



## Assuring health coverage for all in India

Vikram Patel, Rachana Parikh, Sunil Nandraj, Priya Balasubramaniam, Kavita Narayan, Vinod K Paul, A K Shiva Kumar, Mirai Chatterjee, K Srinath Reddy

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London School of Hygiene & Tropical Medicine, London, UK (Prof V Patel FMedSci); Public Health Foundation of India, Gurgaon, India (Prof V Patel, P Balasubramaniam MPH, Prof K S Reddy MD, R Parikh MPH, S Nandraj MA, K Narayan FACHE); Public Health Foundation of India and Royal Norwegian Embassy Universal Health Initiative, New Delhi, India (P Balasubramaniam); Department of Paediatrics, All India Institute of Medical Sciences, New Delhi, India (Prof V K Paul MD); Independent Researcher and Policy Analyst, New Delhi (A K Shiva Kumar PhD); Sewa, Ahmedabad, India (M Chatterjee MPH); VimoSEWA Cooperative, Ahmedabad, India (M Chatterjee); Lok Swasthya Health Cooperative, Ahmedabad, India (M Chatterjee); and World Heart Federation, New Delhi, India (Prof K S Reddy)

Correspondence to:

Prof Vikram Patel, Public Health Foundation of India, Gurgaon-122002, India  
vikram.patel@lshtm.ac.uk

Successive Governments of India have promised to transform India's unsatisfactory health-care system, culminating in the present government's promise to expand health assurance for all. Despite substantial improvements in some health indicators in the past decade, India contributes disproportionately to the global burden of disease, with health indicators that compare unfavourably with other middle-income countries and India's regional neighbours. Large health disparities between states, between rural and urban populations, and across social classes persist. A large proportion of the population is impoverished because of high out-of-pocket health-care expenditures and suffers the adverse consequences of poor quality of care. Here we make the case not only for more resources but for a radically new architecture for India's health-care system. India needs to adopt an integrated national health-care system built around a strong public primary care system with a clearly articulated supportive role for the private and indigenous sectors. This system must address acute as well as chronic health-care needs, offer choice of care that is rational, accessible, and of good quality, support cashless service at point of delivery, and ensure accountability through governance by a robust regulatory framework. In the process, several major challenges will need to be confronted, most notably the very low levels of public expenditure; the poor regulation, rapid commercialisation of and corruption in health care; and the fragmentation of governance of health care. Most importantly, assuring universal health coverage will require the explicit acknowledgment, by government and civil society, of health care as a public good on par with education. Only a radical restructuring of the health-care system that promotes health equity and eliminates impoverishment due to out-of-pocket expenditures will assure health for all Indians by 2022—a fitting way to mark the 75th year of India's independence.

### Introduction

The draft National Health Policy 2015<sup>1</sup> by the Government of India has endorsed the goal of providing “universal access to good quality health-care services without anyone having to face financial hardship as a consequence”. The new union government that took office in 2014 has announced many policy initiatives to strengthen the health sector and address some of the social determinants of health (panel 1). By 2011, two separate groups of public health leaders commissioned by the previous Indian Government and by *The Lancet* had synthesised evidence of India's health system and had called for adoption of universal health coverage based on massive strengthening of the public health system and radical approaches to health financing.<sup>20,21</sup> Here we consider the relevance of these recommendations to assuring health care for Indians in three steps: first, we summarise evidence showing that despite some important improvements in health indicators, India's health outcomes are not consistent with her economic achievements; second, we identify the fundamental weaknesses in India's health-care system; and third, we elaborate the reasons for India's health-care crisis, which can only be addressed by a firm commitment to the proposed National Health Assurance Mission founded on the principles of universal health coverage.<sup>22</sup>

### Progress in health outcomes

India has recorded several gains in health since the new millennium. Life expectancy at birth has risen from 62·5 years in 2000, to 66 years in 2013.<sup>23</sup> In 2013, the infant mortality rate was 40 per 1000 livebirths—down by a third

since 2003.<sup>24,25</sup> Between 2001 and 2013, the maternal mortality ratio fell from 301 per 100 000 livebirths to 167 per 100 000 livebirths.<sup>26,27</sup> The spread of HIV/AIDS has been contained, and, in March, 2014, WHO officially declared India polio free. In August, 2015, WHO declared India free of maternal and neonatal tetanus.

Yet, 2014 ended with the tragedy of sterilisation deaths in the Indian state of Chhattisgarh and inflicted blindness through botched cataract operations in Punjab. 2015 saw similar tragedies as more than 100 people died in Mumbai from consumption of illicit liquor, and the number of dengue cases increased throughout the country, as compared to the previous year<sup>28–30</sup>—stark reminders of inadequate accountability, poor infrastructure, and low-quality health services in India's health-care sector. These examples are only the tip of the iceberg of enormous deprivations in health faced by Indians. Despite being home to 17·5% of the global population, India accounted for 20% of the global burden of disease in 2013—only a slight improvement from 21% in 2005.<sup>31</sup> India accounts for 27% of all the neonatal deaths and 21% of all the child deaths (younger than 5 years) in the world.<sup>32</sup> Diarrhoea, pneumonia, preterm birth complications, birth asphyxia, and neonatal sepsis account for 68% of all deaths in children younger than 5 years in the country.<sup>32</sup> Chronic nutrition deficiency manifesting as stunting (height-for-age below –2 SD) continues to affect 38·7% of children younger than 5 years, and 29·4% of children were underweight in 2013–14.<sup>33</sup> Furthermore, more than 6% of women are severely undernourished (body-mass index less than 16 kg/m<sup>2</sup>), which is among the highest in low-income and middle-income countries.<sup>34</sup> Overall, tuberculosis,

lower respiratory infections, diarrhoeal diseases, malaria, and typhoid continue to be leading causes of burden among communicable diseases.

Non-communicable diseases contribute to 52% of all disease burden and more than 60% of deaths in the country.<sup>31</sup> High rates of tobacco consumption contribute substantially to mortality from cardiovascular diseases, cancer, and tuberculosis, and more than 1 million deaths every year are estimated to be attributed to smoking alone.<sup>35</sup> The country's tobacco-related death toll is projected to double by 2030. Nearly 65 million Indians have been diagnosed with diabetes.<sup>36</sup> The average age of a person having their first heart attack is 50 years, at least 10 years earlier than in developed countries.<sup>37</sup> Because of premature cardiovascular deaths, India is expected to lose 16 million potentially productive years of life in the 35–64 year age-group in 2050.<sup>38</sup> Suicide rates in India are among the highest in the world, and suicide has emerged as a leading cause of death in young adults.<sup>39</sup> Overall, ischaemic heart disease, chronic obstructive pulmonary disease, depression, haemorrhagic stroke, diabetes, and low back pain were among the leading non-communicable causes of the burden of disease in 2013.<sup>40</sup>

