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India Health System Review



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India Health System Review

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Contents

Preface	ix
Acknowledgements	xi
Acronyms and abbreviations	xii
Glossary	xx
Executive summary	1
1. Introduction	7
Chapter summary	7
1.1 Geography and sociodemography	8
1.2 Population dynamics	9
1.3 Economic context	16
1.4 Political context	22
Health status	25
2. Organization and Governance	35
Chapter Summary	35
2.1 Overview of the health system	36
2.2 Historical background	39
2.3 Organization	42
2.4. Centralisation and decentralization	50
2.5 Policy and planning	52
2.6 Intersectorality	56
2.7 Health information management	57
2.8 Regulation	61
2.9 Patient empowerment	73
3. Health financing	78
Chapter summary	78
3.1 Health expenditure	79
3.2 Sources of revenue and financing flows	83
3.3 Overview of public financing schemes	91
3.4 Households' out of pocket spending	103
3.5 Voluntary health insurance	110
3.6 Other Types of financing	114
3.7 Payment mechanisms	116
4. Physical and human resources	119
Chapter summary	119
4.1 Physical resources	121
4.2 Human resources	136

5. Provision of services	156
Chapter summary	156
5.1 Public health programmes	157
5.2 Patient care pathways	169
5.3 Outpatient services	170
5.4 Inpatient care services	172
5.5 Emergency care	176
5.6 Pharmaceuticals	177
5.7 Rehabilitation/intermediate care	181
5.8 Long-term care for the elderly	183
5.9 Informal caregivers	184
5.10 Palliative care	184
5.11 Mental health care	186
5.12 Dental care	187
5.13 Complementary and alternative medicine (CAM) and traditional medicine	189
5.14 Unqualified and informal health-care providers	189
6. Principal health reforms	191
Chapter summary	191
6.1 Analysis of key policy developments since 1950	192
7. Assessment of the health system	216
Chapter summary	216
7.1 Stated objectives of the health system	217
7.2 Financial protection and equity	219
7.3 User experience and equity in access to care	225
7.4 Health outcomes, health service outcomes and quality of care	229
7.5 Health system efficiency	237
7.6 Transparency and accountability	240
7.7 Health system preparedness with respect to COVID-19	242
8. Conclusions	244
8.1 Key findings	244
8.2 Lessons learned from health system changes	246
8.3 Future prospects	248
9. Appendices	252
9.1 References	252
9.2 Useful Websites	295
9.3 HiT methodology and production process	296
9.4 About the authors and editor	297
Asia Pacific Observatory on Health Systems and Policies (APO) publications to date	299

List of figures

Figure 1.1	Map of India in South Asia	9
Figure 1.2	Variations in DPT3 coverage across area of residence, mother's education, religion, caste/tribe status, poverty status and wealth quintiles	30
Figure 2.1	Health in India, roles and functions of key players at the national level	43
Figure 2.2	Organization of health: relationships between the Union, state and district levels.....	45
Figure 3.1	Current health expenditure as a share of GDP (%) in selected Asian countries 2018	80
Figure 3.2	Current health expenditure as a percentage of GDP in six Asian countries, 2018	81
Figure 3.3	Current health expenditure per capita at PPP international US\$ in selected Asian countries in 2018.....	81
Figure 3.4	Domestic general government health expenditure (% of current health expenditure)- in selected Asian countries in 2018	82
Figure 3.5	Financial flows of all health funds in India	89
Figure 3.6	Financial flows of tax funds in India, 2020	90
Figure 3.7	Trends in allocation, utilization and unspent funds under the National Health Mission (NHM)	98
Figure 3.8	Trends in share of OOP spending in India (as percentage of total consumption expenditure of households) from 1993–1994 to 2011–2012.....	104
Figure 3.9	Monthly household OOP expenditure on health in India, 2011–2012 (INR), by consumption expenditure group	105
Figure 3.10	Increase in the number of people going below poverty line due to OOP payments in India (in millions), selected years	106
Figure 3.11	Trends in health insurance premium revenues in India, 2005–2018	111
Figure 4.1	Schematic representation of service delivery in public sector (dash line indicates possible but less common)	122
Figure 4.2	Share of government capital investment in total health expenditure of states, 1990–1991 to 2020–2021.....	124
Figure 4.3	Trends in investment, loans and advances by the corporate health sector in India: 2005 to 2014.....	125
Figure 4.4	Hospital beds (per 10 000 population), 2017.....	126

Figure 4.5	Hospital beds per 10 000 population in selected countries, 2000–2017	127
Figure 4.6	Density of medical equipment in India per million population by providers	134
Figure 4.7	Doctors registered with state medical councils	139
Figure 4.8	Medical doctors (per 10 000 population) in select countries, 2000–2019 or latest available	140
Figure 4.9	Registered nursing professionals in India, 2005–2017	141
Figure 4.10	Nursing and midwifery personnel density (per 10 000 population), 2000–2019	143
Figure 4.11	Pharmacist density (per 10 000 population), 2000–2019 (selected countries).....	145
Figure 4.12.	Accredited Social Health Activists (ASHAs), 2006–2020.....	147
Figure 5.1	Organization of health at the national level (simplified).....	158
Figure 5.2	Structure of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke, India	166
Figure 5.3	Percentage of inpatient services provided by private hospitals in each state, 2017–2018.....	174
Figure 5.4	Sales break-up across different channels	180
Figure 6.1	Utilization of NHM funds by its components, 2005–2006 to 2019–2020	200
Figure 6.2	Average per episode hospitalization expenditure by coverage of insurance schemes and type of provider (INR), 2017–2018	206
Figure 7.1	Out-of-pocket payments as a share of current health expenditure against per capita gross national income, selected countries, regions and income groups, 2018	221
Figure 7.2	Trends in socioeconomic differentials underlying institutional deliveries: all India (2005–2006 to 2015–2016)	228
Figure 7.3	Life expectancy levels during 1982–2013, Indian states.....	230
Figure 7.4	Infant mortality rates, major states, 2000 and 2018	231
Figure 7.5	Maternal mortality ratio, India and major states (2001–2003 to 2016–2018).....	232
Figure 7.6	Coverage of government health services: Percentage of villages in each state with any government health facility.....	233
Figure 7.7	Changes in availability of ANMs and female health workers in rural area by major states	234

Figure 7.8	Childbirth by normal and caesarean sections in public and private hospitals, 2017–2018.....	236
Figure 7.9	Immunization coverage in urban areas in select states: 2005–2006 and 2015–2016.....	237

List of tables

Table 1.1	Trends in population/demographic indicators for select years, India.....	10
Table 1.2	Population distribution as % of total by ethnicity/caste/religion, 2001, 2011, 2018–2019.....	15
Table 1.3	Macroeconomic indicators, selected years	17
Table 1.4	Mortality and health indicators, selected years	26
Table 1.5	Top 10 causes of death (by rate) in 2005 and 2019.....	26
Table 1.6	Top 10 causes of premature mortality (YLLs per 100 000 age standardized) in India, 2019	27
Table 1.7	Top 10 causes of YLDs in 2005 and 2019.....	29
Table 1.8	Maternal, child and adolescent health indicators, selected years	32
Table 3.1	Trends in health expenditure in India, 2000–2018.....	83
Table 3.2	Macroeconomic aggregates of combined revenue and expenditure of Central and state governments: 1999–2000 to 2019–2020	84
Table 3.3	Breadth and depth of coverage national health systems / schemes / missions	92
Table 3.4	Benefit package price variation for selected procedures by PM-JAY, ESIC/GCHS and private tertiary hospital	102
Table 3.5	Health service and user charges in the public health system by type in India.....	108
Table 4.1	Functioning government health infrastructure and bed position, 2019.....	128
Table 4.2	Health facilities operated by selected other government organizations	130
Table 4.3	Public hospitals and bed distribution in rural and urban areas (2004–2018; in thousands)	131
Table 4.4	Percentage use of public and private facilities for inpatient and outpatient care	132

Table 4.5	Medical and radio-oncological equipment per 10 000 000 population (2013 unless otherwise indicated).....	134
Table 4.6	Health worker density in India per 10 000 population, 1991 to 2019	137
Table 4.7	Registered nurses and pharmacists in India.....	142
Table 5.1	Percentage of treated ailments by type of health-care provider, 2017–2018	171
Table 5.2	Inpatient utilization patterns by region and economic status, 2017–2018.....	174
Table 6.1	Chronology of India’s health policy reforms and key milestones.....	192
Table 6.2	Average medical expenditure per child birth by type of hospital: 2004 and 2017–2018 (INR)	202
Table 7.1	Comparison of key goals and targets of the NHP 2002, 2017 and current status.....	218
Table 7.2	Health insurance coverage and reimbursement for hospitalization, by quintile groups, 2017–2018.....	221
Table 7.3	Percentage distribution of untreated spells of ailments by reason of “no treatment” among rural and urban households in India (1986–1987, 1995–1996, 2004, 2017–2018)	222
Table 7.4	Changes in sources of government revenue generation 2001–2002 and 2019–2020.....	223
Table 7.5	Sources of health expenditure (percentage).....	224
Table 7.6	Out-of-pocket expenditure on health by socioeconomic status: 2000–2018	225
Table 7.7	Households without basic amenities by caste and wealth (%), 2017–2018.....	229

List of boxes

Box 1.1	Health equity in India	14
Box 5.1	Patient pathway for CVD cases in India.....	170
Box 6.1	National Health Policy (NHP) 2017: key features.....	212

Preface

The Health Systems in Transition (HiT) profiles are country-based reports that provide a detailed description of a health system, and of reform and policy initiatives in progress or under development in a specific country. Each profile is produced by country experts in collaboration with international editors. To facilitate comparisons between countries, the profiles are based on a template, which is revised periodically. The template provides detailed guidelines and specific questions, definitions and examples needed to compile a profile.

A HiT profile seeks to provide relevant information to support policymakers and analysis in the development of health systems. This can be used:

- to learn in detail about different approaches to the organization, financing and delivery of health services, and the role of the main actors in health systems;
- to describe the institutional framework, process, content and implementation of health-care reform programmes;
- to highlight challenges and areas that require more in-depth analysis;
- to provide a tool for the dissemination of information on health systems and the exchange of experiences between policymakers and analysts in different countries implementing reform strategies; and
- to assist other researchers in more in-depth comparative health policy analysis.

Compiling the profiles poses a number of methodological issues. In many countries, there is relatively little information available on the health system and the impact of reforms. Due to the lack of a uniform data source, quantitative data on health services is based on a number of different sources, including the World Health Organization (WHO), national statistical offices, the Organisation for Economic Co-operation and Development (OECD) health data, the International Monetary Fund (IMF), the World Bank, and any other sources considered useful by the authors. Data collection methods and definitions sometimes vary, but typically are consistent within each separate series.

The HiT profiles can be used to inform policymakers about the experiences in other countries that may be relevant to their own national situation. They can also be used to inform comparative analyses of health systems. This series is an ongoing initiative, and the material will be updated at regular intervals.

Comments and suggestions for further development and improvement of the HiT series are most welcome and can be sent to the apobservatory@who.int. HiT profiles and HiT summaries for countries in Asia Pacific are available on the Observatory's website at www.healthobservatory.asia or <http://www.apo.who.int>.

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Acronyms and abbreviations

AD Corps	Army Dental Corps
ADIP	Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances
AFMS	Armed Forces Medical Services
AHS	Annual Health Surveys
AIIMS	All India Institute of Medical Services
AMC	Army Medical Corps
ANM	auxiliary nurse midwife
API	active pharmaceutical ingredient
APO	Asia Pacific Observatory on Health Systems and Policies
APVVP	Andhra Pradesh Vaidya Vidhan Parishad
ARC	Administrative Reforms Commission
ARDSI	Alzheimer's and Related Disorders Society of India
ASHA	accredited social health activist
AWW	Anganwadi worker
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
BAMS	Bachelor of Ayurveda, Medicine, and Surgery
BCG	Bacillus Calmette–Guérin
BIS	Bureau of Indian Standards
BMC	Brihanmumbai Municipal Corporation
BMGF	Bill and Melinda Gates Foundation
BPL	below poverty line
BSc	Bachelor of Science
CABG	coronary artery bypass grafting
CAG	Comptroller and Auditor General
CAM	complementary and alternative medicine
CBHI	Central Bureau of Health Intelligence
ComBHI	community-based health insurance (scheme)
CBR	crude birth rate
CCH	Central Council of Homoeopathy
CCH&FW	Central Council of Health and Family Welfare

CCIM	Central Council for Indian Medicine
CDR	crude death rate
CDSCO	Central Drugs Standard Control Organization
CEA	The Clinical Establishments (Registration and Regulation) Act
CEO	chief executive officer
CGHS	Central Government Health Scheme
CHC	community health centre
CHM	city health mission
CMCHIS	Chief Minister's Comprehensive Health Insurance Scheme
CME	continuing medical education
CMO	chief medical and health officer
COPD	chronic obstructive pulmonary disease
COPRA	Consumer Protection Act
COVID-19	Coronavirus disease 2019
CRED	Centre for Research on the Epidemiology of Disasters
CRM	Common Review Mission
CRS	Civil Registration System
CSO	civil society organization
CSS	Centrally sponsored scheme(s)
CT	computed tomography
CTRI	Clinical Trials Registry-India
CVD	Cardiovascular disease
DALYs	disability-adjusted life years
DCA	Drugs and Cosmetics Act
DCGI	Drugs Controller General of India
DCI	Dental Council of India
DFID	Department for International Development
DGHS	Directorate General of Health Services
DH	district hospital
DHM	district health mission
DHR	Department of Health Research
DHS	District Health Society
DLHS	District-Level Household Survey
DM	Doctor of Medicine
DoHFW	Department of Health and Family Welfare
DoP	Department of Pharmaceuticals

DPCO	Drugs (Prices Control) Order
DPIIT	Department for Promotion of Industry and Internal Trade
DPT	diphtheria, pertussis (whooping cough), and tetanus
DRC	district rehabilitation centre
ECG	electrocardiogram
EHR	electronic health record
EMR	electronic medical record
ESI Act	Employees' State Insurance Act
ESIC	Employees' State Insurance Corporation
ESIS	Employees' State Insurance Scheme
FCTC	Framework Convention on Tobacco Control
FDI	foreign direct investment
FICCI	Federation of Indian Chambers of Commerce and Industry
FMG	Financial Management Group
FMR	Financial Management Report
FRBM Act	Fiscal Responsibility and Budget Management Act
FRU	first referral unit
GATS	Global Adult Tobacco Survey
GAVI	Global Alliance of Vaccines and Immunization
GBD	Global Burden of Disease
GCLP	Good Clinical Laboratory Practices
GDP	gross domestic product
GER	gross enrolment rate
GFHI	government-funded health insurance
GHE	government health expenditure
GIC	General Insurance Corporation
GMP	Good Manufacturing Practice
GMSD	Government Medical Store Depot
Gol	Government of India
GST	Goods and Services Tax
HIV/AIDS	human immunodeficiency virus infection and acquired immune deficiency syndrome
HLEG	High-Level Expert Group
HMIS	Health Management Information System
HPPE	health prevention, promotion and education
HPS	high-performing states
HRH	human resources for health

HTA	health technology assessment
HTAIIn	Health Technology Assessment in India
HWC	health and wellness centre
IAPC	Indian Association of Palliative Care
IAS	Indian Administrative Service
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
ICU	intensive care unit
IDSP	Integrated Disease Surveillance Programme
IDU	injecting drug user IEC information, education and communication
IHME	Institute for Health Metrics and Evaluation
IIPS	International Institute for Population Sciences
IMC	Indian Medical Council
IMF	International Monetary Fund
IMR	infant mortality rate
INC	Indian Nursing Council
INR	Indian Rupee
IPAP	International NGO Partnership Agreements Programme
IPC	Indian Pharmacopoeia Commission
IPHS	Indian Public Health Standards
IRDA	Insurance Regulatory and Development Authority
IRDAI	Insurance Regulatory and Development Authority of India
ISM&H	Indian System of Medicine and Homeopathy
ISO	International Organization for Standardization
IT	information technology
JCI	Joint Commission International
JICA	Japan's International Cooperation Agency
JIPMER	Jawaharlal Institute of Postgraduate Medical Education and Research
JSY	Janani Suraksha Yojana
LFPR	labour force participation rate
LHV	lady health visitor
LMIC	low- and middle-income countries
LPS	low-performing states
MBBS	Bachelor of Medicine and Bachelor of Surgery
MCCD	Medical Certification of Cause of Death
MCh	Master of Chirurgical

MCI	Medical Council of India
MD	Doctor of Medicine
MDGs	Millennium Development Goals
MDR-TB	multidrug-resistant tuberculosis
MHA	Ministry of Home Affairs
MIS	Management Information System
MMR	maternal mortality ratio
MMU	mobile medical unit
MNS	Military Nursing Service
MoCF	Ministry of Chemicals and Fertilizers
MoHFW	Ministry of Health and Family Welfare
MoLE	Ministry of Labour and Employment
MOPSI	Ministry of Statistics and Programme Implementation
MoU	Memorandum of Understanding
MRI	magnetic resonance imaging
MS	Master of Surgery
MSF	Médecins Sans Frontières, (Doctors Without Borders)
MSJE	Ministry of Social Justice and Empowerment
MSO	Medical Stores Organization
MTAB	Medical Technology Assessment Board
NABH	National Accreditation Board for Hospitals/ National Accreditation Board for Hospitals and Healthcare Providers
NABL	National Accreditation Board for Testing and Calibration Laboratories
NACO	National AIDS Control Organization
NCD	noncommunicable disease NCR National Capital Region
NDC	National Development Council
NDHM	National Digital Health Mission
NDPS	Narcotic Drugs and Psychotropic Substances
NFHS	National Family Health Survey
NGO	nongovernmental organization
NHA	National Health Accounts
NHA	National Health Authority
NHM	National Health Mission
NHP	National Health Policy
NHSRC	National Health Systems Resource Centre

NHWA	National Health Workforce Accounts
NIMHANS	National Institute of Mental Health and Neurosciences
NIMS	National Institute of Medical Statistics
NLEM	National List of Essential Medicines
NMC	National Medical Commission
NMHP	National Mental Health Programme
NNPC	Neighbourhood Network of Palliative Care
NPHCE	National Programme for the Health Care of Elderly
NPPA	National Pharmaceutical Pricing Authority
NPPCF	National Programme for the Prevention and Control of Fluorosis
NPPP	National Pharmaceutical Pricing Policy
NPRD	National Programme for Rehabilitation of Persons with Disability
NQAS	National Quality Accreditation Scheme
NRHM	National Rural Health Mission
NSSO	National Sample Survey Organization
NTEP	National Tuberculosis Elimination Programme
NUHM	National Urban Health Mission
OBC	other backward class
ODA	Official Development Assistance
OOP	out-of-pocket (expenditure)
ORGI & CCI	Office of Registrar General and Census Commissioner of India
OTC	over-the-counter (drugs)
PACS	Poorest Areas Civil Society Programme
PCI	Pharmacy Council of India
PFMS	Public Financial Management System
PGI	Post Graduate Institute of Medical Education and Research
PHC	primary health centre PhD Doctor of Philosophy
PHFI	Public Health Foundation of India
PHN	public health nurse
PIB	Press Information Bureau
PIP	programme implementation plan
PLFS	Periodic Labour Force Survey
PM-JAY	Pradhan Mantri Jan Aarogya Yojana
PMBJP	Pradhan Mantri Bhartiya Janaushadhi Pariyojana

PMR	physical medicine and rehabilitation
PPP	purchasing power parity
PRI	Panchayati Raj institution
PWD	people with disabilities
RBI	Reserve Bank of India
RCI	Rehabilitation Council of India
RGI	Registrar General of India
RKS	Rogi Kalyan Samiti
RM	registered midwife
RMNCH	reproductive, maternal, newborn, child health
RMNCH+A	reproductive, maternal, newborn, child health + adolescent
RN	registered nurse
RNTCP	Revised National Tuberculosis Control Programme
RSBY	Rashtriya Swasthya Bima Yojana
SC	Scheduled Caste
SECC	Socio-Economic Caste Census
SEWA	Self-Employed Women's Association
SGPGI	Sanjay Gandhi Postgraduate Institute of Medical Sciences
SHA	state health agency
SHG	self-help group
SHH	'Students' Health Home
SHI	social health insurance
SHM	state health mission
SHS	state health society
SPMSU	State Programme Management Support Unit
SRS	Sample Registration System
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
STI	sexually transmitted infection
TB	tuberculosis
TFR	total fertility rate
TNMSC	Tamil Nadu Medical Services Corporation
TPA	third-party administrator
TPP	third-party payer
TRIPS	Trade Related Intellectual Property Rights
UHC	universal health coverage
UIP	Universal Immunization Programme

ULIP	unit-linked insurance product
UNICEF	United Nations Children's Fund
US-FDA	United States Food and Drug Administration
USAID	United States Agency for International Development
VAT	value added tax
VHI	voluntary health insurance
VHNC	village health, sanitation and nutrition committee
WASH	water, sanitation and hygiene
WDI	World Development Indicator
WHO	World Health Organization
WPR	worker–population ratio
WTO	World Trade Organization
YLL	years of lives lost

Glossary

Caste: Caste is a hereditary marker of social hierarchy and status that influences access to resources, behaviours and the nature of social interactions in the Indian context. Caste often guides access to education, employment and other economic opportunities and overlaps with class and discrimination. Lower castes often suffer stigma and discrimination across a range of economic and social activities.

Scheduled Castes (SCs): The Constitution (Scheduled Castes) Order, 1950 listed more than 1000 castes as SCs, groups that had historically faced discrimination and now benefit from affirmative action (reservations) in educational and employment opportunities.

Scheduled Tribes (STs): Tribal membership represents ethnic and cultural aspects of identity, including kinship and regional characteristics. In the Indian context, tribal populations are often considered as being connected to forest ecologies and systems. Tribal affiliations, such as caste, determine access to resources and opportunities, but can also relate to specific practices. The Constitution (Scheduled Tribes) Order, 1950 listed more than 700 tribes in its First Schedule who were identified to benefit from affirmative action. The Census found SCs and STs as comprising 16% and 8% of the Indian population, respectively (Office of the Registrar General and Census Commissioner, 2008)

Other Backward Classes (OBCs): OBC is a term used by the Government of India to classify socially and educationally disadvantaged castes. It is one of several official classifications of the population of India, along with SCs and STs.

Sarva Shiksha Abhiyan (SSA) and the Right to Education Act: SSA is a government programme aimed at the universalization of elementary education in India “in a time-bound manner”. Under the 86th Amendment to the Constitution of India, the provision of free and compulsory education to children between the ages of 6 and 14 is designated as a fundamental right. Consistent with this amendment, the “Right of Children to Free and Compulsory Education Act” or the “Right to Education Act (RTE)” was passed by the Indian Parliament in 2009.

Panchayati Raj Institutions (PRIs): Panchayati Raj functions refer to administering entities at the local level in rural areas, functioning below

the Central Government and state governments, and are a key element of decentralized governance. PRIs function at three levels: Gram Panchayat (village level), Mandal Parishad or Block Samiti or Panchayat Samiti (block or subdistrict level), and the Zila Parishad (district level). Although “panchayats” as a form of local authority have existed for long time, their role was formalized in 1992 by the 73rd Amendment to the Constitution of India. The Amendment provided for a three-tier system of PRIs (as outlined above) in all states with a population exceeding 2 million, the holding of regular elections to memberships of PRIs at the three levels, special reservation of memberships for SCs, STs and women, and for the setting up of State Finance Commissions to make recommendations on financial allocations between state governments and PRIs.

Finance Commission: The Finance Commission is an entity established by the President of India under Article 280 of the Constitution. It defines the financial relations between the Centre and the states and recommends allocation of resources between the Central and state governments to help address horizontal inequalities between states and vertical inequities between the Centre and states. As per the Constitution of India, the Finance Commission is appointed every 5 years and consists of a chairperson and four other members. The latest, 15th Finance Commission was constituted in November 2017, and submitted the Report of the 15th Finance Commission for FY 2020-21

Lokpal and Lokayukta: The Lokpal and Lokayukta refer to anti-corruption ombudsman organizations in the Indian states. In India, the history of such institutions dates back to the Administrative Reforms Commission (ARC) that submitted a report in 1966, recommending the setting up of two special authorities, designated as “Lokpal” and “Lokayukta”, for the redressal of citizens’ grievances. Once appointed, the Lokayukta of a state cannot be dismissed nor transferred by the government and can be removed only via an impeachment motion passed by the legislative assembly of that state. The Lokayukta, along with the Income Tax Department and the Anti-corruption Bureau, helps people publicise corruption among the politicians and government officials. The Lokpal has jurisdiction over all Members of Parliament and Central Government employees in cases of corruption.

National Health Mission (NHM): The NHM is the flagship health programme of the Government of India. The NHM encompasses two programmes – the National Rural Health Mission (NRHM) for rural areas and the National Urban Health Mission (NUHM) for urban areas. The NRHM was launched in 2004–2005, while the NUHM was initiated in 2012. The NHM aims to build an integrated network of all primary, secondary and a substantial

part of tertiary care, providing a continuum from the community level to the district hospital, with robust referral linkages to tertiary care and a particular focus on strengthening the primary health care system including outreach services in both rural areas and urban slums.

Accredited Social Health Activists (ASHAs) and Mitranis: ASHAs refer to the workforce of community health workers created under the NRHM. ASHAs are health activists who are expected to improve health awareness and mobilize the community in which they are based for health planning and increased utilization and accountability of existing health services. The ASHA programme was inspired by the experience of the state of Chhattisgarh, where community health workers, referred to as Mitranis, helped to improve maternal and child health outcomes.

Yeshasvini, Karnataka: The “Yeshasvini Cooperative Farmers Health Care Scheme” (Yeshasvini Scheme) was an insurance scheme introduced by the government of the state of Karnataka in 2002 for farmers who were members of cooperatives to improve their access to health services.

Rashtriya Swasthya Bima Yojana (RSBY): The RSBY is a health insurance scheme for households living below the poverty line (BPL), with the objective of minimizing out-of-pocket (OOP) expenditure on health care and improving their access to health services. Launched in 2008, the RSBY has now been expanded to cover workers in the unorganized sector in addition to BPL households. Beginning 2015, the stewardship of the RSBY has been transferred from the Ministry of Labour to the Ministry of Health and Family Welfare (MoHFW).

Rogi Kalyan Samitis (RKS): These “patient welfare committees” or hospital management committees refer to registered societies set up for the purpose of managing the functioning of public hospitals. A Samiti consists of members from local PRIs, nongovernmental organizations (NGOs), local elected representatives and government officials responsible for the management of the hospital. Similar bodies exist for community health centres (CHCs).

Janani Suraksha Yojana (JSY): JSY is a safe motherhood intervention implemented under the NRHM. The primary objective of the JSY is to reduce maternal and neonatal mortality by promoting institutional delivery among pregnant women from poor households. The scheme involves monetary incentives to women who choose to deliver in designated (mostly government) health facilities.

Anganwadi centres: Anganwadi centres refer to rural mother and child care centres started by the Government of India in 1975 under its Integrated Child Development Services (ICDS) programme to combat child hunger and malnutrition. A typical Anganwadi centre provides nutrition education and supplementation, pre-school activities, immunization and antenatal services.

Fulwari: Fulwaris are day-care creches run by mothers' groups that provide food and care to children below the age of 5 years in the state of Chhattisgarh. Launched initially in Sarguja district of Chhattisgarh, the Fulwari programme has expanded to cover all 85 tribal blocks (subdistrict administrative units) of Chhattisgarh.

AYUSH: AYUSH or "Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy" refers to the major non-allopathic systems of medicines currently practised in India. There is a separate Ministry of AYUSH in the Union Government, replacing the Department of Indian System of Medicine and Homeopathy (ISM&H).

Executive summary

India is currently undergoing a triple transition – economic, demographic and epidemiological – presenting challenges and opportunities, as it seeks to transform its health sector. It transitioned to a lower-middle-income country in 2009, with sustained annual growth rates of over 5% in terms of real per capita gross domestic product (GDP) over the past three decades. The country is also undergoing a demographic transition, with potential prospects for a demographic dividend complemented by a large and growing share of working-age population being set against an increasing elderly population. Predictably, a growing burden of noncommunicable conditions alongside its traditional concerns of communicable diseases and reproductive health outcomes adds to its worries. India's progress on reducing the infant mortality rate (IMR) is remarkable, from a high IMR of 88 per 1000 live births in 1990 to about 32 in 2020. Similarly, the maternal mortality ratio (MMR) declined from 556 in 1990 to 113 per 100 000 live births during 2016–2018, but the progress has been uneven with economically weaker states continuing to report higher rates. The mixed performance on communicable diseases shows that although polio has been eliminated and the human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS) epidemic contained, significant disease burden from tuberculosis remains, with rising numbers of multidrug-resistant variants. Dengue and Chikungunya have posed a regular threat to urban health planners. Noncommunicable diseases (NCDs) are increasingly emerging as a challenge, with NCDs and injuries together accounting for over half the disease burden.

Did India's health system demonstrate its ability to address these challenges? Sustained government underfunding and growth of private providers have contributed significantly to the rising medical treatment cost by households. Household out-of-pocket (OOP) spending on health services accounts for nearly two thirds of all health spending, especially on medicines. The resulting financial burden continues to push over 55 million people into poverty every year, with over 17% of Indian households incurring catastrophic levels of health expenditures annually.

A notable expansion in medical education, involving medical, nursing and technical education was carried out in the past two decades, augmenting its health workforce. Although the physician density remains inadequate at 9.28 physicians per 10 000 persons in India during 2019, the corresponding figures for nurses and midwives (23.89 per 10 000 persons), dentists (2.04

per 10 000 persons) and pharmacists (8.89 per 10 000 persons) have shown considerable improvement since 2005. A continuing concern is the quality of such personnel and their skewed locational distribution as they are largely urban-centric.

India's mixed health-care delivery mechanism is both a source of strength and weakness of its health system. The provision of personal curative health services is predominantly carried out by private providers. Nearly 70% of all outpatient visits, about 58% of all inpatient episodes, and approximately 90% of medicines dispensed, and diagnostic facilities in India are currently provided by either for-profit or not-for-profit providers in the private sector. However, the quality, cost and effectiveness of services vary considerably across providers. Government health services cover a large share of health prevention and promotion, medical education, and about 30% of all outpatient and 42% of inpatient services. Historical underfunding of the health system and weak regulatory mechanisms especially towards the private sector, reflect the low priority accorded to health by successive governments. There has been some improvement since 2004 in the share of the public sector, in part due to interventions and investments made under the National Rural Health Mission/National Health Mission (NRHM/NHM).

Physical access to and affordability of medicines, vaccines and diagnostic facilities are a primary concern. Government underfunding accompanied by weak procurement and logistics systems has meant that access to medicines and medical equipment in government health facilities remains poor. Exceptionally, a few Indian states have adequately funded and set up mechanisms for an efficient procurement and supply of medicines and diagnostics. In the private sector, physical access to medicines is easier, but the "ability-to-pay" may inhibit access. Prices remain high for many essential medicines, leaving them out of reach for many households. Despite being the "pharmacy of the global south", India's branded generics market continues to be elusive or unaffordable to a majority in the population. Moreover, poor regulatory oversight has limited policy-makers' ability to control inappropriate prescription and use of medicine.

Several policy initiatives have been launched to address India's health system challenges. The NRHM/NHM, which was intended to strengthen the health systems of state governments, initially started and continues to primarily confine its activities to addressing maternal and neonatal conditions, and various infectious disease control programmes, with uneven progress across states. NHM's focus on expanding institutional deliveries led to a significant increase in the share of deliveries in health facilities, from 43% in 2004 to 83% in 2018, with a sizeable rise in the share of deliveries in government

health facilities (21% to 53%). However, especially at more peripheral locations, quality of delivery services, including difficulties in handling birth complications, shortfalls in emergency obstetric-care facilities, shortages of key essential medicines, diagnostics, etc., remain a concern. Yet another area of concern is data quality as reported by the Health Management Information System (HMIS), including its reliability, accuracy and consistency. Accountability remains weak. The systems for implementing decentralized participatory governance (such as the Rogi Kalyan Samitis [RKSs] and village health, sanitation and nutrition committees [VHSNCs]) suffer from poor awareness of roles and responsibilities at the local level, leading to insufficient devolution of administrative and financial powers, lack of transparency, weak organizational capacity and cohesion, and non-prioritization of health agendas. NHM's inroads into creating 150 000 health and wellness centres to provide comprehensive primary health care services by enhancing skill-mix of the staff and ensuring adequate availability of essential medicines are yet to be assessed.

Several tax-funded health insurance programmes have been initiated in India since the mid-2000s. The population and service coverage of such programmes has expanded significantly over time. Innovations were introduced as these schemes began purchasing health care from both public and private facilities. The strength of these programmes lies in their coverage of large numbers of people and the poor, which improved access to hospitalization services. In 2018, a new national scheme – the Pradhan Mantri Jan Aarogya Yojana (PM-JAY replaced the earlier Rashtriya Swasthya Bima Yojana [RSSY] and integrated health insurance schemes of several state governments under one umbrella). The PM-JAY seeks to cover 500 million people with a benefit package entitlement of INR 500 000 annually to a household, involving over 1500 packages provided free to patients from poor, and economically and socially disadvantaged groups. The scheme focuses on inpatient services and has a high population coverage. The PM-JAY covers inpatient services and appears to have increased access to inpatient care at hospitals, however it is too early to judge if there has been any significant reduction in households' OOP – a primary goal of the scheme, especially since 70% of OOPs are derived from ambulatory care.

Underfunding of government health programmes has been a major source of concern, both at the national and state levels. State governments which are constitutionally mandated for public health and hospitals are limited in what they can provide given their limited resources. There have been efforts towards higher levels of tax devolution from the Central to state governments, from about 32% of overall tax funds during the 13th

Finance Commission award period (2010–2014) to 42% during the 14th Finance Commission award period (2015–2019). However, this has not translated into large increases in state-level funding for health, with state treasuries arguing that tax funding should be channelled to other priority areas while earmarking funds from the devolved transfers via other mechanisms such as “societies” for health. In effect, not translating the new devolved tax funds for health. The 15th Finance Commission (2021–2026) while retaining a similar share of tax devolution to states, awarded an unconditional health grant to states (local governments and state governments) accounting for 10.3% of the total grant-in-aid. Whether these translate into additional resources for health at the state level and whether or not there is adequate absorptive capacity at lower levels to use these funds remains to be seen.

Regulation of health-care providers, pharmaceutical industry and allied systems is critical for the functioning of the health system and ensuring patient welfare. Existing systems for regulation of private players in India are lax and variable. Barring a few exceptions, most Indian states have not implemented the Clinical Establishments Act, 2010. The Act was envisaged to enforce common minimum standards of quality for diagnosis and treatment, which requires registration of all types of health facilities. Continued resistance from the medical fraternity appears to have stonewalled this piece of legislation from becoming a reality. India’s present drug regulatory system at the subnational level is characterized by poor infrastructure, lack of skilled personnel, confusing legislation and multiple authorities, contributing to the poor implementation of rules and regulations. Moreover, the current price ceiling mechanisms of medicines is geared towards balancing the interests of both drug makers and patients. As a result, the coverage of number of medicines and price reduction of key essential drugs in the private market has been rather subdued since its implementation from 2013.

The National Health Policy (NHP) 2017 provides an explicit framework for achieving universal health coverage (UHC). Its call for achieving good health status with a focus on prevention and promotion along with a thrust on quality and provision of affordable and comprehensive primary care is reassuring. Similarly, successive policies and plans have articulated the imperative of accelerating tax-funded mechanisms to step up public spending from the current level of 1% to 2.5% of GDP by 2025. The additional funding that will be committed by both the Central and state governments is intended to primarily provide financial risk protection to households, a measure that is critical in reducing catastrophic health spending and medical impoverishment.

As urban health plans begin to merge into the NHM, vertically driven disease control programmes have been subsumed by the NHM although effective integration of services in practice remains a challenge, especially at the subnational level. Given the larger focus of the current government on AYUSH, mainstreaming its services would receive strong support. Existing insurance models (PM-JAY, Employees' State Insurance Scheme [ESIS], Central Government Health Scheme [CGHS]) account for a large pool of nearly 650 million people. Additionally, most states which provide only basic coverage under the PM-JAY have begun to scale up both population coverage and service coverage to the levels and pattern as observed in Andhra Pradesh and Tamil Nadu, and others may follow this example. However, other social insurance schemes, such as ESIS and CGHS, are unlikely to be integrated into the national pool underlying the PM-JAY, due to resistance from current beneficiaries. Integration becomes even more daunting given that both the ESIS and CGHS raise some of their funding via member contributions and provide coverage for primary care besides secondary and tertiary care. Such fragmentation of pools between formal employees (ESIS), government civil servants (CGHS) and socioeconomically poor and vulnerable population (PM-JAY) are likely to produce inefficient outcomes, poor value for money and inequity in access to care. The National Health Authority (NHA) is strategically poised to build an integrated platform that can align the functions of these insurance schemes. Given different mandates, while financial integration may prove difficult, functional integration of these schemes must be promoted. This can be achieved by allowing patient access to utilization of common facilities empanelled/owned by each scheme, setting similar package prices, following standard treatment guidelines, setting similar quality control mechanisms, etc. A movement towards strategic purchasing models is also expected away from the current model of passive purchasing, especially in government-funded health insurance schemes. The PM-JAY remains a key vehicle for such a change. The strategic purchasing function may also involve moving away from the input-oriented approach to output-based models.

The professional councils require a complete overhaul so that rationality, quality and cost-effectiveness are ensured in medical education and practice. In 2020, the Central Government disbanded the Medical Council of India (MCI) and replaced it with the National Medical Commission (NMC). This new entity is expected to streamline regulations governing medical education, enhance efforts towards the rating of medical institutions, prepare guidelines for setting fees charged by private medical colleges, develop clinical standards for community health providers to serve in primary health-care facilities, carry out health workforce assessments and focus on medical research. Similar efforts have also resulted in the setting up of the National Commission for Allied Healthcare Professionals, which has the

mandate to promote the roles and relevance of allied health professionals and other health sector workers. The Central Government's move to set up a National Commission for Allied and Healthcare Professions is aimed at organizing, promoting and streamlining the profession to ensure quality education, training and research, and professional standards and ethical practices of several allied health professions under one roof. The experience and success stories associated with creating a parallel public health cadre in states such as Tamil Nadu could also be replicated in other Indian states. This may help pave the way for a clearer delineation of roles and responsibilities of medical personnel in the public sector, including career progression and incentive structures. A national public health cadre is even more relevant and desirable on the lines of civil services.

Three sets of functions underlying the public sector health services must be strengthened: resources, governance and quality. Doubling public health spending, contributed by both the Central and state governments, in the next 5 years to reach the target of 8% from the current 4–5% of government expenditure, ought to be prioritized along with mechanisms to strengthen public financial management system so that funds allocated are used efficiently and equitably. Given the huge shortfalls, a significant share of this increased health sector investment fund must be used to recruit and train health professionals, especially nurses and allied health-care professionals, to deliver primary care effectively. Pooled procurement of medicines and supplies and improved supply chains in the public health system can increase efficiency and cost-effectiveness.

A dominant, for-profit private care that is highly commercialized and yet lacks standardization of quality or costs requires effective regulation. Improving the quality of care in the private sector becomes critical as it needs to be made accountable to patients' safety, clinical outcomes, prescriptions that are appropriate to clinical conditions and therapeutically effective. The current model dominated by fee-for-service in private health-care services induces unnecessary and inappropriate care and is resource-inefficient. Efforts to improve the implementation of the Clinical Establishments Act and Rules must be enhanced. Improved implementation of regulations aimed at controlling costs and quality must be accompanied by transparent and socially accountable regulatory processes with less bureaucratic hassles.

It is critical to improve governance and make health-care delivery accountable to citizens that meet their aspirations and needs. An accountable health-care system is likely to move the health system towards improved quality of care, whether measured by clinical practices or management practices that reduce long waiting times, cleanliness of premises, and provider–patient interactions.

1. Introduction

Chapter summary

India is the world's seventh largest country geographically, the second largest demographically and third largest economically, accounting for around 7% of world economy in gross domestic product (GDP) measured by purchasing power parity (PPP) (International Monetary Fund, 2018). It is characterized by a remarkable cultural diversity, as illustrated by the coexistence of a range of religious groups, languages and customs. Politically, the Union of India is organized as a multiparty parliamentary democracy at the federal as well as at the subnational level with the President of India as the Constitutional Head of State and the Prime Minister as the head of Union Government. The Prime Minister and the cabinet ministers exercise their authority in the name of the President.

India attained Independence from British rule in 1947. Post-Independence, India followed planned economic development through five-year plans. However, economic challenges (e.g. fiscal and foreign exchange crises, mounting foreign debt) in the 1980s led to the adoption of structural adjustment programmes and rapid liberalization in 1991. Since 2009, India has transitioned to a lower middle-income country (OECD, 2020) with sustained annual growth rates of over 5% in terms of real per capita GDP over the period 1990–1991 to 2018–2019.¹ Despite this rapid economic growth, improvements in physical infrastructure and human development (such as the status of women, education and health outcomes) have been lagging (UNDP, 2018).

Health indicators in India show evidence of a double burden of disease. Though the share of deaths from infectious diseases and maternal and child mortality show an overall decline (IHME, 2018), these gains vary widely across states. Malnutrition, food insecurity and specific nutritional deficiencies such as anaemia continue to remain concerns and add to the burden of maternal and child morbidity. India is also witnessing a rapidly growing burden from noncommunicable diseases (NCDs), particularly

¹ Authors' calculations from CSO estimates of GDP of India

cardiovascular diseases, cancer, chronic obstructive pulmonary disease (COPD) and diabetes, along with mental health and injuries.

1.1 Geography and sociodemography

India's mainland forms a diamond-shaped peninsula surrounded by the Indian Ocean in the south, the Arabian Sea on the west and the Bay of Bengal on the east (Figure 1.1). India shares land borders with Pakistan, Bangladesh, Bhutan, China, Myanmar and Nepal. These countries, together with the nearby island countries of Maldives and Sri Lanka comprise India's immediate neighbourhood. India's Andaman and Nicobar Islands share maritime borders with Thailand and Indonesia. India has a coastline of almost 7517 kilometres, of which 5423 kilometres is the mainland peninsular coastline, with the remainder being the coastline of islands that are part of India. There is considerable geographical diversity, with the Himalayas in the north, the Thar Desert in the west, and its large coastal belt. Two large rivers – the Ganga and the Brahmaputra – run through the north and east of the country and drain into the Bay of Bengal. India's climate is mostly tropical with considerable seasonal variation, with extreme weather conditions in the northern mountain region comprising the Himalayas and the desert areas. The monsoons play a role on agriculture and the economy. In recent years, monsoon seasons have become unpredictable and erratic, possibly due to climate change. This has implications for farm productivity and national economic performance given the continued significance of the agricultural sector as a source of employment in India.

Figure 1.1 Map of India in South Asia



Map No. 4140 Rev. 4 UNITED NATIONS
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Department of Field Support
Cartographic Section

Source: United Nations Geospatial Information Section (U.N. Geospatial, 2011)

1.2 Population dynamics

India’s population has been rising rapidly over time, and it is currently the second most populous country after China. The projected population of India is estimated to be around 1.36 billion as in 2021 (Table 1.1). About 25.5% of India’s population in 2021 is estimated to comprise of children under 14 years of age, while the share of population aged 65 years and above grew from 3.8%

in 1990 to around 6.6% in 2021. India's shifting demographic composition is illustrated by its declining age dependency ratio (proportion of children under 14 years and elderly to working-age populations) from 79.1% to 38.8% between 1970 and 2021. The elderly age dependency ratio (aged 60+ years) for the country also rose from 5.9% in 1970 to 10.1% in 2020. The rising share of working-age population in India offers the possibility of a demographic dividend, especially if accompanied by investments in education, health and infrastructure, which together lead to greater employment opportunities. At the other end of the spectrum, a growing elderly population raises concerns about adverse impacts on the economy and the growing burden on families for economic resources to support the elderly (Bloom et al., 2010).

Table 1.1 Trends in population/demographic indicators for select years, India

	1990	1995	2000	2005	2010	2015	2021
Total population ¹ (million)	870	960	1056	1053	1230	1310	1361.34 ⁴
Population, % female ²	48.10	48.04	48.00	47.97	47.97	48.00	48.66 ⁴
Population ages 0–14 years [% of total] ²	37.97	36.65	34.73	32.74	30.81	28.44	25.50 ⁴
Population ages 65+ years [% of total] ²	3.80	4.03	4.37	4.74	5.08	5.61	6.57
Population ages 80+ years [% of total] ¹	0.43	0.47	0.53	0.60	0.70	0.83	0.96 (2020)
Population growth (annual %) ²	2.08	1.92	1.77	1.58	1.35	1.12	0.99 (2020)
Population density (people per sq. km of land area) ¹	293.70	324.20	355.40	386.00	415.10	440.70	468.70
Fertility rate, total (births per woman) ²	4.05	3.65	3.31	2.97	2.58	2.30	1.93 ⁴ (2021–2025)
Birth rate, crude (per 1000 persons) ²	31.52	28.75	26.40	24.09	21.11	18.63	16.1 ⁴ (2021–2025)
Death rate, crude (per 1000 persons) ²	10.86	9.58	8.69	8.07	7.49	7.19	7.2 ⁴ (2021–2025)
Age dependency ratio, young (0–14 years/15–64 years) [% of working-age population] ²	65.20	61.79	57.01	52.36	48.06	43.13	38.89 (2020)
Age dependency ratio, old (65+ years/15–64 years) [% of working-age population] ²	6.53	6.80	7.17	7.58	7.93	8.51	9.77 (2020)
Age dependency ratio (0–14 and 65+ years/15–64 years) ²	71.73	68.59	64.18	59.94	55.99	51.64	48.66 (2020)
Distribution of population (rural/urban) ²	2.91	2.76	2.61	2.42	2.23	2.05	1.86 (2020)

Table 1.1 Trends in population/demographic indicators for select years, India (contd)

	1990	1995	2000	2005	2010	2015	2021
Urban population growth (annual %) ³	3.03	2.70	2.54	2.70	2.47	2.32	2.30 (2020)
School enrolment, primary (% gross*) ⁵	91.83	94.37	94.59	N.A.	109.18	108.49 ²	99.2 ⁶
School enrolment, secondary (% gross*) ⁵	NA	45.54	45.06	54.17	63.29	73.86 ²	80.0 ⁶

*Gross enrolment ratio is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Gross enrolment ratio can exceed 100% due to the inclusion of over-aged and under-aged students because of early or late school entrance and grade repetition.

Sources: 1: World Population Prospects: The 2017 Revision (UN DESA, 2017); 2: World Development Indicators, Country: India (World Bank, 2021); 3: World Bank DataBank, Country: India (World Bank, 2021a); 4: Population Projections for India and States 2011–2036: Report of the Technical Group on Population Projections (National Commission on Population, 2020); 5: UNESCO Institute for Statistics, UIS Data Centre. Country: India (UIS, 2021); 6: Educational statistics at a glance (MHRD, 2018).

Reflecting its diverse demographic structure, considerable variations are found in population distribution across Indian states. The projected population structure for 2021 reveals that in terms of the percentage of population in the 0–14 years age group, the top five states are Bihar (34%), Jharkhand (29%), Uttar Pradesh (30%), Rajasthan (29%) and Madhya Pradesh (29%). These states and Union Territories are characterized by some of the lowest shares of population in the working-age group of 15–59 years: Bihar reporting the lowest at 59%, Uttar Pradesh at 63%, and Jharkhand, Rajasthan and Madhya Pradesh at 62%. Among the Northeastern and hilly states of India, Meghalaya (40%) is reported to have the highest percentage in this age group followed by Arunachal Pradesh (36%), Nagaland (34%), and Jammu and Kashmir (66.9%). On the other hand, the five states reporting the lowest shares of population in the 0–14 years age group are: Goa (22%), Kerala (20%), Tamil Nadu (20%), Punjab (20%) and Andhra Pradesh (undivided)² (20%). These are also the states reporting a relatively larger shares of population in the working-age group (15–64 years), ranging from 67% to 71%. As a result, these states report relatively higher shares of elderly population (60+ years), ranging from 12.6% to 16.5%.

Underpinning these demographic changes are shifts in fertility. India's total fertility rate (TFR) has declined from 4.05 in 1990 to 1.93 during 2021–2025. In parallel, the crude birth rate (CBR) has declined from 31.52 per 1000 persons

2 The state of Andhra Pradesh was bifurcated into Andhra Pradesh and Telangana in 2014, as part of reorganization of the state.

in 1990 to 18.63 per 1000 persons in 2015. As per the World Development Indicators (WDIs), the crude death rate (CDR) has also declined from 10.86 per 1000 persons in 1990 to 7.19 per 1000 persons in 2015. However, there is considerable interstate variation in TFR, CBR and CDR. During 2016–2020, states such as Bihar (3.2), Jharkhand (2.4), Uttar Pradesh (2.7), Rajasthan (2.5) and Madhya Pradesh (2.6) reported higher TFRs compared to states such as Kerala (1.8), Tamil Nadu (1.6), Karnataka (1.7), Telangana (1.6), Maharashtra (1.7), Punjab (1.6) and West Bengal (1.6) (International Institute for Population Sciences, 2015–16). Further, the CBR varied from 11.2 in Kerala to 27.0 in Bihar. Although CDR did not vary significantly, still states such as Telangana (10.5), Bihar (10.2), Odisha (10.2), Uttar Pradesh (9.2) and Andhra Pradesh (9.1) reported death rates higher than the national average of 7.23.

About one third of India's population lives in urban areas, with the remainder lives in 597 608 villages in rural India (Census, 2011). India's pace of growth of the urban population appears to be relatively slow at 2.8% average annual rate of growth between 1980 and 2015, compared to China that experienced an average annual urban population growth of 4% over the same period (United Nations, 2018). It must, however, be acknowledged that the country has some of the most heavily populated cities in the world, such as Delhi, Kolkata and Mumbai along with newly emerging cities such as Bengaluru and Hyderabad, which have also grown rapidly, reflecting their emergence as global technology hubs. As per the Census of India 2011, the growth in urban population in towns and cities having a population of more than 100 000 over the Census 2001 was around 32.3%. The Census 2011 also recorded that there are 53 cities or urban agglomerations with a population in excess of 1 million.

The growth in urban population in India has been characterized by rural-to-urban migration, and population movements from smaller towns to larger cities. This migration has been linked to “push” and “pull” determinants, which include declining agricultural productivity, differences in employment potential in rural versus urban settings, especially large cities, and changing socioeconomic and cultural aspirations. Declining agrarian productivity has also been linked with seasonal and temporary migration patterns in India. However, migration has also been associated with residential conditions considered at risk for poor health (e.g. living in slums) or occupational risks (engaging in hazardous professions) (Deshingkar & Start, 2003).

Urbanization is becoming increasingly a matter of concern to policy-makers in India. The Central Government launched a Smart Cities campaign in 2014 focused on infrastructure development in smaller cities and other urban

areas (Ministry of Urban Development, 2015). The government had also established a National Urban Health mission (NUHM), which emphasizes the need for greater focus on delivering health services for urban residents. Health service delivery is not the only health-related challenge facing urban residents in India. Income inequality, water supply, unsanitary residential conditions, rising air pollution and emergence of communicable conditions such as dengue are important concerns for public policy on health (Sedghi, 2015).

The ongoing demographic transition and the process of economic transformation, reflected in part by a growing urban population, has been accompanied by important changes in family size, structure and relationships. Households are increasingly moving from multigenerational composition (or joint families) to nuclear households. The long-term trend in female workforce participation rate accelerated gradually from nearly 18.6% in 1971 to about 36.7% in 2005, but recent trends appear to have reversed. In 2018–2019, it declined to 18% (NSSO, 2020). The economic transition and smaller family sizes have implications for childcare and elderly caregiving, given the traditional role of women as the main caregivers in the household.

Educational outcomes have improved significantly over time, with literacy rates (over 7 years of age) having improved from 52.2% in 1991 to 77.7% in 2017–2018 (Census, 2011a; NSSO, 2019). Both male and female literacy rates have risen over time, although women continue to lag behind men. There is considerable interstate variation as well. Literacy rates among women vary from a low of 60% in Bihar to 95% in Kerala. Literacy rates for men varied from 80% in Bihar to 97% in Kerala during 2017–2018. School enrolment rates have also been rising at the primary and secondary school levels. The gross enrolment rate (GER) for primary classes I–V has risen from 94.6 in 2000 to 108.5 in 2015–2016. For females, the GER was 85.9 in 2001 and rose to 100.7 in 2015–2016 (UIS, 2021). These improvements are attributed to several policy initiatives, key among these being the Sarva Shiksha Abhiyan (SSA – universal elementary education mission) and the Mid-Day Meal Scheme, alongside efforts to increase adult education (Kingdon, 2007). However, quality of education remains a concern. Competencies in English and Mathematics have remained low at the primary and middle school levels in rural areas. Nearly half of the students in class V were unable to read text at the level of class II fluently; about one fifth of children in class II were unable to recognize numbers (Pratham, 2015).

Box 1.1 Health equity in India

India's rich socioeconomic and cultural diversity provides complex challenges for achieving health equity. Wealth, education and occupation are important markers of equity in India and these indicators can be compared globally for measuring and monitoring health inequalities. In addition, religion, caste and tribal affiliations are important contextual indicators of inequity that influence health and health care in India.

Wealth or income inequities determine health conditions and access to health services. Assets, consumption expenditure, income and poverty (measured by populations earning below \$1 and \$2 a day) are important markers of socioeconomic status and determinants of illness and health services.

Occupational inequities determine access to resources and influence working with impacts on health. Conditions and nature of work, poor labour rights and seasonal nature of employment influence health and well-being.

Educational inequities determine human capital, health behaviours and health access. Educational inequities for women and poor quality are important barriers in development of human capital especially for the young.

Rural-urban and interstate inequities determine health risks, policies, access to infrastructure services (e.g. water and sanitation, air pollution), health behaviours (e.g. smoking and alcohol use) and health services.

Religious inequities influence health through sociocultural norms, social networks and access to resources. Over time, these differences are declining but play a resilient role in specific aspects such as food consumption and contraceptive use.

Caste and tribe inequities influence health through differences in access to resources, educational inequalities, specific sociocultural norms, discrimination and access to health services. Data on caste and tribe disaggregation are limited.

Source: Office of the Registrar General of India, Population Census, Government of India

The Indian sociocultural landscape comprises a rich mix of religions, castes and tribes (see Box 1.1 and Table 1.2). Hindus are the predominant religious group (~80%) in India with a number of minority religions including Muslims, Sikhs, Christians, Buddhists and Jains among others. Article 25 of the Constitution of India guarantees freedom to practise the religion of one's choice, which is affirmed via laws and court decisions. However, interreligious conflicts have remained a concern for social policy. Caste and tribe are other markers of ethnic identity in India. Caste is a concept specific to the Indian subcontinent and is a hereditary marker of social hierarchy and status that influences access to resources and social networks. Caste status can thus influence access to education, employment and other economic opportunities. Increasingly, caste is seen as being more resilient in rural compared to urban areas. The Constitution (Scheduled Castes)³ Order, 1950 lists more than 1000 castes in its First Order as Scheduled Castes (SCs)

3 Scheduled Castes and Scheduled Tribes are socially, and poor caste and tribe groups as defined under Schedule XX (Article XX) of the Constitution of India.

that have suffered discrimination historically and are recommended for affirmative action in educational and employment opportunities. Tribe or tribal affiliations represents ethnic and cultural aspects of identity, including kinship and regional elements. Tribal populations are often considered as being connected to forest ecologies and systems. Tribal affiliations, such as caste, determine access to resources and opportunities, but can also relate to specific practices. The Constitution (Scheduled Tribes³) Order, 1950 lists more than 700 tribes in its First Schedule to receive affirmative action. The Census 2011 has documented SCs and Scheduled Tribes (STs) as comprising 16% and 8% of the Indian population, respectively (Census, 2011). Caste and tribal status play an important role in determining health inequalities. For example, in 2005–2006, immunization coverage⁴ among SCs and STs was 39.7% and 31.3%, respectively compared to 53.8% among other castes (Balarajan et al., 2011). Ten years later, it increased to 44.2% and 47.7%, respectively, as per the National Family Health Survey (NFHS), 2015–2016. Another subpopulation considered deprived is that of “Other Backward Classes” (OBCs), which comprises specific caste and tribal groups that were not considered backward under the original schedule for caste and tribe affiliations.

Table 1.2 Population distribution as % of total by ethnicity/caste/religion, 2001, 2011, 2018–2019

	2001	2011	2018–2019 (estimates)
Area of residence			
Rural	72.18	68.84	66.5 [2018] ¹
Urban	27.82	31.16	33.5 [2018] ¹
Total	100.0	100.0	100.0
Religion			
Hindu	80.46	79.80	NA
Muslim	13.43	14.23	NA
Christian	2.34	2.30	NA
Sikh	1.87	1.72	NA
Buddhist	0.77	0.70	NA
Jain	0.41	0.37	NA
Other religions	0.65	0.66	NA
Religion not stated	0.07	0.24	NA
Total	100	100	
Caste/tribe			
Scheduled Caste	16.2	16.63	NA
Scheduled Tribe	8.2	8.63	NA

Source: Census of India 2001 and 2011 (ORGI & CCI, 2001; Niti Aayog, 2011)

4 Immunization coverage here represents percentage of children in the age group of 12–23 months who had received full immunization consisting of BCG, measles, three doses of DPT and polio.

Soon after India became independent in 1947, the SK Dhar Commission (1948) and the JVP Committee (1948) were set up to check the feasibility of reorganizing state boundaries along linguistic lines. However, both commissions rejected the idea and found it expedient to reorganize state boundaries along geographical contiguity, financial sufficiency and administrative convenience. As per the States Reorganization Act, 1956, 14 states and six Union Territories were finally identified. Andhra Pradesh was the first linguistic state formed in 1953, followed later by few others. Currently, however, the Indian Union is constituted by 28 states and 8 Union Territories, a large number of which are formed on the basis of linguistic and ethnic identities.

Language and religion are important sociocultural aspects of identity in India. The Eighth Schedule to the Constitution of India lists 22 languages referred to as scheduled languages for recognition and official encouragement. The official languages for the Union Government of India (GoI) are Hindi (written in Devanagari script) and English. In addition to these, state governments can also adopt one or more official languages for the state from the list of 22 official languages. However, 38 other languages have been listed as contenders for inclusion as official languages in the Eighth Schedule. Additionally, several hundred dialects are also spoken within states (Government of India, 2015).

1.3 Economic context

Following Independence, India adopted a model of planned economic development that encompassed state control over priority sectors, including nationalization of specific industries, and efforts to channel (and control) the growth of the private sector (Chakravarty, 1987). The rationale underlying this model was the priority accorded to building institutions in a newly independent country, development of strategic resources, and the protection of the interests of poor and vulnerable groups who comprised a large share of India's population. As implemented, the planned model of economic growth took the form of national five-year plans that laid out policy priorities and public investment strategies, import substitution policies and a regulatory regime that guided the role of the domestic private sector. An emphasis on capital investment and a relative neglect of the agricultural sector, coupled with poor monsoons, inefficiencies inherent in a heavily regulated economy and two major wars created serious headwinds for the Indian economy in the 1960s. Despite the introduction of high-yield varieties of rice and wheat in the Indian agricultural sector, the low levels of growth of per capita real GDP (about 1.1% per annum) meant that large numbers of people remained desperately poor. The 1970s saw the introduction of

more targeted poverty alleviation programmes. These programmes were limited by design and ineffective in dealing with structural aspects of poverty such as access to credit. The 1970s also were a time of significant political and economic instability, including a brief period where a declaration of emergency led to the suspension of the Indian Parliament, a war with Pakistan and oil crises. As a consequence, economic growth suffered. In 1985, real per capita GDP in India was INR 14 756, only 1.5 times as high as that in 1960.

Although economic reforms were begun in the 1980s, India faced a major fiscal crisis at the end of the decade. Under mounting debt and at risk of defaulting on foreign debt in the late 1980s, India implemented major economic reforms in 1991. Following the reforms, India witnessed high economic growth, with real per capita GDP reaching INR 98 928 in 2020–2021. Official statistics suggest that headcount poverty ratios also declined during this period, from 45.30 % in 1993 to about 21.9% in 2011 (Table 1.3). However, the absolute number of poor declined far less, from about 322.9 million in 1983–1984 to 265.1 million in 2011, during the same period. Relatedly, scholars have been concerned about adverse implications of economic reforms for social and economic protection (Deaton & Kozel, 2005) with rising economic inequality. The share of national income amassed by the top 1% of income earners during 2014 stands at 22% of total income as against only 6% of total income in the early 1980s (Chancel & Piketty, 2017).

Table 1.3 Macroeconomic indicators, selected years

	1980	1990	2000	2010	2015	2021
GDP (current billion US\$) ¹	186.32	320.98	468.39	1675.62	2103.59	2622.98 (2020)
GDP, PPP (constant 2017 international \$) in billions ¹	NA	1813.14	2578.59	42334.98	5464.39	6118.36 (2020)
GDP per capita (constant 2010 US\$) ¹	422.90	581.22	826.59	1357.56	1751.66	1961.30 (2020)
GDP per capita, PPP (current international \$) ¹	NA	1201.67	2095.65	4236.74	5464.86	6454.35 (2020)
GDP annual growth rate (%) ¹	6.74	5.53	3.84	8.50	8.00	-7.96 (2020)
Expenses ² (% of GDP) ¹	11.70	15.48	15.41	16.51	15.13	15.61 (2017)
Current account balance (% of GDP) ¹	-0.96	-2.19	-0.98	-3.25	-1.07	1.26 (2020)
Gross fiscal deficit (% of GDP) ²³	7.5 (1980–1981)	9.1 (1990–1991)	9.2 (2000–2001)	6.9 (2010–2011)	7.2 (2015–2016)	6.5 (2019–2020)*
Tax revenue (% of GDP) ¹	9.03	9.99	8.81	10.39	10.57	11.39 (2017)

Table 1.3 Macroeconomic indicators, selected years (contd)

	1980	1990	2000	2010	2015	2021
Public debt (% of GDP) – Central Government only ⁴	41.4	59.6	59.4	52.1	51.6	48.6
Public debt (% of GDP) (combined Centre and state) ²	47.9	68.8	73.7	65.6	68.6	69.62
Value added in industry (including construction) (% of GDP) ¹	25.34	27.45	27.33	30.73	27.35	23.20 (2020)
Value added in agriculture (% of GDP) ¹	33.06	26.90	21.61	17.03	16.17	18.32 (2020)
Value added in services (% of GDP) ¹	33.81	37.04	42.73	45.03	47.78	49.27 (2020)
Labour force (total, in million) ¹	NA	316.59	396.84	462.95	477.30	471.69 (2020)
Unemployment total (% of total labour force) (national estimate) ¹	NA	NA	2.73	2.44	NA	5.27 (2019)
Poverty headcount ratio, using national level poverty lines (% of population) ¹	NA	45.30 (1993)	37.20 (2004)	29.80 (2009)	21.90 (2011)	NA
Real interest rate (%) ¹	4.48	5.27	8.34	-1.98	7.56	4.38 (2020)
Official exchange rate (annual average) (US\$) ¹	7.86	17.50	44.94	45.73	64.15	74.10 (2020)

*Revised estimate

Value added in agriculture includes agriculture, forestry and fishing, mining and quarrying; value added in industry includes manufacturing, construction, electricity, gas and water supply; and value added in services includes trade, hotels, transport and communication; financing, insurance, real estate and business services; and community, social and personal services. Data on value added for the years 2015 and 2017 are based on 2011–2012 series while the base period for early years relates to the 2004–2005 series.

% expense is cash payments for operating activities of the government in providing goods and services. It includes compensation for employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenses such as rent and dividends.

Sources: 1: World Development Indicators, Country: India, World Bank (World Bank, 2021); 2: Annual Report of the Reserve Bank of India, respective years; 3: Report on Currency and Finances, Reserve Bank of India, respective years; 4: Handbook of Statistics on Indian Economy, Reserve Bank of India. Years 2016 and 2020.

Since the 2014 national elections, India has had a government with a clear majority in Parliament, which has led to a reduction in instability compared to the coalition politics of previous years. While the economy has grown over the years, corruption, red tape and an unstable policy environment continue to be major impediments to more inclusive development. In 2020, India was ranked

86th out of 180 countries by Transparency International on public perception of corruption in the government (Transparency International, 2020).

India also benefits from robust civil society institutions that target corruption and institutional weaknesses that inhibit good governance (Roychowdhury et al., 2006; James, 2011). The State of Civil Society Report 2019 brought forth by CIVICUS, a global alliance of civil society organizations (CSOs), however, have rated the civil society space for India to be “obstructed” (CIVICUS, 2019). This means that although CSOs exist, their space for activism and assertion of fundamental rights have been restrained by state action. However, according to Transparency International, India’s position on corruption index has improved to 78 out of 180 countries in 2018. Amidst these developments and a general economic slowdown witnessed by the country, India re-elected the incumbent government at the Centre with an overwhelming majority in 2019. It is hoped that with the significantly large majority in both the Houses of the Parliament, the Central Government will be able to push through important reforms in economic and social sectors.

India’s economic growth over the last four decades has been driven primarily by growth in the services sector. The contribution of the agriculture and allied activities to GDP has steadily declined, from 33.1% in 1980 to 16.6% in 2017. Low agricultural productivity coupled with declining farm income has led to farmer indebtedness and migration of the workforce to urban areas, even as India is now a net exporter of agrarian commodities. The average yield of food grains (cereals) in the year 2001–2002 was 19.8 quintals per hectare, which increased to 23.3 quintals per hectare in 2014–2015. Challenges to agriculture include underinvestment in agricultural technology, limited rural credit, lack of insurance and weak irrigation infrastructure. The National Commission on Farmers (2004–2006) threw light on key aspects of distress in the agricultural sector in India. It highlighted the sharp inequality in landholding whereby large and medium landholdings comprising almost 65% of all landholdings are held by only 14.71% of households. The report confirms the low productivity of Indian agriculture compared to major crop-producing countries and that the yield per hectare for crops such as paddy, wheat, maize, groundnut and sugarcane is lowest compared with countries such as China, Japan, South Africa, Canada and Viet Nam. Uneconomic holding sizes, declines in soil fertility, the continued dependence on monsoon rains for irrigation needs and lack of crop diversification have been identified as major reasons of low agricultural productivity in India.

The manufacturing sector (manufacturing and other allied activities) has experienced stagnation and its share in GDP only rising slightly from 25.3% in 1980 to 26.5% in 2017, which contrasts unfavourably with China. There have

been efforts to jumpstart this sector, such as the “Make in India” campaign (DPIIT, 2015). In contrast, the services sector has grown rapidly since the 1990s and has been considered the key driver of India’s economic growth. As per estimates, the services sector accounted for 33.8% of GDP in 1980, increasing to 49.3% in 2020 (World Bank, 2021b).

India’s experience with the sectoral composition of its GDP reflects a shift similar to developed nation experiences at the time they experienced rapid economic growth, wherein the share of agriculture declined drastically while that of the services sector accelerated (Rodrik, 2013; Cherodian & Thirwall, 2013). However, accompanying trends in the labour market are of serious concern. India’s workforce is largely dominated by informal and seasonal workers, characterized by underemployment, with persistent skill shortages and emergence of contract labour. Emergence of contract labour has led to large-scale informalization of labour force as employers typically hire workers through intermediaries or contractors and do not hold any obligation with respect to social security or other safety nets that are usually available to direct employees. According to the Periodic Labour Force Survey (PLFS), 2018–2019 (NSSO, 2020), the labour force participation rate (LFPR) for population above 15 years of age stood at 50.2%, whereas the worker–population ratio (WPR) was only 47.3%. A large workforce is expected to reap India a demographic dividend only if the quality of employment is improved. However, out of 260 million non-farm employment during 2017–2018, 83.5% of them are characterized by informality, with no/poor employment and social security (Mehrotra, 2020). Furthermore, one fourth of all employed persons are casual in nature, while over half of workforce are self-employed and the rest hold a regular/salaried employment.

A key concern underlying Indian economy in recent years has been persistently high fiscal deficits measured as the difference between aggregate receipts of the government and its aggregate expenditure. High fiscal deficits in the late 1980s and early 1990s in India were seen as the trigger for major economic reforms of the early 1990s. Since then, there has been consolidation plans through the Fiscal Responsibility and Budget Management Act (FRBM Act), to rein in budget deficits of both the Central and state governments. But the years after global recession witnessed a steep rise in fiscal deficit. For instance, the combined fiscal deficit of the Centre and states was at a high of 6.9% in 2010 triggered primarily by a high fiscal deficit of the Central Government while state governments continued to rein in their fiscal deficits. However, in recent years, steady fiscal consolidation appears to be occurring (Ministry of Finance, 2018a). The combined fiscal deficit was 6.6% in 2017–18 and is likely to be brought down to 5.9% of GDP during 2018–2019. The GoI is committed

to restricting the combined fiscal deficit at 3% of GDP and 3% of the gross state domestic product for states, as per the FRBM Act. However, the efforts at fiscal consolidation have meant that in spite of its high economic growth rate, government investments in education, health and social security have remained low in India as compared to countries such as China, Thailand, South Africa, Brazil and Mexico (Department of Economic Affairs, 2015).

Another key feature of Indian economy is its federal structure and the associated implications for public finance. To a large extent, the Central Government decides on tax devolution to states and in identifying priority areas for public spending. However, under the federal framework, states have the responsibility for legislation, financing and delivery of a range of services including education and health. In addition, there have been moves towards greater decentralization, alongside the expanding influence of state governments on national politics in an environment of coalition governments. The 14th Finance Commission (a constitutional body that formulates recommendations on the basis of which tax revenues are shared between the Central Government and the states) recommended greater tax devolution and priority setting by states to support the implementation of social development programmes (including health programmes) in states.

In 2017, the country rolled out a Goods and Services Tax (GST), considered as a landmark tax reform involving taxation on consumption of goods and services. Before the GST was implemented, the landscape of indirect taxes and rates implemented in India was fragmented across the Centre and states and among the states. While the Central Government implemented Central excise, customs duties, service tax and different surcharges and cesses, the state governments implemented state value added tax (VAT)/ sales tax, Central sales tax, entertainment tax, luxury tax, entry tax/ octroy, taxes on lottery and certain surcharges and cesses. Most of these taxes have now been unified under a single GST structure with single tax administration, uniform law and uniform processes throughout the country. The implementation of GST promised a harmonized regime of taxes on goods and services produced and traded across the country, creating a common market; thus reducing tax cascading, subsequently leading to buoyancy in tax revenue and lower input costs. There are, however, significant challenges in the implementation of the GST, and a major share of it emerges from the informal economy where cost of inputs, intermediate goods and services may have risen. Although this rise in input cost should have been offset by tax credits, the process of filing tax details has often been criticized as cumbersome and onerous for small-scale producers and traders. Another challenge that the Central Government faces in implementation of the GST is to identify a simplistic rate structure that is acceptable to all state

governments and to compensate those state governments which are likely to experience revenue shortfalls. Given these challenges, the implementation of the GST is an ongoing experiment in Indian economy and its benefits and impact on the macroeconomic health of the country is still being evaluated and debated.

India's economic growth virtually halted and fell into a negative territory during the first year of the COVID-19 pandemic, owing largely to an early, stringent and longest lockdowns that the world witnessed. The strategy was seen as a short-term pain for a trade-off to save lives and livelihoods and to push the peak of the pandemic to later days and to recover economically (Ministry of Finance, 2021). The once-in-a-century health shock had crippled the economy to falter below a negative 23.9% contraction in the first quarter of 2021 with massive lay-offs and large-scale internal migration. Global and domestic supply-side shocks due to supply chain disruptions and demand side contraction due to high levels of joblessness and loss of pay, led to an unprecedented economic upheaval. The government, both at the Centre and states, responded with stimulus packages involving monetary and fiscal policies that accounted for 15% of GDP from the Central Government alone. As economic and social activity was unlocked since June 2020, the economy rebounded with a V-shaped recovery (Ministry of Finance, 2021), but the fiscal year is likely to register an economic growth of an unprecedented contraction by 8% (International Monetary Fund, 2021).

