Accelerating Health Innovation in India

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A Report of the CSIS GLOBAL HEALTH POLICY CENTER
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Acknowledgments

This is the fourth and final country report examining U.S. health relationships with important regional partners. Previous studies looked at South Africa, Ethiopia, and Nigeria. This report is based on interviews with U.S. and Indian health experts, supplemented by field research conducted in March 2017 in the National Capital Territory of Delhi and the states of West Bengal and Karnataka. The authors wish to thank all those who helped inform this study, particularly Professor Abhijit Chowdhury and Dr. Partha Mukherjee of the Liver Foundation in Kolkata, who facilitated visits to the Rural Health Care Provider program in West Bengal.

This report seeks to build upon some of the themes explored by the CSIS Wadhwani Chair in U.S.-India Policy Studies, which has examined the role of innovation in health care through its U.S.-India Innovation Forum.1 The authors are grateful to Rick Rossow and Sid Mehra for sharing their insights.

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Executive Summary

India has engineered one of the most dramatic economic and developmental transformations in modern history. Since 1991, when a bailout from the International Monetary Fund accelerated government efforts to liberalize the economy, India’s GDP has grown by an average of 6.6 percent per year.\(^2\) A quarter-century of growth has lifted hundreds of millions of Indians out of poverty and helped raise the nation’s health status. India eliminated polio in 2014, a feat that many health experts did not think was possible. The mortality rate among under-fives decreased from 126 per 1,000 live births in 1990 to 49 per 1,000 in 2013,\(^3\) while the maternal mortality ratio (MMR) went down from 556 per 100,000 live births to 167 during the same period.\(^4\) Successful efforts have been made to stem population growth, a major public health goal since the dawn of independence in 1947. India’s total fertility rate (TFR) was 2.3 per woman in 2013,\(^5\) and 11 of India’s 20 states for which data are available had reached a TFR at or below the replacement rate of 2.1.\(^6\)

India’s economic growth story is compelling and its health gains are significant, but they should not conceal the very great needs of many millions of its citizens. Inequality is the biggest social challenge facing India today, and the process of economic liberalization has widened the country’s wealth gap. Prime Minister Narendra Modi has acknowledged the challenges, describing India as a rich country with poor people.\(^7\) Confined to India’s vast rural hinterland and the slums that surround its urban centers, these neglected populations suffer ill health linked to poverty and poor access to quality services.

India’s health burden is complex and varied. While diseases of poverty endure—India has the world’s highest numbers of tuberculosis cases and neonatal deaths—citizens across the social spectrum are being struck down by first-world diseases and the crippling medical costs that come with them. The leading causes of death in India reflect the changing lifestyles that have accompanied the country’s march to lower-middle-income status: Ischemic heart disease, chronic obstructive pulmonary disease, and stroke are all among the nation’s top five killers.\(^8\)

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\(^4\) Ibid.


Successive Indian governments have failed to prioritize the health of their citizens. The public health system is chronically underfunded, and a visit to an average health center offers clear evidence of this neglect: Facilities are poorly equipped and staffed by overstretched, undermotivated medical personnel who leave patients waiting more in hope than in expectation of treatment. While efforts have been made in recent years to pump resources into the system, particularly at the primary health care level, the legacy of decades of underinvestment, coupled with poor absorptive capacity at all tiers of government, will take a long time to overcome. Most patients have voted with their feet, turning to a sprawling but poorly regulated private health sector or putting their lives in the hands of informal health care providers.

India’s public health system is deficient, but there are many examples of excellence within it. India’s health workforce is large and talented and is the key to elevating India’s health status, provided its most capable personnel can be incentivized to stay in the country in sufficient numbers. India has medical researchers and scientists of world renown. Political leaders in some state governments have devoted significant attention and increased resources to improving health services. A host of entrepreneurs across India have found unique solutions to health care problems and are finding ways to scale them up. Promising partnerships are being developed between nongovernmental organizations (NGOs) and Indian companies to fill critical health care gaps.

What India lacks is a functioning health system united by a shared health care vision that can bring these talents together and direct them toward a common purpose. India has access to plentiful capital and labor but is short of the technical knowhow needed to strengthen its health system, scale up innovation, and deliver consistent, high-quality, and properly regulated services across the public and private sectors. These are the areas where the United States can be a most helpful partner to India and, in the process, contribute to the strengthening of the bilateral relationship.

India is a strategic partner of critical importance to the United States. During the first of his two official visits to India as president, Barack Obama described the bilateral relationship as “one of the defining partnerships of the 21st century.”9 U.S.-India trade reached $109 billion in 2016, the two countries have forged a close defense partnership, and the flow of people between the two countries is at record levels.10 Health engagement is an important component of the relationship, but most of it takes place outside official government channels, through business collaborations, university partnerships, and the work done by NGOs, philanthropic foundations, and entrepreneurs both at the national and subnational levels. U.S. official development assistance to India is modest and has been in decline for several years, as India’s ascent to lower-middle-income status caused donors to review their relationships. This transition process is expected to accelerate. Under the Trump administration’s budget plans for Fiscal Year 2018, support for global health programs under

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the U.S. Agency for International Development (USAID) and the Department of State was to be cut from $35.5 million to $19.6 million and from $18.6 million to $10 million, respectively, compared with FY 2016 levels.\textsuperscript{11}

These budget realities mean that the United States must extract the maximum possible value from its investments in India and focus on addressing mutually beneficial global health interests. Priorities should include:

- Safeguarding progress in tackling communicable diseases like HIV and polio that was possible, in part, through U.S. investments and innovations.

- Supporting India’s ambitious plans to tackle its most deadly infectious disease, TB, which—unless contained—puts the health security of the United States in jeopardy due to the risk posed by multidrug-resistant strains and the fact that India is one of the top five countries from where domestic cases originate.\textsuperscript{12}

- Strengthening programs that pilot and scale up innovations to address priority health issues for India, generating goodwill that ensures the United States continues to enjoy high-level access to senior health officials in the government of India (GoI).

- Maintaining disease surveillance assets and laboratories that can identify emerging diseases of concern to both countries, including pandemic influenza and the Zika virus, and that also provide a platform for the United States to study infectious disease and conduct medical trials.

- Deepening cooperation and technical assistance on drug regulation to ensure that Indian generic medicines distributed domestically and exported to the United States are safe for consumers.

The U.S. government cannot achieve these goals alone. Therefore, it has a critical role to play in facilitating, expanding, and troubleshooting partnerships between the many nongovernmental U.S. partners working in India’s health sector and their host-country counterparts. Enhanced health cooperation is an opportunity for both countries to strengthen their strategic relationship.


Map of India

Source: Rejeshodayanchal at Malayalam Wikipedia.
Accelerating Health Innovation in India

Richard Downie and Deen Garba

Situation Report

India’s economic transformation has been one of the greatest global development success stories of the modern era. Between 1951 and 2016, India’s GDP growth averaged 6.1 percent per year, with average growth of 7.2 percent during the past decade.¹ Hundreds of millions of Indians have been pulled out of poverty and a strong middle class has emerged. India’s rapidly industrializing economy has been propelled by strong performance across sectors including information technology, pharmaceuticals, and automobile production. India—once chronically food insecure—has become a net food exporter. These economic gains have contributed to a dramatic improvement in India’s overall health status. However, national statistics do not present a comprehensive picture of the health situation in a country of continental proportions that is home to 1.3 billion people. India’s health landscape is defined by several features:

High Burden of Disease

As a lower-middle-income country, India has considerable wealth at its disposal, but these resources are more than matched by the health needs of its enormous population. An estimated 400 million Indians live in poverty, a number that constitutes fully one-third of the world’s poor.² The social determinants of health that are particularly relevant to this group reflect the poor physical and social environment in which they live. Former Union Health Secretary K. Sujatha Rao notes that “two-thirds of Indians do not have access to tap water and a clean toilet, over a third are malnourished, while a million-and-a-half children die before they turn five.”³ This vast population is vulnerable to communicable diseases, including TB and malaria, and suffers higher levels of morbidity and mortality linked to poor access to public health care. For example, India has the largest burden of maternal, newborn, and infant deaths in the world, despite progress in recent years.

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³ K. Sujatha Rao, *Do We Care? India’s Health System* (New York: Oxford University Press, 2017), xii.
Table 1. National Health Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Expectancy</td>
<td>66 years</td>
</tr>
<tr>
<td>Maternal Mortality Ratio (MMR)</td>
<td>167 (per 100,000 live births)</td>
</tr>
<tr>
<td>Under-5 Mortality Rate (U5MR)</td>
<td>49 (per 1,000 live births)</td>
</tr>
<tr>
<td>Malnourished Children Below 5</td>
<td>29.4%</td>
</tr>
<tr>
<td>Total Fertility Rate (TFR)</td>
<td>2.3</td>
</tr>
<tr>
<td>Infant Mortality Rate (IMR)</td>
<td>40 (per 1,000 live births)</td>
</tr>
<tr>
<td>HIV Prevalence*</td>
<td>0.26%</td>
</tr>
<tr>
<td>TB Prevalence</td>
<td>211 (per 100,000)</td>
</tr>
<tr>
<td>Public Spending on Health care</td>
<td>1.15%</td>
</tr>
</tbody>
</table>

Sources: Ministry of Health and Family Welfare, “Situational Analyses: Background to the National Health Policy.” All figures from 2013.

Wealthier populations in India face a different set of health challenges, including noncommunicable diseases (NCDs) linked to lifestyle choices. According to the World Health Organization (WHO), NCDs such as diabetes and hypertension are responsible for 67 percent of morbidity and 53 percent of mortality in India. These figures show that the threat of NCDs extends beyond wealthier groups to the general population, saddling the poor with a double burden of disease.

Environmental factors, many of them exacerbated by India’s rapid economic growth, are beginning to pose serious risks to public health. Road accidents are among the top 10 leading causes of death, according to the WHO. Perhaps even more alarming is the crisis of air pollution in India’s rapidly expanding cities, estimated to contribute to the deaths of 1.1 million Indians each year. High levels of tobacco use and poor mental health care are among other neglected issues that demand increased attention and funding.

The inequalities that cut through Indian society add to the national health burden. Women suffer high levels of discrimination and abuse in society broadly, and within the health system specifically. This discrimination begins at the point of conception, when the preference for male babies creates high demand to abort female fetuses. Sex-selective abortion was outlawed in 1994 and it is illegal for sonogram centers to reveal the sex of a baby to expectant parents, but these practices continue all the same. India has a ratio of 919 females

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to 1,000 males among the zero-to-six age group.\textsuperscript{6} While the fertility rate is declining at a national level, women in many areas continue to lack access to modern methods of family planning. Historically, the main method of family planning has been female sterilization, often conducted en masse in unsanitary conditions.\textsuperscript{7}

**India’s TB Crisis**

India has the world’s highest tuberculosis incidence, with 2.8 million cases a year, and TB is the leading cause of death among its citizens. Even so, the scale of the disease is probably underreported. In 2016, the WHO published revised estimates of the TB burden in India based on new sub-national surveillance and survey data.\textsuperscript{8} The new data adds 700,000 cases a year to the previous estimates of TB incidence.\textsuperscript{9}

India also has the second-largest burden of multidrug-resistant TB (MDR-TB) globally. In 2015, there were an estimated 130,000 new cases of MDR-TB and rifampicin-resistant TB.\textsuperscript{10} MDR-TB and extensively drug-resistant TB (XDR-TB) pose a health security risk to the United States, and India is one of the top five source countries of domestic TB cases.\textsuperscript{11} TB case notification has improved since India instituted mandatory TB notification and a web-based reporting system in 2012. Much of the remaining gap in reporting is due to poor data collection in the private health sector, where approximately 70 percent of TB patients opt to receive treatment.

The GoI has begun to devote greater attention to TB. In March 2017, it released a draft TB policy for 2017–2025 that included a commitment to eliminate the disease by the final year of the plan.\textsuperscript{12} While most agree that this is a highly ambitious goal, the commitment was reinforced the same month, when India’s Minister of Health Jagat Prakash Nadda hosted counterparts from south and southeast Asia. The ministers issued the “Delhi Call for Action to End TB in the WHO south-east Asia region by 2030.” The call included commitments to implement a multisectoral national TB program reporting to a high-level official, deploy larger budgets and more human resources to the problem, and establish a regional innovation fund.\textsuperscript{13}

The United States is contributing to the fight against TB in several areas. They include a USAID partnership with Janssen Therapeutics to donate supplies of bedaquiline, an effective drug for MDR-
TB,\textsuperscript{14} and a pilot project testing the efficacy of GeneXpert machines as a diagnostic tool that has since been adopted and scaled up by the GoI.

Outside government, several organizations are adopting creative approaches to disrupting TB in India. They include Operation ASHA, an NGO that has taken the WHO’s standard TB treatment model, DOTS (Directly Observed Therapy Short Course), directly to patients by establishing mobile clinics in urban slums and remote villages. Operation ASHA tracks patients throughout their treatment by using technology such as “eCompliance,” a tablet computer that scans the fingerprints of patients and providers each time they interact and uploads the information to a central database. As a result, fewer than 3 percent of their patients miss their doses on any given day, compared to 36 percent in the public health system. The system is also low cost, delivering a complete treatment course for an estimated $80.\textsuperscript{15}

Despite its many health challenges, India has made significant progress in improving health indicators, partly by strengthening the primary health care system. Several achievements are worth noting:

- \textit{Polio elimination:} India’s announcement in 2014 that it had eliminated polio was a considerable achievement, considering that as recently as 2002 it had hosted 80 percent of the world’s polio cases. Since hitting that landmark, India has broadened the impact of polio assets that were set up with donor support, including an annual contribution from the United States of nearly $7 million.\textsuperscript{16} These assets—including surveillance, human resources, and laboratories—are being repurposed to serve as a platform for delivering routine immunizations. This transition effort is already bearing fruit; India has eliminated maternal neonatal tetanus with technical input from the National Polio Surveillance Project and is making progress toward ending measles and rubella.\textsuperscript{17} India’s remarkable success on polio can serve as inspiration as it takes on other ambitious health goals, such as achieving full immunization coverage. However, continued vigilance will be required because of India’s vast size and proximity to Pakistan and Afghanistan, where polio is still endemic.

- \textit{Improving maternal health:} While still unacceptably high, maternal mortality is declining. India’s MMR went down from 556 per 100,000 live births in 1990 to 167 in 2013.\textsuperscript{18} The government has made considerable efforts to encourage institutional deliveries, partly through a national program called Janani Suraksha Yojana (JSY) that

\textsuperscript{14} Despite this, the GoI has been slow to distribute the drugs, which are not sufficient to meet demand. In January 2017, the high court in New Delhi intervened, ordering the Central Tuberculosis Division to provide a teenaged patient with bedaquiline, even though she was not a resident of Delhi, where the drug was being given out. Manaka Rao, “Bedaquiline debate: Domicile requirement for TB patients to get life-saving drug may no longer apply,” Scroll.in, January 21, 2017, https://scroll.in/pulse/827265/bedaquiline-debate-domicile-requirement-for-tb-patients-to-get-life-saving-drug-may-no-longer-apply.

\textsuperscript{15} PowerPoint presentation by Dr. Shelly Batra, Operation Asha, New Delhi, March 22, 2017.


\textsuperscript{17} Ibid., 4.

\textsuperscript{18} Ministry of Health and Family Welfare, “Situational Analyses: Background to the National Health Policy,” 1.
provides cash transfers for poor women who give birth at facilities. This led to an increase in institutional deliveries from 10.8 million in 2005 to 15.3 million in 2015, although quality care remains a problem. At the turn of 2017, Prime Minister Modi announced the national introduction of a broader incentive scheme for mothers, payable in three installments to women who attend antenatal appointments, undergo institutional delivery, and vaccinate their babies.

- **HIV/AIDS response:** The response to HIV/AIDS has been effective, although clouds are on the horizon. India achieved a 32 percent reduction in new infections between 2007 and 2015. Today, India has an estimated 2.1 million cases of HIV, with a national prevalence rate of 0.26 percent. Of this total, India has identified 1.5 million people living with HIV and placed 1 million on antiretroviral therapy (ART). Innovative programs, many of them originating at the state level, have made targeted interventions aimed at the key populations driving the epidemic, including men who have sex with men, people who inject drugs, female sex workers, and the transgender community. The GoI funds more than 80 percent of the national HIV response.

However, new strategies are required to keep pace with ever-shifting disease dynamics, such as the impact of new methods of solicitation by sex workers and evidence of earlier sexual debut. There is a need to accelerate the implementation of policies for more decentralized HIV testing and treatment services, including community-based testing. Furthermore, the Indian health bureaucracy has been slow to adopt and fund policies to sustain the progress made to date. Viral load testing is still relatively uncommon and the GoI was slow to accept Test and START, the WHO’s recommendation that people should be placed on ART as soon as they are diagnosed with HIV. Test and START was finally introduced in May 2017 but has been dogged by drug stock-outs and shortages of diagnostic kits in at least six states.

Diversity and Complexity

India is huge and diverse, with health burdens and outcomes that vary across the country. India’s federal system of government tries to take account of this diversity, defining health as a state subject that places the onus for health provision on India’s 29 states and seven union territories. The federal, or union, government is responsible for setting policy, regulating the health system, and running some programs that represent national priorities, notably the

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21 Ibid., 4.
22 Interview with chief of party of leading Indian NGO providing HIV care and treatment services, New Delhi, March 29, 2017.
National Health Mission (NHM) to improve public health in underserved areas, particularly at the primary health care level.

The diversity of India’s health landscape means it is not possible to look at the situation in one state and extrapolate nationwide. Some states have health indicators akin to those of middle-income countries, while others are on a par with the poorest countries in sub-Saharan Africa. Some of this divergence reflects socioeconomic conditions. For example, Uttar Pradesh (UP) is India’s largest state, with a population of 200 million. It is also one of its poorest, with health indicators to match. The MMR in UP was 285 per 100,000 live births in 2013, while its Infant Mortality Rate (IMR) was 50 per 1,000 live births. Kerala, a wealthier state in India’s southwest, had an MMR of 61 and an IMR of 12.24

Table 2. Health Indicators in Select Indian States

<table>
<thead>
<tr>
<th>State</th>
<th>Life Expectancy</th>
<th>Total Fertility Rate (TFR)</th>
<th>Maternal Mortality Ratio (MMR)</th>
<th>Infant Mortality Rate (IMR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haryana</td>
<td>68.6</td>
<td>2.2</td>
<td>127</td>
<td>41</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>64.1</td>
<td>3.1</td>
<td>285</td>
<td>50</td>
</tr>
<tr>
<td>Bihar</td>
<td>68.1</td>
<td>3.4</td>
<td>208</td>
<td>42</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>71.6</td>
<td>1.8</td>
<td>68</td>
<td>24</td>
</tr>
<tr>
<td>Karnataka</td>
<td>68.8</td>
<td>1.9</td>
<td>133</td>
<td>31</td>
</tr>
<tr>
<td>West Bengal</td>
<td>70.2</td>
<td>1.6</td>
<td>113</td>
<td>31</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>70.6</td>
<td>1.7</td>
<td>79</td>
<td>21</td>
</tr>
<tr>
<td>Kerala</td>
<td>74.9</td>
<td>1.8</td>
<td>61</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes:


Poverty alone does not account for the huge variation in health indicators. Some states make health a bigger budgetary priority. Kerala vastly outspends UP on health, spending 1,070 Rupees per capita ($16.50) compared with 488 Rupees ($7.53) in UP.25 These figures may be indicative of political commitment and available resources, but they are not a reliable marker of health performance or outcomes. For example, Kerala’s state government may spend a lot on health but so do its citizens, who pay for 84 percent of their health care through out-of-

pocket (OOP) expenditure, the highest proportion of any of India’s largest 18 states. This could reflect good health-seeking behavior in a state that has the best literacy rate in India, or the excessive cost of health services provided by the private sector, particularly in the tertiary system. Nothing in India is simple.

State residence is not the only indicator of health status in India. There are enormous variations within states and between urban and rural areas, partly linked to people’s ability to access quality health services. For example, the IMR in urban areas of India is 27, while in rural areas it is 44.\(^\text{26}\) India is also a highly stratified society where gender, class, caste, religion, region, language, and ethnicity play outsized roles in determining health access, the quality of treatment received, and health outcomes. The size, diversity, and complexity of India partly account for its inability to provide adequate health care and help explain why so many of its citizens shun the public system in favor of private arrangements.

**Underinvestment and Poor System Function**

One of the most important reasons for the underperformance of India’s health system is the fact that India spends a pitifully low amount on health compared with other developing nations. India’s total health expenditure as a percentage of GDP is a paltry 4 percent, with the government share (both national and state level) representing just 1.15 percent.\(^\text{27}\) India compares unfavorably with other members of the BRICS (Brazil, Russia, India, China, South Africa) group. India’s per capita expenditure on health is $62, the lowest among the five nations. At the other end of the scale, Brazil spends $1,119 per capita.\(^\text{28}\)

The result of this low spending, which has largely been consistent throughout India’s history, is that the public health system cannot cope with demand. This is particularly evident at the primary health care level. In rural areas, health sub-centers (SCs), Primary Health Centers (PHCs), and Community Health Centers (CHCs) form the backbone of the health system, but this structure is nonfunctional or nonexistent in many districts. The GoI has guidelines for the maximum number of inhabitants each facility is supposed to serve, but a study by India’s Accountability Initiative found that in March 2016, there was a 20 per cent shortfall in the number of SCs, a 22 per cent shortfall of PHCs, and a 30 per cent shortfall of CHCs, with significantly bigger gaps in poorer states like Bihar and UP.\(^\text{29}\)

Patients who manage to access a health facility often fail to find the help they need inside. The health workforce in the public system is under-strength, poorly trained, and often unmotivated due to the challenges it faces. For example, all PHCs are supposed to have a qualified doctor, but the Accountability Initiative found that 8 percent did not. Some states had more serious staffing problems, including Madhya Pradesh, where there was a 43 percent shortfall of doctors in PHCs and Chhattisgarh, where there was a 39 percent shortfall.\(^\text{30}\) Poor accountability mechanisms allow doctors to run private surgeries during office hours. Research suggests that the same doctors put more effort into their private

\(^{26}\) Ministry of Health and Family Welfare, “Situational Analyses: Background to the National Health Policy,” 5.

\(^{27}\) Ministry of Health and Family Welfare, “Situational Analyses: Background to the National Health Policy,” 12.

\(^{28}\) Ibid., 14.


\(^{30}\) Ibid., 9.
practices, making more correct diagnoses than they do in the public system. Other quality-of-care issues raise serious concerns. For example, reports abound of female patients being verbally and physically abused by medical staff for making too much noise during labor. The GoI is seeking to address the human resource deficit by expanding the number of medical school places, but more efforts are needed to address staff retention, improve the quality of pre-service and in-service training, and incentivize better standards of performance.

To meet the supply gap in the public sector, a large, rapidly growing but poorly regulated private health sector has developed that is currently worth approximately $70 billion. In rural areas, an estimated 72 percent of treatment is done privately, while the corresponding figure in urban areas is 79 percent. In areas where the profit margins are unattractive for private providers, such as remote rural communities and urban slums, people have little option but to place their faith in informal health care providers, who are blamed for causing additional suffering to patients and for over-prescribing medicines, fueling an emerging health crisis of antimicrobial resistance (AMR).

The other consequence of India’s largely private health system is that patients assume most of the cost of their treatment. This is damaging to public health because the poor tend to seek medical treatment only when they are very sick. For those who can pay for treatment, the cost of a prolonged illness can be devastating. The government estimates that 63 million people fall into poverty each year due to catastrophic health expenditure. The Union Government and some state governments such as Andhra Pradesh and Karnataka have introduced insurance schemes aimed at reducing the financial risk to patients requiring hospitalization. The national program, called Rashtriya Swasthya Bima Yojana (RSBY), was introduced in 2008 and provides support for an estimated 370 million of India’s poorest citizens. Each family is covered for up to 30,000 Rupees of treatment, a modest sum. However, critics have argued that the scheme pushes people into unnecessary treatment in private hospitals, further eroding the weak public sector, and has not led to significant reductions in OOP expenditure. To address these concerns, plans have been announced to raise the RSBY allocation to 100,000 Rupees per family.

The problems in India’s health system are not only linked to lack of resources but to poor governance. Weak accountability leads to corruption and poor-quality service. The

36 Currently worth $467, using exchange rate of 64.2 rupees to the dollar, accessed May 4, 2017.
37 See, for example, Rao, Do We Care? India’s Health System, 23–24.
governing structures of the system are in bad shape at both the national and—with a few exceptions—state levels. Emblematic of the malaise is the Medical Council of India (MCI), which has long been dogged by allegations of nepotism, corruption, and failure to discharge its core duty of providing quality education to medical professionals. Yet despite a highly critical report to Parliament and the setting up of a committee of inquiry, reforms of the MCI have stalled. The Ministry of Health and Family Welfare (MoHFW) is a weak voice within government, undermined by frequent personnel changes at the senior levels and rival power centers across the bureaucracy. For several years, the national policy direction for health has been unclear due to competing visions put forward by the MoHFW and the GoI’s influential policy think tank, the National Institution for Transforming India, known as NITI Aayog. The latter institution has pushed for a more private sector-oriented approach that seeks to build on the various health insurance markets already operating (largely in the secondary and tertiary hospital system) with the objective of advancing progress toward universal health coverage (UHC). Meanwhile, the MoHFW has focused on bolstering the public sector, with an emphasis on improving primary health care through the NHM.38

While the shortcomings of India’s health system are glaring, it is important to emphasize the enormity of the challenges. India’s unwieldy size, diversity, social inequalities, complex health needs, and the difficulties of getting things done in the world’s largest democracy make the task of operating a functioning health system that serves all Indians almost overwhelming. India is blessed with resources and talented people but has yet to find a way to deploy these assets effectively and equitably across the nation. Patches of excellence can be found in the health sector but what is missing is a system that links it together. Technical knowledge is required to install systems; gather and apply data; deliver standardized, good-quality services; monitor performance; and identify, incubate, and scale up health innovations. Unfortunately, these skills are in short supply.

Recent Developments and Strategic Opportunities

If India is serious about building a health system that can take good care of its citizens, the following areas require priority attention:

- Complete the unfinished business of expanding primary health care services.
- Protect people from incurring catastrophic health expenditure by broadening the package of free health services. At higher levels of the health system, consolidate the fragmented health insurance market so that it provides more affordable, efficient health care, reversing the trend toward unnecessary medical procedures and hospitalizations.

38 Attempts have been made to resolve these tensions, at least on paper, with the publication of the MoHFW’s National Health Policy 2017 and NITI Aayog’s three-year action plan. Both documents advocate for a predominantly public primary healthcare system and closer engagement with the private sector at the secondary and tertiary levels through strategic purchasing of curative services.
• Focus more on providing quality services by standardizing care, incentivizing better performance from health personnel, and more aggressively regulating the private health care sector.

• Improve efficiencies by shifting the balance away from in-patient care toward preventive and promotive health, in part by utilizing traditional Indian healthy living practices such as Ayurveda, Yoga, and Naturopathy, known as AYUSH.

This is a formidable set of tasks; fulfilling them requires strategic vision, political commitment, and increased resources. Historically, these three elements have rarely been present at the same time, for very long.\(^{39}\) However, recent developments offer grounds for cautious optimism, or at the very least provide opportunities for health care reform:

• **Increased policy and spending commitments from the Union Government:** The Union budget, announced in February, suggests that health is slowly creeping up the national agenda. The 2017–2018 health budget was increased by 23 percent on the previous year, reversing the recent trend of declines and stagnation under the Modi administration.\(^{40}\) In addition, the long-awaited new National Health Policy, approved in March 2017, sets an unambitious but achievable target to increase public health spending from 1.15 percent to 2.5 percent of GDP by 2025.

The National Health Policy is a pragmatic document that seeks to unify competing visions for health.\(^{41}\) The policy recognizes the need to consolidate India’s fragmented health sector and acknowledges that the private sector has a role to play, instead of seeking to ignore or sideline it. The policy calls on the MoHFW to assert greater strategic leadership over the health system, identifying gaps in service provision, and, if necessary, turning to the private sector to fill them through strategic purchasing agreements and public-private partnerships (PPPs).

It remains to be seen how the National Health Policy will be interpreted and implemented. The policy does not clearly address how the GoI plans to resolve the tensions that are inherent in its health objectives; for example, how it will balance the goal of strengthening public services, particularly at the PHC level, with the desire to expand health coverage, much of which is currently provided through a private sector that focuses on secondary and tertiary care. The policy calls for the progressive realization of UHC but does not lay out the steps required to reach this highly ambitious goal. The concept of a Universal Health Assurance Scheme was raised in the 2016 budget speech, but it is not yet clear what package of services would be included under the program, which has yet to be implemented. However, the

\(^{39}\) One exception may be the years immediately after 2004, when the government formed by the United Progressive Alliance devoted increased attention and resources to health, setting up the National Rural Health Mission.

\(^{40}\) The total budget was 48,853 crore rupees, or $7.6 billion, using an exchange rate of 64.2 rupees to the dollar, accessed May 4, 2017.

\(^{41}\) There have been plenty of critical voices, however. One former senior civil servant and health expert described it as a “please-all” document that ducked tough decisions. E-mail interview, March 18, 2017.
publication of a policy that had been promised but delayed for several years is an important first step in the process of health reform.

- **Steady but incomplete progress with the NHM:** The National Health Mission, comprising the National Rural Health Mission (NRHM) and the National Urban Health Mission (NUHM), has begun to nudge health indicators in a positive direction. While progress has been modest, the program, which accounts for half of the Union Government’s health budget, has sharpened the focus on the primary health care system. Among its achievements has been the establishment of a new cadre of health workers, Accredited Social Health Activists (ASHAs)—volunteers who provide a formal link between communities and the public health system. In states where they have been adequately trained and supported, ASHAs have performed a useful role. For example, in Jharkhand State, where ASHAs were given additional training thanks to a partnership between Tata Steel Rural Development Foundation, the American India Foundation, and the NGO SEARCH, health-seeking behavior and health outcomes have improved. Neonatal mortality fell 44 percent in a five-year period, while the rate of institutional deliveries rose from 21 percent to 70 percent.

Going forward, the challenge for the NHM will be not only to expand basic access to the primary health care system but to improve the quality of the services provided. One important component of this will be to find ways to incentivize health workers to perform better. The Bill & Melinda Gates Foundation (BMGF) has pursued this approach in Bihar and UP states, where it has done hands-on training of auxiliary nurse-midwives, including directly observing deliveries, to improve patient outcomes. The NHM could also become more effective by streamlining its unwieldy bureaucracy. For example, the release of funds to states is too slow, and the program has become overly centralized, deviating from its original intention to give states the freedom to set and pursue their own health goals.

- **States are taking on more of the responsibility for the health response:** One of the most significant recent reforms of India’s governance model has been the 2013 decision of the Fourteenth Finance Commission to increase the share of central tax revenue devolved to the states from 32 percent to 42 percent, giving states more freedom to set their own spending priorities. The emphasis on decentralization has been a feature of the Modi administration, which is a strong advocate of states’ rights. It is still too early to properly assess the impact of the Fourteenth Finance Commission on overall health spending. Although preliminary indications suggest that most states have committed larger budgets to health, these increases have been

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42 The NRHM, established in 2005, was the original vehicle for GoI support to primary healthcare, focusing on rural areas. An urban counterpart, the NUHM was established in 2013. Later in 2013, the two programs were united under the NHM.

offset to some extent by weaker spending by the Union Government on centrally sponsored schemes like the NHM.\textsuperscript{44}

The desire to grant more autonomy to states on health makes sense, given the unique needs they each face. The problem, however, is that the states with the worst health indicators are also the states with the least capacity to finance and improve their health services. The experience of the NHM to date is revealing. While it was supposed to reduce inequalities between the states, reserving larger allocations for the 18 most needy states, the NHM has had the opposite effect because poorer states have been unable to absorb the additional funding on offer or meet the requirements to supplement grants with counterpart funds. For example, in 2015–16, two of the most underprivileged states, UP and Bihar, spent only 58 percent and 53 percent of their approved NRHM budgets, respectively. By comparison, Karnataka and Kerala, two of India’s wealthiest states, spent 88 percent and 98 percent, respectively.\textsuperscript{45}

Going forward, the GoI’s decision to grant states more autonomy for health funding and provision with the goal of improving health outcomes will require close monitoring and evaluation. To that end, a new and welcome initiative has been launched by the NITI Aayog to measure social progress at the state level, across a range of indicators.\textsuperscript{46} At the same time, the NHM can be tweaked to advance the twin imperatives of providing a helping hand to the least capable states while rewarding the states that make best use of the resources they receive. Health financing experts are looking at models to achieve both aims; these may include combining block grants to states that produce reform plans with additional bonuses for states that perform well in the NITI Aayog index of social progress.

Innovative Responses to India’s Health Challenges

India is teeming with examples of dynamic innovation in health systems, health care delivery, and health devices. There is an abundance of social entrepreneurs, but they lack a support network and find it difficult to share best practice, access capital, and expand their reach. The scale-up phase is particularly hard, requiring careful thought, testing, planning, and execution. Furthermore, much of the activity is clustered in the tertiary sector, where—for example—organizations like Bangalore-based Narayana Health provide high-quality and affordable cardiac surgery and other specialized care at a fraction of the price charged in the United States. These are excellent models, but they do not address the health needs of the majority of Indians who struggle to access basic services. For this reason, CSIS focused on primary health care innovation during its visit to India, and found many good examples of high-impact and scalable projects. The following examples each tackle one or more of

\textsuperscript{44} The 2017–18 budget bucked the recent trend by increasing the NRHM grant by 9 percent and the NUHM by 31 percent. See Kapur and Baisnab, “National Health Mission, Government of India 2017–2018,” 1.
\textsuperscript{45} Aiyar and Kapur, “Competing for Better Health?”
\textsuperscript{46} Preliminary efforts are outlined in Social Progress India, “Social Progress Index India: An Inflexion Point to Change the Country,” unpublished, 2017.
India’s big health problems: poor access, the health workforce deficit, and weak health systems.

1. **Delivering primary health care in underserved communities**: Despite the efforts of national initiatives like the NHM, many Indians do not have access to quality services at the lowest level of the health system. The Wadhwani Initiative for Sustainable Healthcare, known as the WISH Foundation, has tried to fix the health care delivery system where it is most broken, in India’s poorest rural and urban districts. Set up by Sunil Wadhwani, the cofounder of IGATE, an IT services company, WISH is a not-for-profit organization that identifies and road-tests innovations that can be applied to primary health care settings and rapidly scaled up. WISH first applied its model to Rajasthan, the largest and one of the poorest states in India, where it formed a PPP with the government to take over the operations of nearly 200 poorly performing and nonperforming PHCs and SCs that serve approximately 700,000 people. After cleaning the facilities, hiring and training more than 500 staff, and establishing a functioning supply chain system, a range of innovations was introduced at the clinics. The innovations, partly funded by USAID, include portable diagnostic tools such as an anemia-screening device and a portable urine analyzer; a tablet-based digitized clinical management tool; and even a vending machine that dispenses medicines by reading a barcode printed on the patient’s prescription. By offering a standardized set of low-cost, high-quality services, the WISH-run facilities are drawing people back into the primary health care system, taking the burden off the secondary and tertiary levels. Under the PPP agreement signed in 2015, the government of Rajasthan will assume sole responsibility for the reformed facilities in 2020.

The WISH Foundation has adapted its model to other settings, including urban slums and colonies in New Delhi. There, the state government has established 160 mohalla (neighborhood) clinics, with the goal to expand to 1,000 such facilities, to provide basic health care and dispense medicines. The WISH Foundation is the knowledge and innovation partner for the program, where it has introduced a digital clinic management tool for patient records, and is testing medicine vending machines. On average, 100 patients visit each clinic every day. Describing the WISH Foundation’s mission, Mr. Wadhwani explained, “Our focus is to create an equitable healthcare system by bringing quality primary healthcare to the poorest populations. And innovations play a key role in this endeavor. We ensure that high potential innovations and enterprises are identified, supported, and scaled up within the healthcare service system. These innovations fix broken delivery mechanisms, they get physicians into inaccessible areas, they improve governance and accountability systems, and in doing so, they also reduce healthcare costs and increase access for the poor.”

In a different approach, private health care providers, which have tended to congregate in the hospital system, are beginning to test the primary health care market, a development that bodes well for the future. HCL Healthcare, the health services division of HCL, one of India’s largest technology companies, has established

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47 E-mailed comments, provided May 9, 2017.
five multi-specialty walk-in clinics in the greater Delhi area. For a moderate fee, the facilities provide services—including specialty consultations, investigations, laboratory work, dentistry, and physiotherapy—to mainly middle-class clients. HCL has developed a partnership with Johns Hopkins Medicine International (JHI), which provides advice on issues including clinical standards, protocol development, quality improvement, and risk management. The clinics have a sophisticated electronic medical record system, as one would expect from a company with roots in the IT sector. Unlike most Indian health facilities, the HCL-run clinics ask patients to complete a short satisfaction survey, therefore developing a rich source of information on service quality.

2. Novel ways to address gaps in the health workforce: In West Bengal, a Kolkata-based NGO, the Liver Foundation, has come up with a pragmatic response to the acute shortage of health workers in the formal sector by tapping into a vast—but previously untested—resource: the informal health care providers who are the de facto health system in underserved areas. Derided as “quacks” by the authorities, who describe their activities as illegal, the informal providers continue to operate and are trusted pillars of the communities they serve, performing an estimated 75 percent of primary health care consultations.48

Confronted by this reality, the Liver Foundation decided that the best approach was to reduce the harm inflicted by quacks by offering a detailed training program that covered topics including medical conditions, basic anatomy, and the avoidance of harmful practices. More than 2,500 volunteers completed the 150-hour course over a nine-month period, at the end of which they were renamed Rural Health Care Providers (RHCPs) but reminded that their training did not entitle them to call themselves medical professionals. The project underwent a detailed evaluation by experts from U.S. universities and the World Bank. They found that those who underwent the training were 14 percent more likely to correctly diagnose a set of conditions than those who did not.49 When evaluated on correct case management, they halved the performance gap between themselves and public-sector doctors, compared with their untrained peers.

The Liver Foundation’s initiative attracted the interest of the state government, which has taken on responsibility for training the informal health providers within the public health system and expanding the program throughout West Bengal. Other Indian states are also considering adopting the program, which has broader applicability to countries with low capacity in the formal health system. Interviews conducted by CSIS in two rural communities in the Birbhum district of West Bengal found that patients who underwent consultations from the RHCPs had noticed a change for the better, observing that they received fewer—more effective—medicines than before. Muzibur Rehman, an RHCP in Hansra, a village near the district capital of Suri, said he had greatly benefited from the training he received: “Before, I used trial and error. It was

49 Ibid.
like searching for a snake in a darkened room. Now, it’s as if I’ve been given a flashlight.”

3. **Strengthening weak health system capacity in India’s poorest states:** The BMGF has forged a close relationship with the government of Bihar State, establishing a Technical Support Unit (TSU) that seeks to improve health policy formulation, implementation, operational capacity, data capture, monitoring and evaluation, and financial management from the state ministry level down to the block level, the lowest tier of governance. Working with its main operational partner, CARE, the BMGF is directing these health system reforms toward improving health interventions in critical areas such as family planning, skilled birth attendance, newborn care, nutrition, and immunization. Key indicators appear to be moving in the right direction. For example, there is greater availability of medicines and other consumables at health facilities, and evidence of improved clinical practice toward mothers and better care of newborns in facilities where nurses have received training.

The BMGF describes its role as mentoring the state government and its employees, with an emphasis on pushing its partners to take the lead. The partnership is five years old and the plan is to incrementally hand off full responsibility to the state government by 2030. The TSU is ambitious and broad in scope but represents a holistic effort to address the weak governance that prevents transformative progress on health in India’s poorest state.

**U.S. Health Engagement in India: Advancing Mutual Interests**

**The Evolving Donor Relationship**

India has transformed itself in recent years, becoming a lower-middle-income country and an important global player. The Modi government is eager to present the modern face of India to the outside world. However, India has more than one face, and its impressive GDP growth and evolution from net aid recipient to net aid donor should not obscure the reality that many millions of Indians continue to struggle with poverty, disease, and ill health. India is a vast, diverse nation riven with inequalities and served by a health system that is largely unable to provide quality care.

India’s elevation to lower-middle-income status has triggered a transition in its relationship with traditional development partners, including the United States. By reaching this World Bank-defined threshold, India becomes ineligible for much of the support to which it was previously entitled. The United Kingdom began scaling back assistance in 2012, with the European Union following suit in 2014. U.S. bilateral support is also on a downward trajectory, which is expected to accelerate under the Trump administration, subject to

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50 Interview, March 26, 2017.
congressional approval. The foreign operations budget request for FY 2018, presented by the
Trump administration to Congress on May 23, proposed a large reduction in overall
Department of State funding to India, from $85.2 million in FY 2016 to $33.3 million in FY
2018.\(^{53}\) Under the plan, health programs are preserved but face the prospect of severe cuts.
State Department-operated Global Health programs are in line for a 46 percent reduction,
from $18.6 million to $10 million, while USAID health programs face a 45 percent cut from
$35.5 million to $19.6 million.\(^{54}\)

Multilateral partnerships supported by the United States are also advancing along the
transition path. The Global Fund to Fight AIDS, Tuberculosis and Malaria allocated a total of
$905 million to India for 2014–17 and historically India has been the single-largest recipient
of Global Fund assistance.\(^{55}\) Funding to India will decline to $500 million during the 2018–20
window, before reducing to zero by 2026. Many Indians working in health view their
country’s transition from major aid recipient to self-sufficiency as a jarring and uncertain
process, considering the many health challenges India faces and the modest commitment of
its government to picking up the slack. In the view of one public health expert: “By changing
us into a middle-income country overnight, the World Bank has closed the door to funding
and even some technical partnerships. India is so unequal that pigeonholing us in this way is
tough for us.”\(^{56}\)

India’s health needs will remain formidable for some time to come despite the steady
progress it has made in recent years. Continued donor engagement is critical and
transitions—while necessary—must be gradual, carefully managed, and clearly
communicated to ensure that health gains are not undermined. While the phasing out of
Global Fund support is scheduled to take place over the next nine years, the two partners
have yet to agree upon a clear transition plan. One particularly delicate issue to manage is
the ongoing transfer of responsibility for ARV procurement to the GoI, which was 100
percent funded by the Global Fund as recently as 2013–14.\(^{57}\)

The decline in donor funding for health, while important, is not the main concern for India.
The GoI is no longer asking donors for large sums of money, but what it does want—and
continues to desperately need—is technical assistance and mentoring from the United States
and other bilateral and multilateral partners. India has the political will to improve its health
status and has its own resources to commit to the effort, but it seeks technical partners who
can offer new ideas and test new innovations. The United States has performed this role with
some success, and its health engagement with India represents a low-cost, high-return
proposition that can serve to strengthen the overall bilateral relationship.