Compounding this huge burden of diseases are widespread inequities in health outcomes that are apparent in the large morbidity and mortality differentials across socioeconomic status, caste, class, sex, and geographic location. Particularly notable is the wide interstate and intrastate disparities on a range of health-related indicators (table 1). For example, in 2012–13, the infant mortality rate within the state of Assam varied from 37 per 1000 livebirths in the district of Dhemaji to 74 per 1000 livebirths in the district of Kokrajhar.<sup>48</sup>

Other equity fracture lines appear across rural–urban residence and social class. For instance, infant mortality rates in rural and urban areas differ by 17 points.<sup>24</sup> The under-5 year mortality rate among children born to communities classified as Scheduled Tribes is 15% higher than the national average.<sup>49</sup> Nearly 25% of children born to parents in the bottom wealth quintile are severely malnourished, compared with 5% of children born to parents in the top wealth quintile.<sup>49</sup> The child sex ratio (age 0–6 years) in India is still one of the worst in the world, second only to China. Between 2001 and 2011, the number of girls in this age group fell from 927 per 1000 boys to 914 per 1000 boys, with the decline being larger in rural than in urban areas. Girls have a particularly acute survival disadvantage. For instance, in the 2000s, the risk of dying at an age of 1–5 years was more than 75% higher for girls than for boys.<sup>50</sup> A girl born in the states of Chhattisgarh or Madhya Pradesh is five times more likely to die in the first year of life than a girl born in the state of Kerala. Health and life expectancy in India continue to be largely determined by the lottery of the sex, socioeconomic status, caste, and the place one is born.

India is the poorest performer on health among the five BRICS nations (Brazil, Russia, India, China, and

#### Panel 1: Highlights of the recent announcements and initiatives of the current government (as of Oct 28, 2015) related to health

- Draft of National Health Policy 2015 was placed in public domain<sup>2</sup>
- “Mission Indradhanush” was launched to vaccinate all children against seven vaccine-preventable diseases; in the first phase, 0.94 million sessions were held in high-priority districts throughout the country<sup>3</sup>
- Three new vaccines, including indigenously developed vaccines against rotavirus, rubella, and polio, were introduced as part of the Universal Immunisation Programme; a fourth vaccine for adults to protect against Japanese encephalitis is to be introduced in high-priority districts<sup>4</sup>
- The roadmap for Universal Health Assurance Mission (UHAM) prepared by an expert group has envisaged universal health insurance as a component of UHAM that will be free for all persons below the poverty threshold and available at low premium for the rest of the population to be overseen by an autonomous oversight body<sup>5</sup>
- States’ Drug Regulatory and Food Regulatory Systems are to be strengthened by creating new drug testing laboratories and strengthening the 31 existing state laboratories<sup>6</sup>
- National Policy on Mental Health was released on Oct 10, 2014<sup>7</sup>
- Several new institutions were sanctioned for health professional training and research, including two National Institutes of Ageing, a national-level research and referral institute for higher dental studies, new regional and national institutions for Allied Health Sciences, 15 Model Rural Health Research centres, 20 state cancer institutes, and 50 tertiary care cancer centres<sup>8</sup>
- Excise tax was increased on cigarettes and smokeless tobacco products by up to 70% and on aerated waters containing added sugar by an additional 5%;<sup>6</sup> pictorial warnings on tobacco product packages covering 85% of the display area could be implemented soon<sup>9</sup>
- Focus was renewed on the eradication of Kala Azar<sup>10</sup> and the elimination of lymphatic filariasis by 2015
- The National Newborn Action Plan was launched on Sept 18, 2014, with the target of reducing neonatal deaths to less than ten per 1000 livebirths by 2030<sup>11</sup>
- The Integrated Action Plan for Prevention and Control of Pneumonia and Diarrhoea was launched to reduce deaths among children younger than 6 years of age<sup>12</sup>
- The indigenous medicine systems accorded a separate ministry status<sup>13</sup> and a national mission on AYUSH (Ayurveda, Yoga and naturopathy, Unani, Siddha, Homoeopathy) was launched<sup>14</sup>
- Rashtriya Swasthya Bima Yojana, a health insurance scheme for families living below poverty line was brought under the purview of the Ministry of Health and Family Welfare from the Ministry of Labour<sup>15</sup>
- The voice-based 24 × 7 toll-free National Health Portal was launched<sup>16</sup>
- Kayakalp, a national initiative to award public health facilities that show high levels of cleanliness, hygiene, and infection control, was introduced<sup>17</sup>
- The Allied and Healthcare Professional Bill 2015 was drafted and placed in the public domain for comments<sup>18</sup>
- Social sector schemes were introduced, including insurance schemes to cover both natural and accidental death risk at low premium rates, and the Clean India Mission to clean streets, towns, and infrastructure throughout the country; missions were initiated to ensure affordable housing in rural and urban areas by 2022, small scale businesses were promoted through Micro Units Development and Refinance Agency Bank, and financial inclusion scheme “Jan Dhan” was set up for poor people<sup>19</sup>

South Africa).<sup>51</sup> Despite a higher income per head and two decades of sustained economic growth, the country has fallen behind Bangladesh and Nepal on many health indicators. Equally disturbing is that India has failed to adequately protect its citizens against financial risks

	Social determinants				Inputs		Processes		Outcome			
	Percentage of women who are literate (2011)*	Percentage of children younger than 5 years who are underweight (<=2 SD; 2013-14; %) <sup>†</sup>	Percentage of households that use open defecation (2013-14; %) <sup>†</sup>	Percentage of households with improved source of drinking water (2011; %)*	Public spending on health per head (2013; INR) <sup>‡</sup>	Average population size served by each government-run hospital bed (2012-15) <sup>§</sup>	Percentage of registered   allopathic doctors who work in the public sector (2015; %) <sup>§</sup>	Percentage of all episodes of inpatient care seen by public hospitals in rural areas (2014; %)**	Percentage of children aged 12-23 months who are fully immunised <sup>††</sup> (2013-14; %) <sup>†</sup>	Infant mortality rate per 1000 livebirths (2013) <sup>‡‡</sup>	Suicide deaths per 100 000 population (2014) <sup>§§</sup>	Average medical expenditure per episode of hospital admission (2014; INR)**
Andhra Pradesh	53%	22%	40%	91%	711	4381	6%	23%	74%	39	12	18 551
Arunachal Pradesh	49%	25%	32%	79%	1959	555	82%	89%	51%	32	12.1	6247
Assam	56%	22%	38%	70%	600	2369	21%	89%	55%	54	11.1	14 810
Bihar	42%	37%	75%	94%	323	8789	9%	43%	60%	42	0.7	12 865
Chhattisgarh	52%	34%	70%	86%	645	2101	18%	49%	67%	46	22.4	14 475
Gujarat	61%	34%	38%	90%	783	2196	7%	23%	56%	36	11.7	16 952
Goa	76%	16%	14%	86%	2475	614	16%	51%	92%	9	15.1	26 270
Haryana	57%	23%	26%	94%	653	3481	46%	33%	71%	41	11.9	24 214
Himachal Pradesh	68%	20%	22%	94%	1568	795	N/A	76%	80%	35	9.2	19 431
Jammu and Kashmir	47%	15%	33%	77%	1522	1245	28%	94%	59%	37	2.1	9536
Jharkhand	46%	42%	76%	60%	483	6052	38%	40%	65%	37	4	11 270
Karnataka	60%	29%	33%	88%	723	1154	5%	27%	79%	31	17.8	17 148
Kerala	83%	19%	2%	34%	961	918	12%	35%	83%	12	23.9	16 775
Madhya Pradesh	50%	36%	63%	78%	505	2683	16%	54%	54%	54	11.9	16 713
Maharashtra	67%	25%	37%	83%	591	715	3%	19%	77%	24	13.9	24 085
Manipur	61%	14%	13%	45%	1572	1776	N/A	89%	55%	10	2	7226
Meghalaya	59%	31%	31%	45%	1508	867	N/A	89%	45%	47	3.6	6974
Mizoram	76%	15%	4%	60%	2476	638	N/A	86%	69%	35	11.1	11 031
Nagaland	65%	20%	14%	54%	1275	959	N/A	73%	33%	18	0.6	8394
Odisha	56%	34%	78%	75%	460	2505	22%	81%	62%	51	9.9	12 095
Punjab	63%	16%	10%	98%	895	2420	7%	29%	79%	26	3.3	28 539
Rajasthan	44%	32%	59%	78%	383	1521	23%	54%	61%	47	6.3	13 976
Sikkim	67%	16%	4%	85%	4213	406	33%	73%	78%	22	38.4	8543
Tamil Nadu	66%	23%	43%	93%	786	1069	7%	40%	76%	21	23.4	18 006
Tripura	72%	31%	4%	68%	264	904	N/A	93%	59%	26	20.3	6942
Uttar Pradesh	48%	34%	58%	95%	479	3678	17%	30%	47%	50	1.7	22 540
Uttarakhand	61%	21%	22%	92%	1114	1301	28%	51%	69%	32	2	13 985
West Bengal	62%	30%	28%	92%	542	1170	14%	77%	75%	31	15.5	15 910

INR=Indian rupee. N/A=non-applicable. \*Source: Census of India 2011 (where improved sources of drinking water includes tap water, tube well, bore hole, and hand-pumps).<sup>41</sup> †Source: Rapid Survey on Children 2013-14 state fact sheet, Ministry of Women and Child Development and UNICEF.<sup>33</sup> ‡Source: Reserve Bank of India State Finances,<sup>42</sup> the Quarterly NRHM Management Information System Report (status as on March 31, 2014),<sup>43</sup> and population projected for 2013 on the basis of Census of India 2011.<sup>44</sup> §Source: National Health Profile 2015, Central Bureau of Health Intelligence.<sup>45</sup> ||Allopathic doctors registered with State Medical Councils or Medical Council of India. \*\*Source: Key Indicators of Social Consumption in India: Health (NSSO 71st Round, January-June, 2014, National Sample Survey Office), Ministry of Statistics and Programme Implementation, Government of India, 2015.<sup>46</sup> ††Full immunisation includes BCG, measles, three doses each of diphtheria, pertussis (whooping cough), and tetanus vaccine and polio vaccine. ‡‡Source: Sample Registration Survey bulletin, 2014.<sup>24</sup> §§Source: Accidental Deaths & Suicides in India, 2014, National Crime Records Bureau, Ministry of Home Affairs, Government of India, 2014.<sup>47</sup>

Table 1: Key health indicators for Indian states

associated with health costs as catastrophic expenditures on health continue to push millions into poverty.<sup>32-34</sup> An important cause of this large and inequitably distributed burden of disease in India can be attributed to social determinants beyond the conventional health-care delivery sector such as urbanisation, poor access to water and sanitation, food insecurity and unhealthy

diets, environmental degradation, social stratification (exemplified by caste), and rising levels of income inequality. Although improvements have been made in recent years, undernutrition and poor sanitation are still serious problems in almost all states of the country (table 1).<sup>33</sup> Equally important are personal factors such as income, education, occupation, social status, sex, and

ability to participate in social networks.<sup>55</sup> For instance, the literacy rate in India in 2011 varied from 75% in the state of Uttar Pradesh to 98% in the state of Mizoram, although the literacy rate among women is much lower than for men (table 1). These determinants interact with one another to affect the balance between health and disease across population groups. Compounding the pervasive effect of these social determinants are fundamental weaknesses of India's health-care system.

## India's health-care system faces seven key challenges

### A weak primary health-care sector

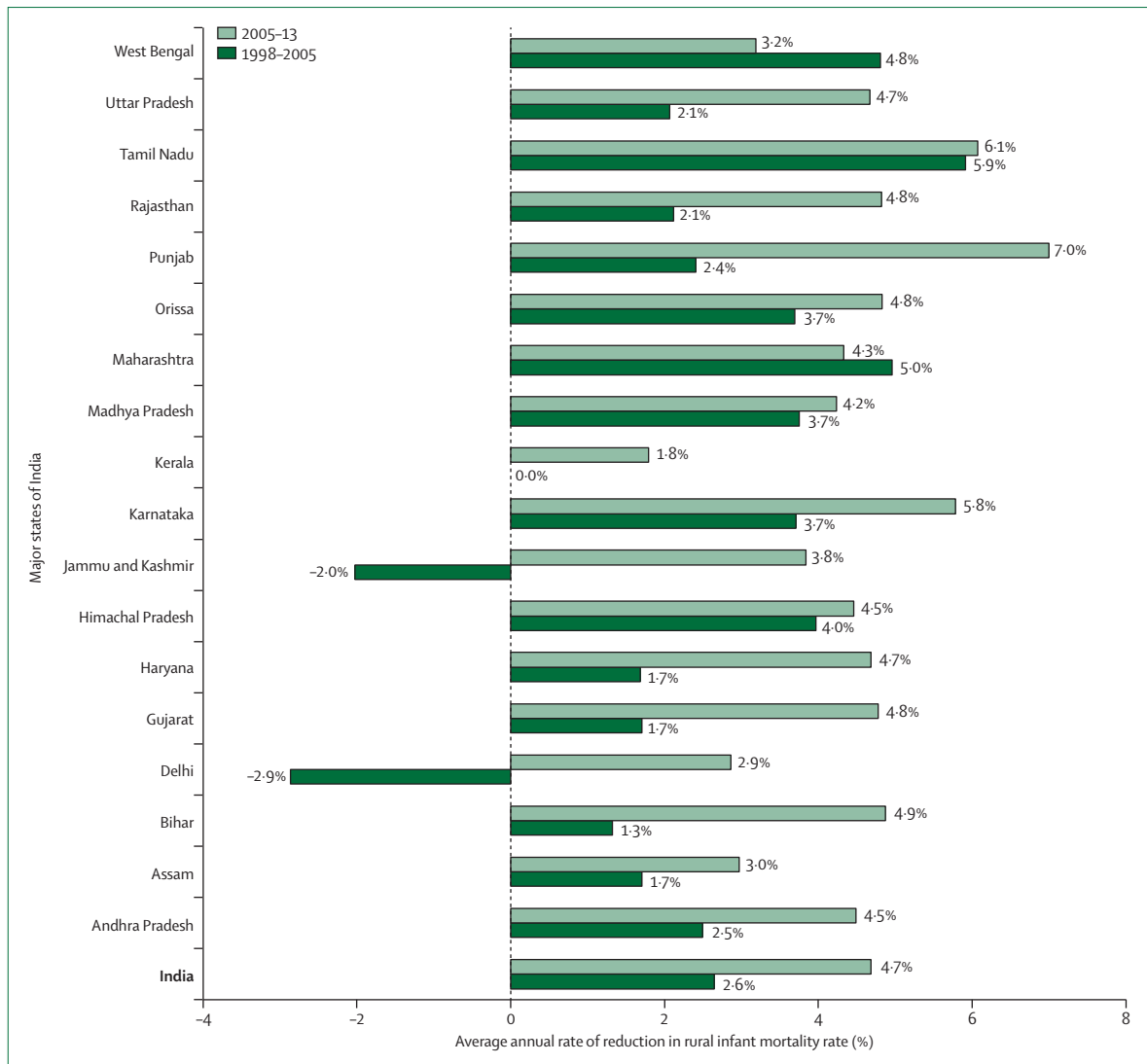
The proverbial jewel in India's health-care crown is its National Rural Health Mission,<sup>56</sup> set up in 2005, which sought "to provide universal access to equitable, affordable and quality health care" by undertaking architectural correction of the public health system in the country (panel 2). In January, 2014, the Ministry of Health and Family Welfare launched the National Urban Health Mission to meet the health needs of poor people living in urban areas and subsequently merged the National Rural Health Mission and the National Urban Health Mission into a common National Health Mission.<sup>61</sup> Infrastructure expanded considerably between 2005 and 2015: 7629 subcentres (5% of current availability), 2072 primary health centres (8% of current availability), and 2050 community health centres (38% of current availability) were added, and by the end of March, 2015, nearly 67% of subcentres (up from 44% in 2005), 83% of primary health centres (up from 69%), and 95% of community health centres (up from 84%) operated out of government-owned buildings.<sup>59</sup> In 2015, one government hospital bed was available for every 1833 persons—an improvement from the one bed for every 2336 persons in 2005.<sup>45,62</sup> These service delivery improvements have been associated with an increase in the proportion of institutionalised births. Between 2005–06 and 2013, facility births increased from 39% to 84%, particularly in the rural areas. This shift is said to be largely triggered by a conditional cash transfer scheme by the government.<sup>63</sup> Most states have also shown a clear acceleration in the pace of reduction in infant mortality rate in most Indian states (figure). Yet, India will probably miss both Millennium Development Goals 4 and 5.

The expansion in public services, however, has been inequitably distributed. For example, whereas one government hospital bed exists for every 614 persons in Goa, only one such bed exists for every 8789 persons in Bihar.<sup>45</sup> There continues to be an overall availability shortfall of 20% of health subcentres, 22% of primary health centres, and 32% of community health centres that serve people living in rural areas across the country, with states like Bihar and Madhya Pradesh reporting some of the highest shortfalls in availability of health facilities in the country.<sup>59</sup> Urban areas command 73% of the public hospital beds, even when 69% of India's population resides in rural areas.<sup>45</sup>

### Panel 2: Key initiatives and features of the National Health Mission

- **Janani Suraksha Yojana:** Launched in 2005, by modifying the existing National Maternity Benefit Scheme, this conditional cash transfer scheme has been instrumental in increasing births in health facilities and contributing to the decline in maternal and child mortality.<sup>57</sup>
- **Janani Shishu Suraksha Karyakram (JSSK):**<sup>58</sup> Launched in June, 2011, JSSK is envisaged to guarantee comprehensive maternal and newborn health care in public health facilities and benefit 12 million women annually. The programme has not been assessed, but observations from field visits of the Sixth Common Review Mission indicate that JSSK is contributing to a reduction in out-of-pocket expenditure for institutional delivery.
- **Rashtriya Bal Swasthya Karyakram (RBSK):** Launched in early 2013, RBSK targets 270 million children younger than 18 years and aims to provide free diagnostic and early intervention services for disorders linked to nutrient deficiencies, birth defects, diseases common to children, and developmental delays, including disabilities.
- **Rashtriya Kishor Swasthya Karyakram (RKSK):** Launched in January, 2014, RKSK aims to reach 253 million adolescents, both male and female, including in the marginalised and underserved groups, on issues pertaining to reproductive and sexual health, nutrition, injuries, violence, non-communicable diseases, mental health, and substance abuse.
- **National emergency response services:** A fleet of more than 15 000 emergency response service vehicles has been put in place.
- **Innovative public-private partnerships (PPP):** PPP, such as the Chiranjeevi scheme in Gujarat to promote institutional delivery and the partnership with emergency response services, have been successfully implemented.
- **Mobile Medical Units (MMUs):** More than 1200 specialised MMUs provide outreach for outpatient services including basic laboratory services.<sup>59</sup>
- **Drugs and technology:** Provision of free drugs and increasing the availability of generic drugs, centralised drugs, and equipment procurement along the lines of the Tamil Nadu model have led to development of successful models in states such as Kerala, Maharashtra, and Rajasthan.
- **Health financing and risk pooling:** The launch of many health insurance schemes like Rajiv Arogyasri in Andhra Pradesh, Mukhyamantri Amrutam Insurance Scheme in Gujarat, Yeshasvini Cooperative Farmers Health Insurance Scheme, and Vajpayee Aarogyashree Scheme in Karnataka, along with Rashtriya Swasthya Bima Yojana of the Ministry of Labour and Employment has contributed to poor people's increased access to specialised care, while also benefiting the private sector substantially.<sup>60</sup>
- **State and District Health Societies:** These societies are an innovative arrangement to involve elected representatives, health-related departments, and other stakeholders in health care and to promote decentralisation. Signifying vertical integration of the many disease specific societies, they participate in formulating district and state health plans.
- **Flexible financing:** Integration of existing schemes and pooling of funds has led to activity-wise allocations based on the state health plans and the normative framework of the National Rural Health Mission.
- **Community Involvement:** Platforms for community involvement in health planning and review have been created in almost all villages and health facilities through the Village Health Sanitation and Nutrition Committees, Patient Welfare Committees, and community monitoring mechanisms.
- **Programme management:** Programme management units have been established in all states and districts to streamline implementation.

A further concern is the uneven and often poor quality of care offered at public health facilities. For example, in 2011, in the less developed, so-called high focus states, 60% of the district hospitals did not offer intensive care



**Figure: Trends in rural infant mortality rates for select Indian states: pre-NRHM (1998–2005) and post-NRHM (2005–13)**  
 Source: Sample Registration System Bulletins for years 1998–2013, Registrar General of India ([http://www.censusindia.gov.in/vital\\_statistics/SRS\\_Bulletins/Bulletins.html](http://www.censusindia.gov.in/vital_statistics/SRS_Bulletins/Bulletins.html)) and Paul VK and colleagues (2014).<sup>64</sup>

services, and nearly a quarter of these hospitals continued to struggle with basic issues like drainage and sanitation.<sup>65</sup> Similarly, emergency obstetric care services were not available in more than 70% of community health centres, and only half the centres offered safe abortion services.<sup>65</sup> A study<sup>66</sup> of the availability of services, clinical staff, training, equipment, drugs, and basic infrastructure in primary care in the country found that “most facilities fall far short of minimum standards, with a long tail of facilities which are barely functioning”. States with the worst health indicators performed the worst. As many as 50% of the public hospital beds might not be functional.<sup>20</sup> By the end of March 2015, only 21% of primary health centres and 26% of the community health centres were functioning as per Indian Public Health Standards

(IPHS) set by the Ministry of Health and Family Welfare.<sup>59</sup> Furthermore, distant locations, inconvenient timings leading to wage loss, high absenteeism, and insensitive attitude of health workers are commonly cited concerns that limit the functionality of government-run primary health-care services.<sup>67</sup>

The results of the National Sample Surveys on social consumption<sup>68</sup> revealed a steady decrease in use of public hospitalisation services in the past two decades and that this decline was greater in the urban areas (from 43% in 1995–96 to 32% in 2014) than in rural areas (44% in 1995–96 to 42% in 2014).<sup>46</sup> Use of public services also decreased sharply with increase in wealth quintile class both in urban areas (48% in poorest quintile to 19% in the richest quintile) and rural areas (58% in poorest quintile to 29% in richest quintile). Thus, people who are

poor are heavily reliant on public health facilities and are therefore most affected by the unavailability of quality services in the public sector.

Public sector tertiary care institutions, exemplified by government medical colleges, national institutes of higher education and research, and institutions run by ministries (such as the Ministry of Defence), not only provide valuable specialised services but also inadvertently serve as primary care providers to compensate for these weaknesses in the public health sector. However, these institutions function independently of the primary health-care system. The recent initiatives<sup>8</sup> to establish new institutions modelled to match India's premier medical school in every state face many challenges in terms of the availability of human and technical resources and the additional danger that these institutions, too, will remain disconnected from the public health-care system. Furthermore, India's medical research infrastructure remains patchy, with a few centres of excellence contributing to knowledge essential to inform policy and practice.

#### Unequally distributed skilled human resources

The production of a wide range of human resources for health has increased dramatically. Between 2009 and 2015, for instance, the number of MBBS programme admissions increased by 31%, and 98 new medical colleges, 1045 new institutions offering general nurse midwifery courses, and 1362 new institutions offering auxiliary nurse midwifery courses were established across the country<sup>45,69</sup>. However, this increase in production is unlikely to make up for the extremely large shortfalls in India's health workforce that is expected across all professional categories in the near future (table 2). The norms for maximum intake of students for graduation and teacher–postgraduate student ratio have been relaxed to increase the availability of doctors and faculty to train them.<sup>71</sup> Recent estimates suggest that in addition to doctors and nurses, almost 6.4 million allied health professionals are needed to meet the country's requirements at present.<sup>72</sup> Although the country had more than 0.5 million so-called AYUSH practitioners practising ayurveda, unani, siddha, naturopathy, or homoeopathy in 2014,<sup>70</sup> who can contribute to address the acute shortage of human resources if adequately trained, nearly 90% of the population actually seeks care with the allopathic system in both urban and rural areas.<sup>46</sup>

This scarcity in staff numbers is massively compounded by the inequitable distribution of human resources. In 2014, only 11.3% of all allopathic doctors and 3.6% of all dental surgeons registered with the Central or State Medical and Dental Councils worked in public sector, and barely 3.3% of all allopathic doctors worked in public health facilities in rural areas.<sup>45</sup> Community health centres in rural areas of the Indian states of Haryana, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, West Bengal, Gujarat, and Himachal Pradesh, North Eastern States,

	Availability (2011–12)*	Desired density†	Need based on desired density	Percentage shortfall (%)
Doctors	691 633	85	1 031 383	49.1%
AYUSH practitioners	534 091	49	594 562	11.3%
Dentist	88 370	15	182 009	106.0%
Pharmacist	492 923	70	849 374	72.3%
Nurses or general nursing and midwifery	743 324	170	2 062 765	177.5%
Auxiliary nurse midwives	361 879	85	1 031 383	185.0%

Source: Twelfth Five Year Plan (2012–17).<sup>70</sup> AYUSH=Ayurveda, Yoga and naturopathy, Unani, Siddha, Homoeopathy practitioners. \*Availability excludes the 25% of doctors, AYUSH, pharmacists, and dentists and the 40% of nurses and auxiliary nurse midwives enrolled for training to account for attrition. †Desirable density is number of health personnel per 100 000 population as per Twelfth Five Year Plan.

**Table 2: Gaps in the availability of health professionals in India**

and Jharkhand face shortfalls of specialists exceeding 80%.<sup>59</sup> Several factors account for these massive disparities, including the fact that five southern Indian states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Maharashtra account for more than 50% of all medical seats.<sup>45</sup> The medical curriculum focuses on clinical applications of medicine, which, along with lucrative career options in the specialist private sector and limitations of infrastructure and opportunity in the public health-care sector, leads many medical graduates to specialise and work in the private sector. Initiatives by some states, such as the provision of financial and other incentives (for example, preference in admissions for postgraduate studies) to doctors and nurses working in the rural areas have not resolved the persisting divide between rural and urban areas.<sup>73</sup> Although the placement of nearly 900 000 Accredited Social Health Activists (the ASHA) at the village level is a positive step, they function largely as community health workers with a limited role in delivering primarily maternal and child health services.

India does not have an overarching national policy for human resources for health. The dominance of medical lobbies such as the Medical Council of India has hindered adequate task sharing and, consequently, development of nurses and other health cadres, even in a state like Kerala that has historically encouraged nurse education and has been providing trained nurses to other parts of India and other countries. In 2013, the Indian Government approved a new Bachelor of Science (Community Health) programme to create mid-level health professionals who can be employed as community health officers in rural areas. However, as a result of opposition from some stakeholders, including the medical profession, this course has not yet been introduced. The proposed National Commission for Human Resources in Health Bill, 2011, which seeks to regulate standards of health education in the country, is still pending approval in the Parliament. More recently, the Allied and Healthcare Professional's Central Council Bill, 2015, was drafted to regulate more than 15 allied and health-care categories and was recently placed in the

	GDP per head (PPP Int \$): 2004–05 prices*	Total expenditure on health per head (PPP Int \$): 2004–05 prices†	Government expenditure on health per head (PPP Int \$): 2004–05 prices†	Total health expenditure (% of GDP)	Government health expenditure (% of GDP)
2004–05	2613	127	28	4.5%	0.93%
2005–06	2747	128	30	4.2%	0.93%
2006–07	2926	127	31	4.0%	0.94%
2007–08	3057	127	33	3.8%	0.95%
2008–09	3021	125	34	3.9%	1.03%
2009–10	3000	128	38	3.9%	1.08%
2010–11	3116	123	38	3.7%	1.04%
2011–12	3072	122	37	3.8%	1.14%
2012–13	3050	120	37	3.8%	1.16%
2013–14‡	3037	122	39	4.0%	1.28%

Source: The World Bank Data 2014<sup>93</sup> and WHO National Health Accounts Global Health Expenditure Database.<sup>94</sup> GDP=gross domestic product. PPP Int \$=international dollar in terms of Purchasing Power Parity. \*GDP per head was deflated by GDP deflator. †Per capita health expenditure and government expenditure data and prices are from WHO's Global Health Expenditure Database.<sup>95</sup> ‡Revised estimate.

**Table 3: Real expenditure and government expenditure on health per head from 2004 to 2014**

public domain for comments.<sup>18</sup> The Ministry of Health and Family Welfare and Ministry of Skill Development have also partnered to enhance the skills of human resources in the health sector.<sup>74</sup>

### A large, unregulated, private sector

A consequence of the insufficient reach of the public sector has been the growth of a massive, heterogeneous, and mostly unregulated private health-care sector. In 2014, more than 70% of outpatient care (72% in the rural areas and 79% in the urban areas) and more than 60% of inpatient care (58% in rural areas and 68% in urban areas) was in the private sector.<sup>46</sup> These data must be considered in view of the massive growth of the private sector, particularly in the past decade, which has far outpaced the growth of the public sector. Between 2002 and 2010, the private sector contributed to 70% of the increase in total hospital beds across the country.<sup>75</sup>

Private practitioners are now therefore the first point of contact in both rural and urban areas for many ailments, including fevers<sup>67</sup> and acute illnesses,<sup>76</sup> care of neonates,<sup>77</sup> and treatment of diseases such as tuberculosis.<sup>78,79</sup> However, a substantial proportion of, and in some areas even the majority of private providers might be unqualified or underqualified. For example, a study in rural Madhya Pradesh found that only 11% of the sampled health-care providers had a medical degree, and only 53% of providers had completed high school.<sup>80</sup> Informal care providers, with no formal medical training or registration with government for medical practice, are estimated to represent 55% of all providers<sup>81</sup> and are also frequently the first point of contact, especially in rural areas. At the other extreme of the private sector, thanks to government incentives in the form of tax exemptions

and subsidised land allotments, business houses have set up large corporate funded hospitals focusing on specialised services. However, most private hospitals are relatively small establishments in the shape of nursing homes. With few exceptions, the quality of care in the organised private sector also remains suspect.<sup>80,82</sup>

The poor quality is further compounded by rampant corruption at all levels of the sector. Huge scandals involving corruption in medical entrance exams at state and national levels have been highlighted.<sup>83</sup> The many new institutions set up in the past decade to augment the production of health professionals are in the private sector and, encouraged by commercial incentives, have often fuelled corrupt practices and failed to offer quality education. This lack of quality led to the withdrawal of recognition of medical colleges that account for nearly a third of medical seats in the country.<sup>84</sup> Unethical and irrational practices, such as overbilling and unnecessary prescriptions, procedures, and diagnostic tests, to generate revenue and meet targets set by the corporate hospital managements have also been reported.<sup>85</sup> Kickbacks from referrals to other doctors or from pharmaceutical and device companies are common, and crass profiteering tempts many private practitioners and hospitals to inflict unnecessary procedures such as CT scans, stent insertions, and caesarean sections.<sup>86</sup> Such practices have flourished because of a weak regulatory climate with no standards or mechanisms to monitor quality or ethics, steadily eroding trust in both the public and private health-care systems.<sup>87–92</sup>

### Low public spending on health

Between 2004–05 and 2013–14, no change was recorded in the total expenditure in health per head, and the total expenditure on health per head in India fell from 4.5% of gross domestic product (GDP) in 2004–05 to 4.0% of GDP in 2013–14 (table 3).<sup>95</sup> However, during this same period, real public expenditure per head increased by 40%—much of this growth was achieved by 2009–10, with virtual stagnation since 2010–11. Despite this increase, public health expenditure as a proportion of GDP remains low, at just 1.28% of the country's GDP in 2013–14.

Public health expenditure is contributed to by both the central and state governments, leaving economically weaker states more susceptible to low public health investments. Although the Twelfth Five Year Plan (2012–17)<sup>70</sup> had called for a paradigm shift and recommended the Central Plan expenditure (the Central government's assistance to state governments for their annual plans) to increase by about 34% every year, expenditure by the central government has plateaued or increased by less than 1% per year between 2008–09 and 2012–13. On the other hand, the real state expenditure on health, ie, after taking inflation into account, has increased by 7% per year.<sup>96</sup> As a result, the central government's share in public health expenditure has

remained less than 30% since 2010 and has reduced progressively, even if marginally. Budget releases from the central government are often said to be based on the fund absorptive capacities of the states, and because many state governments in India fail to use allocated funds within the financial year, actual released budgets are often much smaller than promised.<sup>97</sup> Although sometimes furnished as reasons for reducing budgetary allocations, these low absorptive capacities might simply reflect structural weaknesses in the health-care system that need to be addressed with more resources and a different approach to provision and delivery of care.<sup>20</sup> A central government directive to increase tax devolution to state governments from 32% to 42% offers an opportunity for state governments to tap into the enhanced pool of funds and increase investments in health.

A consequence of the relatively small public expenditure for health care is apparent in the high out-of-pocket expenditure incurred for health care.<sup>98</sup> In 2013, out-of-pocket expenditure accounted for about 58% of the total health expenditure on health in the country.<sup>95</sup> Between 2004<sup>99</sup> and 2014,<sup>46</sup> the real average out-of-pocket expenditure per episode for outpatient care has increased by 1.8% annually in both public and private sectors. During the same time, real out-of-pocket expenditure for inpatient care per episode in public sector actually decreased, whereas it increased by 3.6% per year in private sector (table 4). In the absence of financial protection, high out-of-pocket expenditure is often financially catastrophic. In 2011–12 alone, 55 million Indians were estimated to have fallen into poverty because of health-care costs.<sup>100</sup>