1.4 Political context

India's political system is characterized by a multi-level governance architecture, a dynamic electoral system with several national and regional parties, diversity in economic and social policies, and a strong presence of judiciary, media and civil society. As per the Justice Punchii Commission Report on Centre–State relations, Indian federalism is known for varied arrangements of power distribution between the Centre and the states and among the states and Union Territories. The Seventh Schedule to the Constitution broadly divides and distributes competences to enact and enforce laws to states, treating states on an equal basis. Articles 370, 371, 371A–G further provide for special arrangements of power distribution between the Central Government and special category states where regional and ethnic governance is given importance. At the federal and state levels, legislative authority derives from the Constitution of India per se, while the legislative distribution of competence is generally based on the recognition of the principle of sovereignty of exclusive jurisdiction. The domain of exclusive jurisdiction is provided for the Union Government in the Union List containing around 97 domains and for the state governments in

the State List containing 61 domains. The Concurrent List contains entries of 52 items on which both the Centre and states can legislate; however in the event of a conflict between them, the Central legislation prevails. Legislative and executive authorities are complemented by the constitutionally bound financial capacity of each unit of governance. As the capacities are constitutionally protected, the power relationships between the Central and the state governments are difficult to change by any other organs of government, including the judiciary. At the lowest level of governance (district and below), local government institutions prepare plans and implement schemes for economic development and social justice, with limited financial capacity. As per the Report of the Justice Punchii Commission, financial distribution is made by the Union Government either on the basis of the tax division formula guidelines, as prescribed in the Constitution or on the basis of the recommendations of the Finance Commission, a statutory institution under Article 280 of the Constitution. Additionally, inspired by the Directive Principles of State Policy as enshrined in the Constitution and by the models adopted by other socialist and the then developing economies, the Planning Commission was constituted through an executive order of the Union Government in the year 1950. The Planning Commission was the nodal agency in charge of producing the five-year plan documents for the country, approving state plans and the determining the quantum of Central assistance to be provided for state plans.

India has two houses of the Parliament at the Central level – the Lok Sabha or house of elected representatives and the Rajya Sabha or house of representatives elected directly by the state legislatures. The Rajya Sabha effectively ensures states' representation to federal policy-making. Members of these houses belong to political parties representing a spectrum of socio-political and economic ideologies (left, centre and right-wing politics) and identity politics (belonging to specific caste, ethnic and regional groups). This diversity ensures greater robustness in policy-making, but is also the cause of delays in policy formulation and implementation. Lobbying on political, economic and social issues, which include aspects of state formation, nuclear energy, foreign direct investment, food security, drug price controls, intellectual property rights, child rights and death penalty, is often the domain of civil society and media and adds dynamism to policy processes (Varshney, 2000). The executive authority of the government is balanced by a robust opposition, media and civil society. In addition, a variety of constitutionally protected rights overseen by an independent judiciary are intended to protect against government overreach (Rajeev Dhavan, 2015).

Executive authority lies with the government composed of members from the majority party (or a coalition). Increasingly, regional political parties

(political parties whose constituency and voter base are restricted to a particular region or state in the country) are influencing national politics so that in many states national parties play a minor role. Between 1951 and 2009, the total number of political parties increased from 16 to 364 and the number of national parties increased from 4 to 7 (Kaushik & Pal, 2012). The vote share of the Indian National Congress, the political party that controlled the national government and many state governments for most of the period since Independence, declined from 39.5% in 1989 to 25.9% in 1998 (Yadav, 1999). Between 1951 and 1998, voter turnout has increased, from 47% to 63% (Yadav, 1999; Mitra, 2001). As per the Election Commission of India, the voter turnout for the 2014 General Elections was around 65% of the total electors. Out of the total valid votes polled in the 2014 elections, the Bharatiya Janata Party received 31.3% votes and the Indian National Congress secured 19.5%. The total number of registered and recognized parties that contested the 2014 General Elections was 45, of which a coalition of 23 regional parties led by the Bharatiya Janata Party formed the government at the Centre. The 2019 General Elections saw a rise in voter turnout to 67.47%, of which the Bharatiya Janata Party (the incumbent) secured a vote share of 37.41% and formed the majority government at the Centre. Its closest competitor the Indian National Congress secured only 19.51% (The Hindu, 2019).

There have been major efforts to further decentralize functional and financial authority in specific areas (including health) to elected bodies below the level of state governments. The 72nd and 73rd Amendments to the Constitution sought to devolve power to municipal bodies in urban areas and panchayats⁵ in rural areas to enable community decision-making on key policy matters (Chaudhuri, 2003). The National Development Council (NDC), an advisory body presided over by the Prime Minister that includes union cabinet ministers and chief ministers from states, played a vital role in policy formulation and consensus. The main purpose of the NDC was to enable national planning, facilitating and executing five-year plans in particular. However, with the dissolution of the Planning Commission of India, planning exercises are no longer conducted and the last NDC meeting was held in 2012. In 2015, the NITI Aayog was set up to replace the then Planning Commission (NITI Aayog, 2015). The NITI Aayog was designed as a premier institution intended to provide knowledge, innovation and entrepreneurial support to the government. It is expected to provide technical advice to the Centre and states where it designs strategic and long-term policies and programmes for the GoI. It is also mandated to act as a centre for repository of research on good governance and best practices.

5 Panchayati Raj institutions are decentralized, local government at the village level. Members are elected by the community and make village-level decisions.

Global institutions often play a critical role in India's health policies and plans. On matters related to health, India interacts with several international bodies including the World Health Organization (WHO), United Nations Children's Fund (UNICEF), World Trade Organization (WTO), World Bank and Asian Development Bank. Private philanthropic organizations such as the Bill and Melinda Gates Foundation (BMGF) have been investing heavily and replaced official donors in a significant way in providing grants to the health sector in the recent past. Other agencies that have played an influential role in India's health policies include the Global Alliance of Vaccines and Immunization (GAVI) and the Global Fund to fight AIDS, Tuberculosis and Malaria. Similarly, India signed the Trade-Related Intellectual Property Rights (TRIPS) as a part of the WTO agreement in 2005 whose impact is clearly felt in the pharmaceutical sector, domestically and globally. Another major global treaty India has signed and ratified is the WHO Framework Convention on Tobacco Control (FCTC) in 2004. It is also a signatory to WHO's International Health Regulations (2005), an instrument that is extremely relevant in the current COVID-19 pandemic, which requires global coordination for detection, reporting and control measures against public health emergencies of international concern. In terms of rights-based treaties, India is a signatory to several conventions related to worker safety and rights such as the Prevention of Major Industrial Accidents (1993), which it signed in 2008, besides being part of the Alma-Ata Declaration 1978, International Covenant on Economic, Social and Cultural Rights of 1966, Convention on the Elimination of All Forms of Discrimination against Women, 1979, etc.

Health status

The number of years an average Indian can expect to live at the time of their birth has increased sharply, from 47.7 years in 1970 to 69.6 years in 2020, a gain of more than two decades (Table 1.4). Although its life expectancy is lower than its comparators in the middle-income range, namely, Sri Lanka (74 years), Brazil (74 years), China (75 years) and Costa Rica (80 years), the gains in India's life expectancy are impressive. Life expectancy at birth among Indian women increased by 24 years between 1970 and 2016, more than that of men, who experienced an increase of 20 years over the same period. In addition, at 60 years of age, the average life expectancy for men is 15 years compared to 17 years for women. These gains in longevity can be attributed primarily to reductions in infant and child mortality along with maternal mortality. The highest gains in life expectancy over the period 1970–2020 have come from states such as Uttar Pradesh, Tamil Nadu, Odisha, Himachal Pradesh, Gujarat, Bihar, Assam and Andhra Pradesh. In Uttar Pradesh alone, during the 50-year period, the gain in life expectancy was

about 22 years. During 1970–2020, the infant mortality rate (IMR) declined steadily at the national level from 142 to 32 per 1000 live births. The reduction in maternal mortality ratio (MMR) is even sharper from a high of 556 in 1990 to about 113 in 2016–2018 (Table 1.8), reducing India’s share of global maternal deaths to about 15% (ORGI & CCI, 2020). Some states have seen dramatic improvements.

Table 1.4 Mortality and health indicators, selected years

	1970	1980	1990	2000	2005	2010	2015	2020
Life expectancy at birth, female (years)	47.10	53.91	58.23	63.33	65.36	67.73	69.84	71.5
Life expectancy at birth, male (years)	48.35	53.76	57.54	61.73	63.69	65.72	67.47	68.37
Life expectancy at birth, total (years)	47.74	53.81	57.87	62.51	64.50	66.69	68.61	69.6 [#]
Mortality rate, adult, female (per 1000 female adults)	371.08	276.88	237.18	193.15	178.00	157.93	141.25	147.1
Mortality rate, adult, male (per 1000 male adults)	370.08	307.96	281.39	250.11	236.37	225.26	214.64	203.6
Mortality rate, infant (per 1000 live births)	142.60	114.50	88.60	66.70	55.70	45.10	34.90	32.00

[#] Data from World Development Indicators (World Bank, 2020)

Source: 1970–2015: Health Nutrition and Population Statistics (World Bank, 2017a); 2020: Population Projections for India and States 2011–2036. Report of the Technical Group on Population Projections (National Commission on Population, 2020).

India, like other countries in Asia, is undergoing a significant epidemiological transition with a growing burden of chronic noncommunicable conditions. Table 1.5 shows that the top three causes of death are ischaemic heart disease, COPD and stroke.

Table 1.5 Top 10 causes of death (by rate) in 2005 and 2019

Ranking	Diseases	
	2005	2019
1	Ischaemic heart disease	Ischaemic heart disease
2	Chronic obstructive pulmonary disease (COPD)	COPD
3	Cerebrovascular disease	Stroke
4	Diarrhoeal diseases	Diarrhoeal diseases
5	Lower respiratory tract infections	Neonatal disorders
6	Tuberculosis	Lower respiratory tract infections
7	Neonatal preterm birth	Tuberculosis
8	Neonatal encephalopathy	Diabetes mellitus

Table 1.5 Top 10 causes of death (by rate) in 2005 and 2019 (contd)

Ranking	Diseases	
	2005	2019
9	Road injuries	Cirrhosis and other chronic liver diseases
10	Chronic kidney disease	Falls
Noncommunicable diseases (NCDs)		
Communicable, maternal, neonatal and nutritional diseases		
Injuries		

Note: Results for level-3 classification

Source: India – Country Profile, Global Burden of Disease Study 2005 and 2019 Institute for Health Metrics and Evaluation (IHME, 2021)

Simultaneously, there is evidence of a declining share of childhood conditions and infectious disease in India's disease burden. Neonatal disorders, ischaemic heart disease, lower respiratory tract infections, diarrhoea and COPD are currently the top contributors to premature mortality (measured as unfulfilled life expectancy) in terms of years of lives lost (YLL) (Table 1.6). Other important causes of mortality in India are stroke, tuberculosis, self-harm, road injuries, and congenital defects.

Table 1.6 Top 10 causes of premature mortality (YLLs per 100 000 age standardized) in India, 2019

Diseases	YLLs per 100 000 Population
Neonatal disorders	2798.26
Ischaemic heart disease	2634.86
Lower respiratory tract infections	1317.72
Diarrhoeal diseases	1248.07
Chronic obstructive pulmonary disease	1178.95
Stroke	1143.49
Tuberculosis	1013.10
Self-harm	722.15
Road injuries	705.28
Cirrhosis and other chronic liver diseases	682.71
Noncommunicable diseases (NCDs)	
Communicable, maternal, neonatal and nutritional diseases	
Injuries	

Note: Premature mortality denotes unfulfilled life expectancy of a given population

Source: India – Country Profile, Global Burden of Disease Study, Institute for Health Metrics and Evaluation (IHME, 2019)

As far as disability is concerned, dietary iron deficiency is the top cause of disability in India (Table 1.7). Other major contributors to disability include lower-back pain and neck pain, sense organ disorders, mental health, gynaecological diseases and diabetes. The contribution of headache disorders to disability has also increased in the past decade. Undernutrition, reflected in wasting, stunting and underweight, along with iron and calcium deficiencies is a major health concern, with impacts on the health of women at all ages and children (Subramanian et al., 2007). The NFHS-4 (2015–2016) data show high prevalence of stunted (38.4%), wasted (21.0%) and underweight (35.8%) among children under 5 years of age. Past studies have shown that among children, undernutrition is expected to impair cognitive health (Berkman et al., 2002; Martorell et al., 2010; Crookston et al., 2013), increase morbidity (Caulfield et al., 2006) and (Branca & Ferrari, 2002) and mortality (McDonald et al., 2013) and impede participation in socioeconomic activities. Iron deficiency anaemia among women can influence pregnancy outcomes, even the risk of maternal mortality (Upadhyay & Upadhyay, 2017).

Wide variations exist in the burden of undernutrition across states. By 2016, as per the NFHS-4, 18% of newborns were found to be low in birth weight and only 54.9% of infants were exclusively breastfed for the first 6 months of their life. Notwithstanding government efforts via targeted programmes to enhance nutritional supplementation during pregnancy, 50.4% of pregnant women and 58.6% of children under 5 years of age remain anaemic. Overweight and obesity are emerging concerns related to nutrition, especially among children and young adults in urban settings. These are associated with increased risks for noncommunicable conditions such as diabetes, cardiovascular diseases and hypertension. A major burden on the health of women comes from risks during the reproductive period, reflecting nutritional deficiencies and possibly an inadequate access to appropriate health care. Although not highlighted in the preceding discussion on major causes of mortality and disability in India, disadvantaged women – particularly those from low-income families – face significant risks from maternal mortality and morbidity (You et al., 2011).

Table 1.7 Top 10 causes of YLDs in 2005 and 2019

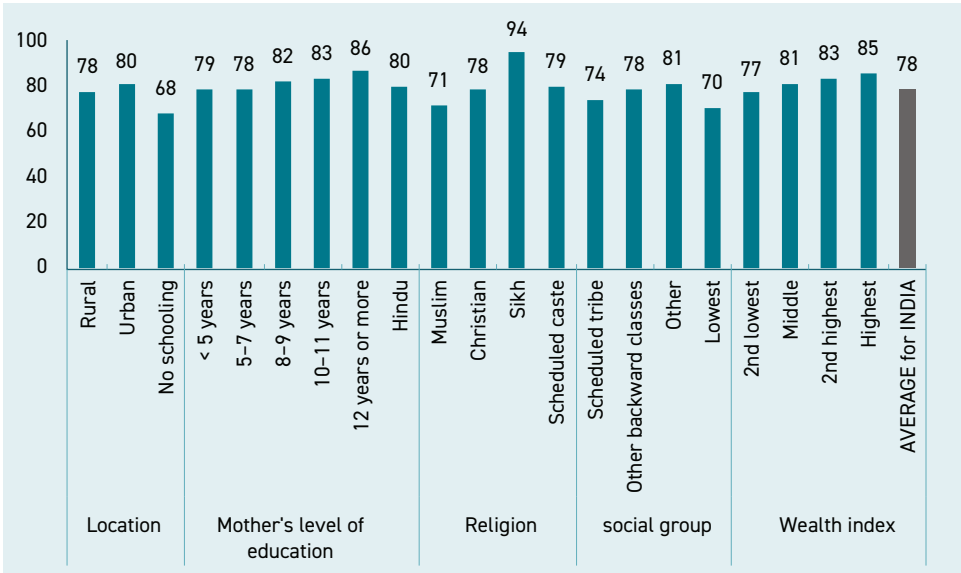
Ranking	Diseases	
	2005	2019
1	Iron deficiency anaemia	Dietary iron deficiency
2	Low-back and neck pain	Other musculoskeletal disorders
3	Sense organ diseases	Depressive disorders
4	Depressive disorders	Headache disorders
5	Other musculoskeletal disorders	Low back pain
6	Skin diseases	Age-related and other hearing loss
7	Migraine	Diabetes mellitus
8	Diabetes mellitus	Blindness and vision loss
9	Anxiety disorders	Road injuries
10	Chronic obstructive pulmonary disease (COPD)	Gynaecological diseases

Source: India – Country Profile, Global Burden of Disease Study (2005 and 2019), Institute for Health Metrics and Evaluation (IHME, 2021)

Data on population health and especially by causes of death and morbidity are of mixed quality and often incomplete. The medical certification of cause of death (MCCD) data produced by the Vital Statistics Division of the Registrar General of India (RGI) are a major source of data on causes of death. However, MCCD data are not representative at the national or state level as only a small portion (22%) of registered deaths is reported as medically certified. Apart from the RGI, the National Sample Survey Organization (NSSO) also undertakes large nationally representative sample surveys on morbidity, by cause. The GoI, through the National Health Mission (NHM) has put in place an Integrated Disease Surveillance Programme (IDSP), which monitors a select group of infectious diseases across the country. However, all these data are produced separately, in a piecemeal and disjointed manner and may lack comparability, consistency and representativeness. India, as of now, does not systematically collect patient information data from public and private health facilities that can help provide credible information on mortality and morbidity by condition. There are independent attempts to fill this gap. One such initiative has been the “The Million Death Study” that the Centre for Global Health Research conducted in India in collaboration with RGI. The study monitored 2.4 million nationally representative households during 1998–2014 and assigned probable cause to deaths occurring in these households, through verbal autopsy. Another significant contribution in this area are the GBD estimates produced by the Institute of Health Metrics and Evaluation (IHME).

The burden of child mortality is still substantial in the Indian context. Immunization programmes in India have been an important focus of government-funded preventive health services, particularly for polio, DPT and BCG. Polio has received the greatest push in terms of awareness generation activities and funding, leading to India being designated as polio-free in 2011 (Sathyamala et al., 2005). Progress on increasing coverage for DPT and measles vaccination has been slow by comparison, and in addition, there is considerable variation by region and socioeconomic status. DPT3⁶ coverage in 2017 was 88% as per the WHO and UNICEF estimates of national coverage. As per the NFHS-4, DPT3 vaccine coverage was lower in rural areas (77.7%) compared to urban areas (80.2%) (IIPS, 2016). Major factors influencing coverage of vaccination include household wealth, mother’s educational status and religion (Figure 1.2).

Figure 1.2 Variations in DPT3 coverage across area of residence, mother’s education, religion, caste/tribe status, poverty status and wealth quintiles



Note: DPT is a combination vaccine against three infectious diseases in humans: diphtheria, pertussis and tetanus.

Source: National Family Health Survey (NFHS-4) (IIPS, 2016)

For instance, the coverage rate of DPT3 was 68.3% among children of uneducated mothers compared to 86.1% among children of mothers with 12

⁶ Three doses of DPT vaccine, which protects against diphtheria, pertussis (whooping cough) and tetanus.

or more years of education. There are 11 vaccines in total in the vaccination schedule. In 2014, India launched Mission Indradhanush as a campaign to secure 90% full immunization coverage of children in the country by 2020 involving 11 vaccine preventable diseases including diphtheria, whooping cough (pertussis), tetanus, polio, tuberculosis, measles, hepatitis B, meningitis and pneumonia caused by haemophilus influenza type B, Rotavirus Diarrhoea and Japanese Encephalitis (National Health Portal, 2015). Subsequently in 2019, the Gol launched an Intensified Mission Indradhanush to reach children and pregnant women identifying 272 districts and blocks across 27 states that were unreached earlier. At the all-India level, the planned target of immunization was met with over 100% coverage in both groups, although variation in meeting the target by different states was observed (since the actual number of children vaccinated exceeds that of the number of target children identified at the block level, the coverage exceeds 100%) (National Health Portal, 2020).

India has made substantial progress towards realizing the Millennium Development Goals (MDGs) (Table 1.8). The progress in terms of reduced MMR and IMR and increase in institutional deliveries in the country has been generally attributed to increased public sector investments made in the area of reproductive, maternal and child health and increases in the strength and coverage of frontline workers such as ASHAs (accredited social health activists) and ANMs (auxiliary nurse and midwives). Vellakkal et al. (2017) by using District-Level Household Surveys (DLHS) data from the pre-NRHM (National Rural Health Mission) and the post-NRHM periods found that the number of institutional deliveries increased across all socioeconomic groups, with larger increases among lower- and middle-wealth and educational tiers. The use of ANC services also increased after 2011–2012. Many of these public sector health investments have been channelled through the Central Government flagship programmes such as the NRHM. However, data also show considerable interstate variations in the progress towards achieving the MDG goals (Planning Commission, 2011). For instance, the states of Tamil Nadu and Maharashtra reached the MDG IMR target of 30 per 1000 live births in 2009–2010, whereas Bihar and Madhya Pradesh are likely to reach this target only by 2037. The burden of sexually transmitted infections (STIs) remains high and unaddressed and is distributed unequally across gender groups. As per the NFHS-4, 11.2% of women in reproductive ages (15–49 years) reported symptoms of STIs compared to 7.5% of men in the same age range. The reporting of reproductive morbidity, especially STIs, remains challenging due to the stigma associated with these conditions.

Table 1.8 Maternal, child and adolescent health indicators, selected years

	1990	1993	1995	1999	2000	2005	2010	2013	2015	2018	2019–2020
Adolescent fertility rate (births per 1000 women aged 15–19 years) ¹	98.8	90.6	83.7	70.2	66.8	50.8	34.7	25.1	19.1	12.1	–
Neonatal mortality rate (per 1000 live births) ¹	57.4	53.8	51.5	46.4	45	38.1	32	28.3	25.9	22.6	–
Infant mortality rate (per 1000 live births) ¹	88.6	82.2	78	69	66.7	55.7	45.1	38.8	34.9	29.7	–
Under-5 mortality rate (per 1000 live births) ¹	126.2	116.1	109.5	95.4	91.8	74.5	58.2	49.1	43.5	36.3	–
Maternal mortality ratio (per 100 000 live births) [modelled] – national not available ²	556 ³	NA	NA	NA	370	286	210	175	158	113 (2016–18) SRS ⁵	–
% stunting ⁴	NA	52 under 4 years of age ⁴	NA	46 under 3 years of age ⁴	NA	48 under 5 years of age ⁴	NA	NA	38.4 under 5 years of age ⁴	NA	22.5 under 5 years of age ⁴
% underweight ⁴	NA	53 under 4 years of age ⁴	NA	47 under 3 years of age ⁴	NA	43 under 5 years of age ⁴	NA	NA	35.8 under 5 years of age ⁴	NA	23.7 under 5 years of age ⁴

Notes:

** Data from the Registrar General of India, reported in NFHS reports; NFHS estimates of maternal mortality have a higher error since they were estimated using a sample (as noted by NFHS final reports)

Sources:

- 1: World Development Indicators, Country: India [World Bank, 2021]
- 2: Global Health Observatory, Country: India, WHO [Global Health Observatory, 2021]
- 3: Annual Report of the Department of Health and Family Welfare 2017–2018 (MoHFW, 2018)
- 4: National Family Health Surveys (NFHS 2, NFHS 3, NFHS 4 and NFHS 5), respective years. International Institute for Population Sciences (IIPS, 1998-99, 2005-06, 2015-16, 2019-20).
- 5: Data for 2018 are from Sample Registration System (ORGI & CCI, 2020)

Consumption of tobacco products and alcohol has been associated with the heightened burden of chronic disease in both the global and Indian contexts (Srivastava et al., 2012; Agnihotri & Gaur, 2014; Petersen et al., 2005). Tobacco use in various forms is common in India, including cigarettes, bidis and chewed tobacco products. Data from the National Sample Surveys show that nearly 54.1% of households consumed some form of tobacco in 2000, declining slowly to 51% by 2012. However, households consuming multiple forms of tobacco increased from 7.2% to 8.2% between 2000 and 2012. According to the Global Adult Tobacco Survey (GATS), India Factsheet 2016–2017, overall 28.6% of Indian adults used tobacco (smoke or smokeless), with a prevalence of 42.4% among men and 14.2% among women. A study by (Basakhetre et al., 2017) investigated tobacco use patterns among Indian school children of 10–15 years of age and found that 5.9% of surveyed children were tobacco users, with the mean age of initiation being around 11.7 years.

Available estimates suggest that roughly 2.3 litres of alcohol per capita is consumed per year in India. However, this figure may be an underestimate as consumer surveys based on self-reporting of consumption tend to under-report consumption of alcohol compared to supply side estimates based on sales, tax revenues, production or trade. As of 2010, among individuals consuming alcohol, per capita consumption could be as high as 28.7 litres annually. Alcohol consumption is higher among men (32.1 litres) 15 years and older compared to women (10.6 litres) in the same age category (WHO, 2014).

Oral health is another area of concern and poor oral health is associated with rising consumption of processed foods and sugar sweetened beverages (Stevens et al., 2014). Among the elderly, atrophy of teeth and accumulation of gum infections are common health issues and predictors of mortality (Venugopal Reddy et al., 2014; Tandon, 2004). However, data with respect to the oral health status of the population has not been systematically produced. The last major survey on oral health status was conducted in 2002–2003 by the Dental Council of India. The National Sample Survey which periodically produces morbidity data does not provide any information pertaining to oral health status.

Access to water, sanitation and hygiene (WASH) services is essential to improve health outcomes and the wellbeing of people, and rapid urbanization further necessitates strengthening WASH services. Significant progress has been made on WASH services and improving access to toilets and reduce open defecation in India. The percentage of people practicing open defecation reduced from 56% to 46% between 2006 and 2016 (WHO and UNICEF, 2021). The National Annual Rural Sanitation Survey 2019-20 indicates that nearly 94.4% of households surveyed have access to a toilet facility (Ministry of

Jal Shakti, 2020), and 70.2% of households demonstrate improved sanitation facilities (IIPS, 2020). Nearly 96% of households report improved drinking water source in the NFHS-5 (IIPS, 2020). Availability of clean drinking water and safe sanitation practices are closely related to the transmission of several infectious diseases and under-nutrition. Even with improvements in India with respect to availability of WASH services, regional variations persist, and quality remains a concern. Government campaigns on sanitation and urban renewal have made slow, but steady achievements. Greater investment in WASH is critical not only as a development indicator but also as it has implications for health, women's safety, rights and economic development.

Finally, there are two areas of emerging health threats that require policy attention. In recent years, air and water pollution has emerged as major health risks among both rural and urban populations. The Global Burden of Disease (GBD) India Report 2017 identifies air pollution as the second leading risk factor for disease burden (around 11.5% of country's total disability-adjusted life years (DALYs) contributing to cardiovascular diseases, chronic respiratory diseases and lower respiratory tract infections. While air pollution in metropolitan cities in India has been making headlines, surface water pollution has stealthily emerged as a major health risk. According to the GBD India Report 2017, around 4.6% of all disease burden in India is caused by water pollution, characterized by unsafe water, sanitation and handwashing. While the higher contribution of unsafe water, sanitation and indoor air pollution to disease and mortality is typical of poverty and during the early phases of industrial development, high economic growth coupled with rapid industrialization and urbanization increases the chances of water bodies being polluted with chemicals, heavy metals and pharmaceuticals whose impact on human health is much more complex and of a longer-run nature (Landrigan et al., 2018).

Secondly, India is particularly vulnerable to health risks from climate change, given its large population, dependence on the monsoon for livelihood, and relatively low socioeconomic development. According to the "Emergency Events" database maintained by the Centre for Research on the Epidemiology of Disasters (CRED), between 2000 and 2019, India witnessed 166 episodes of flood, affecting 341 million people, killing more than 25 000 people and causing damage worth more than US\$ 48 billion. During the same period, the country witnessed 75 episodes of storms or cyclones of various kinds affecting more than 21 million people and causing damage worth around US\$ 11 billion. As they occur with increasing frequency, extreme weather events such as these can pose major challenges to the coping abilities of the affected communities and a health system that is still struggling to provide basic services.

2. Organization and Governance

Chapter Summary

India has a federal structure of governance with national and state jurisdiction over policies. In the health sector, this means decision-making, planning and health delivery systems are influenced by the Central national (Union) and state governments.

Under the Indian Constitution of India, health is a state subject, and implementation of health programmes is left to state governments. The national government plays an overall stewardship role, providing vision and funds to policies and programmes. State governments play a larger role combining the role of vision, leadership, funding, regulation and delivery of health care. Health-care services are delivered by a range of public and private providers. Public sector health providers function at different levels within states and are accountable to local administrative authorities. They can also be open to scrutiny through the Right to Information Act. There are a broad range of private providers, from individual practitioners to hospitals, that are subject to a variety of regulations, with various level of adherence.

Efforts to promote greater accountability in the provision and financing of health services have progressed over the in recent years, although challenges remain. States such as Kerala, Tamil Nadu, Rajasthan and Chhattisgarh have demonstrated the growing role of communities and local governance institutions in participatory decision-making. Participation in programme design and evaluation by national and international partners has created a supportive structure for the implementation of state programmes. Regulation of health-care providers, third-party payers (TPPs), pharmaceutical industry and allied systems is critical for the functioning of the health system and ensuring patient welfare; however, at present regulation of private players is fragmented and its implementation lax. Systems for the regulation of insurance providers and the pharmaceutical sector illustrate a balancing act on the part of the Central Government in safeguarding interests of patients while incentivizing private enterprise. Regulatory efforts to ensure quality of health services constitute an ongoing challenge. Given multiple roles assigned to the Central and state drug regulatory authorities, ensuring good quality drugs remains a challenge for India's health system. Various professional

councils have the mandate to regulate and establish norms and standards for the medical, nursing, dental and allied health worker professions. The Medical Council of India (MCI) has historically been the apex body to regulate and establish uniform standards for medical education and tended to be a major impediment to the growth of a well-functioning and good quality medical education sector. In 2020, a new National Medical Commission (NMC) was established by the Indian Parliament, replacing MCI. To enhance financial protection from health expenditures associated with ill health, national the Central and state governments have introduced fully publicly subsidized and/or contributory health insurance schemes. Patient information and protection of patient rights remains a critical challenge in the health sector, even as a number of laws have been enacted to protect patient rights and for grievance redressal related to medical misconduct, over-prescription of drugs and other cases of malpractice.

2.1 Overview of the health system

India has a federal structure of governance with defined jurisdictions for the Central and state governments. The Indian Constitution outlines “Public Health, Sanitation, Hospitals and Dispensaries” as a state subject, while “Population Control and Family Planning”, “adulteration of foodstuff”, control of infectious and contagious diseases across state boundaries and issues governing medical profession are placed under the Concurrent List where both the Central Government and the state governments have jurisdiction. Hospitals attached to port facilities for quarantine or seamen’s hospitals are exclusively under the jurisdiction of the Central Government. Policy formulation and regulation on health insurance is largely under the jurisdiction of the Central Government, social health insurance (SHI) is in the Concurrent List, paving the way for state-level policy formulation.

Given the constitutional division of responsibilities, the legislation, vision and financing and delivery of health-care services has largely been the preserve of the state governments, albeit with periodic interventions from the Central Government. Funding from state governments accounts for two-thirds of public health expenditure in India, the rest consisting of Central Government contributions. While the Central Government has, from time to time, produced vision and strategy documents such as the National Health Policies of 1983, 2002 and 2018 and guidelines with respect to Indian Public Health Standards, its interventions have largely been in the form of vertical programmes of “national importance”, such as, family planning, polio eradication, malaria eradication, tuberculosis, HIV/AIDS and reproductive, maternal, new-born and child and adolescent health (RMNCH+A). These vertical programmes were funded by the

Central Government but the responsibility for their implementation rested solely with the states.

Health services in India are delivered by a diverse set of public, for-profit and not-for-profit private providers. These providers vary by patterns of ownership and organization. Alternative systems of medicine, commonly known as Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH) supplement allopathic health providers. Health services in the public system include both curative and preventive services. Public sector health services under the ambit of the ministries at the national level and departments of health at the state levels are financed from general revenues of governments. These services are provided by public sector facilities that include at the primary level, a sub-centre (SCs) established to serve a population of 3000 – 5000, primary health centre (PHCs) for a population of 20 000 – 30 000, community health centre (CHCs) for a population of 80 000 – 120 000, and district hospitals. A CHC, sub-divisional or district hospital also serves as a first referral unit (FRU) if it is equipped to provide round-the-clock services for emergency obstetric and new-born care, in addition to all emergencies that any hospital is required to provide. In this connection, there are three characteristics that define a health facility which serves as an FRU: (i) emergency obstetric care including surgical interventions such as caesarean sections; (ii) care for small and sick new-born children; and (iii) blood storage facility on a 24-hour basis (M. Chokshi et al., 2016).

Above the level of district hospitals, tertiary care is provided by medical colleges and/or state-level super-specialty hospitals. Maintenance and upkeep of facilities up to the district hospital level is largely the responsibility of the state government with the Central Government providing part funding through the NHM. The NHM's core focus areas have evolved from its focus on reproductive, maternal, newborn and child health services, to additionally include adolescent health services, health system strengthening, and tackling other communicable and noncommunicable diseases.

Medical colleges and super-specialty hospitals at the state level receive support directly from state health departments. In recent years, several tertiary-care hospitals on the lines of All India Institute of Medical Sciences (AIIMS) (India's main tertiary-level health facility in the public sector) have been set up in states to provide high-end tertiary care and serve as apex teaching institutions, funded directly by the Central Government.

Apart from health facilities operated and/or funded by the state and national ministries of health, public sector employers such as the Ministry of Defence, the Ministry of Railways, police and port authorities also provide health services through institutions directly owned and managed by them. In

addition, serving or retired employees of the Central Government can access outpatient and inpatient care, drugs and diagnostic services from government facilities as well private empanelled facilities under the Central Government Health Scheme (CGHS), in exchange for nominal contribution of monthly deductions from employees' salary. Other organized sector workers can access health services from hospitals and dispensaries under the Employees' State Insurance Scheme (ESIS) hospitals and dispensaries, in addition to having access to health services from empanelled hospitals.

There is general agreement that the Indian public health system is underfunded while its services are often perceived of poor quality (Planning Commission of India, 2005; Jishnu Das et al., 2008). The concerns about public sector service quality range from inadequacies related to human resources for health (shortages, absenteeism, low motivation, corruption), shortages of essential medicines in public health facilities, unavailability of diagnostic services, and unsatisfactory staff behaviour towards patients (Balabanova et al., 2013; Basu et al., 2012). The problem is further exacerbated by the very limited set of interventions available at the primary care level. This has led over time to patients switching to private providers, even though it comes at a higher out-of-pocket (OOP) cost with no obvious assurance of technical quality (Wagner et al., 2019). Private health-care providers in India range from super-specialty corporate hospitals located mostly in major urban centres, outpatient clinics in large and small towns, alongside semi-qualified or unqualified medical practitioners. Diagnostic services and pharmaceuticals are also provided by private sector providers. There are also private non-profit or mission hospitals that provide high quality secondary or tertiary care to patients for free or at low cost, but these are relatively rare.

Payment for accessing health-care services offered by private providers is mainly in the form of out-of-pocket (OOP) expenses and insurance financing. Privately purchased or publicly funded insurance schemes provide partial or full coverage for hospitalization at empanelled hospitals for enrollees, but most private outpatient care is paid for out of pocket. Presently, private providers are regulated through the Clinical Establishments Act and Rules among others, and professional accreditation of the facilities and clinical practice was under the ambit of the Medical Council of India (MCI) until it was replaced in 2020 by the National Medical Commission (NMC). Activities of large hospitals or nongovernmental organizations (NGO) trusts are often monitored by internal governing councils and local ethics boards. While government hospitals are set up as per Indian public health standards, they are increasingly encouraged to get accreditation from organizations such as like National Accreditation Board for Hospitals (NABH). Increasingly, public-private partnerships have emerged, along with contracting in and

contracting out, social franchising and joint ventures (Baru and Nundy, 2008). The effectiveness of these newer models of service provision remains relatively unexplored.

2.2 Historical background

Prior to attaining Independence from British colonial rule in 1947, the responsibility of legislation and implementation of public health activities was allocated to states by the Montagu-Chelmsford Reforms of 1919 and the Government of India (GoI) Act, 1935, which focused on gradually introducing institutions of self-governance in colonial India. In colonial India, much of the modern health services provided through hospitals and dispensaries were developed in the major Presidency towns of Madras (now Chennai), Bombay (now Mumbai) and Calcutta (now Kolkata) and largely catered to British officers, troops and their families and to certain extent the native princes and elites. The commoners and poor people of colonial India largely depended on traditional systems of medicine (Ayurveda and Unani) and in some cases mission hospitals.

In 1943, a committee (the Health Survey and Development Committee) was set up under Sir Joseph Bhore for remodelling health services in India with emphasis on integrating curative and preventive medicine at all levels. The historical context in which the Bhore Committee was established is significant. Much of the western world during that time was also witnessing a rise in importance of Keynesian economic policies giving rise to welfare states where the government was held to be responsible for providing public services. It is in this context that the Bhore Committee developed a vision for delivering a three-tier public health system in India. The original framework was designed to be government funded and delivered by the government and geared towards the concept of integrated and universal access to health care (Bajpai & Dholakia, 2011). India, however, is yet to achieve even the short-term goals for the first ten years laid out in the Bhore Committee report. The committee recommended that by the end of first ten years, a typical district in India should have around 25 primary health centres (PHC) each serving a population not more than 40 000 and one 30-bedded hospital to serve two PHCs. Each PHC should have a staff of 15 comprising two medical officers, four public health nurses (PHNs), one nurse, four midwives, four public health inspectors, two pharmacists, one clerk and other support staff.

At the time of Independence, the private health-care sector was small and consisted of allopathic and alternative medical providers, largely providing outpatient care services. The focus of national health policies was vertical diseases control programmes, such as eradication of smallpox and polio

and on family planning, and this continued for several decades following Independence. The promotion of primary care services was not a high policy priority. The hospital sector was dominated, until the early 1980s, by public sector facilities, which were tax-funded with a relatively limited role of the private sector.

India announced its first National Health Policy (NHP) in 1983 following the signing of the Alma-Ata Declaration in 1978. The NHP 1983 outlined its vision on primary health care with special emphasis on preventive, promotive and rehabilitative aspects. However, in many ways the policy was in many ways a significant departure from the ideals laid down in the Bhore Committee report. While the Bhore Committee report recognized the public good nature of health care and laid the responsibility of providing it squarely on the shoulders of the government, the NHP 1983 on the contrary, dwelt significantly on approaches that would reduce government expenditure through leveraging the private sector and voluntary agencies and transfer of knowledge and expertise to health volunteers at the grassroots level to provide primary care at low cost. The minimum needs programme integrated some of these functions that led to a large increase in investment in primary care with the introduction of ANMs, CHWs, etc. But this initiative collapsed towards the end of 1980s following the introduction of policies of structural adjustment policies.

Limited funding, policies promoting the private sector and rising incomes fuelled rapid growth of the private health sector from the 1980s. With growing economic inequalities, the poor faced serious challenges in accessing good quality and affordable care. Rural–urban disparities worsened as better trained providers, both public and private, tended to concentrate in urban areas. In part, as a response to this, the National Health Policy (NHP), 2002 focused on rural–urban health disparities and. The 2002 NHP proposed strengthening the health system in addition to specific vertical disease control programmes (MoHFW, 2002b; MoHFW, 1983). The NHP 2002 also recognized the need for increasing public sector investments in health and committed to increasing government health sector allocations to 2% of GDP by 2010, improving the existing public health infrastructure, with the intention of increasing the share of outpatient health service utilization of public sector facilities from less than 20% to more than 75% by 2010. The NHP also recognized the need for an integrated system of surveillance, health accounts and health statistics to inform and improve programme planning. Around this time, regulatory changes in the health insurance sector ended the monopoly of the General Insurance Corporation (GIC) by permitting competition from private sector entrants and foreign direct investment (up to 26% of equity) in insurance

companies. This move was directly linked to international trade negotiations that led to liberalisation of trade in services.

Following the publication of NHP 2002, a major development was the launch of the National Rural Health Mission (NRHM) in 2005. The NRHM was an umbrella programme under which a whole range of policy objectives espoused in NHP 2002 were operationalized. The NRHM focused on improving maternal and child health indicators by improving institutional deliveries, encouraging universal immunization, addressing micro-nutrient deficiencies and crucially, provided an expanded budget for the training and deployment of frontline workers. Given that NRHM was designed as a Centrally sponsored scheme which required state governments to provide matching contribution (10% in case of priority (high-focus) states and 40% for others) with the remainder being funded by the Central Government it effectively led to a prioritization of health spending in government budgets. India's public sector spending on health was 0.9% of its GDP in 2005, one of the lowest even among developing nations. Funding for the NRHM, helped to increase budgetary allocations, and by 2014–2015, public sector spending on health rose to 1.1% of GDP, at a time when India's GDP growth was amongst the highest in the world.

The NRHM directed special attention towards 18 “high-focus” states with relatively poor health infrastructure and health outcomes. In addition to public sector health infrastructure support, the NRHM funding led to the emergence of a workforce of female health activists/volunteers in villages known as Accredited Social Health Activists (ASHAs) and decentralized community planning and monitoring through Village Health and Sanitation Committees.

A large body of research in the 2000s highlighted the major role of ill health in high levels of OOP health spending, including causing impoverishment. Publicly funded health insurance schemes, especially those targeting the poor and other vulnerable sections of population, are considered an important mechanism to provide financial risk protection. Many countries, including Mexico, China, Columbia, the Philippines, Viet Nam and Thailand, have implemented publicly funded insurance programmes, with varying degrees of success. India joined this group of countries, by launching a fully subsidised health insurance scheme (the “Rajiv Aarogyasri” scheme) in 2007, in the state of Andhra Pradesh. Following this, another publicly funded insurance scheme for the poor, the ‘Rashtriya Swasthya Bima Yojana’ (RSBY), was launched by the Ministry of Labour and Employment (MoLE) in 2008. Later, other Indian states such as Tamil Nadu, Maharashtra, Karnataka, Himachal Pradesh and Kerala also introduced their own publicly funded

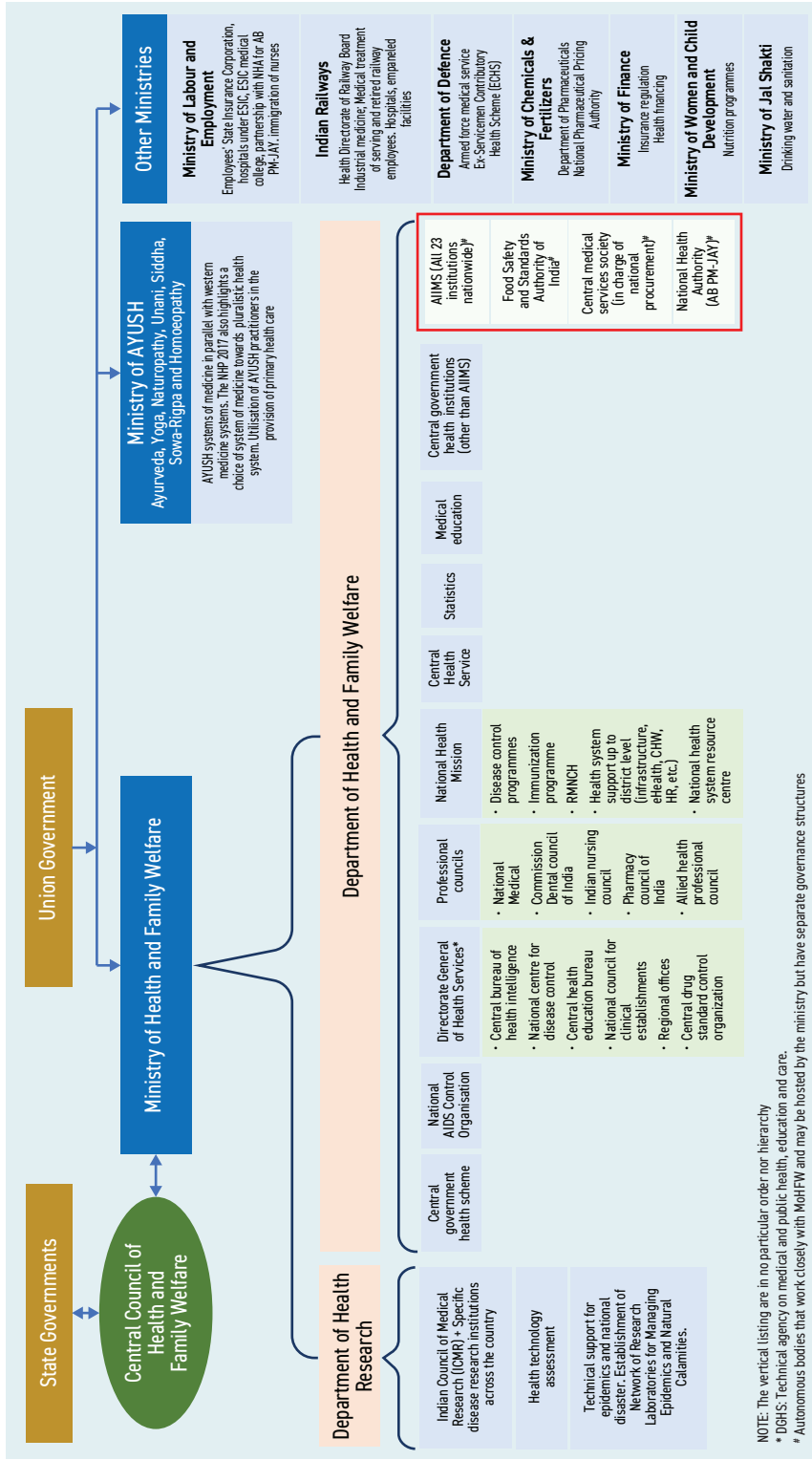
insurance programmes (Anup Karan et al., 2017). In 2018, the GoI replaced RSBY with a much more comprehensive health insurance scheme called the Pradhan Mantri Jan Arogya Yojana (PM-JAY) termed as the world's largest public-funded health insurance scheme. The scheme seeks to provide a coverage of INR 0.5 million (around US\$ 7000) to more than 107 million poor and marginalized households.

2.3 Organization

Public sector health services in India are organized as a three-tier hierarchical system, comprising primary (subcentres and PHCs), secondary (CHCs, taluka and district hospitals) and tertiary (medical colleges and teaching hospitals) health-care facilities (Figure 2.1 and 2.2). Since health is a state subject, each state operates its own health facilities. The Central Government oversees policy-making, planning, guiding, assisting, evaluating and coordinating the work of state health authorities. The Central Government also finances national health programmes (for example the NRHM and other programmes designed to achieve nationally or internationally desirable health goals such as the MDGs earlier and now SDGs) to help ensure adequate coverage of health services and consistency in performance across different states (K. Park, 2013; Wennerholm P et al., 2013). National programmes such as the NRHM attempt to ensure horizontal equity among states in public health financing and service delivery by providing more allocation to states that are under-performing and are unable to mobilize adequate resources because of economic disadvantages.

At the national level, the Ministry of Health and Family Welfare (MoHFW) formulates and executes health policy in India. This may take the form of defining vision and objectives nationally, provide a regulatory framework for health, and funding national programmes. Many of these functions are carried out in consultation with state governments and implemented through state governments. Currently, the MoHFW has two independent departments: (i) the Department of Health and Family Welfare (DoHFW); and (ii) the Department of Health Research. The National AIDS Control Organization (NACO) functions under the Department of Health and Family Welfare (DoHFW). The Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy (AYUSH) services, which was earlier a department under the MoHFW, has now been established as a separate ministry. The departments are staffed by civil servants, technical advisors and administrative staff, supported by a network of public-funded autonomous research and training institutions such as the National Institute of Health and Family Welfare. The MoHFW is assisted by two technical advisory bodies: (i) the Directorate General of Health Services (DGHS); and (ii) the Central Council of Health and Family Welfare (CCH&FW).

Figure 2.1 Health in India, roles and functions of key players at the national level

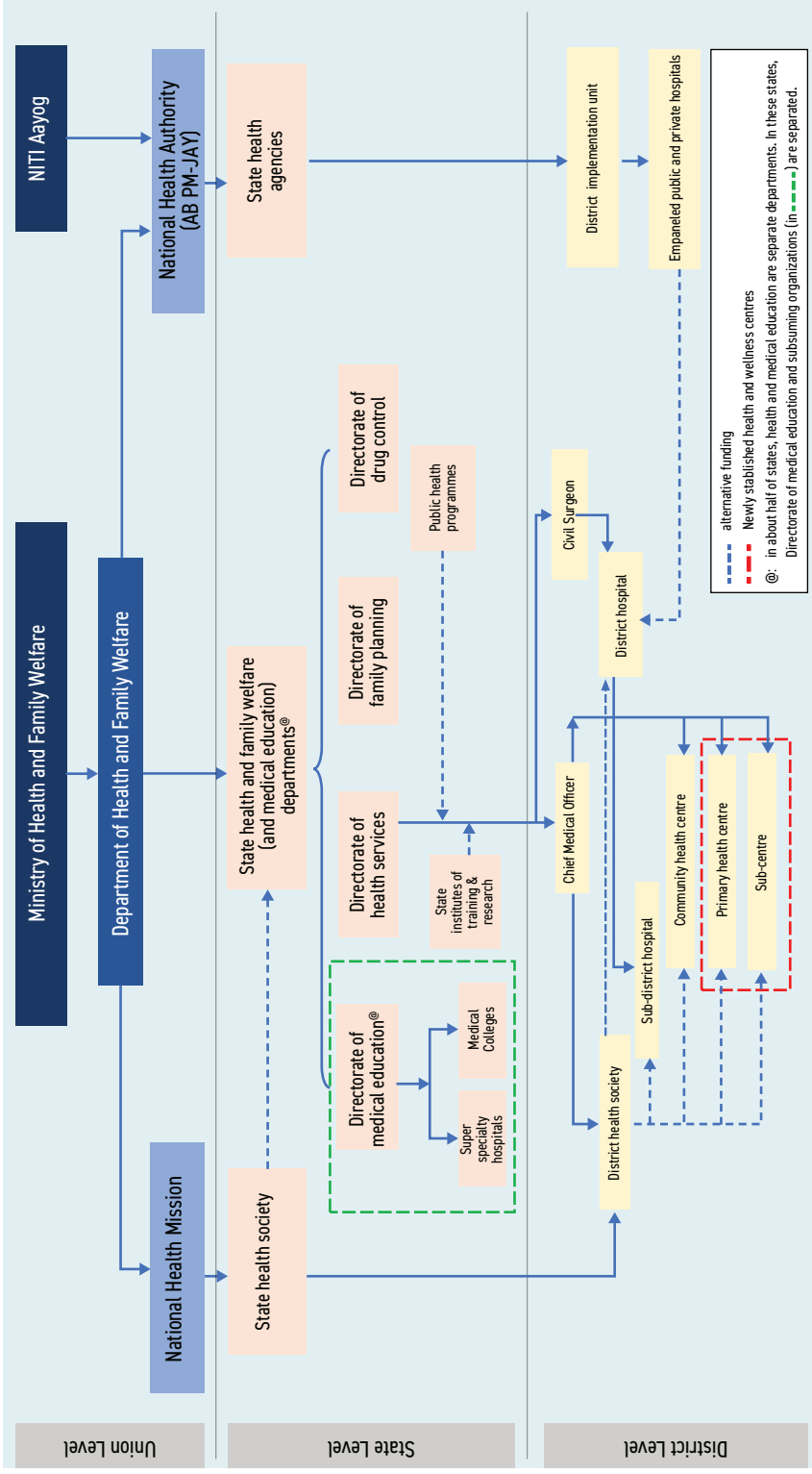


Source: Developed by the APO secretariat based on published websites and documents

The CCH&FW is a ministerial body for Centre–state coordination led by the MoHFW Minister of Health and Family Welfare and all state health ministers are its members. The primary purpose of CCH&FW is to promote coordination between the Centre and states in implementing various national health programmes, preparing proposals for legislations and review of performance against grants given for health. The DGHS assists on all medical and public health matters. A key function of the DGHS is to provide national guidelines for disease programmes and to support coordination between state health departments for the implementation of national health programmes.

Other government ministries and departments are also involved in funding and delivery of health-care services. For example, the Ministry of Labour and Employment provides health insurance (ESIS) coverage for employees in the formal sector. The Defence and the Railway ministries provide health-care services for their employees and family members. The Indian Railways has 16 zones spread across the country, with each zone containing a network of health units or polyclinics, alongside divisional or sub-divisional hospitals and Central or zonal hospitals, with the last group providing tertiary-level care. The Indian Railways has a total 125 hospitals with a bed strength of 13 963. Health-care provision in the defence ministry, is organized under the Armed Forces Medical Services (AFMS) led by the Director General Armed Forces Medical Services under the AFMS provide care to the three wings of the armed services, the army, navy and air force. The AFMS consists of the Army Medical Corps (AMC) including AMC (Non-Technical), Army Dental Corps (AD Corps) and Military Nursing Service (MNS). The Armed Forces Medical College provides graduate and post-graduate training and nursing training to personnel serving in the AFMS.

Figure 2.2 Organization of health: relationships between the Union, state and district levels



Source: Developed by the APO secretariat based on published websites and documents

In each state, the government health system is organized under the Department of Health and Family Welfare (DoHFW), headed by a state Minister of Health and Family Welfare and a state minister for Medical Education. The Health Secretariat within the department is administered by Principal Secretary and/or Commissioner of Health and Family Welfare Services, an officer of the Indian Administrative Services (IAS). This administrator is supported by deputy secretaries, under-secretaries and other administrative officials. In the past, functions related to health, family welfare and medical education were integrated under a single administrative umbrella although more recently, some of these functions along with those related to AYUSH have been separated (Park, 2013; Ministry of AYUSH, 2021). The NHP 2002 recognized that the overall well-being of the citizenry depended on the synergistic functioning of the various sectors in the socio-economy of India. The health status of the citizens also depends on adequate nutrition, safe drinking water, basic sanitation, a clean environment and primary education, especially for the girl child. The policies and the mode of functioning in these independent areas would necessarily overlap each other to contribute to the health status of the community. Functional mechanisms currently exist for coordination between health departments and other departments or services such as public health engineering, water supply and sanitation and women and child development. For instance, the ministry/department of health often needs to work with other departments, such as, rural development, water supply and sanitation besides women and child development, for promoting good hygiene including utilizing resources optimally among themselves.

Before 2005, the national health programmes were designed, funded and implemented in silos, largely as vertical programmes focused on diseases such as tuberculosis, malaria, filaria, HIV/AIDS, reproductive and child health. These national programmes, while designed by the Central Government, were implemented by state governments. To implement such national programmes, state and district-level “societies” were created to which funds were transferred directly and which were responsible for programme implementation. These “societies” functioned under the direction and supervision of state departments of health and family welfare. Beginning 2005, the NRHM attempted to transition the various vertical disease programmes to be better integrated with the public health system, a process that is ongoing. In recent years, a new avatar of NRHM, the National Health Mission (NHM) (the renamed NRHM with its scope expanded to cover urban populations) took shape with implementation carried out under the aegis of the State Health Missions (SHM). Activities of the NHM at the state-level are carried out through State Health Societies (SHS) (National Health Mission, 2021).⁷

7 At the state level, NRHM would function under the overall guidance of the SHM headed by the chief minister of the state. The functions under the SHM would be carried out through the SHS.

As in the case of vertical disease programmes, the SHS' were established as autonomous societies that received direct grants from the NHM, supplemented by resources from the state government. The key difference between the SHS' and vertical disease programmes being that the SHS' were set up and function within the state department for health.

Since 2014 the NHM funds from the Central Government have been transferred to the state societies through the state treasuries or the state budget. The state programme management support unit (SPMSU) serves as the secretariat to both the SHM and the SHS. The chief medical and health officer (CMO) of each district is primarily responsible for the implementation of health and welfare programmes at the district level. All programmes under the NHM are organized at the ground level through the District Health Missions (DHMs) in rural areas or the City Health Missions (CHMs) in urban centres; these missions are headed by the Chairperson of the Zilla Parishad (District Council) or the city mayor, with provisions for a district health society (DHS) (Figure 2.2).

Ayushman Bharat which translates to “long live India” is a flagship programme of the government with the aim to strengthen the path to universal health coverage. The programme is built on two pillars: providing comprehensive primary health care services through health and wellness centres, and improving financial access to health services through the PM-JAY scheme (see section 6.1.1). Twelve comprehensive primary health services are under the Ayushman Bharat, apart from preventive and promotive activities. The programme also includes infrastructure strengthening and the provision of essential medicines and diagnostics; telemedicine services have also been rolled out at the sub-centre level enabling health offers to consult specialists for improved health services.

The National Health Authority (NHA), an autonomous apex agency,⁸ is responsible for the implementation of PM-JAY (National Health Authority, 2021a). Recently, it has also taken up the role of executing the “National Digital Health Mission” by designing strategies and building the necessary technological infrastructure. Some of the key roles and functions of the NHA are to:

- i. Formulate guidelines, protocols, and contracts;
- ii. determine ceilings for premiums;
- iii. identify and develop strategic purchasing mechanisms;

8 National Health Authority was reconstituted as per Gazette Notification Registered No. DL – (N) 04/0007/2003-18 NATIONAL HEALTH AUTHORITY. 2021a. *About NHA* [Online]. National Health Authority (NHA), Ministry of Health and Family Welfare, GoI. Available: <https://pmjay.gov.in/about/nha> [Accessed 2021].

- iv. develop effective payment mechanisms to providers;
- v. coordinate with State Health Agencies (SHAs) in implementation of the scheme.

Although the health minister is the chair of the Board that exercises oversight on its activities, the NHA's day-to-day functioning is managed by a full-time chief executive officer (CEO). At the State level, implementation of PM-JAY is carried out by a society/trust under State Health Agencies (SHA). The key roles and functions of SHA are:

- i. to work with the NHA in implementing PM-JAY at the state level;
- ii. enrol beneficiaries;
- iii. empanel network hospitals;
- iv. select insurance companies or trust/society for implantation of the scheme;
- v. monitor health-care providers and identify fraud and abuse control;
- vi. administer and monitor hospital claims and pre-authorizations for procedures;
- vii. data management;
- viii. set up district-level offices and oversee them; and
- ix. evaluate the scheme through independent organisations.

Figure 2.2 shows the functional relationship between the various agencies and institutions across Union, state and district levels.

The private sector in India plays a major role in health-care service delivery: in the volume, share and variety of inpatient and outpatient services provided, in diagnostic services, the pharmaceutical sector and human resources for health. The organization of the private sector in India is diverse, including both for-profit and not-for-profit institutions, charitable or religious trusts. The private sector also consists of a large number of solo medical practitioners (belonging to traditional systems of medicine as well as allopathy), small nursing homes, dental practices, physiotherapists, para-medical practitioners, diagnostic and pathological laboratories, blood banks, as well as large secondary- and tertiary-care hospitals controlled by major corporate groups that have branches all over the country (World Bank, 2001). In addition, many unqualified health-care providers also provide services throughout the country (Shailender Kumar Hooda, 2015).

Nearly 68% of an estimated 15 097 hospitals and 37% of almost 625 000 hospital beds are in the private sector in India. As per the national sample survey data of 2017–2018, about 70% of all outpatient visits and about 58% of hospitalisation visits occur in private facilities. Patient care coexists between public, for profit and not-for-profit sectors and there are notable examples of private health-care providers that have sought to provide low-cost services to the poor. Examples include the Aravind Eye Care (Aman Bhandari et al., 2008), which performs almost 180 000 operations per year, 70% of them free of cost to patients, and the Narayana Hrudayalaya Hospital (Lagace, 2005), which has been carrying out an average of 24 open-heart surgeries and 25 catheterization procedures a day, with provision for free services to the poor. Several private hospitals have also begun to engaging with public programmes through empanelment under various publicly funded hospital insurance programmes and social insurance schemes such as the ESIS and CGHS (see also see Chapter 3).

The ESIS provides social health insurance to formal sector workers in India, under the Employees' State Insurance Act, 1948 (ESI Act). The health-related eventualities covered under the ESI Act, 1948 cover sickness, maternity, temporary or permanent disablement, occupational disease or death due to employment injury, resulting in loss of wages or earning capacity. As on 2020, ESIS provided insurance coverage to 132 million beneficiaries (employees and their dependents). The scheme is administered by corporate body called the Employees' State Insurance Corporation (ESIC). The Corporation is headed by the Union Minister of Labour as its Chairman and has representatives from the Central and state governments and various interest groups as its members. The administration of medical benefits under the ESIS is undertaken by the respective state governments except in Delhi, where the ESIC administers the medical facilities directly.⁹ The ESIC has also taken over the administration of 36 ESI hospitals in various states for developing them as ESIC model hospitals. ESIS, like most of the social security schemes the world over, is a self-financing health insurance scheme, with contributions raised from covered employees and their employers, as a fixed percentage of wages (see Chapter 3 for more on ESIS and CGHS).

Until 2020 when the National Medical Commission was established, the MCI was the apex body providing regulatory oversight and quality control of medical education, ensuring delivery of medical service, both by public and private care providers. The MCI was set up in 1934 under the Indian Medical Council (IMC) Act, 1933. The original Act was repealed and replaced by another Act in 1956, and there have been several amendments to IMC Act

9 <https://www.esic.nic.in/administration>

over time, the latest being in 2016, to cope with changing circumstances in the health sector. The NMC which was established in place of the MCI in 2019 aims to:

- I. improve access to quality and affordable medical education;
- II. ensure availability of adequate and high-quality medical professionals in all parts of the country;
- III. promote equitable and universal health care that encourages community health perspective and makes services of medical professionals accessible to all the citizens;
- IV. encourage medical professionals to adopt latest medical research in their work and to contribute to research;
- V. objectively assess medical institutions' periodically in a transparent manner;
- VI. maintain a medical register for India;
- VII. enforce high ethical standards in all aspects of medical services and;
- VIII. have an effective grievance redressal mechanism.

The NMC by its nature is a statutory self-regulatory body. Other such bodies that play a role in regulating health care in India are the Central Council for Indian Medicine (CCIM), the Dental Council of India, the Indian Nursing Council (INC), the Allied Health Professionals' council and the Pharmacy Council of India (PCI). There are also corresponding professional councils in every state. Such councils are highly prone to expert capture. For example, the national- and state-level medical councils consist primarily of representatives of doctors and health ministry officials, and these councils are widely known for bias towards protecting medical professionals. These councils are often criticized for their lack of responsiveness to patient complaint (Shukla et al., 2018). Consumer courts, civil and criminal courts also provide a significant bulwark against medical malpractice and negligence. However, the process of adjudications is prolonged and requires significant knowledge and information about processes of law, concepts and definitions that surround the definition of medical negligence on the part of plaintiffs (aggrieved patients or their family members). Therefore, such routes of enforcing accountability on the medical profession are rarely pursued.

2.4. Centralisation and decentralization

The federal polity of India as mandated by the Constitution of India is guided by the division of powers and domain of legislation of the Central Government and state governments as laid down in the Union List, the State List and

the Concurrent List. However, Centre–state relations in general and in the context of the health sector, are significantly influenced by their fiscal relationship. Even though it is the states that bear the larger share of spending in health, the Centre contributes in the form of a sizeable pool of funds that is transferred to states to prioritise strategic areas of intervention and in the process, also bring about horizontal equity among states in health service delivery. These transfers are usually conditional in nature through Centrally Sponsored Schemes (CSS). The Centre may also provide specific purpose grants to the states for research, improvement in services or implementation of sector-specific programmes. In addition, the Finance Commission, a statutory body under the Constitution, deliberates and recommends every 5 years the revenue-sharing arrangements from tax revenues between the Centre and states and amongst the states. The transfers from the Centre under the Finance Commission arrangements are unconditional and add to the revenue receipts of the states and local bodies. These resources are entirely at the discretion of the states and local bodies to prioritise areas of spending.

As noted earlier, the Central Government is primarily involved in technical and financial stewardship through the design of national health policies and plans as well as financing CSS. The CSS in the health sector relates to programmes that are funded largely by the Central Government, albeit with contributions from states, and implemented by the state governments.

In addition to developing and implementing its own policies and plans, the state government is also responsible for implementing those developed at the level of the Central government.

A case in point is that although the Centre provides financing and defines the broad objectives of the programmes under the NHM, it is the job of the states to prepare the programme implementation plan (PIP) and budget for each component of the NHM which are then approved by the Central Government. As another instance, the PM-JAY has the characteristics of a CSS, where states have the option to not join in favour of their own health insurance programmes.

The 73rd and 74th Amendment Acts, 1992 provided room to strengthen local level governance and grass-roots planning by giving more powers to the Panchayati Raj Institutions (PRIs) in rural areas and municipal bodies in urban areas. The Acts listed 29 subjects for PRIs and 18 subjects for municipalities that were to be devolved to the local bodies at appropriate levels. However, given that local governance was part of the State List under the Constitution, each state had to enact its own legislation and had the

discretion to choose the subjects to be devolved and the degree of devolution with respect to funds, functions and functionaries to local bodies. This has been the primary reason for substantial inter-state variation observed with respect to decentralization in India. Activities under health, nutrition and sanitation have been most commonly transferred to local bodies, but the degree of decentralization (that is control over funds, functions and functionaries) varies widely lot from state to state.

In the states of Kerala and Karnataka, decentralization to local bodies has been reported as being effective in capacity building, community-based advocacy and community monitoring of health services (Misra, 2003a). Increased accountability at the local level is also promoted through Roji Kalyan Samitis (RKS)¹⁰ and hospital development societies. The NRHM also set up Village Health, Sanitation and Nutrition Committees (VHSNC), which include multi-stakeholder groups to encourage local decision-making on health issues, nutrition, and sanitation programmes at the village level.

In the past two decades, state governments have begun to take independent initiatives in the health sector. For instance, there have been a number of innovations in drug procurement mechanisms, service delivery methods, all driven by state governments, along with direct interaction of international funding agencies with state governments in health sector activities. Prominent examples are new systems of public sector drug procurement in Tamil Nadu and Rajasthan, community health worker models in Chhattisgarh, and publicly funded health insurance and ambulance services in Andhra Pradesh and Tamil Nadu. Many international development agencies such as the United States Agency for International Development (USAID), UNICEF, the World Bank and the Bill and Melinda Gates Foundation work closely and directly with state governments.

2.5 Policy and planning

2.5.1 Policy formulation and planning

Although India's federal structure emphasised a major role for states in the health sector, health policy in India has historically been articulated through five-year plans. Health sector activities envisaged under these plans were developed by the Planning Commission, the Central Government agency responsible for designing these plans, albeit with important inputs from

10 Under the NRHM, Roji Kalyan Samitis (RKS, or Patient Welfare Committee) has been a management structure in government hospitals and a mechanism for grievance redressal and ensuring compliance with the Citizen's Charter.

various Central Government ministries, and state governments, through a consultative process. Inspired by the Soviet experience, these five-year plans provided a vision for development planning and outlined policy priorities for implementation.

The Planning Commission acted as an arm of the Central Government and entrusted with the responsibility for designing five-year plans, for assessing resource requirements and for identifying necessary material and non-material resources for plan implementation. Till 2014, a National Development Council sought to coordinate the efforts between the Centre and states and mobilizes resources for implementing the five-year plans. Funding for planned activities included, for example, budgetary allocations for population programmes (such as family planning), disease control programmes and other priorities of government health policy priorities. In practice though, implementation of plan objectives was typically subject to requirements of political will and state financial and implementation capacity. At the national level, the Planning Commission also served as a think tank to help design and evaluate planning processes and programmes. In 2015, the Planning Commission was formally eliminated dissolved and replaced by the NITI Aayog, an alternative advisory body to the Government of India. Subsequently in 2016, five-year plan exercises were scrapped. Nevertheless, the NITI Aayog carries out many functions previously undertaken by the Planning Commission. It serves as a “think tank” of the Government of India, providing both directional and policy inputs. The NITI Aayog also acts as a platform of the Government of India to coordinate with the states to act together in national interest, and thereby fostering cooperative federalism. The governing council of the NITI Aayog is composed of the Chief Ministers of all the state governments in India, and the Prime Minister, who is also the chair.

The MoHFW at the Centre also has a Bureau of Planning that collates health sector plans at the Centre and state levels and monitors performance of government schemes and programmes. At the state level, state PIPs are prepared by technical vetting and consolidation of local level health action plans. These plans are then submitted to the MoHFW to decide Central allocations to states under the NHM. The NHM, which stipulates decentralized planning at the state level, provides flexible funding allocations across programmatic components within it, to aid this planning process.

The Bhore Committee Report in 1946 had laid down the benchmarks including describing short- and long-run steps for expansion of the health system to help achieve universal access to public health. The Committee also emphasized the importance of expansion of health infrastructure, medical

education and training of personnel, disease surveillance and an integrated approach across health-related sectors to achieve the health system goals laid out by it. However, the steps laid out in the Bhore Committee report could not be implemented in the years that followed. The failure of planning is evident from the fact that India is yet to achieve the workforce and infrastructure goals set in 1946 by the Bhore Committee. While the state governments have been largely responsible for service delivery in health, during the successive five-year plan periods it has largely been the responsibility of the Planning Commission of India and the Central Government to bring in new financial investments for the public health sector. As a consequence, huge gaps exist in workforce availability in key areas of public health service delivery and there are concerns about health-care quality in the public sector persist.

The Indian health system has also not been effective in its response to health crises and emergencies, nor has it demonstrated close engagement with different stakeholders working in the area. India has consistently been ranked high among countries experiencing fatalities due to natural disasters. Disasters, whether natural or human-induced, have continuously exposed the frailty of health systems in India to external risk. Floods in the state of Kerala in 2018 damaged a 125-year-old hospital that served 350 000 people. The experience was very similar in the case of Chennai floods in 2015. A 281-bedded civil hospital collapsed during the Gujarat earthquake (2001) and killed 172 people (Krishnan and Patnaik, 2018). There are three critical areas of weakness related to health system responsiveness to disasters in India: disaster preparedness, immediate relief in the event of disaster, and long-term rehabilitation of affected populations. Given low capabilities owing to lack of adequate funding, infrastructure and trained personnel even under normal circumstances, disaster preparedness is generally accorded relatively low priority by health departments at the state level and even at the Central level. A National Disaster Management Authority was established under the Disaster Management Act 2005, and is the apex body for disaster management in the country. It primarily focuses on relief operations and resources to avert immediate crises, but also has the responsibility to develop policies, plans and guidelines for disaster management as well as engaging with state and district level counterparts.

2.5.2 Role of development partners in health planning

The influence of development partners in the Indian health sector has been growing over time. From the 1970s, through financing, design, monitoring and evaluation initiatives, they have contributed to family planning as well as specific disease control programmes. HIV/AIDS is

an example where development partners played an important role by supporting the National AIDS control Agency (NACO) in setting the agenda and implementation. Development partners have tried to align their initiatives with national priorities. For instance, the WHO in India has set its priorities to include supporting an improved role of the GoI in global health, promoting access to and utilization of affordable and quality health services and helping to deal with new epidemiological realities. A joint programme between the Indian government and UNICEF culminated in the formation of the GoI–UNICEF Country Programme Action Plan 2008–2012, which highlighted increased engagement with civil society and innovative partnerships focused in 15 states. The World Bank is also a partner in health along with other economic and social reform processes and has developed the Country Partnership Strategy (2013–2017) (World Bank, 2014). It has contributed to the strengthening of secondary care institutions in many states through soft loans and technical inputs in designing, implementing, monitoring and evaluation. During 1988 to 2018, the World Bank invested in projects related to health with at least US\$9.6 billion in commitment.¹¹ The UK Department for International Development (DFID) has provided monetary support for several national programmes including the Reproductive and Child Health and AIDS Control Programmes in Andhra Pradesh, Bihar, Madhya Pradesh, Orissa and West Bengal along with assistance to several multi-stakeholder initiatives (Poorest Areas Civil Society Programme [PACS] and International NGO Partnership Agreements Programme [IPAP]). The US Agency for International Development (USAID) has been providing grants on a range of thematic areas including reproductive health services, child and maternal mortality, infectious diseases (TB and HIV/AIDS) and health system strengthening. The European Commission has targeted the bulk of its development cooperation resources (health, education and environment) in select states such as Rajasthan and Chhattisgarh. Japan's International Cooperation Agency (JICA) administers an overseas development loan assistance grant and technical cooperation on infrastructure and procurement of products and services necessary for development projects. Over time, the role of private foundations in providing technical and financial support such as the Bill and Melinda Gates Foundation has expanded beyond the earlier mandate of HIV/AIDS and reproductive, maternal and child health. Assistance provided by these partners extends to evaluation of interventions, developing capacity and implementation of evidence-based interventions.

11 Calculated based on data accessed on 25th March, 2019 from the World Bank's *Recently Approved Projects* [website] (World Bank, 2021).

The Aspirational Districts programme was launched in 2018 with the aim to transform 112 of the least developed districts in India. The programme aims to strengthen development indicators, including health, nutrition, and education. The Niti Aayog works closely with different ministries, and various development partners to implement measures to strengthen identified indicators and study progress across these districts (Niti Aayog, 2021).

2.6 Intersectorality

In India, as elsewhere, health outcomes are influenced by actions involving policies and programmes not just in health, but also in other sectors, such as education, urban development, gender, labour and employment, water and sanitation and nutrition. Given that sectors other than health contribute to health outcomes, whether negatively or positively, addressing the social determinants of health or actions in other sectors of government and society is critical. In view of wide range of interests involved, a shared understanding of objectives, approaches and roles is crucial, whether in the respective ministries/departments, or among civil society groups, local bodies, private sector, etc.

Initiatives that are characterized by convergent approaches abound in the Indian context. Once such initiative is the use of district health action plans as a key tool for planning, multisector convergence and monitoring of activities under the NHM. The district health action plans are a key tool for planning, promoting multisectoral convergence, and monitoring of activities under the NHM. The malaria elimination programme is an example of a health-sector programme that engages with non-health actors (Salunke and Lal, 2017):

- the public works department for the management of the local environment;
- the weather department for early warning systems;
- the department of agriculture for irrigation and farm practices
- the water department for safe water;
- the tourism industry for preventing malaria from spreading across borders

In the sphere of HIV/AIDS intervention, a successful model (the Red Ribbon Express) was designed around partnerships involving government bodies (ministries of railways, social welfare, information and broadcasting, and NACO), the NRHM, local governments along with NGOs and international bodies (UNAIDS and UNICEF). Another set of models of inter-sectoral convergence are programmes related to tobacco control. Stakeholders in the tobacco control programme include representatives of multiple ministries,

such as health and family welfare, information and broadcasting, law and justice, various schools and NGOs, with the multiple goals of encouraging tobacco users to quit, promoting tobacco taxation and leveraging their efforts to address the production, trade and sale of tobacco products (Salunke and Lal, 2017).

Finally, the Ahmedabad Heat Action Plan is another example that focuses on alerting vulnerable populations at risk of heat-related illness. With an inter-agency coordination system, the project seeks to alert residents about extreme temperatures and in the process prevent illnesses arising from heat risk. An inter-agency coordination mechanism was created to help government agencies, health officials and hospitals, local community workers, and media entities to promote heat-risk interventions.

2.7 Health information management

2.7.1 Information systems

Well-developed health information systems and statistics are essential for understanding the emerging health needs of the population, for the planning and implementation of programmes, and to evaluate the impact of policy or programmatic interventions in public health. The NHP 2002 had underlined lack of systematic and scientific population health statistics and the fragmented nature of available data (MoHFW, 2002a; Raban et al., 2009). These concerns reflect a health information system in India that has evolved in a haphazard and fragmented manner over time, due to administrative, economic and policy issues. In particular, the responsibility for health data gathering is divided among different ministries or institutions, and coordination has become a challenge due to financial and administrative constraints (Tripathi et al., 2018). This section discusses various data sources, time span of coverage, the type of data collected and the agencies collecting the information, including but not limited to administrative records, survey-based data, census data and registries.

For data on vital statistics, the Office of the Registrar General of India and Census Commissioner (ORGI) under Ministry of Home Affairs (MHA) publishes live births and death-related data, with dissemination through periodic reports of the Sample Registration System (SRS), Civil Registration System (CRS) and population census. The ORGI also periodically publishes “Medical Certification of Cause of Death” (MCCD) data. The census is carried out once each decade. Under the Directorate General of Health Services (DGHS), the Central Bureau of Health Intelligence (CBHI) compiles and disseminates health statistics. It manages a database and publishes an annual National Health Profile for all states and Union Territories providing

broad state- and district-wise morbidity data for both communicable diseases and NCDs. The organization also produces the “Rural Health Statistics in India” and records data on health resources, such as the number of doctors and nurses, the number of health facilities and public and private expenditures on health.

The Ministry of Health and Family Welfare (MoHFW) uses a Health Management Information System (HMIS) to monitor the performance of programmes across states through a large network of rural and urban health facilities. Official records state that 179 000 facilities report data every month. However, this information is often not fed back into the system or to the facilities from which the data is collected. Although the HMIS data is largely limited to the government health system, it is available in the public domain and periodically updated. Apart from the above, the MoHFW has initiated the Integrated Disease Surveillance Program (IDSP), which provides weekly district-level data on outbreaks of diseases that can potentially lead to an epidemic. However, the data reports outbreaks that are recorded only in public facilities while private providers are rarely integrated into the surveillance network and therefore under reports the morbidity burden.

There are four major health-related surveys, conducted periodically in India that help to monitor the performance of the government’s various health interventions, including those under the NRHM, and these are representative of the population at the level of an individual district: Annual Health Surveys (AHS), District level Household Surveys (DLHS), National Family Health Surveys (NFHS) and Coverage Evaluation Surveys (Tripathi et al., 2018). The NFHS, which is India’s version of the Demographic and Health Surveys (DHS), has collected five rounds of survey data, predominantly focused on reproductive, maternal and child health. The DLHS combines both household and health facility-level data providing information about health-care outcomes and utilization with respect reproductive, maternal, child health conditions at the district level. Between 2010 and 2013, the MoHFW conducted large-scale surveys in nine high-priority Indian states to collect information on health systems and health outcome indicators. These Annual Health Surveys were conducted by the ORGI. The DLHS largely deals with district-level data on reproductive child health programme that has been conducted four times with the latest being in 2012–2014. The fourth round of DLHS was undertaken in coordination with the ORGI, where states covered by the AHS were not covered by the DLHS. The AHS however, covered a larger sample size at the district level. The baseline of AHS was done in 2010–2011, while two subsequent rounds in 2011–2012 and 2012–2013 collected data on the same households as in the baseline. In contrast, the DLHS and the NFHS have new cross-sectional samples for each round (Dandona et al., 2016).

The National Sample Survey Organization (NSSO) under the Ministry of Statistics and Programme Implementation (MOSPI), also conducts large and small sample surveys on consumption expenditure, morbidity, health care use and spending, etc. The large sample surveys of the NSSO are nationally representative with sample sizes ranging from 70 000 to 120 000 households, depending on the nature of the surveys. Health-specific morbidity, utilization and expenditure surveys by the NSSO were conducted in 1986–1987, 1995–1996, 2004 and 2014, providing information on acute and chronic illness, hospitalization, expenditure on medicines and treatment, source of financing, socio-economic status of individuals, demographic and educational profile of individuals, availability of drinking water and sanitation (Tripathi et al., 2018). These surveys also provide information that can help develop indicators of affordability of health-care services, such as measures of impoverishment and catastrophic expenditures based on household OOP spending.

The Insurance Regulatory and Development Authority of India (IRDAI) through its data analytics arm regularly collects and publishes information on the number of health insurance policy-holders, total premiums collected, claims paid out and by scheme. Previously, the publicly funded health insurance scheme RSBY used to collect claims data but did not make this information public. Others have done so on an ad hoc basis, with the Aarogyasri health insurance scheme in the state of Andhra Pradesh having put out its entire claims data in the public domain at one point. The newly set up PM-JAY has established a data capture process. Whether this information will become publicly available is less clear.

The private sector also gathers and makes available health-related data. However, the methodology used to gather the data is often unclear or questionable, and the costs of accessing this data for research purposes is often prohibitive. One example of a dataset available with a private organization is that of IMS Health (now IQVIA), which collects detailed information about medicines sales, including by volume, value and price, the company selling it and brand name. IQVIA also collects and sells provider prescription data, which contains information on patient profiles, diagnosis and prescription of medicines by doctors. Notwithstanding the high purchase price of this data, data collection methods including sample size, randomization, etc. are less than fully transparent.

Operational issues around data use in India include the relative difficulty of accessing data, data reliability, lack of capacity for management and analysis of data, all of which constitute major stumbling blocks for its use as a tool for policy and decision-making. Apart from academic use, there is limited dissemination of data in the public and media. Currently, HMIS data are

collected only from the public sector; and the inability of the government to collect, use and disseminate information and data from the private sector remains a challenge. From a policy perspective, the meaningful utilization of data for programme design and dissemination is a concern; and health-care providers have limited access to data being gathered to enhance their own decision-making.

2.7.2 Health technology assessment

A Medical Technology Assessment Board (MTAB) (Prinja et al., 2018) existed in the Department of Health Research (DHR) under the MoHFW. This has now developed into the “Health Technology Assessment in India” (HTAIIn) agency. The HTAIIn is the Central agency for undertaking HTA in India, with the goals of reducing the cost and variation in patient care, containing expenditures on medical equipment, overall costs of medical treatment, OOP expenditures of patients, and streamlining medical reimbursement procedures. The HTAIIn is also intended to support decision-making in health care at the state level by providing reliable information based on scientific evidence. The Healthcare Technology Division of the NHSRC, under the MoHFW has been recognized as the WHO Collaborating Centre for Priority Medical Devices and Health Technology Policy. The Division undertakes assessments of products as requested by the MoHFW, and conducts rapid assessments of healthcare product innovations, which is then submitted to the National Health Innovation Portal (NHInP).

Given that use of the HTA in policy formulation is nascent at this stage in India, its use at the state and Central Government levels is still quite limited. For example, the Central Drugs Standards Control Organization (CDSCO), a statutory authority under the MoHFW, is the nodal agency for providing licences to new drugs. While efficacy and safety issues are handled by the CDSCO, the role of cost-effectiveness assessments is missing. Similarly, cost-effectiveness analyses are usually not considered when forming the the National List of Essential Medicines (NLEM), or on decisions related to procurement or reimbursement. Large government health-care reimbursement schemes (CGHS, ESIS, PM-JAY, other state government-funded health insurance schemes) do not place much emphasis on cost-effective approaches in their benefit packages. The process of identifying disease conditions/clinical surgeries to be covered under these programmes and the costing of reimbursable procedures is non-transparent at this stage. To be fair, efforts to undertake detailed costing exercises for the benefits covered by PM-JAY are in progress but the primary aim of this exercise is to set reimbursement rates.

Priority setting and the identification of criteria for priority in existing government programmes is still under discussion in India, as is the science around the HTA. Expertise required to undertake such exercises is relatively limited in the Indian context, which requires a combination of skill sets encompassing at the very least, health economics, clinical expertise and policy-level understanding. While India has a few health economists, the numbers required to carry out the HTA-related tasks in India are huge and very few institutions within the country have the expertise to impart relevant training.

2.8 Regulation

Framing legislative acts and rules to govern the behaviour of various actors and to enforce them in a fair, transparent and accountable manner are key characteristics of a well-functioning health system. Such “regulatory” tools are designed to promote or restrict activities that influence the cost of providing services, the quality of care and population access to care. Regulations can influence multiple areas of health system functioning, including financing, medicines and diagnostics, health workforce and health information systems. In a federal system, regulatory mechanisms may need to be deployed at the national and state levels. In India’s plural health system with a diverse set of financing and delivery options, designing and enforcing regulations can be a daunting task, particularly since the development of regulatory mechanisms have not kept pace with the rapid expansion of India’s private sector.

2.8.1 Regulation of third-party payers

Third-party payers (TPPs) are entities that oversee claims reimbursements and manage health-care expenses, such as insurance companies, governmental agencies and employers. The TPPs effectively serve as a financial intermediary between patients and health-care providers. In India, several TPPs carry out the functions of a financial intermediary, such as the Employees State Insurance Corporations (ESIC), the CGHS, public and private insurance companies, public trusts, etc. Prominent schemes that requiring TPP functions include social health insurance SHI schemes (ESIS, CGHS), government-funded health insurance (GFHI) schemes (PM-JAY, state government-financed health insurance programmes) and voluntary private health insurance schemes. The ESIC performs the function of an intermediary for the ESIS, whereas for the CGHS, a government department in the MoHFW carries out this function. For GFHI schemes, one of the following two models is typically followed:

- a. for schemes such as the RSBY, the intermediary functions were undertaken by private or public insurance companies;

- b. for other schemes (including the PM-JAY) the intermediary function is performed by an autonomous public trust (referred to as the SHA model).

The SHA is currently the dominant system in various state-funded insurance programmes, while a few states have entrusted the task to a health insurance company. Collectively, these schemes underline the role of the government as a major purchaser of secondary and tertiary health-care services, public or private.

Apart from TPPs, there is another layer of intermediaries in the form of third-party administrators (TPAs). Most private health insurance companies have outsourced their administrative and claim settlement functions to TPAs: that is, the TPA acts on behalf of the insurers to collect premiums, settles claims, underwrites policies, etc. Another class of insurance intermediary (although relatively small in terms of population covered) are the community-based health insurance (ComBHI) schemes. The ComBHI model requires community members to pool their resources in order to share the financial risks of health care, own the scheme and control its management, including the collection of premiums, the payment of health-care providers, and the negotiation of the benefits package (Purohit, 2014). Many NGOs (e.g., the Self-Employed Women's Associations) provide health insurance coverage in the form of ComBHI schemes.

The insurance industry in India is regulated by the Central Government, based on the Union List of the Constitution. The Insurance Regulatory and Development Authority of India (IRDAI) is the apex statutory body for regulation related to insurance in India. The IRDA Act, 1999 and subsequent amendments (latest in 2018) provide the basic regulatory framework for the insurance industry. However, the regulations related to insurance are still evolving as the country is faced with a rapidly growing insurance sector.

Evidence from the IRDAI suggests that health insurance claims ratios for public sector general insurers exceeded 100% of premium revenues in the past 5 years, whereas claims ratios for private stand-alone health insurers over the same period hovered at around 60%. These data point to a sector that is not functioning efficiently, with the public sector insurance companies essentially subsidizing their expenditures from past surpluses and thus limiting competition, and private insurers incurring administrative expenses well in excess of those observed in well-regulated markets in high-income countries. This situation is associated with market segmentation with one set of insurers focusing on group insurance and the other on individual insurance.

In terms of consumer satisfaction, India's health insurance sector is characterized by relatively high rates of consumer complaints rates, compared with other common law jurisdictions such as Canada, Australia, the UK and California (Malhotra et al., 2018). Moreover, consumer complaints are likely to underestimate the true extent of dissatisfaction as there is generally low awareness about benefits from insurance products, and courts or consumer forums where complaints can be filed are more difficult to access.

Overall, there appear to be three broad categories of regulatory gaps in the Indian health insurance sector: (i) poor regulatory oversight; (ii) poor enforcement of existing regulations; and (iii) poor functioning of the insurance ombudsman (Malhotra et al., 2018). Existing regulations governing health insurance in India are not clear on product disclosures, claim settlements process and the manner in which product and other disclosures are to be made by the insurers. A large number of consumer complaints are related to the rejection of legitimate claims and use of jargon in product description that makes it difficult for the non-expert to understand, including distinguishing between the advertised and the actual insurance product. It also appears that both the insurance regulator and insurance companies have often neglected to follow their obligations under the existing regulations, without any repercussions. For example, dispute resolution being a prolonged process, insurers are generally required to pay the insured amount along litigation costs and harassment damages. The penalties imposed by the regulator on the insurer, however, typically exclude or underestimate the consumer burden, which discourages prudential behaviour (Malhotra et al., 2018). Finally, a fundamental deficiency in the functioning of the insurance regulatory framework is the operation of the insurance ombudsman that is supposed to facilitate the quick disposal of consumer grievances. There are only 17 ombudsmen offices across the country, and moreover, major insurance companies seem to have much influence on the process and often ignore the ombudsmen's judgements (IRDAI, 2021; Sridhar, 2019).

2.8.2 Regulation and governance of providers

India's health-care delivery system is diverse involving public, for-profit and not-for-profit private health-care providers. Public providers include medical colleges, super speciality hospitals at the tertiary-care level, district and sub-district hospitals at the secondary level, CHCs, PHCs, dispensaries, mobile medical units (MMU), sub-centres and frontline workers such as the ASHAs, ANMs and AWWs at the primary level. The private sector comprises constitutes doctors, nursing homes, super specialty hospitals and charitable institutions. The health service providers are further segmented by the

field of medicine practised, particularly allopathy and AYUSH. Finally, a large section of the Indian population who cannot afford health care in the formal sector also depend on unqualified medical practitioners. Currently, private health-care providers account for about 70% of all outpatient visits in rural areas and almost 80% of visits in urban areas (National Sample Survey Office, 2015). Users of health services in India face major challenges related to physical access to services, lack of affordability and inadequate quality of care. While challenges in physical access and adequate availability of quality health services act as a major deterrent to people in accessing public health facilities, quality and cost tend to be more salient in the private sector. In the private sector, where providers involved in health-care delivery are quite diverse, compromises on the quality of services provided, including irrational, unnecessary and expensive interventions, are quite common (Dutta, 2017). The challenge is further compounded by the decline in share of public services and a concomitant but rapid expansion of private health-care services.

India has enacted several laws to regulate health service providers. These include the Medical Council of India Act, 1956, the Indian Medicine Central Council Act, 1970, the Medical Termination of Pregnancy Act, 1971 and the Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994, the Clinical Establishments Act, 2010 and Rules enacted in 2012. In India, medicine can be practised only under licence. Besides direct regulatory mechanisms, accountability of health service providers is also sought to be ensured through legislation such as the Consumer Protection Act, of 1986, and the Right to Information Act, 2005.

The Clinical Establishments Act, (CEA) 2010 and Rules enacted in 2012, is a key legislation of the Central Government. Since health is a state subject, each state government is required to enact the law by passing a resolution in the state assembly. Over time, most states and Union Territories in India have adopted this law, and a few states (Chhattisgarh, Kerala and West Bengal) have enacted their own version of the Act. The Act provides a framework for registration and regulation of health service providers. It mandates registration of all clinical establishments (hospitals, maternity homes, nursing homes, dispensaries, clinics, sanatoriums or institution), diagnostic service centres, and establishments that offer treatment for patients in any recognized system of medicine (Allopathy, Homeopathy, Ayurveda, Unani or Siddha), with the exception of establishments operated by the armed forces. Apart from registration, the Clinical Establishments Act requires (i) maintenance of minimum standards related to infrastructure, services and staff; (ii) maintenance of records and submission of reports and returns as prescribed; (iii) satisfaction of provisions with respect to emergency

care; (iv) rates for procedures and services to be within designated ranges; (v) compliance with standard treatment guidelines; (vi) maintenance of electronic health records (EHR) or electronic medical records (EMR) for every patient as prescribed by the Central or the state government. The Act also lays down provisions for punishment for offences and contraventions of the Act. The implementation of the Clinical Establishments Act has faced stiff opposition from different quarters, primarily from the associations of private doctors and hospital owners who have challenged the Act on the grounds of cost of compliance and fee structure imposed. While some states of West Bengal and Karnataka could rein in these dissenting groups, in other states enforcement of the Act has lagged (Pandey, 2018). At present, enforcement of laws on licensure and accreditation varies across states, with potential implications for health service quality. A few states have not mandated registration and licensing of private clinical establishments, while other states have enacted state-specific rules.

For government health facilities, Indian Public Health Standards (IPHS) were developed in 2006 by the MoHFW. These standards were designed in consultation with multiple stakeholders and task forces that led to the development of infrastructure and treatment standards (deemed essential and desirable) for the three tiers of public health system PHCs, CHCs and district hospitals. IPHS is primarily implemented by the Central Government through the NHM which, in turn, is largely dependent on the level of investment in public health by the Central and state governments, and not on compliance enforced by a specific agency (Sodani and Sharma, 2011). In addition, public and private health service providers are also free to seek (voluntary) accreditation from agencies such as the National Accreditation Board for Hospitals and Healthcare Providers (NABH), the National Accreditation Board for Testing and Calibration Laboratories (NABL), the Joint Commission International (JCI) and the International Organization for Standardization (ISO). A new set of National Quality Assurance Standards (NQAS) have been initiated with the primary aim of implementing standards for public health facilities, especially at district hospitals, CHCs, and PHCs. The public health system in the state of Tamil Nadu is using these standards, adherence to which is often taken to indicate higher service quality.

2.8.3 Registration and planning of human resources

Health professionals in India are registered under relevant professional councils including the NMC for Allopathic doctors, the Dental Council of India (DCI) for dentists, the Indian Nursing Council (INC) for nurses, the Pharmacy Council of India (PCI) for pharmacists and the Central Council of Indian Medicine (CCIM) and the Central Council of Homoeopathy (CCH) for AYUSH doctors. Each of these professional bodies have the status of statutory

bodies, established under a separate Act of Parliament. Members of the governing council of these professional bodies are drawn from groups of different stakeholders who are part of the profession. The leadership of each professional bodies is elected from among the members of their respective governing councils. These professional councils receive grant-in-aid from the MoHFW for financing their activities, in addition to collecting fees from their members. A key mandate of these professional associations is to ensure acceptable standards and quality of health services, with an emphasis on accountability for performance and cost-effectiveness (National Initiative for Allied Health Sciences, 2012). For example, the MCI laid down processes for registration, set out codes of ethics, developed standards and identified needs for medical education, and implemented programmes for continuous professional development. Each state in India had a state medical council of its own (affiliated to the MCI), this made it difficult to assess the effectiveness of the professional oversight provided, which can vary significantly from state to state. The other professional councils followed roughly the same template, with their focus being on standardizing education, establishing codes of conduct for the professionals and supporting professional development. State Medical Councils are also operational under the National Medical Commission, which was constituted in 2019, and replaced the MCI.

There is a huge variation in the availability of health-care professionals and allied services in India, across regions and between public and private sectors. Moreover, there is an overall shortage of health-care professionals, which is aggravated by emigration of qualified medical professionals. Indian doctors constitute the largest number of foreign-trained physicians in the USA (4.9% of physicians) and the UK (10.9% of physicians), the second largest in Australia (4.0% of physicians), and the third largest in Canada (2.1% of physicians). Shortages of nursing staff in Indian health facilities have also worsened due to the migration of trained nurses to other countries. The problem has been aggravated in recent years, often leading to teaching-staff vacancies in medical colleges and nursing schools, which limits the ability to train a new generation of medical professionals (Rao et al., 2011).

Lack of uniformity in standards of practice and poor enforcement of standards is common in India. Moreover, corruption and malpractice in medical practice further erode the credibility of training and licensing institutions. At present, there are about 593 medical colleges in India offering a graduate degree (MBBS) in medicine and their total intake is about 88 170 students per year (National Medical Commission, 2021). Government medical colleges are largely funded by state governments and municipal corporations; with a few supported by the Central Government (Richards, 1985) The rapid increase in the number of medical colleges has compromised the quality of medical

education in India. Many new medical colleges have been set up due to political pressure, including some with grossly inadequate infrastructure and human resources, including serious shortfalls in faculty strength, and overall poor-quality training (Planning Commission of India, 2006).

At present, training institutes for health professionals are unevenly distributed across India. More than half of the medical, dental, nursing and paramedical training institutes are located in southern Indian states and trainees in these institutes are more likely to join the private sector. States such as Andhra Pradesh, Maharashtra, Karnataka, Kerala, and Tamil Nadu (collectively comprising 31% of India's population) account for 58% of all medical colleges (public and private) in India CBHI (2019). The large number of medical schools in these states reflects a combination of rapidly growing incomes and a growing private health-care sector in these states and also because investing in medical education has become a lucrative business. Initiatives proposed to address gaps in the number and quality of health professionals have included new degree programmes for non-physician care providers, upgrading skills of AYUSH practitioners, setting up new institutes in underserved areas and improving quality of medical and paramedical education.

Gaps in ensuring good quality medical education and its variation across states and institutions, which were identified in 2005, remain, including aspects of continuing medical education (CME) programmes (MoHFW, 2005a). A parliamentary committee examining the functioning of the Medical Council of India (MCI) concluded that MCI had failed to regulate the medical education system adequately and could not ensure high standards of medical education. The committee also pointed out that the MCI had failed to design a medical education curriculum that fit the Indian context, and that the prevalence of capitation fees in private medical colleges led to only the better off accessing medical training. The parliamentary committee underlined that MCI had also failed to generate respect for a code of ethics among medical professionals, with professionals violating the code of conduct facing only limited disciplinary action. Regulation related to allied health professionals is also a concern and to address this, the National Commission for Allied and Healthcare Professions Act, 2021 was passed. The new commission will create the Central and State Allied and Healthcare Professionals' register.

Central institutes such as the All India Institute of Medical Sciences (AIIMS), Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGI) and Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) follow their own accreditation procedures. The Paramedical

Council Bill, 2007 was proposed in the national Parliament but is yet to be enacted. There exists a “Paramedical Council of India”, which is registered under the I.T. Act, 1882 and I.R. Act, 1908, but it lacks any statutory authority in the absence of a law. The council states on its website that it registers qualified paramedics or colleges autonomously without any governmental or nongovernmental association. The Rehabilitation Council of India (RCI) regulates training institutes for staff specializing in rehabilitation and disability in several states. Paramedical councils and specialty councils exist in many states including Maharashtra, Madhya Pradesh, New Delhi, and Kerala.

2.8.4 Regulation and governance of pharmaceuticals

Regulation of pharmaceuticals in India is complex, involving several key regulators spread across different ministries, aimed at controlling cost and quality, the latter being mostly about safety and efficacy, while at the same time seeking to improve access to medicines. At the highest level, pharmaceutical policies in India are designed and regulated by several ministries including the Ministry of Chemicals and Fertilizers (MoCF) and the MoHFW. The Department of Pharmaceuticals (DoP) under the MoCF coordinates research and infrastructure in the pharmaceutical sector. The National Pharmaceutical Pricing Authority (NPPA) under the DoP monitors prices and availability of medicines and takes steps to remedy shortages, if any (Department of pharmaceuticals, 2011).

To address issues regarding quality, the Central Drugs Standard Control Organization (CDSCO), India’s counterpart to the United States Food and Drug Administration (US-FDA), is headed by the Drugs Controller General of India (DCGI) under the MoHFW. It provides market authorization for medicines based on safety and efficacy considerations. The CDSCO regulates the imports of medicines, clinical trials and coordinates activities of with state drugs controllers on its activities and provides expert advice. The state drugs controllers function under and report directly to state departments of health and family welfare (Directorate General of Health Services, 2015). State authorities work closely with the State Drug Control Administrations to ensure uniform enforcement of the Drugs and Cosmetics Act, 1940 (DCA) and other relevant legislation. The Act, regulates the import, manufacture and distribution of drugs to ensure that the medicines and cosmetics used in the country are safe, effective and conform to quality standards. The Act provides for the Central Government to intervene in, regulate import of, or provide market authorization to sell a new drug. However, the manufacture and sale (including wholesale and retail licences) of drugs are overseen by state drug controllers. Although bound by a single policy regarding manufacture and sale of drugs, its implementation varies across state governments. Thus,

pharmaceutical producers tend to apply for manufacturing licences from more compliant state licensing authorities. Standards for pharmaceutical production are guided by Good Manufacturing Practice (GMP) guidelines that require a producer to meet a minimum set of criteria to assure that the drug produced is safe and efficacious. Out of almost 8000 manufacturing units in India in 2015, 1329 manufacturing units were certified GMP by the WHO while 584 units were approved by the US-FDA.

Quality control is not simply an issue of GMP certification. In India's case, the bulk of the active pharmaceutical ingredients (API) used in the production of medicines is imported. Thus, the GMP compliance of manufacturers of raw materials is also relevant, but it is unclear what regulatory mechanisms are available to address this. In addition, there are transparency issues related to the production process of medicines in India.

In India, manufacturing is undertaken through three kinds of licensing: own licence, loan licence and third-party agreements. In case of loan licences, under labelling norms, the name of the manufacturer is not required to be disclosed, only the licence number and therefore the brand of the product acts as proxy of quality. Because the manufacturer has an interest in selling their own product, one can expect that the applicant of (loan) licence has an incentive to maintain strong controls over ingredients and production processes. Under third-party agreements, however, the manufacturers essentially have a free hand in the manufacturing process and the licensing entity just markets the product under its brand (with many manufacturers potentially contributing). In such cases, the challenge lies in attributing liability in case of sub-standard products.

Enforcement of rules and regulation at the state level is also problematic. Inspection data from state regulatory authorities of Tamil Nadu, Gujarat, Kerala and Maharashtra suggest that these state agencies face serious shortages of inspectors and a lack of emphasis on technical expertise related to specific areas of drug regulation. This is problematic because a drug inspector typically has to undertake inspection of facilities that produce or retail allopathic and AYUSH medicines (Chokshi et al., 2015).

Apart from regulation related to production, there are regulations related to rational use of medicines. The Indian Pharmacopoeia Commission (IPC), an autonomous institution under the MoHFW, regularly updates the standards of medicines for promoting rational use of generic medicines (Indian Pharmacopoeia Commission, 2015). Another key regulation in this respect is the Drugs and Cosmetics Act, 1940. Medicines listed under Schedule H and Schedule X under the Drugs and Cosmetics Rules, 1945

(framed under the Drugs and Cosmetics Act 1940) can only be sold only by retail pharmacies on the presentation of valid prescriptions. In practice, however, many medicines are available over the counter owing to poor implementation of regulation. The Drugs and Cosmetics Act (DCA) disallows prescribers from dispensing the drug and also does not permit allopathy practitioners to prescribe AYUSH medicines and vice versa. However, since 2016, different states have at times allowed AYUSH practitioners to prescribe allopathic medicines.

An estimated 850 000 pharmacies and medicine-sellers exist in India. An estimated 1500–2500 pharmacies are grouped in retail chains and such retail chains are growing rapidly (Lowe and Montagu, 2009). The Pharmacy Act, of 1948 requires the states to create pharmacy councils for registering pharmacists. Only qualified and registered pharmacists, with previous engagement in a hospital or dispensary for a specified period of time, can own pharmacies (Department of Pharmaceuticals, 2015). In practice, however, non-pharmacists can operate pharmacies attended by unqualified but “experienced” workers, while nominally being managed by qualified pharmacists (Chaganti, 2005).

Price regulation of medicines has been on the decline in India. India introduced pharmaceutical price control for the first time in 1963. Nearly 347 bulk drugs and their formulations were under price control in 1979 but the list was reduced to 142 bulk drugs in 1986 and to 74 bulk drugs in 1995. The National Pharmaceutical Pricing Policy (NPPP), 2012, proposed regulation of prices of essential drugs, control of formulations (finished product) prices and “market-based pricing” as a price control mechanism. Under this mechanism the government fixes a price ceiling for all essential medicines thus capping the prices pharmaceutical companies can charge. This ceiling is the average price of all brands that have at least a 1% share in total sales. The NPPP has been implemented through the Drugs (Prices Control) Order (DPCO), 2013. The DPCO directives derive from the Essential Commodities Act, 1955. An independent evaluation of the DPCO, 2013 (Selvaraj et al., 2014) suggests that the new pricing policy covered drugs that accounted for only about 17% per cent of the overall market for drugs in India. Although significant, the price regulation mechanism implemented through the DPCO, 2013, constitutes a significant departure from the earlier DPCO, 1995, as the latter pursued a cost-plus price control mechanism. In addition to drugs, the government or judiciary have on occasion, in public’s interest, also regulated the prices of medical devices such as cardiac stents and knee implants (Rao, 2016).

The Controller General of Patents Designs and Trademarks, under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, supervises the implementation of the Indian Patent Act, 1970, the Designs Act, 2000 and the Trademarks Act, 1999 (DPIIT, 2021). To comply with the provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) as well as to incorporate TRIPS flexibilities in domestic legislation, the Indian Patent Act was amended in 1999, 2002 and 2005. While the Indian Patent Act does not encourage frivolous patenting, it does provide full protection to patents if the molecule in question is original. It may be noted that several product patents in the past have been granted on the basis of incremental innovations not meeting efficacy requirements (Selvaraj et al., 2014). A Clinical Trials Registry-India (CTRI) was established in 2007 at the National Institute of Medical Statistics (NIMS) under the Indian Council of Medical Research (ICMR) to register and maintain records of clinical trials in the country. Trials registered in international registry and post-market surveillance studies are also expected to be registered in the CTRI. The DCGI of the CDSCO is the final regulatory authority for the approval of clinical trials in the country. This office also conducts inspections of trial sites, inspections of sponsors of clinical research and manufacturing facilities in India, oversight of the Central Drugs Testing Laboratory (Mumbai) and the Regional Drugs Testing Laboratory as also heading the Indian Pharmacopeia Commission among various other roles (Gogtay et al., 2017).

2.8.5 Regulation of medical devices and aids

India is ranked amongst the top-20 markets for medical devices globally and amongst the top four in Asia (IBEF, 2021). However, the relevant regulatory framework remains weak. Until 2006, the medical devices industry in India was largely unregulated. Prior to 2006, only medical devices such as disposable hypodermic syringes, tubal rings, condoms, metered dose inhalers, were required to be registered in India. In 2005, the MoHFW further notified 10 sterile devices (“Notified Medical Devices”) to be considered as drugs and consequently regulated their import, sale and manufacture under Section 3(b) (iv) of the Drugs and Cosmetics Act, 1940. The CDSCO is the primary regulatory authority overseeing the trade and manufacture of medical devices in India. A notification was issued in 2005 for regulating the distribution of a few additional medical devices under the Drugs and Cosmetics Act, 1940 and was formally adopted in 2013. At present, 15 medical devices are notified and therefore regulated. Apart from the CDSCO, there is a Medical Equipment and Hospital Planning division within the Bureau of Indian Standards (BIS) that deals with standardization of medical equipment and surgical instruments, surgical dressings, artificial limbs, rehabilitation equipment,

diagnostic kits, veterinary surgery instruments, dental equipment, laboratory instruments & equipment, hospital planning and health-care services (Singh & Associates, 2012).

As in the case of drugs, concerns related to medical devices include product safety, manufacturing practices and associated clinical trials. In June 2015, the Ministry of Chemicals and Fertilizers drafted a National Medical Devices Policy. The main objective of the policy was to encourage domestic production, and it did not address issues of quality, safety and pricing. As most of these policy initiatives are of relatively recent origin, there is little evidence of their effectiveness (or otherwise). The government has also directly intervened in selected cases harms caused to consumers, using powers under the Drugs and Cosmetics Act, 1940. A case in point is the court judgment of 2019 regarding faulty hip implants manufactured by Johnson and Johnson. The MoHFW worked out a compensation plan for patients suffering from faulty hip implants that put them at health risk, awarding INR 12 million each and additional INR 1 million for non-pecuniary losses, although the implant company appealed against this decision in the courts. Regarding the regulatory framework for diagnostic centres, the ICMR guidelines for Good Clinical Laboratory Practices (GCLP), 2008 are being prescribed for implementation across public and private medical laboratories. The guidelines mandate principles and procedures to be adopted for clinical research and laboratory tests.

2.8.6 Capital investment

The MoHFW has been actively establishing super speciality tertiary-care facilities in the public sector, replicating the model of AIIMS (All Indian Institute for Medical Sciences), in various Indian states. About 22 such facilities have been approved and are in the process of being established. The state governments are expected to provide the land for these institutes free of cost. As part of PM-JAY, the government announced plans for private investments to help set up hospitals in tier-2 (population less than 0.5 million) and tier-3 (population between 0.5 million and 5 million) cities. The government is also likely to classify the hospital sector as an “industry”, paving way to encourage substantial private sector investment in this sector. This marks a slightly different strategy to promote private hospital investment from the earlier approach that relied on provision of subsidized land and utilities to private hospitals.

2.9 Patient empowerment

2.9.1 Patient information

Information asymmetries are at the heart of health-care access and utilization of services, more so when an unregulated private health sector is a dominant presence. The challenge is even more daunting when several players are involved in providing or funding health services, as is the case in India. Key information challenges faced by the patient include: (i) what types of services are available in a facility? (ii) whether the patients are entitled to a specific set of services? (iii) what is the quality of health-care services? and (iv) what is its cost and whether they are entitled to a subsidy? Patients in India often find that public health facilities do not dispense medicines and diagnostic procedures which forces them to partly access private health-care facilities. Similarly, beneficiaries under GFHIs are less than fully aware about their eligibility, enrolment status, entitlements available under the scheme and information about health facilities empanelled. A systematic review of health insurance schemes in India (Prinja et al., 2017), suggests that low levels of enrolment among the poorest groups could reflect low levels of programme awareness.

Evaluation exercises undertaken for the NRHM at the district and sub-district levels highlight access and coverage barriers and patient concerns that include lack of timely information on health conditions, available treatment options, risks related to therapies and access to medical records. In India, health facilities and professionals in the public sector are accountable under the Right to Information Act (2005); however, there are no equivalent mechanisms for private health services. Even within the public sector, the right to information is implemented only in a piecemeal manner and plagued by inadequate human resources in responding to requests for information. The ICMR has created a medical statistics registry for maintaining data on prospective clinical trials in the public domain; the enforcement of this register for trials remains unevaluated. Independent scientific journals also publish medical errors in trials but at present there is a need for a centralized system for ensuring accountability. Reporting adverse events and adverse reaction is not only critical but its reduction and prevention is equally vital, besides making institutions accountable for any leniency or not taking adequate precautions during clinical trials, and not paying for medical negligence is considered a serious unethical behaviour.

2.9.2 Patient choice

Patient choice depends mostly on the ability to pay for health care, given that health spending in India is mostly financed by households through OOP payments. In principle, patients can choose between public and private

providers, medicinal systems, types of facilities and levels of care. There is no geographical or regulatory restriction on the choice of physicians if patients go through the fee-for-service route. Moreover, membership of subsidized public insurance, ESIS, CGHS and/or private insurance pools also enables patients to choose from a wide range of public and private providers, especially for inpatient care. Currently, more than 30 private insurers operate in the Indian health insurance market. These include both private insurers as well as public sector insurance companies. These offer a variety of hospital insurance products and cater mainly to higher-income households and group insurance products to private corporate enterprises. These schemes offer a variety of benefits and coverage levels but the insurance products they sell are often hard to decipher even for informed consumers.,

The wide range of provider choices available to patients is not necessarily conducive to patient well-being or health efficiency. Poor referral linkages often result in overcrowded secondary and tertiary health facilities in the public sector. Moreover, poorly regulated health-care provision means that patients are not always able to separate technical quality from other indicators of service quality.

2.9.3 Patient rights

Currently, the Indian Constitution does not include a Right to Health provision in its Constitution, although courts have passed several landmark judgments awarding compensation for violation of rights related to health. These have included health systems inability to provide health care and offer entitlements to eligible beneficiaries. India is signatory to the Universal Declaration of Human Rights, 1948. The Indian Constitution specifies Fundamental Rights including the right to life, and contains a section on Directive Principles of State Policy that although not equivalent to rights have been interpreted by the courts as such, and provide for rights to social security, etc. The Supreme Court of India had in the past ruled that right to live with dignity (Article 21) derives from the Directive Principles of State Policy and included health protection in it (Mathiharan, 2003). Such rights have been used in the past to seek remedy to injustice and malpractices involving health providers/insurers, etc.

The Supreme Court also allows for direct petitions to it in public interest litigation. Under this mechanism, and utilizing Article 21 against violations of the right to health, public interest petitions in the past have sought to provide for: (i) special health treatment to children in jails; (ii) health rights of mentally challenged patients; (iii) medical assistance for injured patients; (iv) protection against occupational health hazards; (v) action against passive

smoking in public places, and the (vi) rights of HIV/AIDS patients (Mathiwaran, 2003). Other protections are ostensibly available as well. For instance, the Clinical Establishments Act, of 2010, whose rules were notified in 2012, mandates that private or public hospitals cannot deny emergency care to patients. One of the rules of clinical establishment mandates that each health facility display the amount of money charged for each type of service provided and the types of services available. However, the implementation of these provisions is weak.

2.9.4 Complaints procedures for complaints

Mechanisms for patient complaints in India were limited in scope and effectiveness in the past. Ministries and government departments often have procedures for internal complaints and review committees, although the underlying processes are characterized by considerable delays and lack of transparency. Even when redressal mechanisms exist, there are major gaps in adjudication processes, the procedures for compensating patients, and in feedback mechanisms. Grievance redressal for patients is also possible through complaints to professional bodies, regulatory agencies or judicial systems.

Some national and state programmes have published guidelines for grievance redressal. Under the PM-JAY for example, a patient can file a complaint against providers for (i) denying treatment at the time of admission; (ii) demanding additional money over and above the package rates; (iii) money sought for treatment; (iv) non-provision of “E-card” despite patients being eligible for programme benefits, etc. The guidelines further state the need for resolving these set of issues within 48 hours of receipt of a complaint. Under the NHM, *Rogi Kalyan Samitis* (RKS), are mandated to create a mechanism for obtaining feedback from patients and to take timely and appropriate action. The RKS seek to achieve this by operationalizing a grievance redressal mechanism including prominent displays of “Charter of Patient Rights”. Several states have also set up independent initiatives, for instance, call centres in Haryana, and district-level grievance redressal cells in Kerala. In Karnataka, the Lokayukta, along with the Vigilance Director for Health, plays a prominent role in monitoring corruption in the health sector.

Legal recourse is also available through the Consumer Protection Act, 1986 (COPRA), which covers medical misconduct. There are several barriers to effective legal redressal, including the financial cost of legal action, the time-consuming nature of legal processes, burden of proof falling on the complainant and understaffed complaints’ forums in consumer courts. Medical negligence cases are often brought under the provision of the

Indian Medical Council Act, 1956, the Indian Penal Code (criminal liability), the Indian Contracts Act, 1872 and Law of the Torts (civil liability) (Gupta, 2011). The National Medical Commission was established in 2019 under the National Medical Commission Act, 2019, and the Indian Medical Council Act, 1956 was dissolved. The NCM is responsible for regulating medical education and professionals. Its activities aim to strengthen and improve access and quality of medical education, maintain a register of medical practitioners in the country and enforce ethical standards in serve. It also aims to offer a grievance redressal mechanism. Previously, the Medical Council of India (MCI) specified guidelines for patients for lodging complaints. They took up various categories of complaints, however, their performance with respect to taking action against health-care providers violating its guidelines was poor. Consumers often approached courts as a last resort.

2.9.5 Public participation

Public participation is generally neglected in the health-care sector, given the lopsided information asymmetry between providers and patients in the provision of services. Yet, in a 2019 survey conducted among 0.27 million voters across parliamentary constituencies, health was rated second among the list of issues of high concern to Indian voters. Nevertheless, some mechanisms exist. Local communities, NGOs and to some extent rural and urban local bodies (PRIs) have served as a conduit for public participation in the health sector. Under the NHM, community participation was encouraged in the monitoring and implementation of health services, including local government agencies such as PRIs. However, the intensity of community participation tends to vary across states. Beyond the community, public participation through dialogue, policy planning and monitoring occurs in a variety of ways. For instance, involvement of community health workers such as the ASHAs in planning has improved outreach and strengthened the link between the health system and local communities (Planning Commission, 2011). In Kerala, decentralized planning has also integrated local stakeholders in improving the delivery and effectiveness of state programmes. This has resulted in improved health service delivery, and better access to water, sanitation and other local services, while also increasing voluntarism (Elamon et al., 2004). Under the NHM, the RKS and village health and sanitation committees (VHSNCs) were designed to encourage participatory governance but did not do so effectively. NGOs have been at the forefront of mobilizing communities in India. One prominent example is the Self-Employed Women's Association (SEWA) that has currently more than a million members and manages a community-based health insurance and relationships between its members and the public health sector. As another example, the Naz Foundation built a coalition

to focus on addressing social exclusion and support to people affected by HIV/AIDS.

2.9.6 Patients and cross-border health care

India is a hub for international medical tourism and receives large numbers of patients from developed and developing countries. A cardiac procedure costing around US\$ 40 000–\$60 000 in the United States of America and \$12 000–15 000 in Thailand, is available for US\$ 3000–6000 in India. In 2015, India’s medical tourism market was estimated to be around US\$ 3 billion (FICCI-IMS, 2016). During 2017, India attracted 0.49 million foreign visitors for medical purposes. A large share of patients are from Bangladesh, Afghanistan, Iraq, Oman, Maldives, Yemen, and Uzbekistan. Services provided by Indian private health facilities range from cardiology, orthopaedics, transplants and ophthalmology. Medical tourism is both a source of foreign exchange and prestige. For instance, campaigns have promoted India as the destination for quality renal transplants at affordable prices (Connell, 2006; Herrick, 2007). Domestically, medical tourism receives mixed reactions, as the government is seen to incentivize hospitals to serve foreign patients while neglecting public infrastructure and local patients. It is sometimes argued that encouraging medical tourism can also reverse the medical brain drain and strengthen India’s health system, with gains ultimately trickling down to local health systems (Chinai & Goswami, 2007). The evidence for such “trickle down” benefits are not clear cut, especially since powerful politicians and elites in India often travel abroad for treatment.

3. Health financing

Chapter summary

India's current health financing scenario is characterized by a high level of fragmentation, low levels of risk pooling and passive purchasing. Despite numerous policy pronouncements prioritizing health, the governments in India at the Centre and state levels have historically underfunded the public health sector, resulting in poor health outcomes and rising inequity in access to health care. India's overall health spending (public and private) is currently estimated to be 3.8% of its GDP, lower than the LMIC average of health spending share of GDP of around 5.2%. India's health system is overwhelmingly financed by out-of-pocket (OOP) expenditures incurred by households (around 63% of all health spending) (NHSRC, 2018b; RBI, 2019). Government funding, provided by both the Central and state governments, currently constitutes approximately one-third of all health spending, with states accounting for nearly two-thirds of total government health expenditure, reflecting the mandate of constitutional responsibilities for state governments, in the health sector. Compulsory prepayment and/or voluntary risk-pooling methods of financing have been historically inadequate in India. Initially, social health insurance was limited to a small section of the population, comprising Central Government employees and a subset of formal sector workers, covering about 137 million people in aggregate. Although much of government funding has been directed to public sector facilities at the Central and state levels, over the past decade there has been an effort (financed mostly by general revenues) to promote insurance programmes to cover the poor and low-paid informal sector workers, for secondary and tertiary hospitalization services, through initially the RSBY scheme and later via the PM-JAY scheme.

Overall, health-care spending in India is highly tilted towards private financing. Since the launch of NRHM/NHM in 2005 and government-sponsored health insurance schemes for the poor after 2007–2008, total government expenditure on health increased only marginally from less than 1% of GDP in early 2000s to little over 1% in 2016–2017. Government expenditure as a share of total health expenditure also increased, from approximately 23% during early 2000s to 32% in 2016–2017. However, beginning with the launch of the NRHM, greater flexibility and predictability

in Central Government's funding has been achieved as the financing under the NRHM is made through societies (off-budgetary route) from 2005 to 2014. However, beginning from 2015, Central Government funds have been routed directly through state treasury. Government-sponsored health insurance schemes (PM-JAY) constitute only a small proportion (little over 1%) of total government health spending.

Public sector health services and various government-financed health sector schemes are largely dependent on allocations from general revenues at the Centre and state levels on a "historical" basis, with salaries accounting for a major share. In addition to funding flows directly made to public facilities, the emergence of publicly funded health insurance schemes that serve as third-party payers has added a new funding element for inpatient services in the public sector. Moreover, because public insurance enrollees can also choose private hospital care, this is also a mechanism for directing public funds to private care.

Sustained underfunding of public sector facilities, and the rapid growth of private sector providers has contributed to rising OOP costs on health care for households. Of this, a significant share, almost two-thirds of OOP expenses, are for purchasing outpatient care, especially medicines. Oversupply of health services in the form of excessive prescription of drugs, and unnecessary procedures and tests, has been one important consequence of such a payment system. Because households bear the burden of the high OOP health expenses in India, more than 55 million people are impoverished each year on account of expenses for ill health. Data on public health spending patterns by levels of care show that primary care accounted for roughly half of all government spending, with secondary and tertiary care accounting for 22% and 13%, respectively, and the rest utilized for administrative and other expenses.

3.1 Health expenditure

Health expenditures and how they are financed influence health outcomes, access to health services and financial outcomes for households (WHO, 2010). For example, the share of prepayment and risk pooling mechanisms in total funding for health can influence whether people can afford health care, and whether health services are equitably and efficiently distributed. Despite the fact that the absolute level of government expenditure on health in India has increased significantly over the past two decades, the ratio of government expenditure to gross domestic product (GDP) has remained more or less constant at around 1% of GDP. The total general government domestic health expenditure in India was INR 1291 billion for the year 2016–2017, and

during 2000–2016, it grew by 5.5% annually in real terms. Over the same period, the share of total domestic general government health expenditure in national health spending grew from around 22% in 2004–2005 to nearly 32% in the year 2016–2017.

According to the NHA 2016-17 data, India spent about 3.8% of its GDP on health care, which is relatively lower than those in comparable low- and middle-income economies (NHSRC, 2019). Data from a set of six comparator Asian nations show that India lies somewhere in the middle of the pack, spending less than China on health care as a proportion of GDP, but more than Bangladesh and Indonesia, while Thailand and Sri Lanka spending roughly the same as India (Figure 3.1).

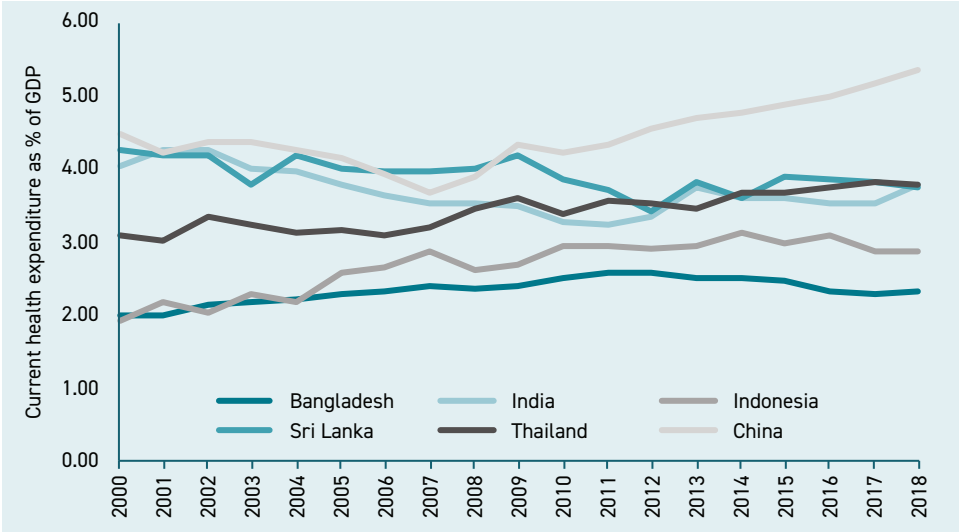
Figure 3.1 Current health expenditure as a share of GDP (%) in selected Asian countries 2018



Source: Global Health Expenditure Database for all countries except India (WHO, 2021). India estimates are from NHA 2016–2017 (NHSRC, 2019)

An examination of long-term trends in health expenditure reveals that India’s health spending as a share of GDP has decreased slightly from 4% in early 2000 to around 3.6% in 2018 (Figure 3.2).

Figure 3.2 Current health expenditure as a percentage of GDP in six Asian countries, 2018

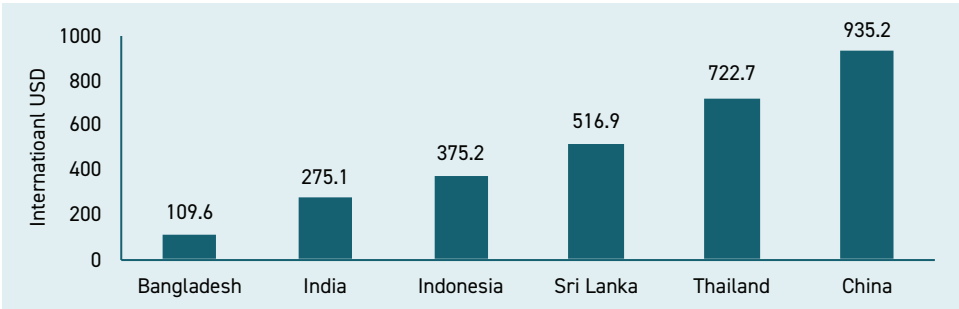


Note: Current Health Expenditure excludes capital expenses

Source: Global Health Expenditure Database (WHO, 2021). India estimates are from NHA 2016–2017 (NHSRC, 2019)

The distribution of health spending has also long been a major concern in India, given that private expenditure constitutes more than two-thirds of all spending, with only about one-third of all health spending being financed by the Central and state governments. Health expenditure per capita in India was 275 in international dollars at PPP in 2018, the second lowest (higher only than Bangladesh) among the six comparator Asian nations considered (Figure. 3.3).

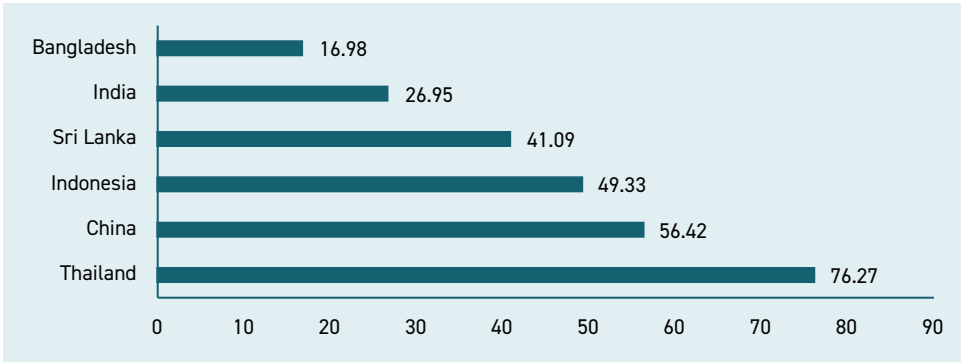
Figure 3.3 Current health expenditure per capita at PPP international US\$ in selected Asian countries in 2018



Source: Global Health Expenditure Database (WHO, 2021). India estimates are from NHA 2016–2017 (NHSRC, 2019)

Figure 3.4 reports data on the share of public spending in total health spending. In contrast to Thailand whose public expenditures as a share of public spending are almost 77%, the government share of health spending in India is only one-third. Both China and Indonesia also have government shares of health spending that are significantly higher than that in India. These spending patterns illustrate the relative significance of risk-pooled funds in each country, which in turn, has implications for efficiency and equity in distribution of resources. There is evidence of a strong inverse relationship between government spending on health services and the share of health-care expenditure funded from OOP payments, and follow-on implications for the burden of catastrophic payments on the population (Xu et al., 2003). Recent studies (McIntyre et al., 2017; Elovainio and Evans, 2017) suggest that achieving UHC would require governments to expand their allocations to health to around 5% of GDP. Table 3.1 indicates that between 2000 and 2018, there has been a three-fold increase in health expenditure although as % of GDP, this has decreased. Share of health in overall government expenditure has been stagnant at around 3.3% although there has been a small shift from private expenditure on health towards government expenditure.

Figure 3.4 Domestic general government health expenditure (% of current health expenditure)- in selected Asian countries in 2018



Source: Global Health Expenditure Database (WHO, 2021)

Table 3.1 Trends in health expenditure in India, 2000–2018

Expenditure	2000	2005	2010	2018
Current health expenditure per capita PPP (in current international \$)	88.55	117.16	145.47	275.13
Current health expenditure as % of GDP	4.04	3.79	3.27	3.54
Domestic general government health expenditure as % of general government expenditure	3.29	3.03	3.11	3.39
Domestic general government health expenditure as % of current health expenditure	20.68	20.13	26.20	26.95
Domestic private expenditure on health as % of current health expenditure	76.67	78.34	72.82	72.35
Voluntary health insurance (VHI) as % of total health expenditure ¹	NA	1.6	3.4 (2013– 2014)	4.7 (2016– 2017)

Source: World Bank Data Bank (World Bank, 2021) for all, apart for 1: (NHSRC, 2019)

3.2 Sources of revenue and financing flows

Of the four main revenue sources of the government (tax, non-tax, borrowing and capital) the former two the major source of funding for public sector health expenditures in India. In the absence of any significant earmarked taxes for health sector activities,¹² government health sector allocations reflect the outcomes of various competing priorities. Budgetary allocations to health have tended to stay at about 4–5% of the total (Centre and states) government budget. Between 2000 and 2015, government revenues increased from 17% to almost 20% of GDP, largely due to rising tax revenues (Table 3.2). However, much of this rise in tax revenue was used to boost activities in the classical economic sectors (industry, agriculture, infrastructure, etc.) but far less on health.

¹² Besides Central excise duties which form a major component of Central Government taxes, the government has also been levying a National Calamity Contingency Duty on tobacco products since 2001, which has now become an earmarked tax for helping states during natural calamities. Another levy known as Additional Duty of Excise on *Pan Masala* and other tobacco products, also known as the “Health Cess”, has been in place since 2005 to fund the National Rural Health Mission (NRHM).

Table 3.2 Macroeconomic aggregates of combined revenue and expenditure of Central and state governments: 1999–2000 to 2019–2020

Year	Revenue receipts (as % of GDP)	Tax revenues (% of GDP)	Expenditure (recurrent + capital) (as % GDP)	Gross fiscal deficit (as % of GDP)	Indirect tax as % of total taxes
1999–2000	17.08	13.49	26.86	9.19	73.88
2004–2005	18.99	14.97	26.83	7.24	67.69
2009–2010	18.69	15.20	28.59	9.33	56.85
2015–2016	19.96	16.68	27.31	6.92	63.86
2019–2020	22.88	19.23	29.85	6.14	61.07

Source: Handbook of Indian Statistics, (RBI, 2020, RBI, 2016)

Government expenditures on social sectors have risen over time. Social sector spending includes expenditures on education, health, urban development, employment, social security & welfare. In 2019–2020, social sectors accounted for 40% of all state governments’ total expenditure, as against 37% spent during 1999–2000 (RBI, 2019). Major drivers for this increase include India’s efforts to universalize basic and primary education, along with efforts to expand social security schemes for workers, and employment generation activities, such as the Mahatma Gandhi Rural Employment Guarantee Scheme (Kaur et al., 2013). This increase in social sector allocations was facilitated by high annual rates of economic growth, that exceeded 6% annual growth in GDP in the past two decades. Rising economic growth also permitted increased government allocations to health, which slowly rose from less than 1% of GDP during the 1990s and early 2000s to little more than 1% of GDP since 2010. However, India’s spending on social sectors as a share of GDP is much lower than the global average. As an illustration, Indian government (Centre and states) spending on education and health (including nutrition programmes) is currently 3.8% of GDP and 1.4% of GDP, respectively, significantly lower than the corresponding world averages of 4.4% and 6.0%, respectively.

In addition to direct allocations by the government to fund health sector activities, there are social insurance programmes that cover workers in the formal sector, which are partly or fully funded by the government. These include the Employees State Insurance Scheme (ESIS) and the Central Government Health Scheme (CGHS). As of September 2019, an estimated 133 million beneficiaries under the ESIS are entitled to comprehensive health services through 151 ESIS hospitals and about 400 networked/empanelled private hospitals (ESIC, 2019). Employers

and employees in the formal sector contribute the largest share of funds towards ESIS with little by way of contribution from the state governments. The CGHS provides coverage to an estimated 3.4 million Central Government employees,¹³ pensioners and their family members as of 2018. CGHS enrollees are entitled to receive a comprehensive package of services, including inpatient and ambulatory care, through 394 CGHS clinics and 718 private empanelled facilities (Forgia & Nagpal, 2012).

Over the past decade, hospital insurance programmes funded from general revenues have been introduced at the national and state levels in India, with premiums being funded by the government on behalf of the poor who are the intended beneficiaries. Although grand in scope in terms of the size of population covered, the overall funding for these government-sponsored health insurance schemes is relatively small. In 2016–2017, publicly funded health insurance accounted for only about 1.4% of total government health expenditure in India and about 15% of all health insurance premium paid. The latest in the series of such schemes is the Pradhan Mantri Jan Aarogya Yojana (PM-JAY) launched in September 2018. PM-JAY aims to cover 100 million poor families (approximately 450 million persons) with a hospital cover of INR 500 000 per household. A relatively new, albeit growing source of revenue is private voluntary health insurance (VHI). As shown in section 3.5, VHI is increasing quite rapidly, both in terms of premium revenues and in the population covered.

Despite the introduction of newer health insurance schemes – private and social – household OOP payments for health care dominate and are a major source of financial catastrophe and impoverishment among Indian households. Recent studies reveal that OOP payments constitute 11.2 % of total household expenditures and account for approximately 55 million persons becoming impoverished annually (Selvaraj et al., 2018). Studies also indicate that publicly funded health insurance schemes for the poor have not been particularly effective in influencing making inroads on the financial burden that households face owing to illness (Karan, Yip & Mahal, 2017). It must be stated however that these studies were done before PM-JAY was introduced and the impact of PM-JAY on the OOP is yet to be assessed.

3.2.1 Revenue collection

Funding for health facilities operated by governments and publicly sponsored insurance plans are largely from tax and non-tax revenues and public borrowing. The contribution of user fees and other health sector-specific

13 Defence and Railway employees are not part of the CGHS.

revenues is negligible. Taxes in India are mobilized largely at the national and state levels by respective ministries and departments of finance. The Indian Constitution assigned powers to both the Central and state governments to levy direct and indirect taxes, revenues from which go into the Consolidated Fund of India, which in turn are allocated to different ministries/ departments depending upon government priorities. Local bodies have also been given taxation powers under 73rd and 74th Constitutional amendments but these are relatively small in terms of revenue mobilization, with significant local body revenue collection occurring only in a few metropolitan cities, and among rural local bodies in Kerala and Karnataka.

India's largest SHI programme, namely, the ESIS has historically pooled contributions received from three sources: (i) workers who contribute 0.75% of wages; (ii) employer contributions of 3.25% of wages; and (iii) state governments' that contribute one-eighth of annual medical expenditure, within a per capita ceiling of INR 1500 per annum. Further, employees earning less than INR 137 per day are exempt from payment of their share of contribution, with any associated additional expenditure being incurred by the state governments concerned. The CGHS provides a generous benefit package to Central Government employees, including current and former parliamentarians, judges, former freedom fighters, pensioners and their dependents. Much of the funding for the CGHS is provided by the Central Government, through the budget, with employees paying a nominal amount, depending upon salary levels. Another source of pooled funding are the VHI schemes in private markets. Total (premium) contributions to the resource pool from private group and individual health insurance in the year 2016–2017 were INR 147 180 million and INR 125 840 million, respectively, or approximately 5% of total health expenditure (NHSRC, 2019).

3.2.2 Pooling of funds/ resource allocations

The Central Government's budget allocation across ministries, including the MoHFW, is based on ministries' demands and available resources through a consultative budget-making process. Since the Central Government has a larger tax revenue base, whereas states have many expenditure responsibilities (including for health), a constitutional body set up every 5 years, the Finance Commission, is designed to address these imbalances. For example, the Ministry of Finance at the Centre collects certain taxes on behalf of the Central and state governments which are later distributed between the Centre and the states through a formula designed and modified by the Finance Commission. The 12th Finance Commission (2005–2010) recommended called for reduction of disparities in inter-state access to health care and per capita government health expenditure and adopted an

“equalization principle” whereby conditional and specific-purpose grants to states were designed to help reduce disparities in health outcomes between states. The 14th Finance Commission spanning 2015–2020 recommended far reaching changes in Centre–state allocation formulae, which sharply increased tax devolution from the Centre to states while simultaneously limiting funding transfers through CSS which operated independently of the Finance Commission. The 15th Finance Commission (2021–2026) retained similar levels of overall transfer to states. However, in absolute terms, it awarded states significant grant for the health sector, deviating from two earlier Finance Commissions that did not allocate health-sector-specific grants to states. Recognizing India’s sustained low spending on health, persisting differentials in access and coverage, the 15th Finance Commission awarded unconditional grants to state governments during the award period (Government of India, 2020a). Health grants aggregating INR 1066 billion and amounting to 10.3% of the total grants to states were awarded. This accounted for 0.1% of GDP. About 70% of these grants will be transferred through local governments (INR 700 billion) and the rest 30% amounting to INR 366 billion were meant to be sectoral grants and state-specific grants. Local government grants were envisaged to strengthen urban health and wellness centres (HWCs) (health and wellness centres), sub centres, PHCs, CHCs, block level public health units, diagnostic infrastructure at the primary care level and conversion of rural sub centres and PHCs to HWCs. Recognizing the role of critical care hospitals and public health laboratories in fighting epidemics and pandemics in future, grants were set aside for training and medical education to increase the number of specialists and paramedics. The grants would allow states to build 205 hundred-bed hospitals and 157 fifty-bed hospitals. An amount equal to INR 133 billion, which was part of the sectoral/state-specific grant, was allocated towards improving skills and training of an additional 150 000 allied health workforce.

Besides the Finance Commission (whose recommendations account for nearly two-thirds of inter-governmental transfers), another Centre–state resource allocation mechanism is through CSS overseen by the erstwhile Planning Commission (Peter Berman et al., 2010). One prominent illustration of CSS is the flow of funds associated with the NRHM/NHM. During the period 2005–2010, the 12th Finance Commission along with CSS attempted to provide significant funds to states. The Planning Commission has ceased to play any role in fund allocation to states and was replaced by the NITI Aayog as in 2014. However, relevant Central ministries continue to implement CSS transfers.

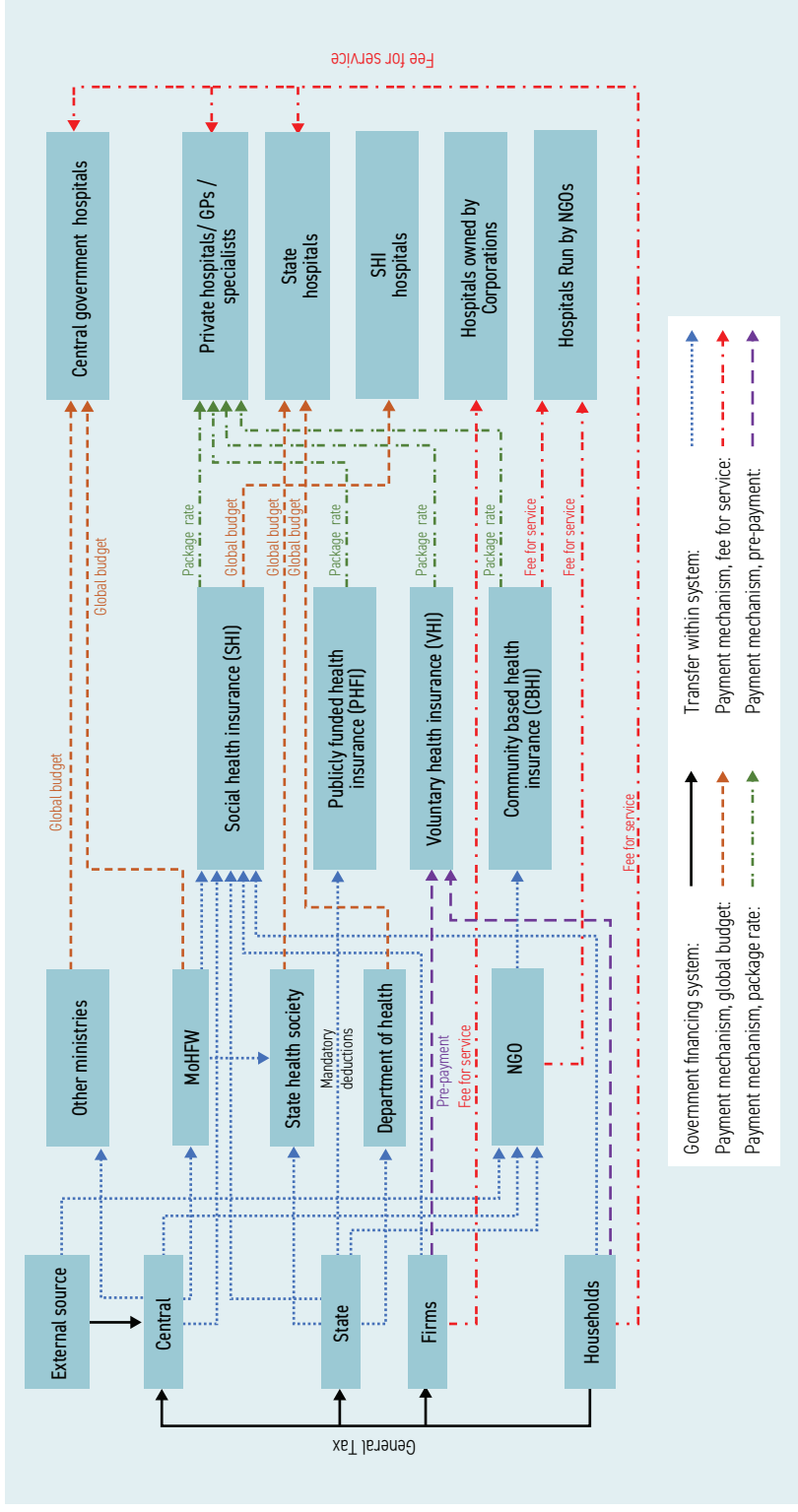
Figures 3.5 and 3.6 show key financial flows for health that include five sets of pooled funds. The largest pooled fund mechanism is the government

health service system, operated primarily by the states and co-financed by the Gol of India, wherein states mobilize their own resources through tax, non-tax and public borrowing programme, alongside fiscal devolution via the Finance Commission. This pooling arrangement is, in theory, intended to cover the entire population through access to heavily subsidized publicly delivered care. The RSBY (until 2018) and PM-JAY since, are health insurance schemes sponsored by the Central and state governments. Some states which haven't implemented the PM-JAY have their own health insurance schemes that exclusively target the poor, vulnerable, informal sector workers form another set of pooled funds.

The second pool (or rather a set of pools) corresponds to social health insurance (SHI) mechanisms, for which participation is mandatory for formal sector workers, civil servants, the armed forces, and railway employees. Separate schemes operate for each of these groups. Risk pooling is performed through employee and employer contributions (via a payroll tax) and government subsidies, although the relative contributions by these three entities varies significantly across schemes. The railways and armed forces operate their own health facilities with funds obtained from Ministry of Finance. Voluntary private health insurance (VHI) offered by private and public insurers constitute the third set of pools, financed by premium contributions of individuals and/or employers. The fourth set of pools comprise community-based health insurance schemes (ComBHI schemes), such as voluntary community prepayment health insurance schemes.

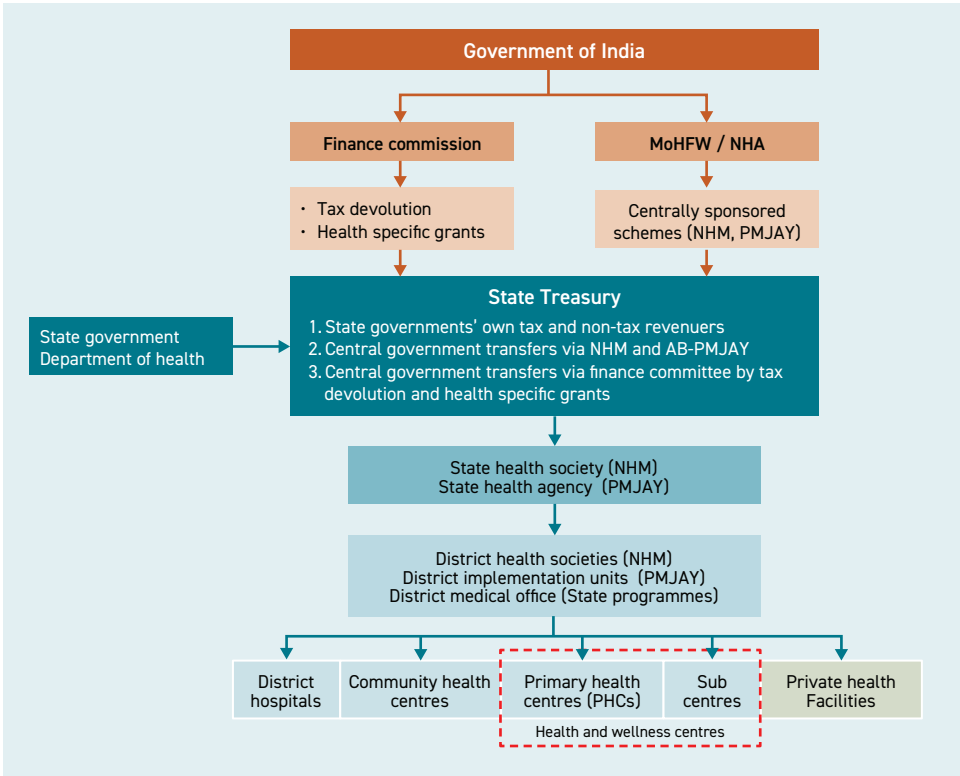
Although limited in monetary terms health insurance schemes such as the PM-JAY cover cover a large number of people. For instance, the PM-JAY is expected to cover about 500 million people (40% of population) with a Central allocation of INR 64 billion each during 2020–2021 and 2021–2022 besides contribution made by states to the extent of about 40% of total funds for the scheme.

Figure 3.5 Financial flows of all health funds in India



Source: Authors

Figure 3.6 Financial flows of tax funds in India, 2020



Source: Authors

With the reforms of CSS by the Central Government, allocation of Central Government funds to state funds to state governments outside the Finance Commission mechanism is expected to decline sharply in the future years (Sundararaman et al., 2016). The resulting gap is expected to be made up via increased devolution of funds recommended by the 14th and 15th Finance Commissions: from about 32% to 42% of tax revenues. Effectively, the share of Central Government transfers to states (as % of gross revenue receipts) rose only marginally from 48.2% during 2010–2015 to 50.2% during 2015–2020 (Government of India, 2020a). The Central Government is now routing all its funds through state treasuries, a reversal of its policies since 2005, when CSS funds were channelled to the states via autonomous entities referred to as “societies” at the state level. Moreover, state governments are expected to make a larger contribution in the ratio of 60:40 as against 75:25 earlier, although poorer states’ share in the matching contribution remains low at 90:10.

3.3 Overview of public financing schemes

India's large share of risk-pooling mechanisms that are government funded fully or partly is described here. These are implemented as government schemes except the ESIS, which is largely a contributory scheme, with funding being contributed by employers and employees. The tax-funded schemes described here includes Central Government-sponsored health systems and schemes (NHM and PM-JAY) as well as state governments' own health system.

3.3.1 Coverage

Table 3.3 lists the key risk-pooling schemes that are either tax-funded or funds contributed by employers and employees, along with their respective levels of population coverage eligibility criteria, and benefits packages. Tax-funded health schemes take various forms in India. The NRHM/NHM was designed by the Central Government but implemented by state governments. The NHM is funded partly by the centre (60%) and partly by the states (40%). Given that health is a responsibility of states as per the Indian Constitution, the states' public health system is largely funded by their own revenues. Both the NHM and states' health services are notionally universal, with services mostly accessible to all, and provide a range of benefits encompassing preventive, promotive and curative care services.

The NHM focuses largely on reproductive, maternal, neonatal, child health (RMNCH) services besides prevention and control of communicable disease conditions. Though the services funded through NHM are mostly universal, some of the subschemes under the NHM are targeted to specific groups. For instance, the Janani Suraksha Yojana (JSY), a safe motherhood intervention – cash transfer scheme linked with delivery and post-delivery care is aimed at poor pregnant women in states that have low institutional delivery rates. Under the JSY, all pregnant women delivering in government rural health centres in “Low Performing States” (LPS) receive INR 1400, as against INR 700 received by poor women in “High Performing States” (HPS). Interestingly, the state of Tamil Nadu, perhaps the pioneer in conditional cash transfer for pregnant women delivering in a health facility, provides a cash grant of INR 18 000 to pregnant women over and above the NHM funds.

The public health system, which is fully funded by tax revenues is expected to provide comprehensive coverage, including preventive, promotive and curative services. Accessible to all in theory, in practice the universal benefits are often notional, leading effectively to less than universal coverage. Although a major provider of preventive services such as immunization;

information, education and communication (IEC); and disease surveillance, the chronic underfunding of the public health system has contributed to its lower prominence in the provision of inpatient and outpatient services, with three-fourths of all outpatient episodes and three-fifths of all inpatient visits occurring in private health facilities. Public sector health services vary widely across states in the benefits they offer. The benefits to which patients are entitled are themselves ill-defined in the public health system, due to which access to care is a challenge. There are frequent reports of drugs and diagnostic services being unavailable in public facilities, forcing patients to pay from their own pockets to buy medicines and diagnostic care. The situation varies across states with states such as Tamil Nadu, Rajasthan and Delhi providing free and readily available medicines. Although there are no user charges in public health facilities, tertiary-care hospitals do levy charges for additional facilities, such as air-conditioned rooms. In some states, patients are expected to purchase medical supplies and diagnostic services outside public health settings, as these are unavailable in the public health system. The public health system generally does not involve a purchaser-provider split, as funding and provision are integrated.

Table 3.3 Breadth and depth of coverage national health systems / schemes / missions

Name of schemes /systems	Population covered	Benefits covered	Criteria for entitlement	Method of fund-raising	Pooling
Public health System	Universal, state-based coverage	Notionally, most benefits available, including preventive, promotive and curative care services	Universal entitlement	Budget revenues through state's own tax revenue and transfers from Central Government. through CSS and Finance Commission transfers	Subnational or programme level
National health Mission	National coverage implemented by states	Largely focused on reproductive, maternal, child health conditions, besides benefits involving prevention and treatment of communicable diseases	Universal entitlement but poor groups obtain preferential treatment	Budget revenues through tax and non-tax measures	National, subnational or programme level

Table 3.3 Breadth and depth of coverage national health systems / schemes / missions (contd)

Name of schemes /systems	Population covered	Benefits covered	Criteria for entitlement	Method of fund-raising	Pooling
Social health insurance (ESIS and CGHS)	ESIS – 125 million; CGHS – 3 million	Largely curative services including inpatient and outpatient benefits	Entitlement limited to employees and dependents. CGHS provides additional entitlement to all retirees.	Compulsory, non-risk-related health insurance contributions by employer, employees and government in a specified ratio	ESIS: national; CGHS: Central Government employees
Public insurance schemes (GFHI)	500 million plus	Focused on inpatient hospitalization covering nearly 1592 packages	Targeted at poor and economically vulnerable groups, as identified by socioeconomic, caste, Census, 2011	PM-JAY – Central and state contribution from taxes. State-schemes – wholly from tax revenues	PMJAY – National and state schemes – subnational level

Source: Author’s own depiction of schemes and their coverage based on studying health scheme documents.

The main SHI schemes in the Indian context are ESIS and CGHS. Across India, ESIS and CGHS cover 133 million and 3.4 million individuals, respectively. The ESIS scheme includes a comprehensive benefits package, including outpatient and inpatient services, to eligible formal sector employees and their dependents. Participation is mandatory for all formal sector employees with earnings below a certain level. Employees contribute regular premiums, directly deducted from payroll. Besides employees, the employers and the government contribute to the ESIS fund. The CGHS, on the other hand, covers current civil servants, along with retired civil servants and their dependents and provides an even more generous benefits package than ESIS enrolees. Civil servants also contribute premiums, but there is also a large accompanying government subsidy that finances the CGHS. The benefit packages are defined clearly listing services covered under the scheme. ESIS and CGHS act as two independent pools, although they do pool funds from enrolees across India. Both the ESIS and the CGHS provides services through hospitals and clinics, including empanelled facilities in the private sector. Therefore, there is an element of purchaser–provider split in these SHI schemes.

A large number of government funded health insurance schemes have emerged in India, at the national and state levels. The erstwhile RSBY, now the PM-JAY, is a tax-funded health insurance scheme at pan-India level to cover hospitalization care. The PM-JAY is intended to cover about 500 million people, or nearly 40% of India's population, comprising poor and vulnerable groups who are identified based on the Socio-Economic Caste Census (SECC), 2011. Although designed for implementation in all states, with the Centre and the states contributing to the premiums in a 60:40 ratio, some states have backed out from the scheme, as they are intended to continue with their own schemes. The benefits under PM-JAY cover about 1500 medical procedures and interventions that require hospitalization (PMJAY, 2019), with an annual cover of INR 500 000 for a poor family. States that plan to continue to operate their own GFHI scheme, have offered packages that do not necessarily match with PM-JAY or even with each other's schemes, in terms of the number of medical packages and annual maximum monetary value of the entitlement. Some state government schemes cover more than 40% of their population, over and above the PM-JAY beneficiaries. As a rapid and significant response to COVID-19, the CGHS, ESIS and PM-JAY beneficiaries were provided with the free coverage to seek testing and treatment in private and public hospitals. The PM-JAY scheme notified several medical interventions and packages underlying testing and treatment related to COVID-19 (Parliament of India, 2020).

Despite the optimism generated by the GFHI schemes, household-level analyses show that in spite of the free and cashless services provided, patients continue to incur OOP payments for additional benefits that are not covered by the scheme and for outpatient visits (outpatient services are not covered). Moreover, when the costs of treatment exceed the maximum annual benefit of the GFHI, hospitals levy extra charges on patients. One reason this occurs is because unlike the public health system, eligibility under GFHI schemes permits patients a choice between government and private hospitals.

3.3.2 Collection

India's health system mobilizes resources from various sources: government domestic revenues, mandatory income-related contributions, voluntary risk-rated premiums, households OOP expenditure, foreign transfers, etc. This section briefly describes the main revenue collection mechanisms, followed by pooling mechanisms in various public financing schemes.

a. General government budget:

In absolute terms, health expenditure of both the Centre and states in India has witnessed a sharp rise in the past 10 years. However, as a share of GDP,

government spending has remained roughly unchanged at 1%. Government financing from general revenues that is used to provide public sector health services is an important source of health sector financing in India. In the absence of any significant earmarked taxes for health,¹⁴ government health-sector allocations reflect the outcomes of various competing government priorities.

Between 1999–2000 and 2019–2020, government revenues increased from 17% to almost 21% of GDP, largely due to increasing tax revenues. The overall expenditure of the government (Centre and states) also increased, from 25% to 30% of GDP, over the same period. The combined fiscal deficit of Centre and states declined from a peak of 9.1% in 1999–2000 to 5.9% by 2018–2019 (RBI, 2020). During 2020–2021, significant fiscal support was provided by the Central Government to revive the economy due to COVID-19 and associated lockdown measures, leading to fiscal deficit of the Central Government alone to rise sharply to 9.5% (Ministry of Finance, 2021b). Taken together with deficits of states, the combined Central–state fiscal deficit is likely to breach the two-digit mark.

Tax revenues in India account for 17% of India's GDP currently, with almost 11% of GDP being mobilized by Central Government taxes and states' own taxes accounting for nearly 6% of GDP in 2019–2020. The tax mobilizing capacity of Indian states is smaller than the Central Government, although the Finance Commission recommendations that allow states a significant share in Central taxes (42% of divisible pool of taxes) helps ameliorate this gap (Ministry of Finance, 2015; Ministry of Finance, 2018b). Most direct taxes (income tax, corporate tax, etc.) in India are levied by the Central Government, whereas state governments levy taxes on real estate, petroleum and alcohol products, etc. In 2017 India transitioned to a Goods and Services Tax (GST) regime, which is levied on the supply of goods and services. Both the Centre and the state's share resource from GST revenues. Indirect taxes such as the GST, customs duties, etc. accounted for almost 63% of all tax revenues in India during 2018–2019. Despite the leap witnessed in revenue generation, the health sector continued to receive just over 5% allocated from overall recurrent expenditure of combined state governments during 2018–2019 (Government of India, 2020a).

14 Besides Central excise duties which form a major component of Central Government taxes, the government also levies a National Calamity Contingency Duty on tobacco products since 2001, which has now become an earmarked tax for helping states during natural calamities. Another levy known as Additional Duty of Excise on *Pan Masala* and other tobacco products, also known as the "Health Cess", has been in place since 2005 to fund the National Rural Health Mission (NRHM).

b. Social health insurance:

SHI schemes in India, chiefly the ESIS and CGHS, mobilize funds from employees, employers and the government. All employees in companies employing over 10 employees and earning up to INR 21 000 per month are mandated to be enrolled, and their dependents are also covered under the scheme. Payroll deductions from employees account for 0.75% of wages and employers contribute an additional 3.25% of wages. State governments contribute one-eighth of medical care costs. These contributions are pooled together by the ESIC, an autonomous agency of the GoI. The CGHS covers employees and pensioners of the Central Government, members of parliament, governors, accredited journalists and their dependents. The family is the unit of enrolment. Employees' contribution ranges from INR 50 to INR 500 per month based on salary levels while the balance (the bulk of spending by CGHS) is contributed by the Central Government as part of the allocation to the MoHFW.

3.3.3 Pooling of funds in public financing schemes

Pooled funds in the Indian context take multiple forms and can be at the national or subnational or programme level, depending upon the type of scheme. Recognizing that about two-thirds of the spending of about INR 4980 billion in 2015 was not pooled, the remaining one third of the funds that were risk-pooled amounted to INR 1830 billion (NITI Aayog, 2019). Nearly one-fourth of these pooled funds are tax funded by the Central and state governments, whereas 14% of the funds are contributory pooled funds, based on employer and employee contributions. This section describes pooling of funds that occurs under various public financing schemes, excluding ESIS, CGHS and private health insurance.

Funding for these schemes flow from annual budgetary exercise that Central and state governments carry out involving four steps: budget formulation, approval, implementation and audit. Budget formulation is the process of estimating approximate expenditure and receipts for the upcoming fiscal year (in India, the fiscal year runs from 1 April to 31 March 31 of the following year). The budget approval process involves discussions among parliamentarians who then pass both the Finance Bill and the Appropriation Bill before the onset of the new financial year.¹⁵ Following the

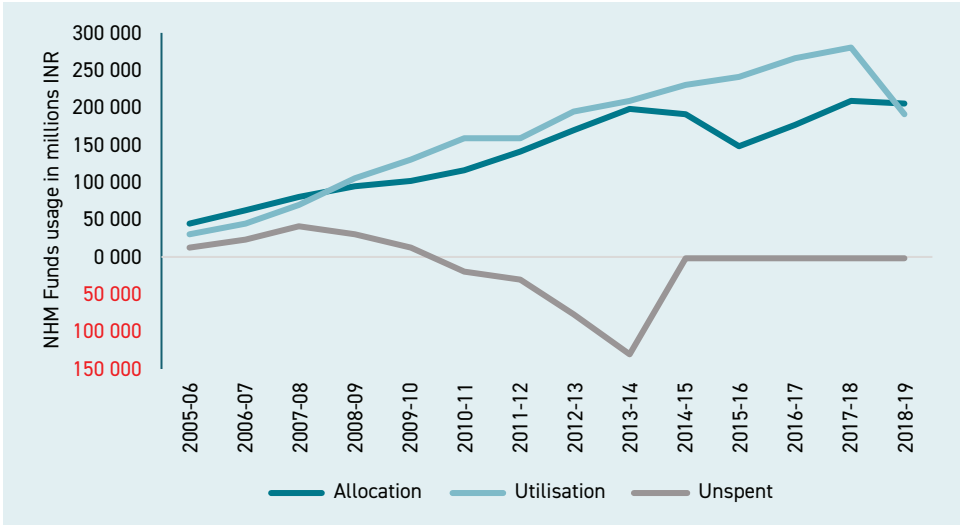
15 According to the Rule 219 governing Lok Sabha (the Lower House of India's Parliament), a Finance Bill is one which is introduced in Parliament each year by the Central Government to give effect to financial proposals (budgets) for the succeeding year. While an Appropriation Bill introduced each year for concurrence from members of Parliament in India is intended to give power to the Central Government to withdraw funds from the Consolidated Fund of India to meet expenditure during the financial year.

passage of these bills, execution of the budget begins. The executive heads can then move to collect revenue and start to spend funds on approved schemes/activities. Funds are appropriately allocated in agreement with the heads of each ministry/department. An annual audit of the government's financial operations, carried out by Comptroller and Auditor General of India's office (CAG) is intended to ensure that funds are appropriately disbursed by each government department.

Pooled funds that use government funding take multiple forms, including the agencies that manage them. Given the constitutional mandate, state governments in India mobilizes resources and use it for health sector activities. This perhaps forms the largest government pool, albeit composed of 35 independent state-level pools. At the Central level, the MoHFW receives funds from Ministry of Finance, which are then transferred to state government treasuries, for onward transfers to state health societies (SHSs) for allocation at the district and sub-districts levels. To facilitate real-time monitoring and reporting of expenditures under the NHM, a Public Financial Management System (PFMS) is being implemented by all states (MoHFW, 2017). The Financial Management Group (FMG) under the NHM undertakes planning, budgeting, accounting, financial reporting, internal and external audit and disbursement of funds related to the NHM. Under the NHM, programme implementation plans (PIPs) are prepared by each state before the start of a new fiscal year, for approval by the MoHFW. The NHM was an attempt to move to integrate financial resources from the previous siloed vertical disease programmes by providing a number of additional "innovative" financing arrangements in the off-budgetary transactions processes involving mission flexi-pools, untied grants, etc., all with the aim to scale up public spending and improve effectiveness of spending. A recent analysis of health sector fund utilization patterns across states shows that despite serious concerns raised about the absorptive capacity of states in the earlier years of the NRHM, public health facilities were able to absorb additional funding in the past few years, with utilization rates as a percentage of allocation of funds being over 100%¹⁶ (Figure 3.7).

16 Since unutilized funds from annual allocation can be pooled and used along with the following years' allocation, expenditure in certain years can exceed that of annual allocation for a particular financial year.

Figure 3.7 Trends in allocation, utilization and unspent funds under the National Health Mission (NHM)



Source: National Health Mission, Financial Management Report (Various years).

A recent performance audit conducted by the Comptroller and Auditor General (CAG) of India suggests that underspending and diversion of resources to other purposes plague funding allocations for the NHM. The CAG audit report showed unspent amounts that rose sharply from INR 73 750 million in 2011–2012 to INR 95 090 million in 2015–2016, in nominal terms. Delays in transferring funds from state treasuries to SHS ranged from 50 days to 271 days during 2014–2015 and 2015–2016. During the same period, in six states, NHM funds of about INR 363 million were diverted to other schemes (Comptroller and Auditor General of India, 2017).

Another set of pooled funding relates to public sector health activities comprising GFHI schemes. The Central Government uses the NHA to route funds to the SHAs, which either retain the funds if they manage the pool by themselves, or further transfer the funds to insurance companies if the state chooses the latter as its agent for managing the GHFI.

Currently, the magnitude and share of transfers from the Central to state governments varies in respect to Centrally sponsored schemes, such as, the NHM and GFHI. For instance, the Central Government provides 60% funds and states shares the rest 40% involving non-high focus states, such as, Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana, Maharashtra, West Bengal, Haryana, Punjab, and Gujarat, etc. For Northeastern states covering Assam, Manipur, Meghalaya, Nagaland, Tripura, Mizoram and

Sikkim, the sharing pattern of funds between the Central and state government is 90:10. Similarly, high-focus states, such as, Uttar Pradesh, Bihar, Jharkhand, Odisha, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttarakhand and Jammu & Kashmir also receive funds in the ratio of 90:10.

3.3.4 Purchasing and purchaser – provider relations

Purchasing is the process by which pooled resources are utilized to pay providers for health-care interventions/services. Effective purchasing involves three main decisions: the health services to be purchased; the mechanism by which services are to be purchased; identifying providers from whom the interventions/services are to be purchased.

Until about 2005, the purchaser and provider functions were mostly integrated as far as government services were concerned. Public funds were largely allocated on an historical basis, spent through 1000-plus line items, specifying expenditures that needed to be incurred on a long list of items, such as, salaries, wages, other remuneration, drugs and supplies, medical equipment, etc. (NITI Aayog, 2019). Both the NHM and state-level budgets follow line-item budgeting with rigidity in spending and no link to outputs or outcomes. Although passive, under the new tax-funded health insurance programmes, purchasing has evolved to become somewhat more sophisticated, beginning with the Aarogyasri Scheme of the state of Andhra Pradesh in 2007, the subsequent introduction of similar schemes in other states and the Central Government supported programmes such as the Rashtriya Swasthya Bima Yojana (RSBY) and finally, the PM-JAY in September 2018. The introduction of public insurance programmes led to the separation of purchasing from provision of services and the associated emergence of purchasing of health-care services from empanelled providers, public and private, which became much more common.

Under the integrated system of government-funded and provided health services, staffing and budget norms were driven by civil service rules, budgetary legislation, etc. Within this integrated framework, health sector reforms over the past two decades have led to varying degrees of autonomy among health sector institutions. Several state governments have experimented with management structures of health-care institutions and created autonomous entities such as trusts to run secondary and tertiary health-care facilities. The Punjab Health System Corporation, set up in 1996, provided for both financial and functional autonomy to operate secondary institutions in the northern state of Punjab. In the southern Indian state of Andhra Pradesh, all public sector secondary health-care services were brought under an autonomous entity, the Andhra Pradesh Vaidya Vidhan

Parishad (APVVP), that had some freedom in raising revenues and resource allocation decisions. Several Indian states have established autonomous corporations for medicines procurement and supply chain system, the most prominent being Tamil Nadu and Rajasthan (Tamil Nadu Medical Services Corporation and Rajasthan Medical Services Corporation). Rogi Kalyan Samitis (RKSs) have also been set up in public facilities under the NHM with the goal of promoting a limited form of decentralized decision-making.

During the past decade, autonomous agencies were created/entrusted to operate health insurance schemes funded by the Central and state governments, resulting in a split between the financing and service provision functions, thereby focusing greater attention on purchasing activities. Under these publicly funded health insurance schemes, commercial insurers and TPAs have been involved in purchasing services from both public and private providers. TPAs have come to play the role of an intermediary between insurance companies and the insured, by managing claims processes, provider networks, carrying out utilization reviews, etc. Only empanelled service providers are eligible to provide services reimbursable by the insurers, with many privately owned. The PM-JAY currently has 24 231 empanelled hospitals, of which 53% are private facilities (National Health Authority, 2021a). On the other hand, the ESIC the entity that manages the ESIS funds, reimburses patients for treatments received in empanelled private hospitals and follows CGHS norms for private hospital empanelment. The CGHS requires a private health facility to have at least 100 beds in metropolitan areas for empanelment and 50 beds for private health facilities in other cities. Empanelment under the Rajiv Aarogyasri scheme in Andhra Pradesh (AP) requires additional criteria over CGHS requirements, namely the satisfaction of the number of beds, plus the availability of an intensive care unit (ICU) with at least two ventilators. The ESIC also requires that private hospitals/diagnostic centres be (i) preferably accredited by National Accreditation Board for Hospitals and Health care Providers (NABH)/National Accreditation Board for Testing and Calibration Laboratories (NABL), (ii) in operation for at least one financial year prior to applying for empanelment.

The performance of purchasing mechanisms introduced under publicly sponsored health insurance programmes is somewhat mixed. Empanelled hospitals sign an MoU (Memorandum of Understanding) with insurance companies or TPAs that manage publicly funded insurance schemes, the actual implementation of the MoU guidelines has been weak as the responsibilities and performance indicators of hospitals are poorly specified (Forgia & Nagpal, 2012). Moreover, safeguards such as pre-authorization of procedure prior to their being undertaken have often been missing as in

the case of the RSBY. The PM-JAY requires pre-authorization for a medical procedure to be undertaken, as do some of the existing state-level publicly funded insurance schemes, such as Aarogyasri in Andhra Pradesh (AP) and the Chief Minister's' Comprehensive Health Insurance Scheme (CMCHIS) in Tamil Nadu (TN). The Andhra Pradesh and Tamil Nadu schemes introduced other oversight measures as well, including a management information system (MIS), surveillance and medical vigilance teams. The Aarogyasri scheme also introduced field-level functionaries, Aarogyamithras, in various hospitals to help beneficiaries better access covered services in empanelled hospitals.

In the absence of more rigorous empanelment criteria and regular quality monitoring mechanisms, hospital empanelment criteria only consider structural aspects such as the number of beds in a facility, availability of emergency theatre, number of medical specialists, etc. However, systemic inefficiencies such as over-charging, longer stays, adverse events, medication errors resulting in readmissions, etc. remain major challenges. A study of RSBY-empanelled hospitals in the state of Kerala found that most facilities lacked specialists and requisite medical and nursing personnel (Forgia and Nagpal, 2012).

Over time, insurance agencies and health insurance management trusts have gradually expanded their management their management and monitoring capacities. There is an increasing tendency, for example, to de-empanel hospitals on the ground of unethical clinical practices. Anecdotal evidence also suggests that public facilities are feeling the effects of increased competition from other private and public providers and using the additional revenues earned from insurance schemes to upgrade their facilities (Forgia and Nagpal, 2012).

3.3.5 Benefit Package Price Variation Across Health Insurance Schemes

Fragmentation of purchasers, differences in packages provided and variations in package rates can be expected to result in variation in costs and outcomes across schemes. The variation in package rates reflect limited use of monopsony power negotiating with providers signalling passive purchasing rather than strategic purchasing. The package rates neither reflect inputs costs nor actuarial analysis. Table 3.4 shows significant differences that exist in package prices of the PM-JAY, ESIC/CGHS and a private tertiary-care hospital in the National Capital Region (NCR).

The differences in package rates between the PM-JAY and ESIC/CGHS range from 12% to 123% with the former's package rate being relatively lower than the latter, except dialysis, hysterectomy and cholecystostomy. The price difference is substantially higher when comparing a private tertiary-care hospital in NCR with the PM-JAY scheme, with the difference ranging from 5% to 148%. Therefore, it is critical that public purchasers share information about package rates among them and purchase care collectively rather than in a fragmented manner, resulting in sub-optimal outcomes.

Table 3.4 Benefit package price variation for selected procedures by PM-JAY, ESIC/CGHS and private tertiary hospital

Medical procedures	PM-JAY rates (INR)	ESIC / CGHS rates (INR)	Private tertiary hospital rates (INR)	% Price difference between PM-JAY and ESIC/CGHS ^a	% Price difference between PM-JAY and private tertiary hospital [#]
PTCA with double stent (medicated, inclusive of diagnostic angiogram)	40 600	92 690	190 000	78.16%	129.58%
Total knee replacement (unilateral)	30 000	40 250	205 000	29.18%	148.94%
Total hip replacement (cementless)	37 000	90 850	195 000	84.24%	136.21%
Coronary artery bypass grafting (CABG)	118 000	146 136	235 000	21.30%	66.29%
Haemodialysis per sitting *	1 500	1 400	3 500	-6.90%	80.00%
Salpingo-oophorectomy (hysterectomy)	20 000	19 838	18 500	-0.81%	-7.79%
Caesarean delivery	11 500	16 158	26 600	33.68%	79.27%
Cataract surgery (phacoemulsification with foldable hydrophobic acrylic intraocular lens implantation)	4 500	11 903	25 000	90.26%	138.98%
Cholecystostomy (without exploration of CBD - open)	22 800	11 836	24 000	-63.31%	5.13%
Hernioplasty unilateral-Inguinal (groin hernia repair) - laparoscopic	14 200	18 975	25 000	28.79%	55.10%

Table 3.4 Benefit package price variation for selected procedures by PM-JAY, ESIC/GCHS and private tertiary hospital (contd)

Medical procedures	PM-JAY rates (INR)	ESIC / CGHS rates (INR)	Private tertiary hospital rates (INR)	% Price difference between PM-JAY and ESIC/CGHS ^a	% Price difference between PM-JAY and private tertiary hospital [#]
Laparoscopic appendectomy	11 000	20 700	26 000	61.20%	81.08%
Tympanoplasty	12 900	15 870	28 600	20.65%	75.66%
Head injury requiring facio-maxillary injury repairs and fixations (incl. implants)**	31 000	35 000	60 060	-12.12%	63.83%

Note on Calculation of percentage difference:

^a % price difference of ESIC/CGHS rates over PM-JAY rates is estimated by formula $\frac{(y-x)}{[(y+x)/2]} \times 100$

[#] % price difference of Leading Tertiary Care Hospital (Gurugram) rates over PM-JAY rates is estimated by formula: $\frac{(z-x)}{[(z+x)/2]} \times 100$

Where X represents PM-JAY, y represents CGHS/ESIC and z is used for rates of the leading hospital in Gurugram.

* without lithotripsy in CGHS

**Craniotomy for head injury in the Leading Tertiary Care Hospital (Gurugram)

Sources: PM--JAY package rates are from the NHA website effective from 2018; ESIC/CGHS rates from 2014 updated CGHS package rates and Leading Tertiary Care Hospital rates in Gurugram rates from the Schedule of Charges in 2018 (Full price charged by the hospital for the twin sharing room category without linked to any insurance package rates). (PM-JAY, 2020; Directorate General of CGHS, 2014; Global Health Private Limited, 2018)

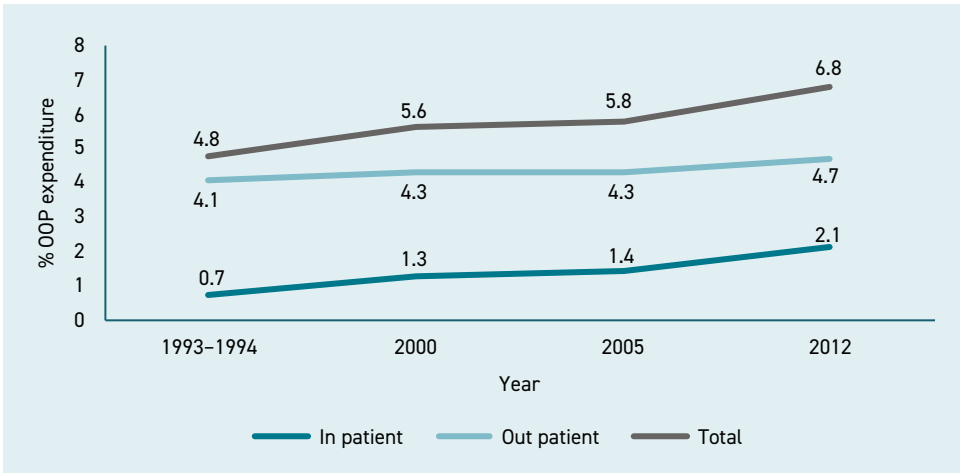
3.4 Households' out of pocket spending

Indian households rely heavily on OOP spending to finance their health-care needs. This dependence on OOP spending to finance health care has contributed to catastrophic expenses and increased incidence of household poverty due to illness, untreated ailments and an increase in avoidable mortality (Mahal et al., 2001; Garg & Karan, 2009; Selvaraj & Karan, 2009; Bonu et al., 2007; van Doorslaer et al., 2006).

Multiple factors have led to an increased reliance on OOP health-care expenditures. These include shortages in public funds, resulting in public health services that are either unavailable or of poor quality, and thus a decline in their use and growing demand for private care and drugs purchases from private pharmacies. A largely unregulated private health-care sector has emerged over time and coupled with limited access to public

or private insurance and/or insurance characterized by passive purchasing, has led to households having effectively little or no bargaining power in securing health services. Simultaneously, economic growth over the past three decades has fuelled rising disposable incomes that are available to be spent on the expanding private sector. The net consequence has been a rapid increase in OOP spending on health care, alongside growing indebtedness and growing reliance on other household coping mechanisms (Karan et al. 2014; Selvaraj et.al., 2018).

Figure 3.8 Trends in share of OOP spending in India (as percentage of total consumption expenditure of households) from 1993–1994 to 2011–2012



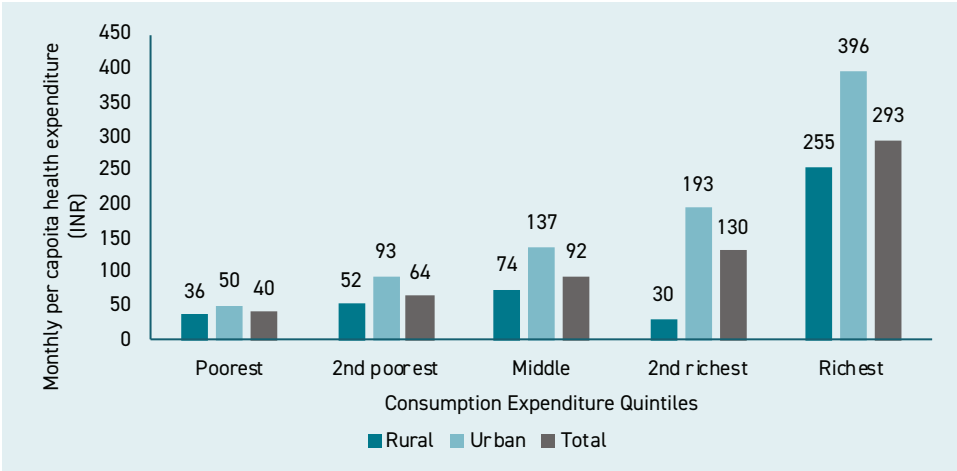
Source: Authors’ estimates using household-level records of the respective rounds of consumer expenditure surveys of the National Sample Survey Office (NSSO)

Fig 3.8 shows a 2% point rise in the households’ share of OOP expenditure on health care in their total spending, from 4.8% during 1993–1994 to 6.8% during 2011–2012. Outpatient expenses account for about two-thirds of OOP spending on health care, while hospitalization expenses account for the rest. Moreover, OOP payments on drug constituted the largest proportion of the total OOP payments. Of the total household expenditure, the share of OOP payments on drugs increased from less than 4% to approximately 4.5% during the same period (Selvaraj, et.al., 2018).

Previous literature suggests that the burden of OOP spending on health is relatively higher among socio-economically backward households in India (Karan et al., 2014). This literature also illustrates a well-known paradox, namely that the share of OOP in household expenditure as well as the level of OOP spending on health services is higher among socioeconomically advantaged, even though the financial burden is greater among their

disadvantaged counterparts (Figure. 3.9). The seeming “progressivity” of OOP spending among Indian households alongside the greater financial burden of backward groups underlines the fact that for them even small amounts of OOP payments are unaffordable. In this connection, the share of hospitalization expenses among the poorest quintile households is higher than among other groups, despite their coverage by tax-funded insurance programmes (Selvaraj and Mehta, 2014). Finally, considering OOP spending on medicines, a larger proportion of poor and economically vulnerable sections bear a higher financial burden than their richer counterparts (Selvaraj et al., 2014a).

Figure 3.9 Monthly household OOP expenditure on health in India, 2011–2012 (INR), by consumption expenditure group



Note: The quintile measure used here refers to distribution of population by economic position (five equal groups), which in turn is measured using households’ per capita expenditure. The quintiles were derived separately for rural and urban populations using different sample weights.

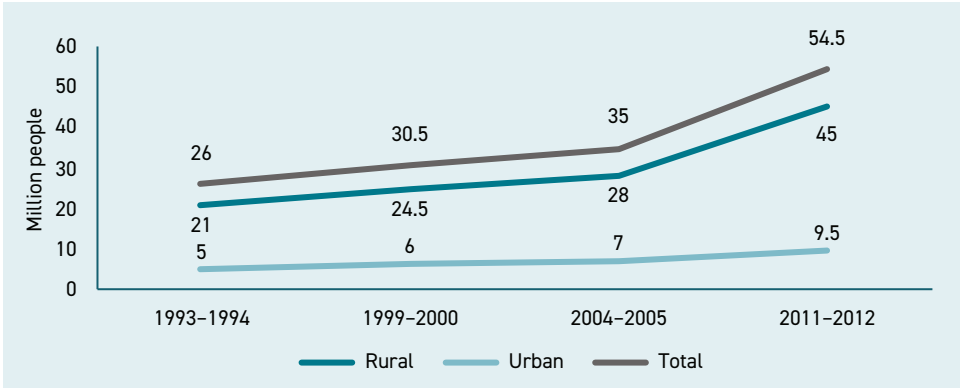
Source: Authors’ estimates using household-level records of the respective rounds of consumer expenditure surveys of the National Sample Survey Office (NSSO).

OOP spending on health services in India has important implications for poverty levels and trends in India.¹⁷ Existing literature for India shows that OOP payments not only impoverish a large number of households, but also deepen poverty among already poor households (Berman et al., 2010; Gupta, 2009; Garg and Karan, 2009; van Doorslaer et al., 2006). Thus, OOP spending on health increased the share of population below the poverty line in India

¹⁷ In India, the underlying monthly consumption expenditure of households for poverty calculation includes expenditure on health care by households. If households’ health expenditure is discounted from total household consumption expenditures, the estimated poverty headcount increases mainly due to households’ expenditure on health, i.e., the OOP

by 4.2 percentage points in 1993–1994, 4.8 percentage points in 2004–2005 and 4.5 percentage points in 2011–2012. In terms of population numbers this translates into the number of impoverished due to OOP payments of about 26 million in 1993–1994 and about 55 million in 2011–2012 (Figure 3.10).

Figure 3.10 Increase in the number of people going below poverty line due to OOP payments in India (in millions), selected years



Source: Authors’ estimates using household-level records of the respective rounds of consumer expenditure surveys of the National Sample Survey Office (NSSO)

A recent analysis also found that financial burden of OOP health spending, as indicated by a measure of catastrophic expenditure, in India has grown faster among the less well off than their better-off counterparts. Defining a ratio of OOP spending to total household income of 10% as the threshold above which a household is defined as having incurred catastrophic spending on health, the share of Indian households incurring catastrophic health expenditure rose from 14% in 1993–1994 to 18% in 2011–2012 (Selvaraj et al., 2018). Households in the poorest quintile groups experienced a faster rise in the share of catastrophic OOP spending relative to the better-off groups. Another study found no significant differences between socially vulnerable SC/ST households as compared to non-SC/ST population in catastrophic spending rates. However, minorities, including Muslims, experienced a higher share of catastrophic expenditure than non-Muslims (Karan et al., 2014). Comparative evidence, based on data from two nationally representative sample surveys, one undertaken in 2014 and the other in 2017–2018, suggests that when patients utilized public facilities, the share of patients experiencing catastrophic health expenditure declined from 24% in 2014 to 15% in 2017–2018. In contrast, when patients accessed private facilities, the decline was much slower, from 62% to 58% for the same period (Muraleedharan et al., 2020).

3.4.1 User charges

Health sector reform programmes in the late 1980s and early 1990s led to the introduction of user fees in many states in India. The Common Review Mission of the NHRM observed that Chhattisgarh charged user fees from 95% of its public health facility users. In Madhya Pradesh, almost 97.5% of patients paid user charges, with the remainder (2.5%) exempted as they were poor (note that the share of poor in Madhya Pradesh was 31.6% in 2011–2012 suggesting that many of the poor did not benefit from user fee exemption). In Punjab, the poor were treated free of cost but made up only 0.4% of patients treated in the outpatient department in 2002–2003 and the proportion exempted further declined in the two years following to 0.1% (B. Ghuman & Akshat Mehta, 2006). Studies in India have found, as elsewhere, that user charges reduce demand for health care, especially among the poor (Prinja et al., 2012).

Table 3.5 describes various forms of user charges prevalent across a range of services and associated exemptions in India. While no user fees are imposed on primary health-care services in the public sector, people are forced to purchase medicines from retail stores. States such as Tamil Nadu and Rajasthan stand out as exceptions in that people get medicines for free while accessing public facilities.

Launched in 2008, Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) scheme which as of August 2021 has over 8000 outlets to provide generic medicine to the population at affordable prices. Ran by the Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, it has a product basket of 1451 drugs and 240 surgical items.

Table 3.5 Health service and user charges in the public health system by type in India

Health service	Type of user charge in place	Exemptions or reduced rates	Cap on OOP spending	Other protection mechanisms
Physician visit	There is no concept of GPs in the public health system	NA	NA	ESIS has enrolled GPs
Primary care	Registration fees	Universal	NA	Provide reference
Outpatient specialist visit	Registration fees	Exemption for poor	NA	NA
Outpatient prescription drugs	Most of the states have limited availability of drugs; unpredictable; patients are forced to buy from outside facility; few state states such as Tamil Nadu, Rajasthan, Delhi	NA	No	Free medicine initiatives PMBJP initiative for reduced essential medicines
Inpatient stay	Co-payments (beds, surgeries fixed rates are charged)	Limited exemption for poor	NA	State-sponsored health insurance programmes for the poor and large sections of the middle income in states such as Tamil Nadu and Andhra Pradesh
Dental care	Co-payments for surgeries and procedures; visits are generally exempted	Exemption for poor	NA	NA
Medical devices	Co-payments; some states have schemes for providing free diagnostics if available in the facility	Limited exemption for poor	NA	NA

Sources: Authors. Legend: NA: not applicable

The Twelfth Five-Year Plan endorsed the High-Level Expert Group (HLEG) recommendations *“that user fees of all forms be dropped as a source of government revenue for health. User fees have not proven to be an effective source of resource mobilization. Global experience suggests that imposition of user fees in many low- and middle-income countries has increased inequalities in access to health care. Even modest levels of fees have led to sharply negative impacts on the usage of health services”* (Planning Commission, 2011) and emphasized abolishing user charges. In practice though, barring a few exceptions, user charges persist in secondary- and tertiary-level public sector health facilities across states.

The evidence from India confirms evidence available from LMICs elsewhere that the poor tend to be adversely affected by user charges (Vikas Bajpai & Anoop Saraya, 2010; Rob Yates, 2009; Lucy Gilson & Di McIntyre, 2005; Mylene Lagarde & Natasha Palmer, 2008). At the same time, user charges in Indian health facilities have raised only small amounts of funds. A 2015 study for the state of Haryana shows that anticipated increases in revenue collection from surgical charges in hospitals did not materialize in the state of Haryana, and moreover, surgery rates declined in some hospitals (Prinja et al., 2015). The Haryana study also shows that user charges in these hospitals led to the incurring of catastrophic payments and forced people to rely on borrowings, with disproportionately greater impacts on the poor.

Since public insurance programmes – Central and states – are free and cashless, zero charges at the point of use could theoretically be expected to increase hospital utilization rates. But evaluation studies for public insurance programmes show only small effects on hospitalization, and no changes in the OOP expenditures incurred by households. This may, in turn, reflect annual coverage limits and hospitals’ ability to charge patients over and above the rates negotiated by insurers without penalty (Karan, Yip & Mahal, 2017). This is also the experience of India’s largest social health insurance scheme, ESIS. Here too, there are no user fees at the point of use. However, reimbursements to patients under the scheme are often less than the expenditures incurred for treatment in empanelled private hospitals. To this, one should add the widespread practice of under-the-table charges, often termed as informal payments, for using public sector facilities. This includes payments for accessing beds in hospitals, free medicines, diagnostics or even doctors and nurses’ services. Informal payments are considered regressive because they act as a potential barrier to access for the poor. In a multi-country study, involving citizen feedback survey, Lewis (2006) noted that government providers demanded bribes wherein 51% of those interviewed in Bengaluru revealed having paid bribes. In Rajasthan, it was observed

that in government outpatient care visits, patients regularly paid despite the services being officially free (Lewis, 2006).

3.5 Voluntary health insurance

Insurance is listed in the Union List of the Constitution of India, meaning it can be legislated on only by the Central Government. In the period following Independence, concerns about unfair trade practices led the Govt to nationalize the life insurance sector in 1958. This was followed by the nationalization of 107 general insurers (including health insurers) in 1972, which were then grouped into four public sector companies functioning as subsidiaries of GIC, a public sector organization (IRDAI, 2007). Consequently, public sector life and general insurance companies enjoyed a monopoly in the life and general insurance market until the late 1990s when the sector was reopened to private insurers as part of the broader government liberalization policy. Both private insurers and joint ventures with foreign insurance companies were now permitted.

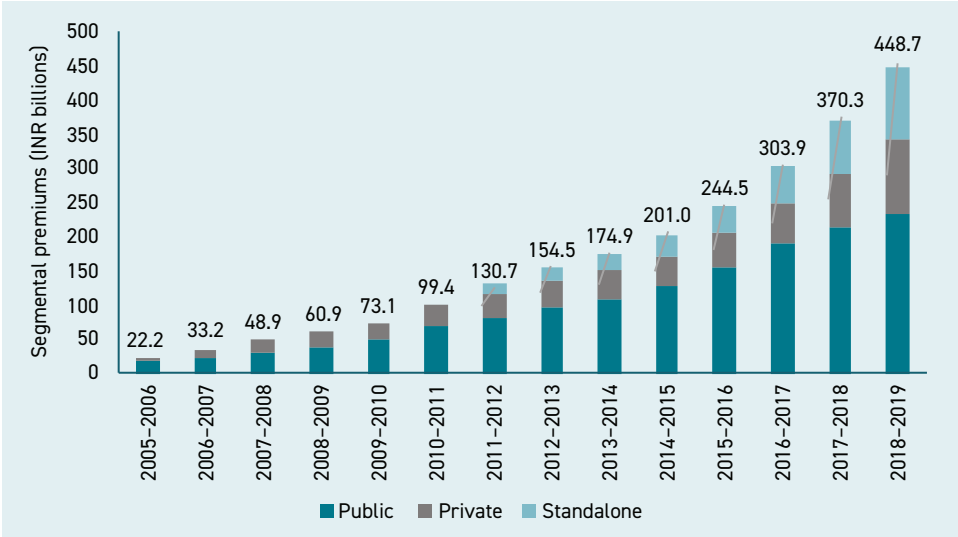
In April 2000, the IRDAI was established as an autonomous body to develop and regulate insurance industry. The main objective of IRDAI was to safeguard the interest of policy-holders by enhancing fairness, transparency and orderly conduct of insurance business. Another key goal is to create and sustain a reliable management information system in order to enforce soundness in financial standards of insurance players. The IRDA draws its mandate from Section 14 of the IRDAI Act, 1999 and has the power of issuing certificates of registration for insurance, and to renew, modify, withdraw, suspend or cancel such registration for the insurers. The regulatory guidelines of IRDAI also specify the requisite qualifications, code of conduct and practical training for intermediary or insurance intermediaries and agents.

3.5.1 Market role and size

The introduction of mediclaim health insurance policy in 1987 by the GIC was a major milestone in the history of the voluntary private health insurance market in India (Sharma, 2003). The mediclaim policy offered a health insurance benefits package for premium payments, both for individuals and groups. Until the introduction of the mediclaim product, general insurance companies had offered group health insurance products to large companies (Ellis et al., 2000). Currently, there are 28 insurance companies that offer health insurance products in India. About 29 functional TPAs currently provide services to these companies facilitating the claims submitted by patients, their sizes ranging from 145 to 8804 network hospitals and up to 91 branch offices across the country – an indication of the growing insurance

business. Overall, the private health insurance industry in India has seen phenomenal growth, with the share of health insurance premiums (including individual, group and GFHI) in overall health expenditure having jumped from 1% in 2006 to 4.7% in 2016-17 (NHSRC, 2019). Health insurance premiums (from individuals, groups and government-funded schemes) collected by different insurers accelerated from INR 22 billion in 2005–2006 to about INR 448 billion in 2018–2019, a 15-fold rise in nominal terms, as illustrated in Figure 3.11.

Figure 3.11 Trends in health insurance premium revenues in India, 2005–2018



Source: Insurance Regulatory and Development Authority of India (IRDAI) Annual reports 2009–2010, 2014–2015 and 2018–2019. (IRDAI, 2010; IRDAI, 2015; IRDAI, 2019)

3.5.2 Insurance market structure

The health insurance market can be classified into three different categories: (i) government-funded health insurance (GFHI); (ii) group health insurance (excluding GFHI); and (iii) individual health insurance. During 2019–2020, the share of group insurance (provided to corporations) premiums accounted for the largest share in total insurance premiums, standing at approximately 50% of the total premium revenues. Individual health insurance and GFHI premiums constituted around 39% and 10% of the total premium revenues, respectively. In terms of premiums collected, both individual and group businesses (other than government schemes) have more than doubled during the past five-year period. However, in terms of population covered under the health insurance schemes, GFHI accounted for approximately three-fourths of the number of persons covered (361 million), while group

insurance covered about one-fifth (93 million) and the rest by individual cover (43 million). During 2019–2020, insurance companies had issued around 17.9 million health insurance policies covering a total of 498 million lives registering a growth of 6% in number of lives covered over the previous year (IRDAI, 2020).

The vast majority of health insurance products in India cover only hospitalization expenses, but not outpatient care. A few insurance companies have begun offering cashless facility for OPD coverage. The expenses covered under this category includes those expenditures from authorized diagnostic centres, retail pharmacies, dental care units and optical care centres. Individual payments for health insurance premiums (up to INR 25 000 for purchase of health policy for self, spouse, children) are deductible from income for taxation purposes, while an additional INR 25 000 deduction is allowed if premium is paid for a parent who is a senior citizen (age 60+) (Department of Economic Affairs, 2014). With regard to group health insurance, only employers are allowed to claim tax deduction on premiums paid for employees, while the latter are entitled only for medical benefits, not tax deduction. The national sample survey of 2017–2018 shows that financial cover under private health insurance of households extended to about 3.8% of the total population in urban areas, as against 0.2% in rural India. By income group, the coverage is 12% among the urban rich (top 20% population by income group in urban areas) and 0.8% among the rural rich (top 20% population in by income group in rural areas), which implies penetration of private health insurance even in urban India where access to insurance products is easy but highlights how unaffordable such coverage is.

3.5.3 Market conduct

Most health insurance products in India are characterized by upper limits on claims, which vary by premiums paid. Related to this, premiums are correlated with the age of person insured. The average premium for an adult in the age group of 25–40 years is INR 5000 for an insured amount of INR 500 000. In a family floater scheme for two adults and two children with an insured sum of INR 500 000 annually, the average annual premium charged by different insurers falls in the range of INR 25 000 to INR 30 000. In contrast, for roughly about the same insured amount and similar family sizes the premiums charged under PM-JAY are in the range of INR 450–1500, reflecting the large gains from bigger groups of pooled populations.

As reliable morbidity and health risk data in India are inadequate, insurance premia seem to be currently determined to a substantial extent by market forces, without taking adequate account of actuarial assessments. While

claims ratios vary by health insurance products. GFHI products register claims ratios of around 97% whereas group insurance other than GFHI show claims ratios of more than 99% suggesting a risky business with a higher pay-out than the premium inflow. In 2019–2020, claims ratio of public sector insurance companies were approximately 101% as against 82% among private sector companies, and as low as 66% in standalone health insurance schemes, highlighting how profitably the private insurance companies are able to operate. The claims ratio involving the entire health insurance sector is around 88% (IRDAI, 2020). Interestingly, as a rapid response to COVID-19, the private insurance companies came up with a Corona Kavach policy in July 2020 designed to provide hospitalization and other coverage of medical expenses for COVID-19 treatment. It covered pre-post hospitalization, home care and AYUSH treatment.

3.5.4 Public regulation of voluntary health insurance

The IRDA Act, 1999 allowed for the entry of private insurance companies and envisaged the creation a regulatory authority that would oversee the insurance market (IRDAI, 2001). Regulatory goals included ensuring the financial stability of insurers, enhancing consumer protection, controlling risk selection practices and strengthening legislation complementary to health insurance (IRDAI, 2001). However, insurance companies were left free to determine premiums in the expectation that markets forces would regulate prices. IRDAI has also sought to frame guidelines to contain the administrative costs of insurance companies that can impact on premium rates. TPAs that link insurance companies, health-care providers and patients which are typically responsible for many of the claims processing functions and networking with providers, are also regulated by IRDAI, which is responsible for licensing them. The IRDAI's regulatory role also remains in the realm of an insurance repository, regulations governing innovative insurance products (such as, unit linked insurance product – ULIP) that can protect policy-holders amendments, etc. The regulatory experience of the IRDAI so far has been mixed. Insurance companies continue to focus on upper-income and middle-upper-income population groups, although the emergence of GFHI has partly addressed the concern of inequity and covering the poor and economically vulnerable population groups. Studies indicate inadequate monitoring and regulatory gaps in the insurance market that has created a situation where there is insufficient disclosure of information on health insurance products including exclusions, rejection of claims on various grounds by insurance companies with limited redressal, and low levels of information on the network of hospitals covered by insurers (Malhotra et al., 2018). About 71% of the claims are now settled within a period of one month from the date of reporting.

3.6 Other Types of financing

3.6.1 Role of community-based health insurance (ComBHI)

Community-based health insurance (ComBHI) has existed as an alternative pooled financing mechanism for poorer sections of the Indian population. Unlike other private insurance, ComBHI has limited pooling capacity, since it is primarily designed to protect small population groups in communities/ common interest groups against financial hardship (Vellakkal S., 2007). Some ComBHI schemes have also benefited from state subsidies. The first ComBHI scheme in India was set up in 1955 as a “Students’ Health Home (SHH)” while large-scale schemes have been established. These include the Yeshasvini scheme in Karnataka, which caters to farmers’ co-operative societies by providing limited hospitalization coverage, and the insurance coverage provided by the SEWA in Gujarat, which focuses on self-employed women and their families. There are around 12 major ComBHI programmes in India with membership bases as large as 3.45 million (Yeshashvini, 2015) and 79 899 (SEWA, 2011). There are different models of ComBHI schemes in India. In some versions of ComBHI, members of self-help groups (SHG) pay enrolment fees and/or nominal premiums towards health insurance to the SHG, which then pools financial resources from its members and purchases health-care services from (public and private) health-care providers. An SHG here refers to a group of people, normally 10– to 20 people or larger communities that share similar characteristics. SHGs may also provide services that include inpatient care and, in some cases, certain preventive and rehabilitative services are also covered. Another commonly observed model, especially after the recent growth of commercial health insurers, involves SHGs purchasing group health insurance policies from commercial health insurers to cover their members. Claims for services from health-care providers are submitted through an SHG on behalf of their members to a TPA acting on behalf of the insurer.

Apart from their scattered coverage, mostly in rural and tribal areas, ComBHI schemes provide limited financial protection. The premium rates of such schemes remain low because of their non-profit status, their focus on group policies (which are often provided on a subsidized basis by public commercial insurers) and because they typically cater to poorer population groups. The premiums under ComBHI schemes range between INR 10 and INR 200 per annum (SEWA, 2013). Only three out of 12 identified ComBHI schemes have annual premiums of more than INR 100 per person (Devadasan et al., 2014). In 2011, SEWA collected premiums of INR 16.27 million from 99 117 members and paid out INR 11.51 million in claims to 4191 members. IRDA policies and rules apply for the micro insurance sector that includes ComBHI schemes.

3.6.2 External sources of funds: ODA and Other Sources

Development assistance to India has been shrinking as the country has now moved into the lower-middle-income status. In 2019, India received gross Official Development Assistance (ODA) of US\$ 4.3 billion, which accounted for 0.15% of its GDP. The share of health in the overall ODA to India has dropped over time, to 1% in 2019 from around 7.3% in 2002 (OECD, 2019). Several vertical national health programmes were traditionally funded through external assistance. For example, the HIV/AIDS, tuberculosis and leprosy programmes had more than 90% of their expenditures funded from external resources during 2002–2003. The National Programme on Malaria received more than 47% of its funds from external sources. External funding is also received from international private foundations such as the Bill and Melinda Gates Foundation (BMGF) and from international NGOs such as Oxfam. The BMGF, in particular, has come to play an important role in funding programmes that help in implementation, evaluation and advocacy in the health sector.

3.6.3 Other sources of financing

Besides OOP and government funding, employers from the public and private sectors also contribute substantially to the welfare of their employees by way of annual reimbursements to cover outpatient expenses and special insurance cover. Several large corporates (in the public and private sectors) also have their own hospitals and dispensaries. The National Health Accounts of 2016–17 estimated that nearly 3% of all health spending comes from such enterprises, far exceeding the share of contributions made by international donors (NHSRC, 2019).

The Indian Railways, one of the largest employers in India with a total staff strength of 1.3 million, provides its staff, dependents and railways passengers medical facilities in 125 railway hospitals with a total bed strength of 13 963 and 586 polyclinics. Besides its own hospitals and dispensaries, the railways also provide health benefits in private empanelled hospitals in about 314 hospitals across the country (Indian Railways, 2017). An estimated 2.1% of the railways budget was spent on medical care in 2014 (National Academy of Indian Railways, 2017).

Another large Indian corporate is Tata Steel, a major private company, one of the leading steel companies globally, with about 65 000 thousand employees. It has several hospitals of its own and also empanels private sector hospitals to provide health-care services for its employees. Established in 1908, the Tata Main Hospital in Jamshedpur, is a 914-bedded hospital providing secondary and tertiary care. The hospital is linked to two super speciality

hospitals and four clinics located across Jamshedpur, that which provide also primary health care. The 431-bed Tata Medical Center, Kolkata was started in 2011 a state-of-the-art cancer care centre, with has facilities to promote prevention, diagnosis, treatment, rehabilitation, palliative and research. A Tata Steel Medica Hospital was set up with a bed capacity of 200, which was set up in Kalianganagar Industrial Complex, Odisha, to provide comprehensive diagnostic, intensive care and emergency services.

Roughly 0.54% of overall health spending is also routed through NGOs and several international organizations, such as, Medicines Sans Frontier (MSF), and the Red Cross, etc. which receive funds from abroad in both kind and cash to provide health-care services to selected population sub-groups. Strong domestic civil society organizations (around 60 000 NGOs in the health sector alone) receive in turn funding from government, foreign and local sources to provide preventive, promotive and curative health-care services (NITI Aayog, 2015).

3.7 Payment mechanisms

Paying health-care providers to deliver services is one of the key subcomponents of the health financing function; payment mechanisms have important effects on the health-care system: both in terms of quality and quantity of services provided and the cost at which services are provided. Decisions regarding the choice of providers for purchasing care, method, rate of payment and overall incentive structure influence actions of all organizations and individuals engaged in health care.

3.7.1 *Paying for health services*

The predominant method of provider payment in the government health system in India has been through budgets that are set on a historical basis; hospitals and primary care facilities are provided a fixed budget based on inputs rather than outputs. Central and state government-sponsored health insurance schemes in India have now started to use a system of “package rates” for paying empanelled providers for inpatient services. A package rate is a simplified case rate consisting of a “single fee” or close-ended payment for a set of inputs and services linked to a specific and predefined treatment or procedure and including room charges, professional fees for medical personnel, diagnostics, drugs, and consumables. In some cases, such as in RSBY and Aarogyasri in Andhra Pradesh, the package rates also include public transport costs for the patient, ambulatory screening before admission, and medicines for a specified number of days after discharge. Package rates are easier to administer, less complicated than fee-for-service payments and could potentially lower costs (Forgia and Nagpal,

2012). If package rates are not aligned to costs, however, they have the potential to induce supply of certain procedures, where profit margins are higher. Such payment mechanisms also spur expansion of the private sector besides upgradation of public facilities. Since such payments are made to government hospitals over and above the current budgets, improvements in facilities are expected; while thus, the private health sector has expanded in tier-2 and tier-3 cities, package rates appear to be higher than the market prices (Forgia and Nagpal, 2012).

However, much of curative care, accounting for nearly 80% of outpatient care and about 60% of hospitalization in India, is directly paid for by households to for-private and not-for-profit health care providers (hospitals and GPs) using fee-for-service. In ambulatory care settings, patients usually pay GPs/ specialists a specific sum towards consultation and prescribing, but patients are expected to purchase medicines and diagnostic tests from retail chemists and laboratories, respectively. Households purchase medicines from retail chemists, who are allowed to dispense both over-the-counter (OTC) and prescription drugs and whose final prices are generally market-driven. Retail prices of medicines in India are regulated. Nearly 13% of all medicines sold in the retail segment are price controlled, using a market-based price regulation method (Selvaraj et al., 2019). In some states, the government health system in some states, on the other hand, pays for medicines and consumables through a pooled procurement model. The states of Tamil Nadu and Rajasthan, for instance, pays manufacturers directly through their corporations (Tamil Nadu Medical Service Corporation and Rajasthan Medical Service Corporation).

3.7.2 Paying health workers

In government-operated health services, specialists, general physicians, surgeons, other paramedical staff and other members of the health workforce are paid as per government salary structures and grades prescribed by the Pay Commission. These pay commissions are set up periodically while the latest pay commission relates to the seventh pay commission whose recommendations the Central Government has accepted and has the recommendations of the (latest) Seventh Pay Commission and started implementing them. As per the pay commission, Central Government personnel are paid a basic salary, depending on qualifications and number of years of experience, and some allowances such as house rent allowance, dearness allowance, etc. (the dearness allowance is a fixed percentage of basic salary, which is aimed at hedging the impact of price rise). There is provision of overtime or bonus for certain categories of workers. Government hospitals also employ specialists on an on-call basis and pay them on the

basis of the number of visits. The NHM and other schemes supported by the government recruit staff at all levels (medical specialists, medical officers, nurses and ANMs, managers, IT and accounting staff). Unlike the regular staff, these staff personnel are hired for a fixed-term contracts and are paid in the form of a consolidated amount mentioned in their contract at the time of appointment.

The NHM also engages volunteer community-based health workers, commonly referred to as ASHAs, whose remuneration is mostly incentive-based on activities such as the number of pregnant women the ASHA would bring in for institutional deliveries. ASHAs are offered a cash payment of between INR 200 and INR 600 (from US\$4 to US\$13) for each delivery attended.

Health personnel in private for-profit and private not-for-profit facilities (e.g., specialists, general practitioners and paramedics) are paid consultation fees directly by the households if the consultation occurs in outpatient clinics. For inpatient care, households pay the hospitals a fee-for-service that includes payments for consultations, bed charges, surgeries, if any, diagnostics and drugs. Such charges are added up to form total invoices that patients pay at the time of discharge. When patients purchase medicines from private chemists or get laboratory tests done, the compensation to chemists and laboratory technicians consists of retail margin costs. In private care settings, especially in ambulatory care facilities, health personnel charge consultation fees according to their individual capacity (demand or prestige) to charge any amount. Until 2012, health-care personnel in neither outpatient setting nor hospitals were bound by any payment rules and regulations regarding treatment of patients. The Clinical Establishment (Registration and Regulation) Act of 2010 and Rules 2012, requires health facilities in the private sector to display fees charged for each consultation and procedures – including the amounts charged for each component of the packages for different services. Since state governments are largely responsible for the delivery of health-care services, some states have enacted the law, but its enforcement is yet to be made effective. Traditional providers generally charge patients a fee that combines consultation fees and the cost of medicines.

4. Physical and human resources

Chapter summary

India's health system infrastructure is characterized by a mix of government facilities and a dominant and rapidly growing private health-care sector. Public infrastructure consists of a tiered system of primary-, secondary- and tertiary-care facilities. The heterogeneous and complex private infrastructure includes corporate entities, trusts (private and religious), general practitioners, pharmacies, diagnostic laboratories, traditional and informal providers that compete with the public sector across all tiers of service delivery.

Capital investments in public infrastructure are largely funded from general revenues, but substantial shortfalls exist in the number of health centres, (subcentres, PHCs, CHCs, district hospitals, etc.) across states, compared to population-based norms. There are an estimated 0.16 health-care facilities and approximately 5.5 beds for every 10 000 persons in the public sector. Total bed strength has remained in the range of 4.5 to 6.5 beds per 10 000 persons from the 2000s – well below countries like Indonesia, Brazil and China, where levels exceed 10 beds per 10 000 persons (WHO, 2021a). Diagnostic facilities are heavily concentrated in the private sector. It is estimated that the number of X-ray machines and CT scanners in the private sector is six times higher than that in the public sector, and that of MRIs and ultrasonography machines are four times as high.

India's health workforce was estimated at 5.7 million in 2018. The density of doctors, nurses and midwives was estimated at 26.5 per 10 000 population, as per the National Health Workforce Accounts (NHWA). The density of doctors was about 8.6 per 10 000 population, with nurses and midwives being 17.7 per 10 000 population. The number of pharmacists was 8.9 per 10 000 population in 2018. In 2011–2012, the number of dentists was 2.0 per 10 000 population. India's health workforce is heavily concentrated in the urban sector: although 71% of India's population lives in rural areas, only 36% of its health workforce is located there. Much of India's health workforce is employed in the private sector: 80% of the doctors and 70% of nurses and midwives are in the private sector. Traditional systems of medicine in India, such as AYUSH, have practitioners in both the public and

private health sectors. The share of AYUSH and dental practitioners in private health facilities is even greater, at 90%. India's health workers are unequally distributed across states. Central and eastern states such as Bihar, Assam, Jharkhand reported far lower health workforce density as against Delhi, Kerala, Punjab, and Haryana. Several states reported nurse-to-doctor ratios of less than one.

Nurse density in India compares favourably with other countries in the region, such as Bangladesh, China, Indonesia, Sri Lanka and Thailand. Moreover, compared to China, Thailand and Indonesia, the density of pharmaceutical personnel is much higher in India.

In 2018, there were 529 medical colleges in India (including government, private and not-for-profit colleges) offering 92 250 undergraduate medical degree (MBBS) seats with a combined bed strength of almost 455 000. The distribution of medical colleges is highly unequal across states, with Telangana, Andhra Pradesh, Tamil Nadu, Kerala and Karnataka in the south and Maharashtra in the west accounting for nearly 54% of total MBBS seats, despite possessing less than 30% of India's population.

Health workers (doctors, dentists, AYUSH and others) work under a variety of arrangements. In the public sector, they may serve as regular or contractual government employees. Some public sector health workers also work as private practitioners. Poor monitoring, low levels of enforcement of legislation, and weak incentive structures have led to dual practice and widespread absenteeism of government staff in general and doctors in particular. Dual practice by public doctors is seen as one of the drivers for the development of the private sector in health, especially in rural areas. Doctors in the private sector can work solo, with private hospitals or (much less commonly) in group practices.

Data sources for estimating the size and composition of India's health workforce are diverse and non-standardized. Substantial difference in health workforce is observed between survey-based data and those reported by professional registries. No single entity exists to collate and inform policy and research, which hampers meaningful interventions in the production, distribution and quality of health workforce in India.

4.1 Physical resources

4.1.1 Capital stock and investments

a. Current capital stock

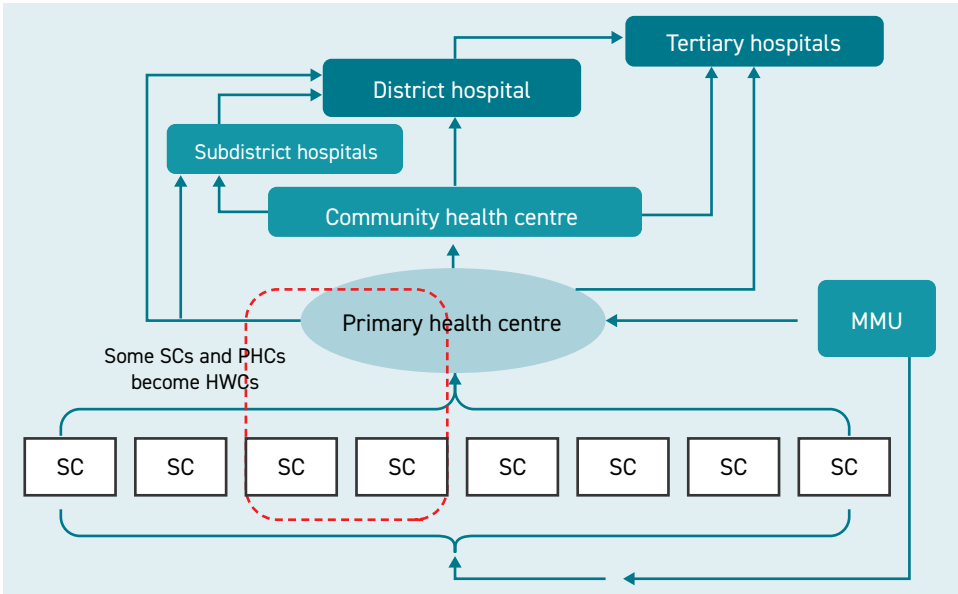
Government health infrastructure in India is characterized by a three-layered structure of health service provision. The bottom layer consists of subcentres, PHCs, supplemented by mobile medical units (MMUs), which is the most peripheral outpost of primary care delivery. Subcentres serve as the interface between the community and frontline health workers and are each expected to cater to catchment populations numbering 5000 (3000 people in hilly, tribal or backward areas). In 2018, a “time to care” norm was introduced to guide the location of subcentres in certain remote and regional areas, which requires subcentres to be situated within 30 minutes of walking distance from their target habitations. Activities of staff at subcentres are overseen by PHCs which, in turn, are expected to provide essential primary services to catchment populations of 30 000 (20 000 in hilly, tribal, and desert areas). MMUs, which consist of vehicles staffed by a doctor, nurse, radiologist, laboratory attendant, pharmacist and helper, are also available in the public health sector, mainly to provide outreach services and medicines to people living in remote areas. As part of an initiative to transform health service delivery at the primary level care, in 2018, the government initiated a scheme to transform the existing 150 000 primary care delivery units across the country to HWCs by 2022. HWCs are expected to provide comprehensive coverage of services, including maternal and child health services, communicable and noncommunicable diseases, palliative and rehabilitative care, mental health, etc. By February 2021, about 80% of existing subcentres and PHCs had been converted into HWCs. Funds have been allocated in the Central Government budget, which are transferred to states for this initiative.

CHCs, which lie above PHCs (usually 1 CHC to 4 PHCs) are the second layer, and provide specialist services, in addition to being a referral centre for PHCs. CHCs serve a population in the range of 80 000 (in tribal/hilly/desert areas) to 120 000. Together with CHCs, each district in India also has a district hospital, providing secondary care services as well as subdistrict hospitals, which act as the first referral unit. At the tertiary level, medical colleges-cum-superspecialty government hospitals also function, and these are typically located in major urban centres and state capitals. It is not uncommon to find AYUSH services alongside allopathy services in government facilities. There were 4035 government AYUSH hospitals and about 27 698 AYUSH dispensaries providing health services during 2018.

In addition, there are hospitals and health facilities owned and operated by ministries and departments other than the MoHFW (at the Central

level) and the state departments of health (Figure 4.1). These include the Ministries of Railways and Defence, the ESIC, CGHS, as well as facilities under the control of urban local bodies (ULBs), mainly in metropolitan cities. The Brihanmumbai Municipal Corporation (BMC), for instance, is the largest municipal corporation in India, with a network of teaching hospitals, general hospitals, maternity homes, besides dispensaries and health posts.

Figure 4.1 Schematic representation of service delivery in public sector (dash line indicates possible but less common)



Source: Authors

In 2019, the number of functioning government health facilities comprised 152 794 subcentres, 20 069 PHCs, 5685 CHCs, 1234 subdivisional hospitals (SDHs), 756 district hospitals, and 1415 MMUs (CBHI, 2018). Out of 593 medical colleges in India, 244 are government-owned (CBHI, 2018). The Indian railways, one of the largest public sector employers, provides health facilities to its employees and their dependents, besides health services to accident victims. During 2019, it operated a total of 580 dispensaries, in addition to 122 hospitals with a combined bed capacity of 13 355. The CGHS, on the other hand, has its own 288 allopathy and 85 AYUSH dispensaries, 19 polyclinics, 73 laboratories and 21 dental units.

The private health sector, which dominates health-care provision in India (Mackintosh et al., 2016) includes for-profit large corporate entities, not-for-profit trusts (private and religious), general practitioners (comprising

qualified, unqualified, and registered medical practitioners¹⁸), chemists and diagnostic laboratories. Estimates from survey-based data on the informal sector gathered by the National Sample Survey Office (NSSO) suggested almost 1.2 million private health-care providers in India in 2010–2011, with 80% comprising single-person entities, and about one half located in rural areas (NSSO, 2011). A hospital census in 2012 covering 62 major cities spread across 20 states in India showed that there were around 13 413 private hospitals with varying bed numbers and ownership structure (Mukhopadhyay et al., 2015).

Several assessments of the infrastructure and capital stock of government facilities have been undertaken since 2007 as a part of annual NHM common review missions (CRMs). The tenth CRM during 2016 found an increase of 5.2% in the number of subcentres, 8.9% in PHCs and 61.3% in CHCs relative to 2005 (National Health Mission, 2015). At the same time, a 2017 audit of infrastructure revealed several areas of concern, including deficient and/or unavailable facilities (Comptroller and Auditor General of India, 2017). It also highlighted instances of civil works beset by delays, non-commencement of works, abandonment of works, etc. The audit recommended that state-level authorities aim to reduce delays in construction and in the commissioning of completed buildings for designated purposes.

b. Public sector investment

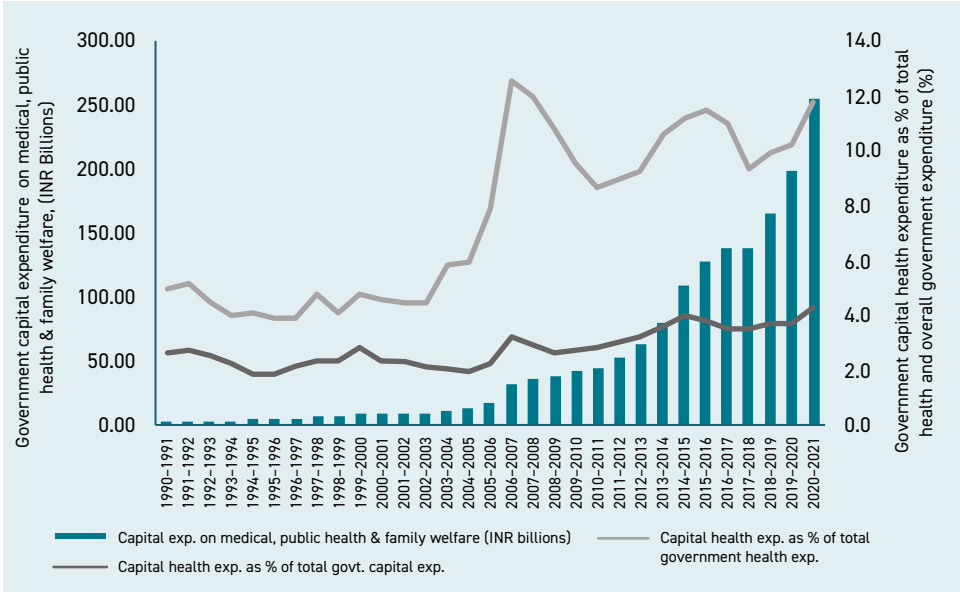
Capital investments by the government are largely funded from general revenues of Central and state governments. The Indian Constitution lists the states as the responsible body for the creation and maintenance of public health and medical care infrastructure, and most capital investments are funded by the states except for family planning-related activities that are mostly financed by the Union Government.

Figure 4.2 shows that government capital health expenditure as a share of both total health expenditure and overall government expenditure was relatively low until the mid-2000s, a reversal from the expansion in health infrastructure witnessed during the 1980s. Much of this stagnancy could be attributed to the fiscal challenges India faced during that decade, and is potentially a key explanation for many public facilities (especially at the primary level) becoming non-functional (Mukhopadhyay et al., 2015). Increases in capital investments by both union and state governments occurring as part of the NRHM/NHM initiative since the mid-2000s arrested

18 Registered medical practitioners are those who possess no qualifications but have experience in practising general medicine. They are culturally closer to the society, and their acceptability is significant.

this decline and led to increased expenditures in the renovation of existing facilities and new construction of health facilities in the public sector. This explains the rising share of capital expenditures in government spending since the mid-2000s (Figure 4.2).

Figure 4.2 Share of government capital investment in total health expenditure of states, 1990–1991 to 2020–2021



Note: Capital expenditure includes medical, public health and family welfare. This includes all states but excludes Union Government spending. Expenditure for 2019–2020 and 2020–2021 are revised estimates and budget estimates.

Source: RBI state finances: study of budgets; respective years

c. Private sector investment

The private health-care sector in India has historically been dominated by sole proprietors running small clinics. Data from a survey of health enterprises by the NSSO in 2010–2011 show that of an estimated 1.2 million private clinical establishments, almost 80%, were organized as a sole proprietorship, with partnership entities (clinical establishments set up between two or more partners) comprising 7% of the total, and the rest were for-profit or not-for-profit big hospitals. Many of the individuals working in the private sector are government doctors engaged in dual practice. As a result, private investments (at least in outpatient care and smaller hospitals) are mostly personally financed by doctors who establish these institutions (Gangolli et al., 2005).

Private limited companies constitute a small part of the hospital sector and have historically been located largely in the eight largest cities (Ahmedabad,

Bangalore, Chennai, Delhi, Hyderabad, Kolkata, Mumbai and Pune). Over the past decade, private hospital chains have expanded into smaller “tier-2” cities.¹⁹ The entry of private corporations in health-care delivery has led to the emergence of debt financing and private equity funding as important sources of investment in the hospital sector. Data from the Centre for Monitoring the Indian Economy (CMIE) estimate that private investments worth INR 330 billion have been made by the corporate health sector between 2005 and 2014, with an average annual growth rate of 18% over this period (Centre for Monitoring Indian Economy, 2015).²⁰ A large portion of this investment is financed by loans and advances, which have also grown at a high rate (23%), as shown in Figure 4.3. Government incentives to attract private sector players and engage them in the delivery of clinical services have also helped facilitate the expansion of service delivery to smaller cities. These incentives range from offering subsidized or free land to locate health facilities, lower electricity rates and tax concessions for setting up hospitals in smaller towns, and exemptions on import duties for medical devices. In addition, the expansion of state-sponsored insurance schemes (that empanel private providers) has also generated incentives for private hospitals to take their offerings to smaller urban centres, which are likely to be closer to the beneficiaries targeted under these schemes.

Figure 4.3 Trends in investment, loans and advances by the corporate health sector in India: 2005 to 2014



Source: Author’s calculations based on PROWESS database from Centre for Monitoring Indian Economy. (Centre for Monitoring Indian Economy, 2015)

19 Tier-2 cities are those with a population in the range of 50 000 to 100 000 based on the 2001 Census.

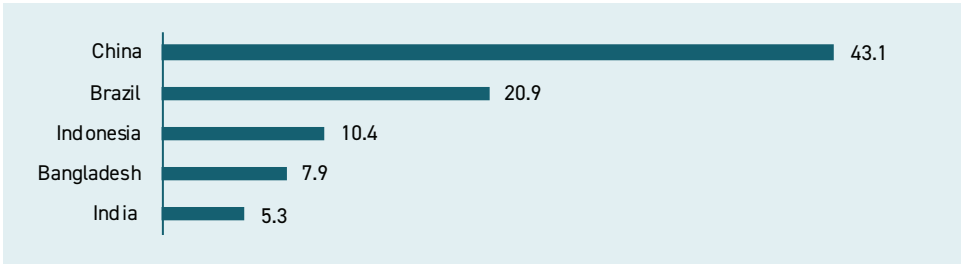
20 Prowess is a database run by CMIE, which contains the financial performance of over 27 000 companies. It includes all companies traded on the National Stock Exchange and the Bombay Stock Exchange, thousands of unlisted public limited companies and hundreds of private limited companies. It also includes a number of important business entities that are not registered companies.

These developments have been accompanied by a liberalized foreign direct investment (FDI) regime since 2000, which allows for 100% foreign-owned facilities in the hospital sector, without prior approval of the government or Reserve Bank of India, referred to as the so-called “automatic route”.²¹ Consequently, hospitals and diagnostic centres in India have received a significant amount of FDI equity inflows, estimated to be US\$ 6.6 billion between 2000 and 2019, and are among the top twenty sectors to attract FDI funds in the country (DPIIT, 2020). This was equivalent to 1.45% of foreign equity inflows during this period. An additional 4% of FDI equity inflows, almost US\$ 16.39 billion, was accounted for by the drugs and pharmaceutical sector (DPIIT, 2020a).

4.1.2 Infrastructure

Despite structural improvements, India’s health infrastructure does not compare well with other LMICs. For example, India had only about 5.3 hospital beds per 10 000 population, which is well below its peers Indonesia, Bangladesh, Brazil and China (Figure 4.4).

Figure 4.4 Hospital beds (per 10 000 population), 2017

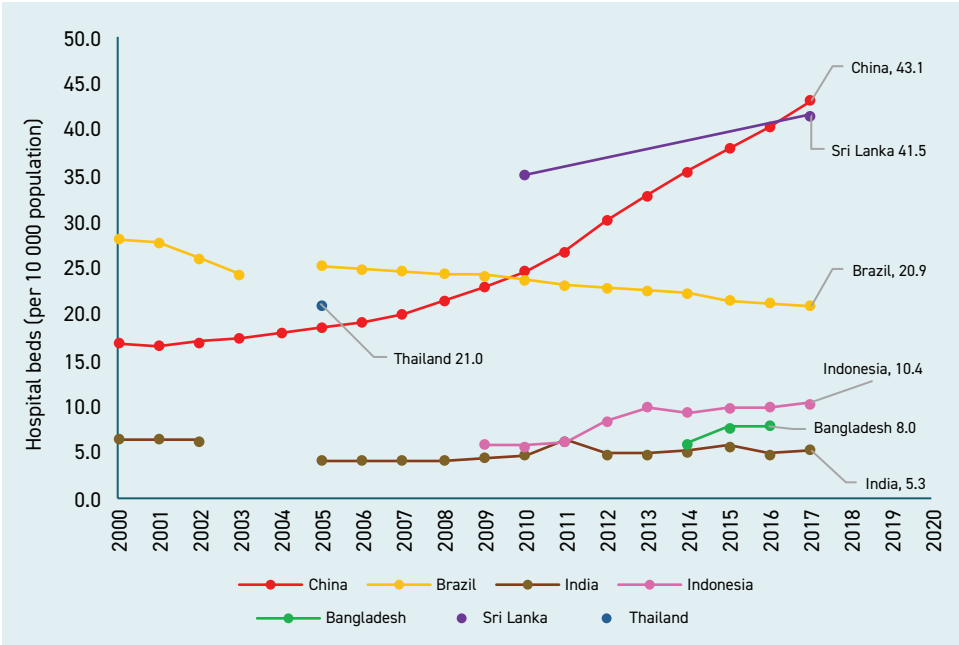


Source: Global Health Observatory (WHO, 2021a).

An analysis of trends in availability of hospital beds also suggests that India has experienced slower growth than in Indonesia, Brazil and China (Figure 4.5). Hospital beds in China exhibited a steady increase in the past two decades, with a particularly steep rise from 16.8 beds per 10 000 persons in 2000 to 43.1 beds per 10 000 persons in 2017, while India’s bed strength has remained in the range of 5.3 to 6.5 per 10 000 persons over the same period. During the same period, bed strength accelerated from 5.9 to 10.4 beds per 10 000 persons in Indonesia.

21 Automatic route means that if an Indian company files the application within 30 days of receiving remittances, government permission is not required.

Figure 4.5 Hospital beds per 10 000 population in selected countries, 2000–2017



Source: Global Health Observatory (WHO, 2021a).

Government infrastructure

Government infrastructure can be broadly categorized into three groups: public facilities (including medical colleges and hospital infrastructure); facilities related to different social security schemes (such as CGHS, ESIS) that specifically cater to formal sector workers and government employees; and psychiatric hospitals. The number of public facilities, including medical colleges and their distribution across Indian states during 2018 are presented in Table 4.1 (excludes those facilities operated by social security schemes). On an average, each government facility serves a population of nearly 32 602 persons (0.31 facilities for every 10 000 persons) and there are approximately 6.14 government beds for every 10 000 persons. However, there are marked interstate variations, ranging from 2.45 government hospital beds/10 000 population in Bihar to 36.76/10 000 in Lakshadweep.

Hospitals attached to the medical colleges are the apex government institutions providing tertiary and superspecialty care. State governments also operate superspecialty hospitals for certain health conditions and care groups (e.g. cancer, maternity-related care and children, psychiatric care). There are 43 specialty psychiatric hospitals with approximately 20 000 psychiatric beds (0.21 psychiatric beds per 10 000 persons) in India (CBHI, 2018).

Table 4.1 Functioning government health infrastructure and bed position, 2019

State/Union Territory	SCs	PHCs	HWC-SC*	HWC-PHC*	CHCs	SDH	DH	MMU	MC	Govt. hospital Nos	Govt. hospital beds	Govt. hospital/10 000 persons	Govt. hospital bed/10 000 persons
India	152 794	20 069	47 320	20 135	5 685	1 234	756	1 415	240	40 883	818 396	0.31	6.14
Andaman & Nicobar Islands	96	22	102	22	4	0	3	0	1	30	1 202	0.76	30.28
Andhra Pradesh	6 846	121	2 920	1 145	195	28	14	52	11	6 234	86 721	1.19	16.61
Arunachal Pradesh	307	105	133	66	63	0	17	16	1	218	2 404	1.45	15.98
Assam	4 034	704	1 607	681	179	14	25	145	6	1 239	28 039	0.36	8.18
Bihar	9 865	1 480	1 190	1 049	150	55	36	0	9	2 132	29 339	0.18	2.45
Chandigarh	4	36	0	2	2	1	1	0	1	49	3 758	0.42	31.87
Chhattisgarh	4 919	687	2 551	643	174	20	26	30	6	247	9 610	0.09	3.35
D&N Haveli	47	8	52	8	2	1	1	4	0	11	589	0.2	10.79
Daman & Diu	6	0	26	4	2	0	2	1	0	4	320	0.1	7.75
Delhi	204	540	0	0	0	9	47	1	11	107	27 154	0.05	13.7
Goa	219	0	98	56	5	2	2	0	1	43	3 086	0.28	20.04
Gujarat	8 353	951	5 110	1 464	376	36	22	30	29	2 245	29 402	0.33	4.33
Haryana	2 472	218	659	362	128	21	22	12	7	678	12 590	0.24	4.39
Himachal Pradesh	2 097	586	596	512	94	78	12	0	6	822	14 782	1.13	20.25
Jammu & Kashmir	2 900	560	1 056	396	84	0	23	11	3	1 275	4 418	0.97	3.35
Jharkhand	3 644	210	1 413	178	177	13	23	92	3	4 463	14 891	1.19	3.98
Karnataka	9 438	2 359	3 298	2 166	207	146	15	22	16	2 842	70 474	0.43	10.71
Kerala	5 380	761	1 519	840	229	84	18	38	8	1 284	38 097	0.37	10.85
Ladakh	NA	NA	76	32	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lakshadweep	14	4	0	3	3	2	1	0	0	12	250	1.76	36.76

Table 4.1 Functioning government health infrastructure and bed position, 2019 (contd)

State/Union Territory	SCs	PHCs	HWC-SC*	HWC-PHC*	CHCs	SDH	DH	MMU	MC	Govt. hospital Nos	Govt. hospital beds	Govt. hospital/ 10 000 persons	Govt. hospital bed/ 10 000 persons
Madhya Pradesh	10 226	1 146	4 869	1 141	330	84	51	150	10	465	31 106	0.06	3.78
Maharashtra	9 729	1 887	6 562	1 828	401	91	23	40	17	514	33 028	0.04	2.7
Manipur	429	94	154	55	23	1	8	9	2	119	1 768	0.38	5.7
Meghalaya	445	110	203	79	28	0	11	4	1	154	4 467	0.48	13.86
Mizoram	370	65	141	53	9	2	9	9	1	99	2 022	0.83	16.96
Nagaland	397	126	177	48	21	0	11	11	0	177	2 461	0.82	11.45
Odisha	6 595	466	342	1 234	384	33	32	177	5	1 806	18 519	0.41	4.24
Puducherry	80	11	82	43	4	6	5	4	2	44	4 768	0.29	31.7
Punjab	2 511	95	2 354	332	152	41	22	33	3	816	21 241	0.27	7.11
Rajasthan	13 429	2 097	129	446	595	20	27	58	14	2 849	46 778	0.37	6.05
Sikkim	148	25	186	1 975	2	0	4	4	0	33	2 260	0.5	34.04
Tamil Nadu	9 911	955	96	18	400	278	31	416	24	2 507	99 435	0.33	13.14
Telangana	4 658	0	2 445	1 381	95	37	6	0	7	677	5 094	0.18	1.37
Tripura	966	82	2 161	635	22	12	7	1	1	155	4 343	0.39	10.88
Uttar Pradesh	20 056	2 227	256	61	691	0	157	0	18	4 683	66 700	0.21	2.96
Uttarakhand	1 804	243	716	394	67	18	18	0	3	618	8 106	0.55	7.28
West Bengal	10 195	1 088	4 041	783	387	101	24	45	13	1 594	96 012	0.16	9.91

Legend: SCs: Sub Health Centre; PHCs: Primary Health Centre; HWC-SC: Health and Wellness Centre at Sub Health Centre; HWC-PHC: Health and Wellness Centre at Primary Health Centre; CHCs: Community Health Centre; SDH: Sub-Divisional Hospital; DH: District Hospital; MMU: Mobile Medical Unit; MC: Medical College

Source: Adapted from Central Bureau of Health Intelligence 2020 (CBHI, 2020); *HWC-SC & HWC-PHC: Update on Ayushman Bharat – Health & Wellness Centres (PIB, 2021d)

Although not included in Table 4.1, various arms of the government (including the Central Government, such as the CGHS, Railways, Labour, Coal, national institutes, state governments, local governments) also operate both allopathic and AYUSH care facilities. There are 27 698 AYUSH dispensaries and 4035 AYUSH hospitals spanning across all states. Table 4.2 highlights the availability of beds and facilities run by some of the major government arms.

Table 4.2 Health facilities operated by selected other government organizations

Organization	Dispensaries	Hospitals	Hospital beds	Polyclinics	Laboratories	Dental units	AYUSH
Indian Railways	586	128	13 722				185
ESIC*	15 940	155	19 047				
CGHS	345			19	73	21	92+1**
Other ministries, research councils and national institutions							752+49 ***

*Employees' State Insurance Corporation

**indicates 92 dispensaries and 1 hospital

*** indicates 752 dispensaries and 49 hospitals

Source: National Health Profile (CBHI, 2020)

Across India, there are more government hospitals in rural areas than in urban areas (Table 4.3). These government hospitals include those of Central, state, local government bodies, including PHCs. But the distribution of beds is more favourable in urban areas, as urban government hospitals are larger in size than their rural counterparts. In 2018, rural areas accounted for 83% of all hospitals, but only 37% of all beds. Despite gains in both rural and urban areas from 2004 to 2017, substantial shortfalls exist in the number of subcentres, PHCs and CHCs across states, relative to the norms established by the Central Government. In 2018, the number of functioning subcentres and PHCs in India was roughly 80% of the numbers needed as per population norms, with considerable variation in this proportion across states. The shortfall is even greater for CHCs, with a ratio of functioning CHCs to requirements as per norm being 70%. As in the case of subcentres and PHCs, there is considerable variation across states in the ratio of functioning CHCs to norm-based requirements.

Table 4.3 Public hospitals and bed distribution in rural and urban areas (2004–2018; in thousands)

Year	Rural		Urban		Total	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
2004	3.7	119.0	1.7	261.9	5.5	380.9
2005	3.9	111.9	2.2	292.8	7.0	469.7
2006	4.2	132.5	3.3	340.3	7.7	492.7
2007	6.9	154.0	3.0	328.5	9.9	482.5
2008	6.3	142.4	2.8	324.2	11.3	494.5
2009–2010	6.8	149.7	3.8	399.2	–	–
2011	7.3	160.9	4.1	618.7	11.9	784.9
2012	18.9	196.9	4.9	425.7	23.9	622.6
2013	26.6	362.9	8.8	1013.0	35.4	1376.0
2014	16.8	183.6	3.5	492.2	20.3	675.8
2015	15.81	216.8	3.8	537.9	19.6	754.7
2016	11.05	209.0	3.3	425.9	14.4	634.9
2017	19.81	279.5	3.7	431.2	23.5	710.7
2018	21.4	265.3	4.4	448.7	25.8	713.9
2019	31.0	295.9	9.9	522.5	40.9	818.4

Source: Adapted from the Central Bureau of Health Intelligence

d. Private sector infrastructure

There are no comprehensive estimates of the exact number and organizational structure of private sector institutions in health. The best available estimates come from the NSSO survey data for 2010–2011,²² which suggest that the unorganized²³ sector contained approximately 1.2 million “health services provider enterprises”. Of these, approximately three quarters (0.74 million) are own account enterprises that do not employ any hired worker and the remainder (0.28 million) were establishments that employed at least one hired worker (including paid or unpaid apprentices and paid household member/servant/resident worker) (NSSO, 2011). An

22 The service sector survey conducted during 2006–2007 considered “enterprise” a unit institution involved in the production and/or distribution of some goods and/or services (mainly health services) provided for the purpose of sale, whether fully or partly. The National Sample Survey Organisation (NSSO) covered enterprises operating in the service sector, including the health sector, with three rounds of surveys providing data (Gol 2000–2001, 2006–2007 and 2010–2011). In terms of ownership, enterprises may be owned and operated by a single household or by several households jointly, or by an institutional body (registered under any act of the local or state-level agencies).

23 The terms “unorganized” and “informal sector” are used interchangeably throughout this document.

overwhelming majority (80%) of own account enterprises were in villages, while most establishments with hired workers were in urban areas.

The formal private hospital sector appears to be smaller in numbers than informal health providers but plays an increasingly important role in (inpatient) health-care provision, especially in urban areas. Between 1980 and 2004, the number of hospital beds increased eight times in the private sector compared with a twofold increase in public hospitals over the same period. In 2012, a census of public and private hospitals in 62 cities spanning 20 states found that there were 13 413 private hospitals, ranging from small nursing homes to big corporate hospitals (Mukhopadhyay et al., 2015). The data from this hospital census showed that among private hospitals, about 71% were for-profit hospitals, followed by nursing homes (24%), trusts and charitable hospitals (3%), and corporate hospitals (1%). The average bed strength ranged from 14 beds per nursing home to 177 beds per private hospital. Cities with a population of 5 million or more (Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai and Pune, in which 7% of the total Indian population resides) accounted for 46% of the total beds, with Mumbai alone containing 16% of all private hospitals and 10% of private beds in India.

Trends in inpatient and outpatient utilization numbers derived from surveys underlines the significant and growing role of private providers in India (Table 4.4). The national survey figures for the year 2017–2018 highlight the predominance of private players both in outpatient (OP) and inpatient (IP) provision of services. In 2017–2018, about 70% of all outpatient visits occurred in private settings, while two thirds of all inpatient stays were in private hospitals. During 1995–1996, about four fifths of outpatient visits and about 55% of hospitalizations occurred in private settings. The survey shows that while use of private sector facilities for inpatient care has remained roughly similar over the period of the surveys, there has been an increase in the use of public sector facilities for outpatient care.

Table 4.4 Percentage use of public and private facilities for inpatient and outpatient care

Episodes treated	1995–1996		2004		2017–2018	
	Public	Private	Public	Private	Public	Private
Outpatient visits	19.35	80.65	21.35	78.65	30.10	69.90
Inpatient admissions	44.57	55.43	40.55	59.45	42.00	58.00

Note: Private includes private hospital, charitable trust/NGO hospitals, private doctor, private clinic and informal health-care providers.

Source: Author estimations from National Sample Survey, Morbidity and Health-care surveys for the respective years

4.1.3 Medical equipment

India is one of the top 20 markets for medical devices globally, and 4th largest in Asia. Starting from a small base, the market for medical devices and equipment in India has been expanding rapidly, and as of 2015 it accounted for nearly 1.7% of the global medical device market, at US\$3.9 billion (Deloitte & NATHEALTH, 2016).

India's spending on medical devices is still relatively low compared to high-income and high-middle-income countries. While per capita expenditure on medical devices (associated with provision of diagnostic and medical device services) in USA and China were US\$415, US\$178 respectively in 2015, India's per capita spending stood at roughly US\$3 (Deloitte & NATHEALTH, 2016). As one illustration of the growing demand for medical devices, household survey data reveal that the share of diagnostic expenditures in the total OOP expenditure of households grew from 2.2% in 1993–1994 to 7.6% in 2011–2012.

Anecdotal evidence also suggests that the acquisition of state-of-the-art medical equipment has become a priority for health-care providers in India. Although many of the medical devices used in India are imported, domestic manufacturing of medical equipment and associated supplies has also increased in India (Datta and Selvaraj, 2019). Initiatives such as the Atma Nirbhar Bharat Abhiyan further boost domestic manufacturing of medical devices (WHO, 2017a; Invest India, 2021). Indian manufacturers specialize in low-cost, high-volume medical devices, especially disposables and consumables, and export 60% of their output (WHO, 2017a).

Imports of high-end diagnostic equipment such as magnetic resonance imaging (MRI) machines, ultrasonography (USG) machines, X-ray machines and computed tomography scanners have also increased. In the period 2001–2011, 150 000 USG machines and 12 500 MRI machines for a value of INR 29.2 billion and INR 26.3 billion, respectively, were imported. High-tech diagnostic devices are mainly concentrated in the larger cities and urban areas (Datta, 2013).

Table 4.5 reports data on selected types of diagnostic and medical equipment per 10 million population, from 2010 to 2013 in four low-middle-income countries, including India (India, Indonesia, Pakistan and Sri Lanka). In India, the availability of radiation oncology equipment for chemotherapy and radiotherapy, linear accelerators, tele-cobalt machines and radiotherapy machines in the public and private sector compare favourably to all other countries in the region, at 1, 2 and 4 machines per 10 million inhabitants, respectively (WHO, 2021b; IMS Health, 2012).

Table 4.5 Medical and radio-oncological equipment per 10 000 000 population (2013 unless otherwise indicated)

Country	MRI	CT	PET	Radiation-oncological devices		
				Linear accelerator	Tele-cobalt units	Radiotherapy units
Bangladesh	–	–	–	0.45	0.77	1.2
Brazil	–	–	–	14.3	3.1	17.4
China	–	–	–	7.3	3.7	11
India	9*	4.6*	–	1.5	2.6	4.1
Indonesia	–	–	–	0.84	0.64	1.5
Pakistan	2.2	3.3	0.27	0.44	0.37	0.82
Sri Lanka	4.2	16.9	0	0.94	5.3**	5.6
Thailand	–	59.5	0.75	6.3	3.4	9.7

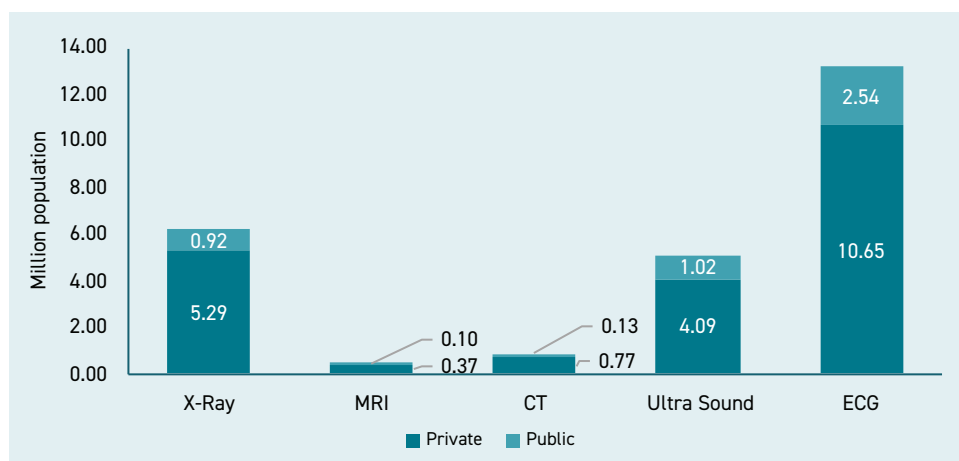
*India MRI and CT based on authors' estimation from IMS Health 2012

** 2010 data

Source: Global Health Observatory (WHO, 2021b)

A large fraction of available diagnostic equipment is located in private facilities (Figure 4.6). For example, the number of X-ray machines and CT scanners in the private sector is six times the numbers in the public sector, and the number of MRI and USG machines are also significantly higher in the private sector. There is considerable variation in the location and use of diagnostic and other medical devices across Indian states.

Figure 4.6 Density of medical equipment in India per million population by providers



Source: Authors' calculations based on IMS Health Hospital census (IMS Health, 2012)

4.1.4 Information technology

The rapid expansion in access to the Internet and in the use of information technology (IT) has led the Government of India to focus on mechanisms to upgrade and institutionalize the use of IT in the Indian health-care system. In 2013–2014, India had an estimated 251.59 million Internet users, with almost 93% of these accessing the Internet through wireless services. Seven out of eight Internet users had access through their mobile phones (Telecom Regulatory Authority of India, 2015). Other estimates indicate that India had 26 Internet users per every 100 persons in 2015 (World Bank, 2017b). Emerging health technologies are expected to facilitate improvement in health outcomes through enhanced health-care services, especially via enhanced disease surveillance, classifying and clustering population segments for proactive care, telemedicine, teleradiology, etc.

According to the IPHS, all public sector health facilities from PHCs upwards should be equipped with an Internet-connected computer. However, the number of facilities meeting that standard is not known. Initial efforts to introduce IT systems in the public sector have focused on reproductive and child health, in the form of two national-level subsystems: (i) the patient-based Mother and Child Tracking System and web portal (consolidated facility-based reporting); and (ii) the District Health Information System, which reports data from districts to regional and state headquarters. Separately, the National Vector Borne Disease Control Programme (NVBDCP) has developed the National Anti-Malaria Management Information System for malaria tracking; and NACO has developed the Strategic Information Management System for collection and integration of national-level data on HIV/AIDS. The IDSP was launched in 2004 to collect disease surveillance data on a weekly basis on epidemic-prone diseases from subcentres, PHCs, CHCs and hospitals (including government and private sector hospitals and medical colleges).

The HMIS is a web platform focusing on the upgradation and pooling of national health data from PHCs, CHCs, district hospitals, block/taluka hospitals, private hospitals, medical colleges, specialty hospitals as well as other health-care resources such as the National Family Health Surveys, DLHSs, Census, SRS, and other performance statistics, for collation of data on health-care delivery in the country. All states and districts upload their health-care data on a national web portal (www.nrhm-mis.nic.in) (NHSRC, 2013). With India being one of the world's important hubs for IT development, it is perhaps surprising that steps toward a unified or interoperable information system has not been developed. Assessments of selected HMIS in the country have found inadequacies in system documentation and

capacity-building for use of HMIS along with irregular training, and lack of process protocols for the MIS of health programmes. There is also a disconnect between the patient data collected in the HMIS and the traditional paper-based reporting used for national health programmes reporting from the SC to the district level. This has led to duplication of work, with district-level staff having to spend considerable time entering data into the HMIS, a task that was previously undertaken on paper by a more peripheral workforce (NHSRC and Taurus Glocal Consulting, 2011).

To overcome the duplicity and fragmentation in data collection and use of digital health technology, a National Digital Health Mission (NDHM) was created by the NHA in 2021. To build a national health ecosystem, the NDHM was conceived with the idea of enabling patients to store, access and consent to share health information with health-care providers. It is expected to provide a platform that supports a multitude of stakeholders from patients to providers to health-care professionals and funders, among others, and is conceived to integrate future IT solutions. The NDHM is also seen as a launching platform to achieve a system of digital health records for all Indians. Several features underscore the NDHM: (i) a unique health ID to standardize the process of identification of an individual across health-care providers; (ii) creating a repository of practising doctors involving the allopathy and AYUSH systems; (iii) building a repository of health-care facilities, including public and private, involving both allopathy and AYUSH; (iv) creating personal health records and electronic medical records (National Health Authority, 2021b).

4.2 Human resources

4.2.1 Health workforce trends

There is no single source of reliable data on the health workforce in India. Government departments tend to limit themselves to maintaining records of their health workers, while various professional councils (such as the medical, dental and nursing councils) each maintain separate records of health worker registrations. However, WHO has been estimating the health workforce in India.

To assess the size and composition of the Indian health workforce, indirect estimates from surveys or the Census of India (using self-reported affiliations) have been used, despite many issues related to comparability across sources of data (Rao et al., 2012). Based on these sources, it is estimated that there were 0.8 health workers per 1000 persons, with the northern and central states having even lower densities of all health workforce categories (Rao et al., 2012).

An estimate of the size of the health workforce, based on the NHA for the year 2018, was 5.76 million. This would suggest that the density of health professionals (doctors, nurses and midwives) per 10 000 population is roughly 26.5. However, active health workforce size is estimated to be significantly lower at 3.12 million (Karan et al., 2019). Trends in health workers in India from 1991 onwards are given in Table 4.6.

Inadequate health workforce is a major source of inefficiency in delivering government health-care services in India. Assessment of trends in health worker density from 1991 to 2019 suggests that there is a chronic shortage of physicians, with a density rate of 9.28 per 10 000 persons in 2019. The population density of nurses has improved considerably over time standing at 23.89 per 10 000 persons, and can be regarded as one of the major achievements in the past two decades. Similarly, the density of dentists and pharmacists have also increased over time (Table 4.6).

Several initiatives to strengthen the health workforce in India have been undertaken, particularly under the NRHM/NHM, including the recruitment of health workers on a contractual basis to strengthen the health workforce in rural areas. In addition, financial incentives, such as honorariums for specialists in rural areas to conduct C-sections, and allowances for service in difficult areas, as well as non-financial incentives like preferential admission to post-graduate programmes for health workers serving in difficult areas, and improved accommodation are offered to strengthen the rural health workforce (Rao et al., 2013; PIB, 2021c).

Table 4.6 Health worker density in India per 10 000 population, 1991 to 2019

Year	Medical doctor	Nursing and midwifery personnel	Dentist	Pharmacist
1991	12.21	3.75	0.15	1.99
2000	5.25	11.65	0.37	NA
2001	5.36	11.82	0.44	NA
2002	5.55	NA	0.43	NA
2003	5.63	12.44	0.43	5.03
2004	5.7	12.59	0.49	1.15
2005	5.89	12.91	0.48	NA
2006	6.01	7.8	0.67	4.96
2007	6.18	7.86	0.62	NA
2008	6.34	8.09	0.78	NA
2009	6.52	8.57	0.86	5.39
2010	6.86	8.7	NA	5.32
2011	7.38	9.91	0.94	5.26
2012	6.98	11.11	0.96	4.98

Table 4.6 Health worker density in India per 10 000 population, 1991 to 2019 (contd)

Year	Medical doctor	Nursing and midwifery personnel	Dentist	Pharmacist
2013	7.17	12.2	NA	5.19
2014	7.25	13.74	1.19	NA
2015	7.33	14.51	NA	NA
2016	7.59	14.95	1.49	5.6
2017	7.78	21.08	1.88	6.79
2018	6.86	17.27	1.61	8.87
2019	9.28	23.89	2.04	8.89

Source: Global Health Observatory (WHO, 2017; WHO, 2021c; WHO, 2021d; WHO, 2021e; 2021f)

a. Doctors

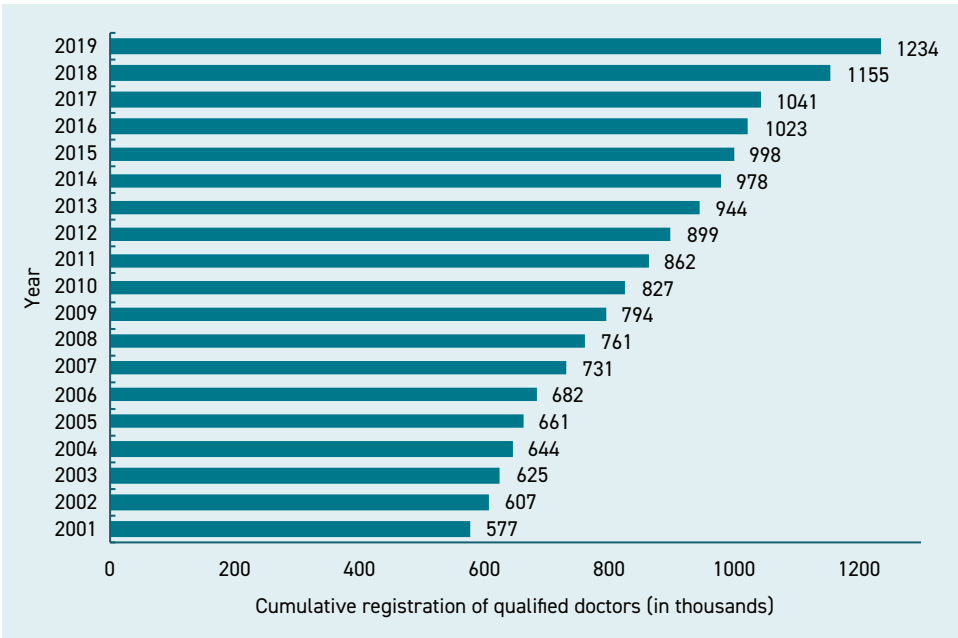
The primary qualification for medical doctors in India is the MBBS degree, which includes one year of compulsory internship. After completing their MBBS, the newly trained medical doctors are registered by the MCI and can work as general practitioners in public or private establishments. They may also pursue higher education degrees such as the Doctor of Medicine (MD), Master of Surgery (MS), Doctor of Medicine (DM), Master of Chirurgiae (MCh), Doctor of Philosophy (PhD) and various fellowships and postgraduate diplomas²⁴ (Medical Council of India, 2011a). Some states have developed new qualifications and education programmes to mitigate health workforce shortages. For example, Chhattisgarh, facing an acute shortage of medical doctors, sought to initiate a three-year course for rural medical assistants trained in basic allopathy, who could serve in government facilities in remote areas (Sundararaman et al., 2010). However, the Chhattisgarh model was resisted by the medical fraternity on the grounds of diluting medical professional standards. Legal challenges led the programme to be stopped. The state of Assam had initiated a similar programme in 2004 but in 2014 the high court struck down the order of 2004 (Borah, 2015). These efforts underline the acute shortage of doctors that exists in India, especially in rural areas where urban-trained MBBS doctors are unwilling to go (Sundararaman et al., 2010).

There are 593 medical colleges training students, with approximately 88 170 MBBS admissions available (National Medical Commission, 2021). However,

24 The Doctor of Medicine (MD) degree is a postgraduation degree, granted after a further three years study after MBBS. The Doctor of Medicine (DM) is a super specialty degree, granted after further study after completing postgraduate degrees like the MD and MS. The Master of Surgery and Master Chirurgiae are both surgical specialties after the MBBS. MS is a three-year degree after the MBBS. The MCh is also a surgical speciality, which is either an additional 5 years of study after MBBS or three years study after the MS.

the distribution of medical colleges is highly skewed, with Telangana, Andhra Pradesh, Tamil Nadu, Kerala and Karnataka in the south and Maharashtra in the west accounting for nearly 54% of total MBBS seats, despite having less than 30% of the country's population. The number of medical colleges and training slots/seats has been steadily rising and are reflected in the growing numbers of doctors registered with state medical councils (Figure 4.7 and 4.8).

Figure 4.7 Doctors registered with state medical councils

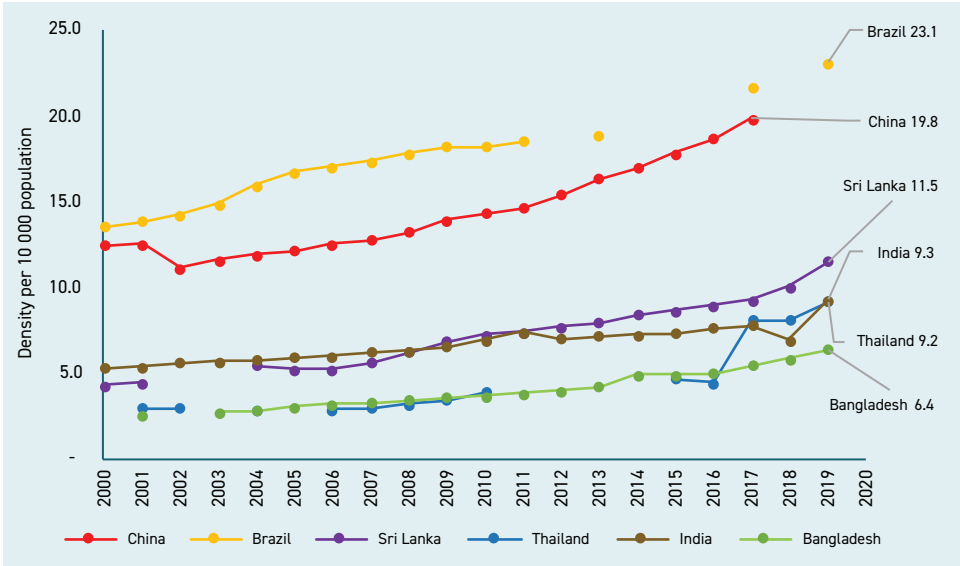


Source: National Health Profile (CBHI, 2020)

A disproportionate share of doctors live in urban areas and in richer states. For instance, the wealthier states of Goa and Kerala have doctor densities that are almost four times those of poorer states, such as Odisha and Chhattisgarh (Rao et al., 2012). The shortfall in rural areas exists at all levels. In 2018, at PHCs, 5% of facilities functioned without a doctor, with over one third of facilities without a laboratory technician and 15% without a pharmacist. In 2018, 85% of all CHCs were short of the required number of doctors, and indeed only 805 doctors were in place against an on-paper requirement of 5624 (CBHI, 2018). The shortfalls are particularly acute in larger states such as, Uttar Pradesh (51%), Chhattisgarh (26%), Tamil Nadu (36%), Rajasthan (25%), Karnataka (14%), Telangana (13%) and Gujarat (12%). Shortages of surgeons and obstetricians and gynaecologists are particularly serious. Out of 22 496 specialists required in CHCs (as per population norms

established by the government), only 4074 specialists (18%) were available (MoHFW, 2019). If we were to compare across countries, physician density in India is substantially lower than China and Brazil but slightly higher than Sri Lanka and Thailand (Figure 4.8).

Figure 4.8 Medical doctors (per 10 000 population) in select countries, 2000–2019 or latest available



Source: Global Health Observatory (WHO, 2021c)

b. Nurses and midwives

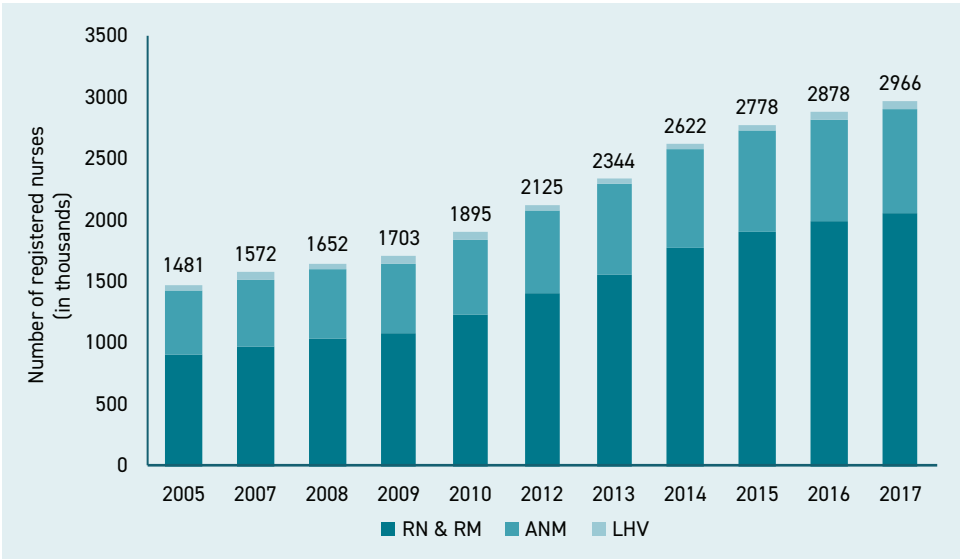
Nursing practitioners in India are broadly categorized under four headings: general nursing, midwifery, ANM and lady health visitors (LHVs). The Indian Nursing Council recognizes universities and colleges as academic bodies for providing nursing education and training in the country. Two types of nurse training occur in India, as per the Indian Nursing Council: (i) general nursing training and (ii) ANM training.

The BSc Nursing course is a four-year programme and on successful completion a registration number is provided by the INC. Thereafter, nurses can practice as a registered nurse (RN) or a midwife (RM) or as a staff nurse in a government or private setting. Following an additional year for specialization and acquisition of further qualifications, they can work as specialist nurses. Specialties currently available in India include critical care, cardiovascular and thoracic medicine, neurology, oncology, pain management, paediatrics, infection control, triage, kidney transplant and cardiopulmonary resuscitation.

The diploma in nursing is a 2-year full-time course; diploma holders are ANMs and can practise as an ANM in subcentres and PHCs. LHV's are another cadre trained by the government to fulfil auxiliary nursing roles in the public health system. The LHV's are primarily ANMs with five years of experience who are promoted to undertake supervisory functions of six subcentres and are expected to complete a 6-month training programme.

The 2001 Census estimated the number of nurses in India to be 6.1 per 10 000 population, with an urban-rural ratio of nurses of 1.52 to 1. A large proportion (83.4%) of all nurses were women (Anand and Fan, 2016). Estimates using other methods and data sources suggest that during 2001 to 2011, the number of nurses increased to 17.1 per 10 000 population (World Bank, 2015a), while the NHWA in 2018 puts the number at 17.7 per 10 000 population. Figure 4.9 shows the increase in registered ANMs, RNs and RMs, and LHV's during the period 2005-2017.

Figure 4.9 Registered nursing professionals in India, 2005-2017



ANM: auxiliary nurse midwife; LHV: lady health visitor; RN&RM: registered nurse and registered midwife

Source: Adapted from National Health Profile (CBHI, 2005-2019)

By the end of 2017, there were 860 927 registered ANMs, 2 048 979 registered nurses, and 56 469 registered LHV's working in various public and private health facilities in India (Table 4.7). Accordingly, their respective density was estimated at 10.0 and 12.7 per 10 000 population, respectively, during 2016, based on sample survey data (Karan et al. 2019). However, nurse density reported by the Nursing Council is estimated at 22.8 per 10 000 population, nearly double than the sample estimates (Table 4.7). While survey-based

estimates appear to be an underestimate compared to registries maintained by nursing councils, it is also possible that nursing council registries are overestimating the numbers in the health sector, as not all registered nurses are engaged in providing health services.

Table 4.7 Registered nurses and pharmacists in India

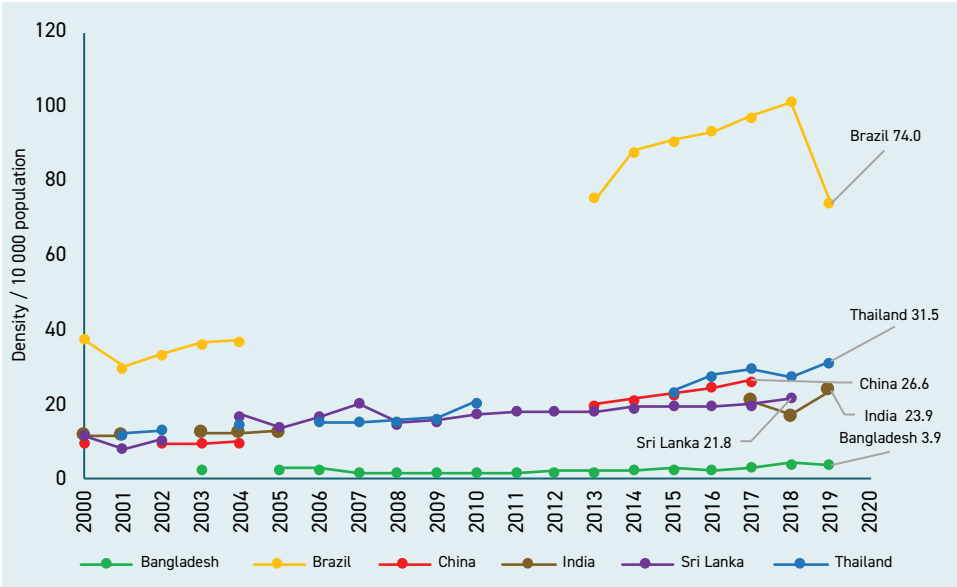
State/Union Territory	Registered nurses in India (as on 31/12/2017)			Pharmacists (as on 13/11/2019)
	ANM	RN&RM	LHV	
Andhra Pradesh*	138 435	232 621	2 480	50 247
Arunachal Pradesh	971	938	15	279
Assam	27 925	22 388	353	15 462
Bihar*	8 624	9 413	511	24 341
Chhattisgarh*	13 329	13 048	1 352	9 716
Goa	-	-	-	3 539
Gujarat	45 908	114 284	-	66 237
Haryana*	24 675	28 356	694	32 744
Himachal Pradesh*	11 673	20 934	500	9 369
Jharkhand*	4 755	3 310	142	2 337
Karnataka*	54 039	231 643	6 840	57 648
Kerala	30 530	261 951	8 507	64 223
Madhya Pradesh*	39 563	118 793	1 731	54 181
Maharashtra	65 544	128 776	594	233 322
Manipur*	3 621	7 835	-	1 273
Meghalaya	1 715	5 540	198	899
Mizoram	2 157	3 634	-	1 313
Nagaland	-	-	-	1 553
Odisha	62 159	75 575	238	32 386
Punjab	23 029	76 680	2 584	47 570
Rajasthan*	108 688	200 171	2 732	51 054
Sikkim	39	283	-	281
Tamil Nadu	57 839	277 107	11 219	72 241
Telangana	2 762	9 397	-	64 881
Tripura*	2 232	4 140	148	4 747
Uttar Pradesh	60 258	74 777	2 763	84 300
Uttarakhand*	2 401	2 613	14	16 148
West Bengal	63 731	63 197	12 854	89 630
Chandigarh	-	-	-	4 316
Delhi*	4 325	61 575	-	27 302
Lakshadweep	-	-	-	10
Puducherry	-	-	-	1 673
Total	860 927	2 048 979	56 469	1 125 222

*=nursing data is for 31-Dec-2016 not 2017

Source: National Health Profile (CBHI, 2020)

In 2018, there were 1909 institutions offering a total of 55 263 annual admissions for ANM training. For general nursing training, a number of different courses are on offer. In 2018, over 6800 institutions were offering diploma or degree courses in nursing. Of these, 3215 institutions offered courses on general nurse midwife (GNM), 1936 offered a basic BSc in nursing while 775 had post-basic BSc, 1936 institutions offered MSc in nursing and 292 offered post-basic Diploma in nursing (CBHI, 2019). Comparing across countries, the density of nurses in India, as per Figure 4.10, compares favourably with countries such as China, Sri Lanka, and Thailand, although considerably lower than in Brazil.

Figure 4.10 Nursing and midwifery personnel density (per 10 000 population), 2000–2019



Source: Global Health Observatory (WHO, 2021d)

c. Dentists

The main undergraduate qualification for dentistry in India is the Bachelor of Dental Science (BDS) degree, consisting of a five-year course, followed by one year of internship. Those who successfully complete the degree can register with the DCI to practise dentistry. A Master of Dental Science (MDS) degree is often the next step for dental practitioners in India and is the pathway for specializing into subdisciplines like Endodontics, Oral and Maxillofacial Pathology, Oral Surgery, Orthodontics, Pedodontics, Periodontics and Prosthodontics, among others. During 2018–2019, an estimated 313 dental colleges offered 26 960 BDS training places while 253 institutions offered additional posts for 6288 Masters’ level dentistry students (CBHI, 2016).

Oral health personnel are regulated by the DCI (and its state-level counterparts). These include dental personnel across a range of disciplines, including general dental surgeons/dentists (providing basic dental care), all dental specialties, dental hygienists, and dental technicians. In 2001, there were 0.006 dentists (per 1000 persons) in rural India, and 0.059 dentists (per 1000 persons) in urban areas, demonstrating the large rural–urban differences in physical access to dental care. More than 95% of the dental practitioners were working in the nongovernment sector (Rao et al., 2012). Estimates suggest that between 1991 and 2019, the number of dentists increased from 0.15 per 10 000 population to 2.04 (WHO, 2021e). In absolute terms, India had 278 520 dental surgeons in 2019 (WHO, 2021e). States with significant shortages of dental surgeons, characterized by less than one surgeon per million people, include Gujarat, Uttar Pradesh, Odisha and Maharashtra. On an average, the population served by a dental surgeon in government institutions during 2017 ranged from 1 141 869 in Uttar Pradesh, 1 483 150 in Maharashtra, 1 037 608 in Jharkhand while in Haryana it was as low as 47 129 (CBHI, 2018).

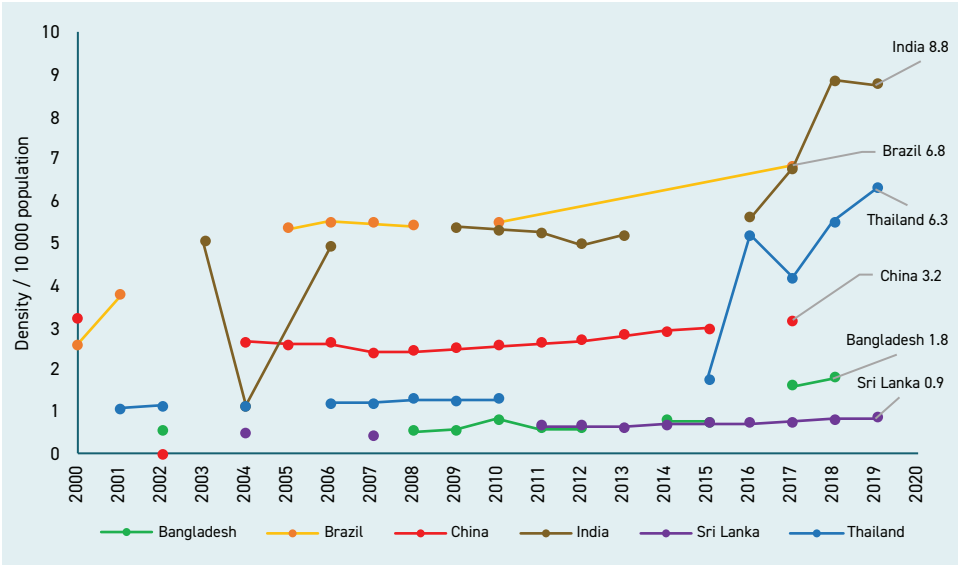
d. Pharmacists

A variety of degree programmes for training pharmacists are offered in India. These include the Diploma in Pharmacy (DPharm), Bachelor of Pharmacy (BPharm), Master of Pharmacy (MPharm), and further specializations. The BPharm degree involves 4 years of study, which can lead to an MPharm degree with a further 2 years of training in specializations such as pharmaceuticals, pharmacology, and pharmaceutical chemistry. Other disciplines incorporated into the curricula include industrial pharmacy, quality assurance, and pharmaceutical biotechnology.

Pharmacists and the training of pharmacists are regulated by the PCI. There were an estimated 747 institutions offering diploma-level pharmacy training, with 44 935 new admissions each year in 2015, and 1073 degree-awarding institutions offering admissions to roughly 75 861 students annually (Pharmacy Council of India, 2021). Pharmacists who work in community settings may have either a pharmacy diploma or a bachelor's degree, and both are registered (with the PCI) under the Pharmacy Act 1948 and pharmacy practice regulations 2015. Estimates based on the 2001 Census suggest there were 2.15 pharmaceutical assistants per 10 000 persons, although survey-based estimates are somewhat lower: according to one such estimate, there were 1.03 pharmacists and 0.65 pharmaceutical assistants (per 10 000 population), totalling 1.68 pharmaceutical personnel per 10 000 persons, with the majority working in the private sector. There is a higher concentration of pharmacists working in urban areas compared to rural areas (4.28 pharmacists versus 1.33, per 10 000 persons) (Rao et al., 2012).

Between 2000 and 2018, the density of pharmacists almost doubled in India, from 4.3 to 8.9 per 10 000 population (Figure 4.11 for this and intercountry comparisons). During 2019, there were an estimated 1 125 222 registered pharmacists in India. As per the number of registered pharmacists (CBHI, 2019), the density of pharmacists works out to 9.0 per 10 000 population, one of the highest among comparable countries (Figure 4.11). There is large interstate variation in density, with Maharashtra at the top of the list with over double the density at 18.8 per 10 000 persons, followed by Kerala (17.7), Telangana (16.4), Punjab (15.8). States with a low density of pharmacists per 10 000 population include Uttar Pradesh (3.7), Chhattisgarh (3.6) and Jharkhand (0.7). However, a caveat must be noted with respect to registry data when comparing with survey-based estimates. The registry data show the cumulative number of those registered and hence includes non-practising pharmacists, retirees and, to a lesser extent, deceased pharmacists.

Figure 4.11 Pharmacist density (per 10 000 population), 2000–2019 (selected countries)



Source: Global Health Observatory (WHO, 2021f)

e. Community health workers and Accredited Social Health Activists (ASHAs)

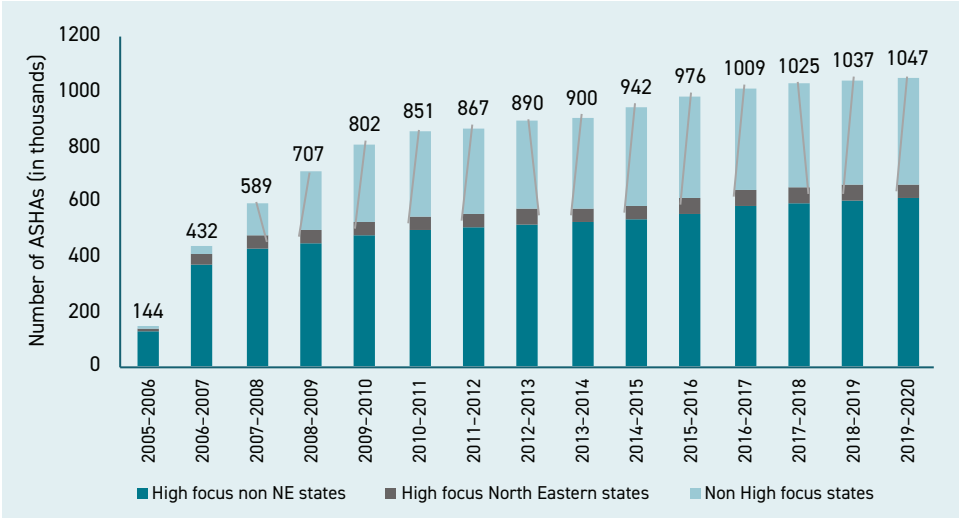
India has a rich tradition of using community-level health workers; the 1970s saw two initiatives: one through Anganwadi workers involving the ICDS and the later introduction of male CHWs in 1977. A major step was initiated under the NRHM, an innovative programme to strengthen grassroots-level health-care services in rural areas via ASHAs. ASHAs are identified for every village,

with the goal of catering to the needs of a population of roughly 1000. They receive 23 days of training spread over a period of 12 months.

The initial role was for ASHAs to facilitate community access to health services, create awareness involving health-care entitlements, promote healthy behaviours and mobilize the community for improving health outcomes. As an honorary volunteer, ASHAs do not receive salary, but are compensated with financial incentives for achieving measurable outputs, such as mobilizing children for immunization, escorting pregnant woman for institutional delivery, motivating couples for sterilization, etc. These performance-based incentives to perform certain specific tasks are paid by Central and state governments.

Since the launch of the NRHM in 2005, over 1.02 million ASHAs have now been contracted by the government (Figure 4.12). Given its larger population base, the number of ASHAs in high-priority states outside of the Northeast of India was higher compared to other states. The average population covered by each ASHA in 2017 was 902 (NHSRC, 2018c). States such as Rajasthan, Uttar Pradesh, Bihar, Karnataka, Punjab, West Bengal have a population density per ASHA worker of over 1000. However, Nagaland, Kerala and Telangana reported a lower density of population per ASHA worker. Evaluations of the ASHA programme have found weaknesses that include: inadequate understanding by ASHA workers of their roles and responsibilities, poor training and supervision, poor monetary compensation and inadequate incentive structure, and poor recruitment practices (Shrivastava et al., 2012; Mony & Raju, 2012; Bajpai & Dholakia, 2011).

Figure 4.12. Accredited Social Health Activists (ASHAs), 2006–2020



Note: Total ASHAs in rural India as on 2019–2020 as per MIS is 984 318. The discrepancy between the total number in MIS and the absolute number mentioned in the graph is due to adding error in MIS.

Source: National Health Mission, MIS, Executive Summary, Status as on 31 March 2020 (National Health Mission, 2020).

f. Indigenous and traditional health practitioners

An *Ayurvedacharya* degree (Bachelor of Ayurvedic Medicine and Surgery, BAMS) is awarded after the completion of five- and-a-half years of full-time coursework and a 3-year postgraduate degree. Postgraduate doctors can work as academicians in the post of assistant professor, associate professor and professor.

Practitioners of traditional systems of medicine, such as AYUSH, are overseen by the CCIM, while an independent Ministry for AYUSH at the national level is functional now. There are 622 AYUSH undergraduate teaching institutions with an admission capacity of 40 151 students. Moreover 201 institutions offer admissions at postgraduate level to 5486 students annually. CCIM is responsible for the accreditation of these courses.

After the launch of the NRHM, many district and subdistrict hospitals “mainstreamed” AYUSH doctors along with allopathic physicians in their facilities (Rao et al., 2011). AYUSH doctors practise medicine in both public and private sector facilities. Public sector AYUSH facilities are spread across Central, state and local governments and other government bodies. In the public sector, there were 4035 AYUSH hospitals and 27 951 AYUSH dispensaries in 2018 (CBHI, 2019).

Ayurveda doctors comprise about 55% of AYUSH practitioners, followed by Homeopathy (37%) and Unani (6%) practitioners while Siddha and Naturopathy practitioners account for the remaining 2% (CHBI, 2018). Unfortunately, reliable information on the number of AYUSH personnel in the private setting is not available. Most work in the nongovernment sector, with a higher density in urban (3.64 per 10 000 persons) compared to rural areas (1.04 per 10 000 persons) (Rao et al., 2012). According to estimates from the AYUSH council, in 2018, the number of AYUSH doctors (registered practitioners) was estimated at 800 000, translating into 6.1 AYUSH providers per 10 000 population. The survey estimates as reported (Karan et al. 2019) showed 5.7 AYUSH doctors per 10 000 population in 2016. States such as Himachal Pradesh (16 per 10 000), Bihar (12.7 per 10 000), Maharashtra (12.3 per 10 000), Kerala (11.5 per 10 000) and Madhya Pradesh (8.3 per 10 000) have larger rates of AYUSH doctors than other notable states, including Tamil Nadu (2.7 per 10 000), Rajasthan (2.5 per 10 000), Chhattisgarh (2.1 per 10 000), Meghalaya (1.3 per 10 000), Tripura (1.1 per 10 000), Assam (0.3 per 10 000). Almost half of all AYUSH doctors are from three states – Madhya Pradesh (19.15%), Haryana (17.06%), Chhattisgarh (10.69%) (CBHI, 2019).

g. Public health cadres

India discontinued the services of public health cadres soon after Independence, but the state of Tamil Nadu continued with the practice, distinguishing between clinical and non-clinical streams. Public health cadres in the state are entrusted with the task of managing primary health-care institutions at the district level and below. Once a staff member is inducted into the public health cadre stream, they undergo a series of training programmes involving skill building in public health and allied subjects, in addition to managerial training. The public health cadres undertake a Diploma in Public Health course, which often helps them to progress in their career (Balabanova et al., 2013). The division of labour and allocation of work between clinical and non-clinical personnel is clearly demarcated, based on qualifications, expertise and experience. The career paths and career status of both streams of personnel are comparable at different levels of management (NHSRC, 2011).

4.2.2 Professional mobility of health workers

Two major issues of concern in India are the large interregional inequalities in the availability of medical personnel and emigration of health workers, particularly doctors and nurses. Richer states tend to have a much larger number of medical personnel (per 10 000 population) than their poorer counterparts. Although employment of doctors in government positions is

often subject to fulfilment of local language requirements, which may limit interstate migration, the location of training institutes in the states that have a larger workforce is one of the reasons for this skewed distribution of workers. Many Indian states also do not require compulsory posting of government doctors in rural areas (Assam [pre-2015], Arunachal Pradesh, Chhattisgarh, Gujarat, Kerala, Manipur, Meghalaya, Nagaland, Odisha, Tamil Nadu and West Bengal), further solidifying the skewed distribution in favour of urban areas. Eleven Indian states require government doctors to serve in rural service to qualify for admission to postgraduate degree programmes (NHSRC, 2017). In Assam, starting 2015, freshly recruited doctors are mandated to serve in rural health centres for one year, following the completion of their internship. Although this posting in rural areas is mandatory, the state government provides those on rural assignments with monetary and non-financial incentives, such as doubling their monthly salary compared to posting in the city government hospitals, and receiving two to three bonus points in postgraduate examinations.

Health workforce migration to other countries, sometimes referred to as “brain drain”, represents both a loss of human capital and domestic (home country) investments in education and training. Migrating workers often end up in jobs for which they are overqualified, representing a further loss as their skills and expertise are not fully utilized. India is the largest supplier of physicians to the world (Supe & Burdick, 2006; Adkoli, 2006) and is a major exporter of physicians and nurses. More than half of the medical graduates from top Indian medical training institutes emigrate to other countries (Khadria 2004; Kaushik et al., 2008).

The United States, United Kingdom, Canada and Australia are the major destinations for emigrating Indian doctors (WHO, 2015). In September 2013, 9.1% of total registered doctors in the UK were of Indian origin (the equivalent figures in USA and Canada were 4.9% and 2.1%, respectively (General Medical Council, 2015; Rao et al., 2011). In fact, Indian-origin physicians have their own American Association of Physicians of Indian Origin. Information on the number of migrating doctors is not officially collected, and there is no official policy on the migration of doctors or specialists. The Ministry of External Affairs and Ministry of Home Affairs jointly regulate the movement of population in India, and the Emigration Act, 1983 provides the legal framework for the regulation of the flow of outward labour migration. Indian nurses also emigrate in large numbers. India produces around 60 000 nurses every year of whom 20–40% travel abroad for work, the Middle East being the region that attracts the most nurses.

Analysis of data on migration patterns and trends can help to identify the underlying causes of medical worker outmigration and to help devise appropriate policy interventions. Narrowing the pay gap is perhaps one of the most direct strategies, but also one of the less feasible options. However, non-wage incentives have been proposed as alternative controlling measures in the form of scholarships, fee concessions and other forms of support. Other strategies proposed include incentivizing short-term assignments to bring migrant skills back and other concurrent positions to help in the development of the country. These steps can help mitigate outflows but are unlikely to stop it completely. This has led to recommendations for repurposing and task-shifting of available health professionals in India as a mechanism to expand the pool of available health-care resources (Nair & Webster, 2013).

4.2.3 *Regulating the training and qualifications of health workers*

Health-care services in India are largely focused on allopathic treatment but supported by other system of medicines, including AYUSH. The medical education system has expanded rapidly during the past 20 years. At the time of Independence, there were 19 medical colleges producing 1200 doctors annually (Rao et. al, 2012). Currently there are 593 medical colleges producing over 88 170 doctors per year (National Medical Commission, 2021). The private sector has invested heavily in medical education as more than 259 of those colleges are in the private sector. Similarly, there are 262 dental colleges providing dental education. Training for health-care workers in allied health professions, such as laboratory technicians, radiographers, ECG technicians and bio-engineers is provided by a variety of institutions, including government-affiliated colleges, distance learning institutions, corporate hospitals, and medical equipment and pharmaceutical companies. However, institutions engaged in training of allied health professionals do not have uniform curricula for the courses, varied standards of practice and face a shortage of qualified faculty, which limits the quality of training provided (Public Health Foundation of India, 2012).

a. Doctors

The MCI and DCI were established under the provision of their respective acts in 1933. These autonomous bodies regulate medical and dental education and work as technical recommending agencies for accreditation, recognition and monitoring of the educational quality delivered by various teaching institutes. Similarly, the Nursing Council of India was established in 1947 to regulate nursing education. However, the role and functioning of the MCI over the years has attracted severe strictures. It has been observed that the MCI has failed on several fronts, including but not limited to: (i) failure

to produce an adequate number of good-quality doctors; (ii) deficiency in teaching faculties in colleges; (iii) disconnect between the medical education system and overall health-care system; (iv) lack of accountability; (v) geographical maldistribution of medical colleges; (vi) rampant corruption; (vii) barriers to expansion of medical education (Parliament of India, 2016). In view of the widespread disenchantment with the functioning of the MCI, the Central Government dissolved the MCI in 2018.

In 2019, the national government legislated the National Medical Commission Act. The Act intends to improve access to good-quality and affordable medical education besides promoting equitable and universal health care. The Act empowers the Union Government to constitute an NMC to perform the following functions: (i) design policies to maintain high quality and standards in medical education; (ii) provide policies for regulation of medical education, research and professional conduct of medical personnel; (iii) analyse health-care needs including of the health workforce and infrastructure, and develop a road map for achieving these needs; (iv) coordinate, promote and lay down guidelines for the functioning of the Commission, the autonomous boards and state medical councils; (v) provide guidelines for determination of fees in private medical institutions, etc. (Government of India, 2019).

There is no system of revalidation of skills of medical practitioners for Indian degree holders, although entrance examinations for doctors applying for recruitment in public sector health facilities partially serves this role. Not everyone, however, applies for government jobs. Medical degrees obtained from specific foreign universities are validated by the Medical Council in the form of an exam that foreign medical degree holders must clear before practising medicine in India.

While furthering education through specialization, retraining in new technologies and even repurposing in the medical field have been presented as necessary avenues for the development of the health system in general. Doctors and other specialists are also expected to undertake CME to update their knowledge, skills and practices. This is often undertaken in the form of seminars/symposia, workshops, short-term courses, etc. The National Academy of Medical Sciences (India) is the nodal agency that develops guideline and conducts CME programmes.

b. AYUSH doctors

The Central Council of Indian Medicine is a statutory body set up under the Indian Medicine Central Council Act, 1970 and prescribes minimum standards of education for Indian Systems of Medicine (Ayurveda, Siddha and

Unani) at the undergraduate and postgraduate levels. Homeopathy remains under the purview of the Central Council for Homeopathy.

c. Paramedical and allied health-care workers

The PCI was established in 1981 for providing and promoting qualified trained health-care assistants and technicians. It also provides accreditation to institutions for granting training and diploma education in various paramedical fields such as radioimaging technology, medical laboratory technology, dialysis, dental, ophthalmic and plaster technicians. Nursing assistants could undertake diploma programmes in occupational therapy, physiotherapy and to serve in the operation theatre. All of the above involve two-year, full-time training courses. In addition, there are various short certificate courses for medical laboratory technology, physiotherapy, dialysis technicians and radioimaging technology. In addition, PCI provides training in multipurpose health work. On successful completion of the relevant courses, paramedical staff can join private, semi-private, government and semi-government hospitals throughout the country. However, paramedical staff are often trained in programmes with varying nomenclature, standards, curricula, inconsistent regulation of education and operational standards, and unclear or non-existent scope for growth. All this, coupled with widespread dominance of the role of doctors, contribute to low morale among paramedical staff (Public Health Foundation of India, 2012).

There was no formal body that regulated the training of allied health professionals, including laboratory technicians, radiographers, ECG technicians and biomedical engineers. Efforts by the MoHFW have resulted in the establishment of the Allied Health Sciences Division at the Ministry. A National Commission for Allied and Healthcare Professions Bill, 2020 was introduced by Parliament, which seeks to set up a National Commission for Allied and Healthcare Profession, besides setting up a State Allied and Healthcare Council in each state. The Act enables the government to standardize the education and practice of allied and health-care professionals, setting up a Central Register to capture names and qualifications of professionals, skill development, curriculum standardization, maximum fee payable for various courses, etc. (Government of India, 2020b).

4.2.4 Dual practice

Health workers (doctors, dentists and others) in India can work as regular or contractual government employees or alternatively, work in the private sector. Some public sector health workers moonlight as private practitioners as well. Many states allow such practices to continue either to retain doctors in their service, or as an incentive to compensate for low salaries

in government jobs. Studies have shown that many private nursing homes are set up and operated by doctors working in the public sector (Baru and Nundy, 2008).

The First NHP 1983, noted dual practice as a major area of concern for public sector managers and urged for measures to curb it (MoHFW, 1983). At least some of the states provide for a “non-practising allowance” under which government doctors are given salary supplements in return for working exclusively in public sector health services. These mechanisms have had some effect, although poor monitoring and enforcement of rules underlying non-practising allowance has led to ongoing and extensive dual practice (Yip & Mahal, 2008; Berman & Cuizon, 2004) and widespread absenteeism among government doctors (Chaudhury et al., 2006). Banning of private practice for government doctors has, in some states, led to protests by health worker groups and migration of workers to the private sector (Berman & Cuizon, 2004).

Another form of dual practice, widely prevalent in India, is practising of allopathic medicine by AYUSH doctors (Hipgrave & Hort, 2014). The Government of India has sought to actively encourage prescription of allopathic medicines by AYUSH practitioners through guidelines laid out in the National Policy on AYUSH. Section 17(3) B of the Indian Medicine Central Council Act, 1970, permits AYUSH practitioners to practise allopathic medicine along with their own systems of medicine, and section 2(ee) of the Drugs and Cosmetics Rules 1945, permits prescription of modern medicines by Ayurveda doctors. The states of Gujarat, Maharashtra, Himachal Pradesh, Andhra Pradesh, Madhya Pradesh, Tamil Nadu, Uttar Pradesh and others have permitted the use of allopathic medicines by AYUSH practitioners (to the extent that they are trained in allopathy) through state government orders, with a view to fill gaps in service provision due to shortages of allopathic doctors (Government of Maharashtra, 2014; Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy, 2002). This has led to further legitimization of private allopathic practice by AYUSH providers and widespread protests by allopathic doctor and pharmacist groups (Kunnathoor, 2013). Homoeopathy practitioners and holders of integrated degrees with both allopathic and AYUSH components can also prescribe allopathic medicines in those states where they are authorized by state government orders. Prescription analyses have suggested that AYUSH doctors prescribe a larger number of medicines and injectables and inappropriate prescriptions than their allopathic counterparts (Dabhade et al., 2013).

4.2.5 Career development of health professionals

a. Doctors

In the public sector, medical doctors are employed by both the Central and state governments as well as at health facilities managed by other ministries and government departments, such as defence and railways. Physicians (including dental and military doctors) employed in the Central Government under the Central Health Service (CHS) are governed by the Dynamic Assured Career Progression (DACP) Scheme under which CHS doctors are automatically promoted as per their years of service, up to the posts of chief medical officer, specialist, chief surgeon, and administrative or professor grades, irrespective of vacancies for these posts (PIB, 2013). Medical doctors employed by state governments are governed by the rules and regulations of state health departments for promotion. In Rajasthan, state government doctors are promoted on the basis of years of service and fulfilment of training criteria (Government of Rajasthan, 2015) and certain states, such as Tamil Nadu and Uttar Pradesh, have time-bound promotions based on years of service. In the state of Uttarakhand, time-bound promotions have been adopted to attract more doctors to government service, especially in areas where there are acute staff shortages (Sharma, 2015). Government doctors in a state can be transferred or posted to any district or government hospital within the state and decisions regarding transfers and postings are taken by state health department officials, often on undisclosed grounds. Medical doctors in academia are promoted based on fulfilment of qualifications laid out by the MCI (Medical Council of India, 2011). There are no uniform rules or guidelines for promotion of doctors in the private sector.

b. AYUSH doctors

AYUSH doctors are eligible to work in the government and private health-care centres (Ministry of AYUSH, 2010) and follow similar career trajectories as allopathic doctors. They may also specialize in non-clinical courses such as public health, and health and hospital administration.

c. Nurses

Career progression of staff nurses depends on work experience and qualifications. On completion of a bachelor's degree, one can also pursue a master's degree (MSc in Nursing), which is a two-year full-time course. Nurses can also opt for higher education and acquire an MPhil or PhD degree, following which they are eligible to apply for academic positions in teaching hospitals or universities.

A Certificate Programme in Community Health has been introduced as a bridge programme for nurses (and Ayurveda practitioners). Nurses

may serve as community health officers at subcentres upon successfully completing the course. The programme is being offered as a part of the NHM's efforts to strengthen the delivery of comprehensive primary health care strategies (NHM, 2018; AB-HWC, 2018).

d. Community health workers

CHWs are generally recruited from the local community to be socially and culturally integrated in the communities they serve. Charting career paths for ASHAs and other CHWs has been actively supported by the government in the recent past. ASHAs, for instance, were encouraged to enrol in open school systems to obtain Class X and Class XII qualifications, which will facilitate them to enrol in ANM and nurses training schools. Under the NHM scheme, the government has been encouraging them by paying the cost of registration with the National Institute of Open Schooling (MoHFW, 2013a).

5. Provision of services

Chapter summary

Health services in India are delivered by a combination of public and private providers. Public health, including preventive care such as immunization, antenatal and postnatal care, and health promotion schemes are largely delivered by the public sector, while personal curative health services are mostly delivered by the private sector (nearly 70% of outpatient care, over 58% of inpatient services and 90% of pharmaceutical delivery and diagnostic services during 2017–2018).

National health programmes, most of which are integrated into the NHM, are focused on maternal and child health services, communicable disease control and action on the rising burden of NCDs. The Ayushman Bharat scheme, on the other hand, focuses on comprehensive primary health care at the primary level (HWCs) and secondary/tertiary care through health insurance (PM-JAY). Primary health care services through the HCWs are being strengthened to include (among others) essential and emergency health services, address NCDs including mental health, and also provide services to improve dental health, ophthalmological services, and elderly care. Health services in the public sector are organized and delivered through a network of subcentres, PHCs, CHCs, district hospitals and medical colleges.

The organization of the private sector is unstructured, and services offered by it vary significantly in accessibility, cost and quality across states and urban–rural areas. Private providers deliver care through independent clinics, group practices, private hospitals, mobile vendors and, especially since onset of COVID-19 outbreak, online and on social media.

Total public and private outpatient visits increased from 55 per 1000 persons in 1995–1996 to 74.64 per 1000 persons in 2017–2018, with the increase in urban areas being particularly noteworthy. Inpatient episodes almost doubled over the same period, from 15 per 1000 persons in 1995–1996 to 29 per 1000 in 2017–2018. There is also widespread use of traditional systems of medicine under the AYUSH umbrella.

Effective health service provision in India is challenged by:

- fragmentation in service delivery between public and private providers;
- ineffective and unclear linkages between public and private providers and within the multi-layered government health services;
- disorganized patient pathways and a pattern of patients bypassing primary facilities to access health care at secondary and tertiary centres;
- poor-quality public provision of services exacerbated by health worker shortages, inadequate physical infrastructure, insufficient supply of drugs and diagnostic equipment, besides lack of public accountability;
- private health-care provision is characterized by skewed distribution of facilities and workforce across states and districts, a high and growing cost of care compounded by inappropriate care.

5.1 Public health programmes

Public health services in India, including population and epidemic surveillance, vaccination, family planning services and preventive services, are delivered by a range of providers at the national and state levels. Services involving public health are mostly provided by the government, with some limited provision by private health providers and NGOs. At the national level, public health services are organized into national health programmes, most of which are currently under the NHM. State health departments are responsible for the implementation of national health programmes which run specific programmes and services for priority areas.

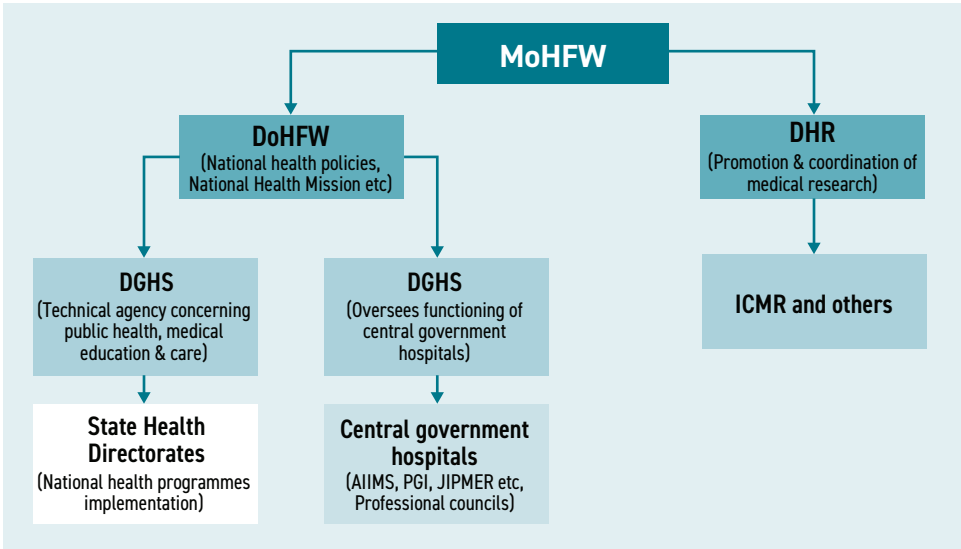
At the national level, the MoHFW is the nodal agency that designs health policies and programmes. Currently, the MoHFW is composed of the DoHFW and the DHR (see Fig 5.1 below). The DoHFW has a wide range of responsibilities, which include developing national policies and planning, medical education and oversight of national health programmes. The DoHFW is the nodal agency that implements the NHM. The DHR, on the other hand, coordinates research and innovation in the diagnosis, prevention and treatment of disease, besides overseeing the ICMR. The DGHS, attached to the MoHFW, is the national technical agency in relation to public health education, medical care and medical education, and oversees the implementation of national health programmes in liaison with its regional offices and state departments of health.

State health departments, through their respective secretariats and directorates, are responsible for implementation of national programmes

via their networks of subcentres, PHCs, CHCs and subdistrict and district hospitals. Besides, the MoHFW operates its own tertiary-care autonomous institutions (AIIMS, PGIMER, JIPMER, etc.), a new set of tertiary-care medical institutions in the states (AIIMS at various places), professional councils (medical, nursing, pharmacy, dental councils, etc.).

Both the DGHS and DoHFW work on oversight and implementation of national health programmes. In addition, at state level, there is strong involvement of the NHM in ensuring that programmes function. This section is divided into those programmes that focus on communicable diseases, NCDs, maternal child health and immunizations.

Figure 5.1 Organization of health at the national level (simplified)



Source: Authors

5.1.1 The National AIDS Control Programme

During 2019, an estimated 2.34 million people lived with HIV in India, with an adult HIV prevalence of 0.22%. Over two fifths of the estimated HIV population are females. In the same year, 58 960 AIDS-related deaths were reported, along with 69 220 new HIV infections. The national prevalence of HIV infection masks significant cross-state variations. HIV prevalence rates in north-eastern Indian states, such as Mizoram (2.32%), Nagaland (1.45%) and Manipur (1.18%) are considerably higher than the national average (0.22%). HIV prevalence is 28 times higher among injecting drug users (IDUs) (NACO, 2020).

India's ability to maintain relatively low HIV prevalence rates could potentially be attributed to an effective National AIDS Control Programme, which was launched in 1992 to prevent and control HIV/AIDS. Over the years, the programme has moved its focus from largely awareness generation to behaviour change, and from providing a national response to supporting a more decentralized approach, including involving NGOs and networks of people living with HIV (PLHIV). The programme is managed by NACO, a part of the DoHFW. NACO provides leadership to HIV/AIDS control programmes in liaison with 35 state AIDS prevention and control societies (SACS). The SACS are responsible for implementing the national programme at the state level and have the necessary independence to modify the programme to suit local needs. Programmes supported by NACO and SACS include a variety of prevention, care, support and treatment services and targeted interventions (TIs) for drug users and other high-risk groups. About 1.48 million HIV patients received antiretroviral therapy (ART) from 553 centres, including 1.38 million who receive free lifelong support, as of March 2020 (NACO, 2020). NACO also oversees an HIV sentinel surveillance programme for epidemic monitoring and programmatic feedback. It is also responsible for blood transfusion services and ran a network of 1131 blood centres across the country during 2019–2020 (NACO, 2020a).

5.1.2 National Tuberculosis Elimination Programme (NTEP)

India accounted for nearly one quarter of the world's TB cases during 2019, about 27% of global disease burden from TB (WHO, 2020a). The number of notified TB cases in India in the year 2019 was 2.4 million, with considerable cross-state variation, against an incidence of 199 patients per 100 000 persons (MoHFW, 2020b).²⁵ States with high notification rates are UP (20% of total, with a rate of 187 cases per 100 000 population), Maharashtra (171 per 10 000 population), Madhya Pradesh (196 per 100 000), Gujarat (228 per 100 000 persons) and Rajasthan (207 per 100 000 persons). The incidence of drug-resistant TB (MDR-TB/RR) was 147 000 cases during the same period. There is some evidence of a decline in the TB burden over time. During 2018, the rate of TB mortality was 3.2 per million population as against 5.8 per million population in 2000 (MoHFW, 2020b) (MoHFW, 2020a).

The National Tuberculosis Elimination Programme (NTEP), which replaced the Revised National Tuberculosis Control Programme (RNTCP), is responsible for TB diagnosis, treatment, prevention and control in India. As

²⁵ Notified diseases are the ones that are required by Indian law to be reported to government agencies. This assumes importance, given that private health-care dominates curative care in India. The responsibility for notifying a disease rests with the state government.

per the national strategic plan, during 2020–2021, the TB programme is to receive INR 30.34 billion, with half of that funding intended for diagnostics and drugs procurement (MoHFW, 2020c). The NTEP has detected and notified an additional 1.2 million TB cases in the past three years through government facilities and engaged and provided incentives for 1.6 million private providers to report cases (MoHFW, 2020c). Case notification has improved in recent years owing to the involvement of the private sector, with 28% of all notified cases in 2019 from the private sector, as against only 2% in 2013.

Under the national TB programme, TB medications are provided free of cost to 1.5 million TB patients annually, through 662 RNTCP district units, 2698 functional subdistrict TB units and more than 13 000 designated microscopy centres. India was also a pioneer of the directly observed treatment, short-course (DOTS) strategy in 1997, delivered by over 600 000 trained DOTS providers (Gharat et al., 2017). More than 15 million TB patients have been treated since the Programme began (Directorate General of Health Services, 2012). The Programme also launched DOTS-Plus for the management of multidrug-resistant tuberculosis (MDR-TB), with services available in all states and union territories.

A joint framework has been established for TB-HIV collaborative activities to leverage synergies in testing and treatment between the TB programme and the National AIDS Control Programme. RNTCP collaborated with 1971 NGOs, 10 894 private practitioners, 150 corporate hospitals and 297 medical colleges to deliver health promotion, prevention and service provision activities, and has programmatic partnerships with the Indian Medical Association, CBCI, PATH, The International Union Against Tuberculosis and Lung Disease and World Vision India (Directorate General of Health Services, 2012). During 2015, an 84% cure rate was reported among new TB cases notified by government health-care providers. Among those who were previously treated and sought treatment again due to adherence issues (retreatment), a 64% cure rate was reported (Directorate General of Health Services, 2012).

Recent gains in notification rates for TB cases reflect policy action to address the concern that awareness and adherence to TB treatment could be improved (Ramachandran et al., 2010) by engaging with the private sector. There was evidence that approximately 50% of the retreatment cases reaching government facilities had previously been treated in the private sector, or not part of the government TB programme (Sachdeva et al., 2011). There was also the concern that treatment by private providers was contributing to the increase in drug resistance and MDR-TB cases in India (Deshmukh et al., 2015; Mistry et al., 2012).

5.1.3 The National Vector Borne Disease Control Programme (NVBDCP)

The NVBDCP facilitates activities for the prevention and control of vector-borne diseases, including malaria, dengue, Japanese Encephalitis (JE), lymphatic filariasis, chikungunya and kala-azar. The main focus of the NVBDCP is on integrated vector management, disease management (including case detection and surveillance), vaccination, and annual mass drug administration (NVBDCP, 2015). Malaria, including *P. falciparum* cases, is a major source of concern, with about 1.09 million cases reported in 2016. Although the reported number of cases dropped to 0.33 million cases in 2019, as also the number of deaths, this is more likely to be the result of underreporting of cases than a true decline in the malarial burden in India. The 2016 National Framework for Malaria Elimination (NFME) calls for eliminating malaria from the country in a phased manner by 2030.

Dengue has also emerged as a rising concern in India, especially in urban settings (Directorate of NVBDCP, 2016). In 2019, about 0.15 million cases of dengue were confirmed, although the case fatality rate (deaths per 100 cases) was low at 0.2% in 2015. *Chikungunya*, another viral fever caused by mosquito bite, has become endemic in 32 states, with a total case load of 81 914 in 2019 (NVBDCP, 2020).

The incidence and prevalence of *Filariasis* has declined over the years, but *kala-azar* (or visceral leishmaniasis) is a major health problem in some states (e.g. Bihar and West Bengal), and several states in India regularly report JE, a zoonotic disease transmitted by *Culex* mosquitoes. The NVBDCP has supported several initiatives in response, such as providing rapid diagnostic tests, using effective drugs, i.e. artemisinin combination therapy (ACT), using long-lasting insecticidal nets (LLINs), and providing additional human resources. In endemic districts, additional inputs are also provided through the Intensified Malaria Control Project (supported by the Global Fund) and the Malaria Control and Kala-Azar Elimination project funded by the World Bank.

5.1.4 Response to the COVID-19 pandemic

The first case of COVID-19 (due to SARS-CoV 2) in India was reported in Kerala in late January 2020, in a patient who travelled from Wuhan city, China. Since then, the pandemic has spread across the country with its first peak in mid-September 2020 with over 90 000 cases reported per day. As of 1 August 2021, India had the second-highest number of confirmed cases globally with over 31 million cases and deaths in excess of 425 000. There is significant interstate variation in reported cases and deaths, reflecting a mix of uneven reporting and regional variation in the severity of the pandemic.

As part of its strategy to test, track, isolate and treat, India ramped up its testing facilities from 52 in early March 2020 to over 2879 by August 2021 (ICMR, 2021). Testing was accompanied by seroprevalence surveys carried out by the national and state governments. By July 2021, four national surveys had been undertaken, carried out in June and July 2021. These showed that two in three adults (67.6%) and over half of the children in the age group of 6–9 years had antibodies for COVID-19, and women had a slightly higher share of exposure to infections at 69.2% as against 65.8% found in men. There were also interregional variations, but infections were at nearly similar levels in urban (69.6%) and rural areas (66.7%). The presence of antibodies was found to be lower among unvaccinated persons (62.3%) as compared to those vaccinated with one dose (81%) and two doses (89.8%) (Sharma, 2021). Several prevention, containment and treatment strategies were notified by the national as well as state governments since the beginning of the pandemic. Although the MoHFW is the nodal agency, several national-level ministries and agencies, including the National Disaster Management Agency and ICMR are involved in designing and implementing strategies for prevention and treatment against the threat posed by COVID-19, including developing guidelines, protocols, manuals, etc.

5.1.5 The Universal Immunization Programme (UIP)

UIP in India was launched in 1985, building upon the Expanded Programme on Immunization (EPI) that had previously been introduced in 1978. UIP focused on providing vaccines to infants, children and pregnant women. There are 12 diseases covered under the UIP, nine are nationally covered (diphtheria, pertussis, tetanus, polio, measles, rubella, TB, hepatitis B, *Haemophilus influenzae* type b) and three subnationally (rotavirus diarrhoea, pneumococcal pneumonia and JE). Rotavirus and pneumococcal conjugate vaccines are being expanded to eventually cover all the country while JE vaccine is provided only in endemic districts. Currently, the pentavalent vaccine – a combination of five vaccines (diphtheria, pertussis, tetanus [DPT], hepatitis B and *Haemophilus influenzae* type b) is used and tetanus toxoid is also offered to pregnant women. The UIP also includes a vaccine-preventable disease (VPD) surveillance system for immediate notification of adverse events following immunization, or incidence of VPDs.

To supplement the efforts of the UIP, Mission Indradhanush and an Intensified Mission Indradhanush (IMI) were launched in 2014 and 2017, respectively. The goal of these two missions was to reach every child aged two years and under, and to provide vaccination services to any pregnant women left uncovered under the UIP. The IMI was expected to cover 173 districts and cities to ensure full immunization to over 90% of the target

population by 2018. National surveys show that 89.8% of vaccinations are provided through the public sector health services, and 8.7% through private providers (UNICEF, 2009).

5.1.6 The Pulse Polio Programme

The Pulse Polio Programme was initiated in 1994 when India had 60% of the global caseload of polio. India was certified as polio-free in 2014, although the Pulse Polio Programme is expected to continue until global polio eradication occurs. To provide additional protection to children, in 2015, an injectable inactivated polio vaccine was introduced into the UIP. In 2021, over 170 million children aged less than 5 years were given polio drops to sustain India's status as a polio-free country. The Programme is currently supported by 2.4 million volunteers and supervised by an additional 0.5 million people during 2021. The last case of polio in India was reported in 2011 (PIB, 2021a).

The Central Government is responsible for procuring and supplying vaccines, injections and cold chain equipment to various states. The state governments oversee the disbursement of funds to district centres that manage the logistics, cold chain maintenance, injection safety and compensation of frontline health personnel (ANMs, Anganwadi workers and ASHAs) in health facilities and village outreach sessions. Vaccine coverage in India is assessed via population-based surveys, such as the NFHS and the UNICEF Coverage Evaluation Survey (CES). The share of children aged 12–23 months receiving all basic vaccinations has been rising over time, from 43.5% in 2005–2006 to 62% during 2015–2016 (IIPS, 2016; IIPS, 2007). However, there is considerable interstate variation in vaccination coverage. States such as Kerala, West Bengal and Punjab have rates of coverage of basic immunization, exceeding 80% in 2015–2016, whereas some other states (such as Assam and Nagaland) had estimated basic immunization coverage rates of less than 50%. In addition, there are considerable socioeconomic differences in basic immunization coverage: 70% of children in the age group of 12–23 months belonging to highest wealth quintile were immunized compared to 53% among their counterparts from the lowest wealth quintile during 2015–2016 (IIPS, 2016). Major successes of India's immunization programme have been the elimination of poliomyelitis caused by wild poliovirus (WPV) in 2011 and the eradication of smallpox in 1975.

5.1.7 Maternal, Child Health and Family Planning programmes

India's high infant, child and maternal mortality has been a cause for concern for a long time. Besides, the health policy in India has traditionally been anchored to population control and stabilization since the 1950s. Over the years, family planning and maternal and child health services have been

combined to deliver services by the government. This is more so since the beginning of the NHM scheme.

A key goal of the NHM is to improve the accessibility of maternal and child health services to reduce maternal and child morbidity and mortality, under its “reproductive, maternal, newborn, child and adolescent health (RMNCH+A)” approach. In 2018, India’s IMR was 32 per 1000 live births and its MMR was 113 per 100 000 live births. Key schemes under the NHM are: JSY, the Janani Shishu Suraksha Karyakaram (JSSK) and Rastriya Bal Swasthya Karyakaram (RBSK). The NHM and UIP have worked to bring these numbers down to the current levels.

Maternity services, whether delivered by public or private providers, include antenatal care (ANC), pregnancy monitoring, child delivery, postnatal care (PNC) and contraceptive advice. During 2015–2016, nearly 80% of all pregnant women sought ANC from a skilled provider, although only 51% of pregnant mothers completed the recommended four ANC visits. Community health workers (e.g. ASHAs) help to motivate pregnant women and their families to use ANC and other related services in the public sector. Programmes like JSY and JSSK provide conditional cash transfers (conditional on delivering in health facilities). RBSK, a child health screening and early intervention programme, was initiated by the Ministry of Health in 2013 with the goal of early identification of and intervention for children with defects at birth, diseases and delayed development, including disability.

These efforts notwithstanding, the share of home births (compared to institutional deliveries) in all births was almost 20% in 2015–2016. This number in some states stood at 40% or even higher (IIPS, 2016). However, the majority (12% of the 20%) of home births were performed by qualified professionals (ORGI & CCI, 2018). Two thirds of all institutional deliveries were in government facilities, with the rest in the private sector.

The MoHFW also formulates and implements target-driven family planning programmes that focus on the provision of fertility control services, including female and male sterilization, intrauterine contraceptive devices (IUCDs), oral contraceptives, and condoms. In recent years, India has experienced a significant decline in fertility rates, with an estimated total fertility rate of 2.2 births per woman in 2018; 1.7 in urban India, and 2.4 in rural India, albeit with considerable interstate differences (ORGI & CCI, 2018). Programmes supported under the NHM help provide free birth-spacing methods and emergency contraception to women via trained ANMs. Despite this, national surveys show that modern spacing methods account for only 11% of contraceptive use and that during the period from 2005 to 2016,

contraceptive use among reproductive age women (15–49 year) was only 54% (IIPS 2017). Male sterilization methods accounted for only 0.3% of modern contraception methods used, indicating that efforts to engage men have not been successful.

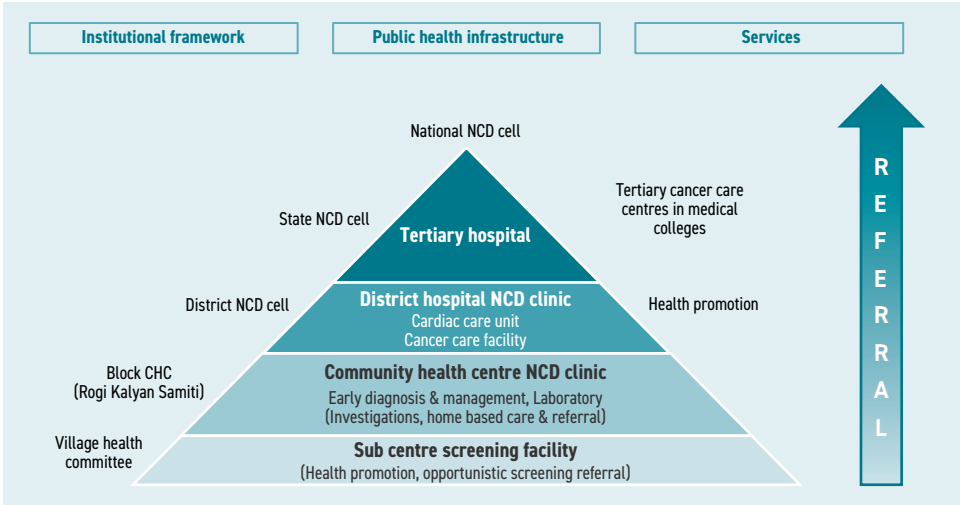
5.1.8 Noncommunicable disease control programmes

Launched in 2008 as a pilot in 10 districts in 10 different states, the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was projected to cover about 364 districts by 2014–2015. The Programme was intended to promote, prevent, diagnose and treat chronic NCDs, with special attention to cancer, diabetes, CVD and stroke. A key focus of the programme was to bring behavioural and lifestyle changes in the population. In addition, opportunistic screening was envisaged for alcohol and tobacco intake, physical activity, blood sugar and blood pressure for people aged 30 years and over.

To reduce programme fragmentation, the NPCDCS has been integrated into the existing framework of public services, as per Figure 5.2. One mechanism by which this has been done is integrating the administrative and financial structure of the NPCDCS into the NHM by institutionalizing programmes at district level within the DHS. For instance, under the NHM, a separate budget item under the “Flexible Pool for NCD Programme” has been set aside since 2005. The NCD cells at the national and state levels ensure implementation and supervision of health promotion activities, early diagnosis, treatment and referral, and facilitate partnerships with private sector laboratories for early diagnosis. As of March 2016, the Programme had been implemented in all states and territories, with almost 300 district-level NCD cells and clinics established, and close to 13 million people screened.

Early evidence suggested that limited programme funding has led to ill-equipped facilities and overworked staff and, moreover, services are inequitably distributed between rural and urban areas (Mathur & Shah, 2011). A 2016 study assessing the Programme identified weaknesses in the definition of screening criteria for stroke and ill-defined referral pathways for the condition. Focusing on stroke, the study also noted a shortage of specialists, and the generally poor state of rehabilitation due to unavailability of appropriate equipment, and underutilization of the allied health workforce in post-discharge care (Chaudhari et al., 2016). Recognizing the enormity of the disease burden posed by NCDs, in 2017, the MoHFW launched a population-based prevention, screening and control programme that included hypertension, diabetes, cancers of the oral cavity, breast and cervix (PIB, 2017).

Figure 5.2 Structure of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke, India



Source: Authors

The National Programme for Control of Blindness and Visual Impairment (NPCBVI), launched in 1976, focuses on addressing common vision disorders such as cataract, refractive errors, glaucoma, diabetic retinopathy, childhood blindness and corneal blindness. The initial goal of NPCBVI was to lower the prevalence of blindness from 1.4% in 1976 to 0.3% by 2020. An estimated 15 million Indians currently suffer from blindness (Vemparala and Gupta, 2017). Modelling studies for South Asia show that the key reasons for blindness in 2020 were cataracts (63.1%), refractive errors (9.4%), glaucoma (6.4%), age related macular degeneration (3.0%) diabetic retinopathy (1.4%) and non-specified others (16.8%) (Steinmetz et al., 2021). In addition to public facilities, the Programme also engages with (and funds) NGO providers in delivering eye services.

5.1.9 Mechanisms for disease surveillance

A formal mechanism for disease surveillance in India began only in 1997–1998 with the launch of the National Surveillance Programme for Communicable Diseases across 101 districts. The Programme envisaged reporting of outbreaks involving epidemic-prone diseases from districts to the centre on a weekly basis. In 2004, the Indian Government launched the IDSP to improve surveillance of epidemic-prone diseases, pathogens with bioterrorism potential and drug-resistant pathogens. A key mandate of IDSP is to integrate decentralized surveillance activities undertaken at the Central,

state and district levels. Besides routine surveillance, weekly disease surveillance data on epidemic-prone diseases are collected from health facilities. The number of outbreaks reported by states has increased, from 553 in 2008 to 1714 in 2017. Major causes of outbreaks recorded thus far are diarrhoeal diseases, food poisoning and measles.

Surveillance of noncommunicable conditions has relied mainly on population-based surveys of NCD risk factors, such as the District Level Health Surveys (DLHS), community-based surveys related to NCDs, NFHS for alcohol consumption and tobacco use surveys (Global Adult Tobacco Survey). The integration of NCD surveillance into the IDSP is still facing hurdles though, since the IDSP's current emphasis is on communicable diseases. Further, disease surveillance activities are fragmented between national health programmes, with differing degrees of sophistication at the state level, depending on capacity, funding and linkages with national authorities. With respect to NCDs, surveillance efforts have also struggled due to underfunding and inadequate staff, including clinical, technical and managerial personnel (Mishra et al., 2016). In addition to information on risk factors, NCD registries are another mechanism for tracking major noncommunicable conditions in India. A National Cancer Registry Programme (NCRP) was launched by the ICMR in 1981 and helps generate information on cancer epidemiology and its burden in the country. The ICMR also launched a National Stroke Registry Programme in 2012. In 2017, it established a registry involving rare diseases (such as lysosomal storage diseases, inborn errors of metabolism, skeletal dysplasia, haematological disorders, neuromuscular disorders, primary immune deficiency).

5.1.10 Occupational health services

Morbidity and mortality related to occupational health in India occurs mainly from silicosis, musculoskeletal injuries, coal workers' pneumoconiosis, chronic obstructive lung diseases, asbestosis, byssinosis, pesticide poisoning and noise-induced hearing loss (Saha, 2018). The Global Burden of Diseases for India in 2017 reported occupational risks to be the 12th among major risk factors that drive death and disability. Occupational risks alone accounted for 3% of total DALYs during 2016 as against 2% in 1990 (Public Health Foundation of India, 2017).

The Bhopal (capital of Madhya Pradesh, India) gas tragedy was a major industrial disaster that occurred in 1984 in India, killing 3787 people while inflicting injuries on 558 125 people caused by a blast in a pesticide plant emitting methyl isocyanate gas. Those injured and killed were far in excess

of the workers in the plant, making this a major human-induced disaster. However, its occurrence was an occupational health issue, making this the most visible of the occupational health impacts on Indians. According to a Parliamentary Committee report, in 2010, there were 575 accidents in coal mines across India, with 97 cases of fatal accidents. During the same year, in metal mining, there were 104 accidents, of which 58 turned out to be fatal. The death rate in the metals industry was estimated to be 0.7 per 1000 persons employed (Ministry of Labour and Employment, 2011). During 2014, industrial accidents resulted in 3984 non-fatal injuries and 515 fatalities (Ministry of Labour and Employment, 2017). Even these are likely to be underestimates, as reporting of such incidents is not complete.

There are 16 laws that regulate working hours, environment, conditions of services and employment for the well-being of workers. These include the Factories Act of 1948, the Mines Act of 1952 and the Dock Workers (Safety, Health & Welfare) Act of 1986 (Sriraman, 2006). According to data from various labour institutes in India, as of 2009, there were approximately 6809 factory medical officers, 2642 safety officers, 938 factory inspectors and 55 surgeons employed for the occupational safety and well-being of 13.1 million workers in registered factories (Pingle, 2012). In 2019, the national government introduced a legislation amalgamating 13 labour laws pertaining to safety, health and working conditions of labourers (Ministry of Labour & Employment, 2019). This amalgamated legislation (Code) is applicable to enterprises that employ at least 10 workers and all mines and docks and imposes fines and or imprisonment on employers and others responsible for causing the death of an employee. This legislation has yet to be passed by the Indian Parliament.

5.1.11 Health prevention, promotion and education (HPPE)

Health prevention, promotion and education (HPPE) activities have been integrated into national health policies and planning, with state government providers responsible for implementation. Given the historically lower priority accorded to HPPE activities, the capacity of the health system to deliver these services remains weak (Kumar & Preetha, 2012; Pati et al., 2012). Most national disease control programmes include communication strategies and materials to help outreach activities and education. These activities are conducted separately or are sometimes integrated by primary care workers where national programmes converge. For example, the ICDS Scheme for children, adolescent girls and reproductive age women has a major health promotion programme component as part of its activities on immunization, health check-ups and treatment of common illnesses, referral services, supplementary nutrition and growth monitoring, preschool education and

nutrition and health education. Another example is that of NPCDCS (referred to above) that focuses on NCDs, which puts emphasis on prevention of disease conditions and altering lifestyles and includes population-based screening of common NCDs such as diabetes, hypertension and common cancers. Similarly, the National Tobacco Control Programme launched in 2007–2008 aims to develop greater awareness about the harmful effects of tobacco and existing tobacco control legislation. The awareness initiatives included health warnings on tobacco products covering 85% on both sides of tobacco product packs, quitting messages through text-messaging, etc. Given the historically lower priority accorded to HPPE activities, the capacity of the health system to deliver these services remains weak (Kumar & Preetha, 2012; Pati et al., 2012), and overall though the HPPE activities embedded in programmes (both in quantity and quality) are relatively limited (Kaur & Jain, 2011). Efforts to strengthen health promotion and education activities are being made through the health and wellness centres. Several activities to strengthen health promotion have been initiated by HWCs, including the “Fit India Movement,” the “Eat Right Movement,” and the promotion of yoga (NHSRC, 2021).

5.2 Patient care pathways

Patient pathways of care in India depend on a range of factors, which include the state, location, provider (public versus private), affordability and type of care required (e.g. diabetes versus maternity services). One Indian study found that a rural patient must travel an average distance of 2.2 km to reach the nearest health post, over 6 km for a blood test, and nearly 20 km for hospital care (National Commission on Macroeconomics and Health, 2005). Furthermore, access is typically dependent on ability to pay, particularly in the private sector, which provides the bulk of outpatient services in India.

Within the public sector, health services are provided by a range of hierarchically aligned facilities (subcentres and PHCs to district hospitals and above). In theory, primary care providers are expected to be the first point of contact for common conditions and serve as gatekeepers to more specialized and acute health-care services in district and medical college hospitals. In practice, there are no restrictions or referral requirements for patients accessing providers at different levels, or moving to other providers of primary care, whether public or private. This pattern of behaviour is further augmented by the perception of often low-quality and limited breadth of services available in primary care facilities. The high degree of segmentation within the health sector means that patient experience can vary depending on the disease being managed and the provider. These factors often contribute to long, inefficient and highly disorganized patient pathways in the Indian health-care system (De Bleser et al., 2006).

Box 5.1 Patient pathway for CVD cases in India

An individual with CVD may be diagnosed through any of the following mechanisms:

- Under the NHM, all men and women aged over 30 years and at risk of CVD are expected to be screened at the point of contact with any health-care facility (PHC, CHC, other hospitals). If a facility is not equipped to perform further investigations, patients may be referred to or transferred to a secondary-or tertiary-care hospital for further diagnostics and follow up.
- Under the government-funded health insurance schemes, if a poor patient shows up at a private or public hospital with CVD complications, he or she is entitled to hospitalization free of charge, even without a referral. However, in states like Andhra Pradesh, health workers in PHCs facilitate patients with CVD complications to access nearby tertiary-care hospitals. In Uttarakhand, private hospitals treating patients under this scheme are mandated to be referred by public hospitals.
- Patients may consult a doctor, either by presenting themselves to a PHC/CHC/hospital or visiting a private clinic/hospital of their choice with/without referral, due to a symptom or a complication.
- On their own initiative (or due to job-related check-up), patients undergo medical check-ups at a private clinic/diagnostic centre/hospital.

After diagnosis in a secondary/tertiary public hospital, the patient (depending on severity) will either be referred for counselling, management (outpatient or as an inpatient), day-care services, home-based care or palliative care management in the same hospital, or to another public hospital (if specialists are not available). If the diagnosis was made at a private hospital, the patient will usually be referred to a specialist in the same hospital or referred to another hospital. Depending upon the economic status, the patient may sometimes be advised to seek care from public facilities. After initial management and stabilization of the condition, the patient could be referred back to the local PHC/CHC for follow up (if the case was a referral) or may continue in the same facility in case this was his/her first contact point.

The district or specialty hospital is expected to provide necessary tests free of charge and prescribe all necessary drugs. If the hospital does not provide the test, the patient may have to get it done in a private laboratory; similarly, if out of stock and/or not available in the hospital, a patient may have to buy his/her medicines from a private pharmacy. If the patient does not want to receive care in a public hospital, he/she may instead seek follow up from a private hospital on a fee-for-service basis. He/she also may have private medical insurance to cover those charges, although most insurance policies exclude coverage for pre-existing chronic conditions such as diabetes.

5.3 Outpatient services

Primary health care in India includes a variety of preventive, health promotion and curative services, ranging from medical care for common conditions, to minor surgery, to home visits for ANC. Government primary care facilities include outreach services as well as facility-based services at subcentres and PHCs. Patients also have the choice of approaching government hospitals for specialist outpatient services. While much of the focus at PHCs has been on administering immunization services, anti-epidemic programmes, birth

control services, pregnancy and related care, they also provide outpatient curative services and some emergency care.

Previous research on government health facilities shows that most facilities do not meet minimum standards and there is a long history of barely functioning facilities (Powell-Jackson et al., 2013). Other studies have highlighted limited technical capacity and low-quality care in private outpatient services in India (Chakraborty & Frick, 2002; Das & Hammer, 2004). There is also evidence of two-tiered care where the rich are able to access services of better quality compared to the poor (Das & Hammer, 2007). In 2007, the IPHS were formulated under the NRHM as a set of uniform standards aimed at improving the quality of care (Government of India, 2012). However, studies show that IPHS guidelines are inadequately followed at PHC and CHC levels, with health workforce shortage being the key challenge in service delivery (Chauhan et al., 2016; Patel & Patel, 2016).

A 2017–2018 survey²⁶ suggested that the average Indian made 0.7 outpatient visits annually, (authors calculations based on NSSO, 2019), with non-public/government facilities accounting for almost 70% of patient visits (Table 5.1), although this has decreased compared to previous years (see Table 4.4). The relatively low share of public facilities in outpatient care utilization reflects a combination of factors, including non-availability of doctors at PHCs, inadequate physical infrastructure and facilities, insufficient quantities of drugs, concerns about quality of care received and a general lack of accountability in service provision (National Sample Survey Office, 2004; Government of India, 2012). The health workforce is inequitably distributed across rural and urban areas, which may further contribute to perceptions of low quality of public services in rural areas.

Table 5.1 Percentage of treated ailments by type of health-care provider, 2017–2018

Health-care service provider	Rural	Urban	All
Government/public hospital	32.5	26.2	30.1
Private hospital	20.8	27.3	23.3
Charitable/trust/NGO-run hospital	0.9	1.3	1.1
Private doctor/clinic	41.4	44.3	42.5
Informal health providers	4.3	0.9	3
All	100	100	100

Source: modified from Table A7, 75th Round of National Sample Survey 2017–2018 (National Sample Survey Office, 2019)

26 Survey data are the preferred option for estimating health service utilization in India owing to weaknesses in the government health management information system, especially in capturing visits to private providers and inadequacy of HMIS to estimate public sector service utilization.

There have been some efforts at the state level to address these challenges. For example, the states of Chhattisgarh and Assam have introduced state-specific cadres of health workers with shorter training requirements (compared to doctors) to alleviate workforce shortages (Rao et al., 2012). Some states, such as Karnataka and Uttarakhand, have experimented with contracting their PHCs to NGOs although not very successfully, as indicated by the two state governments taking back management of their PHCs from the contracted NGOs.

5.3.1 Role of health and wellness centres

Health and wellness centres were inaugurated in February 2018. They are revamped primary health-care facilities that will deliver comprehensive PHC (CPHC) in 150 000 sites across the country by 2022–2023. They focus on promotive, preventive and curative health services across 12 disease sets, including communicable, reproductive, maternal and child health services, as well as screening and management of NCDs (Ved et al., 2019). In addition, basic dental, mental, ophthalmic, elderly care and ENT services will be provided. The emphasis is on ambulatory care along with a system of referral.

To provide such a breadth of services at PHC level involves a paradigm shift and a need to move away from a model that focuses on episodic care for select diseases to service delivery that has to cater to chronic and episodic care across a much wider range of conditions. The upgrading in both breadth and depth of services provided is being rolled out in a step-wise manner as there is a need to train staff. The initial phase will focus on more established reproductive and maternal and child health services with control of diabetes and hypertension added. Other services will be introduced as training and supplies become available (Asgari-Jirhandeh et al., 2021). HWCs will offer free medicines and diagnostics and are staffed by a new cadre of mid-level health-care providers known as community health officers (CHOs). As of August 2021, there are over 75 000 operational HWCs (Ayushman Bharat, 2021).

5.4 Inpatient care services

Secondary and tertiary care is provided in both public and private (not-for-profit and for-profit) hospitals by specialist doctors and other health professionals. In the public sector, secondary- and tertiary-care services are provided, in increasing order of health-care complexity, by CHCs, subdistrict hospitals, district hospitals, superspecialty hospitals and medical college/teaching hospitals. At the secondary level, taluk (subdivisional) and district

hospitals provide specialized health care and act as referral units, in addition to providing basic outpatient services, emergency obstetric and newborn care and emergency psychiatric, medical, trauma and dialysis services. Specialty hospitals provide both emergency hospital services as well as elective care, with some focusing on providing services in only one specialty (e.g. orthopaedic, cancer, children's services). There are several government teaching hospitals with attached medical colleges that are involved in providing inpatient services besides teaching and training. In 2018, 5624 CHCs, 1024 subdistrict hospitals, 755 district hospitals and 244 medical colleges were functional and provided inpatient services (CBHI, 2018).

Accurate data on private hospitals are not readily available. In 2012, there were an estimated 13 413 private hospitals, ranging from small nursing homes to large corporate hospitals offering a range of specialized services (IMS Health, 2012). However, these numbers vary between data sources. For instance, a recent initiative of the Insurance Information Bureau of India (IIB), called ROHINI, is a registry of hospitals empanelled by the private insurance sector. According to the ROHINI portal, India has about 33 000 private hospitals. The PM-JAY has a list of empanelled hospitals, and these include 11 839 public hospitals and 9979 private hospitals (National Health Authority, 2020). Out of 5 million hospitalizations under the PM-JAY scheme, 3.3 million hospitalizations were treated in private hospitals, and in terms of value, 75% of all hospital claims were for care obtained in private hospitals (National Health Authority, 2019). Data on utilization patterns for PM-JAY show that haemodialysis accounted for 45% of overall claims at private hospitals. Moreover, 60% of all reimbursement claims from private providers were from large private hospitals (with a bed strength of 100 or more) and medical colleges. National Health Accounts suggest that a little over one fourth of all health spending in India (public or private) was accounted for by private hospitals.

Table 5.2 shows the distribution of hospitalizations by rural/urban distribution and by economic status during 2017–2018. In rural areas, lower- and middle-income groups rely to a great extent on public hospitals for inpatient care, accounting for 60–70% of all hospitalizations in this group. The richest income group in rural areas has a higher share of private hospital usage, at 59% of hospitalizations. In urban areas, however, a far greater share of utilization is accounted for by private providers, with their share in reported hospitalizations steadily ranging from 45% in the poorest quintile to nearly 84% in the richest group.

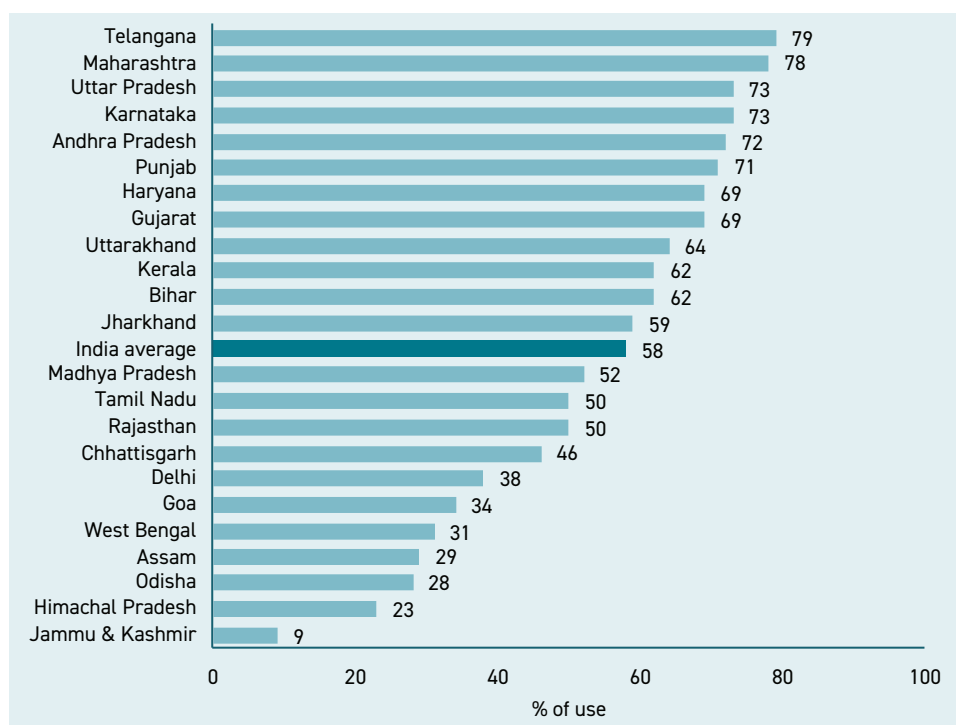
Table 5.2 Inpatient utilization patterns by region and economic status, 2017–2018

Economic quintile	Rural		Urban	
	Public hospital (%)	Private hospital (%)	Public hospital (%)	Private hospital (%)
Poorest	69.3	30.7	54.6	45.4
Poorer	63.8	36.2	46.5	53.5
Middle	59.2	40.8	36	64
Richer	51.7	48.3	28.7	71.3
Richest	41.4	58.6	16.2	83.8
Total	56.5	43.5	39.1	60.9

Source: Authors' estimates from unit level records of Social Consumption: Health Rounds, 75th Round of National Sample Survey 2017–2018 (National Sample Survey Office, 2019)

Use of public and private inpatient care varies significantly across states. Inpatient utilization appears to be highly skewed towards private hospitals in Telangana, Maharashtra, Karnataka, Uttar Pradesh, Andhra Pradesh, Punjab, with the share of private providers in hospitalizations being about 70%. Other states, such as Jammu and Kashmir, Himachal Pradesh, Odisha and Assam rely much more on public hospitals for their inpatient services (Figure 5.3).

Figure 5.3 Percentage of inpatient services provided by private hospitals in each state, 2017–2018



Source: Authors' estimates from unit level records of Social Consumption: Health Rounds, 75th Round of National Sample Survey 2017–2018 (National Sample Survey Office, 2019)

Overall, the accessibility, adequacy and quality of inpatient care remain an area of concern in India. Perceptions of low quality and difficulty of access to public hospitals are cited as major reasons for people using private facilities (International Institute for Population Sciences and Macro International, 2007). Lack of diagnostic facilities (52%), long waiting times (44%), perceived poor quality of treatment (38%), affordability issues (35%) and unavailability of medicines (32%) were also mentioned as factors affecting citizen's choices against government hospitals (IMS Health India, 2012). Inpatient care, public or private, presents difficulties of access in any event. In one study, in 47% of inpatient episodes, people had to travel more than 5 km to seek inpatient treatment (more than 63% of inpatient episodes in the case of rural households), and generally distance was a greater barrier for rural residents compared to urban residents (16% versus 6% in the case of diagnostic facilities and 9% versus 1% regarding medicines).

The Pradhan Mantri Swasthya Suraksha Yojana (*PMSSY*), launched in March 2006, is intended to correct inequalities in the availability of affordable and reliable tertiary level health care and to improve facilities for medical education in underserved states. As part of the programme, 21 AIIMS institutes have been established, including via upgradation of 13 medical colleges. Furthermore, 72 existing government medical colleges have been identified for additional investments to improve their capacity for providing postgraduate medical education.

The quality of care provided in both public and private health-care systems are weak. The Clinical Establishments (Registration and Regulation) Act, 2010 mandates the registration of all clinical establishments and provides guidance on certain standards and processes that must be met. The NABH has audited several hospitals in various states, with many struggling to meet the required standards. It appears that only about 1% of the hospitals in India had obtained accreditation from NABH by 2017. This is not surprising given that such accreditation is not mandatory and is potentially onerous. NABH accreditation involves satisfying 636 criteria linked to patient safety and quality assessment.

In an initiative by the IRDAI in 2016, which oversees all insurance bodies in India, all the empanelled facilities under private insurance, including private hospitals and day-care centres numbering 33 000, had to meet at least the entry-level standards by the NABH.

For public health sector facilities and services, a quality certification programme – National Quality Assurance Standards (NQAS) – was launched in 2016. NQAS standards meet global quality standards and are accredited by the International Society for Quality in Health Care (ISQua). They aim to ensure quality in service provision, patient rights, inputs, support services, clinical care, infection control, quality management and outcomes. There are currently 964 NQAS certified government facilities (NHSRC, 2021a). The IRDAI and PM-JAY require NQAS certification for the empanellment of government health facilities.

Assessing the impact of NQAS based on a study conducted among 295 health workers from eight hospitals (three district hospitals, one CHCs, and four PHCs) in Karnataka, Maharashtra and Chhattisgarh, a recent study found a low score for CHCs, a relatively higher score for district hospitals and the highest score for PHCs (Golondaj & Kallihal, 2020).

5.4.1 Day care

In India, day-care services include haemodialysis, parenteral chemotherapy, radiotherapy, treatment of fractures and basic surgical procedures (e.g. removal of kidney stones and tonsils, prostate surgeries and more). The concept of day care is at a nascent stage in India, driven by pioneers like the Aravind Eye Care System, Sankara Nethralaya and others. The growth in the use of day care has recently been encouraged by increasing enrolment in health insurance schemes that extend coverage for day procedures. Evidence from national surveys suggest that day surgeries as a proportion of all surgeries increased from 5% to 8% between 2004 and 2014 (NSSO, 2004, 2015, 2019).

Recognising the need to strengthen access to day care services such as in the management of end state renal diseases, the Pradhan Mantri National Dialysis Programme was launched under the NHM. The programme leverages public private partnerships to facilitate and strengthen the provisions of dialysis services at district hospitals. As of February 2022, the programme has been implemented across 569 districts in 35 States/UT with a total of 7129 haemodialysis machines deployed (MoHFW, 2016; PIB, 2022).

5.5 Emergency care

Emergency care services are provided in both public and private hospitals. There are several important pieces of legislation relating to the provision of emergency care in India. Under the Clinical Establishments Act, all clinical establishments are required to “provide medical care and treatment necessary to stabilize any individual who comes or is brought to the clinical

establishment in an emergency medical condition". The Supreme Court has ruled that any denial of emergency care based on a patient's ability to pay or medicolegal case is considered a violation of the patient's "Right to Life", as per Article 21 of the Constitution of India. The court in 2014 also passed a ruling to facilitate emergency transportation and care of road traffic accident victims by ensuring that any person can take an injured person from a road traffic accident to the nearest hospital without being incriminated themselves.

Emergency medical services (EMS) respond to health emergencies and provide patient transportation to health facilities. EMS systems in India are fragmented and there is no uniform system available across the country. An emergency referral transport system was introduced under the NRHM, and is available in 31 states and union territories. They can be accessed through "108" and "102" toll-free numbers. The 108 number operates on a public-private partnership model between state governments and private EMS providers. The 102 number is part of the JSSY programme and is aimed at providing transport for pregnant women and children.

Under the 108/102 schemes, there are over 19 290 operating ambulances (NHM, 2021). Outside of the NHM system (108/102), state governments and private institutions also operate their own ambulance services. It is important to note that the majority of ambulances in service do not provide advanced life support.

There is limited information on the quality and responsiveness on EMS the national level. Non-response and suboptimal response time are common problems. A study conducted between June 2009 to May 2010 found that nearly 25% of ambulance service requests from patients to AIIMS were refused due to a lack of capacity by the ambulance provider (Government of India, 2012a). A report from Madhya Pradesh showed that the average response time for reaching a patient was between 41 and 47 minutes, as against the norm of 20 minutes for an urban call and 40 minutes for a rural call (Government of Madhya Pradesh, 2017). In Odisha, the CAG found that only 5% of emergency calls were acted upon during 2013–2014 (Rajasulochana and Maurya, 2018).

5.6 Pharmaceuticals

The Indian pharmaceutical industry ranks third in terms of volume and fourteenth in terms of value globally and has experienced steady growth in recent years (Department of Pharmaceuticals, 2019). Industry turnover increased from approximately INR 17.5 billion in 1990 to almost INR 2500 billion (US\$ 36 billion) in 2018–2019, with exports to other countries estimated

at approximately 50% of total production (Department of Pharmaceuticals, 2015). There are 10 563 drug manufacturers spread across various states in India, of which 8174 produce formulations and 2389 produce bulk drugs, or active pharmaceutical ingredients (APIs) (Department of Pharmaceuticals, 2015). Indian domestic firms accounted for 80% of the total sales worth of INR 1411 billion in the private domestic market for July 2020, while multinationals accounted for the remaining 20% of sales (AIOCD, 2020). Most drug manufacturers are private entities. Only a handful of public sector units exist in the country due to competition from the private sector, inefficiencies in operation and management, and lack of funding from the government.

Approximately 10% of all medicines are prescribed and dispensed in government settings, with the rest prescribed and dispensed in the private sector.²⁷ In the government set-up, drugs are prescribed by medical doctors and specialists, and the dispensing function is undertaken by a dedicated dispensing unit in each health facility. Although patients are expected to receive medicines free in public health facilities, due to lack of funds and poor governance in procurement and distribution of medicines, patients often end up paying chemists outside the public health facilities for their medicines. Survey data suggest that nearly 65% of all health spending in the country is in the form of OOP spending by households, two thirds of it on drugs. Some states such as Tamil Nadu, Rajasthan, Kerala and Delhi are able to provide free medicines through the public system, but this is not the case with most other states (Selvaraj & Mehta, 2014; Chokshi et al., 2015). This is reflected in the considerable cross-state variation that exists in the proportion of the population obtaining subsidized medicines in public facilities (Authors' calculations based on NSSO 2019 publication).

Drug dispensing units within private hospitals also dispense drugs. In the case of private physicians practising outside hospitals, the patient gets a prescription from the doctor and the medicines are dispensed by private retail outlets. India currently has over 850 000 retail outlets that dispense medicines, with the number of retailers varying significantly across states: the density of medicine retailers in some states are: Maharashtra (0.62 per 1000 population), Tamil Nadu (0.50 per 1000 population), Gujarat (0.39 per thousand), and Punjab (0.84 per thousand), Delhi (1.33 per 1000 population). There is anecdotal evidence of a nexus between prescribers and dispensers of medicines, with implications for unnecessary prescription and usage of medicines. Moreover, medicines are often dispensed by unqualified staff in pharmacies, which also has implications for irrational use of drugs.

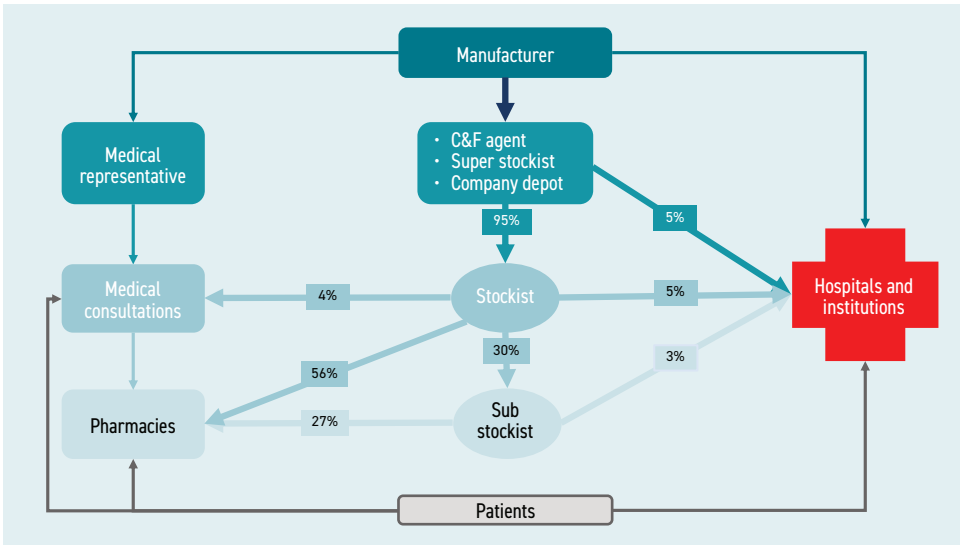
27 Authors calculations based on IMS, 2014 and detailed budgets heads from Gol and state governments, 2014

E-pharmacies have begun to emerge in India, with a recent report suggesting that the market share of online chemists could be over 3% of the overall retail market in India (Frost & Sullivan, 2019). The MoHFW has sought to regulate the functioning of online pharmacies and developed a draft set of e-pharmacy rules in 2018. These draft rules intend to restrict online sales of medicines to only registered pharmacies, who are expected to obtain licences from CDSCO. The sale of tranquillizers, psychotropic drugs, narcotics and habit-forming drugs would be prohibited from online portals, as per draft rules.

Consumption statistics on drugs suggest lower-than-expected usage. One study found that although the share of the Indian population consuming statins more than doubled between 2006 and 2010, it was lower than would be expected given the high burden of CVD in India. Multiple demand- and supply-side factors are drivers of population access to essential medicines in India. These include challenges in ensuring an adequate supply of drugs in the public sector. Survey data on the availability and stock-outs of essential medicines in Tamil Nadu and Bihar in 2011 demonstrated considerable variation in government facilities. The mean availability of medicines in Bihar on the day of the survey was about 43%, compared to 88% in Tamil Nadu public facilities. While the health facilities in Bihar registered average stock-outs of about 41%, the proportion of stock-outs for Tamil Nadu was less than half, at around 16%. Similarly, while the average duration of stock-outs in Bihar was 105 days, it was roughly 50 days in Tamil Nadu (Selvaraj et al., 2011). In addition, low usage stems from poor access to health-care treatment, drug prices and underdiagnosis (Choudhry et al., 2014). Existing private and public health insurance schemes provide some coverage for prescription drugs when they are part of hospitalization expenses, but none for prescriptions stemming from outpatient consultations.

Although there are a few government manufacturers, pharmaceutical manufacturing and supply chains are dominated by the private sector, consisting of domestic and foreign firms. The private drug supply chain network involves multiple entities. After a consignment leaves a pharmaceutical firm, products are received by “super” stockists if domestically produced, or if imported into India, by carry and forward agents (Figure 5.4). The next step in the drug supply chain are stockists who account for almost 95% of drugs that end up at retail pharmacies or other final points of drug sale/use. Over half of all drug stocks (56%) are supplied to retail pharmacies directly by stockists and 27% by sub stockists (i.e. supplies sent from stockists to sub stockists and then to retail pharmacies). Approximately 4% of stocks are sent directly to doctors and about 5% each to hospitals and institutions (IMS-ORG, 2009).

Figure 5.4 Sales break-up across different channels



Source: based on ORG-IMS 2009

In the public sector, the Medical Stores Organization (MSO) at the Central level includes seven government medical store depots (GMSDs) under the MoHFW. The MSO is responsible for the procurement, storage and distribution of medicines, surgical items, medical equipment and other items for public health facilities and national programme needs across the country (including vaccines received from WHO and UNICEF). States such as Tamil Nadu, Kerala, Delhi and Rajasthan have been successful in developing procurement and distribution systems that capitalize on economies of scale through centralized procurement agencies and overall have high functioning and streamlined public sector drug supply chains. Most states, however, have relatively decentralized systems for medicine distribution. These other states have begun moving towards the supply chain models of the high-performing states. The absence of a clear process for identifying required medicines has contributed to this top-down approach (Selvaraj & Mehta, 2014a).

Weak regulatory mechanisms and institutional oversight has also led to drug counterfeiting and substandard pharmaceutical production processes. Estimates of the share of counterfeit medicines in the Indian market by media outlets range from 0.5% to 30% of all drugs produced. According to government estimates, however, substandard medicines during 1995–2003 ranged from 8% to 10% and the existence of spurious drugs from 0.2% to 0.5% (Department of Pharmaceuticals, 2003). In a 2016 national survey (National Institute of Biologicals, 2016), the share of spurious drugs in retail

pharmacies were estimated at 0.02% (13 out of 47 012 samples) while 3.1% were found to be substandard in nature (1850 out of 47 012 samples).

5.7 Rehabilitation/intermediate care

Rehabilitation includes interventions intended to improve the functional abilities of people living with disabilities, including being able to eat, drink, wear clothes independently, and to benefit from interventions intended to promote inclusion, such as participating in education, the labour market and in civic life. Rehabilitation interventions also include efforts to improve individual competencies for persons with impaired mental capacity.

Rehabilitation interventions in recent years have also focused on patients who suffer from schizophrenia, mental retardation, drug and alcohol addiction and a range of behavioural disorders, etc. As a signatory to the UN Convention on the Rights of Persons with Disabilities, India is committed to harmonize all domestic laws including the Rehabilitation Council of India Act, 1992 which was amended in 2000.

At the national level, the Ministry of Social Justice and Empowerment (MSJE) is the nodal agency for coordinating various rehabilitation schemes and services through the National Programme for Rehabilitation of Persons with Disability (NPRD). Physical rehabilitation is provided under the Deendayal Disabled Rehabilitation Scheme, which includes various types of therapies, counselling and special education at the district and provincial levels. Eleven district rehabilitation centres (DRCs) have been established in 10 states to provide comprehensive rehabilitation services to people with disabilities (PWDs) in rural areas, estimate the PWD population and provide prevention, early detection, medical interventions and surgical correction, fitting of artificial aids and appliances, and therapeutic services. Additionally, there are five Composite Rehabilitation Centres (CRCs) and four Regional Rehabilitation Centres (RRCs) (Vikaspedia, 2021; Planning Commission of India, 2002). The government also runs health centres all over India where, at regular intervals, specialists on disabilities (physical medicine and rehabilitation [PMR] doctors, physiotherapists and occupational therapists) assess and refer patients to specialized government or private hospitals. The government also provides prosthetics, orthotics and assistive devices such as wheelchairs and tricycles as part of the scheme of Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP) through grants to voluntary organizations for purchasing, making and distributing aids and appliances at subsidized rates. A limited number of rehabilitation institutes and PMR departments offer holistic care. There are approximately 25 functional rehabilitation institutes and 1600 voluntary organizations serving people with disabilities in India.

Over the years, private (both for and not for profit) rehabilitation centres that provide rehabilitation care for a variety of conditions have emerged. These include private rehabilitation centres for addiction issues, those focused on care of people with mental health disorders and those with physical disabilities. For example, Tulasi Healthcare provides medication, behavioural therapy, counselling, support groups and online counselling. The Phoenix Foundation, India, based in Hyderabad, provides cognitive behavioural therapy, rational emotive behaviour therapy, etc. The Aarit Recovery Centre in Chennai provides treatment that includes detoxification by psychologists and psychiatrists, a 12-step recovery programme, group therapy, exercise, etc. The rehabilitation Institute of Christian Medical College, Vellore provides treatment for patients who have sustained spinal cord injuries. Popularly called the Jaipur Foot, the worlds' largest agency for the disabled is called Bhagwan Majaveer Viklang Sahayata Samiti. They provide prosthetics, aids and appliances free of charge to disabled patients while the Paraplegic Foundation in Mumbai undertakes rehabilitation especially for paraplegics and severely orthopedically disabled patients, by providing aids and appliances for free.

These efforts notwithstanding, rehabilitation services for people with disabilities are limited and vary significantly in quality and quantity between states. One study found that only 15% of the people living with disabilities in urban India and 3% of those in rural India can access rehabilitation services, with an aggregate coverage rate of only 5.7% (Mishra, 2009). The same study also found that government rehabilitation facilities did not cover all districts and faced problems recruiting qualified staff (Mishra, 2009). On the demand side, awareness levels about rehabilitation services were also low (Mahak et al., 2018).

However, policy efforts are being made. The National Policy on Persons with Disabilities envisages provision of hospital-based acute rehabilitation units, freestanding rehabilitation hospitals and alternative settings (e.g. subacute care units, outpatient rehabilitation centres, skilled nursing facilities and at home). The RCI, a statutory body formed through an act of Parliament in 1992, regulates and monitors services to PWDs in India. The RCI accredits and regulates bachelor's and master's courses on special education in different fields, including visual and hearing impairment, mental impairments and learning disabilities. In March 2016, the RCI had a cumulative list of 112 808 registered rehabilitation professionals across the country (Rehabilitation Council of India, 2017). The RCI also established an informative online web portal for persons with disabilities (<http://www.punarbhava.in/>).

5.8 Long-term care for the elderly

There is an increasing demand for long-term care in India due to rising numbers of the elderly, shifting disease profiles and changing norms around elderly support by families. However, long-term care services have been accorded low priority in India, partly due to the limited political influence of the affected population, the social expectation that the elderly will be taken care of by their children and other household members, and relatedly, low levels of social acceptance for residential elderly care in India. This has manifested itself in limited health-care services, low supplies of workforce with long-term care expertise and government funding. Old age residential homes, day care centres, recreational facilities for the aged and associated government facilities are also urban-centric (Ingle & Nath, 2008; WHO, 2002).

Appropriate medical services for the elderly are also lacking. General medical care for the elderly is, in theory, provided in public hospitals. In practice though, geriatric patients are usually seen by general physicians due to a lack of geriatric specialists in the public sector. Most geriatric health-care centres and private tertiary hospitals providing specialized geriatric care (e.g. Apollo Hospital Chennai, Heritage Hospitals Hyderabad) are based in urban areas and tend to benefit the better off elderly.

Many of the assumptions that underpin lack of medical and old age social support for the elderly are becoming rapidly out of date. One study based on data from seven states found that only 25% of the elderly received financial transfers from children, 39% remained in the workforce due to financial necessity. Nearly 10% of the elderly reported some form of abuse, 55% rated their health as poor and two thirds suffered from chronic conditions. A relatively higher level of morbidity involving NCD conditions is manifest in the fact that three in four outpatient visits by the elderly were for chronic conditions during 2017–2018 (Ranjan & Muraleedharan, 2020). Many were aware of pension schemes for the elderly but their utilization of benefits from these schemes was extremely low (UNPF, 2012).

There is increasing government recognition, though, of the gaps in addressing the health and social service needs of the elderly. In 2007, the Maintenance and Welfare of Parents and Senior Citizens Act was passed, which obligates children (and sometimes relatives) of the elderly to provide financial support where required. Non-compliance with this Act is a punishable offence (Department of Social Justice and Empowerment, 2007). States have established “Maintenance Tribunals” to implement the Act. The National Programme for Health Care of the Elderly was launched in 2011 by the Union Government, to address health-related problems of elderly people: (i) to provide easy access to promotional, preventive, curative

and rehabilitation services through a community-based primary health care (PHC) approach; (ii) to identify health problems in the elderly and provide appropriate health interventions in the community with strong back-up referral support; (iii) to build the capacity of medical and paramedical professionals as well as caretakers within the family for providing health care to senior citizens; and (iv) to provide referral services to elderly patients through district hospital regional medical institutions.

5.9 Informal caregivers

Informal caregivers provide invaluable support to people with disabilities, the elderly and people suffering from chronic diseases. In the Indian context, family members and, in particular, female family members are the most significant of the informal caregivers in India. The National Policy on Senior Citizens (2011) highlights the role of family members as primary caregivers and suggests that younger members should be “sensitized” to the needs of the elderly and tax incentives should be considered to promote caregiving. The role of family members has been recognized in the National Programme for the Health Care of Elderly (NPHCE), which provides information and support to informal caregivers. In India, a challenge for the elderly and their caregivers has been the provision of support for those suffering from dementia. A lack of resources and structures in the health-care system to provide support for patients with dementia creates significant challenges for caring families (Khan & Tadros, 2012). Indeed, studies from India find that dementia sufferers are primarily provided with care by female caregivers and children (Alzheimer’s Disease International, 2009). Efforts to address key gaps and support informal caregivers are slowly emerging in India. These include models of care where health workers are trained to provide home-based care for people with dementia under the supervision of a psychiatrist and have been shown to be effective in a clinical trial done between 2003 and 2005 (Dias et al., 2008). There are also NGOs such as Old Age Solutions, HelpAge India, the Dignity Foundation, the Alzheimer’s and Related Disorders Society of India (ARDSI) and others that provide support and counselling to informal caregivers.

5.10 Palliative care

Palliative care is known as supportive care that improves the quality of life of patients (adults and children) associated with life-threatening conditions such as cancer, cardiovascular conditions, Parkinson disease, HIV/AIDS and other health conditions (WHO, 2020). Interventions around palliative care range from tertiary-care services to community health services to care at patients’ homes, by ensuring that patients receive relief from pain and symptoms, accompanied by counselling and psychosocial support.

While some elements of palliative care have been integrated into national health programmes, the area is still in a nascent stage of development in India. In India, the first pain clinic and palliative care service was opened in the 1980s under the department of Anaesthesiology at Gujarat Cancer and Research Institute, and alongside the formation of the Indian Association of Palliative Care (IAPC) in Ahmedabad (Khosla et al., 2012). During the 1980s, pain clinics were also established at the Regional Cancer Centre, Trivandrum and the Kidwai Memorial Institute of Oncology, Bangalore. Currently, there are 25 regional cancer centres, and some of these have developed palliative care services for their patients. However, the adequacy and accessibility of palliative services remains poor, with less than 50% of regional cancer centres having palliative care facilities (Directorate General of Health Services, 2011) and less than 3% of India's cancer patients having access to adequate pain relief (Rajagopal, 2001). This gap in services is exacerbated by drug unavailability problems, particularly morphine, caused by the Narcotic Drugs and Psychotropic Substances (NDPS, 1985) Act of India, which hinders procurement of morphine (Rajagopal and Venkateswaran, 2004). In 1998, the Government of India recommended that state governments try to simplify their narcotic regulations, but not enough has happened in terms of regulations, so that drug procurement remains a serious problem.

