Combating HIV/AIDS in India: Public-Private Partnerships are Necessary for Success
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Introduction

India is an emerging economy and is undergoing a rapid transition. A comparison of India’s key health and economic indicators to that of China, South Africa and the United States is shown in Table 1. Annual economic growth rates have been between 4-8% for the past decade. Several indicators of health have improved: infant mortality has more than halved from 146/1000 live-births in 1947 to 61.6/1000 live-births as of 2004; average life expectancy from birth has doubled from 32 years in 1947 to 63.5 years in 2004. However, despite these improvements, a high proportion of the Indian population still suffers and dies from preventable infections, pregnancy and childbirth-related complications, and malnutrition. At the same time, new health threats are overwhelming the ability of the nation’s health care system to respond effectively. HIV/AIDS is one of the most important of such threats. Since the first reported case of HIV in India in 1986, the disease has rapidly spread. As of December 2005, an estimated 5.2 to 5.7 million Indians are living with HIV, making India the world’s largest HIV burden.[1;2] The virus has now spread beyond highly susceptible groups to the general population in some states, threatening to erase much of the social, economic, and health gains made over the past four decades.[3]

The government and many donor agencies and non-governmental organizations have been broadening prevention efforts with the hopes of curbing the spread of HIV. There is no cure for those already infected with HIV but the advent of antiretroviral drugs (ART) has dramatically reduced the morbidity and mortality of HIV, making it a manageable chronic illness.[4;5] Until recently, these drugs were too cost-prohibitive for the vast majority of Indians. But the availability of generic ART, largely manufactured by Indian pharmaceutical companies, have dramatically reduced the price of these life-saving medications with the cheapest regimen now costing less than $1 per day. With an annual per capita income of $620, however, only those Indians able to afford the costs of these drugs out-of-pocket have been able to access them. The vast majority of these individuals have been seeking care in India’s private health sector, which is a largely unregulated, fee-for-service sector that varies tremendously in cost, quality and adherence to standard guidelines of care.

Since April 2004, the Indian government, with help from the Global Fund, the World Health Organization (WHO) and other international partners, has begun free provision of ART. The program prioritizes the poorest 40% of those HIV-infected individuals who are
seeking care in the public health care sector in high HIV prevalence areas. While these efforts are to be commended and are an important step, it is clear that not all HIV-infected patients in need will be reached through these efforts. In fact, many will likely continue to seek care and treatment in the private health care sector, which accounts for approximately 80% of India’s outpatient services. While the private sector is popular and accessible, it varies tremendously in quality and, often, the diagnosis, treatment and reporting practices do not meet national or international standards for care. Lack of appropriate diagnosis and treatment may result in extended transmission, development of resistant strains of HIV, treatment failure and progression to death, all of which are likely to impair efforts for HIV control in India. Little attention has been paid to-date to the relationship between the Indian private health care sector, the public health care sector, and HIV care and treatment in India.

In this paper, we argue that in order for HIV/AIDS to be effectively addressed in India, the private health care sector needs to be actively engaged alongside the public health care sector.

**Overview of public and private health care sectors in India**

India has a vast health care system, costing an estimated Rs.108,732 crore in 2002 (USD $24 billion), representing 4.8% of India’s gross domestic product (GDP) and translating to $23 per capita total health care expenditure.[6] Broadly, health care in India is made up of services provided by two sectors: public and private. Additionally, an important feature of the Indian public and private health care system is that it has perhaps the world’s largest community-based tradition of indigenous systems of medicine, which include Ayurveda, yoga/naturopathy, Unani, Siddha and homeopathy (AYUSH).

The public sector accounts for approximately 20-25% of the total health care expenditure (Table 2), which represents only ~1% of GDP and puts India’s public health care expenditure among the bottom 20% of countries.[6;7] The public sector is financed through general tax and non-tax revenues from both internal and external agencies. The public sector’s major role is to plan, regulate, and shape the Indian health care delivery system. It consists of central as well as state and local government-run services, and consists of the following: 137,311 subcenters, 22,842 primary health centers (PHCs) 3,043 community health centers (CHCs), 4048 hospitals, and a workforce of 345,514 in 2001-2002.[6] A large
number of dispensaries, medical colleges, paramedical training institutions and laboratories are also part of this system. