospitals sector, the ownership model has become costly because of the sharp increase in land prices, especially in metros and tier 1 cities, over the past few years. This has compelled private players to look for alternative models such as lease contract. In a lease contract, the landowner develops the hospital building as per specifications given by the private player, who, in turn, enters into a long-term lease agreement with the land owner. For example, Apollo Hospitals has acquired land and building on lease from Orient Hospital, Madurai, for 60 years. However, lease renewals pose a major risk for private players. This sharp rise in land prices is benefiting legacy/established hospitals wherever they own land or have very long-term lease. This is also a primary factor that many new hospitals are not coming in prime areas of metro cities.

O&M contracts

Under this model, a large private player (or a hospital chain) undertakes a contract for managing a standalone hospital and overseeing functions such as marketing, operations, finance, and administration. In return, the private player receives a fixed annual management fee and share in revenue or profits from the standalone hospital's owners. Apollo and Fortis (with Cauvery Hospital in Mysuru) have entered into such contracts to expand their base in India.

Franchise arrangements

In this model, franchisees obtain the premises (owned or leased) and infuse capital (both fixed and working), while the franchisor lends the brand name to the healthcare facility for a fee. The franchisor has to ensure that the service quality is maintained across all healthcare centres that use its brand. It may also help the franchisee in training and recruiting staff, procuring equipment, designing the facility, etc. In India, Apollo Hospitals has expanded its network of primary clinics through this model.

Expansion into tier 2/ 3 cities through primary and secondary hospitals

Private players are now foraying into tier 2 and 3 cities as income levels in these cities are fast catching up with those in metros and tier I cities, and these regions hold a big share of unmet healthcare demand. Some of the major hospital chains are also expanding into these regions at different price formats, thereby creating a continuum of care, with provision of higher super specialty services in metros/ tier 1 locations. Apollo Hospitals expanded into Karaikudi and Karimnagar with its Apollo Reach brand (rates of which are lower than in the cities). ILS hospitals have also expanded to tier-II cities such as Agartala, Howrah and is expanding to Ranchi.

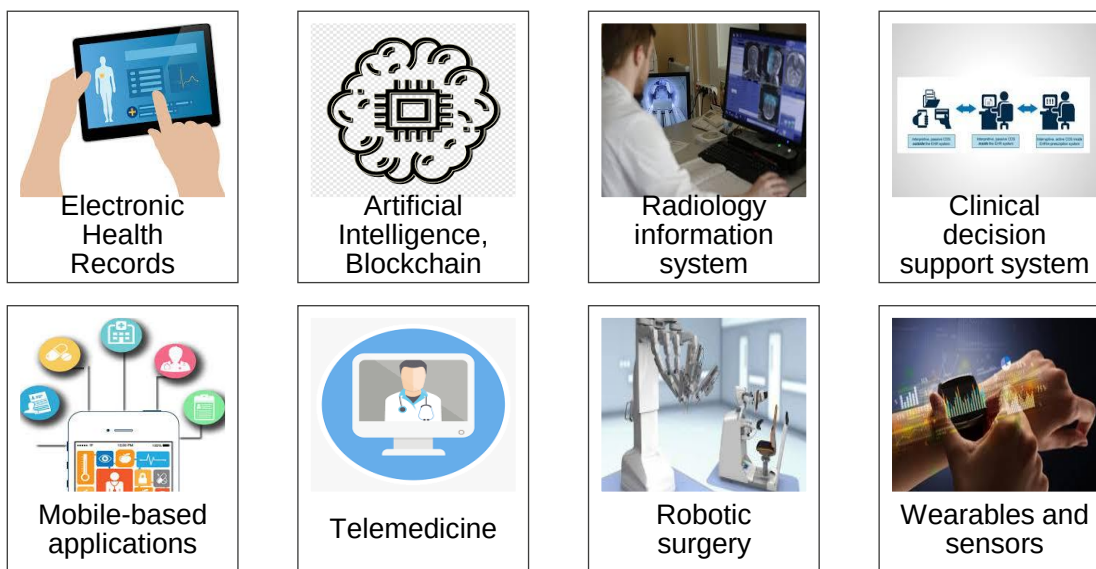
However, there are some chains that predominantly operate only in tier 2 and 3 cities, such as Paras Healthcare and Shalby Hospitals.

Public-Private partnerships

Public-Private Partnerships (PPPs) models in healthcare are mainly used to bridge the gap in healthcare infrastructure, particularly in tier-2 and tier-3 cities where access to quality healthcare is limited. With most of the healthcare infrastructure concentrated in metropolitan cities, PPPs offer a viable solution to extend healthcare services to underserved populations. In this model, the government and private healthcare providers collaborate to deliver healthcare services. The partnership shares risks, responsibilities, and rewards, with the private partner investing in resources and technology, and the government ensuring accessibility and affordability. The private partner operates and manages facilities, while the government monitors regulatory compliance thereby ensuring that there is accountability and affordability of the services.

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2.4 Emerging technologies in healthcare delivery



The healthcare industry, like other industries, is constantly evolving in terms of technology. Developments in information technology have helped create systems that ensure faster and reliable services. While, on the one hand, these systems help increase reach and quality of healthcare delivery systems across the country, on the other, they enable healthcare delivery providers to improve efficiency by helping them in resource planning, maintaining patient records, etc. CRISIL MI&A expects the advent of 5G, smartphone penetration, and increasing health-conscious population to deepen digital healthcare penetration.

Electronic health records

EHRs are designed to manage detailed medical profile and history of patients such as medication and allergies, immunisation status, laboratory test results, and radiology images. Information stored in EHRs can be in a combination of various formats including picture, voice, images, graphs, and videos. Besides storing information, EHRs have the capability of analysing data with respect to a specific ailment, generating customised reports, setting alarms and reminders, providing diagnostic decision support, etc. EHRs can be shared between multiple systems allowing doctors from various specialties and hospitals to share the same set of patient data. This feature helps improve coordination between doctors, saves time, and prevents redundancy of recreating medical records.

Artificial Intelligence (AI) and blockchain

Healthcare establishments like hospitals are looking at opportunities to deploy AI or/and blockchain in improving their operating efficiency – scheduling appointments depending on the gravity of the issue, healthcare monitoring, etc, thereby minimising human error through technological intervention. For instance, NITI Aayog has extended its support to an AI-based project - Radiomics, which is also supported by Tata Memorial Centre Imaging Biobank.

Apollo has partnered with Microsoft to create a cardiovascular disease risk score application programme interface (API) for assigning risk scores to cardiac patients in India. Max Healthcare is also in the process of piloting AI and machine learning (ML) algorithms for prediction of readmission of myocardial infarctions, along with being involved in a project concerning speech to text technology for accurately capturing clinical and radiology information in the systems.

Radiology information system

RIS is a tool that allows managing digital copies of medical imagery such as X-ray, MRI, ultrasound, and associated data on a network. RIS is used by doctors to access medical imagery data from multiple locations. It is connected to medical equipment such as X-ray, MRI and ultrasound machines, which generate diagnosis results in the form of images and graphs. The RIS directly captures results and feeds them to EHRs, central databases or remote databases. RIS systems are integrated with a dedicated picture archiving and communication modules which ensures that the pictures are stored in a systematic manner and transferred accurately to the intended database or recipient.

Clinical decision support system

CDSS is a software designed to assist doctors in taking decisions pertaining to the diagnosis and treatment of patients. A CDSS is supported by a large database that has detailed information on ailments with data aspects ranging from symptoms to diagnosis. The database is supported by a set of rules that help generate accurate results for the query made by the user. It also contains patient specific information such as medical history, allergies, etc, which helps doctors to make effective decisions on the treatment. CDSS databases are open-ended to allow addition of information on newly discovered diseases, procedure and medications, rectification of erroneous procedures, and updating of patient information.

Mobile-based application

Healthcare delivery is also seeing an influx of mobile-based applications (mobile apps) to assist doctors as well as patients. These apps provide features such as self-diagnosis, drug references, hospital/doctor search, appointment assistance, electronic prescriptions, etc. While certain apps allow doctors to obtain information on drugs, dosage, contradictions, disease/ condition references and procedures; others allow patients to locate doctors, fix appointments, and opt for video consultations. Furthermore, there are apps that help patients save their medical records and keep them updated regularly.

Telemedicine

Telemedicine is a technology designed to improve accessibility of healthcare services from remote locations. Telemedicine, through its extensive use of information technology, creates a connection between doctors at the main hospital and patients at remote locations or telemedicine centres. The doctor analyses the patient through telephonic conversation or video conferencing and is assisted by a junior doctor or health worker who is physically present at the telemedicine centre. The junior doctor physically examines the patient and conveys the information, based on which the doctor confirms the diagnosis and prescribes medication. If the ailment is complex, the patient is advised to get admitted at the main hospitals and avail the intensive care facility.

Robotic surgery

Robotic surgery or robot-assisted surgery (RAS) is a surgery conducted by using a robotic arm that is controlled electronically by a control pad. The pad may be located at a local or remote place and is equipped with high-definition cameras allowing surgeons to take a closer look at the areas being operated. Since RAS can be performed from remote locations, it allows patients to avail the treatment from the desired specialist surgeons across the globe without having to travel. RAS has been used to conduct general surgery, bypass surgery, colorectal surgery, gastrointestinal surgery, neurosurgery, orthopaedic surgery, etc.

Wearables and sensors

With awareness on healthcare increasing, people have started adopting wearables and sensors that keep a track of the vitals of the user. Wearables and sensors also have data about the user's historical health records and

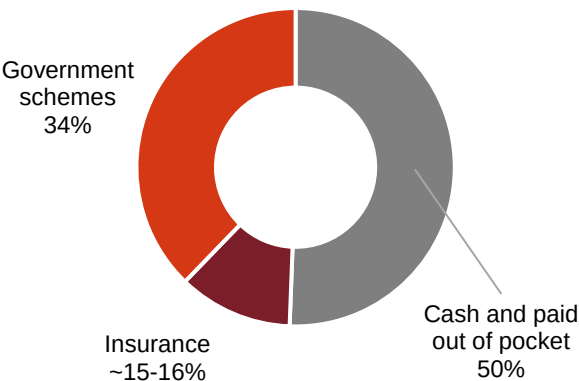
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sends out alerts in case of any irregularities. Some sensors are used solely from a curative healthcare perspective, to lead a healthy life with a proper fitness routine.

2.5 Payment modes in Indian healthcare

Government schemes accounted for 34% of the Indian current healthcare expenditure in CY21. Insurance accounted for 15-16%, while the major chunk came from cash/out of pocket expenses

Payor mix (India) CY21

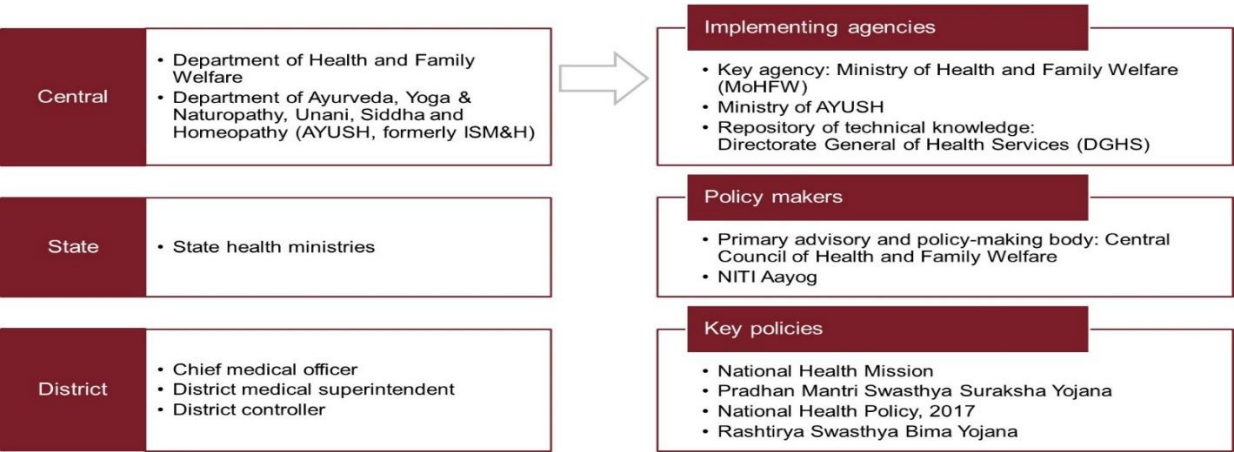


Source: WHO, CRISIL MI&A

Government schemes accounted for 34% current health expenditure in the country in 2021. ~65-66% of current health expenditure was funded using cash and insurance.

2.6 Regulatory framework for hospitals and healthcare in India

Government framework for healthcare delivery



Source: Industry, CRISIL MI&A

The Union Ministry of Health and Family Welfare (MoHFW) is the key agency implementing healthcare programmes in India

The Indian healthcare ecosystem lacks a common regulator, with different entities in the healthcare value chain coming under the purview of different ministries and regulatory bodies.

The MoHFW is the central body responsible for implementing various healthcare and family planning programmes in India. These programmes aim at the prevention and control of major communicable diseases such as AIDS, leprosy, etc. Further, awareness programmes on maternal health, paediatrics, and promotion of traditional and indigenous systems of medicines (such as ayurveda, unani, etc.) are also carried out.

Besides these, the ministry also assists states in preventing and controlling the spread of seasonal disease outbreaks (such as malaria, dengue, etc.), and epidemics through technical assistance (such as recommending measures to contain sudden epidemics). The MoHFW sponsors central schemes and provides grants-in-aids to various autonomous/statutory bodies and NGOs. In addition to the centrally sponsored schemes, the ministry formulates and implements various World Bank-assisted projects for controlling diseases such as AIDS, malaria, tuberculosis, etc.

Regulatory environment for healthcare delivery in India

Regulations pertaining to the healthcare delivery infrastructure

The regulations for setting up a hospital in India are stringent with several approvals required to be taken. Moreover, hospitals are also covered under the purview of the policies such as the Clinical Establishment Act, 2010, and the Bio-Medical Waste Management & Handling Rules, 1998, which provide guidelines for registering hospitals and clinics and regulate their day-to-day operations as far as their environmental impact is considered. The approval process is time-consuming, with wait times ranging from 14 to 180 days, depending on the agency, for various approvals.

Accreditation of hospitals

Accreditation of hospitals is a voluntary process, wherein an authorised agency evaluates and recognises health services according to a set of standards that are revised periodically. In developing countries such as India, where healthcare services are delivered mainly through private health providers, regulation is a vital instrument and function of the government policy.

In India, hospitals are accredited by National Accreditation Board for Hospitals and Healthcare Providers (NABH). The NABH is a constituent board of Quality Control of India and a member of International Society for Quality in Health Care (ISQua). NABH accreditation is compulsory for hospitals to get empanelled under the Central Government Health Scheme (CGHS), which provides healthcare facilities to all central government employees. P.D. Hinduja Hospital (Mumbai), Max Super Speciality Hospital (New Delhi), Apollo Speciality Hospital (Chennai), Narayana Hrudayalaya (Bengaluru), ILS Hospital (Dum Dum), ILS Hospital (Agartala), Paras HMRI Hospital (Patna), Medwin Hospital (Hyderabad) are some of the hospitals accredited by the NABH.

International accreditation agencies include the International Organization for Standardization (ISO), Joint Commission International (JCI), and Trent Accreditation Scheme (TAS).

Diagnostic centres are accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) in India and international agencies such as the Asia Pacific Laboratory Accreditation Cooperation and the International Laboratory Accreditation Cooperation. ILS (Dum Dum) is also accredited by NABL for complying with ISO 15189:2012 standards in the field of medical testing.

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Regulations pertaining to financing of healthcare infrastructure

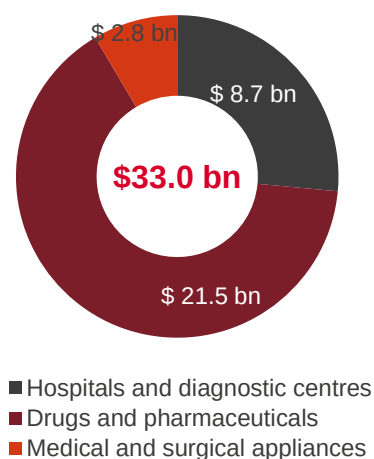
Owing to the capital-intensive nature of hospitals and also considering the existing infrastructure gap, which calls for a rapid growth in bed counts across the country, the financing needs for setting up/expanding hospitals are fulfilled through various routes such as foreign direct investment (FDI), external commercial borrowing (ECBs), private equity funds, etc. apart from conventional bank loans.

Apart from these, the government provides tax relief to hospitals with 100 beds or more in the form of investment-linked deduction (on capital expenditure other than for land acquisition, goodwill and financial instruments incurred prior to the commencement of business) under Section 35AD of the Income Tax Act 1961. The central government has also come out with broad guidelines of provision of up to 40% viability gap funding for construction of new hospitals in Tier-II and -III cities/ towns, which are empanelled under the PMJAY.

FDI

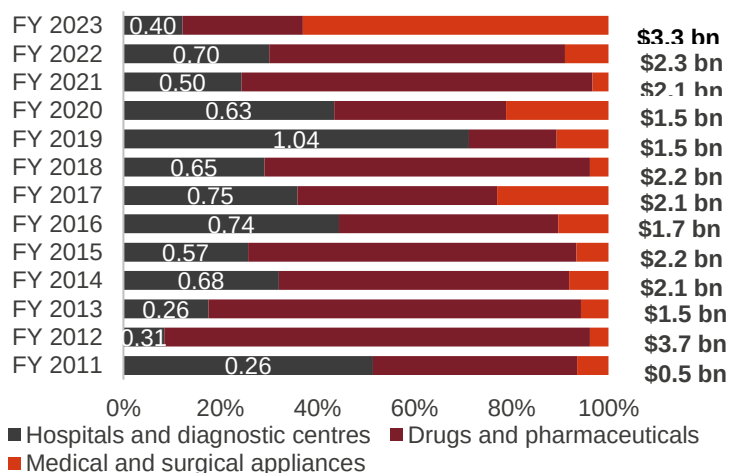
FDI of up to 100% is permitted under the automatic route in Indian hospitals from 2000. This means foreign investment in hospitals does not require prior approval either from the government or the Reserve Bank of India. Investors are only required to notify the concerned regional RBI office within 30 days of receipt of inward remittances and file the required documents with that office within 30 days of issue of shares to foreign investors. As of FY23, cumulative FDI equity inflows in: (1) hospitals & diagnostic centres amounted to \$2,804 million, (2) drugs & pharmaceuticals amounted to \$21,464 million and (3) medical & surgical appliances totalled \$2,406 million.

Annual cumulative FDI inflow for FY23



Source: DIPP, CRISIL MI&A

Year-wise FDI inflow from FY11 to FY23 (\$ bn)



Source: DIPP, CRISIL MI&A

ECB

Currently, services sector entities (including hotels, hospitals and software sectors), are allowed to avail ECB facility of: (1) up to \$100 million per financial year, under the approval route, for imports of capital goods and (2) another \$100 million per financial year, under the automatic route, for capital expenditure in foreign currency and/or rupee for permissible end use.

Regulations pertaining to price controls

The National Pharmaceutical Pricing Authority (NPPA) regulates prices of drugs/ medicines by bringing them under the ambit of the National List of Essential Medicines (NLEM). The medical devices sector is largely unregulated,

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except for those who have been notified as drugs under the Drugs and Cosmetics Act. In February 2017, the NPPA introduced price controls for cardiac stents – price of bare metal stents (BMS) was slashed to Rs 8,000 and that of drug-eluting stents (DES) was reduced by ~85% to Rs 29,600. In February 2019, however, the NPPA revised their prices upwards in line with the WPI numbers of 4.2% (with effect from April 1, 2019). The revised price of BMS stands at Rs 8,261 and that of DES stands at Rs 30,800 at present.

The prices of knee and hip implants were also capped (up to 69%) in August 2017. Cobalt chromium knee implant, which was priced at Rs 158,324 was capped at Rs 54,720 (excluding GST). Implants with special metals, such as titanium and oxidised zirconium, earlier priced at Rs 249,251 was capped at Rs 76,600 (excluding GST).

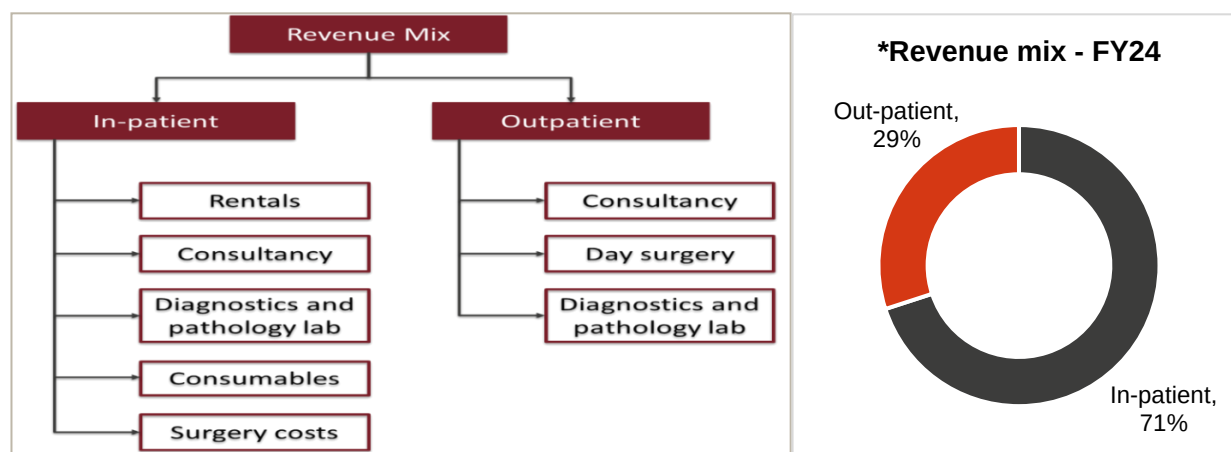
The NPPA's initial intention was to bring eight new medical device segments – all implantable devices, CT scanning equipment, X-ray equipment, MRI equipment, dialysis machine, bone marrow cell separators, defibrillators, and PET equipment – under the Drugs and Cosmetics Act. This would have subjected them to registration and import licensing under the Medical Device Rules 2017. This was to be done with effect from April 1, 2020. However, all medical devices are expected to be brought under the scope of regulation subsequently. NPPA may also consider capping the trade margins instead of capping the prices of medical devices.