There are limited national-level data on the availability of palliative care services, but available evidence points to a serious gap between needs and available services. In 2008, a study estimated that there were 138 organizations providing hospice and palliative care services in 16 states or union territories, with services concentrated in large cities and regional cancer centres, and 88 home-care programmes (McDermott et al., 2008). A study in 2012 found 150 institutions actively engaged in palliative care delivery (Khosla et al., 2012). A study from Kerala found the elderly population facing extreme financial distress, with home-based palliative care under existing programmes being largely clinically focused and irregularly provided. Moreover, suboptimal housing conditions such as lack of water, sewage system and indoor air quality meant that home-based palliative care was unlikely to provide an adequate answer to the end-of-life quality care needs of the geriatric population (Jayalakshmi et al., 2016).

Not surprisingly, given the decentralized nature of health-care in India, states, public and private charitable trusts have adopted different approaches to palliative care:

- Kerala has been a pioneer, with a network of more than 100 facilities supported by about 4000 trained volunteers during 2008 (Government

of Kerala, 2008). It was also the first state to formulate and implement a palliative care policy in 2008, and currently all districts in the state have palliative services through a partnership, under the leadership of the Local Self Government department (Directorate General of Health Services, 2011). The focus of the policy is largely centred around home-based care and involvement of the family. Currently, the Kerala Social Security Mission is implementing the Vayomithram project that provides free medicines, palliative care, counselling service to the old age population (Kerala Social Security Mission, 2010).

- Karunashraya Bangalore Hospice Trust is a 55-bed hospice with both home and hospital-based services. The Neighbourhood Network of Palliative Care (NNPC) was formed in 2001 as a joint venture with four NGOs and eight palliative care centres (Kumar, 2007). The Network aims to develop a “community-led” service capable of offering comprehensive long-term and palliative care through trained neighbours.
- The Chandigarh Palliative Care service was started by the Department of Radiotherapy, Postgraduate Institute of Medical Education and Research and the Chandigarh branch of Indian Red Cross Society, with the aim of ensuring continuity of cancer care by integrating palliative care into comprehensive cancer treatment (Bansal et al., 2003).

5.11 Mental health care

Mental disorders constitute a serious health burden on Indians. A national survey across 12 Indian states revealed that the prevalence of current and lifetime depression is approximately 10.6% and 13.7%, respectively (NIMHANS, 2016). The prevalence of mental illness was the highest in the age group 40–49 years, characterized by psychotic disorders, bipolar affective disorders, depressive disorders, and neurotic and stress-related disorders. The survey also revealed that those in the age group of 50–59 years suffered the most from substance use disorders. There is cross-state variation as well, with Assam and Manipur in the northeast of India reporting the lowest and highest lifetime prevalence of mental disorders of 8.1% and 19.9%, respectively. The survey findings also demonstrated a significant treatment gap (defined as the number of people with active disease who are not on treatment or on inadequate treatment, expressed as a percentage of the total number of people with active disease) underlying various disorders: common mental disorder (85%), severe mental disorder (74%), psychosis (76%), bipolar affective disorder (70%).

India was one of the first developing countries to have a national programme for mental health, launched as the National Mental Health Programme

(NMHP) in 1982. The Indian Mental Healthcare Act, 2017 replaced the earlier 1987 Mental Healthcare Act, as the latter was considered inadequate for dealing with issues around consent, and was focused on legal considerations rather than medical considerations, on criminal intent of patients admitted to hospitals with mental illness, and placed less emphasis on community²⁸ and family-level psychiatry. The (new) Act of 2017 aspires to establish the parity of mental disorders with physical disorders, and to regulate all facilities providing psychiatric care, irrespective of whether they practise allopathy or AYUSH. It also seeks to promote systems that help protect personal liberties, and to establish guidelines for insurance agencies to avoid discrimination against mental illness along with other changes. Policy changes in the past few decades have also led to the establishment of general hospital psychiatry units (GHPUs) at government teaching and other major hospitals and increased the accessibility of mental health-care services. The NMHP now provides community mental health services in 123 districts through a District Mental Health Programme, which integrates primary-level mental health-care with support from local health teams (WHO, 2011). In other districts, mental health services are delivered by psychiatrists based at tertiary-level facilities.

There are 42 mental health institutions with fewer than 26 000 beds, and 50% of these beds are occupied by long-stay patients. There are almost 4000 mental health outpatient facilities and 10 000 psychiatric beds in general hospitals, though little is known about the mix of beds for acute, chronic and long-term care. The mental health workforce faces major shortages. It is estimated that there are 3 psychiatrists, 1.6 mental health nurses, 0.47 psychologists, and 0.33 social workers per 1 million population in India. A significant proportion of the mental health workforce is concentrated in the private sector. The lack of training facilities in clinical psychology, psychiatric social work and psychiatric nursing is a major limitation for the delivery of mental health services in community and rural areas where access to medically trained psychiatrists tends to be limited.

5.12 Dental care

India's oral disease prevalence is high, with dental caries and periodontal diseases being the most prevalent. A national survey suggested that the prevalence of dental caries is both high and increasing in age (Dental Council of India, 2004). A meta-analysis of dental caries in India suggested that the

28 Community psychiatry refers to health services provided to the persons and families with mental illness within the community using community resources. Community settings may be any religious place, including a dharmashala, gurudwara, or any other place in the community.

mean deft/DMFT was 2.36, 1.95, 3.31 and 7.01 among the age/age groups of 5, 12, 15 and 65–74 years, respectively, with a prevalence rate of 50.0%, 52.5%, 61.4%, 79.2% and 84.7% for age-groups 5, 12, 15, 35–44 and 65–74 years, respectively (Janakiram et al., 2018). Similarly, for periodontal diseases, the prevalence rate was 55.4%, 89% and 79.4% for age groups 12, 35–44 and 65–74 years, respectively.

While dental care has traditionally been considered as part of primary health-care, dental health services at the PHC level are unavailable in most states in India. Dental facilities in public sector facilities are available mostly at the CHC level or higher. Most practising dentists in India are concentrated in the private sector (over 90%) and in urban areas (Rao et al., 2012). These factors have led to a pronounced inequity in the distribution of dental health care between rural and urban areas. There are no regulations on prices, and there is limited oversight on the quality of dental services. In 2014, the DCI released several guidelines, which include information on dental ethics, duties and obligations of dentists, maintenance of clinical practices, dental records, display of registration numbers, rational prescription of generic drugs, quality of services and payment for professional services (Dental Council of India, 2014). Unfortunately, these guidelines are neither enforced nor implemented in any registration or accreditation process. The number of dentists has been increasing rapidly in India and in 2016 there were an estimated 1.2 dentists per 10 000 population. During 2017–2018, an estimated 313 dental colleges trained undergraduates, culminating in a bachelor's degree. However, there is considerable interstate variation: significant shortages of dental surgeons exist in Gujarat, Uttar Pradesh, Odisha and Maharashtra.

The National Oral Health Policy was drafted in conjunction with the Indian Dental Association and accepted, in principle, as part of the NHP 1983. The MoHFW also set up a National Oral Health Care Programme in 1998. AIIMS is the nodal agency for implementation of the National Oral Health Care Programme and has focused on upskilling dentists and health workers, and printing and distributing information, education and communication (IEC) materials. There is also a National Programme for the Prevention and Control of Fluorosis (NPPCF), which has been implemented in 100 high-fluoride districts. The Fluorosis Programme emphasizes surveillance of fluorosis in the community and among schoolchildren, as well as capacity-building and provision of diagnostic services, health education and awareness generation, and the management of fluorosis cases through surgery and rehabilitation.

5.13 Complementary and alternative medicine (CAM) and traditional medicine

The practices of AYUSH have traditionally been accessed by large numbers of people in India. A national sample survey in 2014 suggested that nearly 7% of all outpatient care utilization involved AYUSH services (Rudra et al., 2017). In a later survey carried out by the same organization (2017–2018), the share of outpatient services provided by AYUSH providers was found to have declined to 4.4% (NSSO, 2019).

The importance of traditional systems of medicine in health service delivery has been recognized from very early on. The NHP 1983 recommended that the Indian Systems of Medicine and Homeopathy (ISM&H) be retained alongside mainstream allopathic services. AYUSH services are managed the Ministry of AYUSH at the Centre, which focuses primarily on developing educational standards and research, quality control and standardization of drugs, and awareness generation. AYUSH drugs are also under the purview of the Drugs and Cosmetics Rule, 1945. The Department of AYUSH oversees medicines procurement, quality assurance and drug testing along with the Pharmacopeia Commission of India.

The delivery of AYUSH services has been promoted on a “twin-track” model with simultaneous integration of AYUSH practitioners into the public system, via the NHM and in primary care facilities, as well as the development of a parallel system of AYUSH service delivery through specialist hospitals, teaching hospitals and dispensaries, although most AYUSH practitioners – about 94% – work in the private sector (Rao et al., 2012; Karan et al., 2019), the MoHFW has actively sought to integrate AYUSH into primary care service delivery. This has been achieved by co-locating both traditional and biomedical systems of medicine in 613 district hospitals, 4809 CHCs and 23 887 PHCs (as of March 2012). About 800 000 AYUSH registered doctors are reported as practising in the country (CBHI, 2019). Nearly 23 000 AYUSH doctors and 6500 paramedical staff have been employed in the public health system, with dispensing of AYUSH drugs also done through primary care dispensaries. The current estimate suggest that the density is about 0.61 per 1000 population in 2018. In many rural areas, AYUSH practitioners are the first point of contact for patients, even though the population relies substantially on allopathic treatments.

5.14 Unqualified and informal health-care providers

Informal health-care providers are often characterized by lack of professional affiliation, or registration with any government regulatory body, and often operate outside the purview of any formal regulation, largely

independently. They are, however, culturally closer to the community in which they live. One study highlighted that one in four health professionals during 2017–2018 did not possess the required qualifications (Karan et al. 2019). In a survey of 1519 villages conducted during 2009–2010, the findings suggest that 86% of providers are from the private sector, while 68% of health-care providers in rural India were “informal providers” who lacked formal medical training (Das et al., 2020). Highlighting the issue of health-care quality in rural India, an audit found that although many private providers did not possess the required qualifications, they completed treatment checklist items more often than public providers and apparently recommended correct treatment options (Das et al., 2016). Another study conducted during 2012 in Uttar Pradesh underscored the dominance of such unqualified providers in outpatient visits. Women and Muslims in the sampled Uttar Pradesh villages preferred low-quality unqualified providers while men were found to access unqualified providers much more often than women for fever for four or more days (Iles, 2018). Informal providers do not operate in isolation but in a complex continuum, wherein they act as a first point of contact but end up referring patients with complex conditions to a private doctor or hospital as referrals. One study in Andhra Pradesh found that 40% of informal providers were found to have received kickbacks for referrals from other private doctors, while a smaller share received gifts in the form of medical equipment and medicine samples (Center for Health Market Innovations, 2010). Some authors have suggested integrating informal providers into the formal health system through training as a short-term strategy to improve the quality of health-care by informal providers (Das, 2016).

6. Principal health reforms

Chapter summary

India has gone through three major national health reforms/policy development phases. The period from 1946 to 1982 was marked by a shaping of policies and programmes for post-Independence India, most notably in the form of five-year plans and emphasis on family planning programmes. In the first phase, contrary to the Bhore Committee report, which had called for strengthening of government health systems and increase in financing for it, politically there was an overemphasis on population control strategies, to the neglect of other key programmes, including communicable diseases and reproductive and child health conditions. The second phase of policy developments, spanning the period from 1983 to 2001, was underscored by major economic reforms and macroeconomic stabilization measures that led to a decline in public spending, expansion of private curative care, contraction of public health-care provision and a near absence of recruitment of health personnel. The third phase of policy developments spanning the years 2002–2020 is characterized by six key health sector reforms/policy developments. These reform initiatives represent major shifts in policy approaches towards the financing and the delivery of health-care. Some of these developments are:

- establishment of the NRHM;
- establishment of government-funded health insurance schemes (RSBY, PM-JAY and state government-based health insurance schemes);
- reforms in the pharmaceutical arena, including drug and medical device price regulation, moving from process to product patent system, etc.;
- the Clinical Establishments Act, 2010 and Rules, 2012;
- the NHP 2017; and
- Ayushman Bharat 2018.

Some of the policy reforms have been broad-based and aspirational in nature, whereas others represented specific initiatives accompanied by budgets and plans. They are likely to shape the way India addresses key questions determining population health over the next few decades.

6.1 Analysis of key policy developments since 1950

The Indian health system, characterized by a mix of public and private providers across traditional and allopathic systems of medicine, is spread across vast geographical and population diversity and scale. The Indian Constitution recognizes health as the responsibility of state governments, but the financing and regulatory mandate is split between the Central and state governments (although local bodies play a limited role). Broadly speaking, India has experienced three major periods of reform since Independence as listed below. A common characteristic across all these reform periods is the differing levels of commitment to achieving transformations, as captured by a mismatch between proposed aspirations and funding allocations.

The three phases of policy developments/reforms are (Table 6.1):

- a. Phase I (1946–1982) – characterized by the Bhore Committee report and the establishment of a national structure for public health service delivery, underpinned by the principle that “The need for assuring the distribution of medical benefits to all, irrespective of their ability to pay, has also received recognition” (The Health Survey and Development Committee – Bhore Committee, 1946).
- b. Phase II (1983–2001) – new focus on promoting primary health care, the introduction of the first NHP in 1983 and a period of significant economic reforms of structural adjustment and macroeconomic stabilization since 1991.
- c. Phase III (2002–2020) – from the launching of the NRHM in 2005, preceded by the second NHP in 2002 and subsequent introduction of GFHI strategies to the announcement of the third NHP in 2017.

Table 6.1 Chronology of India’s health policy reforms and key milestones

Phase I (1946–1982)	
1946	Bhore Committee: outlined commitment to the health system at all levels, focusing on the development of a primary care health architecture in India
1951–1980	Five-year plans for national economic development were designed, executed and monitored by the Central Government. During this period, five-year plans were executed (1951–1956; 1956–1961; 1961–1966; plan holidays (1966–1969); 1969–1974 and 1974–1978 and rolling plans (1978–1980). A large share of funds for the health sector from the Central to state governments was transferred through this route.
1951–1955	Community Development Programme: multipurpose programme mainly covering health and sanitation, while emphasizing other determinants; focus on vertically driven programmes on diseases such as malaria, smallpox and other infectious diseases.

Table 6.1 Chronology of India's health policy reforms and key milestones (contd)

1956–1962	Health Survey and Planning Committee (Mudaliar Committee, 1962): PHCs to be created to cater to populations of 40 000 people. They should provide preventive, promotive and curative services besides improving the quality of care.
1967	Jungalwalla Committee: integration of services, organization and personnel from the highest to the lowest level of health services.
1973	Kartar Singh Committee: PHCs for every 50 000 persons, with 16 subcentres under one PHC, serving a population of 3000–5000 (at the time PHCs were serving populations of 80 000–150 000).
1975	Shrivastava Committee: creation of paraprofessional and semiprofessional health workers, along with referral services.
1977	Rural Health Scheme: training of community health workers, multipurpose workers and community health volunteers.
1978	Alma-Ata Declaration and Health for all to be achieved by the year 2000.
Phase II (1983–2001)	
1980–2002	Continuation of five-year plans during this period involving the sixth to ninth plans (1980–1985, 1985–1990, 1992–1997, 1997–2002)
1983	First NHP in 1983, shift of focus from development of health systems and infrastructure for primary health care and ensuring health equity to vertical interventions
1991–2004	Health sector reforms: macroeconomic stabilization and structural adjustment policies – fiscal consolidation entailed sharp and significant reduction in government spending on health; curative care to be largely left to private sector delivery while preventive care delivery to be prioritized by the government. The period underlined the impact of economic reforms that culminated in the contraction in public sector capacity as recruitments of the health workforce stopped/slowed, while private sector capacity grew. New private medical colleges were established. Selective primary health care became de rigueur.
2000	National Population Policy 2000: development of one-stop integrated and coordinated service delivery at the village level for basic reproductive and child health services; address unmet need for contraception; bring total fertility rate to replacement level by 2010.
Phase III (2002–2020)	
2002–2017	Continuation of five-year plans involving the period tenth–twelfth plan (2002–2017) and end of five-year plans
2002	Second NHP in 2002: accelerate access to decentralized public health system by establishing new infrastructure in deficient areas and upgrading existing institutions; facilitating enhanced contribution of private sector delivery mechanism for those who can pay for services.

Table 6.1 Chronology of India's health policy reforms and key milestones (contd)

2005	Transition from process to product patent system, 2005: National Commission on Macroeconomics and Health report outlined major bold reforms. NRHM. Key approaches: (i) community involvement and bottom-up planning; (ii) flexible financing; (iii) introduction of community volunteers, ASHAs; (iv) health system strengthening with focus on safe deliveries; (v) human resource management to generate more human resources.
2007	Introduction of State-sponsored insurance schemes: Yeshasvini, Karnataka (2003); Rajiv Aarogyasri, Andhra Pradesh (2007); RSBY (2008); other states implemented their own schemes.
2010	Enactment of Clinical Establishments and Regulation Act, 2010 and Rules in 2012.
2011	High-Level Expert Group for Universal Health Coverage for India. A framework for UHC for India developed and inputs for the Twelfth Five-Year Plan (2012–2017) provided.
2013, 2015	Drug Price Control Order, 2013 and 2015.
2017	NHP 2017.
2018	Ayushman Bharat initiated with focus on creating health and wellness centre at the primary level care and expansion of government-funded health insurance scheme into PM-JAY.
2020	Establishment of National Medical Commission in 2020.

Source: Authors' synthesis from respective policy documents

The discussion that follows outlines various reform phases and their implications for health system outcomes, especially equity, effectiveness, efficiency, quality of care and financial risk protection measures.

6.1.1 Phase I (1946–1982): policy developments post-Independence

India gained Independence in 1947, at which point the subcontinent was divided into India, West Pakistan (later Pakistan) and East Pakistan (later Bangladesh). Pre-1947 statistics include people living in these areas. In the period immediately before the attainment of Independence and in response to popular demand, the British Indian government set up the "Health Survey and Development Committee", later known as the Bhole Committee. The terms of reference for the Bhole Committee included carrying out a broad survey of the health system and health conditions in the country and providing recommendations for the future development of India's health system. The Bhole Committee released its report in 1946, providing information on the abysmal state of India's health system and health

outcomes of its population. Male and female life expectancy was below 30 years, largely driven by high infant mortality rates, similar to other British colonies (Palestine, Ceylon [Sri Lanka] and Egypt) (Duggal, 1991).

The Committee identified four key reasons for this situation: unsanitary conditions, poor nutrition, inadequate health services, and a lack of general and health education. The report noted that there was only one hospital bed for every 4000 people, one doctor for every 6300 people and one nurse for every 43 000 people. Based on the principle that all people should have access to necessary health services, the Bhore Committee outlined a long-term vision with the goal of setting up a public health infrastructure to improve population health in India. The policies recommended by the Bhore Committee Report included the development of a multilevel health service delivery system and a focus on reducing urban–rural health service inequalities.

While these recommendations were accepted by successive governments following India's attainment of Independence, a lack of political will, reflected in insufficient funding and an unclear strategy for implementation led to limited progress towards achieving the Bhore Committee vision (Duggal, 1991). Furthermore, post-Independence India prioritized economic growth via the mechanism of five-year plans. Five-year plans were designed, executed and monitored by the Central Government and although significant resources were allocated to investments in the health sector through these mechanisms, overall less priority was assigned to health and other social sector expenditures. During the period from 1951 to 2017, 12 five-year plans were implemented, channelling the transfer of a large percentage of funds for the health sector from the Central to state governments.

With the replacement of the Planning Commission, which used to execute these five-year plans, by NITI Aayog (National Institution for Transforming India) in 2014, the plan-based investment strategy formally ended in 2017. The 4th five-year plan was particularly significant as it financed the implementation of a family planning programme that resulted in a mass and controversial sterilization exercise to control the population (Qadeer, 2000). Until the 5th five-year plan, the policy emphasis was largely on preventive and promotive programmes that focused on control of communicable diseases, including smallpox, tuberculosis and malaria alongside reproductive health and population control (Planning Commission of India, 1974). Many of these vertically oriented programmes represented a continuation of the colonial, tropical medicine approach to health. For much of the plan period, health policies related to prevention and promotion were shaped and funded (between one half and two thirds of state budgets) by the

Central Government whereas investments for curative care were financed by state governments (Duggal, 2002). The direct result of failure of the vertical programmes led to undermining of other programmes and distorted funding priorities in favour of family planning programmes (Qadeer, 2000). At the state level, the focus was primarily on curative care delivered via hospitals and dispensaries.

The period between the formation of the Mudaliar Committee, 1962 to review progress since Independence, and the formulation of the NHP in 1983, also saw the formation of several government committees that were assigned to review different aspects of the public health system. These are outlined in Table 6.1 and their recommendations largely experienced the same follow up as the Bhore Committee report – a mismatch between aspirations of the committees and tangible commitments as measured by policy changes and resource allocations for health.

6.1.2 Phase II (1983–2001): policy developments from 1983 to 2001

The 1978 Alma-Ata Declaration, as part of the International Conference on Primary Health Care, outlined a bold vision for the achievement of “an acceptable level of health for all people of the world by the year 2000”. The Declaration identified the need to reorient health systems away from biomedical curative models towards holistic approaches to health. It further reiterated the responsibility of governments in driving reforms to achieve the bold target of health for all. This, combined with the Indian Council of Social Sciences Research–Indian Council of Medical Research (ICSSR-ICMR) report in 1980, had a significant influence on the thinking in the Sixth Plan of the Indian Government. The plan noted that “there is a serious dissatisfaction with the existing model of medical and health services” and emphasized the need for a “community-based health system”. The impetus provided by these global and domestic shifts led to the articulation of India’s first NHP in 1983.

The key features of this policy as identified by R. Duggal were (Duggal, 2001):

- It was critical of the western, biomedical, curative model of health care.
- It emphasized a community-based, preventive health-care approach. This included the acceleration of public investments in the social determinants of health, and access to clean water supply, nutrition and sanitation.
- It recommended a decentralized health-care system of which the key features would be the promotion of non-professional health workers (i.e. community health workers) and greater community participation.
- It also called for an expansion of the private sector to help reduce the government’s burden in health-care provision.

The impacts of the 1983 policy can be understood only within the context of the profound changes the Indian economy was undergoing during the 1980s and subsequently in 1990s. The first three decades following India's Independence from the British had been characterized by slow economic growth, sometimes labelled the "Hindu rate of growth", partially caused by the rigidities of a planned and closed economy. Trade liberalization was introduced during the mid-1980s and the government also increased public spending (including on health) to stimulate domestic demand. Government spending (Central and states together) on health as a share of GDP averaged 1.5% during the mid-1980s, the highest in India's post-Independence history. However, increased public spending, whether for health or other purposes, was largely financed by commercial borrowing. A growing fiscal deficit situation was compounded by a worsening balance of payments situation with trade liberalization (Chandrasekhar & Ghosh, 2002). To address the large fiscal imbalance and depleting foreign exchange reserves, India was forced to take loans from the IMF and World Bank, which led it to introduce further economic reforms driven by a structural adjustment programme (Sen, 2001).

The economic policies emerging from the structural adjustment programme were intended to open up the economy, and to limit the role of the state in the provision of services, and generally to create a conducive environment for private enterprise. Stabilization policies sought to address fiscal deficits and balance of payment gaps via reducing government expenditure, and sector-specific reforms that increased the role of the market mechanism in traditionally state-dominated areas. Thus, user charges were introduced in public sector services including health, some public services were privatized, and public-private partnerships were promoted. Private sector participation in health, especially in comparatively more profitable areas such as superspecialty hospitals, was promoted through contracting out of clinical and non-clinical services and the introduction of user charges in public facilities for outpatient and inpatient services for the non-poor. Tax incentives (including reduction in import duties) for medical devices and other capital goods, along with free land and cheap electricity were offered to private health providers for setting up hospitals and clinics (Ravindran, 2010).

Not surprisingly, the 1990s were characterized by a considerable decline in Central and state government spending on health and social sector expenditure in India (Mahendra Dev & Mooij, 2002); (Duggal et al., 1995). Lowered public sector spending on health resulted, in turn, in a sharp rise in households' OOP payments for health services, including on medicines (Duggal et al., 1995). Reduced allocations to the public health-care sector and associated a decline in quality facilitated the growth of the private sector as a provider of curative services (Varatharajan, 2003). Despite the ambitions

of the NHP 1983 that emerged in the aftermath of the Alma-Ata Declaration, India's economic challenges, reflected in lowered public sector investments in health and a climate of liberalization paved the way for a rapidly growing private health sector. Although there is some evidence that indicators of financial risk protection related to ill-health have deteriorated alongside a growing private sector, health outcomes have been improving steadily over time in India. These are likely the result of rising incomes and gains in sanitation, access to water, housing and other basic amenities rather than any significant changes in the Indian health system.

6.1.3 Phase III (2002–2020): policy developments/reforms in the past two decades

The second NHP was announced in 2002. This was followed by several far-reaching reforms, which focused on strengthening the Indian health system. The most significant of these are as follows:

- a. National Rural Health Mission in 2005;
- b. National and state-specific GHFI schemes;
- c. Clinical Establishments Act, 2010 and Rules in 2012;
- d. Policy reform in pharmaceuticals – moving from process to product patent system in 2005, medicines, price ceiling policies of 2013, 2015 and price ceilings on medical devices;
- e. Third NHP in 2017;
- f. Ayushman Bharat 2018 – creating and strengthening health and wellness centres at primary-level care besides strengthening financial risk protection measures through expansion of GHFI schemes at secondary and tertiary levels.
- g. Establishment of National Medical Commission in 2020.

a. National Health Policy (NHP) 2002

The NHP 2002 (MoHFW, 2002b) was designed in the wake of India's dismal achievements at the time of the deadline (year 2000) for attaining the goals of the Alma-Ata health-for-all goals, the agreement on the MDGs and the lack of substantial progress towards the stated objectives of the NHP 1983 (MoHFW, 1983). The NHP 2002 described the key challenges that the Indian health system was confronting. These included the lack of accessible and good quality public health-care facilities, the inequitable distribution of services and health personnel, and a lack of effective regulation and oversight of health sector functioning. The NHP 2002 laid out a framework that emphasized equity, sustainability, efficiency and quality to evaluate progress in the health system and a roadmap for the health sector moving forward. The NHP 2002 also committed the government to spending 2% of

GDP on health sector activities, increasing Central Government allocations to states and providing more targeted assistance to marginalized and vulnerable groups. However, other elements of the policy, including its focus on privatization and on the potential role of the private sector in health, were controversial. There also appeared to be a mismatch between the identified problems and the stated solutions.

b. The National Rural Health Mission/National Health Mission

As a result of political changes in 2004 elections, the government of the day undertook a major health system reform in 2005. The NRHM, now known as the NHM, was launched in 2005. The introduction of NRHM ought to be viewed in the context of the NHP 2002 and its ambition of bridging urban-rural inequities as well as the long history of similar aspirations in previous committee reports and policy documents. The main goals of the NRHM were to provide accessible, affordable and good quality health-care services in rural areas and to improve maternal and child health outcomes. This was to be achieved through a mix of strategies, including improving rural health infrastructure to meet local needs, introducing incentives to improve public sector service quality, to influence health-care seeking behaviour, and generally increasing public spending on health.

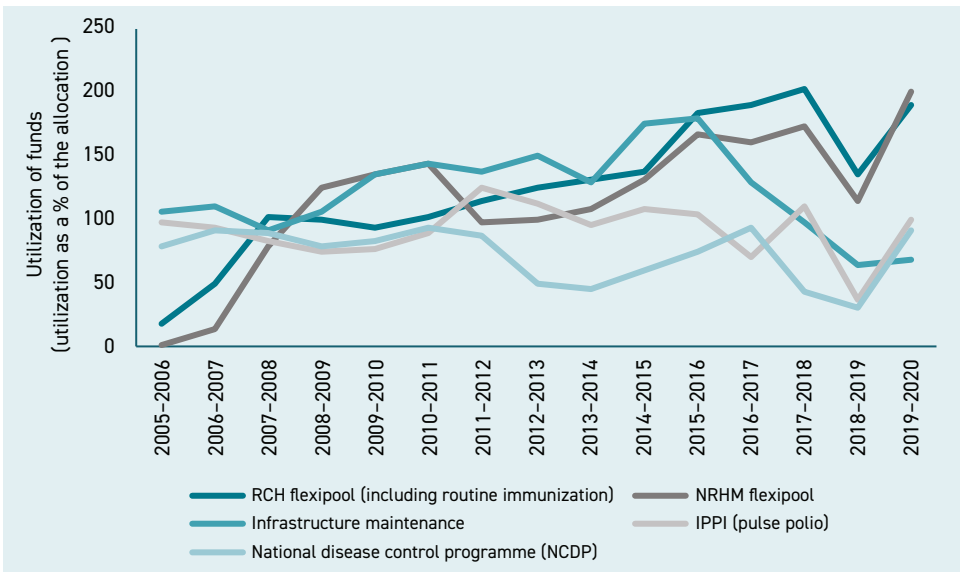
The NRHM was crafted as a “mission” in order to underline its high priority and to generate needed intensity in its implementation. Vertical, top-down, disease-specific programmes were sought to be replaced by bottom-up planning along with flexible budgets to support planning and implementation at the state, district and facility level. Village health and sanitation committees (VHSC) and RKS were introduced as a mechanism to increase community participation in decision-making, implementation and accountability processes related to health, RKS were provided with untied funds to support their functioning. The NRHM also introduced the JSY, a conditional cash transfer programme for pregnant women, to increase the number of institutional deliveries and reduce maternal mortality. A new cadre of community health workers, the ASHAs, was also introduced under the NRHM to serve as a link between the community and the health system and to help generate demand for health care for people in rural areas.

Increased funding flexibility that was provided under the NRHM helped spawn a number of innovations at the state level. These included moves towards referral transport system (Andhra Pradesh, Haryana, Madhya Pradesh), and mobile health, tele-health and e-health initiatives (Tripura). In Chhattisgarh, community health workers called Mitans played a crucial role in improving people’s access to health-care services through demand-side interventions and via an innovative Nutrition Security Innovation Project that promoted

appropriate feeding practices and facilitated dissemination of benefit entitlements under the public distribution system (PDS) (Nandi et al., 2016).

Evaluations of the NRHM suggest that it produced mixed results. The share of government health expenditure improved from the time NRHM was introduced, but not to the levels envisaged in the NHP 2002. There were concerns that states might lower their health funding allocations with a rise in Central allocations, but this has not been borne out by the evidence. Before the introduction of the NRHM, state governments' health expenditures averaged 3–4% of their aggregate spending, and this increased to 5% over the duration of the NRHM. Fund utilization (an indicator of absorptive capacity) of NRHM resources also increased over time. One of the advantages of routing funding under the NRHM (via societies) was the ability of local institutions to roll over funds left unutilized from one year to the next, an option not available under traditional mechanisms where funds had to be returned to the treasury. Figure 6.1 depicts trends in utilization of funds by NHM programmes at the state level. Despite a lack of initial momentum in fund utilization, RCH flexipool and NRHM flexipool and infrastructure funds allocated during the past 15 years spent, exceeded their annual allocations. This implies that funds that were left unspent in earlier years were rolled over and spent in later years, which explains the reason for utilization rates exceeding 100%. The only programme that underperformed under the NHM was the National Disease Control Programme (NDCP) with sustained underutilization of funds.

Figure 6.1 Utilization of NHM funds by its components, 2005–2006 to 2019–2020



Source: National Health Mission, Financial Management Report (Various years).

The proportion of deliveries in institutions, which reduced the risks of mortality to mothers and newborns at the time of birth, also rose sharply during the period NRHM was implemented, from 39% of all births in 2005–2006 to 79% in 2015–2016 (IIPS, 2016; IIPS, 2007). There has also been a decline in interstate inequalities as the share of institutional deliveries has increased faster in poorer Indian states relative to their higher-income counterparts (Vellakkal et al., 2017). There is also some evidence that declining socioeconomic inequalities in institutional births were driven by institutional births in public facilities becoming pro-poor (Joe et al., 2018). Another study showed that the referral transport facilities improved institutional deliveries (Thakur et al., 2011; Prinja et al., 2014).

ASHAs have also played a key role in the success story of institutional births. ASHAs whose numbers are now over one million, have acted as a critical link between the health system and the community, serving as facilitators, mobilizers and providers of community level care. Several studies have shown the positive impact of ASHAs in maternal and child health-care delivery. One study revealed that exposure to ASHA services increased the likelihood of at least one ANC visit by 17%, and four or more ANC visits by 5%, a 26% increase in deliveries by skilled birth attendants and a 28% increase in facility-based deliveries (Agarwal et al., 2019). Another study concluded that the presence of ASHAs was positively associated with DPT and measles vaccination coverage at the district level, although not with BCG, polio vaccine, or full vaccination coverage (Wagner et al., 2016).

From a modest 0.73 million beneficiaries in 2005–2006, the JSY beneficiaries has now reached over 10 million beneficiaries annually, the conditional cash transfer programme intended to improve institutional birth rates. Moreover, available evidence suggests that 89% of the pregnant women who delivered in government health institutions received free medicines, 82% received free diagnostics, and 49% received free transportation to health facilities (MoHFW, 2020a). Independent evaluation studies provide mixed results about NRHM. One such study evaluated the JSSK – finding that in Chhattisgarh, 85% of institutional deliveries were conducted in government hospitals with a relatively higher proportion (96%) in facilities located in tribal areas. However, the study also reported significant gaps in health system preparedness in dealing with deliveries and emergencies. Essential drugs were unavailable, gynaecologists were often absent and facilities for C-section were inadequate. Pregnant women had to pay when delivering: almost 98% reported payments when they accessed private hospitals, but 56% also reported payments when visiting government facilities (Nandi et al., 2016). The flexible financing mechanisms that were a unique feature of the NHM, may have also contributed to leakages and financial misappropriation.

In Uttar Pradesh alone, an estimated INR 50 billion were reportedly siphoned-off from NRHM funds during 2005–2011 (Rawat, 2015).

Table 6.2 reports average OOP medical expenditures for births in public and private institutions from the National Sample Survey data for 2004 and 2017–2018. The data suggest that OOP spending per delivery tripled in nominal terms during this period in private hospitals, compared to a much slower increase in public hospitals. Further, it also reveals that the difference between public and private hospitals for delivery has widened, implying that cost of care has accelerated sharply in private hospitals both in rural and urban areas compared to government hospitals. For instance, while in 2004, the cost of normal delivery in a rural private hospital was four times more than that of a public hospital, in 2017–2018 the difference had increased to six times. During 2017–2018, C-section deliveries were found to be five times more expensive in a private setting in rural areas and about seven times more expensive in private facilities in urban India compared to the same intervention in a public hospital.

Table 6.2 Average medical expenditure per child birth by type of hospital: 2004 and 2017–2018 (INR)

	Rural India		Urban India	
	Public hospitals	Private hospitals	Public hospitals	Private hospitals
	Normal deliveries			
2004	1 165	4 137	994	5 480
2017–2018	2 084	12 931	2 459	17 960
	Caesarean section deliveries			
2004	NA	NA	NA	NA
2017–2018	5 423	29 406	5 504	37 508

Note: Rural Public and private refer to households residing in rural areas accessing public or private facilities; while urban public and private indicate households residing in urban areas utilising government and private health facilities. NA indicates data not available.

Source: Based on social consumption surveys: Health rounds of 60th and 75th National Sample Surveys (NSSO, 2019, NSSO, 2004)

The Common Review Mission (CRM), was a participatory mechanism developed to annually review progress of the NRHM involving multiple stakeholders, including the Central Government, developmental partners, civil society representatives, state government officials and academics. CRM reports concluded that a major reason for poor quality government health services is the lack of skilled providers and health administrators, especially in poorer states such as Chhattisgarh, Uttar Pradesh, Madhya Pradesh

and Jharkhand. One survey of 87 CHCs found that 77 were functioning without specialists, such as gynaecologists/obstetricians and paediatricians (Comptroller and Auditor General of India, 2017). High attrition rates of clinical staff have also been noted across states owing to poor remuneration and stiff competition for clinical posts in urban areas. Bihar, Chhattisgarh, Telangana and West Bengal reported over half the positions for paramedical staff lying vacant (MoHFW, 2017). Relatedly, there appears to be an over-dependence on short-term contracting, which has created high turnover rates and reduced the capacity for good quality service delivery (Comptroller and Auditor General of India, 2009). Evaluations of the NRHM have also found insufficient technical expertise for health planning, implementation and evaluation at all levels of the health system (National Health Mission, 2012).

The NRHM focused on rural populations and did not cover the urban poor who also face major health problems. For instance, neonatal mortality was found to be more than double among the urban poor (bottom quintile) relative to their richer counterparts (top quintile) (33.4 versus 13.7 per 1000 live births), and under-5 mortality among urban poor (bottom quintile) was almost thrice as high as the urban rich (top quintile) (59.3 versus 21.1 per 1000 live births) (IIPS, 2016). It is also well appreciated that high population density, poor sanitation, contaminated water and environmental factors in slums expose the urban poor to diseases such as tuberculosis, malaria, dengue and asthma. While availability of health facilities in urban areas is less of a challenge, given that private health-care institutions and governments' secondary- and tertiary-care hospitals are concentrated in urban areas, financial barriers, social exclusion and poor quality and referral mechanisms across different levels of the public sector inhibit access to health care for the urban poor (National Urban Health Mission, 2013).

As a response, an urban counterpart of the NRHM, the National Urban Health Mission (NUHM), was started in 2013. This was later subsumed under the NHM, which covers both rural and urban programmes. The core focus of the NUHM was to address the primary health care needs of urban poor, including lowering IMR, MMR and improving access to reproductive health care. The NUHM was rolled out in 779 cities and towns with a total population of 77.5 million as of 2015.

c. National and state-level government-funded health insurance schemes

Recognizing the low levels of financial risk protection from illness, particularly for the poor, the Central and state governments in India (often independently of each other) initiated a number of GHFI schemes, mostly for inpatient care. At the national level, the Indian Government launched the RSBY in 2008, with a goal of covering 65 million poor families (roughly 300

million people). The RSBY benefit package was designed to provide coverage for hospital-based surgeries and treatments encompassing nearly 1000 pre-defined packages. The entire premium was paid by the government using general revenues, with the enrolment, provider engagement and claims management process managed by private health insurance companies. Coverage provided access to both public and private providers.

Available evidence suggests that the RSBY was characterized by low enrolment rates and uptake of service utilization, and inadequate financial risk protection (Karan et al., 2017). In 2018, the Central Government launched the PM-JAY (Pradhan Mantri Jan Arogya Yojana – which translates to the Prime Ministers' People Health Programme) that replaced RSBY, with a more generous benefit package and broader population coverage. The PM-JAY is intended to cover 500 million poor and socioeconomically vulnerable people (over 100 million families). The PM-JAY covers about 1592 medical/surgical procedures and health conditions requiring hospitalization with either government hospitals or empanelled private health providers, including allowing treatments for pre-existing disease conditions. The intended beneficiary population are socioeconomically deprived groups as identified by the Socio Economic and Caste Census (SECC) 2011, plus all families enrolled under the RSBY. By removing the cap on family size per eligible household (unlike the RSBY), PM-JAY seeks to provide more complete health insurance cover to households. The PM-JAY is an entitlement-driven mission, without the enrolment process that limited the effectiveness of the RSBY in reaching the beneficiaries.

Several state governments, notably Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Gujarat and some northeastern states have also experimented with such schemes, using their own revenues. The health insurance schemes of Andhra Pradesh and Tamil Nadu, introduced in 2007 and 2009, respectively, covered between 70% and 55% of their total populations respectively (poor, marginalized and middle-income population), and provided annual benefit packages in the range of INR 150 000 to INR 200 000. There were governance mechanisms to enrol patients, empanel hospitals, settle claims with insurance companies, and IT systems to support their work.

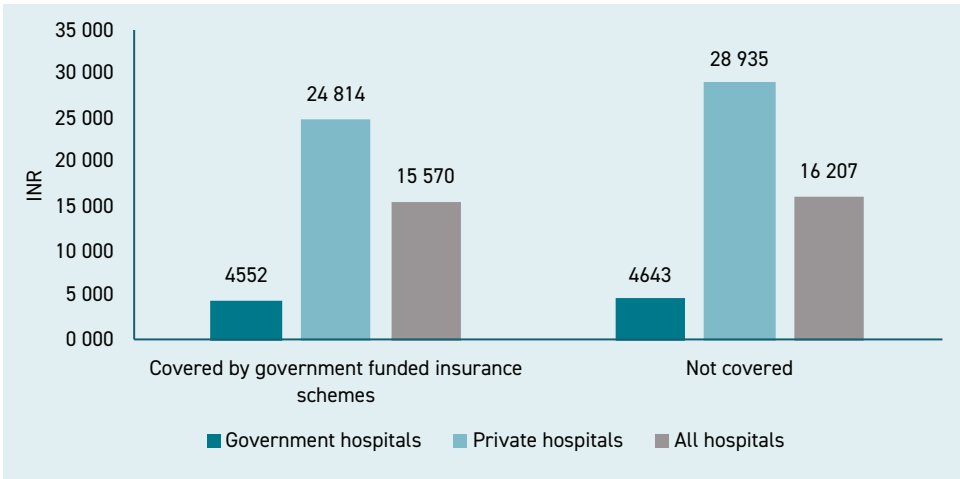
The PM-JAY initiative intends to merge existing state government health insurance schemes under the broader PM-JAY umbrella. To date, the effort to merge the schemes has not been accepted by some state governments (Delhi, Odisha and West Bengal,) with the hesitation attributed to the perceived superiority of the existing state government schemes, and the weak financial incentives (60:40 ratio of premium contributions between the Centre and states) offered to the states to accept the PM-JAY.

The impact of state-sponsored insurance schemes on financial protection from ill-health, equity in access and fiscal sustainability has been mixed thus far. For example, an assessment of the early phases of the Rajiv Aarogyasri Scheme in Andhra Pradesh, found reductions in OOP payment for hospitalization episodes, but no clear impact on catastrophic health expenditures or impoverishment. Moreover, the scheme appeared not to benefit SC and ST populations who are especially disadvantaged (Fan et al., 2012). A quasi-experimental evaluation of the Vajpayee Arogyashree scheme in Karnataka concluded that for conditions covered by the scheme, OOP expenses were significantly less for enrolled households compared to non-enrolled ones (Sood et al., 2014). However, the overall view is that existing GHFI schemes have not been particularly effective at providing financial protection against medical illness (Prinja et al., 2017).

The effectiveness (or the lack thereof) of the RSBY in providing financial risk protection has been the subject of many analyses (Ghosh, 2014; Rathi et al., 2012; Nandi et al., 2013). Included among the factors causing its low levels of efficacy in improving financial risk protection are: low enrolment rates among the poor, weak targeting so that a considerable section of those enrolled are non-poor (Soumitra Ghosh, 2014); balance billing and/or insufficient coverage by the RSBY, including a lack of coverage for outpatient care (Selvaraj et al., 2014).

During 2017–2018 (prior to PM-JAY), only 19% of hospitalized individuals were covered by one of the existing insurance schemes. About 9% of hospitalized patients were covered by government-sponsored health insurance schemes, 4% by private health insurance and just over 3% received financial support through their employer (NSSO, 2019). Figure 6.2 shows that the difference in OOP payments between those who are covered by government funded health insurance and those not covered is not substantial, suggesting poor financial protection achieved by existing schemes.

Figure 6.2 Average per episode hospitalization expenditure by coverage of insurance schemes and type of provider (INR), 2017–2018



Source: Authors’ calculation based on social consumption: Health 75th Round, 2017–2018, (NSSO, 2019)

The RSBY experience has parallels with the experience of various state-funded health insurance programmes. Evaluation studies of the Rajiv Aarogyasri scheme in Andhra Pradesh showed that for-profit corporate hospitals captured the largest share of covered patients and a large share of claims, and that post-hospitalization expenditures on medicines were not covered under the scheme, resulting in considerable household OOP spending (Shukla et al., 2011).

Apart from household spending on health care, many of the government-funded schemes faced a risk of high fund outflows (claims payments) relative to their resources. In order to address concerns about provider-induced demand for health services, the Chief Minister’s Insurance Scheme in Tamil Nadu had to demarcate over 50 procedures exclusively to public sector hospitals. Another study revealed that given many of the private insurance companies administering state-funded insurance schemes had few incentives to curtail costs (La Forgia & Nagpal, 2012). Not surprisingly, it was found that some of the state health insurance models being implemented to be fiscally unsustainable (Srinath Reddy et al., 2011).

d. Pharmaceutical reforms

Policy reforms in the Indian pharmaceuticals sector have historically placed emphasis on access and affordability of medicines on the one hand, and promoting domestic production of generic drugs on the other. Reforms in the past have focused on a range of issues, including patent systems, price

regulation and public procurement systems for medicines. Although India is sometimes considered a pharmacy for the South, in practice population access to medicines is severely restricted. There are acute shortages of medicines in public health facilities, resulting in their failure to provide medicines to patients in many states. In the private sector, drugs are available but impose an OOP cost on patients and their households. Thus, almost 50% of OOP health spending by households is on drugs.

Indian Patents Act

The Indian Patents Act, 1970 allowed only process patents for pharmaceutical products, and was instrumental in the development of an indigenous pharmaceutical industry. Essentially a “process patent” refers to the granting of a patent on the chemical process resulting in the manufacture of a particular medicine but not on the product per se. Process patenting effectively allowed for the production of low-cost generic versions of existing patented medicines. In 2005, India moved to a “product patent” system, to align with its obligations under the TRIPS (Trade Related Intellectual Property Rights) agreement. This involved the transition to a “product patent” regime under which firms with a new discovery are granted patents on the final product, for a period of 20 years from the date of filing the patent application.

The TRIPS agreement also includes provisions that provide flexibility regarding certain intellectual property provisions for the purposes of safeguarding public health. One such provision is that of “compulsory licensing”, which allows governments to authorize production of certain medications by companies other than the patent-holder, in public interest. In 2012, India issued its first compulsory licence to the Indian generic manufacturer Natco to produce German pharmaceutical company Bayer’s cancer medicine sorafenib tosylate, marketed as Nexavar. The generic version of sorafenib tosylate is now available in India for a price that is 97% lower than the listed Bayer price for its patented counterpart.

The Indian Patents Act, 1970, which was amended in 2005, includes provisions to discourage frivolous patenting thereby seeking to provide patents to only new inventions. Section 3(d) of the amended Indian Patents Act deals specifically with “what are not inventions” and does not recognize new formulations of existing substances that do not “differ significantly in properties with regard to efficacy”. This provision was intended to discourage the practice of new patent applications based on small changes to existing drugs without any major change in the efficacy of the product (sometimes known as “evergreening”). Novartis made one such attempt for its drug imatinib, a life-saving drug used for the treatment of chronic myeloid leukaemia sold under the brand name Glivec. In a landmark judgment in

2013, the Supreme Court of India rejected Novartis' petition to challenge the governments' decision rejecting its application for a secondary patent on the mesylate salt form of imatinib.

Price control of medicines

India's record of price control of medicines dates back to 1963. In 1979, a substantial portion of the pharmaceutical market was brought under price regulation with 347 bulk drugs and their formulations being subject to controls. Market liberalization reforms since the mid-1980s led to large reductions in the number of price-controlled drugs, to 142 in 1986 and to 74 in 1995. The DPCO of 1995 introduced a mechanism of cost-plus based pricing (CBP), which imposed a maximum mark-up on formulations over costs, including that of raw materials, packaging and post-manufacturing expenses.

In 2012, the National Pharmaceutical Pricing Policy (NPPP) introduced a set of criteria for regulating drug prices: (i) "essentiality of drugs" (i.e. formulations as listed under the NLEM by the MoHFW); (ii) control of formulation prices only; and (iii) market-based pricing (Department of Pharmaceuticals, 2011). Based on the recommendations of NPPP 2012, the DPCO, 2013 established ceiling prices of all NLEM drugs, encompassing 628 formulations.

NELM was updated in 2015 and most recently in 2021 although the latest version has not been released yet and the current working version is still the 2015 one. The list of formulations under price control is based on the NLEM 2015, covering 871 formulations related to 376 essential drugs. In addition during early 2019, utilizing another provision of DPCO, 2013 (Para 19 of DPCO 2013), the NPPA brought under price regulation another 42 drugs (involving 72 formulations) and 390 brands of anti-cancer life-saving medicines by invoking regulation on trade margins.

An independent evaluation of the DPCO suggested that the DPCO 2013 pricing policy is based on an overly literal interpretation of the NLEM, and covers less than a fifth of the Indian pharmaceutical market. For example, a substantial share of the Indian pharmaceutical market consists of sales of fixed dose combination (FDC) drugs. However, prices of most FDCs (45% of the total pharmaceutical market) remain outside the NLEM, and hence outside the scope of price control (Selvaraj et al., 2014). These provisions allow a loophole to enable manufacturers to switch drug production to strengths and dosages outside the NLEM, or start producing combinations of NLEM formulations with non-NLEM formulations. Although the government asserts that it would not allow discontinuation of production of NLEM formulations or migration to unscheduled formulations by companies,

existing safeguards are weak. In general, the 2013 DPCO appears focused on reducing prices of the most expensive brands of formulations listed in the NLEM. This it has achieved to a certain extent. However, a more careful assessment of price reductions (decrease in the price of the sales leader, or by value) reveals that of the 419 formulations for which ceiling prices were notified (based on NLEM 2011), little or no reduction was found for 177 formulations (Selvaraj et al., 2014). There is also evidence of coordination among firms to circumvent the effects of price ceilings. An assessment found that pharmaceutical firms coordinated extensively to manipulate price controls in the market for metformin (an anti-diabetic drug), by keeping average prices high before the announcement of price ceilings in 2014. The assessment concluded that partial price regulatory mechanisms in place are only a modest improvement over a situation with no ceiling (Bhaskarabhatla et al., 2016). Another analysis, however, found that the imposition of a price ceiling on atorvastatin, a class of medicines prescribed to lower blood cholesterol, improved the relative market share of the molecule, expanding access to statin medicines to patients (Selvaraj et al., 2018).

State-level initiatives to ensure access to medicines

Various Indian states have played a key role in increasing public access to medicines through improvements in drug procurement and supply chain systems. The Tamil Nadu Medical Services Corporation (TNMSC), set up in 1994, has developed an innovative centralized procurement system alongside a decentralized distribution mechanism. Warehouses have been set up in all district headquarters, from where supplies are sent to publicly owned facilities. A passbook with monetary entitlements is provided to all public institutions, which enables them to obtain medicines from an approved list. Patients can access all essential medicines for free from these public institutions.

Evidence suggests that the scheme has been successful in controlling OOP expenditure on medicines. About 94% of people accessing public facilities in Tamil Nadu receive medicines for free (NSSO, 2019). However, this only covers a limited list of medicines and people still incur significant OOP expenses for medications that are unavailable in the public system. This points to the need to expand the basket of medicines to cover NCDs and other chronic conditions. Other states such as Rajasthan and Kerala have followed the model of Tamil Nadu and achieved some similar gains (Selvaraj et al., 2014). The footfalls involving outpatient and inpatient had risen substantially from 3.44 million before the initiative in Rajasthan began in 2010 to about 7.77 million in 2013, after the roll-out of the scheme to provide free medicines in public facilities. Availability of a basket of essential medicines

has increased substantially at all levels of government health facilities after the initiative (Selvaraj et al., 2014).

e. The Clinical Establishments Act, 2010 and Rules, 2012

Increasing concerns about the poor regulation of health-care services resulting in inadequate quality monitoring, poor diagnosis and treatment protocols and a lack of uniform standards in treatment patterns across different health facilities generated an atmosphere where the need for better regulation was acutely felt (Nandraj & Khot, 2003; MoHFW, 2010). This led to the enactment of the Clinical Establishments Act, 2010, which was intended to enforce common minimum standards of quality for diagnosis, care and treatment.

The Act requires registration of all types of clinical establishments (public, private and providing health care under any system of medicine, including AYUSH) as well as single doctor clinics. The Act also mandated minimum standards for facilities and staff; compulsory treatment of medical emergency cases; transparency about prices charged for each service/treatment by a facility in both English and the relevant local language; compliance with standard treatment guidelines; and maintenance of electronic health and medical records (MoHFW, 2010). The Act, if properly implemented, should also effectively result in a census of all medical establishments, and potentially empower consumers by disclosure of treatment charges and enforcement of adherence to standard treatment guidelines.

The MoHFW has notified the National Council for Clinical Establishments and the Clinical Establishments (Central Government) Rules, 2012 under this Act. The process of registration is done through the District Registering Authority. Provisional registration is granted without inspection of the establishment but permanent registration is granted after the establishment provides proof of compliance to prescribed norms for a period of 5 years. Cancellation of registration is possible for violations of the rules.

The Act is an important step forward for health-care regulation but there have been several issues with its implementation. Under Article 252 of the Constitution, the Clinical Establishments Act would not automatically apply to all states, but would need to be ratified by each state that chooses to implement it and they would have the authority to implement all of the Act, only parts of it, or modified features of the Act. Only 11 states and Union Territories had enacted the Clinical Establishments Act until 2018. With a few exceptions, most of the states have not implemented the Act. This is not surprising. Implementation of the Act requires additional workload at the national, state and district levels and negotiating with both health professionals and building

political support. Its proper implementation also requires an expanded and technically proficient workforce for monitoring and oversight (Phadke, 2016). This is not helped by the fact that there is a lack of clarity on some provisions of the Act. The provisions for state autonomy in implementation of the Act are also at odds with the reasons for establishing the Act in the first place (i.e. increasing the uniformity of standards and quality across states and different types of establishments). States that choose not to implement the Act can legislate a Clinical Establishments Act of their own. Some states have chosen to initiate or even pass an Act, but the experience with implementation is similar. West Bengal, Telangana and Karnataka, among others have enacted their own Clinical Establishments Act. For instance, the West Bengal Clinical Establishments (Registration, Regulation and Transparency), Rules 2017 mandates clinical establishments in the state to obtain a valid licence and to follow norms/standards for facilities, workforce, operating procedures/practices besides containing provisions for maintaining dignity, privacy and confidentiality of patients (Government of West Bengal, 2017).

f. National Health policy 2017 and universal health coverage

Achieving UHC is one of the main Sustainable Development Goals (SDGs). Over time, WHO, other multilateral organizations and domestic stakeholders have urged India to move towards achieving UHC. In October 2010, the Planning Commission constituted a High-Level Expert Group (HLEG) on UHC to develop a strategy for achieving accessible and affordable healthcare for India. HLEG defined UHC as “Ensuring equitable access for all Indian citizens, resident in any part of the country, regardless of income level, social status, gender, caste, or religion, to affordable, accountable, appropriate health services of assured quality (promotive, preventive, curative, and rehabilitative) as well as public health services addressing the wider determinants of health delivered to individuals and populations, with the government being the guarantor and enabler, although not necessarily the only provider, of health and related services” (Planning Commission, 2011).

The HLEG made recommendations in six critical areas – health financing and financial protection, health service norms, human resources for health (HRH), community participation and citizen engagement, access to medicines, vaccines and technology, and management and institutional reforms. One key recommendation was to increase public spending on health from 1.2% of GDP to 2.5% by the end of the 12th Five-Year Plan and to 3% by 2022. The HLEG also recommended streamlining of mechanisms to help ensure the availability of essential medicines and promoting primary health care by increasing the proportion of health expenditure on primary health care (including health promotion and screening) to 70% of all health expenditures. The visions and aspirations contained in the HLEG

document continue to be reiterated by the national government, but have not been acted upon.

The most significant health policy step of the current Union Government is the NHP 2017 (Ministry of Health and Family Welfare, 2017). The NHP 2017 strives for universality, equity, affordability, accountability, patient-centred quality of care, professionalism, integrity and ethics, inclusive partnerships, pluralism, decentralization and dynamism and adaptiveness, that is UHC (Box 6.1). This is consistent with the aspirations outlined earlier by the HLEG on UHC in 2011.

Box 6.1 National Health Policy (NHP) 2017: key features

- Improve health status through concerted policy action in all sectors and expand preventive, promotive, curative, palliative and rehabilitative services provided through the public health sector with a focus on quality.
- Assuring availability of **free, comprehensive primary health care services**, for all aspects of reproductive, maternal, child and adolescent health and for the most prevalent communicable, noncommunicable and occupational diseases in the population.
- Ensuring improved access and affordability, of quality secondary- and tertiary-care services through a combination of public hospitals and **well-measured strategic purchasing of services in health-care deficit areas, from private care-providers**, especially the not-for-profit providers.
- Achieving a significant reduction in OOP expenditure due to health-care costs and achieving reduction in proportion of households experiencing catastrophic health expenditures and consequent impoverishment.
- Align the growth of the private health-care sector with public health goals by making health-care systems more effective, efficient, rational, safe, affordable and ethical. Private sector engagement in commercial terms envisioned in areas such as capacity-building, skill development programmes, mental health, disaster management, corporate social responsibility along with strategic purchasing for curative services.
- **Increase health expenditure by the government as a percentage of GDP from the existing 1.15% to 2.5% by 2025.**
- Provide access and financial protection at secondary- and tertiary-care levels; the policy proposes free drugs, free diagnostics and free emergency care services in all public hospitals.
- Health and wellness centres would provide comprehensive primary health care, which includes geriatric health care, palliative care and rehabilitative care services for citizens who would be linked to the centres through a health card.

The NHP 2017 focuses on universal access to comprehensive services through increased investment, institutional reforms, remodelling and expansion of primary health care, which is comprehensive and free for every citizen. The NHP envisages the use of SHI mechanisms as a pathway towards UHC. For secondary and tertiary care, the NHP 2017 proposes to

use strategic purchasing to expand services. The other key objective is to focus on preventive, curative and palliative care to be provided by the public sector. Despite the ambitious goals outlined in NHP 2017, its formulation was preceded by an almost 20% reduction in government allocations to health in 2015 (Sundararaman et al., 2010). Some critics of NHP 2017 suggest it may indicate an over-reliance on purchasing services from the private sector to achieve its goals. Others argue that while commitments to increase funding allocations are laudable, they have been not been accompanied by a roadmap for how this will occur (Sengupta, 2017; Rao, 2017). Recent developments suggest some clarity in how this may occur. In particular, the recommendations of the 14th Finance Commission (2015–2020) resulted in significant changes in the country's fiscal architecture, whereby the untied portion of Central allocations to states increased, while sector-specific fund allocations (such as Centrally sponsored schemes) declined. Although this allocation structure permits greater flexibility in funding allocations at the state level, it also increases the risk that states with large deficits or limited commitment to health and social expenditure, may lower health spending. This suggests a continued need for coordination across the Central and state governments in maintaining and increasing funding for health required to achieve NHP 2017 goals.

g. Roll out of Ayushman Bharat – Health and Wellness Centres, 2018 and PM-JAY

There is a strong primary care emphasis, mainly taking the form of “upgrading” the existing subcentres into health and wellness centres (HWC), and making PHCs the fulcrum of preventive, promotive and curative care. In the first phase, nearly 150 000 such subcentres are to be converted into HWCs by end of 2022. The HWCs are intended to provide an expanded range of services involving reproductive and child care; management of communicable conditions; screening, prevention, control and management of NCDs; oral and ophthalmic and ENT services; palliative care services; emergency care and; screening and management of mental health conditions. Besides emphasizing social determinants, this programme is intended to make available a primary health care team at HWCs, supported by logistics that can make essential medicines and diagnostics accessible while utilizing digital technologies for population enumeration and telemedicine (NHSRC, 2018a). The first year of HWC roll-out was marked by a modest allocation of INR 12 billion, which increased to INR 16 billion in nominal terms for the year 2019–2020. The total estimated cost for each HWC is about INR 1.5 million. As of 14 December 2021, 80 764 out of the targeted 150 000 centres are functional (PIB, 2021d).

In addition, there is a focus on improving financial risk protection by improving access to secondary- and tertiary-care health services through the free and cashless PM-JAY scheme (the scheme has been discussed in Chapter 2). Although the programme was to cover about 40% of the population, as on February 2021, about 130 million households were eligible for the benefit out of 227 million households in the country, highlighting that the eligibility far exceeds the initial plan. This is primarily due to an additional 45 million households who were made eligible by some states that decided to cover far in excess of the 40% population ceiling. In the third year of its operations, the scheme had issued 139 million cards with total number of 16.4 million hospital admissions during October 2018 to February 2021. Nevertheless, during the first year of its functioning, it was found that the poorer districts in the country continued to lag behind the relatively better-performing districts in terms of hospital empanelment, beneficiary verification process, claims measured by value and volume, implying that the scheme requires strengthening of its implementation framework including a strong awareness programme for accelerating its uptake (Smith et al., 2019b).

Although private empanelled hospitals accounted for 46% of all the empanelled hospitals, 63% of total claims were utilized in private hospitals during the first year of the scheme implementation. By volume, the share of claims was highest in Tamil Nadu (28%), followed by Gujarat (17%) and Chhattisgarh (15%). By procedure, haemodialysis accounted for 39%, followed by cataract (3.3%) and chemotherapy (2.7%) (National Health Authority, 2019). One in three of the total outlays under the scheme was reported for high-value claims (exceeding INR 30 000) where the top 20 hospitals accounted for 17% of high-value claims (Dong et al., 2019).

Evidence from the first year of implementation of PM-JAY suggests that utilization is much smaller in poorer states than richer ones. Challenges in effectively implementing the scheme in several of the states are linked to limited capacity, unfair eligibility rules, hospital empanelment and barriers to care-seeking behaviour (Smith et al., 2019a).

The COVID-19 pandemic has led to additional challenges. The stringent lockdown during COVID-19 led to utilization of hospitalization dropping by almost two thirds compared to the pre-lockdown period (Kumar et al., 2021). A sharp drop was reported for care related to cataracts or joint replacement, although planned and critical care such as haemodialysis declined only by 6% (Smith et al., 2020). Although beneficiaries can access services anywhere

in the country, irrespective of their state of residence, care sought outside the state of residence accounted for just 1% of the cases covered by PM-JAY, with Madhya Pradesh, Uttar Pradesh and Bihar being the states that had the maximum demand for facilities outside the state.

h. National Medical Commission

The NMC was established in 2020 as a replacement for the Medical Council of India. For more details, please refer to section 4.2.1

7. Assessment of the health system

Chapter summary

Health systems around the world attempt to achieve three key aspirations: accomplishing good health, providing adequate financial risk protection and improving system responsiveness. Health systems also focus on achieving equity in access to health services, efficiency in resource use, effectiveness in delivering services, improving access to services and ensuring that health services are affordable. Successive Indian governments since Independence have remained committed to these goals, whose expressions were articulated as its aspirations to achieve health for all, highlighted by principles underlying Bhore Committee report in 1946 “assuring the distribution of medical benefits to all, irrespective of their ability to pay...” (Government of India, 1946). Similarly, now these global goals underline the broad commitment made by the current Government of India to attain UHC, and align national health policy agenda with the SDGs.

On balance, the Indian health system’s performance in achieving the above aspirations is “mixed”. Remarkable success has been achieved in the form of increased life expectancy at birth. Maternal and child health indicators have also improved significantly over time. These gains notwithstanding, pronounced socioeconomic inequalities in access to health services have hindered progress in providing universal access to most basic services, including immunization and ANC. Differences in achievement of the MDG targets across states and between different population groups continue to persist, long after the MDGs finished. The lack of appropriate financial protection from ill-health also remains a major shortcoming. Households’ OOP spending continues to be high, at almost 65% of the total health expenditure. Various demand- and supply-side interventions have been implemented to mitigate the problem of high OOP spending, including health systems strengthening in rural areas. A particularly important initiative has been the introduction of publicly financed insurance to provide protection to the poor focusing on the health-related financial risks from inpatient hospital costs. Evaluations of these programmes suggest that while coverage and physical access to services have improved, the extent of financial protection provided by schemes is limited.

7.1 Stated objectives of the health system

Much of the early discussions on health sector development revolved around the idea that the government is responsible for delivering health-care services and for promoting the health and well-being of the population. This idea has been enshrined in the Constitution of India, which outlines people's rights related to health and health-care access. A right to health is indirectly built into the Constitution, such as through Articles 14, 15 and 21 (rights to life, equality and non-discrimination). Furthermore, the Directive Principles of State Policy highlight the primary role of the state in delivering health care, including urging it to eliminate inequalities in health status, facilities and opportunities (Article 38). Although the Indian Constitution does not explicitly specify a "Right to Health", the Supreme Court of India has in the past interpreted the directive principles as indicating that the "Right to Health" flows from the "Right to Life", under Article 21. Other laws related to the health sector also promote health rights, and are either being formulated or in the process of being enacted. These include the Mental Healthcare Act, 2017; the Medical Termination of Pregnancy Act, 1971; the bill regulating surrogate pregnancy and assisted reproductive technologies; Food Safety and Standards Act, 2006; Drugs and Cosmetics Act, 1940 and the Clinical Establishments Act, 2010. There are also several international conventions to which India is a signatory, which outline the health rights of its citizens.

The NHP 2017 fell short of committing to health as a fundamental right, noting that there has to be a threshold level of investment and an enabling environment before such rights can be meaningfully realized (Ministry of Health and Family Welfare, 2017). Many of the critical goals and targets of the NHP 2002 have not been fulfilled and have been included under the NHP 2017 (Table 7.1). However, the policy document did note pre-existing interstate inequalities as well as intrastate inequalities, with particularly serious consequences for the health and financial outcomes of marginalized communities (e.g. tribal populations and people living in remote areas).

Table 7.1 Comparison of key goals and targets of the NHP 2002, 2017 and current status

Indicators	NHP 2002 target (year) ¹	NHP 2017 target (year) ²	Current status (year)
Infant mortality rate	30 (2010)	28 (2019)	28.3 (2019) ³
Maternal mortality ratio	100 (2010)	100 (2020)	113 (2016–2018) ⁴
Leprosy	Elimination by 2005	Elimination by 2018	8.38 new cases detected per 100 000 population (2019) ⁹
Kala-azar	Elimination by 2010	Elimination by 2017	Reported cases: 1967, deaths: 6 (2020) ⁶
Lymphatic filariasis	Elimination by 2015	Elimination by 2017 (in endemic pockets)*	Average microfilaria rate (2014): 0.44% ⁷
HIV&AIDS	Zero level growth (2007)	Target 90:90:90 ²⁹ by 2020	Adult (15–49 years) HIV prevalence (%): 0.22 (2019) Incidence 1000 uninfected population: 0.05 (2019) ⁸
Tuberculosis (TB)	Reduce mortality by 50% (2010)	Cure rate of >85% in new sputum-positive patients; elimination (2025)	193 per 100 000 (2019) TB deaths (excluding HIV+ people): 55 (2002) – 32 (2019) per 100 000 ⁹
Blindness	Prevalence to 0.5% (2010)	Prevalence to 0.25 per 1000 (2025)	Prevalence all ages 0.36% (2015–2019) ¹⁰
Public spending on health	2% of GDP (2010)	2.5% of GDP (2025)	1.2% GDP (2016–2017) ¹¹
Increase state sector health spending	8% of budget by 2010	8% of budget by 2020	6.3% of total revenue expenditure (20192020) ¹²

Sources: 1 (MoHFW, 2002a); 2 (MoHFW, 2017); 3 (World Bank, 2017); 4 (2016–2018 ORGI & CCI, 2020); 5 (NLEP, 2020); 6 (NVBDCP, 2021); 7 (NVBDCP, 2014); 8 (NACO and ICMR, 2019); 9 (WHO, 2021g); 10 (NPCBVI, 2019); 11 (NHSRC, 2019a); 12 (RBI, 2019).

29 Target of 90:90:90 for HIV/AIDS, i. e. 90% of all people living with HIV know their HIV status, 90% of all people diagnosed with HIV infection receive sustained antiretroviral therapy and 90% of all people receiving antiretroviral therapy will have viral suppression (Ministry of Health and Family Welfare, 2017)

One of the goals of the NHP 2017 is to progressively achieve UHC, with universality as a core principle built into the policy framework. The policy document emphasized the need to ensure free and comprehensive primary health-care services, and improved access and affordability of secondary- and tertiary-care services, thereby reducing households' OOP. As part of health system performance goals, the NHP 2017 also proposed (i) to accelerate utilization of public health services by 50% from current levels, by 2025; (ii) to improve and sustain skilled birth attendance above 90% by 2025; (iii) to expand the coverage of immunization to over 90% of newborns being fully immunized by one year of age, by 2025. The NHP 2017 also laid out a vision to increase public spending from the existing level of 1.15% of GDP to 2.5% of GDP by 2025, and to mobilize over 8% of state government budgets for the health sector by 2020. As a result, the policy aims to reduce the proportion of households facing catastrophic health spending by 25% from the current levels, by 2025. The NHP also aimed to ensure the availability of paramedics and doctors as per the IPHS norms in high-priority districts by 2020.

7.2 Financial protection and equity

7.2.1 Financial protection

The lack of adequate financial protection is a major cause of inequity in access to health care in India. It has also led to an absence of care or delayed care, untimely and avoidable deaths, catastrophic payments for health services, impoverishment and generally a decline in household well-being. India spends approximately 3.8% of its GDP on health care, of which the government's contribution is little over 1%. Households' OOP expenditure accounts for almost 63% of overall health-care expenditure and is one of the highest in the world. At India's current levels of income per capita, households' OOP spending is extremely high (Figure 7.1). Global evidence suggests that public spending on health has a strong positive association with financial protection and a negative association with the share of OOP expenditure in total expenditure on health (WHO, 2018).

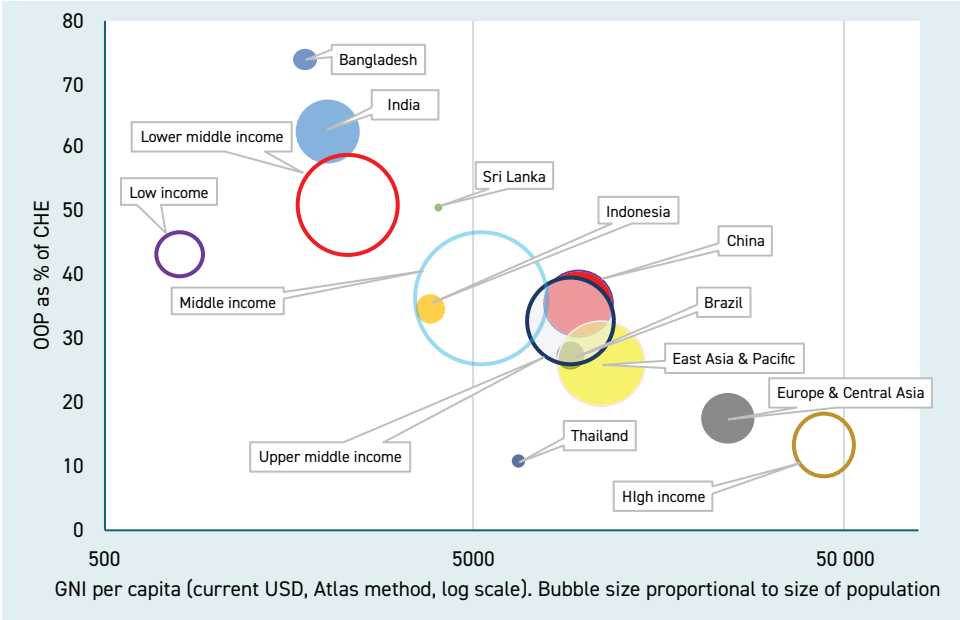
The lack of widespread and effective prepayment or risk-pooling mechanisms adds to the financial burden of households. Existing studies have indicated that the poor in India often borrow and sell off household assets to finance their health-care needs (Mahal et al., 2001; Peters et al., 2002). The increasing household burden created by rising OOP expenditure was discussed in Chapter 3 and has important equity implications. Poor financial protection not only leads to higher OOP among households, but adversely impacts the poor to a greater extent than the rich in India. In Table 7.2, we

see that health insurance coverage for hospitalization services was much lower among the poor (10%) than the rich (25%). The data in Table 7.2 also show that the average amount reimbursed per hospitalization was INR 19 300 among the rich, much higher than for the poor. Moreover, the percentage of people who were hospitalized and who received reimbursement was lower among the poor, at 1.6%, compared to 9% among the rich. Evaluations of government-funded insurance schemes (e.g. RSBY) have highlighted issues relating to quality assurance, high OOP expenditure and a lack of appropriate mechanisms to address patient complaints. A small-scale survey of RSBY beneficiaries in three states reported that between one fourth and one third of beneficiaries paid for medicines and services that were fully covered under the scheme (Grover & Palacios, 2011).