\(^{53}\) U.S. Department of State, “Congressional Budget Justification Fiscal Year 2018, Department of State Foreign
Operations, and Related Programs,” 221–27.

\(^{54}\) Ibid.


\(^{56}\) Interview, Institute of Public Health, Bangalore, March 28, 2017.

\(^{57}\) President’s Emergency Plan for AIDS Relief (PEPFAR), “India Country Operational Plan 2016, Strategic Direction
The U.S. Contribution to Health in India: Identifying Areas of Success and Opportunity

The bilateral health relationship between the governments of the United States and India is an important but relatively small component of overall health engagement between the two countries, which includes a constellation of interactions between NGOs, philanthropic organizations, academic institutions, diaspora networks, and the private sector. At the government-to-government level, the main challenge for the United States is to retain influence at a time of dwindling health budgets by ensuring that its modest investments have maximum impact. Most Indian health experts interviewed for this report said the United States was navigating this course successfully, but some argued that it lacked the vision and agility to make the transition from managing major development grants to becoming a niche player in the health sector.

At a time when bilateral assistance is small—and shrinking—it is more important than ever to prioritize the pursuit of shared health interests. The United States should ask India what aspects of health cooperation it values the most and determine what it is best able to contribute, and vice versa. It is also important to understand the interests and activities of U.S. nongovernmental and private-sector actors in India’s health sector and consider how they can be harnessed for mutual benefit.

India and the United States share mutual health interests that underline the importance of continued cooperation. Indian health experts offered a range of answers when asked what they value most from the U.S. contribution to date. They include technical partnerships that have built capacity to fight infectious disease at national, state, and local levels; collaborations that test and scale up health innovations; in-depth health program evaluations; efforts to strengthen data capture and use; health diplomacy on the importance of sustaining the global health security agenda; trainings of epidemiologists, laboratory technicians, and other medical staff; medical research collaborations; and support for emerging global health leaders.

From the U.S. side, embassy officials interviewed for this report voiced their belief that the big global health challenges—health security, AMR, advancing maternal and child health—cannot be successfully tackled unless they include India. The U.S. benefits from its presence in India and its collaborations with Indian health experts to study diseases that have implications for global health, conduct disease surveillance, stage clinical trials, study the impact of NCDs in a developing country setting, and examine innovative, low-cost health solutions. U.S. pharmaceutical and medical device firms have a shared interest in expanding market access and, in some circumstances, launching technical collaborations with Indian counterparts.

Some of the most successful and mutually beneficial health interactions that should be preserved include:

- **Collaboration on HIV.** The U.S. government and U.S. philanthropic organizations like the BMGF have played a historic and important role in India’s fight against HIV. Their investments have turned the tide of the epidemic in India. They entered the fray early
and—with Indian partners—adopted innovative approaches and targeted interventions in key populations that have since been broadly adopted. Most of these activities began at the state level. One of the most influential was the BMGF’s Avahan agency, which ran from 2003–2008 and operated in 85 districts with a budget of $250 million. Avahan was credited with bringing the HIV response to scale, encouraging community mobilization, fostering innovation, instituting strong monitoring and evaluation systems, and sharing good practice.\textsuperscript{58} The program was ultimately handed over to the government in a complicated—and at times, fraught—transition.

PEPFAR has also been instrumental in piloting innovative responses to the HIV epidemic, providing technical assistance to the GoI through its National AIDS Control Organization (NACO) and state counterparts, and demonstrating the value of PPPs. The Global Fund has invested heavily in HIV and has catalyzed the expansion of Indian civil society groups that now lead the response, like Solidarity and Action Against the HIV Infection in India (SAATHII). Going forward, the challenges for India will be to sustain momentum on HIV even as external funding declines, keep pace with the shifting epidemiological profile of the disease, and instill more dynamic leadership at NACO. As one leading Indian activist and HIV program implementer put it: “We need to respond to HIV like we did with polio; keep going until we get to the end. The donors have invested heavily and don’t want to see any reverse in the gains we’ve made. To sustain them, they should continue to be here, working with the government to increase domestic resources for HIV.”\textsuperscript{59}

- **Disease surveillance.** The partnerships forged between the Centers for Disease Control and Prevention (CDC) and Indian health counterparts are highly valued by both sides. Since opening an office in India in 2001, the CDC has expanded disease surveillance, trained epidemiologists, strengthened laboratory capacity, and facilitated India’s progress in infectious disease detection, prevention, and treatment, with polio elimination being the most notable example.

More recently, the Global Health Security Agenda (GHSA) has presented opportunities for deeper cooperation. India was initially reticent of the GHSA but has now embraced the concept, establishing a team within the MoHFW to work on it. In India, the GHSA includes laboratory strengthening, emergency operations, disease surveillance, epidemiology training, and assisting the GoI in the development of a national AMR Action Plan.\textsuperscript{60} The CDC-supported India Global Disease Detection (GDD) Regional Center is a prized asset, and in 2012, the GDD and India’s National Center for Disease Control started the India Epidemic Intelligence Service (EIS) Program, modeled on its U.S. equivalent. So far, 24 EIS officers have graduated from the program, and a basic version of the two-year course has been introduced with the objective of teaching officers in every district. Laboratory strengthening activities have happened at national, state, and district level.

\textsuperscript{58} For a comprehensive account of the Avahan program and its transition, see Rao, *Do We Care? India’s Health System*, 275–82.

\textsuperscript{59} Interview, New Delhi, March 29, 2017.

\textsuperscript{60} USAID also contributes toward the GHSA. It helped the GoI draw up a National Action Plan on AMR with reference to livestock and aquaculture, and conducts surveillance of zoonotic viruses.
The CDC has devoted a great deal of effort and up-front investment to establish these capacities, slowly building trust with its Indian partners. This work is now beginning to bear fruit. For example, CDC-funded surveillance assets and personnel have increased understanding of the various types and causes of Acute Encephalitis Syndrome (AES) and Acute Febrile Illness (AFI), leading to better diagnoses of both illnesses and the pathogens that cause them. These platforms have also been used to test people for the Zika virus. CDC surveillance assets also track seasonal, avian, and pandemic influenza and respond with timely, appropriate vaccines. Another example of disease detection that attracted international attention was in Bihar State, where unexplained seasonal deaths of young people that were initially blamed on AES were eventually confirmed to be the result of hypoglycemic encephalopathy caused by eating litchis while malnourished.61 The discovery was a result of a joint investigation by the CDC and its Indian counterpart.

CDC staff balk at the prospect of cutbacks to their budget, arguing that the full value of their investments in India is yet to be realized. In the words of one official, “We feel like we’re just getting going here. India has money but relies on our technical assistance. That’s our value-added, and that’s what allows us to wield influence far in excess of the resources we put in.”62

• **Improving drug safety.** The U.S. Food and Drug Administration (FDA) has developed a close working partnership with India to help improve standards in its pharmaceutical industry. The United States has clear health and security reasons to justify this investment; Indian firms provide 40 percent of over-the-counter and generic prescription drugs used in the United States.63 India too has a self-interest in enhancing the reputation of a generics sector that was worth an estimated $26 billion in 2016 and is a central plank of the government’s “Make in India” agenda to boost home-grown industries.64

The visit to India of then FDA Director Margaret Hamburg in 2014 was a turning point that hastened closer cooperation. The trip followed a slew of incidents in which Indian drugs in circulation were found to be inactive or adulterated, largely because poorly enforced regulations allowed some companies to cut corners, flout processing standards at their facilities, or falsify product test results.65 A flurry of FDA inspections was conducted of Indian plants, exposing multiple shortcomings. In an effort to raise standards, FDA officials have worked with their Indian counterparts from the Central Drugs Standard Control Organization (CDSCO) to share best practice, conduct training, and publicize products or sites that fail to meet quality-control standards. This ongoing effort assumes added importance in light of efforts by the new FDA Commissioner Scott Gottlieb to speed up

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the approval process for generic medicines in an effort to increase competition and reduce prices for consumers in the United States.66

- **Piloting innovations.** USAID has sought to extract maximum value from its modest budget in India by positioning itself as the venture capital arm for India’s health development. It does this by piloting innovations and rigorously evaluating them, before presenting the most successful ones to the GoI in the hope that they will scale up and fund them. USAID officials illustrate the merits of this approach by citing several success stories:

  USAID sought to address the large unmet need for postpartum family planning services by offering Postpartum Intrauterine Contraception Devices (PPIUCD). The program was piloted in select hospitals in UP in 2009, where it proved popular and won the support of the state government. The program has since been scaled up to more than 20 states. USAID’s implementing partner provides training to medical staff who insert the devices, while the GoI assumes the bulk of the cost.