The Bureau of Indian Standards (BIS) is in the process of finalising quality control orders (QCO) for medical devices, which will require all medical devices to be registered with the Central Drugs Standard Control Organisation (CDSO) in the first phase (of 12-18 months). After this period, they will have to conform to the quality standards of the Bureau.

2.7 Revenue and cost structure review of hospitals

Hospitals derive bulk of their revenue from IPD

The primary revenue streams of hospitals are the In-patient department (IPD) and out-patient department (OPD) segments. Typically, in most hospitals, the OPD contributes to more than three-fourths of total volumes; whereas the IPD accounts for as much as ~71% of the overall revenue as of FY24. This ratio could vary with hospitals, depending on the type of services rendered and the ailment mix. Similar to these estimates, Paras Hospitals derives 82% of their revenues from IPD while OPD accounts for 18% of their revenues for FY24.



Notes: 1) The IPD in a hospital generally consists of beds, operation theatre(s), intensive care unit, supportive services (such as nursing services, pharmaceutical services, laboratory and diagnostics centres) and central sterile and supply department (CSSD)

2) In the OPD, examination, diagnostics and day surgeries are included

*Revenue mix is the estimated average for hospitals across India

Source: CRISIL MI&A

Surgeries and diagnostics fetch bulk of the IPD revenue

Surgeries and diagnostics account for the bulk of IPD revenue for most hospitals; however, the share of these verticals vary across hospitals, based on the pricing strategies deployed and specialities offered. However, surgical patients generate more revenue as opposed to medical patients. Hospitals used to enjoy high margins on the consumables used. However, after the government has capped the prices of stents and knee implants, they have rationalised their treatment costs by charging for the services rendered. Some hospitals have in-house facilities such as diagnostic centres and pharmacies, while others outsource these services.

Other monitorables that may boost revenue include:

Occupancy levels: Given the high fixed costs (equipment, beds and other infrastructure), occupancy levels need to be commensurate for a hospital to break-even. Most large hospitals operate at over 65-70% occupancy ratio (OR). The following factors aid in ensuring high occupancy levels:

- **Good brand recognition**
- **Reputed doctors**
- **A strong referral network**

Average length of stay (ALOS): Large hospitals usually operate at high occupancy levels but try to keep the ALOS short, which enables them to record higher utilisation levels and ensure that more patients are treated at the same time.

Ailment-wise length of stay

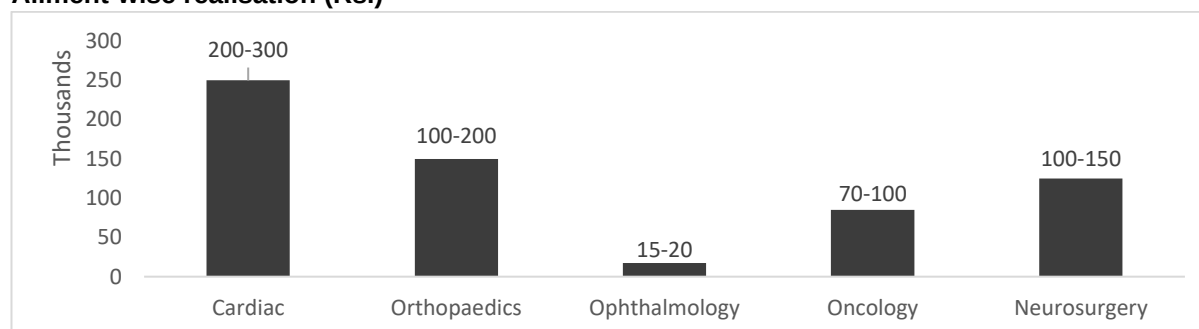
Ailment	ALOS	Remarks
Cardiac	5 days	In complex, surgical cases, ALOS is 7-8 days Angiography – day care; and angioplasty – 2 days
Orthopaedics	3-4 days	Joint replacement surgeries would have relatively higher ALOS
Oncology	5-6 days	Hospitalisation is for surgical cases only. For chemotherapy, there are day-care beds and for radiotherapy, no stay is required
Neurosurgery	8-10 days	Would vary on case-to-case basis depending on the complexity of the case
Ophthalmology	1 day	Day care

Source: CRISIL MI&A

Medical patients versus surgical patients: Having a higher number of surgical patients versus medical patients helps hospitals boost revenue. This is because average revenue per surgical patient is higher, given the extensive use of operation theatre and diagnostic facilities.

According to our industry interactions, the OPD contributes almost one-third of in-patient volumes in most hospitals. This is especially evident during the initial years of operations of a hospital. The OPD, typically, also acts as a feeder for a hospital's in-house diagnostic/ pathology centres.

Ailment-wise realisation (Rs.)



Source: CRISIL MI&A

Procedure-wise realisation

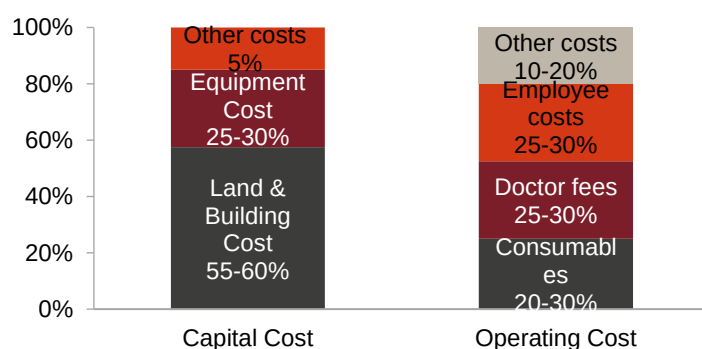
Procedure	Average realisation per procedure (Rs)
Angioplasty (one stent)	1,90,500 – 4,12,750
Chemotherapy (per cycle)	63,500 – 1,90,500
Gastric bypass	2,85,750 – 5,71,500
Gastric banding	3,68,300 – 5,39,750
Lap hysterectomy	95,250 – 3,81,000
Myomectomy hysteroscopic	63,500-4,57,200

Source: CRISIL MI&A

Capital costs

For secondary care hospitals in tier-I cities, the capital costs would hover around Rs 5-8 million per bed and the costs for super-specialty tertiary care hospitals would be higher as high-end technology and equipment costs are involved. Use of imported equipment can further drive up equipment costs. Capital costs to build tertiary care hospitals in tier-I cities are in the range of Rs 10-12 million per bed, excluding land cost. For a secondary care hospital in tier II cities, the capital cost would hover around Rs 2.5-5 million per bed followed by Rs 1-2.5 million per bed in the remaining Indian cities and towns (other than tier I & tier II). The table below depicts the capital cost per bed across tier-I, II & III cities for secondary and tertiary care hospitals.

Typical cost structure of hospitals



Capital cost / bed (excluding land cost)	Secondary care hospital	Tertiary/Quaternary care hospital
Tier - I	Rs 5-8 million	Rs 10 million+
Tier – II	Rs 2.5–5 million	Rs 5-8 million
Tier - III	Rs 1-2.5 million	Rs 2.5-5 million

Source: CRISIL MI&A

The two key capital cost components are land and building development costs and equipment costs.

Consulting

- **Land and building costs:** These costs usually form 55-60% of the total project cost. Land cost usually constitutes 20-30% of the total project cost as land cost varies with location. In some cases, land is offered at a concessional rate by the government. However, after obtaining land at cheaper rates, hospitals may have contractual obligations to treat a certain percentage of patients (belonging to the lower income category) free of charge and/ or at a subsidised rate every year.
- **Equipment costs:** These costs form 25-30% of the total project cost (subject to variations depending on the sophistication of the equipment purchased). MRI, linear accelerators and CT scan machines are some of the expensive equipment, each costing Rs 50-100 million. As these equipment rapidly become obsolete, hospitals need to set aside resources periodically for technology upgradation (as it directly impacts patient outcomes). Moreover, the maintenance cost for high-end equipment is typically around 5% of the capital costs. In the case of tertiary care hospitals, most of the high-end diagnostic and surgical equipment are imported. Equipment costs vary across hospitals, depending on the ailment type the hospital specialises in.

Players with available land bank in top metro cities have an inherent advantage

The biggest capital costs incurred by hospitals while expanding / entering into top cities are in procuring lands in these cities. Players with available land bank in top cities create a barrier for other players to enter a particular market. Apart from cost of land, availability of land in top cities is also a huge factor. For example, availability of land in Mumbai for a large multi-speciality hospital is scarce and would cost huge capital. Hence, players with available land bank in Mumbai would have an inherent advantage to expand into the market.

Doctor engagement model is crucial in managing the hospital's brand perception and profitability

Raw material and employee costs account for the largest proportion of cost for a hospital, together comprising more than 50% of the hospital's overall operating cost. Major hospital players also incur considerable capital expenditure in maintaining and upgrading existing facilities. Some hospital players enter into vendor agreements, particularly with imported equipment for specialty-based services, to mitigate price fluctuation risk.

The key model adopted for doctor engagement are:

- **Doctors on payroll:** In this model, the doctors are employed full-time by the hospital, receiving a fixed salary, benefits, and perks. This model provides predictability and job security, allowing doctors to focus on patient care without worrying about the business aspects. The model aligns doctor engagement with organisational goals, fostering a sense of teamwork and shared responsibility.
- **Doctors visiting on consulting basis:** This model involves independent practitioners who visit the hospital on a part-time basis, paid on a fee-for-service or consultation basis. This arrangement offers flexibility and autonomy, enabling doctors to manage their time and patient load effectively. With no fixed schedule or employment contract, they enjoy freedom in their practice, but also bear the risks of unpredictable income and no benefits for job security. This model suits doctors who value independence and variety in their work.

Raw material costs/ consumables: Typically, raw material costs (including drugs, medical consumables, diagnostic consumables and other items, such as linen, etc.) account for 20-30% of overall operating costs for a hospital. Raw material costs can be managed through effective inventory management and effective sourcing of raw materials that are lower priced. Tier-I hospitals generally spend about 20-22% on raw material/consumables versus more than 23-25% by that of a tier-II hospital on account of greater footfalls, higher IPD admissions and heavy discounts on consumables through distributors.

As a % of operating income	Tier – I	Tier – II
Raw material cost/consumables	20-22%	23-25%

Source: CRISIL MI&A

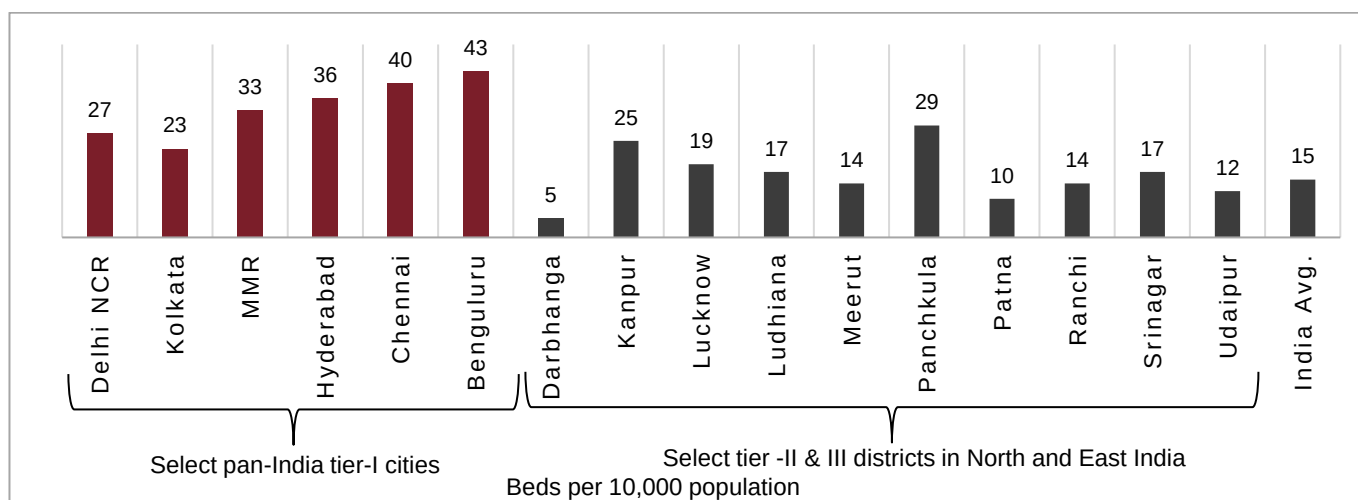
Employee costs: These costs account for 25-30% of the overall operating costs. While salaries are fixed costs, consultants' fees can be linked to operations, making it a variable expense. The bed-to-staff ratio also varies from 1:3 to 1:5, with multi-specialty and super-specialty hospitals having a higher ratio. The employee cost of a hospital is also dependent on its doctor-engagement model. Tier-II hospitals generally spend higher percentage of their costs on wages and salaries versus tier-I hospital. Employing reputed doctors on the payroll (especially for new facilities) also increases employee costs. At times, to reduce doctor costs, hospitals keep a percentage of doctors on their payroll while others are engaged for consultations or on a case-by-case basis.

As a % of operating income	Tier – I	Tier – II
Wages & salaries	~19%	~20%

Source: CRISIL MI&A

2.8 Hospital bed densities of select cities / districts in North and East India

Bed density across select North-Indian cities and districts



Note: The first six cities represent the metro cities, hence highlighted in a different colour.

*For Darbhanga, Kanpur, Lucknow, Ludhiana, Meerut, Panchkula, Patna, Ranchi, Srinagar and Udaipur, the chart represents the bed density for the entire district.

Based on city category classification followed by 7th Pay Commission, Tier I – X cities (top 8 cities), tier II – Y cities (next 88 cities), while the rest will fall under Tier -III - Z cities

Source: CRISIL MI&A, State and district healthcare websites

Delhi NCR, Kolkata and Mumbai Metropolitan regions are highly populous and have a bed density of 27, 23 and 33 respectively. An important facet to consider, while estimating the healthcare infrastructure adequacy in a selected city, is to take into account the availability of healthcare infrastructure in the neighbouring cities/states. Given that the selected cities are key cities with a well-developed hospital infrastructure, they tend to attract patients not only from other cities and towns within the state, but also from the neighbouring states. While this creates an additional burden on the healthcare infrastructure of these cities, it also clearly indicates the willingness of people from nearby

tier 1 and 2 cities to travel in order to access quality healthcare facilities. In tier 1 cities like Bengaluru, the bed density is higher than Delhi NCR, Kolkata, Mumbai, Hyderabad and Chennai because of presence of big hospital chains with large bed capacities. Another indication of this trend is the expansion of large chain hospitals to tier II cities.

Among the select districts under consideration, Panchkula fares better than the other districts with 29 beds per 10,000 population which is even more than tier 1 cities like Delhi-NCR and Kolkata which have a bed density of 27 and 23 respectively. The reason for Panchkula's high bed density is that it attracts patients from nearby districts like Sonapat, Ambala, Chandigarh and Mohali. Kanpur has a bed density of 25 which can be seen to be at par with tier 1 cities like Delhi-NCR and Kolkata. Cities like Darbhanga, Patna, Udaipur, Meerut and Ranchi have bed density of 5, 10, 12, 14 and 14 respectively which is lower than India's bed density of ~15 highlighting under penetration and scope for growth.

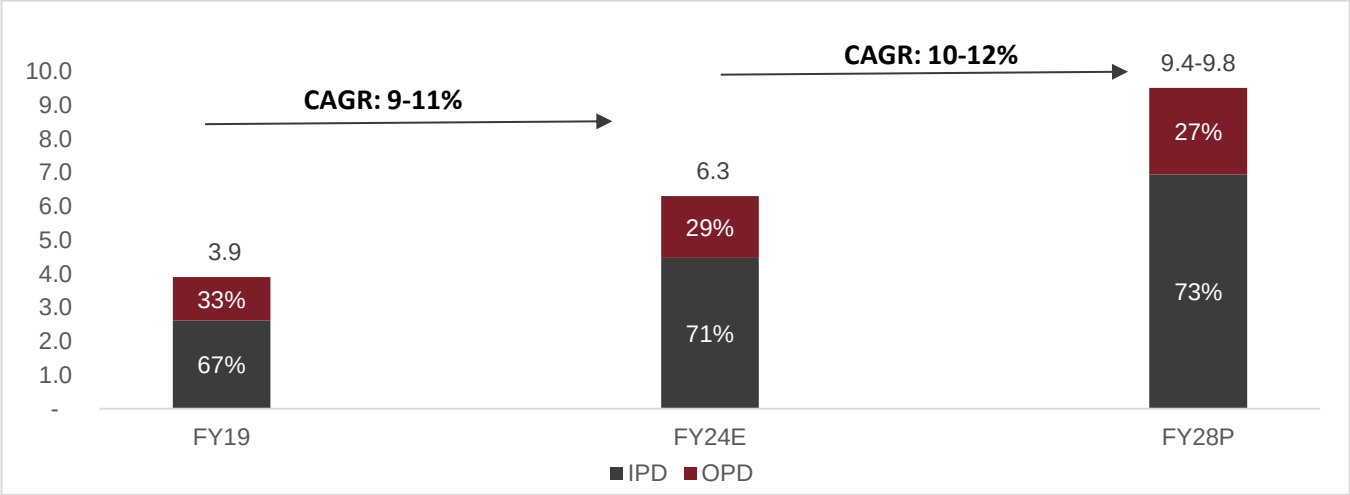
3. Assessment of the healthcare delivery industry in India and select states in North India

3.1 Review of overall healthcare delivery market in India

Healthcare delivery industry estimated to grow to ~Rs 9.4-9.8 trillion by FY28

CRISIL MI&A estimates the Indian healthcare delivery market to have reached ~ Rs 6.3 trillion in value terms by end of FY24, with growth being contributed by continuation of regular treatments, surgeries and in-patient department (IPD) including average revenue per occupied bed (ARPOB) expansion for the sector. Growing and high realization medical tourism will contribute more to the industry. Within the overall healthcare delivery market, the IPD is expected to account for nearly ~71% (in value terms), while the balance is to be catered by the out-patient department (OPD). Though in terms of volumes, OPD volumes outweigh IPD volumes, with the latter contributing the bulk of the revenues to healthcare facilities.

Healthcare delivery market in India, FY19-28P (Rs Trillion)



Note: IPD indicates inpatient department at government and private hospitals; while OPD indicates outpatient department at private, government hospitals and private clinics

Source: CRISIL MI&A

With long term structural factors supporting growth, renewed impetus from PMJAY and government focus shifting onto the healthcare sector, healthcare delivery market is expected to grow at 10-12% compounded annual growth rate (CAGR) and reach Rs 9.4-9.8 trillion by FY28.

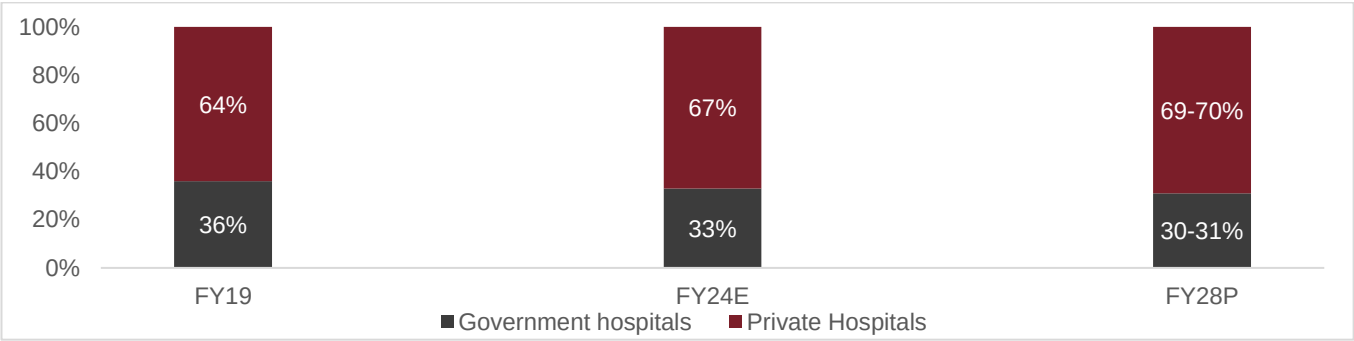
The other contributors to the demand are more structural in nature, like, increase in lifestyle-related ailments, increasing medical tourism, rising incomes and changing demography.

In India, healthcare services are provided by the government and private players, and these entities provide both IPD and OPD services. However, the provision of healthcare services in India is skewed towards the private players (both for IPD and OPD). This is mainly due to the lack of healthcare spending by the government and high burden on the existing state health infrastructure. The share of treatments (in value terms) by the private players is expected to increase from 64% in FY19 to nearly ~69% in FY27.

The increasing share of treatments by private hospitals is mainly because of the expansion plans undertaken by the private players and the quality they provide in terms of infrastructure, equipments and treatments.

Consulting

Segmentation of healthcare delivery market in India, FY19-28P (in value terms)



Source: CRISIL MI&A

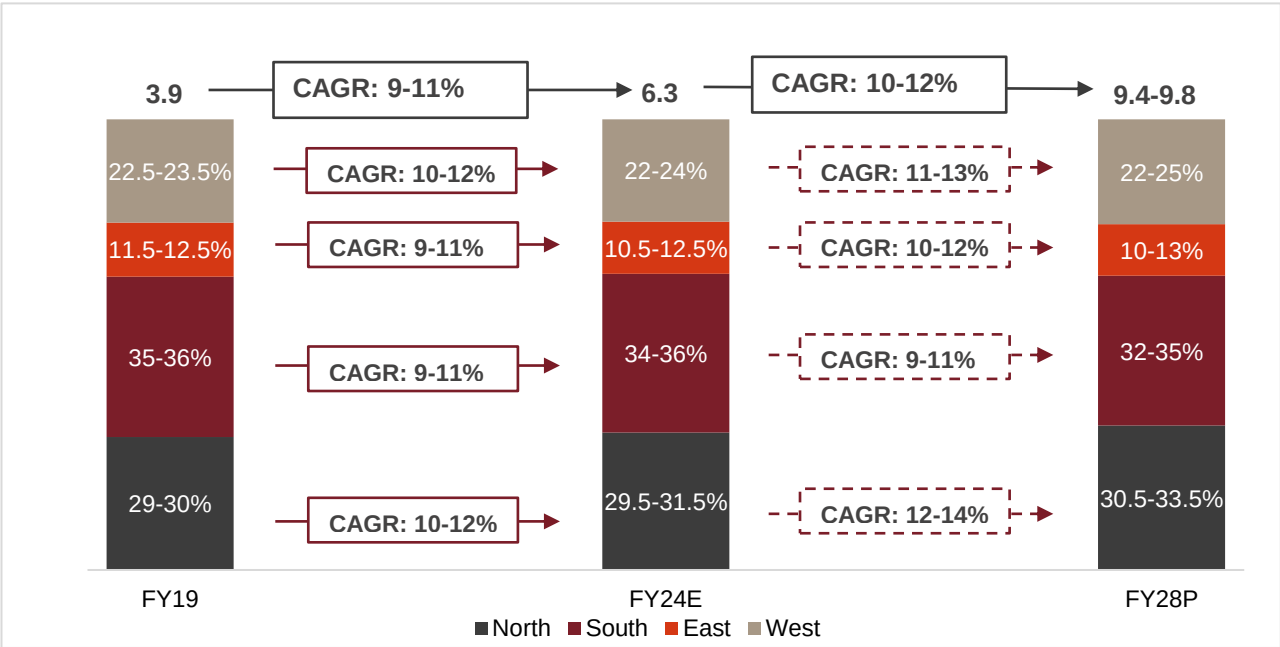
The additional potential demand to be unleashed by the PMJAY scheme (launched nearly five years back) can also be largely catered only by the private participation since government facilities are already over-burdened, and hence going forward, major share of treatments would be inclined more towards the private sector.

3.2 Review of Region wise healthcare delivery market in India

North region is expected to grow the fastest among all regions between FY24 and FY28

From FY19 to FY24, the market share of regions has more or less remained the same. Only the North region is estimated to have increased its share slightly from 29-30% in FY19 to 29.5-31.5% in FY24. CRISIL MI&A estimates that the North region will account for approximately a third of india’s healthcare delivery market by FY28. The share of North region is expected to increase from 29.5-31.5% in FY24 to 30.5-33.5%. Expansion plans of organised players in North, Increasing bed density, rising awareness, disease burden are expected to contribute to this faster growth in the North region. During the same period, South region is expected to see a slight decrease in its share from 34-36% to 32-35% given the maturity of the market in the region.

Region-wise healthcare delivery market share in India, FY19-28P (Rs. Trillion)



Note: West region consists of states like Maharashtra, Goa, Gujarat, Madhya Pradesh, Union territories of Daman, Diu and Dadra Nagar Haveli

East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

North regions consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

South region consists of Kerala, Telangana, Tamil Nadu, Karnataka, Andhra Pradesh and Union territories of Andaman Nicobar, Puducherry and Lakshadweep

Source: CRISIL MI&A

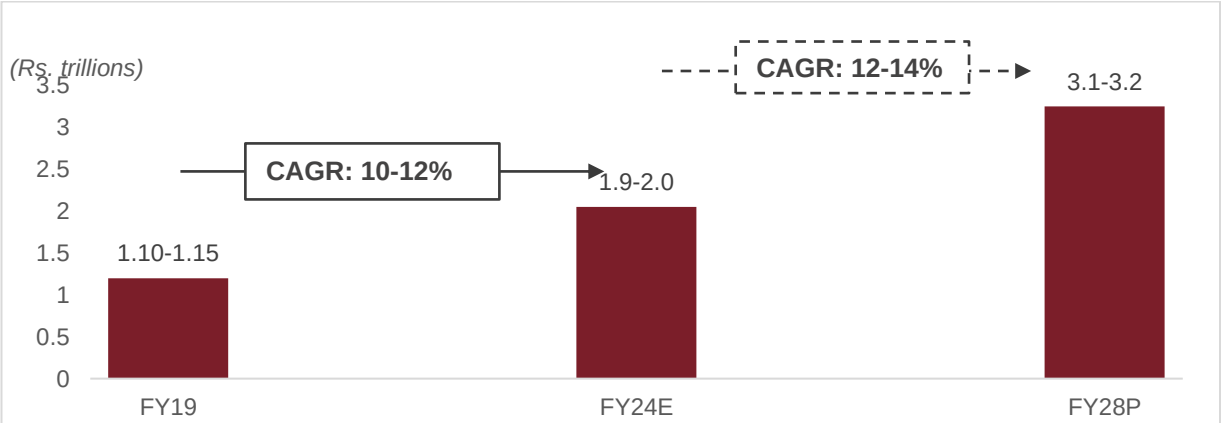
3.3 Review of healthcare delivery market in the North region of India

North Region of India consists of Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

North region expected to clock a CAGR of 12-14% to reach Rs. 3.1-3.2 trillion by FY28

The healthcare delivery market in the North region is estimated to have reached Rs. 1.9-2.0 trillion in FY24 growing at a CAGR of 10-12% from FY19 to FY24. The region saw expansion of many organised chained players during the period, given the under-penetrated nature of the industry here. The region is further expected to grow at a CAGR of 12-14% to reach Rs. 3.1-3.2 trillion by FY28. The presence of large, corporate players in the region is low except for Delhi-NCR. Other reasons such as high population density, growing middle class population in hubs like Gurgaon and Noida, prevalence of lifestyle related diseases like diabetes leading to a higher healthcare spend etc. are expected to contribute to this growth. In addition to this, the north region (15-16 beds per 10,000 population) currently lags behind the south region (26-27 beds per 10,000 population) in terms of bed density, having said that, the Chained players have announced expansion plans in the region which is expected to contribute to the growth in the coming years. The region is therefore expected to cater to a third of India’s healthcare delivery market by FY28.

North region healthcare delivery market (Rs. Trillion)



Note: North regions consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

Source: CRISIL MI&A

3.4 Review of healthcare delivery market in East region of India with focus on Bihar and Jharkhand

East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

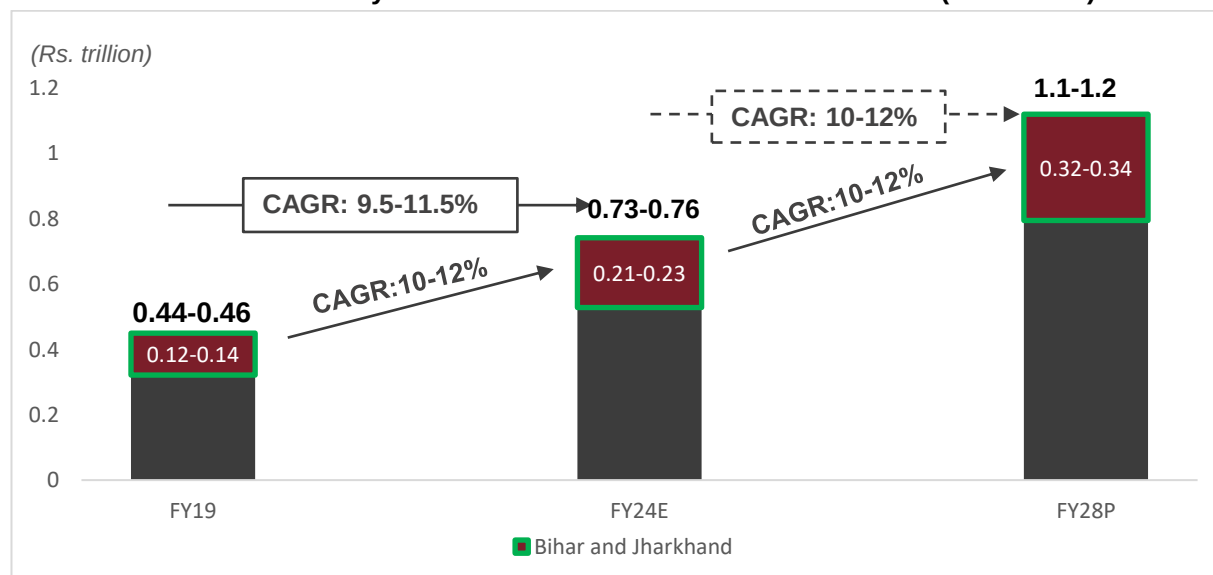
East region market to grow at 10-12% CAGR to reach Rs. 1.1-1.2 trillion by FY28

The healthcare delivery market in the Eastern region grew from Rs.0.44-0.46 trillion to Rs 0.73-0.76 trillion from FY19 to FY24. Further it is expected to grow from the current levels of Rs.0.44-0.46 trillion to Rs 1.1-1.2 trillion by FY28, at a CAGR of 10-12%. Current lower penetration of healthcare, increasing private investments in the recent past and increasing focus of government schemes in the region are expected to be the key growth drivers in the region.

Bihar and Jharkhand healthcare delivery market to grow at 10-12% CAGR from FY24 to FY28 to reach Rs. 0.32-0.34 trillion

The healthcare delivery market of Bihar and Jharkhand grew at a CAGR of 10-12% from FY19 to FY24 to reach Rs. 0.21-0.23 trillion. The two states are estimated to carry the same momentum and grow at the same rate till FY28 to reach a market size of Rs. 0.32-0.34 trillion. The main reason for growth in both these states are factors such as new healthcare infrastructure, increasing awareness and adoption of healthcare service, government initiatives, coupled with the large population of these states and the rising prevalence of chronic diseases driving demand for better healthcare facilities and services

East India healthcare delivery market with focus on Bihar and Jharkhand (Rs. Trillion)



Note: ■ shows the combined market of Bihar and Jharkhand

East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

Source: CRISIL MI&A

3.5 Key growth drivers of healthcare delivery industry

A combination of economic and demographic factors is expected to drive healthcare demand in India. CRISIL MI&A believes the PMJAY scheme launched by the government would also support these drivers.

Consulting



Source: CRISIL MI&A

Some of the key growth drivers are detailed below

Government policies to improve healthcare coverage

The healthcare budget has seen increases on-year. Between FY11 and FY25, the budget for the MoHFW clocked a CAGR of ~10%. In recent years, the utilisation rate has been 100% or above, as has been the case since FY16. This, too, is a strong growth driver for the industry and particularly the PPP initiative from government so as to achieve the government's goal of providing healthcare services to all.

With the intention of providing affordable healthcare, the Pradhan Mantri Jan Arogya Yogya (PMJAY) was launched on 23rd September, 2018. The scheme primarily has three objectives-

Strengthening of physical health infrastructure: Sub-centres

Upgradation of 1.5 lakh 'Health and Wellness' centres(1,54,305 centres have been made operational as of Dec 2022) to provide comprehensive healthcare, including coverage of non-communicable diseases and maternal and child health services. These centres would also provide essential medicines and diagnostic services free of cost. Inclusion of new ailments under the ambit of the scheme would go a long way in ensuring focus on preventive care as opposed to only curative care. A strong referral network is vital in providing a continuum of care.

Strengthening of physical health infrastructure: Government hospitals

Provision of Rs 5 lakh assured healthcare coverage to each family who is eligible, selected on the basis of inclusion under the Socio Economic Caste Census (SECC) list. Nearly 10.74 crore families will be covered under the scheme. All existing central and state health insurance schemes will be subsumed under Ayushman Bharat. However, the model of implementation of the scheme (via insurance company, trust or mixed model) is left to the prerogative of the states.

Consulting

However, healthcare delivery at affordable prices would require shift of focus towards capitalising on the volumes (with nearly 50 crore new people coming under a healthcare scheme) rather than on value (via margins)

The government has started an initiative of National Digital Health Mission (Ayushman Bharat Digital Mission) on lines of the proposed National Health Stack (NHS), a shared digital framework for both private and public hospitals, it is expected to digitize all health records and keep track of all details concerning healthcare enterprises in the country. The central government has taken the initiative to launch a unique Health ID for all citizens under its National Digital Health Mission (NDHM) or Ayushman Bharat Digital Mission, which can be used to access a digital repository of personal health-related information. The ID or ABHA - Ayushman Bharat Health Account number is 14 digits long, and the account can be created using basic details such as a mobile number or Aadhaar number. This account provides details such as tests conducted, doctor's prognosis, and medicines taken.

The scheme is well intentioned and holds huge potential for the healthcare delivery and allied industries but the mechanism for quality control and monitoring along with raising resources for implementation will be a key monitorable

Medical tourism in India

Medical value travel, which is also referred to as 'medical tourism', has gained momentum over the years and India is fast emerging as a major tourist destination, owing to the relatively low cost of surgery and critical care, along with the presence of technologically advanced hospitals with specialized doctors and facilities, such as e-medical visa.

Neighboring countries (like Bangladesh – which sees the highest footfall of medical tourists to India and some parts of Nepal and Bhutan) come to India as they don't have quality care in their countries. Eastern India is also a more accessible region for these neighboring countries. Medical tourism is not just driven by cheaper prices. Kolkata and Northeast cities such as Agartala in Tripura are well placed to capture volumes from adjoining markets such as Bangladesh, also given cultural similarities which is a key driver for Kolkata attracting medical tourists from Bangladesh. 69% of medical tourists who visited India in CY22, were from Bangladesh. This was followed by Iraq, who made up 6% of medical tourists, while Yemen and Oman accounted for 3% and 2% of medical tourists respectively. Maldives accounted for almost 2% medical tourists in CY22.

As per the Ministry of tourism, countries like Singapore, Malaysia and Thailand also offer medical care facilities to foreigners but what differentiates India apart from state-of-the-art infrastructure with reputed healthcare professionals is traditional healthcare therapies like Ayurveda and Yoga combined with allopathic treatments providing holistic wellness.

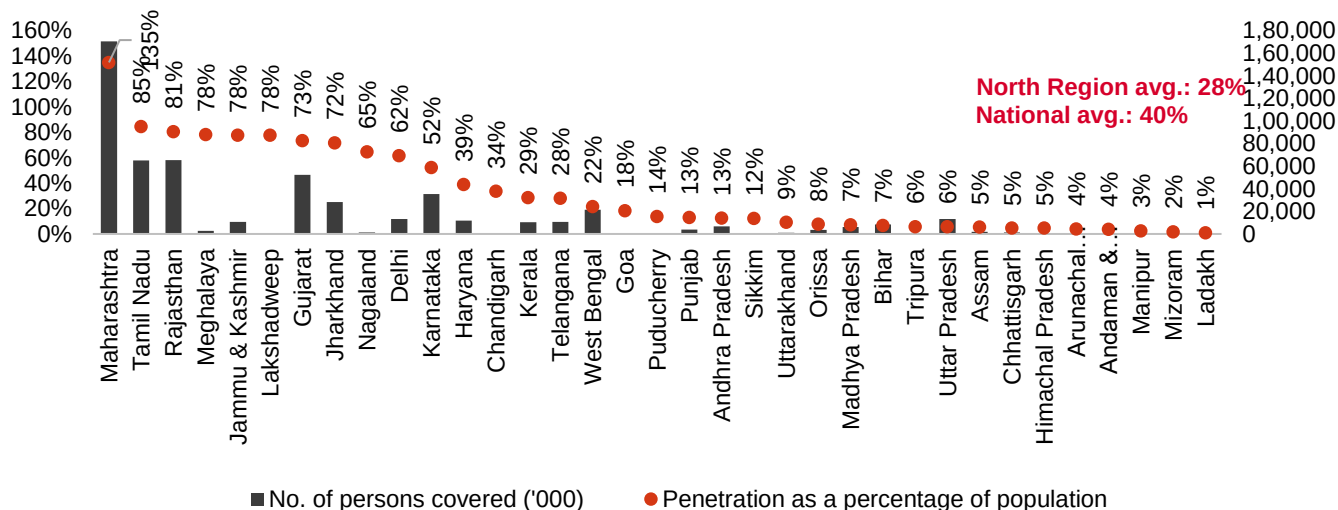
According to the latest data available with the Ministry of Tourism, of the total foreign tourist arrivals in India, the proportion of medical tourists has grown from 2.2% (0.11 million tourists) in 2009 to 6.4% (0.70 million tourists) in 2019. However, the number of medical tourists fell sharply in 2020 (0.18 million tourists) because of international travel restrictions due to Covid-19. The number of medical tourists has recovered well to 0.63 million tourists in 2023 (January-December 2023) growing at a CAGR of 52% from FY20 to FY23. The government has constituted a National Medical and Wellness Tourism Board along with provision of financial assistance to the tune of Rs 1.7 million to medical tourism service providers under market development assistance (MDA) scheme during the last four fiscal years to develop medical tourism in India as of July 2022. The government had estimated medical tourism to be worth 9 billion USD by 2020 garnering 20% of the global share, up from the 3 billion USD in 2015, however we might have fallen short of this figure in the year 2020 owing to travel restrictions put in place due to Covid-19 pandemic.

Consulting

Growing health insurance penetration to propel demand

Maharashtra leads the other states in terms of penetration of health insurance in FY23. The state has a penetration rate of 135% which is followed by Tamil Nadu and Rajasthan at 85% and 81% respectively. India average for health insurance penetration stood at 40% while the north region average was at 28%

State-wise penetration and number of persons covered under health insurance (select states) FY23



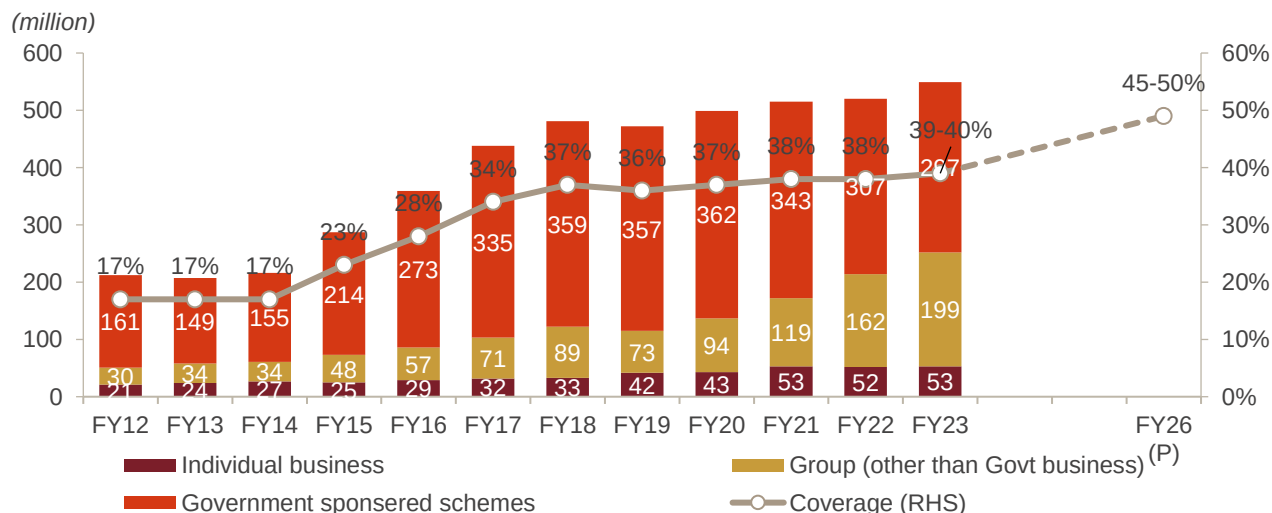
Note: Estimated 2023 population compared with FY23 health insurance coverage data

North regions consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

Source: Handbook on Indian insurance statistics FY 2022-23, UIDAI, CRISIL MI&A

Low health-insurance penetration is one of the major impediments to growth of the healthcare delivery industry in India, as affordability of quality healthcare facilities by the lower income groups continues to remain an issue. As per the Insurance Regulatory and Development Authority of India (IRDAI), nearly 550 million people have health insurance coverage in India (as of 2022-23), as against 288 million (in 2014-15), but despite this robust growth the penetration in FY23 stood at only ~39%. Having said that, the penetration is expected to increase to 45-50% by FY26.

Population-wise distribution of various insurance businesses



Source: Insurance Regulatory & Development Authority of India report 22-23, CRISIL MI&A

CRISIL MI&A believes that while low penetration is a key concern, it also presents a huge opportunity for the growth of healthcare delivery industry in India. And with the PMJAY scheme, the insurance coverage in the country is expected to increase considerably.

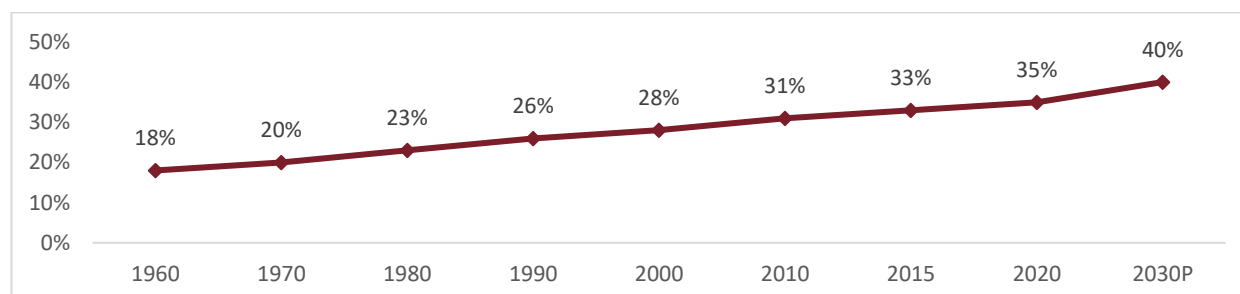
Furthermore, with health insurance coverage in India set to increase, hospitalization rates are likely to go up. In addition, health check-ups, which form a mandatory part of health insurance coverage, are also expected to increase, boosting the demand for a robust healthcare delivery platform.

Increasing health awareness to boost hospitalisation rate

Majority of the healthcare enterprises in India are more concentrated in urban areas. With increasing urbanization (migration of population from rural to urban areas), awareness amongst the general populace regarding presence and availability of healthcare services for both preventive and curative care would increase.

CRISIL, therefore, believes that hospitalisation rate for in-patient treatment as well as walk-in out-patients will improve with increased urbanization and increasing literacy.

Trend: Urban population in India as percentage of total population



Source: UN World Urbanisation Prospects: The 2018 revision, CRISIL MI&A

Rising income levels to make quality healthcare services more affordable

Even though healthcare is considered a non-discretionary expense, considering that an estimated 83% of households in India had an annual income of less than Rs 2 lakh in 2011-12, affordability of quality healthcare facilities remains a major constraint.

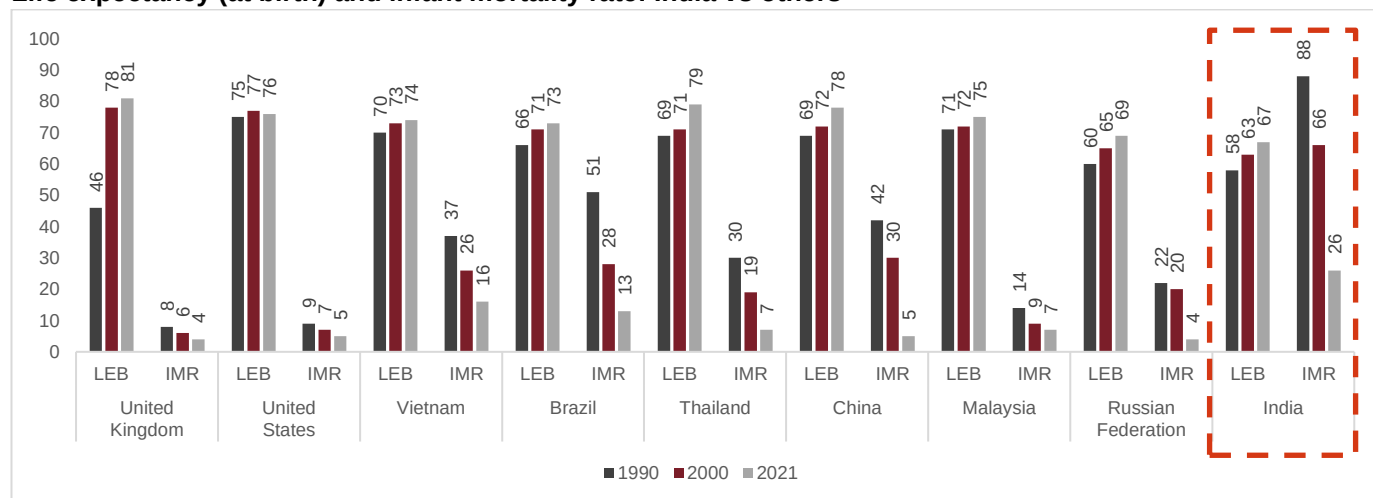
Growth in household incomes, and consequently, disposable incomes, is, therefore, critical to the overall growth in demand for healthcare delivery services in India. The share of households falling in the income bracket above Rs 2 lakhs is expected to go up to 35% in 2021-22 from 23% in 2016-17, providing potential target segment (with more paying capacity) for hospitals.

With life expectancy improving and changing demographic profile, healthcare services are a must

With improving life expectancy, the demographic of the country is also witnessing a change. As of 2011, nearly 8% of the Indian population was of 60 years or more, and this is expected to surge to 12.5% by 2026. However, the availability of a documented knowledge base concerning the healthcare needs of the elderly (aged 60 years or

more) continues to remain a challenge. Nevertheless, the higher vulnerability of this age group to health-related issues is an accepted fact.

Life expectancy (at birth) and infant mortality rate: India vs others

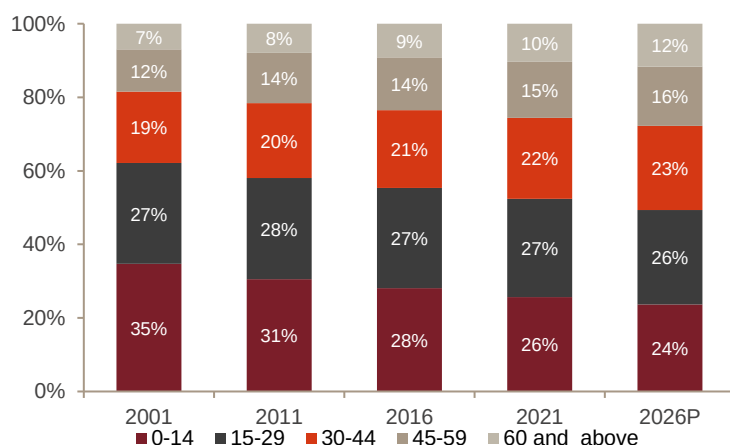


Note: LEB – life expectancy at birth; IMR – infant mortality rate (probability of dying by age one year per 1000 live births)

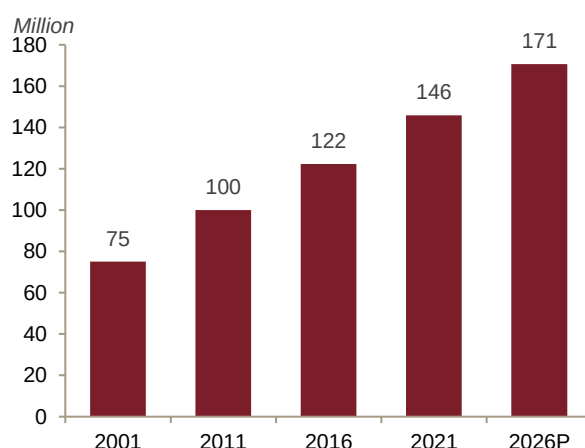
Source: World Bank, CRISIL MI&A

According to the Report on Status of Elderly in Select States of India, 2011, published by the United Nations Population Fund (UNFPA) in November 2012, chronic ailments such as arthritis, hypertension, diabetes, asthma, and heart diseases were commonplace among the elderly, with ~66% of the respective population reporting at least one of these. According to the Report on Status of Elderly in Select States of India, 2011, published by the United Nations Population Fund (UNFPA) in November 2012, chronic ailments such as arthritis, hypertension, diabetes, asthma, and heart diseases were commonplace among the elderly, with ~66% of the respective population reporting at least one of these. In terms of gender-based tendencies, while men are more likely to suffer from heart, renal and skin diseases, women showed higher tendencies of contracting arthritis, hypertension, and osteoporosis.

Break-up of India's population by age



India's population of 60 and above years

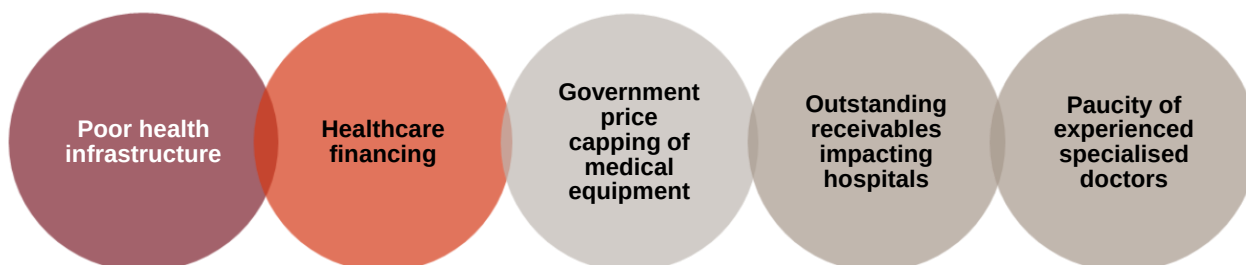


P: Projected

Source: World Population Prospects 2022, Department of Economic and Social Affairs Population Division, CRISIL MI&A

3.6 Key challenges for the healthcare delivery industry

The potential demand and opportunities in healthcare in India aside, many challenges exist, mainly: inadequate health infrastructure and unequal quality of services provided based on affordability and healthcare financing.



Some of the key challenges are detailed below

Government price capping of medical equipment and treatments

The government has restricted price capping to four devices – cardiac stents, drug-eluting stents, knee implants and intra-uterine devices. However, the National Pharmaceutical Pricing Authority (NPPA) is proposing to bring in capping of trade margins instead of extending the list of devices under the National List of Essential Medicines.

Even state governments have been resorting to measures to curb profiteering by hospitals. The Delhi government had, earlier this year, proposed norms for restricting hospitals and nursing homes from marking up prices of consumables and medicines from their procurement prices, to limit their profits.

Price capping on cardiac stents introduced in February 2017, and on knee-implants, in August 2017 was a deterrent for the industry, which is majorly run by the private sector. However, players have since been able to come back to normalcy after taking a hit on operating margins initially, through price rationalisation via bundle pricing. The National Pharmaceutical Pricing Authority (NPPA) has further extended the capping of prices of knee implants, ranging from Rs 54,000 to Rs 1,14,000, for one more year.

Post implementation of price caps on stents and implants, the government has identified 23 medical devices to put price controls on.

In February 2024, the Supreme Court of India has directed the central government to find ways to fix price bands for all medical treatments offered by hospitals in India. During a Public Interest Litigation (PIL) hearing this year, the Apex court highlighted the high procedure rates and large variations in the procedure prices for healthcare treatments in India. The Supreme court directed the Union government to report back on the subject within 6 weeks or the court would impose medicate rates for health care procedure charged under the Central Government Health Scheme (CGHS) as an interim measure.

Outstanding receivables affecting fiscal profile of hospitals

The financial profile of many hospitals empanelled under state schemes became weak due to rising outstanding receivables from the government (state and Centre) for providing treatments to beneficiaries under health insurance schemes. However, this challenge is expected to be dealt with on priority under the PMJAY, by fixing a particular timeline for reimbursements of claims.

3.7 Key actionable areas

While the healthcare delivery sector in India faces several teething issues currently, it also presents immense opportunities for the players involved.

This potential is further augmented with information and communication technology (ICT)-enabled services gaining widespread popularity – CRISIL MI&A expects internet subscriber base to increase to ~1,070-1,100 million by FY25; while the wireless subscriber base (mobile phone users) is expected to increase to 1,200-1,250 million by FY25. Not only do these technologies increase the reach of healthcare facilities to hitherto remote locations, they also help players achieve better efficiencies.

Data from the healthcare space is growing at a steady pace and this has driven hospitals to adopt artificial intelligence (AI)-based patient intelligence systems. These are expected to improve the operating metrics of the hospitals and drive timely detection of diseases.

Shortfall in bed capacity: Major opportunity for healthcare delivery players

India needs to increase its bed capacity to reach the global median by almost 2.1 million beds. With the population growing at almost 1% annually, India is expected to have more than 1.5 billion people by 2030.

Compounding the bed shortfall, dearth of healthcare personnel (physicians and nursing personnel) continues to be immense. India had ~1.3 million doctors as of CY20. The physician count needs to be almost doubled to meet the global median. According to the national health profile (NHP) 2022, the average population served by an allopathic doctor is ~1,100 and there are nearly 1.3 million doctors registered with the Medical Council of India (MCI) as of CY20. Currently, there are only 648 medical colleges offering a total of about 98,013 MBBS seats as per NHP 2022, producing nearly 7 doctors (MBBS) per lakh of population being added annually.

The shortage of nursing personnel (nurses and midwives) is also critical (18 nurses per 10,000 population in India vs. 40 nurses per 10,000 population globally). As per the NHP 2022, there are 2,474,319 registered nurses and registered midwives (RN & RM), 982,932 auxiliary nurse midwives and 57,122 lady health visitors serving in the country as on December 31, 2021. With respect to nursing institutes, there are 9,250 nursing institutions producing 3.5 lakh nurses annually as on December 31, 2021.

Diversification into different format / areas to increase reach and efficiency

Despite the challenges present in the healthcare delivery system in India, innovations and newer business models are being explored. The main objective of these innovations are to increase efficiencies through optimum resource utilisation and widen the reach of healthcare services. Though different business models might be applied depending on the location and services to be provided, the PMJAY is expected to lead to the adoption of new business models focusing on volume-driven, affordable healthcare.

Single speciality healthcare units

Single-specialty healthcare units are those that treat patients with specific medical conditions, with the need of specific medical/surgical procedures. A single-specialty healthcare unit can be a hospital, clinic, or care centre. The advantage of these units is that, by focusing on providing care in a single segment, they can increase efficiencies as well as create a niche in the target segments. Nowadays, birthing centres are among the fastest growing single specialty centre. Specific regulatory headwinds, however, can affect the margins of these business units.

Day-care centres

The objective of day-care centres is to reduce the need for overnight hospitalisation. In this type of setup, a patient is allowed to go home on the same day after being treated. These centres have also given rise to the concept of outpatient surgeries.

While this model is very popular in the eye care segment, other segments such as arthroscopic, general, cosmetic, and dental surgery have also been using this as a popular care delivery model. The advantage of the day-care centre model is that patients can save on bed/room rentals associated with overnight hospitalisation. The healthcare units, on the other hand, can have a streamlined setup with optimum equipment, staff and infrastructure, which helps bring down operational costs.

End-of-life/geriatric care centres

The objective of end-of-life care centres or hospices and palliative care centres is to provide care and support to patients, who are suffering from terminal illness with a life expectancy of six months or less. Hospice and palliative care focus more on pain management and symptom relief rather than continuing with curative treatment. These centres are designed to provide patients a comfortable life during their remaining days and cover physical, social, emotional, and spiritual aspects apart from the medical treatment. Such type of care can be delivered onsite, where special facilities are set up, in the hospital premises, or at the patient's home.

Palliative care is delivered with the help of an inter-disciplinary team which may consist of the patient's physician, hospice doctor, a case manager, registered nurses, counsellor, a dietician, therapist, pharmacologist, social workers, and various trained volunteers. Depending upon the patient's ailment and medical condition, the team prepares a customised care programme which comprises services such as nursing care, social services, physician services and trained volunteer support.

Home healthcare

The primary objective of home healthcare services is to provide quality health care at the patient's premises. In India, these services are still in the nascent stages. CRISIL MI&A believes that with increasing geriatric population, institution of families and increasing disease burden causing a strain on conventional health delivery systems, home healthcare will be a preferred alternative.

The revenue from ICU beds decreases as weeks pass by and, hence, reducing the strain (both on hospitals and patients) can be explored through home healthcare. Patients can avail of ICU care at home at nearly a fifth of the prices of hospital care. Hospitals can also benefit by this model not just through reduced overcrowding, but also prevention of associated hospital acquired infections.

The services currently offered are: post-intensive care, rehabilitative care and services of skilled/unskilled nurses. But areas such as home therapeutic care for infusion and respiratory therapy, dialysis and convenience centred teleconsultation, have more potential for growth. Apollo HomeCare (by AHIL) & Max@Home (by MHIL) are home care services provided by two largest hospital chain operators in the country.

Inorganic growth in the industry to help penetration in tier 2 and 3 locations

The Indian healthcare delivery system has seen consolidation in recent years. A highly competitive industry, coupled with tightening of healthcare regulations, has made it difficult for smaller players in the industry to stay profitable. Larger hospital brands typically have stronger financial discipline and negotiating power with suppliers, better ability to attract medical talent, and greater capital and administrative resources to meet these needs over

Consulting

standalone hospitals. Many of the established players in the healthcare delivery industry follow inorganic growth to expand into the geographies where they have limited presence.

Rise in demand for health infrastructure, modern technologies and multi-disciplinary healthcare have been some of the key driving factors for consolidation in the industry. Investments by private equity (PE) players is also gaining traction. Majority of the PE deals in the industry in the past 2-3 years have been towards hospital portfolio consolidation, also enabling formation of regional clusters that provide base for further expansion and consolidation. Recently, Manipal Health acquired 100% stake in Columbia Asia hospitals, strengthening its presence in southern India. Temasek Holdings in April 2023 acquired additional 41% stake in Manipal hospitals for USD ~2 billion, bringing its total shareholding in the hospital chain to 59%. Jupiter Hospital Projects Pvt. Ltd. (JHPPL), a subsidiary of Jupiter Life Line Hospitals Ltd, acquired the business operations of Vishesh Diagnostics Private Limited (VDPL) for its hospital located at Ring Road, Indore with a capacity of 200 beds in November 2020. The healthcare sector in India has attracted private equity investments worth USD ~8 billion in the last five years, making the sector one of the most preferred by investors.

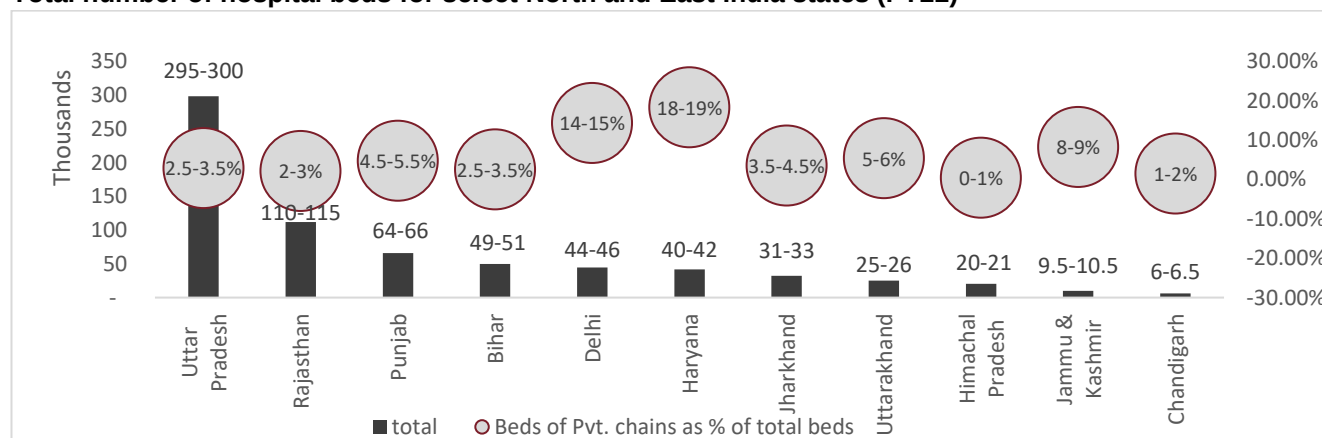
3.8 Healthcare infrastructure across micro-markets in North India and East India

Uttar Pradesh has the highest hospital beds availability among the select states under consideration

Uttar Pradesh had the highest number of hospital beds at 295,000 - 300,000 among the states considered in FY22, given it has the highest population among all states. It was followed by Rajasthan at 110,000-115,000. In terms of beds of private chains (any hospital having two or more centres / hospitals are defined as chains), Haryana and Delhi have the highest presence among the states considered with 18-19% of total beds belonging to private chains in Haryana, while Delhi has 14-15% of its beds belonging to private chains.

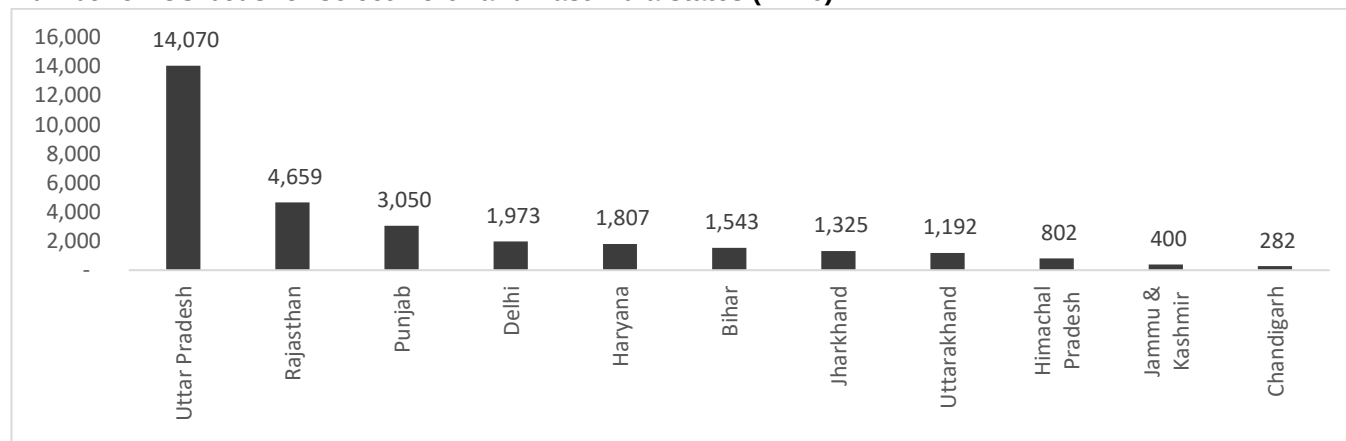
The North region comprising of states like Uttar Pradesh, Rajasthan, Punjab, Delhi, Haryana, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Chandigarh and select eastern states of Bihar and Jharkhand have a combined population of ~592 million as of FY22. This combined region has ~7,50,000-7,60,000 hospital beds as of FY22. As per National Health Policy (NHP) 2017, 2 beds per 1,000 population or 20 beds per 10,000 population is recommended. As per this recommendation, the combined bed in this region should be ~11,84,714 hospital beds

Total number of hospital beds for select North and East India states (FY22)



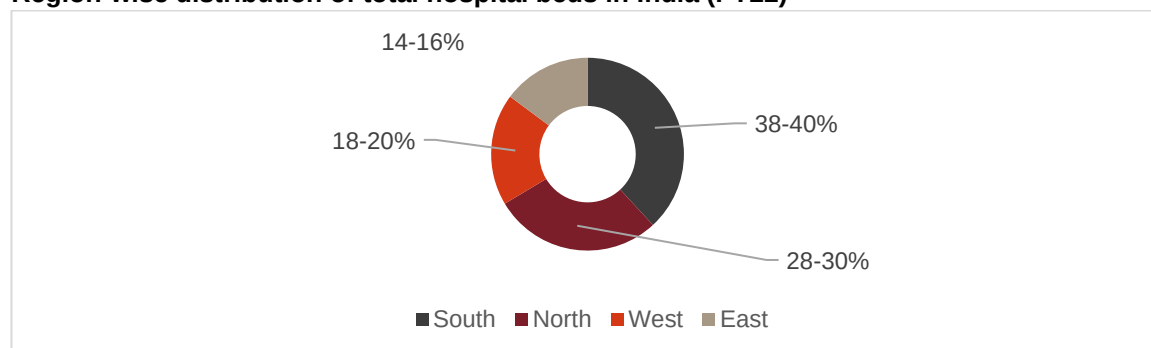
Note: The above graph show the total number of beds in private and government hospitals
For Jammu & Kashmir, the total figure includes the government hospital beds in Ladakh,
Source: CRISIL MI&A

Number of ICU beds for select North and East India states (FY20)



Source: CRISIL MI&A

Region-wise distribution of total hospital beds in India (FY22)

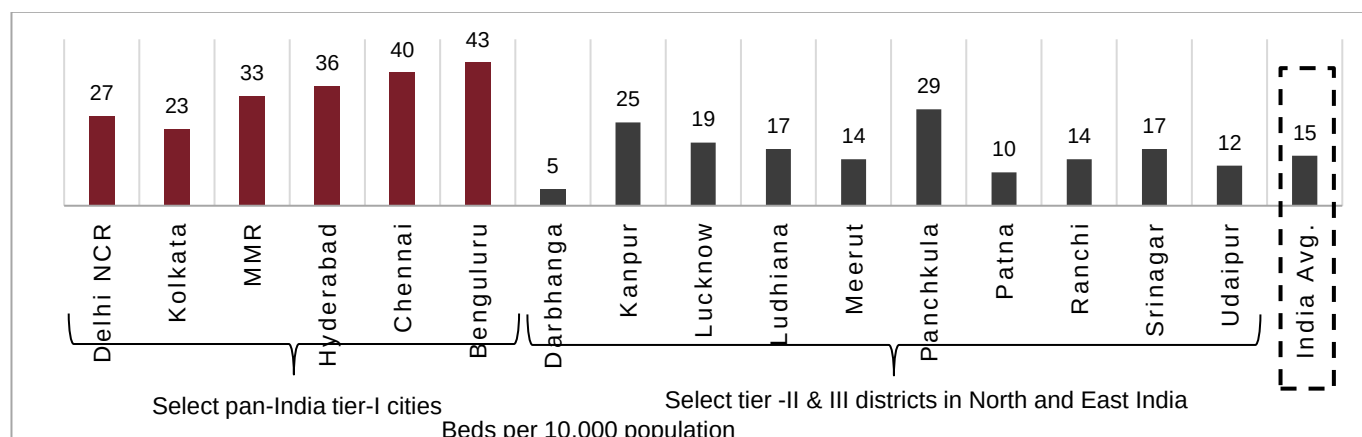


Note: The above graph show the total number of beds in private and government hospitals

West region consists of states like Maharashtra, Goa, Gujarat, Madhya Pradesh, Union territories of Daman, Diu and Dadra Nagar Haveli. East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura. North regions consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan. South region consists of Kerala, Telangana, Tamil Nadu, Karnataka, Andhra Pradesh and Union territories of Andaman Nicobar, Puducherry and Lakshadweep

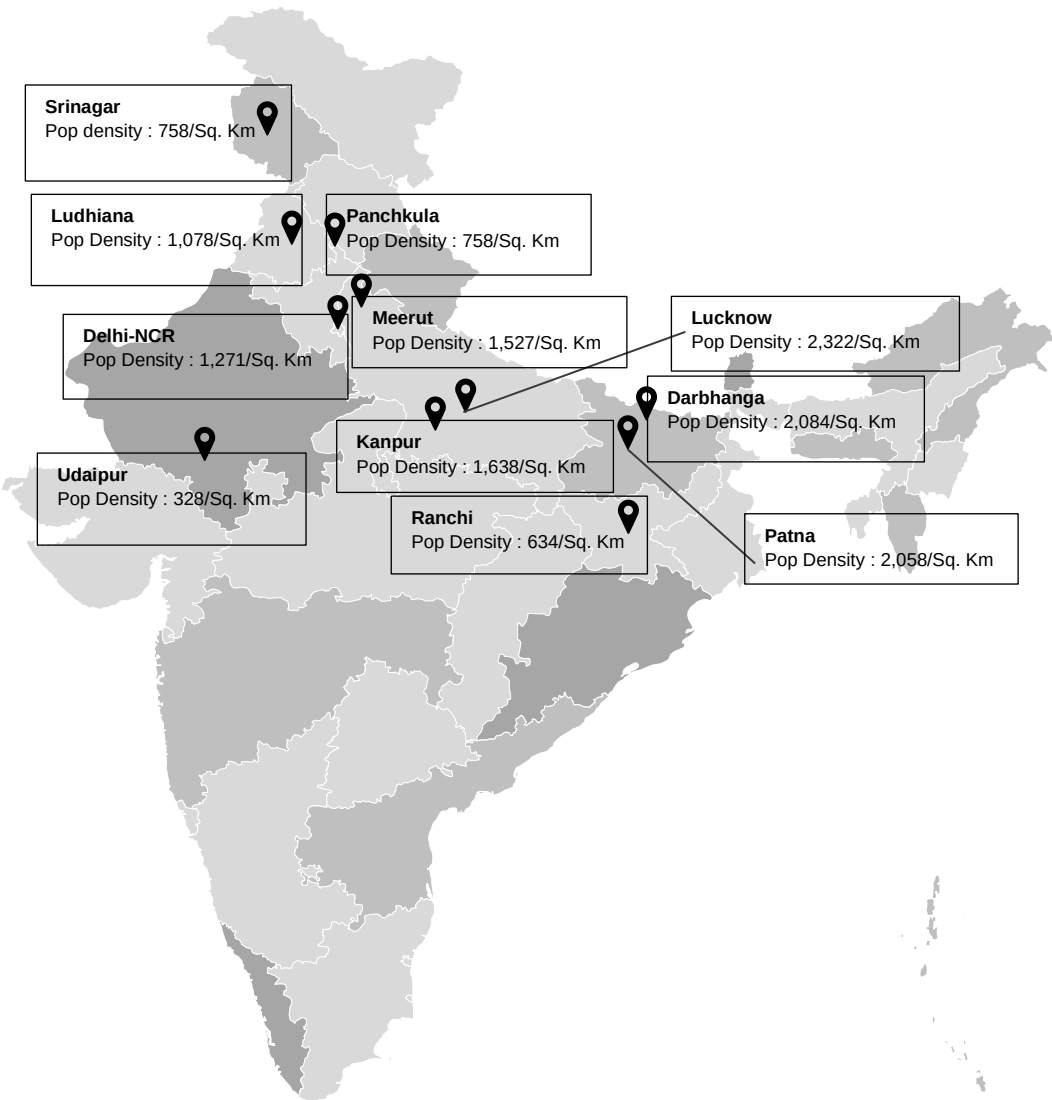
Source: CRISIL MI&A

Estimated bed density across select North-Indian cities*



Note: The first six cities represent the metro cities, hence highlighted in a different colour.
**For Darbhanga, Kanpur, Lucknow, Ludhiana, Meerut, Panchkula, Patna, Ranchi, Srinagar and Udaipur, the chart represents the bed density for the entire district*
Based on city category classification followed by 7th Pay Commission, Tier I – X cities (top 8 cities), tier II – Y cities (next 88 cities), while the rest will fall under Tier -III - Z cities
Source: CRISIL MI&A, State and district healthcare websites as assessed in May 2024

Estimated population and population density of select districts



Note: Pop density denotes population density in terms of number of people per square kilometre in the above map
Source: CRISIL MI&A

Darbhang

Patient Pool:

Darbhang district has an estimated population of 4.75 million and a population density of 2,084 people per sq. km. Darbhanga is surrounded by districts such as Samastipur district in the south and Muzaffarpur district in the west

which have an estimated population of 5.43 million and 6.3 million respectively. While on the North it is surrounded by Madhubani district which has a population of 5.7 million.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Darbhanga

Medical College	Estimated Intake per year
Darbhanga Medical College and Hospital	100%
SK Medical College, Muzaffarpur	275%

Note: % MBBS intake

% Total Intake across specialisations and courses

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Darbhanga has a total of ~48 number of hospitals. As per National Health Policy (NHP) 2017, 2 beds per 1,000 population is recommended. As per this, the recommended beds for Darbhanga is ~9,500 hospital beds and it currently has ~2,400 hospital beds. The district currently has an estimated bed density of 5 per 10,000 population. Darbhanga Medical college and Hospital, a 1,030-bedded hospital providing specialities in Cardiology, Pulmonology, Neurology, Orthopaedics etc, Paras Global Hospital, a 100-bedded hospital providing specialities such as Neurosurgery, Gastroenterology, ENT, Ophthalmology etc., Swami Vivekananda Cancer Asptal & Multispeciality centre, a 100-bedded hospital having specialities in Oncology, Radiology, Orthopaedics etc and SR Memorial hospital, a 100-bedded hospital having specialities in Gastroenterology, Cardiology, Urology, Paediatric etc. are some of the key hospitals in Darbhanga.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Darbhanga Medical College and Hospital	1,030	Government	1946
Paras Global Hospital, Darbhanga	100	Private	2016
Swami Vivekanand Cancer Asptal & Multispeciality Centre	100	Private	2018
SR Memorial Hospital	100	Private	NA

** No. of beds as per data published on their website accessed in the month of May 2024; NA stands for not available*

Source: Hospital Websites, CRISIL MI&A

Delhi NCR

Patient Pool:

The Delhi NCR region has an estimated population of ~70-75 million and a population density of 1,271 people per sq. km.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Delhi-NCR

Medical College	Estimated intake per year
AIIMS, Delhi	125 ^{&}
Vardhman Mahavir Medical College and Safdarjung Hospital	150 ^{&}
lady hardinge medical college	200 ^{&}
Maulana Azad Medical College	250 ^{&}

Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Delhi NCR has a total of ~2,170 hospitals. As per NHP 2017, The recommended beds for Delhi NCR is ~1,40,000 hospital beds while it currently has ~1,63,000 hospital beds. Delhi NCR has an estimated bed density of 27 per 10,000 population. AIIMS Delhi, a 3,194-bedded hospital offering specialities in Orthopaedics, Paediatrics, Nephrology, Rheumatology Etc., Medanta-The Medicity a 1,391-bedded hospital offering specialities in cardiac care, Gastrosiences, Neurosciences, Orthopaedics Etc., Yatharth Hospitals, having hospitals in Noida, Noida Extension, Greater Noida and Faridabad with combined beds of 1,300 and providing specialities in Nephrology, Urology, Gastroenterology etc. across its 4 hospitals in Delhi NCR, Max Super Speciality Hospital, Shalimar Bhag and Max Super Speciality Hospital, Saket having combined beds of 923 beds and offering specialities in Oncology, Cardiology, Nephrology etc, Paras Hospital, a 250 bedded hospital offering specialities in Dentistry, ENT, Gastroenterology etc., Artemis Hospital having specialities in Cardiology, Dentistry, Dermatology, ENT etc., and Fortis Memorial Research Institute, offering specialities in Oncology, Transplants, Urology etc., are some of the key hospitals in the Delhi-NCR region.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of ownership	Year of establishment
AIIMS, Delhi	3,194	Government	1956
Medanta-The Medicity, Gurugram	1,391	Private	2009
Yatharth Hospitals, Greater Noida	400	Private	2010
Yatharth Hospitals, Noida	250	Private	2013
Yatharth Hospital, Noida Extension	450	Private	2019
Yatharth Hospital, Faridabad	200	Private	2024#
Max Super Speciality Hospital, Shalimar Bhag	402	Private	2011
Max Super Speciality Hospital, Saket	521	Private	2006^
Paras Hospital, Gurugram	250	Private	2006
Artemis Hospital, Gurugram	550+	Private	2007
Fortis Memorial Research Institute, Gurgaon	500+	Private	2012

* No. of beds as per data published on their website accessed in the month of May 2024

Consulting

& Total beds across 2 hospitals of Max Hospitals in Saket and Delhi

Year of acquisition

^ Established Max Super Specialty Hospital in Saket, New Delhi

For Yatharth Hospitals and Max Hospitals, The estimated number of beds is as reported by the company in its Q4FY24 Investor presentation

Source: Hospital Websites, CRISIL MI&A

Kanpur

Patient Pool:

Kanpur district has an estimated population of 5.16 million, with a population density of 1,638 people per sq. km. Kanpur is surrounded by districts such as Ramabai Nagar on the West and Unnao on the East which have an estimated population of 2.08 million and 3.6 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Kanpur

Medical College	Estimated intake per year
Rama Medical College, Kanpur	150&
GSVM Medical College	250&
Naraina Medical College & Research Centre	150&

Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Kanpur, the most populous district of Uttar Pradesh, has ~151 number of total hospitals. As per NHP 2017, The recommended beds for Kanpur is ~10,320 hospital beds and the district currently has ~12,700 hospital beds. The district has an estimated bed density of 25 beds per 10,000 population. Rama Hospital & Research Centre, Regency Hospitals, Krishna Super Speciality Hospital and Apollo Spectra Hospital are the key hospitals in Kanpur. Rama Hospital & Research centre is an 800+ bedded hospital having specialties in Cardiology, Oncology, Endocrinology, Gastroenterology, Urology etc., Regency Hospitals have 497 beds across its 5 hospitals in Kanpur and provides specialties such as Oncology, Cardiology, Endocrinology, Gastroenterology etc. Krishna Super Speciality Hospital is a 232-bedded hospital having specialties in Neurology, Oncology, Plastic Surgery, Gastroenterology etc. Apollo Spectra Hospital is a 59- bedded hospital in Kanpur having specialties in ENT, General Medicine, Gynaecology etc.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of ownership	Year of establishment
Rama Hospital & Research Centre	800+	Private	2001
Regency Hospital**	497	Private	1995\$
Krishna Super Specialty Hospital	232	Private	2011
Apollo Spectra Hospital	59	Private	NA

* No. of beds as per data published on their website accessed in the month of May 2024

** No of beds at each of the five hospitals of Regency Kanpur have been summed up to arrive at the total number

\$ Established Regency Hospital, Kanpur- Tower 1; NA stands for not available

Source: Hospital Websites, CRISIL MI&A

Consulting

Lucknow

Patient Pool:

Lucknow has an estimated population of 5.87 million with a population density of 2,322 people per sq.km. Lucknow is surrounded by districts such as Barabanki district on the East, on the West by Unnao and Hardoi districts, on the South by Raebareli district and in the North by Sitapur district. These districts have an estimated population of 4.02 million, 3.6 million, 4.98 million, 4.08 million and 5.63 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Lucknow

Medical College	Estimated intake per year
King George Medical University	250 ^{&}
Era's Lucknow Medica College & Hospital	150 ^{&}
Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow	200 ^{&}

Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Lucknow has a total of ~293 hospitals which has ~11,000 hospital beds in total. As per NHP 2017, The recommended beds for Lucknow is ~11,740 beds. Lucknow district has an estimated hospital bed density of 19 beds per 10,000 population. Medanta Super Speciality Hospital, which is a 900-bedded hospital catering to specialities such as Cardiac care, Cancer care, Neurosciences, ENT, Paediatric care etc., Apollomedics Super Speciality Hospital, a 330-bedded hospital providing specialities in Orthopaedics, Kidney care, Gastrosiences, cancer care etc., Chandan Hospital, which is a 300-Bedded hospital having specialities in Orthopaedics, Gastroenterology, Gynaecology, Paediatrics etc., Sahara Hospital, a 299-bedded hospital offering specialities in Radiology, Pulmonology, Nephrology, Neurosurgery Etc, and Regency Super Speciality Hospital, a 75-bedded hospital which specialises in Nephrology, Kidney Transplant, Urology, Gastroenterology etc. are some of the key hospitals in the district

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Medanta Super Speciality Hospital	900	Private	2019
Apollomedics Super Speciality Hospital	330	Private	2019
Chandan Hospital	300	Private	NA
Sahara Hospital	299	Private	2009
Regency Super Speciality Hospital	75	Private	2020

* No. of beds as per data published on their website accessed in the month of May 2024; NA stands for not available

Source: Hospital Websites, CRISIL MI&A

Ludhiana

Patient Pool:

The estimated population of the Ludhiana district is 4.06 million with a population density of 1,078 people per sq. km. Ludhiana is surrounded by districts such as Patiala district in the South, Rupnagar district on the east Moga district on the west etc, These districts have an estimated population of 2.29 million, 0.75 million and 1.11 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Ludhiana

Medical College	Estimated intake per year
Dayanand Medical College & Hospital (DMC&H)	100 ^{&}
Christian Medical College	100 ^{&}

Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Ludhiana has a total of ~189 hospitals and ~7,000 hospitals beds. As per NHP 2017, The recommended beds for Ludhiana is ~8,120 hospital beds. The district has an estimated hospital bed density of 17 beds per 10,000 population. Dayanand Medical College & Hospital (DMC&H), Christian Medical College, SPS Hospital and Fortis hospitals are some of the key hospitals in the district. DMC&H is a 1,625-bedded hospital providing specialities in ENT, Psychiatry, Obstetrics, Orthopaedics, Paediatrics etc. Christian Medical college is a 775-bedded hospital having specialities in Paediatrics, Gynaecology, Orthopaedics, Ophthalmology Etc. SPS Hospital is a 280-bedded hospital having Cardiology, Neurology, Orthopaedics, Endocrinology Etc as some of its specialities. Fortis Hospital is a 259- bedded hospital in Ludhiana providing specialities in Cardiology, Orthopaedics & joint Replacement, Oncology, Urology Etc.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Dayanand Medical College & Hospital (DMC&H)	1,625	Private	1964
Christian Medical College	775	Private	1894
SPS Hospital	280	Private	2005
Fortis Hospital	259	Private	2013

* No. of beds as per data published on their website accessed in the month of May 2024

Source: Hospital Websites, CRISIL MI&A

Meerut

Patient Pool:

Meerut district has an estimated population of 3.98 million with a population density of 1,527 people per sq. km. The district is surrounded by districts such as Muzaffarnagar district on the North and Ghaziabad, Bulandshahr, Gautam Budh Nagar district on the South. These districts have an estimated population of 4.89 million, 6.87 million, 4.25 million and 2.32 million respectively.

Consulting

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Meerut

Medical College	Estimated intake per year
Lala Lajpat Rai Memorial Medical College, Meerut	100 ^{&}
Subharti Medical College	200 ^{&}
Sri Ram Ayurvedic Medical College and Hospital	60 [^]

Note: [&] MBBS intake

[^] BAMS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Meerut District has a total of ~165 hospitals. As per NHP 2017, The recommended beds for Meerut district is ~7,960 hospital beds while it currently has ~5,600 hospital beds. The district has an estimated hospital bed density of 14 beds per 10,000 population. Chhatrapati Shivaji Subharti Hospital, KMC Hospital & Research centre, Anand Hospital and Lokpriya Hospital are some of the key hospitals in the district. Chhatrapati Shivaji Subharti Hospital is a 938- bedded hospital providing specialities in general medicine, general surgery, Dermatology, Paediatrics, Ophthalmology etc. KMC Hospital & Research centre is 550-bedded hospital in Meerut having specialities in Laparoscopic surgery, Neurosurgery, Cardiology, Urology, Obstetrics and Gynaecology etc. Anand Hospital is a 300-bedded hospital with internal medicine, General surgery, paediatrics, Gynaecology etc. as some of its specialities. Lokpriya Hospital is a 195-bedded hospital having specialities in Gastroenterology, Neonatal, Paediatrics, Neurology, Physiotherapy etc.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Chhatrapati Shivaji Subharti Hospital	938	NA	NA
KMC Hospital & Research Centre	550	Private	1998
Anand Hospital	300	NA	2007 ^{&}
Lokpriya Hospital	195	Private	1990

* No. of beds as per data published on their website accessed in the month of May 2024

[&] Incorporated; NA stands for not available

Source: Hospital Websites, CRISIL MI&A

Panchkula

Patient Pool:

Panchkula district has an estimated population of 0.68 million with a population density of 758 people per sq.km. Panchkula district is surrounded by districts such as Patiala and Chandigarh on the West and Ambala district on the East. These districts have an estimated population of 2.29 million, 1.36 million and 1.26 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Panchkula

Medical College	Estimated intake per year
BRS Dental College and General Hospital, Panchkula	60*
Government Medical College & Hospital, Chandigarh	100&

Note: * BDS intake

& MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Panchkula has a total of ~58 hospitals and ~2,000 hospital beds. As per NHP 2017, The recommended beds for Panchkula is ~1,360 hospital beds. The district currently has an estimated hospital bed density of 29 beds per 10,000 population. Paras Hospital, a 250-bedded hospital in Panchkula having specialities in Dentistry, Dermatology, ENT, Gastroenterology, Neurosurgery etc., Alchemist Hospital, a 186-bedded hospital providing specialities in Cardiac sciences, Orthopaedics, Renal Diseases, Pulmonary sciences etc and Amcare Super Speciality Hospital, a 110-bedded hospital in Panchkula having specialities such as Cardiology, ENT, Ophthalmology, Internal Medicine, Nephrology etc., are some of the key hospitals in the district.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Paras Hospital, Panchkula	250	Private	2019
Alchemist Hospital	186	Private	1994
Amcare Super Speciality Hospital	110	Private	2007

* No. of beds as per data published on their website accessed in the month of May 2024

Source: Hospital Websites, CRISIL MI&A

Patna

Patient Pool:

Patna district has an estimated population of 6.58 million, with a population density of 2,058 people per sq. km. Some of the district that surround Patna are Samatipur, Begusarai, Nalanda etc., these districts have an estimated population of 5.43 million, 3.81 million and 3.53 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Patna

Medical College	Estimated intake per year
Patna Medical College and Hospital	200&
AIIMS Patna	125&

Indira Gandhi Institute Of Medical Sciences	120 ^{&}
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Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Patna district has ~245 number of total hospitals. As per NHP 2017, The recommended beds for Patna is ~13,160 hospital beds while it currently has ~6,300 hospital beds. The district has an estimated hospital bed density of 10 beds per 10,000 population. Patna Medical College and Hospital, Jay Prabha Medanta Super Speciality Hospital, Paras HMRI Hospital, Jagdish Memorial Hospital, Ford Hospital & Research Centre and Sahyog Hospital are the key hospitals in the district. Patna Medical College and Hospital is a 1675-bedded hospital in Patna which specialises in general medicine, Paediatrics, Psychiatry, general surgery, Gynaecology etc., Jay Prabha Medanta Super Speciality Hospital is a 500+ bedded Hospital having specialities in Cardiac care, Neurosciences, Cancer care, Gastrosiences, Renal care etc., Paras HMRI Hospital, a 350-bedded multispecialty tertiary care hospital provides specialties such as oncology, cardiology, neurology, orthopaedics, nephrology, emergency care to name a few. Jagdish Memorial Hospital is a 150-bedded hospital specialising in Internal Medicine, Cardiology, nephrology, Paediatrics, Plastic Surgery etc., Ford Hospital is a 105 bedded multi-specialty hospital providing specialties such as advanced critical care, bariatric surgery, cardiology, endocrinology, ENT, gastroenterology, laparoscopy to name a few and Sahyog Hospital is a 100-bedded hospital providing specialities in General Medicines, Cardiology, Neurology, Physiotherapy, Orthopaedics, ENT etc.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Patna Medical College and Hospital	1,675	Government	1925
Jay Prabha Medanta Super Speciality Hospital	500+	Private	2021
Paras HMRI Hospital	350	Private	2013
Jagdish Memorial Hospital	150	Private	2010
Ford Hospital and Research Centre	105	Private	2008
Sahyog Hospital	100	Private	1991

** No. of beds as per data published on their website accessed in the month of May 2024*

Source: Hospital Websites, CRISIL MI&A

Ranchi

Patient Pool:

Ranchi district has an estimated population of 3.23 million, with a population density of 634 people per sq. km. Ranchi is surrounded by Ramgarh district in the North, Khunti in the South and Lohardaga district in the West. These districts have an estimated population of 1.08 million, 0.66 million and 0.59 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Ranchi

Medical College	Estimated intake per year
Rajendra Institute of Medical Sciences	180 ^{&}
Bharathi college of Nursing, Ranchi	40 [^]

Note: & MBBS intake

[^] BSc Nursing intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Ranchi has a total of ~100 hospitals. As per NHP 2017, The recommended beds for Ranchi is ~6,460 hospital beds while it currently has ~4,500 hospital beds. The district has an estimated hospital bed density of 14 beds per 10,000 population. Rajendra Institute of Medical Sciences, Paras Hospital, Bhagwan Mahavir Medica Super Speciality Hospital, Medanta Hospital and Raj Hospital are some of the key hospitals in Ranchi. Rajendra Institute of Medical Sciences is a Government Hospital with 2,170 beds. The Hospital provides specialities in Ophthalmology, Anaesthesiology, Neurosurgery, Radiology, Paediatrics, Physiotherapy etc. Paras Hospital in Ranchi is a 300-bedded hospital having specialities in Internal Medicine, Cardiology, Nephrology, Urology, Dentistry, Critical Care etc. Bhagwan Mahavir Medica Super Speciality Hospital is a 300 bedded hospital in Ranchi and has specialties such as cardiology, neurology, orthopaedics, gynaecology, critical care, emergency, internal medicine, and general surgery. Medanta Hospital is a 200+ bedded hospital having specialities in Cardiac care, Renal Care, Neurosciences, Gastrosciences, Orthopaedics etc., Aesthetic & reconstructive surgery, cardiac sciences, dental care, dermatology, ENT, neurosciences, and oncology are some of the key specialties of Raj Hospitals which consists of more than 100 beds.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Rajendra Institute of Medical Sciences	2,170	Government	1960
Paras Hospital, Ranchi	300	Private	2019
Bhagwan Mahavir Medica Super Speciality Hospital, Ranchi	300	Private	2014
Medanta Hospital, Ranchi	200+	Private	2015
Raj Hospitals	100+	Private	1991

* No. of beds as per data published on their website accessed in the month of May 2024

Source: Hospital Websites, CRISIL MI&A

Srinagar

Patient Pool:

Srinagar district has an estimated population of 1.5 million with a population density of 758 people per sq. km. Some of Srinagar's neighbouring districts are Kargil, Pulwama and Budgam which have an estimated population of 0.17 million, 0.72 million and 0.95 million respectively.