In 2003–04, only 4.5% of Indians enjoyed some financial protection. Schemes like the Central Government Health Scheme and Employee's State Insurance Scheme have been providing financial risk protection to central government employees and the organised sector employees for more than six decades. Since 2005, publicly funded insurance schemes have become popular after the introduction of two large scale health insurance schemes, the Yeshaswini in the state of Karnataka and Rajiv Aarogyasri in the state of Andhra Pradesh, which primarily cover farmers and people living below the poverty threshold, respectively. The Rashtriya Swasthya Bima Yojana (RSBY), launched by the central government's Ministry of Labour and Employment in 2007, offers to cover hospital expenses of up to INR 30 000 for a family of five members living below the poverty threshold. By October, 2015, more than 36 million families in the unorganised sector were enrolled with the RSBY.<sup>101</sup> Insurance schemes have proliferated in the past decade; by 2010, nearly 20 central or state sponsored schemes had been introduced, covering close to 25% of India's population with varying levels of financial protection.<sup>102</sup> Although these insurance schemes have increased access to health care for people who are poor, emerging evidence indicates their limited

	Outpatient care		Inpatient care	
	Public	Private	Public	Private
2004 (INR)	220	319	3473	8804
2014 (current prices; INR)	554	788	6120	25 850
2014 (2004–05 prices; INR)	263	382	2954	12 479
Compound annual growth rate (%)—current prices	9.5%	9.5%	5.8%	11.4%
Compound annual growth rate (%)—2004–05 prices	1.8%	1.8%	-1.6%	3.6%

Calculations are based on analysis of the unit data of *Social Consumption in India: Health*, NSS 71st round: January–June, 2014;<sup>46</sup> and *Morbidity, Health Care and the Condition of the Aged*, NSS 60th round (January–June, 2004).<sup>99</sup> INR=Indian rupee.

**Table 4: Out-of-pocket expenditures on health per episode of inpatient and outpatient care in India**

effect on financial risk protection because of relatively low coverage limits and exclusion of expenditure on drugs, outpatient visits, and investigations, which account for a large part of health-care expenditure.<sup>103–109</sup>

#### Fragmented health information systems

Health information data in India are gathered by many agencies and surveillance systems. Besides the civil registration system and the sample registration system, specific programme-based systems for disease surveillance collect data on malaria, tuberculosis, HIV/AIDS, and other diseases. Institutions such as the Central Bureau of Health Intelligence, Registrar General of India, and the National Sample Survey Organisation periodically survey population health. Despite these many data collection agencies, several gaps exist. First, the systems for collecting data have many weaknesses. For instance, although India enacted a law on the mandatory registration of births and deaths in 1969, only 86% of births and 70.9% of deaths were registered in 2013.<sup>110</sup> Additionally, the cause of death statistics obtained from the civil registration system are often incomplete and of poor quality.<sup>111</sup> Second, there is little coordination between the agencies managing health information and little integration and reconciliation of diverse data sources. Health-care workers often collect several types of health metrics to meet divergent requirements laid down by central, state, and local governments.<sup>112,113</sup> Third, data gathering is incomplete, and the non-inclusion of the private sector excludes the major provider of health care in India. Fourth, although data collection on some indicators is duplicated, vast gaps exist on others. For example, information on health determinants, adult mortality and cause of death, adult morbidity, and the coverage and costs of many interventions are poorly recorded. Fifth, use of data is limited by an inadequate focus on outputs and outcomes when making decisions for allocation of funds and a shortage of skilled managers who can analyse and use the data for decision making.<sup>114,115</sup> To address some of these deficiencies, the National Rural



Health Mission has established an integrated nation-wide health management information system portal that facilitates the flow of health information of more than 300 data elements largely related to maternal health, child health, and family planning and maintains a repository of published reports from national datasets.<sup>116</sup> The health management information system has been expanded to capture monthly information from 195 000 facilities spread over almost all districts of the country.<sup>116</sup>

#### **Irrational use and spiralling costs of drugs and technology**

India spends only a little more than 0·1% of GDP on publicly funded drugs. Not surprisingly, close to two-thirds of the total out-of-pocket expenditure was incurred on drugs.<sup>117</sup> In 2008, the Government of India launched the Jan Aushadhi Campaign with the goal of providing 361 drugs in their generic form at affordable prices through government-run pharmacies.<sup>118</sup> The government promotes the prescription of generic drugs in the public health facilities and, through the National Rural Health Mission (now the National Health Mission), also provides the budget to procure essential medicines that should be distributed free of cost at public health facilities.<sup>119</sup> The National Pharmaceutical Pricing Policy, enacted in December, 2012, and the ensuing Drug (Prices Control) Order of 2013 seek to regulate the prices of essential medicines and controlled bulk drugs and formulations to ensure their availability in the country.<sup>120,121</sup> However, implementation of these measures has been patchy and varied in different states. Against a plan to establish more than 600 generic drug pharmacies by 2012, only 170 pharmacies had been opened in selected states, of which only 99 pharmacies were functional, in October 2014.<sup>122</sup> However, some states, such as Rajasthan and Tamil Nadu, have implemented the provision of free essential medicines in the public system. Although no systematic data exist on the use and costs of medical technologies, (eg, cardiac stents and knee implants), their irrational use has been widely reported.<sup>123</sup>

#### **Weak governance and accountability**

According to the Constitution of India, health is a state subject, which makes state governments responsible for the delivery of health care. However, with almost a third of funding for health coming from the central government, both central and state governments need to work hand-in-hand to ensure efficient delivery of services. The single most important impediment to a holistic approach to health governance in the country is probably the inadequate convergence between various departments within the Ministry of Health and Family Welfare that deal with medical education, health services, family welfare, and a multitude of vertically implemented national programmes, and other ministries related to health, such as those that deal with water and sanitation. In the past 5 years, the government has introduced several new laws to strengthen governance of the health

system, but many of these laws have not been widely implemented. For example, the 2010 Clinical Establishments Act, which provides for the registration and regulation of clinical establishments and prescribes minimum standards of facilities and services to be provided by them, has been enacted by only nine of 29 states and most of the union territories of India. The National Mental Health Care Bill, a landmark legislation that mandates the right to care, has been approved by the Cabinet but is awaiting passage in the Parliament.<sup>124</sup> The Medical Devices Regulation Bill from 2006, aimed at ensuring quality standards of biomedical equipment manufacturing and marketing, remains on the back burner.<sup>125</sup> Responding to a directive from the Supreme Court of India, in 2013, the central government enacted new rules for clinical trials to ensure higher standards of safety when testing new drugs. These rules have led to a 50% drop in clinical trials. However, the scope of these regulations is still unclear, and there are fears that these laws have hindered public health trials led by non-commercial entities.<sup>126</sup>

Efforts to revitalise local self-governance bodies by giving them constitutional status in 2003<sup>127,128</sup> resulted in a degree of political decentralisation and devolution of funds. Some states, such as Maharashtra and Karnataka, have outpaced others.<sup>129</sup> Additional mechanisms to ensure citizen accountability of the health system have been piloted. These mechanisms include, for instance, the mobilisation of women, the public display of lists of drugs and services offered in primary health centres, the organisation of village-wide meetings to inform citizens of their rights, as well as social audits and public hearings.<sup>130</sup> Additionally, Village Health Sanitation and Nutrition Committees and Patient Welfare Committees have been formed in public health facilities to instil citizen accountability of the health system; however, their overall effect is limited by a range of challenges related to selection procedures in place to ensure proper representation of marginalised populations and difficulties in effecting transfer and use of funds.<sup>131–137</sup>

#### **Why health care is far from being assured in India**

Despite pronouncements in support of universal health coverage by successive governments, the health care of India's people is far from being assured. Three major constraints explain all the challenges outlined earlier.

First, public investment in health care is inadequate. The insufficient allocations of public funds for health was initially attributed to the slowing down of economic growth rates from more than 9% in 2005–08 to less than 5% in 2012–14.<sup>138</sup> The stagnation in public spending on health as a proportion of GDP in the past decade, when growth rates were high, the reduced allocations to health in 2015–16 despite bright economic forecasts, and National Health Policy recommendations to increase public investment in health to 2·5% of GDP,<sup>1</sup> suggest both an absence of political will to give primacy to health

in India's development agenda and a belief that economic growth by itself will lead to sufficient health gains.

Second, trust and engagement are missing between the various sectors concerned with health care such as the public and private health-care delivery sectors, the medical and other health professional sectors, and the pharmaceutical and device industries. A national consensus on the roles and responsibilities these sectors have in the mission to assure health care for all Indians on the basis of shared principles and values is yet to be achieved. As one example of concern, universal health coverage could be a backdoor entry for the private sector to expand its coverage at the cost of public finances and a weakening public sector, belying the incontestable facts of the plurality of India's health-care sector and that most health-care events already take place in the private sector, where most out-of-pocket expenditure is incurred.<sup>139</sup>

Third, ineffective stewardship has created a highly fragmented health sector with poor coordination between central and state governments, between various ministries whose mandates cut across health care, and within Ministries of Health. This fragmentation has led to inefficiencies and harmful competition, variations in achievements between states, substantial delays in the implementation of programmes, the mushrooming of corruption, and failure of accountability, leading to mounting levels of impoverishment due to health-care costs.

At the heart of these constraints is the apparent unwillingness on the part of the state to prioritise health as a fundamental public good, central to India's developmental aspirations, on par with education. Put simply, there is no clear ownership of the idea of universal health coverage within the government. Thus, even the modest recommendation in the Twelfth Five Year Plan<sup>70</sup> to pilot models for universal health coverage in two or three districts in every state is yet to be implemented. As a result, the central government has put no major effort into engaging the state health governments in the endeavour to operationalise universal health coverage and it has failed to build the movement for universal health coverage in the country. Compounding this poor emphasis on a just health-care system as a pillar of a developed society are the rising threats posed by adverse social determinants of health. Widespread poverty and social stratification, increasing income inequalities, rapid and unplanned urbanisation, mounting environmental degradation, and unchecked marketing of harmful products, such as junk foods, are cumulatively burdening an already dysfunctional health-care system.

### Assuring health for India: a roadmap

The draft National Health Policy 2015<sup>1</sup> recommends a "preventive and promotive health care orientation in all developmental policies and universal access to good quality health care services" as a central goal. This is a fine aspiration. The policy also aims to promote health

insurance as the key to financial risk protection and recommends purchase of secondary and tertiary care services from empanelled public hospitals and private sector. With this policy, the Ministry of Health and Family Welfare also makes the case of a tax-funded primary care delivery system that will be serviced by the public and not-for-profit private sectors. However, India has had a mixed experience with such models of health-care financing. Several reports point to supply-driven medical care, unethical practices, limited effect on financial protection, and the cherry-picking of more profitable interventions by the private sector that augment the funds to private sector hospitals at the expense of public hospitals.<sup>140</sup> Health insurance can be an effective health-financing mechanism for selected services but cannot compensate for a functional and well developed public health system. In particular, the central role of a well resourced primary care system cannot be overstated, not least because it can be an effective gate-keeper for more expensive secondary and tertiary care.

Recent evidence serves to reaffirm earlier recommendations<sup>20,21</sup> that the health of Indians can only be assured through a fully integrated, population-based health-care system that weaves together the public and private sectors and the allopathic and indigenous systems and is seamlessly coordinated across all the service delivery platforms—primary, secondary, and tertiary. Such a system should address acute and chronic health-care needs, offer rational, accessible, good quality health-care choices, and be cashless at the point of service delivery. The primary provider for health care must be a greatly strengthened public health-care system with a clearly defined role for the private sector, such as in the provision of specialised services. Strong regulation and accountability must be evenly applied to public, private, and indigenous health-care sectors to reduce unnecessary and unethical medical practices, improve quality, and promote health outcomes.

Three key steps, as outlined in recent international consultative documents,<sup>22,141</sup> are needed to realise this radical realignment of the architecture of India's health-care system. The first step is to categorise services into priority classes (eg, on the basis of financial risk protection). The second step is to expand coverage for high-priority services to everyone. The third step is to eliminate out-of-pocket payments by increasing mandatory, progressive prepayment with pooling of funds and to ensure that disadvantaged groups, low-income groups, particularly rural populations, and people living in poorly performing states are not left behind. A key requisite will be to move away from a standard health insurance model of care to an entitlement-based model. This shift will require that the plethora of insurance schemes and vertical programmes be integrated into a national health assurance fund and that the National Health Mission be converted into the Universal Health Coverage mission. Above all, health

assurance must not be conflated narrowly with health insurance. The former is a far grander concept that encompasses not only universal health coverage but also includes the need to address social determinants of health as well as the notion of accountability, which is in line with the government's commitment to good governance.

In the immediate future, both the central and state governments should jointly launch a campaign to explain the principles and benefits of universal health coverage and engage with all concerned stakeholders in an atmosphere of a national mission, on par with the Swachha Bharat Abhiyan, a mission for a clean India. Existing expert recommendations to improve health-system performance should be taken into account when designing the roadmap, timelines, and targets for operationalising universal health coverage.<sup>2,3</sup> The central government should contribute towards strengthening the state health-system framework, provide technical assistance and financial incentives, in particular to underperforming states, and incentivise schemes that are flexible in their application to accommodate the great variations between states. Meanwhile, the states must make the most of the increased allocation of tax revenues and work towards increasing the public health expenditure. Communities must be actively empowered to engage with this radical vision of health care. To complement and, indeed, actively encourage the state governments to act towards making universal health coverage a people's goal, a nation-wide campaign will have to be led by civil society groups, along the lines of recent campaigns to combat corruption and sexual violence.

Delivering on its promise of assuring a healthy India should be the topmost priority of the Indian Government. We propose that, by the time India reaches the milestone of 75 years of independence in 2022, no Indian should have to be denied their fundamental right to good quality health care due to shortage of services or resources, and no Indian should face impoverishment due to health care. In the context of the enormous challenges and constraints faced by India's health-care system, this goal might seem like wishful thinking. However, we believe that this goal is within reach provided there is the political will.

#### Declaration of interests

KSR, AKSK, VKP, and MC were members of the High Level Expert Group on Universal Health Coverage, which was set up by the Planning Commission and chaired by KSR.

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