Medicine-related expenses comprise the largest component of OOP expenses for health care. OOP payments for the medicines component alone were estimated to be catastrophic for 11.2% of Indian households during 2011–2012, implying that 29 million households incurred catastrophic expenditure and about 38 million households became impoverished (out of a total of 55 million households that became impoverished due to health-care costs). In comparison, in 1993–1994, approximately 11.5 million households incurred catastrophic medical payments (Selvaraj, Farooqui & Karan, 2018).

Evaluations of procurement models in Rajasthan and Tamil Nadu point to significant improvements in drug procurement and distribution processes, while simultaneously improving the availability of key essential medicines. The experiences of Tamil Nadu and Rajasthan suggest that providing free medicines in public facilities can greatly enhance financial protection to the poor, and in a cost-effective manner. This has resulted in more than a doubling of outpatient visits in Rajasthan following the introduction of the free medicine scheme in that state (Selvaraj et al., 2014).

Figure 7.1 Out-of-pocket payments as a share of current health expenditure against per capita gross national income, selected countries, regions and income groups, 2018



Source: World Bank Data Bank (World Bank, 2021d)

Table 7.2 Health insurance coverage and reimbursement for hospitalization, by quintile groups, 2017–2018

Financial indicators	Poorest	2nd Poorest	Middle	2nd Richest	Richest	All
Average amount reimbursed (INR)	394	745	1 224	1 829	4 317	2 047
% of cases reimbursed	1.6	2.1	3.3	4.1	9	4.7
% of medical expenditure incurred reimbursed	3	4.4	6.9	9.6	15.5	10.2
% of population not covered by any health insurance scheme	89.92	89.24	85.54	82.7	74.83	84.43

Source: NSS report no. 586, Health in India (National Statistical Office, 2020)

OOP spending is only one dimension of the financial risks related to illness. If treatment expenses are high, individuals may choose to go without treatment, with potential risks to their health and increased likelihood of earning losses. Data from four rounds of national surveys spanning a 30-

year period show that financial reasons were identified as the most salient by those who did not access care despite reporting illness. The decline in the proportion of individuals reporting financial reasons for not seeking health care in 2017–2018 might have more to do with a change in the survey question than any true improvement in affordability of care (Table 7.3).

Table 7.3 Percentage distribution of untreated spells of ailments by reason of “no treatment” among rural and urban households in India (1986–1987, 1995–1996, 2004, 2017–2018)

Reason for no treatment	Rural India				Urban India			
	1986–1987	1995–1996	2004	2017–2018	1986–1987	1995–1996	2004	2017–2018
No medical facility	3	9	12	9	0	1	1	1
Lack of faith	2	4	3	2	2	5	2	1
Long waiting	0	1	1	6	1	1	2	4
Financial problem	15	24	28	3	10	21	20	2
Ailment not serious	75	52	32	71	81	60	50	81
Others	5	10	24	9	6	12	25	11
All	100	100	100	100	100	100	100	100

Source: Authors’ estimates from unit-level records of National Sample Surveys on morbidity and health-care use, various years

7.2.2 Equity in financing

A “progressive” health financing mechanism is one in which richer households pay proportionately higher shares of their income for health care. Tables 7.4 and 7.5 provide an overview of the distribution of financing in the Indian health system (i.e. the financing incidence) in the backdrop of changing trends and pattern of revenue mobilization by the government at the centre and states combined. During the period from 2001–2002 to 2019–2020, India recorded a twelvefold rise in nominal tax revenues. The tax-GDP ratio during 2019–2020 was 19% as against 14% in 2000–2001, with a much higher level of national income. Both tax and non-tax revenues rose substantially, with the share of the former standing at about 65% by 2019. Whereas the ratio of direct to indirect taxes stood at 0.38 in 2001–2002, this number had almost reversed to 0.64 in 2019–2020. Although direct taxes now count for over 25% of all union and state revenues, they are still overshadowed by the contribution via indirect taxes, suggesting that indirect tax revenues, although reduced as a percentage, still have a substantial role in tax revenue mobilization. Value-added taxes on commodities and services,

along with union and state excise duties, accounted for most of the indirect tax revenues. Direct taxes, such as personal income tax and corporation tax, are still woefully small with the number of income tax filers for 2018–2019 being only about 58.7 million of which 23.7 million (comprising 40% of those filing) did not report any taxable income. This translates into barely 2% of the population paying any income tax. This outcome reflects a combination of reasons including: (i) a large share of informal sector employment that avoids paying tax; (ii) lower incomes for a significant chunk of informal sector workers; and (iii) exemption of the agricultural sector from income tax. These factors limit the extent to which progressive sources of financing can be used to fund health care.

Table 7.4 Changes in sources of government revenue generation 2001–2002 and 2019–2020

	2001–2002		2019–2020	
	Actual in billion INR	% of overall revenue	Actual in billion INR	% of overall revenue
Overall revenue (Tax and non-tax)	6 510.39	100%	60 031.62	100%
Total – Non-tax revenue	3 420.92	52.55%	21 326.42	35.53%
Total – Gross tax revenue	3 089.47	47.45%	38 705.20	64.47%
(a) Direct tax (personal, corporation and other direct taxes)	848.76	13.04%	15 069.12	25.10%
Union level	691.97	10.63%	13 350.00	22.24%
State level	156.79	2.41%	1 719.12	2.86%
(b) Indirect taxes (sales, customs, duties and other taxes)	2 240.71	34.42%	23 636.09	39.37%
Union level	1 171.17	17.99%	11 261.95	18.76%
State level	1 068.94	16.42%	12 374.14	20.61%
Ratio of direct to indirect taxes	0.38		0.64	

Source: Handbook of statistics on the Indian economy 2019–2020 (RBI, 2020)

Table 7.5 shows the relatively small share that the health sector commands in government spending. Government health expenditure (Centre, states and local bodies combined) as a share of overall government expenditure was around 3% in 2001–2002 and 2016–2017. Given the large informal sector share in employment in India, the contribution of social health insurance to health financing is limited.

Table 7.5 Sources of health expenditure (percentage)

	2001–2002 ¹	2016–2017 ²
Health expenditure in context		
Total health expenditure (THE) as % of GDP	4.6	3.8
Current health expenditures (CHE) as % of THE	98.85	92.8
Domestic general government health expenditure as % of government general expenditure ³	2.87 ³	3.38 ³
Breakdown of health expenditure		
Government spending (state, centre and local governments)	20.28	23.94
Social health insurance	1.9	3.08
Households' OOP	71.97	63.21
Enterprises	5.24	2.75
Others*	0.08	7.02

* indicates expenditure incurred by other entities including not-for-profit institutions serving households (NPISH), private health insurance, including individuals' and employers' contributed premium.

Sources: 1: National Health Accounts 2001–2002 (MoHFW, 2005b); 2: National Health Accounts 2016–2017 (NHSRC, 2019); 3: World Bank Data Bank (World Bank, 2018)

The limited access to social insurance and general revenues is a major driver of the reliance of Indian households on OOP spending to finance health care. Health systems that rely heavily on household OOP financing tend to be both inefficient and inequitable. Available evidence drawn from the past studies of benefit incidence analysis (BIA) of the public health financing system in India shows that a larger share of public subsidies on health is garnered by richer income groups (Mahal et al., 2001; O'donnell et al., 2008). A 2013 study suggests the reverse, noting that the poor had a higher rate of utilization of government hospital services than the rich (Prinja et al., 2013). They also found that private hospitals are significantly pro-rich in utilization patterns. A study for the state of Tamil Nadu reached similar conclusions as Prinja et al. for a broad range of public sector services; but found that in Odisha, only the outpatient services became more pro-poor in 2004 compared to earlier years (Acharya et al., 2011). Another study, undertaking a BIA on the basis of 2014 national survey data found pro-poor utilization of government inpatient and maternity care services. The study also noted that despite pro-poor utilization patterns, households incurred significant levels of OOP expenditure when using government facilities (Bowser et al., 2019; Bowser et al., 2019). High OOP expenditures can also lead households to adopt harmful coping strategies, such as the liquidation of productive assets, borrowing at high rates of interest and dis-savings. Many of these strategies provide short-term relief from expenses but may leave households more susceptible to poverty in the future.

The number of households incurring catastrophic payments and impoverishment due to OOP for health care has risen over the past two decades in India (refer to Chapter 3). Trends in household OOP expenditure on health care also suggest increasing vulnerability to such expenditures among marginalized socioeconomic groups, even though it is the rich who generally spend more out of pocket on health services than the poor. Data reported in Table 7.6 show that during the period from 2000 to 2012, an increasing share of household resources was devoted towards OOP expenses for health care with the share of households incurring catastrophic expenses rising over time.

Table 7.6 Out-of-pocket expenditure on health by socioeconomic status: 2000–2018

Socioeconomic status		Year	OOP as share of household expenditure (%)	% population with catastrophic expenditure on health
Wealth	Poorest 20%	1999–2000	3.2	8.2
		2017–2018	9.4	16.6
	Richest 20%	1999–2000	7.2	21.9
		2017–2018	7.9	15.4
Caste	SC/ST	1999–2000	5.2	13.1
		2017–2018	7.8	14.1
	Other castes	1999–2000	5.4	13.9
		2017–2018	8.4	16.5
Religion	Muslim	1999–2000	5.5	13.9
		2017–2018	8.6	17.9
	Hindu	1999–2000	5.6	14.3
		2017–2018	8.0	15.3

Note: Catastrophic health expenditure is defined with a threshold of 10% of total household expenditure

Source: Authors' calculation based on respective survey data, Consumer Expenditure Surveys (1999–2000) and Health Surveys (2017–2018), NSSO

7.3 User experience and equity in access to care

7.3.1 User experience

User experience related to access and utilization of government and private health-care services is an important signal of the overall responsiveness of the health system. A number of studies have explored patient satisfaction levels in India and their underlying drivers, including the quality of health-care services provided, access to care, the behaviour of medical and support staff, choice of treatment, health infrastructure, physical and emotional

comfort, and respect for patient preferences. A study of maternity care services in secondary-level public sector health facilities in the state of Uttar Pradesh identified physical access, cleanliness, interpersonal behaviour, information-sharing and OOP payments as common concerns for patients. Pregnant women undergoing complicated deliveries complained of abusive staff behaviour, delays in provision of emergency care, hindrances to accessing ambulances and a high cost of care during delivery (Bhattacharyya et al., 2015). Concerns about publicly funded insurance schemes were also prevalent. For example, even though the RSBY scheme provided insurance benefits to the poor, eligible beneficiaries visiting private hospitals faced discrimination and denial of care (Patel & Patel, 2016). A mix of clinical and non-clinical factors shape people's perceptions and satisfaction regarding health-care services and providers (Sodani et al., 2010). Improved interpersonal skills of facility staff, good-quality facility infrastructure, and increased availability of drugs were found to have the largest effects in improving patient satisfaction at public health facilities (Rao et al., 2006). Efforts have been made under the NRHM to improve infrastructure, increase health workforce and their training, and availability of medicines and diagnostics. Quality assurance processes are being initiated in public facilities (MoHFW, 2013b). However, the active involvement of patients and the integration of their feedback in improving service quality remains a missing ingredient.

Socioeconomic inequalities in responsiveness related to outpatient care have also been noted in both private and public facilities. Government health facilities were less likely to be responsive than private ones, given poorly functioning government facilities at the primary care level, and larger facilities were often overcrowded resulting in long waiting times and less consultation time per patient (Malhotra & Do, 2013). The Malhotra and Do study noted, for instance, that individuals in the poorer bottom quintiles were less likely to report "very good" compared to the rich top quintile by 8% points, in respect of dignified care while seeking health services in a facility. Evidence from the same study also revealed private provider responsiveness to patients to be better than in government facilities. Nearly 15% of households visiting private facilities reported "very good" when asked about the promptness with which they were attended to as against 10% of patients in public facilities. But concerns about the private sector were also present. A survey of a private tertiary-care hospital in central India found that 94% of the patients were satisfied with the attention the doctors paid them, 64% of the patients reported that they were allotted rooms within 30 minutes of their admission into hospital, and 94% reported satisfaction with basic amenities. However, only half of patients surveyed were satisfied with the final invoice for treatment (Bhole et al., 2017). A study assessing the quality

of RMNCH services in three Indian states (Kerala, Himachal Pradesh and Odisha) highlighted variations in quality and beneficiary perceptions (Panda et al., 2016). Although the availability of basic services has improved, lack of a patient-centric approach and measures to address issues of privacy and dignity remain barriers to the provision of good-quality RMNCH and TB services.

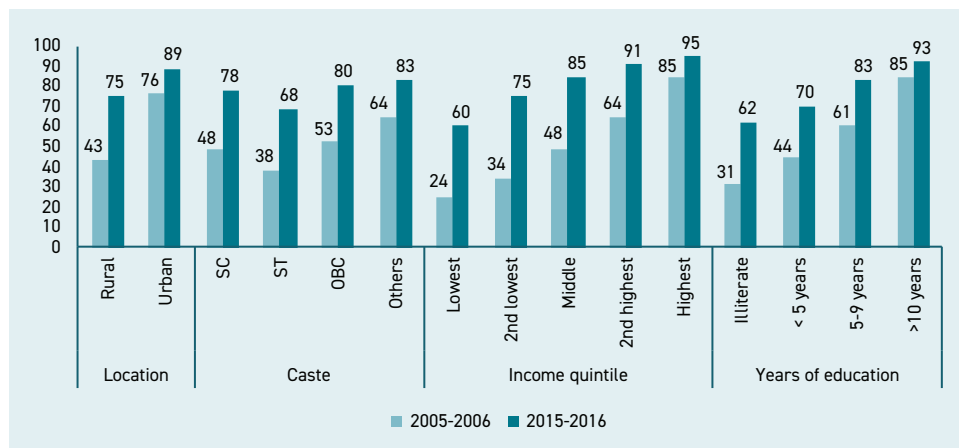
Given the patient experience with public facilities at lower levels of care, anecdotal evidence unsurprisingly suggests that many patients visiting public facilities bypass primary health-care facilities and directly access care at the hospital level. This behaviour of service users adversely affects the continuity of patient–doctor relationships, promotes fragmentation, extends patient pathways, and lowers the quality of care. It also creates a chain of inefficiencies in the allocation of financial, human and material resources, which adversely affects state capacity to adequately staff primary-level facilities. But linked to this is a larger issue related to current health-care delivery design that offers only selective primary health care at government facilities. For instance, clinical interventions for angina or epilepsy could be made available in a PHC but currently are available mostly in tertiary-care facilities, forcing patients to directly visit hospitals.

7.3.2 Equity in access to health care

The multifaceted nature of health-care access is best captured by defining it as the freedom to use health services. Access can thus be broken down into at least three dimensions – availability, affordability and acceptability (Thiede et al., 2007). Also important in this context is patient knowledge that can also influence health-seeking behaviour, a factor closely associated with addressing the social determinants of health. Inequality in access to maternal health-care services remains a major factor influencing maternal mortality, with institutional deliveries being seen as critical for safe outcomes for women who deliver and their newborn children. About 43% of rural women and 75% of urban women in India had access to health facilities (public or private) at the time of delivery during 2005–2006. Over the past decade, the share of pregnant women delivering in an institution has increased sharply, with over three fourths of all deliveries occurring in a health facility and, in urban areas, this share is higher where nearly nine tenths of all deliveries occur in a health facility (IIPS, 2016). Access is significantly influenced by socioeconomic status. Rich, urban and educated women have high levels of access to maternal and child health services, with more than eight out of ten women accessing skilled professionals. Access is significantly constrained for other women due to poverty, residence in rural areas, levels of education and whether they belong to certain castes or tribal

groups (Figure 7.2). Over the past decade though, a remarkable rise in the share of deliveries in institutional settings has occurred, irrespective of caste, wealth or education.

Figure 7.2 Trends in socioeconomic differentials underlying institutional deliveries: all India (2005–2006 to 2015–2016)



Note: Area/location is indicated by rural and urban; caste is represented by SC, ST, OBC, Others; wealth is referred to by lowest quintile (poor), second-lowest quintile, middle quintile, second-highest quintile, highest quintile (rich); and education is indicated by illiterate, less than 5 years of education, 5–9 years of education and over 10 years and above of education.

Source: National Family and Health Surveys (2005–2006 and 2015–2016), (IIPS, 2016, IIPS, 2007).

7.3.3 Equity in access and use of safe water, sanitation and cooking fuels

Access to basic amenities like safe drinking water, latrines, modern cooking fuel, and drainage also determine households' vulnerability to illnesses. Strong socioeconomic gradients exist among households in India regarding access to these services. In 2017, 66% of the poorest households had access to latrines, compared to 98% of the richest households (Table 7.7). Seven out of ten tribal households used traditional means of cooking like firewood and cow dung and thus exposed themselves to significant amounts of smoke and environmental pollutants. Among the richest group, more than 85% used modern cooking fuel. Overall safe drinking water was available to 98.5% of the population.

Table 7.7 Households without basic amenities by caste and wealth (%), 2017–2018

Socioeconomic status		No latrines	No safe drinking water	No modern cooking fuel
Caste	Schedule tribes	33.78	5.77	70.16
	Schedule castes	34.45	1.28	53.7
	Other backward classes	23.57	1.33	40.71
	Others	8.41	0.69	29.49
Wealth	Poorest quintile	43.73	2.7	71.53
	Second quintile	33.74	2.1	58.38
	Middle quintile	21.76	1.47	43.07
	Fourth quintile	11.11	0.95	26.91
	Richest quintile	1.8	0.5	14.02
	Overall	22.45	1.54	42.81

Note: For variable no latrines, type of latrine was used and only responses where specifically mentioned no access to latrines has been reported. For variable no safe drinking water, major source of drinking water was used and only responses where specifically mentioned unprotected source for water or no source has been reported. For variable no modern cooking fuel, primary source of energy for cooking was used; sources of fuel as firewood, coke, charcoal, dung cakes, kerosene and no sources of energy have been reported.

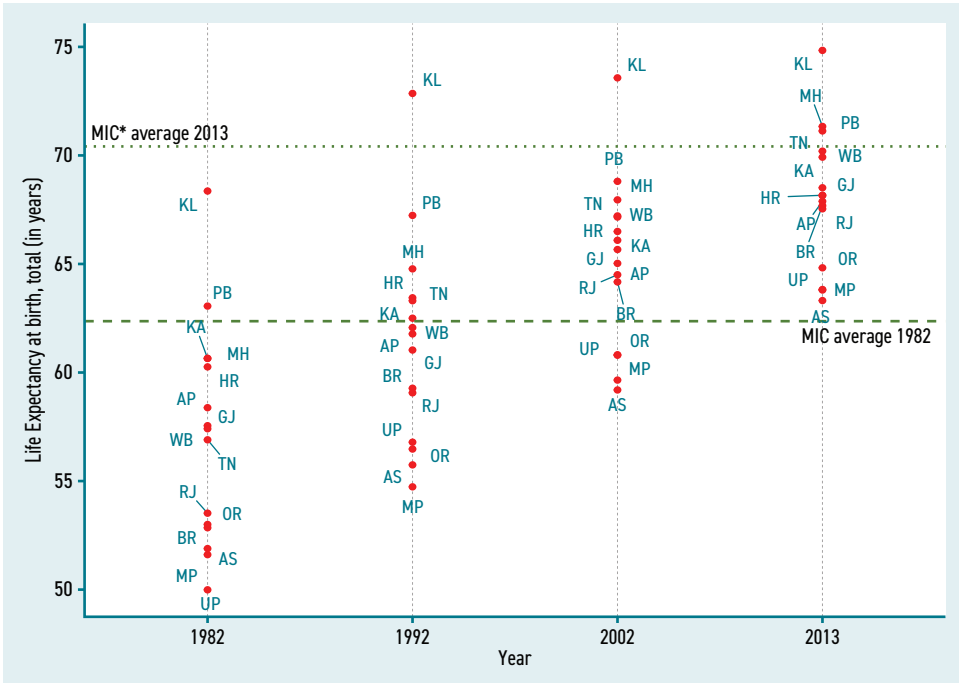
Source: NSSO 2017–2018. Authors' calculations.

7.4 Health outcomes, health service outcomes and quality of care

7.4.1 Population health

Three commonly used indicators of health outcomes are life expectancy at birth (LEB), IMR and MMR, besides measurements of morbidity – DALYs, YLLs, years lived with disability (YLD) and self-reported morbidity measures. These are commonly used health outcome indicators for health system assessment (WHO, 2000). From a low base of roughly 53.8 years in 1980, life expectancy at birth in India increased sharply to 69.6 years by 2020, a gain of over 16 years over four decades. Interstate disparities in LEB were relatively high in 1982, with the difference between the top (Kerala) and bottom (Uttar Pradesh) states being nearly 18 years. This difference has declined over time to about 12 years between the top (Kerala) and bottom (Uttar Pradesh) states in 2013 (Figure 7.3) pointing to a decline in interstate disparities in health outcomes. This gap is likely to be reduced further over time, given that the LEB in the top-performing states are close to the limits of longevity, while states operating from a low base can expect to see their LEB rise faster, if all else remains the same (Ministry of Finance, 2017).

Figure 7.3 Life expectancy levels during 1982–2013, Indian states



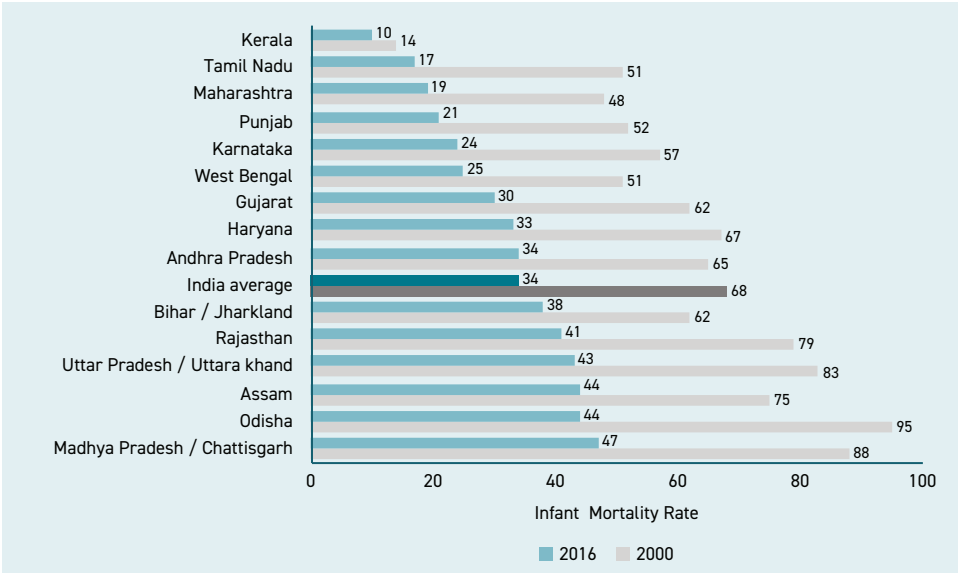
* Middle Income Countries

Source: Reproduced from Economic Survey, 2016–2017, page 214 (Ministry of Finance, 2017)

Health outcomes in India continue to be influenced by factors such as gender, caste, geography, wealth and education (Subramanian et al., 2008; Subramanian et al., 2006). Persistent interstate disparities underlying key health outcomes remain in the face of considerable progress on average, across the country. For example, IMR in India declined from 68 per 1000 live births in 2000 to 34 per 1000 live births in 2016, and sharp reductions in IMR were observed in most states over the same period (Figure 7.4). However, cross-state disparities in IMR remain. In 2018, Kerala had an IMR of 7 per 1000 live births, and other states with low IMR were Tamil Nadu (15) and Maharashtra (19). States that had IMRs more than double of these three states included Odisha (40), Madhya Pradesh (48) and Assam (41). Overall, as in the case of LEB, the gap in IMR across states has been declining. This reflects a pattern of convergence in health outcomes across states (ORGI & CCI, 2018). Results from the SRS published in 2017, indicate a study reduction in gender gap in child survival data with the difference in IMR between female and male standing at less than 10% (PIB, 2017a). State-level averages do hide continuing socioeconomic differences at the individual level. In 2015–

2016, the IMR in the poorest wealth quintile was 46.7 per 1000 live births, as against 18.7 per 1000 livebirths in the richest wealth quintile (IIPS, 2007).

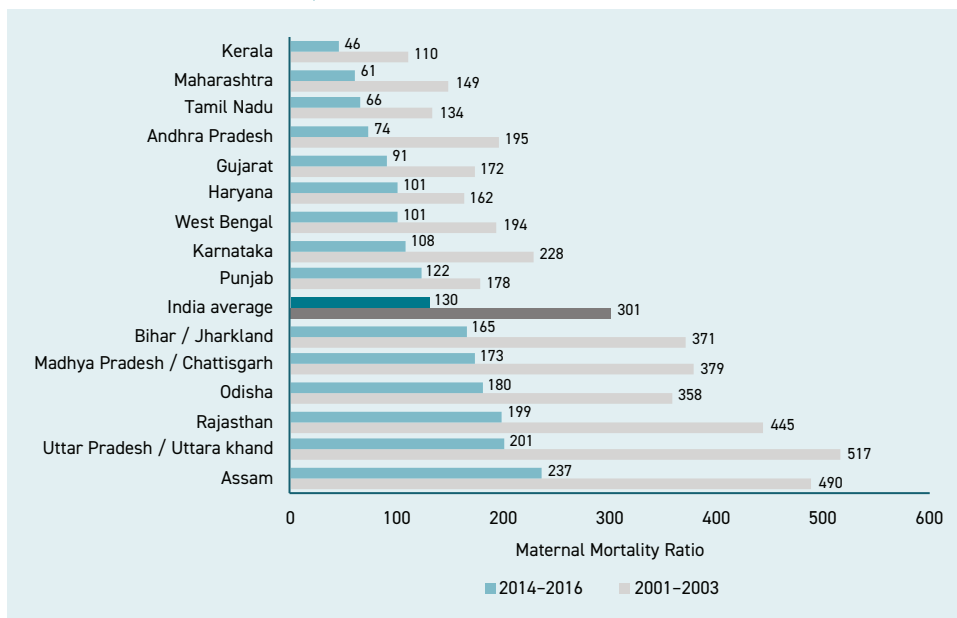
Figure 7.4 Infant mortality rates, major states, 2000 and 2016



Source: Registrar General of India, Sample Registration System, respective years (ORGI & CCI)

India has also made impressive achievements with regard to its MMR: at the national level, MMR has declined by almost one third over the past two decades, from 301 per 100 000 births in 2003 to 130 per 100 000 live births during 2014–2016. As with other health outcomes, the reduction is masked by considerable variation in MMR across Indian states (Figure 7.5): states such as Kerala and Tamil Nadu enjoy rates of MMR that are considerably lower than the MMR observed in high-burden states such as Assam, Uttar Pradesh, Rajasthan, Odisha, Madhya Pradesh and Bihar. The MMR in some of the states is almost five times as high as the states with the lowest MMR.

Figure 7.5 Maternal mortality ratio, India and major states (2001–2003 to 2016–2018)



Source: Registrar General of India, Sample Registration System, respective years (ORGI & CCI)

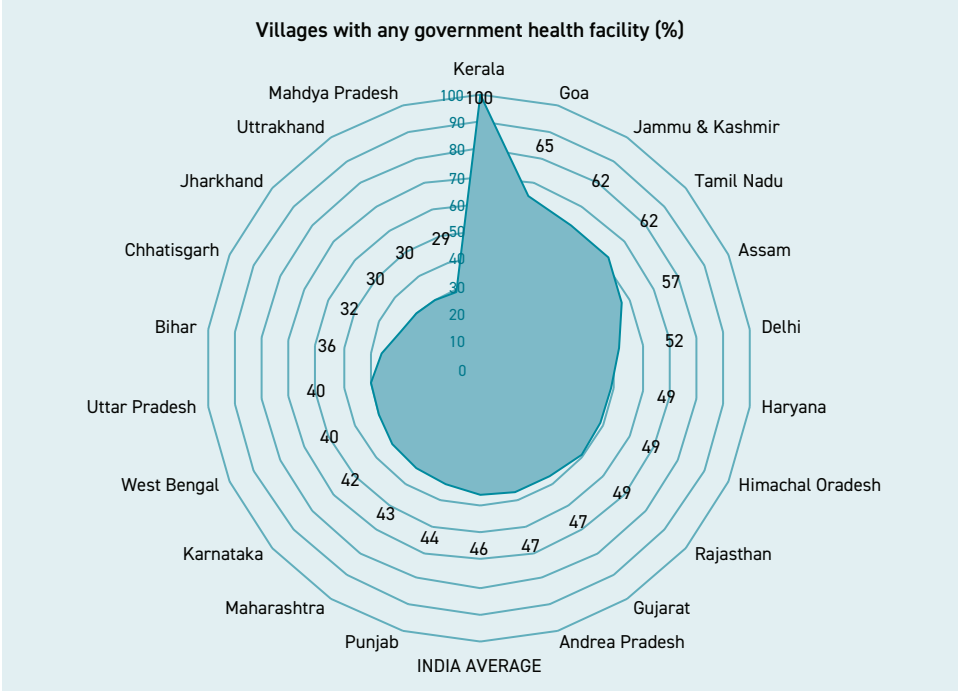
7.4.2 Health service outcomes and quality of care

Proximity to health facilities is a major driver of improved coverage of essential health services. Access to care is often hindered when health facilities are unavailable or located far away. Moreover, health service outcomes are also dependent on the quality of care that is provided. Several dimensions underlie health-care quality: safety, efficacy, efficiency and equity (National Academies of Sciences and Medicine, 2019, WHO, 2018a). Donabedian (1978) points to three dimensions of quality of care: structural, process and outcomes. The structural part refers to the availability of physical and human resources. In India, there is evidence of a strong association between the presence of functioning health services and higher coverage of maternal and child health services. Datar et al. showed, for example, that children in villages that had a public health infrastructure had higher vaccination rates for non-polio vaccines than children in villages that did not (Datar et al., 2005). Moreover, villages with larger and better equipped facilities had higher coverage rates. These effects are not limited just to vaccination.

Other than Kerala, which has achieved full coverage of its villages with government health facilities, most of the better performing states (Tamil Nadu, Goa and Sikkim) have nearly two thirds of villages covered by public sector health facilities. In contrast, states such as Madhya Pradesh,

Uttar Pradesh, Bihar and Chhattisgarh have been unable to provide functioning health facilities to even a third of their villages (Figure 7.6).

Figure 7.6 Coverage of government health services: Percentage of villages in each state with any government health facility



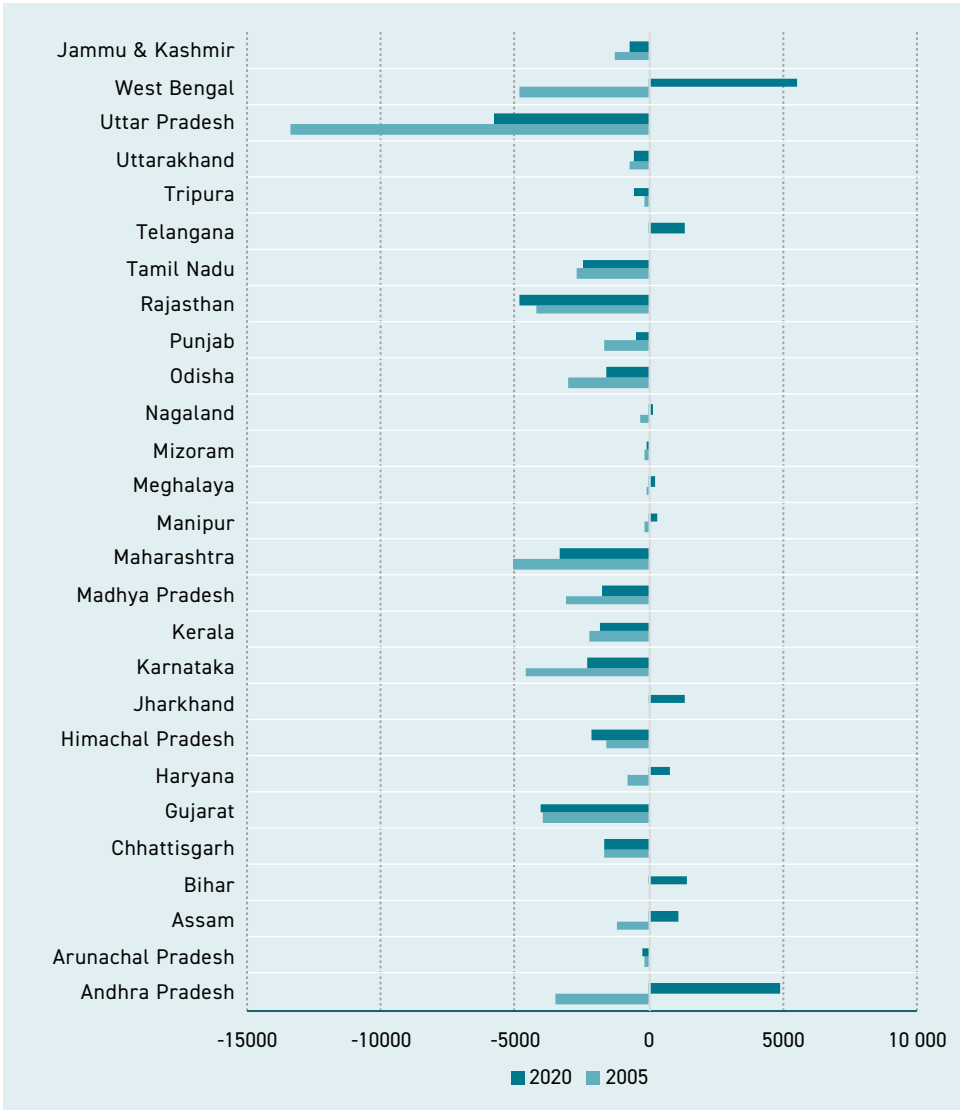
Source: Results of District Level Household Survey-IV 2012–2013 (DLHS-IV) (Health Management Information System, 2015)

Access to primary care is compromised when skilled frontline health workers are unavailable in the field. Many Indian states are grappling with a shortage of ANMs in the field and there is a wide interstate variability in these numbers. However as is shown in Figure 7.7, much has been done to remedy this in the past 15 years and states such as West Bengal, Andhra Pradesh and Uttar Pradesh have made huge strides in decreasing the vacancies for ANMs and female health workers in rural health centres (MoHFW, 2020d). Nonetheless, many states still are grappling with thousands of vacancies if we apply the norms of staff requirements established by the Indian Public Health Standards.

Shortages of doctors are even more serious, especially in rural areas. As noted in Chapter 4, during 2018, the number of functioning subcentres and PHCs in India was roughly 80% against population norms while shortfalls in functioning CHCs were even greater, at 30%. During 2018, 5% of PHCs functioned without a doctor, over one third of the PHCs were without

laboratory technicians and 15% were without a pharmacist. In 2018, 85% of all CHCs were short of the required number of doctors. Severe shortages of surgeons and various specialists also existed in CHCs (a gap of 85% compared to the norm) in 2018.

Figure 7.7 Changes in availability of ANMs and female health workers in rural area by major states



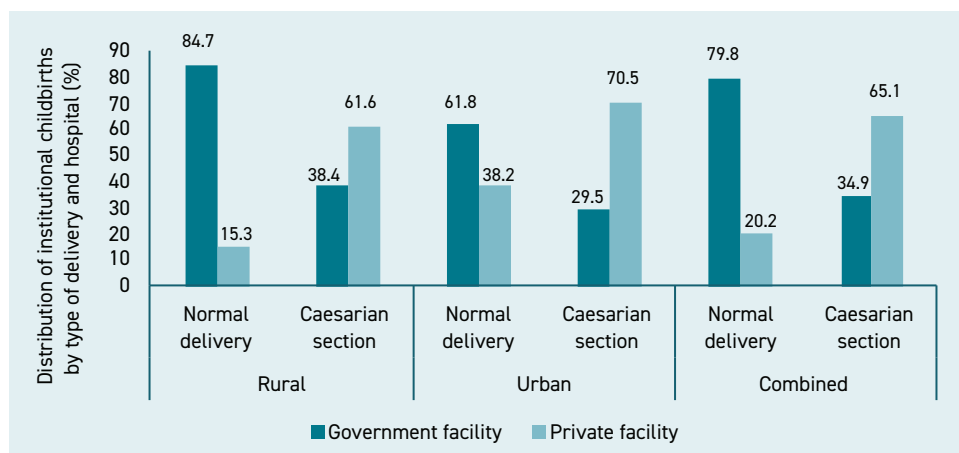
Note: negative number indicates a shortage and a positive number indicates a surplus of staff compared to standard staffing requirements for SCs and PHCs. In calculating the numbers in this chart, the minimum requirement was based on 1 ANM in each functioning subcentre and 3 ANMs, female health worker or LHV in each functioning PHC.

Source: Calculated based on data from Rural Health Statistics 2019–2020 (MoHFW, 2020d)

There is a large body of evidence pointing to the poor quality of health services provided both by public and private providers (Basu et al., 2012; Sood & Wagner, 2014; Mohanan et al., 2016). A 2019 study showed that 90% of a sample of patients in two Indian states visiting private providers received care of poor technical quality (Wagner et al., 2019). Technical quality was assessed in terms of: (i) prescribing correct treatment; (ii) diagnosing illness appropriately; and (iii) performing all required tests. The study observed that the private health-care market rewards bad quality, such as irrational antibiotic prescription and treatments that are often considered harmful. As another example of quality concerns, the rate of caesarean deliveries was high at 17.2% nationally, and in private facilities it was almost 41% compared to 12% in government facilities in 2015–2016 (IIPS, 2016). Survey data for 2017–2018 confirm the findings of high rates of caesarean sections conducted in private facilities (Figure 7.8). Nationally, four in five normal deliveries occur in public hospitals while on the other hand, two in three caesarean sections are conducted in private facilities, potentially reflecting inappropriate care and outcomes (NSSO, 2019).

The amounts spent OOP also differed between private and public services. Among rural households, OOP spending per C-section in a private hospital was almost six times that of OOP spending on C-sections in public hospitals; and in urban settings, OOP spending on C-sections in private facilities was seven times OOP spending in private facilities (NSSO, 2019). Not all private care is of poor quality or inefficient. Le et al. found that the Aravind Eye Care System utilizes an innovative way that employs cataract counsellors and mid-level ophthalmic personnel rather than surgeons for performing perioperative clinical services (Le et al., 2016). This helps improve patient load, enhances communication and lowers the time to treatment, while optimizing surgeons' time. The study also found Aravind Eye Care to have identified efficient ways of utilizing operating rooms, and overall outcomes are characterized by low rates of complications.

Figure 7.8 Childbirth by normal and caesarean sections in public and private hospitals, 2017–2018



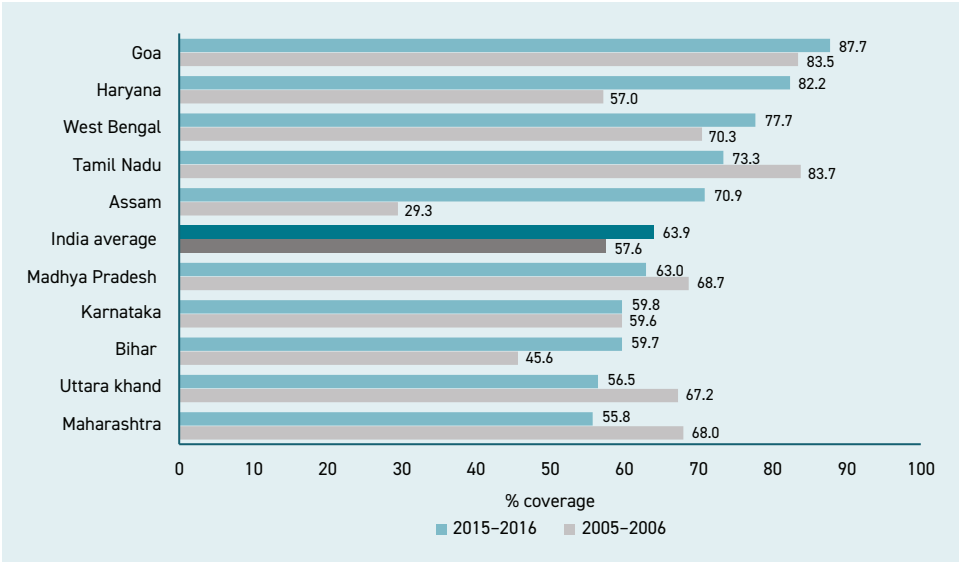
Source: NSSO, Social consumption – health survey, 2017–2018 (NSSO, 2019).

7.4.3 Inequity in access to urban health care

India has experienced a rapid expansion in its urban population over the past three decades. The urban population was 377.1 million as per the 2011 Census, constituting around 32% of the total population. Of this population, approximately 100 million constitute the urban poor who live in slums, as squatters, on pavements, on construction sites and on the urban fringes. While initiatives like the NRHM have focused on developing the primary health-care system in rural areas, primary care in urban areas has remained largely unaddressed. Large government hospitals continue to face a huge outpatient load, which may also limit their ability to provide high-quality specialist care. The introduction of the NHM in 2013, with a greater emphasis on urban areas, was intended to promote the condition of primary health-care services in urban areas. Unfortunately, little progress has been made so far on this front.

Absence of primary care could potentially explain the relatively poor immunization outcomes in urban settings (Figure 7.9). In at least six states, immunization coverage in urban areas had either stagnated or fallen for children of age 12–23 months between 2005–2006 and 2015–2016. Noteworthy declines were observed in Maharashtra (68% to 55.8%), Tamil Nadu (83.7% to 73.3%) and Uttarakhand (67.2% to 56.5%). Other states, labelled “high focus” states under the NRHM, have seen improved immunization rates, especially Assam where coverage increased by 41.6 percentage points. Other states experiencing improvements include Bihar, which improved by 14 percentage points and West Bengal, which improved by 7.4 percentage points.

Figure 7.9 Immunization coverage in urban areas in select states: 2005–2006 and 2015–2016



Note: Immunization coverage denotes here children of age 12–23 months who received all basic vaccines (BCG, measles, and three doses each of DPT and polio vaccine (excluding polio vaccine given at birth)).

Source: NFHS-3 (IIPS, 2007)

7.5 Health system efficiency

7.5.1 Allocative efficiency

The simplest way to think about efficiency in the context of the health sector is as a measure of the effectiveness of resources (financial and material) in achieving population health needs and/or health outcomes. Efficiency can be considered in two dimensions: allocative and technical efficiency. Allocative efficiency is said to be achieved when inputs are organized or reallocated across services to obtain the best possible outcomes, whether assessed in terms of outputs (health services provided) or health outcomes. Allocative efficiency can also be achieved by reallocating resources across non-health sectors and the health sector. For example, it could be argued that improved coordination and reallocation of resources between the agricultural, environmental and health sectors could help lower the risks from new and as yet unknown zoonotic diseases.

Allocative inefficiency is pervasive in the Indian public health sector. Despite the existence of a large network of public health-care institutions in the country, there are major rural–urban differences in the availability of services

and weaknesses in the referral linkages between the primary, secondary and tertiary tiers of the health system (Planning Commission, 2011). India has a massive but grossly underfunded government health infrastructure, and complementary inputs such as drugs and supplies are often lacking, so that health sector resources are less productive than they could otherwise be. A workforce that is overloaded and inadequate to meet the health needs of the population is similarly less productive in yielding good-quality health services. States in India spend a major portion of their health budgets on recurrent expenditures such as salaries, wages, pensions and interest payments, leaving little space for substantive investments in infrastructure, equipment, essential drugs, medical and civil supplies, and various operational expenses (Planning Commission, 2011; Reddy & Selvaraju, 1994; Duggal, 1997). A specific example of how allocative efficiency can be improved in India can be found in a 2016 World Bank assessment of HIV/AIDS funding in India. The report suggested increased investments in prevention, especially antiretroviral therapy (ART) and promoting condom use among persons with HIV, while reducing financing used to promote condom use in the general population (World Bank, 2016).

At the broader level, lack of risk-pooling mechanisms and fragmentation of current risk-pools is often considered inefficient. This could be a key source of inefficiency in both public and private financing entities. With two thirds of health financing in India drawn from households, resource use is highly inefficient as individual patients pay at the point of delivery without the advantage of large monopsony purchase that single payers are endowed with. But even among the current risk-pooling mechanisms in India, a larger number of tax-funded schemes both at the Central and state levels create inefficiency and prevent governments from reaping the benefits of monopsony purchase and economies of scale in achieving value for money.

7.5.2 Technical efficiency

Technical efficiency refers to the magnitude of the health outputs resulting from certain inputs, say the clinical outcomes produced from a given set of interventions, or the health services being provided by a given combination of human resources and other inputs at the primary care level. In health care, besides the commonly used measures of health services outputs and outcomes, quality of care is also an important dimension in assessing the technical efficiency of health services. Accuracy in the measurement of outputs in the study of efficiency in primary health care remains a major challenge (Murillo-Zamorano & Petraglia, 2011). Data envelopment analysis (DEA) has been applied in several research studies to understand the relationship between medical and social environmental inputs and health

outputs (Tigga & Mishra; 2015; Tej & Miguel, 2013; Dash et al., 2008). A WHO report identified various reasons for technical inefficiency in health systems (WHO, 2010). These include inappropriate or costly mix of the health workforce; overreliance on patented or branded drugs relative to generic medicines; irrational prescription and use of medicines, diagnosis and procedures; low value for money in procurement procedures; inappropriate hospital/facility size and a lack of referral mechanisms; inappropriate length of stay or inappropriate hospital admissions; and leakages resulting from corruption and fraud. Furthermore, inefficient health financing strategies can also reduce technical efficiency. Countries that do not use revenue pooling and risk-sharing mechanisms, miss out on the efficiency dividend derived from these health financing strategies.

A study of 40 district hospitals from MP showed that 50% were technically efficient and the rest were inefficient (Tej & Miguel, 2013). Performing a data envelopment analysis of 27 Indian states, another study identified states that used excessive inputs relative to what was needed to produce the current observed levels of health service outputs (Tigga and Mishra, 2015). Six out of 27 states were found to be technically efficient in this study, including Bihar, Goa, Kerala, Maharashtra, Tamil Nadu and Uttar Pradesh. Another study that explored the functioning of secondary-level government hospitals in West Bengal concluded that hospital efficiency could be improved, in the sense that health service outputs could be increased by 37% with the same level of inputs. Workforce inefficiency was identified as a key contributor in inefficiency (Datta & Mullainathan, 2014).

The private sector is often perceived to achieve technical efficiency in resource use. Several models in the private sector have been discussed previously in this report. The Aravind Eye Care model and Narayana Hrudayalaya provide services for cataracts and cardiac surgery, respectively, and are known for performing high-volume, low-cost and good-value procedures. However, performance with respect to efficiency varies across private sector facilities. Using DEA methods to analyse the functioning of 37 private hospitals using a panel dataset for the period 2010–2014, Gandhi and Sharma concluded that 14 out of the sample of 37 hospitals could be considered efficient when dealing with managerial skill-related factors. Their analysis further showed that efficiency improvements are achieved largely by technological change rather than improvements in resource use with existing methods (Gandhi & Sharma, 2018). A separate DEA analysis by Chitnis & Mishra in 2019 noted that private diabetic clinics could lower input costs by as much as 6% while maintaining their service output levels (Chitnis and Mishra, 2019).

To help improve technical efficiency, In January 2017, Health Technology Assessment in India (HTAI) was established under the department of health research in MoHFW. The agency synthesizes findings from existing health research, and provides evidence-based information to policy-makers on the medical, economic, social and ethical implications of specific health technologies. This is a major step forward as the introduction of different technologies (particularly in the public sector) has been ad hoc and not based on systematic evaluation, making it difficult to assess whether the public health strategies and technologies employed are appropriate and cost effective. HTAI was established based on recommendation of the Working Group on Health Research for the Twelfth Five-Year Plan (2012–2017) and consists of economists, social scientists, public health professionals and other specialists (MoHFW, 2012).

7.6 Transparency and accountability

Accountability mechanisms help to moderate the relationships and power dynamics between health service providers and citizens, between various levels of care, and between various stakeholders (George, 2003). Defined in its narrowest sense of the term, accountability could require health-care providers or funders achieving predefined targets, or improvements in efficiency in reaching these targets. More broadly, accountability could bring about more equitable power relations between communities and the public health system (Gaitonde et al., 2019). Although discussions around accountability mechanisms tend to focus on government provision of health care, in a country that is dominated by private health care, accountability must also include patient rights through citizens' mobilization, social accountability nurtured through ethical voices in the medical profession and emphasizing social regulation rather than a command and control bureaucratic regulation of private sector profession (Shukla et al., 2018).

India's tradition of top-down policy-making and decentralized implementation has resulted in rigidities in planning and management and a diluted sense of ownership and accountability for state governments, local governments and citizens (Peters et al., 2003). At the Central level, health programme designs tend not to be well aligned to communities' needs, and are not always matched by budgetary allocations. At the implementation level in states, accountability in public facilities is often shaped by administrative standards and processes. As a practical matter, these administrative rules are often flouted, with patients' need relegated to the background. Health workforce absenteeism, chronic shortages of medicines are common and a major source of poor access to government health-care facilities. Underutilization of allocated funds remains a continuing issue. Fixing

responsibility at the provider level hardly finds any place in administrative processes, contributing to the continuing lack of accountability.

The 73rd and 74th Constitutional amendments of 1993 provided a legal basis for states to involve rural bodies like the Panchayati Raj (literally meaning “rule of village committee”) and urban (municipal) local bodies in planning, decision-making and implementation of programmes at the local level (Peters et al., 2003). This ought to have helped states to allocate more responsibilities to local institutions in the areas of economic development and social justice, including health, and was expected to increase people’s participation in decision-making and implementation processes. But decentralized decision-making has not led to improved outcomes.

Many national and state-level policies and programmes in India (such as the NRHM) have attempted to improve community participation and the involvement of key stakeholders like local NGOs and PRIs in the delivery of health services. These initiatives seek to improve accountability and promote intersectoral collaboration between providers of health and health-related services at the ground level. Several community-based groups are involved in managing government health programmes and other independent initiatives. The engagement of civil society organizations in participatory health governance and community monitoring through the NRHM has improved community mobilization and enhanced the responsiveness, quality, utilization and effectiveness of health services. It has also increased citizen capacity for claiming health rights and demanding better services. Community health worker schemes like the ASHA programme have improved outreach and strengthened the link between the health system and local communities (Planning Commission, 2011). Making available government data to the public through various online portals and the Right to Information Act are important tools that may empower communities. However, systems for implementing decentralized participatory governance (such as the RKs and VHSNCs) remain relatively weak and poorly functioning. They suffer from insufficient devolution of administrative and financial powers, lack of transparency, weak organizational capacity and cohesion, poor awareness of roles and responsibilities and non-prioritization of health agendas. Moreover, often these approaches have worked better for curative services, but have been far less effective in public health and preventive and promotive services (Planning Commission, 2011). In states such as Kerala, where decentralization has been particularly effective, experience has shown that long-term planning, capacity-building of local bodies and community-level advocacy efforts have been vital in unlocking the full potential of decentralization reforms and in determining their eventual success (Misra, 2003). This has made services and programmes more responsive

to local health needs and priorities and has facilitated coordinated action on other determinants of health like water and sanitation (Misra, 2003; Planning Commission, 2011).

7.7 Health system preparedness with respect to COVID-19

The COVID-19 pandemic revealed the challenges and limitations of health systems across the world, irrespective of health system maturity. In India too, COVID-19 revealed India's health system fault lines. The National Disaster Management Act, 2015 was invoked later in early 2020. Countrywide, a civil curfew, followed by complete lockdown was brought into effect in March 2020 with the aim of delaying the outbreak to buy time to prepare the health infrastructure and staff.

The initial lockdown was one of the most stringent in the world (March to May 2020), and resulted in significant economic and social costs. The lockdown brought a near-complete standstill to all local and interstate movement of people, restricting economic and social activities. Markets, workplaces, schools, international borders and state borders were closed. Many state governments also invoked the Epidemic Diseases Act, 1897, empowering them to restrict people from gathering in large numbers.

The lockdown was a meant to delay the peak of the first wave of the pandemic allowing the health system to prepare. Nonetheless, there was a high cost to this action in terms of hardships to informal sector workers, many of whom were migrants, who lost their jobs and lacked social protection.

Several health and non-health measures were taken by the MoHFW and other ministries to inhibit the spread and respond to COVID-19. By mid-October 2020, when India's first pandemic peak was reached, the number of dedicated COVID-19 facilities stood at 15 239 providing 1.2 million isolation beds (without oxygen support), 264 107 isolation beds with oxygen support as well as 76 709 non-ventilator supported and 39 476 ventilator-supported ICU beds. Despite these efforts, inadequacies in the numbers of beds and ventilators emerged in the public health system (Parliament of India, 2020). This was particularly highlighted during the second wave in March–June 2021 when the daily number of positive cases reached over 400 000 forcing shortages of essential medicines, hospital beds and medical oxygen in many locations.

From just one laboratory at the start of the pandemic, the number of COVID-19 testing laboratories increased from 31 in February 2020 to 1614 in September 2020, and 2879 August 2021, and 3306 in February 2022, of which

approximately 55% were private. Similarly, the number of COVID-19 tests were ramped up with 2.1 million tests done per day in May 2021. Testing was offered at public and private sectors, with prices capped.

Alongside efforts to secure vaccine doses, and develop and indigenous vaccine were made, and strengthen the production of PPEs. A concerted effort between the Central and state governments has led to an increasing number of vaccinated general population. In January 2022, vaccination of 15–18-year-olds was opened up, as well as a third precautionary dose for healthcare workers and the elderly above the age of 60 years.

By March 2022, nearly 1.8 billion total doses of COVID-19 vaccines were given to those 15 years and above, with 800 million second doses administered (MoHFW, 2022). To expedite vaccination coverage, government facilities along with private hospitals (numbering over 40 000) are now involved. Although voluntary in nature, the vaccination drive against COVID-19 was rolled out by employing IT applications through COWIN 2.0 or the Aarogya Setu App, and eligible individuals were allowed to book slots for appointment to avoid overcrowding and follow social distancing norms. The vaccination was initially free at both government and private sector facilities although later the private sector could charge a fee of between INR 780 and INR 1410 depending on the vaccine type.

8. Conclusions

8.1 Key findings

India is currently undergoing a triple transition – economic, demographic and epidemiological – that involves both challenges and opportunities as it seeks to transform its health sector. Between 1990 and 2019 India recorded a sustained annual growth rate of over 5% in terms of real per capita GDP, transitioning into a lower-middle-income country. The country is also undergoing a demographic transition, with associated opportunities for a demographic dividend complemented by a growing and large share of the working age population. At the same time, India faces major challenges associated with the emergence of a growing burden of noncommunicable conditions while still grappling with its traditional concerns underlying communicable diseases and reproductive health outcomes.

Substantial progress towards achieving the MDGs was made. Gains in maternal and infant mortality and increased the share of institutional deliveries have generally been attributed to increased investments in reproductive, maternal and child health, alongside improvements in socioeconomic status. India reached a U5MR of 43 deaths per 1000 live births in 2015, close to the MDG target of 42 per 1000 live births. However, considerable interstate variations exist. For instance, the states of Kerala, Tamil Nadu and Maharashtra achieved U5MRs of 13, 20 and 24, respectively, by 2015, while Madhya Pradesh (62), Assam (62), Odisha (56) and UP (51) remained well short of the MDG targets. The achievements in other MCH-related MDG targets were less noticeable with both IMR (37/1000 live births against a target of 27) and MMR (130 per 100 000 live births against a target of 109) falling noticeably short of the targets nationally with large interstate variations.

The progress on communicable diseases is also mixed. While polio has been eliminated and the HIV/AIDS epidemic contained, there is a continuing and significant disease burden of tuberculosis, especially with the rise of multidrug-resistant tuberculosis. Dengue and chikungunya have been a regular source of threat to urban health planners. COVID-19 has shown the challenges of a health system that has been chronically underfunded and, most importantly, for the first time, the rich also felt the lack of access.

NCDs are increasingly emerging as a threat to the disease burden, with NCDs and injuries together currently accounting for over one-half of all disease conditions.

How well has India's health system coped with the epidemiological transition? Sustained government underfunding and growth of unregulated private sector providers have contributed significantly to the rising costs of health care borne by households. Household OOP spending on health services accounts for nearly two thirds of all health spending, especially on medicines. The resulting financial burden continues to push over 55 million people into poverty every year, with over 18% of Indian households incurring catastrophic levels of health expenditures annually.

The contribution of the health workforce in health-care delivery is critical. A remarkable expansion in medical education, involving medical, nursing and technical education has occurred in the past decades. Although physician density remained inadequate at 8.57 physicians per 10 000 persons in India during 2018, considerable improvement in the availability of nurses and midwives (17.27 per 10 000 persons), dentists (2.01 per 10 000 persons) and pharmaceutical personnel (8.87 per 10 000 persons) was observed. A continuing worry is the quality (and hence employability) of such personnel and their skewed locational distribution since they are largely urban-centric.

India's mixed health-care delivery system is both a source of strength and weakness of its health system. The provision of personal curative health services is predominantly carried out by private providers. Nearly 70% of all outpatient visits, about 58% of all inpatient episodes, and over 90% of medicines dispensed and diagnostic facilities in India are currently provided by both for-profit and not-for-profit entities. However, the quality, cost and effectiveness of services varies considerably across providers. Despite contributing only one third of the THE, government health services cover a large share of health prevention and promotion, medical education, and about 30% of all outpatient and 45% of inpatient services. Such a scenario is largely owing to sustained underfunding, reflecting the low priority accorded to health by successive governments, and weak regulatory mechanisms.

Physical access to and affordability of medicines, vaccines and diagnostic facilities are of concern. Public sector underfunding coupled with weak procurement and logistics systems, has meant that access to medicines, vaccines and medical equipment in government health facilities remains poor. Although this pattern is not homogeneous across states, only a few Indian states have been able to offer adequate resources for procuring medicines and necessary diagnostic services. In the private sector, physical

access to health care is easier, but comes at a price. Prices also remain high for many essential medicines, leaving them out of reach for many households. Despite being labelled as the “pharmacy of the global south”, India’s branded generic market continues to be elusive or unaffordable to a majority in the population. Moreover, poor regulatory oversight has limited policy-makers’ ability to control production of unnecessary drugs and inappropriate prescription and use of medicines.

8.2 Lessons learned from health system changes

Several policy initiatives were launched in recent years to address India’s health system challenges. The NHM, which was intended to strengthen the health systems of both the Central and state governments, has remained largely confined to addressing maternal and neonatal conditions, and various infectious disease control programmes. Even here, though, progress was uneven. NRHM’s focus on expanding institutional deliveries did lead to a significant increase in the share of deliveries in health facilities, from 43% in 2004 to 83% in 2018, with a sizeable rise in the share of deliveries in government health facilities (21% to 53%) (IIPS, 2016) and (ORGI & CCI, 2018). The data also revealed a pro-poor distribution of births in government facilities. In the state of Haryana, for example, 82% of deliveries occurred in health facilities, of which 65% were in government facilities alone. Moreover, 63% of women delivering in government facilities reported no expenditure, and for those who reported incurring expenses, the average OOP expenditures for normal vaginal deliveries were small – INR 2084 and 2459 in rural and urban India, as against INR 12 931 and 17 960 spent, respectively, for deliveries occurring in private facilities (NSSO, 2019).

The Quality of delivery services in the public sector remain a concern, including difficulties in handling birth complications, shortfalls in emergency obstetric care facilities, shortages of key essential medicines, diagnostics, etc. (Gupta et al., 2018). An independent financial audit performed on the NHRM found other (related) areas of concern, such as inadequate numbers of health facilities, deficient infrastructure, and a shortage of clinical and support staff. The audit further revealed another major challenge involving the NRHM programme, that quality-of-care concerns in government health facilities remained largely unaddressed (Comptroller and Auditor General of India, 2017). Yet another area of concern is to do with data quality as reported by HMIS, including its reliability, accuracy and consistency. In terms of utilization of NRHM funds, for example, an assessment found that merely 55% of funds allocated were utilized during 2015–2016 and 2016–2017 in Bihar and Maharashtra, partly due to delays in release from state treasuries to frontline facilities. Despite the heavy concentration of private

and public health-care delivery in urban settings, inaccessibility to quality services and affordability of services have left about 100 million urban poor with weak health outcomes and considerable financial risks. Accountability remains weak. The systems for implementing decentralized participatory governance (such as the RKSs and VHSNCs) suffer from insufficient devolution of administrative and financial powers, lack of transparency, weak organizational capacity and cohesion, poor awareness of roles and responsibilities and non-prioritization of health agendas.

Several tax-funded health insurance programmes were initiated in India since the mid-2000s. The population and service coverage of such programmes involving prepaid and risk-pooled funds have expanded significantly over time. Innovations were introduced as these schemes began purchasing health care from both public and private facilities. The strength of these programmes lies in their coverage of large numbers of people and the poor, which improved access to hospitalization services. Overall, the success of these programmes in providing financial risk protection has been rather mixed though. In 2018, a new national scheme PM-JAY replaced the earlier RBSY and integrated several state government schemes under one umbrella. The PM-JAY seeks to cover 500 million people with a benefit package entitlement of INR 500 000 annually to a household, involving over 1500 packages to be provided free to patients from poor, and economically and socially disadvantaged groups. Despite high population coverage, given its focus on a limited set of benefit packages for inpatient services, the scheme has appeared to have increased access to hospital care but has not demonstrated any significant reduction in households' OOP, a primary goal of the scheme.

Underfunding of government health programmes has been a major source of concern, both at the national and state levels. State governments that are responsible for health-care delivery are limited in what they can provide, given their limited resources. There have been efforts towards higher levels of tax devolution from the Central to state governments, from about 32% during the 13th Finance Commission award period (2010–2014) to 42% during the 14th Finance Commission award period (2015–2019) of overall tax funds (Centre for Policy Research, 2016). However, this has not translated into large increases in state-level funding on health, as state governments fear a period of unpredictability in funding, given that funding transfers via other mechanisms (e.g. societies) from the Central Government are now channelled through the state government treasury. Moreover, the usual challenge of competing priorities at the state level for resource allocation remains, which often disadvantages the health sector. The 15th Finance Commission (2021–2026), while retaining a similar share of tax

devolution to states, awarded an unconditional health grant to states (local governments and state governments) accounting for 10.3% of the total grant-in-aid. Whether these translate into additional resources for health at the state level remains to be seen.

Regulation of health-care providers, the pharmaceutical industry and allied systems is critical for the functioning of the health system and ensuring patient welfare. Existing systems for regulation of private players in India are lax and variable. Barring a few states, most Indian states have not implemented the Clinical Establishments Act. The Act was envisaged to enforce common minimum standards of quality for diagnosis and treatment, which requires registration of all types of health facilities. Continued resistance from the medical fraternity appears to have stonewalled this piece of legislation from becoming a reality. India's present drug regulatory system is characterized by poor infrastructure, lack of skilled personnel, archaic legislation and multiple authorities, contributing to the poor implementation of rules and regulations. Moreover, the medicines' price ceiling system is geared towards balancing the interests of both drug makers and patients. As a result, the scope of coverage of number of medicines and magnitude of price reduction of key essential drugs has been rather subdued since the implementation of DPCO, 2013.

8.3 Future prospects

The NHP 2017 provides an explicit framework for achieving UHC. Its call for achieving good health status with a focus on prevention and promotion, along with a thrust on quality and provision of affordable and comprehensive primary care, is encouraging. Successive policies and plans have articulated the imperative of accelerating tax-funded mechanisms to step up public spending from the current level of approximately 1% to 2.5% of GDP by 2025. The additional funding that will be committed by both the Central and state governments is intended to primarily reduce households' OOP payments, a measure that is critical in preventing catastrophic health spending and medical impoverishment. As the Indian economy continues to grow rapidly, the revenue buoyancy underlying higher tax collection provides opportunities for greater allocation of resources to the health sector. The fiscal space is likely to be enlarged in view of the GST, which is expected to broaden the tax base and bring in efficiency in tax administration. But the initial glitches of implementing a major tax reform (the introduction of GST) are still being felt, with several iterations of tweaking tax rates and number of commodities and services in the tax net continuing to be carried out in quick succession. Moreover, the sharp shortfall, instead of an increase, in the expected revenue from the GST during late 2019 and 2020 is a matter for concern for state

governments that are becoming restless as they clamour for compensation for lost revenue streams due to the shift to GST.

As urban health plans merge into the NHM, the integration of vertically driven disease control programmes may need to be speeded up or be subsumed under the broad umbrella of the NHM. Given the larger focus of the current government on AYUSH, mainstreaming its services would receive strong support. Existing insurance models (PM-JAY, ESIS, CGHS) account for a large pool of nearly 650 million people. The integration of PM-JAY with state government insurance schemes is almost complete, with the exception of a few states. Additionally, most states that provide only basic coverage under PM-JAY have begun to scale up both population coverage and service coverage to the levels and pattern as observed in Andhra Pradesh and Tamil Nadu, and others may follow this example. However, other social insurance schemes, such as ESIS and CGHS, are unlikely to be integrated into the national pool underlying PMJ-AY, as they provide a better benefit package for the users and there is resistance against amalgamation.

Integration becomes even more daunting, given that both ESIS and CGHS provide coverage for primary care besides secondary and tertiary care. Such fragmentation of pools between formal employees (ESIS), government civil servants (CGHS) and the socioeconomically poor and vulnerable population (PM-JAY) are likely to produce inefficient outcomes, poor value for money and inequity in access to care. The NHA is strategically poised to build an integrated platform that can align the functions of these insurance schemes. Given different mandates, while financial integration may prove difficult, functional integration of these schemes must be promoted. This can be achieved by allowing patient access to utilization of common facilities empanelled/owned by each scheme, setting similar package prices, following standard treatment guidelines, setting similar quality control mechanisms, etc. A movement towards strategic purchasing models, is also expected, away from the current model of passive purchasing, especially in government-funded health insurance schemes. Although there is lot of interest around strategic purchasing, PM-JAY remains a key vehicle of such a change. The strategic purchasing function may also involve moving away from an input-oriented approach to output-based models.

The professional councils (medical, nursing, dental and pharmaceuticals) require a complete overhaul so that rationality, quality and cost-effectiveness is ensured in medical education and practice. In 2020, the national government replaced the MCI with the NMC. This new entity is expected to streamline regulations governing medical education, enhance efforts towards the rating of medical institutions, prepare guidelines for setting

fees charged by private medical colleges, develop clinical standards for community health providers to serve in primary health-care facilities, carry out health workforce assessments and focus on medical research (PIB, 2020). Similar efforts are also in the offing to promote the roles and relevance of allied health professionals and other health sector workers. The national government's move to set up a National Commission for Allied and Healthcare Professions is aimed at organizing, promoting and streamlining the profession to ensure quality education, training and research, and professional standards and ethical practices of several allied health professions under one roof.

The experience and success stories associated with creating a parallel public health cadre in states such as Tamil Nadu could also be replicated in other Indian states. This may help pave the way for a clearer delineation of roles and responsibilities of medical personnel in the public sector, including career progression and incentive structures. A national public health cadre is even more relevant and desirable on the lines of the civil services.

Three sets of functions underlying public sector health services must be strengthened: resources, governance and quality. Doubling public health spending, contributed by both the Central and state governments, in the next five years to reach the target of 8% from the current 4–5% of government expenditure ought to be prioritized along with mechanisms to strengthen the public financial management system so that the funds allocated are utilized appropriately. Given the huge shortfalls, a significant share of this increased health sector investment fund must be used to recruit and train health professionals, especially nurses and allied health-care professionals, to deliver primary care more effectively. Moving away from an input-oriented budgeting process to an output/outcome-based budget is desirable. Pooled procurement of medicines and supplies and improved supply chains in the public health system can increase efficiency in expenditures in this important category. Improving governance and making health-care delivery accountable to citizens, which meet their aspirations and needs is critical. An accountable health-care system is likely to move the health system towards improved quality of care, whether measured by clinical practices, or management practices that reduce long waiting times, cleanliness of premises, and provider–patient interactions.

Finally, a dominant, for-profit private care that is highly commercialized and yet lacks standardization of quality or costs requires effective regulation. Improving the quality of care in the private sector becomes critical as they need to be made accountable to patients for safety and clinical outcomes, prescriptions that are appropriate for the clinical conditions and

therapeutically effective. The current model dominated by fee-for-service in private health-care services induces unnecessary and inappropriate care, and is resource inefficient. Efforts to improve the implementation of the Clinical Establishments Act and Rules must be enhanced. Improved implementation of regulations aimed at controlling costs and quality must be accompanied by transparent and socially accountable regulatory processes with less bureaucratic hassles.

9. Appendices

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9.2 Useful Websites

Central Bureau of Health Intelligence	http://cbhi.nic.in/
Departments of Health and Family Welfare	https://main.mohfw.gov.in/organisation/Departments-of-Health-and-Family-Welfare
Department of Health Research	https://dhr.gov.in/
Directorate General of Health Services	https://dghs.gov.in/
Indian Council of Medical Research (ICMR)	https://www.icmr.gov.in/aboutus.html
Ministry of AYUSH	https://www.ayush.gov.in/
Ministry of Health and Family Welfare	https://www.mohfw.gov.in/
National Aids Control Organization	http://naco.gov.in/
National Health Mission	https://nhm.gov.in/
National Health Systems Resource Centre	https://nhsrcindia.org/
National Institute of Health and Family Welfare	http://www.nihfw.org/
NITI Aayog	https://www.niti.gov.in/
Reserve Bank of India	https://www.who.int/indi
WHO India World Health Organization	https://www.who.int/india

9.3 HiT methodology and production process

HiTs are produced by country experts in collaboration with an external editor and the Secretariat of the Asia Pacific Observatory based in the WHO Regional Office for South-East Asia in New Delhi, India.

HiTs are based on a template developed by the European Observatory on Health Systems and Policies that, revised periodically, provides detailed guidelines and specific questions, definitions, suggestions for data sources and examples needed to compile reviews. While the template offers a comprehensive set of questions, it is intended to be used in a flexible way to allow authors and editors to adapt it to their particular national context. The template has been adapted for use in the Asia Pacific region and is available online at: <http://www.who.int/iris/handle/10665/208276>

Authors draw on multiple data sources for the compilation of HiTs, ranging from national statistics, national and regional policy documents to published literature. Data are drawn from information collected by national statistical bureaux and health ministries. Furthermore, international data sources may be incorporated, such as the World Development Indicators of the World Bank. In addition to the information and data provided by the country experts, WHO supplies quantitative data in the form of a set of standard comparative figures for each country, drawing on the Global Health Observatory (GHO) data and Global Health Expenditure Database. HiT authors are encouraged to discuss the data in the text in detail, including the standard figures prepared by the Observatory staff, especially if there are concerns about discrepancies between the data available from different sources.

The quality of HiTs is of real importance since they inform policy-making and meta-analysis. HiTs are subject to wide consultation throughout the writing and editing process, which involves multiple iterations. They are then subject to the following.

- A rigorous review process consisting of three stages. Initially, the text of the HiT is checked, reviewed and approved by the Asia Pacific Observatory Secretariat. It is then sent for review to at least three independent experts, and their comments and amendments are incorporated into the text, and modifications are made accordingly. The text is then submitted to the relevant ministry of health, or appropriate authority, and policymakers within those bodies to check for factual errors.

- There are further efforts to ensure quality while the report is finalized that focus on copy-editing and proofreading.
- HiTs are widely disseminated (hard copies, electronic publication, translations and launches). The editor supports the authors throughout the production process and, in close consultation with the authors, ensures that all stages of the process are taken forward as effectively as possible.

9.4 About the authors and editor

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