Consulting

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Srinagar

Medical College	Estimated intake per year
Sher-i-Kashmir Institute of Medical Sciences	125 ^{&}
Government Medical College, Srinagar	180 ^{&}
Kidney College of Nursing, Srinagar	50 [^]

Note: & MBBS intake

[^]BSc Nursing intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Srinagar has a total of ~34 hospitals which adds up to a total of ~3,000 hospital beds. As per NHP 2017, The recommended beds for Srinagar is ~3,000 beds. Srinagar district has an estimated hospital bed density of 17 beds per 10,000 population. Sher-i-Kashmir Institute of Medical Sciences, SMHS Hospital, Paras Hospital and Ujala Cygnus Super Speciality Hospital are the key hospitals in Srinagar. Sher-i-Kashmir Institute of Medical Sciences has around 1,200 hospital beds catering to specialities such as Plastic surgery, General Surgery, Neurosurgery, Urology, neurology etc., SMHS Hospital is a 750-bedded hospital which has specialities like ENT. Dermatology, Ophthalmology, Obstetrics, Gynaecology, Orthopaedics etc., Paras Hospital is a 261-bedded hospital specialising in Neurosciences, Cardiac Sciences, Renal Sciences, Cancer care etc. Ujala Cygnus Super Speciality Hospital is a 120-bedded hospital having specialities in Oncology, Cardiology, Orthopaedics, Urology, Gynaecology, General Surgery, Paediatrics etc.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Sher-i-Kashmir Institute of Medical Sciences	~1,200	Government	1982
SMHS Hospital	750	Government	1948
Paras Hospital, Srinagar	261	Private	2023
Ujala Cygnus Super Speciality Hospital	120	Private	2022 [^]

* No. of beds as per data published on their website accessed in the month of May 2024;

[^]Inaugurated

Source: Hospital Websites, CRISIL MI&A

Udaipur

Patient Pool:

Udaipur has a population of 3.85 million with a population density of 328 people per sq. km. Udaipur is surrounded by some of the districts like Chittorgarh and Pratapgarh on the East, Rajsamand on the North and Dungarpur

Consulting

district on the South. These districts have an estimated population of 1.8 million, 3.8 million, 1.36 million and 1.76 million respectively.

Medical Colleges (An indication of supply of medical talent):

Key Medical Colleges in Udaipur

Medical College	Estimated intake per year
Geetanjali Medical College & Hospital, Udaipur	250 ^{&}
Pacific Medical College & Hospital	150 ^{&}
American Institute of Medical Sciences, Udaipur	150 ^{&}

Note: & MBBS intake

Source: College Websites, CRISIL MI&A

Supply of healthcare facilities:

Udaipur has a total of ~76 hospitals which adds up to a combined bed capacity of ~4,700 hospital beds. As per NHP 2017, The recommended beds for Udaipur is ~7,700 hospital beds. The district currently has a bed density of 12 beds per 10,000 population. Geetanjali medical College & Hospital, a 1,420-bedded hospital specialised in Psychiatry, General Medicine, Pulmonary medicine, Dentistry, Orthopaedics etc., GBH American Hospital, a 725-bedded hospital specialised in Cardiology, Neurology, ENT, Orthopaedics, Urology, Neurosurgery etc., Paras JK Hospital, a 260-bedded hospital in Udaipur which has Endocrinology, Gastroenterology, Internal Medicine, Nephrology, Neurology etc. as some of its specialisation and Dr Chaudhary Hospital and Medical Research Centre, a 150-bed hospital which is specialised in Neurology, Surgery, Orthopaedics, Gynaecology, Dermatology etc are some of the key hospitals in Udaipur.

Key Hospitals

Key hospitals	Estimated number of beds*	Type of Ownership	Year of establishment
Geetanjali Medical College & Hospital, Udaipur	1,420	Private	2008
GBH American Hospital	725	Private	2006
Paras JK Hospital, Udaipur	260	Private	2019
Dr Chaudhary Hospital and Medical Research Centre	150	Private	2005

** No. of beds as per data published on their website accessed in the month of May 2024*

Source: Hospital Websites, CRISIL MI&A

4. Competitive mapping of key players in the Indian healthcare delivery market

4.1. Comparative analysis of players in the healthcare delivery sector

In this section, CRISIL MI&A has compared the key players in the healthcare delivery industry. Data in this section has been obtained from publicly available sources, including annual reports and investor presentations of listed players, regulatory filings, rating rationales, and/or company websites, as relevant. Financial numbers have been reclassified as per CRISIL standards unless otherwise stated

For this assessment, we have considered the following key players: Apollo Hospitals Enterprise Limited (AGHL), Fortis Healthcare Ltd.(FHL), Global Health Ltd.(Brand Name: Medanta) (GHL), Jupiter Lifeline Hospitals Ltd. (JLHL), Krishna Institute of Medical Sciences (KIMS), Max Healthcare institute Ltd. (MHIL), Narayana Hrudalaya Ltd. (NHL), Yatharth Hospital and Trauma Care Services Limited (YHTC), Paras Healthcare Ltd. (PHL), Blue Sapphire Healthcares Pvt. Ltd (BSHPL), Ivy Health and Life Sciences Pvt. Ltd (IHLPL), Kailash Healthcare Ltd (KHL), and Regency Hospital Ltd (RHL)

Company	Year of Incorporation	Geographic Presence
Key Listed Hospital Companies		
Apollo Hospitals Enterprise Limited (AHEL)	1988	Pan India
Fortis Healthcare Ltd (FHL)	1996	Pan India
Global Health Ltd (GHL)	2004	Pan India
Jupiter Lifeline Hospitals Ltd (JLHL)	2007	West India
Krishna Institute of Medical Sciences Limited (KIMS)	1973	South India
Max Healthcare Group (MHIL)	2001	North and West India
Narayana Health Limited (NHL)	2000	Pan India
Yatharth Hospital and Trauma Care Services Limited (YHTC)	2008	North India
Key Unlisted Hospital Companies		
Paras Healthcare Ltd.(PHL)	1987	North India
Blue Sapphire Healthcares Pvt. Ltd (BSHPL)	2007	North and east India
Ivy Health and Life Sciences Pvt. Ltd (IHLPL)	2008	North India
Kailash Healthcare Ltd (KHL)	1993	North India
Regency Hospital Ltd (RHL)	1987	North India

Source: Company annual reports, investor presentations, CRISIL MI&A

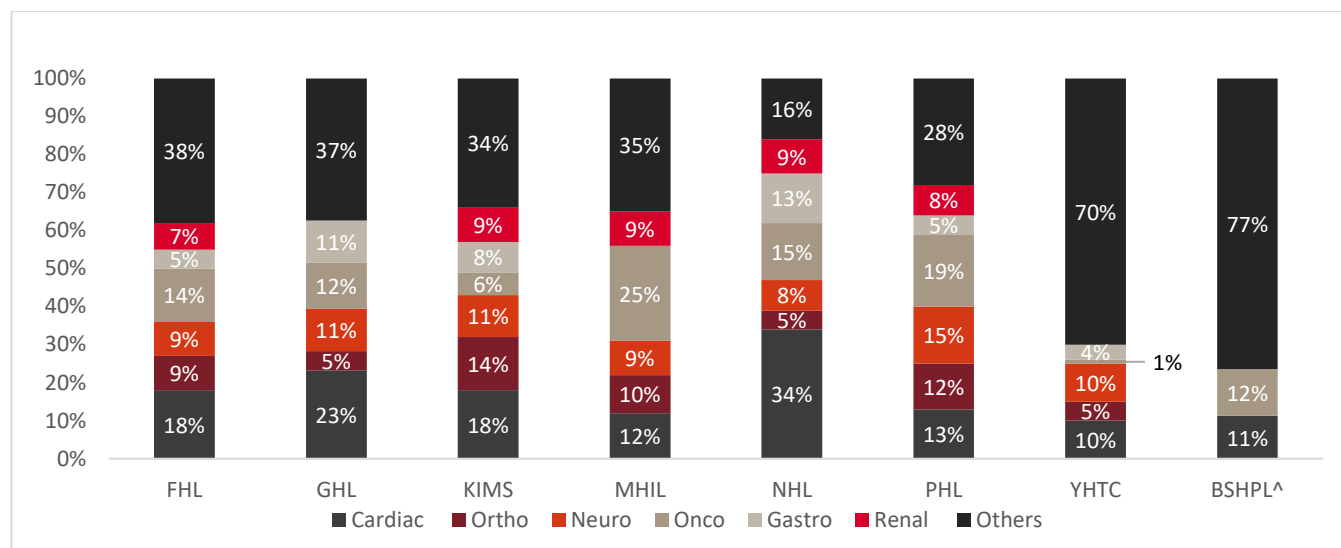
Key specialties undertaken by major players

Player	Key specialties undertaken
AHEL	Multi-national hospital chain covering cardiology, cosmetology, dermatology, orthopaedics, diabetes, gastroenterology, haematology, infertility, nephrology, neurology, oncology, paediatrics, pulmonology, radiology, rheumatology, urology, etc.
FHL	Multi-speciality chain covering cardiology, cosmetology, dermatology, orthopaedics, diabetes, gastroenterology, haematology, infertility, nephrology, neurology, oncology, paediatrics, pulmonology, radiology, rheumatology, urology, etc.
GHL	Multi-specialty covering cardiology, digestive & hepatobiliary sciences, neurology, urology, transplants & regenerative medicine, oncology, orthopaedics, anaesthesia, etc.
JLHL	Multi-speciality covering bariatric surgery, cardiac surgery, cardiology, dermatology, gastroenterology, internal medicine. Nephrology, neurology, neurosurgery, oncology, ophthalmology, orthopaedics, paediatrics, urology, etc.
KIMS	Multi-specialty including cardiac sciences, neurosciences, renal sciences, bariatric surgery, oncology, paediatric, ophthalmology, cosmetics, dental, intensive, and critical care, diabetes, preventive care, gynaecology, IVF, etc.
MHIL	Multi-speciality covering oncology, cardiology, neurology, gastroenterology, hepatology endocrinology, orthopaedics, urology, dermatology, dental, eye care, Infertility, IVF, Mental health, nutrition, diabetes, gynaecology, paediatric, etc.
NHL	Multi-speciality covering oncology, neurology, neurosurgery, nephrology, urology, gastroenterology, paediatrics, obstetrics & gynaecology, transplants etc.
PHL	Multi-speciality covering cardiology, Ear Nose Throat, gastroenterology, internal medicine, nephrology, neurology, neurosurgery, obstetrics and gynaecology, orthopaedics, urology, etc.
YHTC	Multi-specialty covering cardiology, orthopaedics, neurology, renal sciences, trauma & critical care, oncology, laparoscopic & bariatric surgery, cosmetic & reconstructive surgery, rheumatology, dermatology, ophthalmology, etc.
BSHPL	Multi-Speciality covering pulmonary medicine, Ear Nose Throat, Rheumatology, endocrinology, psychiatry, ophthalmology, internal medicine, dental, dermatology, physiotherapy etc
IHLPL	Multi-Speciality covering interventional cardiology, oncology, neurology, ophthalmology, nephrology, gastroenterology, dental, psychiatry, paediatrics, Ear Nose Throat, pulmonology, endocrinology, plastic surgery, general medicine etc
KHL	Multi-Speciality covering cardiology, dental, dermatology, dietetics, endocrinology, gastro sciences, general surgery, haematology, neonatology, nephrology, neurology, neurosurgery, oncology, orthopaedics etc.
RHL	Multi-Speciality covering cardiology, cancer care, endocrinology, gastroenterology, gynaecology, internal medicine, neurology, nephrology, ophthalmology, orthopaedics, paediatrics, pulmonology, etc

Note: Above list is not exhaustive and represents a few key specialties undertaken by respective players

Source: Company annual reports, company websites , investor presentations, CRISIL MI&A

Speciality-wise revenue break-up of key players as of FY24



Note: The numbers for all the companies except BSHPL are as reported by the respective companies in their investor presentations

[^] For Blue Sapphire Healthcare Pvt. Ltd. (BSHPL), FY23 numbers from credit rating dated September 1, 2023 has been used.

The percentage values are rounded off to the nearest decimal place, hence may not add up to 100%

For Apollo Hospital Enterprise Ltd. and Jupiter Lifeline Hospital Ltd. the data for FY24 is not available

For Fortis Healthcare Ltd., the company reported speciality mix of Pulmonology, Gynaecology, Other IPD, OPD, Other operating revenue has been included in Others

For Global Health Ltd., the company reported speciality mix of Heart has been considered under Cardiac, Digestive has been considered under Gastro, Cancer has been considered under Onco and Internal Medicine, Liver & Biliary Sciences and Urology has been included in Others

For Krishna Institute of Medical Sciences, the company reported speciality mix of Gastric sciences has been considered under gastro, and Organ transplant, Mother & child has been included in Others

For Max Healthcare Institute Ltd., the company reported speciality mix of Pulmonology, Obstetrics, Gynaecology & Paediatrics, Internal Medicine, MAS & General surgery, Liver & Biliary Sciences have been included in Others.

For Narayana Hrudalaya Ltd., the company reported speciality mix of Cardiac Sciences has been included under Cardiac, Medicine and GI Sciences has been included under Gastro

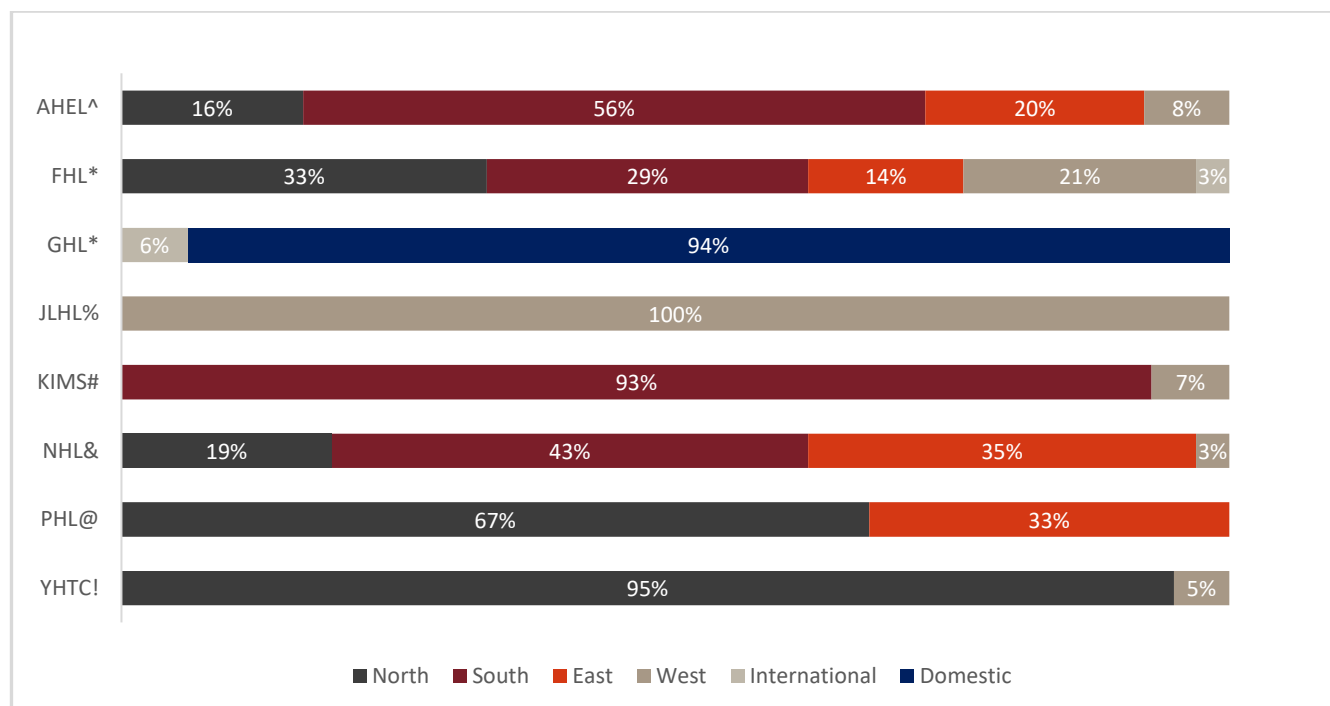
For Paras Healthcare Ltd., the company reported speciality mix of Cardiac Surgery has been included under Cardiac, Neuro sciences has been included under Neuro, Gastro Sciences has been included under Gastro, Orthopaedics and joint replacement has been considered under Ortho, Oncology under Onco and Pulmonology, Gynaecology, Paediatrics and Internal Medicine, has been included in Others

For Yatharth Hospital and Trauma Care Services Ltd., the company reported speciality mix of Cardiology has been include under Cardiac, Orthopaedics, Spine & Rheumatology has been included under Ortho, Neurosciences has been included under Neuro and Pulmonology, Paediatrics, Gynaecology, Internal Medicine, General Surgery, Nephrology & Urology has been included in Others

For BSHPL, Others include Internal Medicine which contributed 10.78% to FY23 revenue

Source: Investor Presentation, CRISIL MI&A

Geographical revenue mix of key players as of FY24



Note:

West region consists of states like Maharashtra, Goa, Gujarat, Madhya Pradesh, Union territories of Daman, Diu and Dadra Nagar Haveli

East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

North regions consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

South region consists of Kerala, Telangana, Tamil Nadu, Karnataka, Andhra Pradesh and Union territories of Andaman Nicobar, Puducherry and Lakshadweep

^ For AHEL, Geographical revenue contribution of TN region, AP-Telangana region and Karnataka region has been considered under South

* For FHL, GHL, Geographical revenue mix is as defined by the company

% For JLHL, all 3 hospitals of the company are in Maharashtra, hence all of its revenue has been considered under West

#For KIMS, Cluster Total revenue of Andhra Pradesh and Telangana has been considered under South and Cluster total revenue of Maharashtra has been considered under West

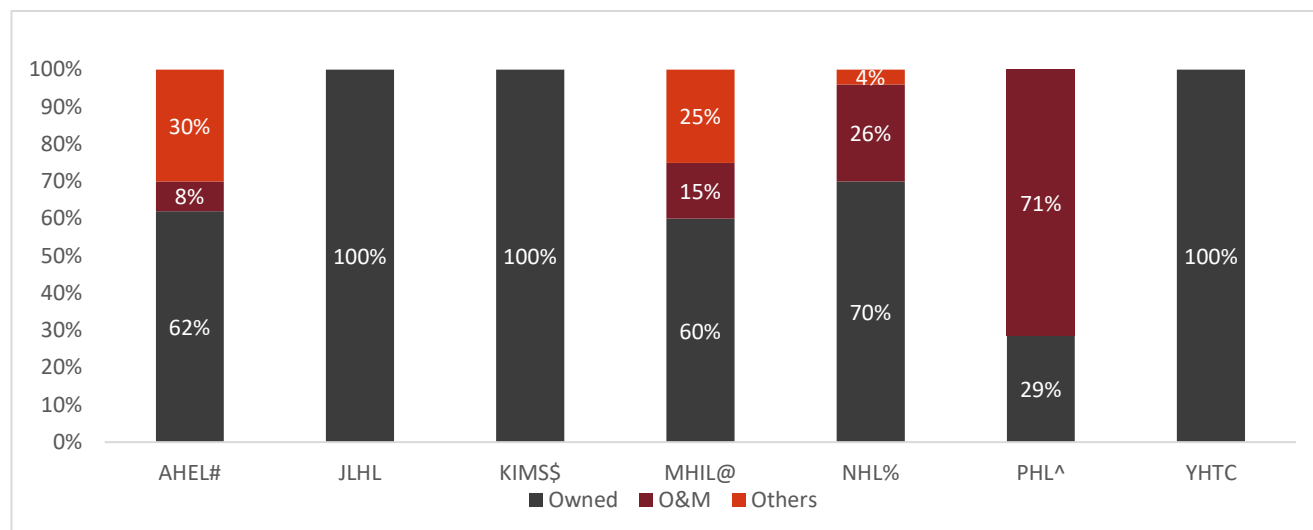
& For NHL, Southern Peripheral + Bangalore revenue has been considered under South and Kolkata + Eastern Peripheral revenue has been considered under East, Northern a Western geographical revenue mix is as defined by the company

@ For PHL, The revenue from Paras Hospital, Gurugram, Paras Hospital, Panchkula, Paras Hospital, Udaipur and Paras Hospital, Srinagar has been considered under the North region and revenue from Paras HMRI Hospital, Patna, Paras Global Hospital, Darbhanga and Paras HEC Hospital, Ranchi has been considered under East.

! For YHTC, The revenue mix of Greater Noida, Noida Extension and Noida are considered under North and Jhansi-Orchha has been considered under West

Source: Investor presentation, CRISIL MI&A

Mode of operation of key players in terms of hospitals as of FY24



Note:

For Apollo Hospital Enterprise Ltd.(AHEL), Hospitals under Apollo Health and Life Style Ltd. (AHLL) has been considered under others

\$ For Krishna Institute of Medical Sciences Ltd. (KIMS), all hospitals for which it has a shareholding of above 50% have been considered owned

@ For Max Healthcare Institute Ltd. (MHIL), Others consists of partner healthcare facilities

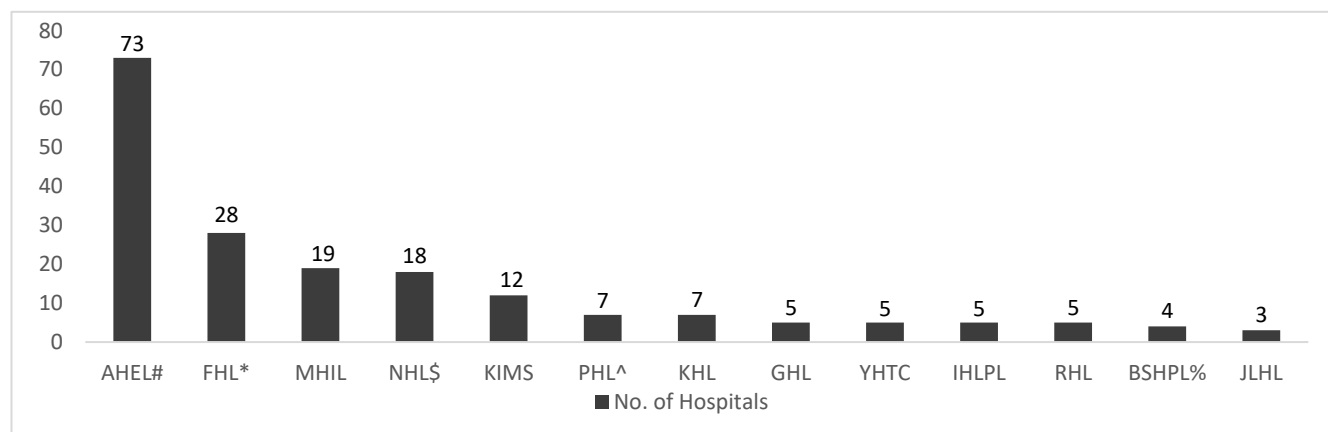
% For Narayana Hrudalaya Ltd. (NHL), O&M consists of operated hospitals where NHL operates the hospitals on rental/revenue sharing basis and owns the P&L responsibility.

For Narayana Hrudalaya Ltd. (NHL), Others consists of heart centres and other ancillary business which Includes Clinics, heart centres, dialysis centres etc.

^ For Paras Healthcare Ltd. (PHL), Revenue sharing model hospitals and Public-Private Partnership model hospitals have been considered under O&M

4.2. Key operational parameters of major hospital players

Total number of hospitals (FY24)



Note: The numbers include only owned and managed hospitals in India; primary healthcare centers and clinics are not considered.

For Apollo Hospital Enterprise Ltd.(AHEL), The total number of hospitals includes hospitals of Apollo Hospitals Enterprise Ltd (Hospitals) and Apollo Health and Life Style Ltd. (Retail Healthcare Format)

* For Fortis Healthcare Ltd. (FHL), The total number of hospitals includes the Manesar facility which is yet to be operationalised

Consulting

\$ For Narayana Hrudalaya Ltd. (NHL), The total number of hospitals is excluding 3 - Heart Centre, 17 – Clinics & Dialysis Centre and 1 hospital in Cayman Islands

^ For Paras Healthcare Ltd. (PHL), As of June 2024, the company has 8 hospitals which includes Paras Yash Kothari Hospital, Kanpur that started operations in April 2024

% For Blue Sapphire Healthcare Pvt. Ltd.(BSHPL), the company's website mentions 5 hospitals but as of 4/7/2024, the company has only 4 operational hospitals

Source: Investor Presentation, CRISIL MI&A

Total ICU beds of key players (FY24)

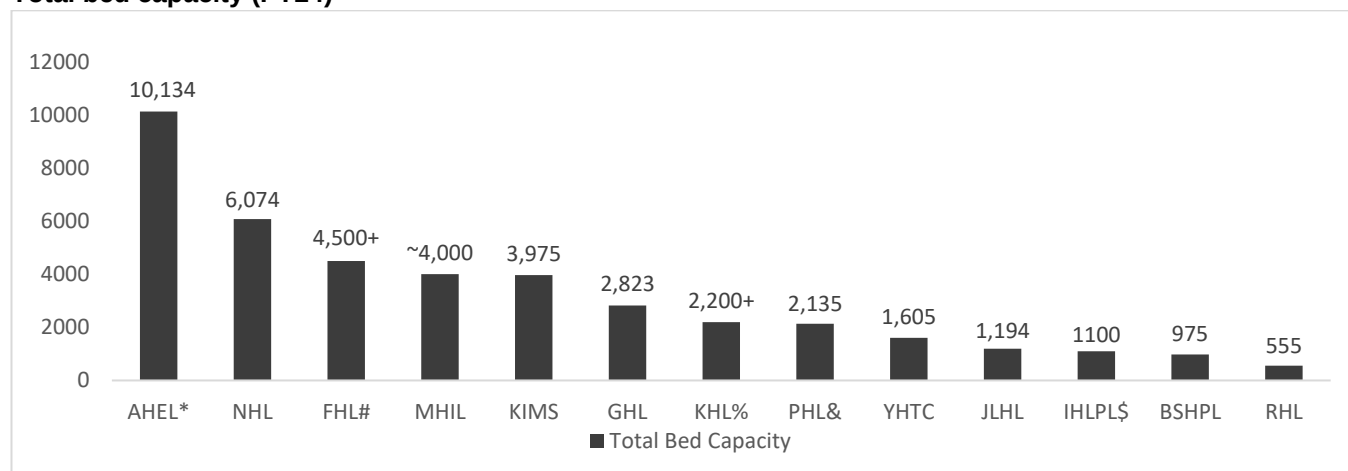
Company (FY24)	ICU beds
GHL	664
PHL	425
YHTC	455
KHL*	500

Note: Other peers do not report total ICU beds, hence have been excluded in the above table

* For KHL, the number is as reported by the company on its website assessed in July 2024

Source: Investor Presentation, CRISIL MI&A

Total bed capacity (FY24)



Note:

For BSHPL, IHLPL, RHL and KHL, the numbers are as reported in the Company's website accessed in the July 2024. For rest of the companies, the numbers are as reported by the respective companies in their Q4FY24 investor presentations

* For Apollo Hospitals Enterprise Ltd.(AHEL)), total bed capacity include beds of Apollo Hospitals Enterprise Ltd. And Apollo Health and Life Style Ltd. (Retail Healthcare Formats)

#For FHL, beds shown in above chart are operational beds from owned and managed hospitals

^ For Jupiter Life Line Hospital Ltd (JLHL), Total bed capacity includes census beds (bed available for mid-night occupancy such as intensive care units ("ICUs"), wards etc.) and non-census beds (all other bed available other than census beds, such as day-care beds, casualty beds etc.)

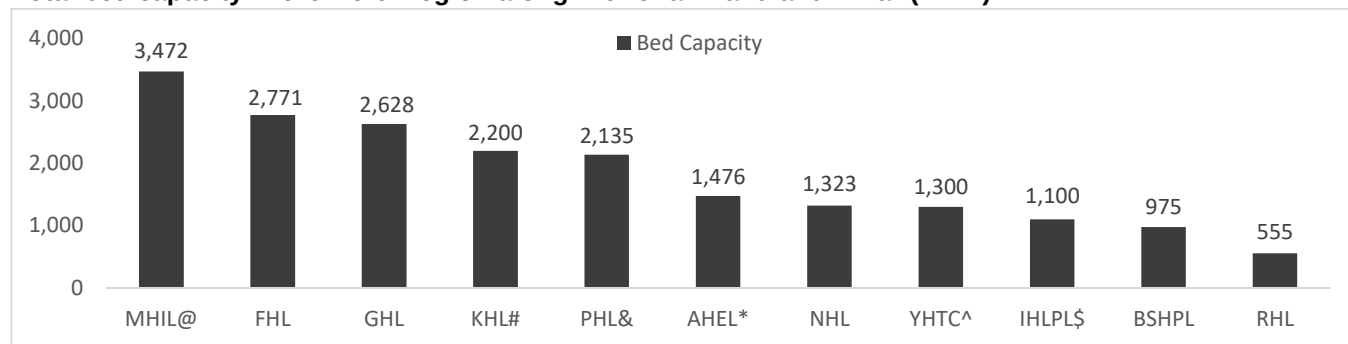
% For KHL, bed capacity is as reported by the company on its website accessed in July 2024

& For PHL, Total bed capacity is as of June 2024

\$ For IHLPL, the company reports having close to 1,100 beds across facilities on its website

Source: Investor Presentation, Annual Report, CRISIL MI&A

Total bed capacity in the North region along with Jharkhand and Bihar (FY24)



Note: North region consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

* For Apollo Hospitals Enterprise Ltd.(AHEL), as defined by the company in its investor presentation, the total beds in the north region across its 12 hospitals is 1,656 beds which includes the bed capacity of Apollo Hospital, Indore. As CRISIL does not include Madhya Pradesh in the North region and considers North region to consist of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan. The bed capacity of Apollo Hospital, Indore (180 beds, as reported by the company on its website) is deducted from 1,656 to arrive at bed capacity in the North region which is 1,476 beds

@ For Max Healthcare Institute Ltd. (MHIL), Bed capacity of Nagpur and Mumbai Hospitals are deducted from the total bed capacity to arrive at Bed capacity in the North region

& For Paras Healthcare Ltd. (PHL), Total bed capacity is as of June 2024

^ For Yatharth Hospital and Trauma Care Services Ltd., the company's hospital at Jhansi-Orchha-Gwalior has been considered under Madhya Pradesh, hence the Hospital's bed capacity has not been included under the North region

For Kailash Helathcare Ltd. (KHL), The number is as reported by the company on its website accessed in July 2024

\$ For IHLPL, the company reports having close to 1,100 beds across facilities on its website

For BSHPL, IHLPL, RHL and KHL, the numbers are as reported in the Company's website accessed in the July 2024

JLHL and KIMS have been excluded from the above table as they do not have any presence in this region

Source: Investor Presentation, Company website, CRISIL MI&A

State-wise presence of hospitals of key players in the North region and select states of East region

Company	Jammu and Kashmir	Rajasthan	Uttar Pradesh	Delhi	Haryana	Uttarakhand	Punjab	Jharkhand	Bihar
AHEL\$	-	-	2	1	-	-	-	-	-
FHL	-	1	2	6	3	-	4	-	-
GHL	-	-	1	-	1	-	-	1	1
JLHL	-	-	-	-	-	-	-	-	-
KIMS	-	-	-	-	-	-	-	-	-
MHIL	-	-	2	7	1	1	2	-	-
NHL	1	1	-	1	1	-	-	1	-
PHL*	1	1	1	-	2	-	-	1	2
YHTC	-	-	4	-	1	-	-	-	-
BSHPL^	-	-	1	-	1	-	-	1	1
IHLPL	-	-	-	-	-	-	5	-	-
KHL	-	-	5	1	-	1	-	-	-
RHL	-	-	5	-	-	-	-	-	-

Note: North region consists of states like Jammu and Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan.

\$ For Apollo Hospitals Enterprise Ltd.(AHEL), Presence of hospitals in the north region and select states of east region is as reported by the company on its websites assessed in July 2024. Indore hospital considered in north region on the website has

not been considered in the above table due to difference in our definition of north region. The presence of Apollo Spectra hospitals across these states has not been considered in the above table.

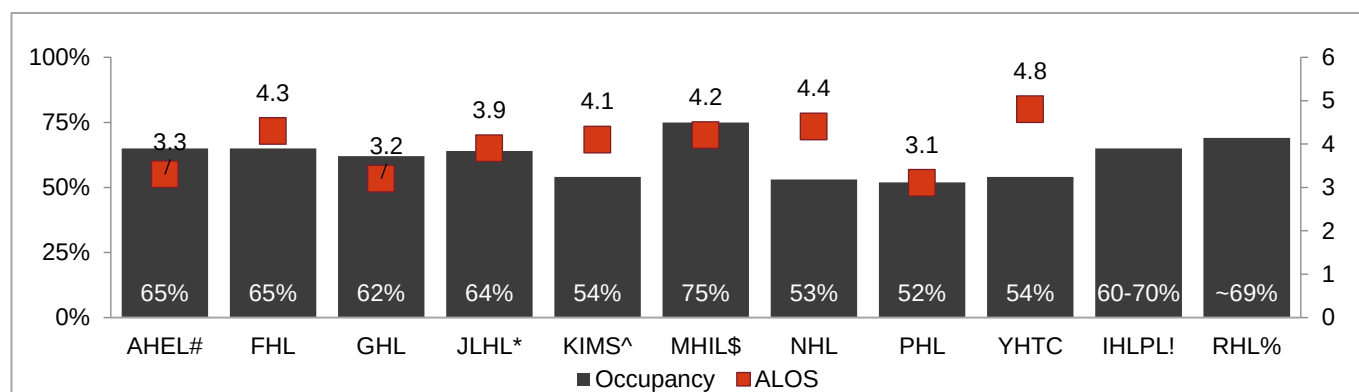
% For Blue Sapphire Healthcare Pvt. Ltd.(BSHPL), the company's website mentions 5 hospitals but as of 4/7/2024, the company has only 4 operational hospitals

* For Paras Healthcare Ltd. (PHL), As of June 2024, the company has 8 hospitals which includes Paras Hospital, Kanpur that started operations in April 2024

The data is as per the company's website accessed in June 2024

Source: Investor Presentation, Company website, CRISIL MI&A

Occupancy rate (OR) and ALOS for FY24



Note: Occupancy rate and ALOS is as reported for all the companies except Narayana Hrudalaya Ltd.(NHL) for which Occupancy Rate is calculated using ALOS, Operational beds and IP footfalls .

The numbers have been rounded off to the nearest decimal place

* For Jupiter Life Line Hospitals (JLHL), Average occupancy rate is calculated as census occupied bed days (i.e. midnight census of occupied census beds during the period) divided by available census bed days (i.e. census bed capacity multiplied by the applicable days in the relevant period)

For Jupiter Life Line Hospitals (JLHL), ALOS is the average length of stay of patients in a specific period, calculated as census occupied bed days (i.e. midnight census of occupied census beds during the period) divided by inpatient volume.

^ For Krishna Institute of Medical Sciences Ltd. (KIMS), Occupancy rate is mentioned as % to bed capacity

Inpatient ALOS Days

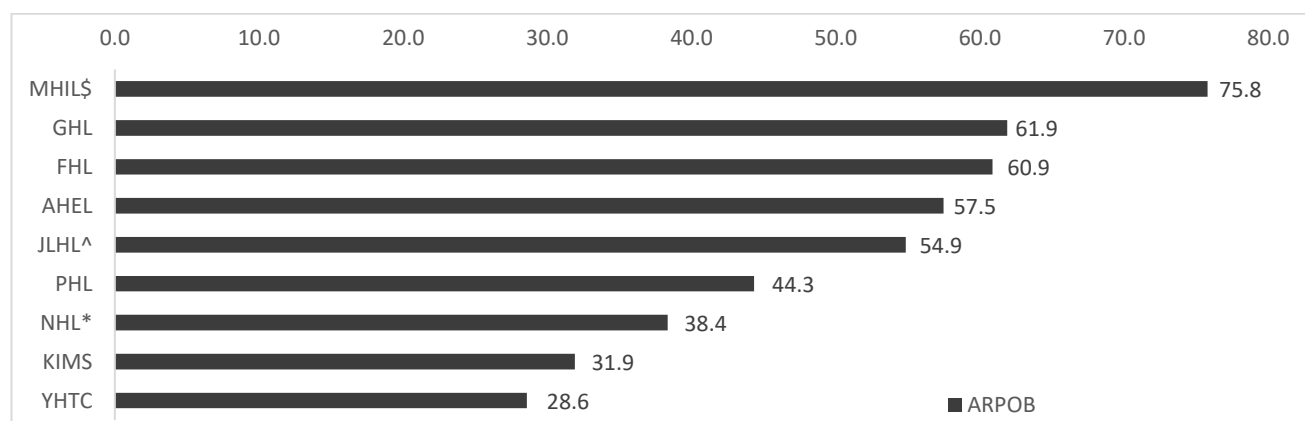
\$ For Max Healthcare Institute Ltd.(MHIL), ALOS is calculated for discharged IP patients

! For Ivy Health and Lifesciences Pvt. Ltd. (IHLPL), Occupancy rate data is from credit rating dated November 9, 2023. ALOS is not available

% For Regency Hospital Ltd. (RHL), 9MFY24 Occupancy rate is considered from credit rating dated March 4, 2024. ALOS is not available

Source: Investor Presentation, Credit Rating, CRISIL MI&A

Average revenue per occupied bed (ARPOB) for FY24 (Rs. '000)



Note: ARPOB in '000 per occupied bed per day

ARPOB is as reported for all the companies except Narayana Hrudalaya Ltd.(NHL)

* For Narayana Hrudalaya Ltd.(NHL), Total ARPOB for FY24 is given as 1.4 crore which is divided by 365 to arrive at the above figure

^ For Jupiter Life Line Hospitals Ltd. (JLHL), ARPOB is calculated as income from hospital services divided by census occupied bed days (i.e. midnight census of occupied census beds during the period)

\$ For Max Healthcare Institute Ltd., ARPOB calculated as gross revenue/total OBD; Gross revenue excludes revenue from Max Lab operations & includes revenue from Max Hospital Nagpur & Max Hospital Lucknow during relevant periods

Data for BSHP, IHLPL, KHL and RHL was not available

Source: Investor Presentation, CRISIL MI&A

Select operational parameters of key players (FY24)

Key operational parameters (FY24)	Inpatient Volume	Outpatient Volume	Inpatient Revenue (Rs. Million)	Outpatient Revenue (Rs. Million)	Operational beds
AHEL	5,69,988	19,22,696 ¹	87,045	21,304	9,369 ¹⁵
FHL	NA	NA	50,590 ³	8,262 ³	4,500+ ²
GHL	1,55,915	26,83,293	28,138 ⁴	5,360 ⁴	2,823
JLHL	49,100 ⁵	8,31,200 ⁶	8,604	1,994	961 ⁷
KIMS	1,91,167	15,87,997	NA	NA	3,503
MHIL	2,31,625 ⁸	25,05,000 ⁹	NA	NA	~4,000 ¹⁰
NHL	2,36,000 ¹¹	25,41,000 ¹²	29,099 ¹³	10,672 ¹³	5,332
PHL	81,047	5,69,139 ¹⁴	9,225	1,642	1,332
YHTC	49,000	3,27,000	5,886	819	1,605

Note: NA: Not Available

1 For Apollo Hospitals Enterprise Ltd. (AHEL), Outpatient volume represents new registrations only.

2 Operational Beds consists of owned beds and managed beds

3 For Fortis Healthcare Ltd. (FHL), Inpatient Revenue and Outpatient Revenue is calculated by using the speciality mix and the gross revenue from hospital business as reported by the company

4 For Global Health Ltd. (GHL), Inpatient Revenue and Outpatient Revenue is calculated by using the IPD/OPD revenue breakdown and total revenue reported by the company

5 For Jupiter Life Line Hospitals (JLHL), Inpatient volume refers to the total number of inpatient discharge in a specific period irrespective of admission date

6 For Jupiter Life Line Hospitals (JLHL), Out-patient volume refers to the total number of Out-patient bills generated in a specific period.

7 For Jupiter Life Line Hospitals (JLHL), Operational beds includes census beds (bed available for mid-night occupancy such as intensive care units ("ICUs"), wards etc.) and non-census beds (all other bed available other than census beds, such as day-care beds, casualty beds etc.)

8 For Max healthcare institute Ltd. (MHIL), Inpatient Volume is calculated basis number of patients discharged.

9 For Max healthcare institute Ltd. (MHIL), Outpatient volume refers to outpatient consults

10 For Max healthcare institute Ltd. (MHIL), Operational beds indicates current capacity of beds

11 For Narayana Hrudalaya Ltd. (NHL), Inpatient volume refers to IP footfalls which corresponds to discharges

12 For Narayana Hrudalaya Ltd. (NHL), Outpatient volume refers to OP footfalls which includes day-care business

13 For Narayana Hrudalaya Ltd. (NHL), Inpatient revenues and Outpatient revenues are calculated using average revenue per patient (IP/OP) and IP/OP footfalls

14 For Paras Healthcare Ltd. (PHL), Outpatient Volume refers to OPD consults

15 For Apollo Hospitals Enterprise Ltd. (AHEL), Operational beds of Apollo Hospitals Enterprise Ltd.(Hospitals) and Apollo Health and Life Style Ltd.(Retail Healthcare Formats) are considered

Source: Investor Presentation, CRISIL MI&A

Capex planned by key players

Company Name	Planned capex in terms of no. of beds	Planned beds as a percentage of existing bed capacity
AHEL	2,860	28.22%
FHL	~2,200	48.89%
GHL	1,250*	44.28%
JLHL	1,300	108.88%
KIMS	1,835	46.16%
MHIL	4,150	103.75%
NHL	1,000	16.46%
PHL	1,050	49.18%
YHTC	NA	NA

Note: Capex plan is for next 4-6 fiscals and includes potential expansion of the existing facilities and setting up of new facilities.