  In a bid to increase diagnosis of MDR-TB and TB among people coinfected with HIV, USAID conducted a feasibility study into the merits of expanding and decentralizing the use of GeneXpert67 machines. The machines were piloted in 18 sites in 2012; at these sites, 21 percent of suspected cases tested positive, compared with 13.5 percent at other sites.68 The findings were accepted by the GoI, which has funded the expansion of GeneXpert machines nationwide.

  USAID has attracted the interest of the GoI in new ways to assess health service quality. USAID gave a relatively small grant of $250,000 to SAATHII to set up a quality assurance system to measure patients’ satisfaction with the hospital services they received. Patients can give feedback to the Mera Aspatala (My Hospital) system in various ways, including cell phone Short Message Service (SMS) and a web portal. The initiative covers 145 hospitals in 18 states and union territories and has solicited more than 540,000 responses. The results have been linked to the district hospital-ranking system.

  These successes mean that—according to a senior USAID official—the United States continues to enjoy high-level access to senior health officials in the GoI. To illustrate this point, he noted that because of its record of working on TB, the MoHFW immediately turned to USAID for ideas and advice when it was asked by Prime Minister Modi to produce a plan to scale up India’s TB response.69

- **Improving data collection to inform policy.** An often-mentioned area where U.S. assistance can help India accelerate its health goals is deepening collaboration on data to inform policymaking. India’s health system lacks quality data, particularly at the district

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67 Known in India by its generic name, Cartridge Based Nucleic Acid Amplification Test (CB-NAAT).
level and below. Another gap is the private health sector, which is not required by the government to gather anything more than the most basic data. Despite the challenges, India is arguably on the cusp of a data revolution in health, which the United States can help advance. The GoI’s ambitious Aadhaar project is nearing completion—the scheme to gather each citizen’s biometric data and provide them with a unique identification number and card that will be used to access government services. Aadhaar numbers will be used to generate patient records and—provided privacy concerns are adequately addressed—the scheme could produce a goldmine of health information to help the GoI plan and deploy health services more efficiently. Another promising development is the GoI’s move to increase the tempo of the National Family Health Survey from a once a decade exercise to one that takes place every three years.70 Finally, the United States has struck a partnership with the NITI Aayog to help bolster the quality of data produced by the new exercise to rank social progress across states.

- Private-sector health partnerships. U.S. and Indian health care and pharmaceutical companies have a shared interest in opening each other’s markets to new business. India represents an enormous opportunity for U.S. business but is a difficult market to navigate. Indian companies are looking to expand globally, but often need help with capacity building and knowledge transfer that technical partnerships with U.S organizations can provide. When beneficial to both parties, these partnerships have the potential to generate a pipeline for new, cheaper medicines, vaccines, medical devices, and health delivery systems.

The partnership between HCL Healthcare and JHI is a good example of a mutually beneficial partnership. HCL benefits from JHI’s expertise on how to do ambulatory care at its outpatient clinics, while JHI gains understanding of a new market with a different disease profile that can help expand its knowledge base. In the medical device sector, the combination of U.S. technical expertise and Indian ingenuity has helped produce low-cost health solutions. The Johnson & Johnson OneTouch glucometer is an example of a formerly complicated product that was simplified into a no-button device for the Indian market and has gone on to become a best-seller.

India has become a global leader in developing domestic, cheaper versions of medicines and vaccines that provide opportunities to advance broader global health goals to increase access to affordable medicine. For example, the Rotavac vaccine to combat rotavirus, produced by the Indian firm Bharat Biotech, was the product of a PPP that included the BMGF and the GoI. The vaccine costs about $3 per child, one-fifteenth of the cost of versions produced by international pharmaceutical companies GSK and Merck.71

These kinds of initiatives naturally come into conflict with the desire of Western pharmaceutical companies to protect their markets. However, some firms have tried to

70 Manoj Mohanan et al., “Quality of Health Care in India: Challenges, Priorities, and the Road Ahead,” Health Affairs 35, no. 10 (October 2016), http://content.healthaffairs.org/content/35/10/1753.full.pdf+html.
strike a balance between maximizing profits and increasing patients’ access to affordable medicines. Gilead Sciences has issued voluntary licenses to Indian companies to produce generic versions of its drugs and make them available in strategically selected global markets. This approach was initially trialed in 2006 when deals struck with 15 Indian generic firms to produce tenofovir-based drugs increased the availability of affordable drugs for HIV in low-income countries. Today, 10 million patients use HIV drugs produced by Gilead’s Indian licensing partners.

A similar approach has been adopted for Gilead’s hepatitis C treatments, including Sovaldi. Gilead has issued 11 voluntary licenses for Indian companies to produce the drugs and sell them more cheaply in 101 lower-income countries, including India. These licensing agreements have sparked healthy competition and falling prices that have helped increase access to medicines. In 2016, Punjab became the first state government in India to fund free treatment for hepatitis C. Gilead’s differentiated approach to pricing has been criticized as unfair by NGOs campaigning for universal availability of cheap medicines but it does at least strike a compromise by increasing access to affordable drugs in some markets, while at the same time offering the prospect of partnership and knowledge-sharing between U.S. and Indian companies.

U.S. foreign direct investment has helped India become a leading pharmacist to the world but Indian trade policies and weak protections for intellectual property rights (IPR) deter American companies from entering the Indian health sector. While the Modi administration has made steps to create a more business-friendly environment, some problems remain. The medical device industry was angered in February 2017 when India’s National Pharmaceutical Pricing Authority placed cardiac stents on the National List of Essential Medicines, a move that subjected them to price caps. Companies protested the decision, which forced them to slash prices by up to 85 percent. They argued that by cutting their profit margins for a range of devices—some of them highly sophisticated—the GoI was stifling innovation and limiting future opportunities for partnerships between U.S. and Indian medical device companies. An executive for one leading U.S. medical device firm described the decision as “very damaging for innovation” and said it would not achieve its objective of incentivizing local production of cheaper stents and making angioplasty more accessible to patients. Instead, the impact would be to open the Indian market to inferior Chinese stents that—he claimed—would malfunction in greater numbers, leading to more deaths.

Discussions about IPR and the climate for innovation in India are already an important part of the U.S.-India Strategic and Commercial Dialogue. These are delicate issues that are not easy to resolve to the satisfaction of both sides, particularly because the GoI does not speak with one voice on the subject. Nevertheless, it is in the mutual interest of the United States and India to set a framework for commercial activity in the life sciences sector that helps spur innovation, foster technical collaboration, and protect intellectual

73 Interview, New Delhi, March 23, 2017.
property while at the same time ensuring that Indian patients get access to affordable drugs.

- **Facilitating nontraditional health partnerships.** The opportunities for health collaboration extend beyond private-sector engagements. The United States can play a helpful role in facilitating nontraditional partnerships that include a mixture of private sector, NGO, and government actors, and even bring in third-country partners. Traditionally, the GoI has been wary of PPPs but the United States has a long history of doing them successfully and can point to examples in India. They include the Dasra Adolescents Collaborative, an initiative to empower girls across a range of health, education, and social indicators that involves USAID, the Children’s Investment Fund Foundation, Kiawah Trust, and the Packard Foundation. Together, the funders assist domestic NGOs to improve and mainstream programs for adolescents. In another collaboration, USAID has partnered on a health financing initiative with GE to help more than 750 private health care networks reach more patients with affordable services.74

Another important matchmaking function the United States can perform in India is to help develop an innovation “ecosystem” that connects and multiplies the many good health initiatives dotted around the country. U.S. universities are already playing an important enabling role. Duke University’s Innovations in Healthcare is an NGO that has built a network of 50 health entrepreneurs, many of them Indian. The organization curates and incubates the best innovations, and helps bring them to scale. Members of the network include Forus Health, which has developed a portable eye-screening device; Lifespring, a for-profit line of maternity hospitals aimed at the urban poor; and Noora Health, a Bangalore-based nonprofit that trains the families of hospital patients in basic first aid and preventive health so that they can assist their loved ones when they are discharged.

Another area where the United States can offer partnership and support is by providing guidance to Indian companies rethinking their corporate engagement following their government’s passage of a law requiring firms to spend a minimum 2 percent of their net profits on social development. By sharing examples of strategic Corporate Social Responsibility (CSR), U.S. companies and investors can inspire their Indian counterparts to comply with the 2014 CSR law in ways that go beyond unfocused charitable giving and instead make impactful contributions that help fill critical health gaps. USAID has already played a matchmaking role by linking Indian companies interested in health initiatives with appropriate state government partners. Indian organizations like Samhita have also been established to help advise companies on their CSR strategies and direct them to potential NGO partners.

Indian Americans, who represent more than 3 million people in the United States, are a powerful collective voice that remains closely connected to the Indian mainland. Diaspora groups have established a multitude of formal and informal health partnerships.

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74 E-mail communication with senior USAID official, U.S. Embassy New Delhi, May 25, 2017.
in India. For example, the American India Foundation has raised more than $100 million and channeled expertise to Indian development causes, including public health.

Finally, the United States can help India find its voice as a global development player, providing advice that could amplify its potentially powerful role in health diplomacy. One of the ways the U.S. government is doing this is by facilitating knowledge sharing between India and other countries on health. For example, USAID brought a delegation from Afghanistan to Delhi to learn about India’s success in polio eradication and in 2015 encouraged India to host the international Call to Action summit on preventable maternal and child death, in which Prime Minister Modi gave opening remarks. Below the government level, Indian health experts are being encouraged to pass on their knowledge to other low-income settings. The Karnataka Health Promotion Trust, an NGO based in Bangalore, has provided technical assistance to countries in Asia and Africa on how to scale up HIV prevention interventions. The program was funded by the BMGF. Meanwhile, a USAID program has taken successful Indian innovations in TB to Uganda, Afghanistan, and Myanmar. Finally, Indian generic pharmaceutical companies provide India with a powerful platform to tout its soft-power credentials to the rest of the global south and present itself as a development partner committed to increasing access to affordable medicines.

Recommendations

The United States has compelling reasons to continue its health engagement in India and find ways to broaden its partnerships. First, U.S. health investments provide value for money. The modest amount that the U.S. government spends in India goes a long way in an environment where there is political will, innovative program activity, a willingness to commit domestic funding, and a range of capable partners to choose from at the national and subnational levels. Second, U.S. support has been strategic, targeted toward areas where it can have maximum impact. Thus, it has been instrumental in helping India achieve or advance health goals including polio elimination, HIV reduction, and improved disease surveillance. Finally, the United States directly gains from its health engagement with India; it benefits from the partnerships it forms with Indian scientists and researchers, the joint medical trials it conducts, and the disease surveillance platforms it has established that help protect the American homeland from global health threats. Furthermore, strong health engagement creates good will that helps strengthen the overall bilateral relationship.

The health relationship with India offers a powerful counterpoint to those in the Trump administration who question the value of foreign assistance: Modest levels of U.S. spending on health have seen a high return on investment. It is important to preserve the health gains made possible through these investments from being undermined by hasty withdrawals of financial support and technical assistance. However, the high likelihood that the U.S. health budget to India will decline means that policymakers should prioritize the following, mutually beneficial, areas of health engagement:

- Protect gains made in communicable diseases like HIV that were made possible, in part, by U.S. investments and innovations. PEPFAR represents excellent value for
money and should remain in India, where its work is respected and valued by Indian counterparts. PEPFAR’s modest investment of $25 million in 2015–16 provides important technical assistance to the GoI and state governments. Global Fund investments will remain critical in the fight against HIV. As the main financial contributor to the Global Fund, the United States should advocate for a slow, steady, and carefully managed transition that is clearly communicated to Indian partners.

- Help India advance ambitious plans to tackle its most deadly infectious disease, TB. The United States has a vested interest in ensuring that India makes faster progress in dealing with its most serious public health challenge. TB, particularly drug-resistant strains of the disease, poses a direct threat to the health security of the homeland due to the risks that infected persons will carry the disease into the United States. It will save money and American lives to work with India to contain the threat within its own borders rather than contain potential outbreaks inside the United States. The decision by the United Nations General Assembly to devote a high-level meeting to TB for the first time in 2018 provides diplomatic openings for the United States and India to galvanize international efforts against the disease. The two countries can build momentum in advance of the meeting by developing consensus outcomes for the WHO ministerial conference on TB, due to take place in Moscow in November 2017.

- Maintain disease surveillance platforms and laboratories that can quickly identify emerging diseases of concern to both countries, including pandemic influenza and Zika, and keep India polio-free. These assets, and the Indian personnel trained to use them, are an essential resource that the United States can use to study infectious disease and conduct medical trials.

- Deepen cooperation between FDA staff and their Indian counterparts that builds on recent improvements to drug safety in the generic medicines sector. Strengthen the capacity of Indian regulators to enforce high quality-control standards, thereby building confidence that any efforts by the Trump administration to fast-track approvals of generic medicines can be done without compromising consumer safety.

- Channel U.S. resources toward innovations that address priority health issues for India. Indian health counterparts value U.S. technical assistance and expertise in testing new health innovations, performing vigorous impact evaluations, and proposing strategies to scale them up. These efforts generate good will that will ensure that U.S. officials continue to get a seat at the table on health policy discussions with the highest levels of the GoI.

To achieve these goals in a resource-constrained environment, the United States should seek to extract maximum value from its many health partnerships in India and improve the synergies between them. The U.S. government should work hard to remove impediments to collaboration and constantly look for ways to blend partnerships. The following constituencies deserve special attention:

• Entrepreneurs: The U.S. government should conduct a mapping study of all the U.S. universities and other institutions that work with Indian health entrepreneurs, with the objective of facilitating closer connections between them. It should convene a summit for these organizations to talk to each other, discuss problems, and align strategies. By linking institutions with similar interests, the U.S. government can promote better knowledge sharing and problem solving and facilitate strategic partnerships that will help develop India’s innovation ecosystem.

• Life science companies: The life sciences sector is a valuable component of the overall bilateral trade relationship, yet concerns about IPR and price ceilings are among the obstacles that limit the opportunities for technical partnerships between American and Indian companies. The United States should use the U.S.-India Strategic and Commercial Dialogue to elevate discussions of these issues and encourage the Modi government to take steps to remove impediments to private-sector partnerships on health. Top of the agenda should be negotiations to remove price controls on medical devices, which limit commercial opportunities to U.S. firms and stifle innovation.

• NGOs: India closely guards its sovereignty and is rightly wary of foreign interference, yet its increasingly combative stance toward foreign-funded NGOs is self-defeating. Blocking organizations like the Public Health Foundation of India and the Institute of Public Health in Bangalore from foreign sources of support for research and capacity-building weakens the effectiveness of these important public health champions. The United States should use its diplomatic channels to quietly encourage hardline voices within the GoI to tone down the rhetoric and communicate more closely with the MoHFW before issuing directives.

• Subnational governments: U.S. health engagement increasingly takes place at the subnational level; this trend should continue given the diversity of India’s health landscape. However, the focus to date has largely been on the poorest states. While it is important to work in the states with the greatest health needs, the United States should be attuned to health developments in nonpriority states as well. It should scan the country for health innovations that can be scaled up or replicated and look for state-level examples of good health governance that can be shared with others. This diversified approach should be extended down to India’s cities, which are rapidly growing and face specific health challenges. An initiative launched in May 2017 by USAID and the BMGF to work with India’s NUHM in more than 30 cities is a step in the right direction.

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77 E-mail communication with USAID official, U.S. Embassy New Delhi, May 25, 2017.
Conclusion

India is a large, complex country that has undergone a process of radical development and economic growth in a very short space of time. India’s transformation and attainment of lower-middle-income status is a striking success story for a historically impoverished country of 1.3 billion people. However, behind the headline success, many millions of Indians have been left behind by their nation’s economic transformation. As donors head for the exits—and are encouraged to do so by elements within a host government eager to portray India as a modern, wealthy nation—the plight of this army of underprivileged citizens must not be forgotten. The mission to improve the health of the poor—who have limited access to basic services and face the ever-present threat of communicable diseases like TB and malaria—must continue. At the same time, the growing middle class encounters a host of different health problems and, despite its improved financial status, struggles to pay for its health care in a poorly regulated, fragmented system that has yet to provide affordable options for all.

As one of India’s longest-serving and most important development partners, the United States has a continuing role to play in helping India find innovative solutions to its complex health problems. A range of actors can contribute to this effort. Government programs will remain important but as their budgets decline, it will be important for other players—entrepreneurs, companies, universities, philanthropic organizations, and diaspora groups—to pick up the baton. U.S. ingenuity and expertise is—and will continue to be—highly valued by India. The United States and India have a clear interest in expanding health partnerships that benefit the citizens of both countries and strengthen the bilateral relationship.
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Accelerating Health Innovation in India

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