Source: Investor Presentation, Concall Transcripts, CRISIL MI&A

4.3. Key financial parameters of major hospital players

Revenue from Operations

Revenue from Operations (Rs Million)	FY22	FY23	FY24	YoY Growth (FY22-FY23)	YoY Growth (FY23-24)	CAGR (FY22-24)
AHEL	1,46,769.00	1,66,265.00	1,90,592.00	13.28%	14.63%	13.96%
FHL	56,567.21	62,240.00	68,929.20	10.03%	10.75%	10.39%
GHL	21,771.56	27,123.51	32,751.11	24.58%	20.75%	22.65%
JLHL	7,371.44	9,029.63	10,954.82	22.49%	21.32%	21.91%
KIMS	16,637.55	22,018.48	24,981.44	32.34%	13.46%	22.54%
MHIL**	52,180.00	59,040.00	68,490.00	13.15%	16.01%	14.57%
NHL	37,081.70	45,427.51	50,182.49	22.51%	10.47%	16.33%
PHL	7,799.24	9,179.20	11,290.39	17.69%	23.00%	20.32%
YHTC	4,018.71	5,224.89	6,705.47	30.01%	28.34%	29.17%
BSHPL	4,092.46	4,239.64	NA	3.60%	NA	NA
IHLPL	3,659.11	NA	NA	NA	NA	NA
KHL	5,484.65	5,709.44	NA	4.10%	NA	NA
RHL	3,680.66	4,292.35	NA	16.62%	NA	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

** For MHIL, Total operating income for the whole group is considered from the investor presentation

Values are as per CRISIL MI&A standards and may not match company reported numbers

Source: Annual reports, Investor presentations, CRISIL MI&A

Total Income

Total Income (Rs. Million)	FY22	FY23	FY24	YoY Growth (FY22-FY23)	YoY Growth (FY23-24)	CAGR (FY22-24)
AHEL	1,47,216.00	1,66,284.00	1,91,835.00	12.95%	15.37%	14.15%
FHL	57,364.71	63,295.81	69,406.80	10.34%	9.65%	10.00%

Consulting

GHL	21,981.87	27,485.46	33,497.75	25.04%	21.87%	23.45%
JLHL	7,371.44	9,029.63	10,954.82	22.49%	21.32%	21.91%
KIMS	16,763.54	22,157.07	25,109.29	32.17%	13.32%	22.39%
MHIL	NA	NA	NA	NA	NA	NA
NHL	37,044.35	45,674.80	50,934.38	23.30%	11.52%	17.26%
PHL	7,931.72	9,360.53	11,510.23	18.01%	22.97%	20.46%
YHTC	4,025.86	5,231.00	6,861.57	29.93%	31.17%	30.55%
BSHPL	4,130.43	4,284.16	NA	3.72%	NA	NA
IHLPL	3,693.85	NA	NA	NA	NA	NA
KHL	5,540.95	5,749.03	NA	3.76%	NA	NA
RHL	3,736.90	4,328.71	NA	15.84%	NA	NA

Note: NA: Not Available;

All values have been considered on a consolidated basis

For MHIL, total income is NA as the company does not report total income at a group level in its investor presentation

Values are as per CRISIL MI&A standards and may not match company reported numbers

Total Income = Revenue from operations + Non-operating income

Source: Annual reports, Investor presentations, CRISIL MI&A

Operating profit before depreciation, interest, and tax (OPBDIT)

OPBDIT (Rs Million)	FY22	FY23	FY24	CAGR (FY22-24)
AHEL	22,040.00	20,789.00	23,907.00	4.15%
FHL	10,081.36	10,345.00	12,676.40	12.13%
GHL	4,721.65	6,393.99	8,283.89	32.46%
JLHL	1,582.16	2,122.94	2,641.38	29.21%
KIMS	5,287.19	6,081.81	6,404.26	10.06%
MHIL**	13,900.00	16,360.00	19,070.00	17.13%
NHL	6,842.79	10,122.16	11,523.59	29.77%
PHL	1,152.68	1,226.29	1,190.43	1.62%
YHTC	1,129.10	1,373.56	1,799.39	26.24%
BSHPL	476.51	323.12	NA	NA
IHLPL	955.22	NA	NA	NA
KHL	907.42	989.41	NA	NA
RHL	778.43	895.13	NA	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

Values are as per CRISIL MI&A standards and may not match company reported numbers

** For MHIL, Operating EBITDA from the investor presentation is considered in the above table

OPBDIT = Operating income - total expenses before interest tax, depreciation and extraordinary items

Source: Annual reports, Investor presentations, CRISIL MI&A

Earnings before interest, tax, depreciation, and amortisation (EBITDA)

EBITDA (Rs. Million)	FY22	FY23	FY24	YoY Growth (FY22-FY23)	YoY Growth (FY23-24)	CAGR (FY22-24)
AHEL	22,487.00	20,808.00	25,150.00	-7.47%	20.87%	5.76%
FHL	10,878.86	11,400.82	13,154.00	4.80%	15.38%	9.96%
GHL	4,931.97	6,755.94	9,030.53	36.98%	33.67%	35.32%
JLHL	1,582.16	2,122.94	2,641.38	34.18%	24.42%	29.21%
KIMS	5,413.18	6,220.40	6,532.11	14.91%	5.01%	9.85%
MHIL**	13,900.00	16,360.00	19,070.00	17.70%	16.56%	17.13%
NHL	6,805.44	10,369.45	12,275.48	52.37%	18.38%	34.30%
PHL	826.52	876.14	1,544.11	6.00%	76.24%	36.68%
YHTC	1,136.25	1,379.67	1,955.49	21.42%	41.74%	31.19%
BSHPL	514.49	367.63	NA	-28.54%	NA	NA
IHLPL	989.96	NA	NA	NA	NA	NA
KHL	963.72	1,029.00	NA	6.77%	NA	NA
RHL	834.67	931.49	NA	11.60%	NA	NA

Note: NA: Not Available, NM: Not Meaningful

All values have been considered on a consolidated basis

** For MHIL, Operating EBITDA from the investor presentation is considered in the above table

Values are as per CRISIL MI&A standards and may not match company reported numbers

EBITDA = OPBDIT + non-operating income

Source: Annual reports, Investor presentations, CRISIL MI&A

Profit Before Tax (PBT)

Profit Before Tax (Rs. Million)	FY22	FY23	FY24	CAGR (FY22-24)
AHEL	15,854.00	10,939.00	13,805.00	-6.69%
FHL	9,877.87	8,136.80	8,579.70	-6.80%
GHL	2,805.57	4,492.90	6,258.64	49.36%
JLHL	874.43	1,330.31	1,952.63	49.43%
KIMS	4,581.16	4,849.07	4,562.14	-0.21%
MHIL**	9,790.00	12,980.00	15,940.00	27.60%
NHL	4,297.78	7,515.77	8,885.28	43.79%
PHL	30.51	-270.53	66.30	47.41%
YHTC	613.08	864.12	1,563.44	59.69%
BSHPL	-50.72	-255.99	NA	NA
IHLPL	478.02	NA	NA	NA
KHL	586.44	645.43	NA	NA
RHL	381.54	456.05	NA	NA

Note: NA: Not Available, NM: Not Meaningful

All values have been considered on a consolidated basis

** For MHIL, PBT for the whole group is considered from the investor presentation

Source: Annual reports, Investor presentations, CRISIL MI&A

Consulting

Profit After Tax (PAT)

PAT (Rs Million)	FY22	FY23	FY24	CAGR (FY22-24)
AHEL	11,084.00	8,443.00	9,350.00	-8.15%
FHL	7,899.45	6,329.84	6,452.20	-9.62%
GHL	1,961.98	3,260.79	4,780.60	56.10%
JLHL	511.28	729.05	1,766.12	85.86%
KIMS	3,437.95	3,658.13	3,360.07	-1.14%
MHIL**	8,370.00	10,840.00	12,780.00	23.57%
NHL	3,421.20	6,065.66	7,896.24	51.92%
PHL	-148.08	-427.92	-153.31	NM
YHTC	441.66	657.65	1,144.75	60.99%
BSHPL	-69.84	-257.33	NA	NA
IHLPL	286.53	NA	NA	NA
KHL	467.72	480.65	NA	NA
RHL	286.00	313.93	NA	NA

Note: NA: Not Available, NM: Not Meaningful

All values have been considered on a consolidated basis

** For MHIL, PAT for the whole group is considered from the investor presentation

Source: Annual reports, Investor presentations, CRISIL MI&A

OPBDIT Margin

OPBDIT Margin (%)	FY22	FY23	FY24
AHEL	15.02	12.50	12.54
FHL	17.82	16.62	18.39
GHL	21.69	23.57	25.29
JLHL	21.46	23.51	24.11
KIMS	31.78	27.62	25.64
MHIL**	26.60	27.70	27.80
NHL	18.45	22.28	22.96
PHL	14.78	13.36	10.54
YHTC	28.10	26.29	26.83
BSHPL	11.64	7.62	NA
IHLPL	26.11	NA	NA
KHL	16.54	17.33	NA
RHL	21.15	20.85	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

** For MHIL, Operating EBITDA margin is considered as OPBDIT margin as reported by the company in its Q4FY24 investor presentation

Values are as per CRISIL MI&A standards and may not match company reported numbers

Operating margin = OPBDIT / Operating Income

Source: Annual reports, Investor presentations, CRISIL MI&A

Consulting

EBITDA Margin

EBITDA Margin (%)	FY22	FY23	FY24
AHEL	15.32	12.51	13.20
FHL	19.23	18.32	19.08
GHL	22.65	24.91	27.57
JLHL	21.46	23.51	24.11
KIMS	32.54	28.25	26.15
MHIL**	26.60	27.70	27.80
NHL	18.35	22.83	24.46
PHL	10.60	9.54	13.68
YHTC	28.27	26.41	29.16
BSHPL	12.57	8.67	NA
IHLPL	27.05	NA	NA
KHL	17.57	18.02	NA
RHL	22.68	21.70	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

** For MHIL, EBITDA margin is considered for the whole group as reported by the company in its Q4FY24 investor presentation

Values are as per CRISIL MI&A standards and may not match company reported numbers

EBITDA margin = EBITDA / Operating Income

Source: Annual reports, Investor presentations, CRISIL MI&A

PAT Margin

PAT Margin (%)	FY22	FY23	FY24
AHEL	7.53	5.08	4.87
FHL	13.77	10.00	9.30
GHL	8.93	11.86	14.27
JLHL	6.94	8.07	16.12
KIMS	20.51	16.51	13.38
MHIL**	16.00	18.40	18.70
NHL	9.24	13.28	15.50
PHL	-1.87	-4.57	-1.33
YHTC	10.97	12.57	16.68
BSHPL	-1.69	-6.01	NA
IHLPL	7.76	NA	NA
KHL	8.44	8.36	NA
RHL	7.65	7.25	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

** For MHIL, PAT margin is considered for the whole group as reported by the company in its Q4FY24 investor presentation

Values are as per CRISIL MI&A standards and may not match company reported numbers

Consulting

$PAT\ margin = PAT / Total\ Income$

Source: Annual reports, Investor presentations, CRISIL MI&A

Return on Equity / Return on Net Worth

ROE / RoNW (%)	FY22	FY23	FY24
AHEL	24.17	16.44	16.11
FHL	28.86	20.87	17.27
GHL	13.89	16.17	17.96
JLHL	19.17	22.41	23.09
KIMS	33.37	25.70	20.53
MHIL	66.41	66.43	41.69
NHL	28.71	37.56	35.22
PHL	-	-	-
YHTC	56.88	62.04	24.06
BSHPL	-40.77	-447.48	NA
IHLPL	19.78	NA	NA
KHL	26.65	21.83	NA
RHL	17.77	16.46	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

Values are as per CRISIL MI&A standards and may not match company reported numbers

$ROE / RoNW = PAT / Average\ tangible\ net\ worth$

$Tangible\ Networth = Total\ paid\ up\ equity\ share\ capital + Gross\ Reserves + Goodwill - Intangible\ Assets$

Source: Annual reports, Investor presentations, CRISIL MI&A

Asset Turnover Ratio

Asset Turnover Ratio	FY22	FY23	FY24
AHEL	1.50	1.54	1.58
FHL	0.91	0.98	1.02
GHL	1.15	1.02	1.08
JLHL	0.87	0.97	1.12
KIMS	1.45	1.47	1.14
MHIL	1.64	1.72	1.55
NHL	1.29	1.46	1.41
PHL	1.34	1.14	1.02
YHTC	1.08	1.24	1.32
BSHPL	0.95	0.84	NA
IHLPL	0.81	NA	NA
KHL	1.27	1.23	NA
RHL	0.93	1.07	NA

Note: NA: Not Available

Consulting

All values have been considered on a consolidated basis

Values are as per CRISIL MI&A standards and may not match company reported numbers

Asset turnover ratio = Operating income/Average gross block

Source: Annual reports, Investor presentations, CRISIL MI&A

Return on Capital Employed (RoCE)

ROCE (%)	FY22	FY23	FY24
AHEL	25.47	17.80	19.95
FHL	29.70	24.15	21.47
GHL	18.35	18.87	21.40
JLHL	17.29	20.82	21.74
KIMS	37.04	28.76	20.64
MHIL	35.50	40.04	36.82
NHL	28.05	35.80	28.93
PHL	-	-	-
YHTC	28.08	30.32	25.90
BSHPL	5.83	1.90	NA
IHLPL	24.01	NA	NA
KHL	20.86	21.37	NA
RHL	14.49	15.29	NA

Note: NA: Not Available

All values have been considered on a consolidated basis

Values are as per CRISIL MI&A standards and may not match company reported numbers

RoCE = Profit before interest and tax (PBIT)/ (Average total debt + average tangible network + average deferred tax liability)

Source: Annual reports, Investor presentations, CRISIL MI&A

Capital Employed

Capital Employed (Rs. Million)	FY22	FY23	FY24
AHEL	94,279.00	101,944.00	119,439.00
FHL	38,098.02	45,156.50	52,154.20
GHL	26,908.75	35,380.91	36,647.53
JLHL^	8,153.87	8,687.69	11,703.56
KIMS	15,853.54	22,394.24	30,902.72
MHIL	26,683.50	33,747.40	46,393.20
NHL	21,537.84	28,149.56	43,027.02
PHL	5,338.15	7,802.19	12,568.24
YHTC	3,333.57	3,960.90	8,890.26
BSHPL^	3,641.41	3,545.21	NA
IHLPL	3,744.40	NA	NA
KHL^	3,400.09	3,500.74	NA
RHL	4,942.26	4,467.39	NA

Consulting

Note: NA: Not Available

All values have been considered on a consolidated basis

^ for JLHL, BSHPL, and KHL, capital employed is calculated excluding lease liabilities as these companies have not reported this number

Values are as per CRISIL MI&A standards and may not match company reported numbers

Capital Employed = Total Debt + Tangible Network + Deferred tax liability + Lease liabilities

Tangible Network = Total paid up equity share capital + Gross Reserves + Goodwill - Intangible Assets

Source: Annual reports, Investor presentations, CRISIL MI&A

Key Costs as percentage of Operating Income for key players (FY24)

FY24	Material Cost as % of Operating Income	Employee Cost as % of Operating Income	Other Expenses as % of Operating Income
AHEL	51.45%	13.08%	22.92%
FHL	23.48%	16.24%	41.88%
GHL	23.19%	22.44%	29.08%
JLHL	17.30%	17.34%	41.25%
KIMS	21.23%	16.91%	36.23%
MHIL*	23.87%^	19.99%**	28.30%***
NHL	21.40%	20.01%	35.62%
PHL	26.28%	14.81%	48.36%
YHTC	19.88%	17.45%	35.83%

Note:

All values have been considered on a consolidated basis

BSHPL, IHLPL, KHL and RHL have not been included in the above table as their FY24 financials is not available

Values are as per CRISIL MI&A standards and may not match company reported numbers

Material Costs include Material costs, Traded Goods Purchased, Accretion: Decretion to stocks

Other Expenses include Rent, Repair and Maintenance, Travelling Conveyance, Printing and Stationary, Legal Professional Charges, Advertising Promotional Expenses, Power, Fuel and water expense, Security expense, Outsourced medical services Etc.

For MHIL, All the expenses and Total operating income have been considered for the whole group with values taken from the Q4FY24 investor presentation

^ For MHIL, Pharmacy, drugs, consumables & other direct costs from the Q4FY24 investor presentation has been considered as material cost

**For MHIL, Employee benefit expense from the Q4FY24 investor presentation has been considered as employee cost which Includes non-clinical doctors on retainerhip & movement in OCI for actuarial valuation impact but excludes ESOP expenses.

*** For MHIL, Other expense include cost of admitting doctors, net provision for doubtful debts & excludes movement in fair value of contingent consideration and amortisation of contract assets, which is reflected below operating EBITDA

Source: Annual reports, Investor presentations, CRISIL MI&A

Retainers and Consultants / professional fee of key players (FY24)

FY24	Retainers and Consultants fee (Rs. Million)
AHEL	NA
FHL*	14,595.10
GHL\$	4,270.28
JLHL^	2,713.58

Consulting

KIMS	NA
MHIL%	11,168.90
NHL#	8,847.01
PHL\$	2,939.84
YHTC	NA

Note: NA: Not Available

BSHPL, IHLPL, KHL and RHL have not been included in the above table as their FY24 financials is not available

* For FHL, Professional charges to doctors is considered in the above table

^ For JLHL, Professional fees is considered in the above table

% For MHIL, Professional and consultancy fees is considered in the above table

For NHL, Professional fees to doctors is considered in the above table

\$For GHL and PHL, retainers and consultants fee is considered in the above table

Source: Quarterly financial statement, CRISIL MI&A

Debt to equity ratio (FY24)

FY24	Debt to equity Ratio
AHEL	0.51
FHL	0.22
GHL	0.14
JLHL	0.00
KIMS	0.61
MHIL	0.41
NHL	0.55
PHL	1.65
YHTC	0.10

Note:

BSHPL, IHLPL, KHL and RHL have not been included in the above table as their FY24 financials is not available

All values have been considered on a consolidated basis

Values are as per CRISIL MI&A standards and may not match company reported numbers

Debt to equity ratio = Total Debt / Tangible Networkth

Tangible Networkth = Total paid up equity share capital + Gross Reserves + Goodwill - Intangible Assets

Source: Annual reports, Investor presentations, CRISIL MI&A

Capex per bed of key players (FY24) (Rs. Millions)

FY24	Gross Block (Capex) / Bed*
AHEL^	12.80
FHL@	15.83
GHL	11.41
JLHL	8.39
KIMS	6.57
MHIL%	10.57

Consulting

NHL	6.31
PHL	5.84
YHTC	3.64

Note:

The average capex/ bed of the above considered players is Rs.10.17 million

BSHPL, IHLPL, KHL and RHL have not been included in the above table as their FY24 financials is not available

* Total bed Capacity has been considered

Bed Capacity numbers are as reported by the company in its Q4FY24 investor presentation

^ For Apollo Hospitals Enterprise Ltd.(AHEL), bed capacity include beds of Apollo Hospitals Enterprise Ltd. And Apollo Health and Life Style Ltd. (Retail Healthcare Formats)

@ For Fortis Healthcare Ltd (FHL), total operational beds include beds from owned and managed hospitals

% For Max Healthcare Institute Ltd. (MHIL), Current Capacity of beds is taken as total operational beds

Capex per bed = Gross Block / Bed capacity

Source: Annual reports, Investor presentations, CRISIL MI&A

Other Key parameters of key players (FY24)

FY24	Book Value (NAV per share) (Rs.)	Face Value/ Share	Earnings Per Share- Basic* (Rs.)	Earnings Per Share- Diluted* (Rs.)
AHEL	429.24	5	62.50	62.50
FHL	52.30	10	7.93	7.93
GHL	108.01	2	17.80	17.80
JLHL	177.93	10	28.65	28.65
KIMS	215.00	10	38.75	38.75
MHIL	29.07	10	10.89	10.84
NHL	128.90	10	38.86	38.86
PHL	-	1	-1.57	-1.57
YHTC	94.89	10	14.46	14.46

Note: All values are considered on a consolidated basis

BSHPL, IHLPL, KHL and RHL have not been included in the above table as their FY24 financials is not available

* Earnings per share (Basic/Diluted) is not restated as per CRISIL classifications and is as reported by the companies in its quarterly/annual results

Book Value = (Tangible Network) / ((Total paid up equity share capital / Face value per share))

Tangible Network = Total paid up equity share capital+ Gross Reserves + Goodwill - Intangible Assets

Key Observations

- Among the peers considered, PHL has the fifth largest bed capacity in North India, Bihar and Jharkhand combined with an aggregate of 2,135 beds, as of March 31, 2024.
- PHL reported the lowest ALOS of 3.1 in FY24 among the peers considered for which data is available.
- PHL had a capex / bed of Rs 5.84 million / bed as of March 31, 2024, which is the second lowest among the peers considered for which data is available.

- Among the peers considered, Paras Hospital, Gurgaon was the first corporate hospital entrant in Gurgaon in 2006.
- Paras Hospital Panchkula is the only hospital in Panchkula which has Radiotherapy centre licensed by Atomic Energy Regulatory Board as of September 2023.
- Paras HMRI Hospital, Patna was the first corporate hospital in Bihar to have a cancer treatment centre licensed by the Atomic Energy regulatory board.
- PHL reported the second highest year-on-year growth of 23.00% in revenue from operations among the peers considered, where its revenue from operations increased from Rs. 9,179.20 in FY23 to Rs. 11,290.39 in FY24.
- PHL has presence in 6 out of the 9 states considered in terms of hospitals in the North Region along with Jharkhand and Bihar which is the highest among the peers under consideration.
- Paras Hospital, Srinagar is the largest private hospital in Srinagar in terms of bed capacity with 200 beds as of March 2024.
- Paras Hospital, Kanpur is the largest private (for profit) / private (non-trust based) hospital in Kanpur in terms of bed capacity with 435 beds as of June 2024.
- As per NABH portal accessed in June 2024, Paras HMRI Hospital, Patna was the first hospital in Bihar to receive NABH accreditation in 2016.
- As per NABH portal accessed in June 2024, Paras Hospital, Gurgaon was the first hospital in Haryana to receive NABH accreditation in 2009.
- As per NABH portal accessed in June 2024, Paras Hospital, Udaipur was the third hospital in Udaipur to receive NABH accreditation in 2021.



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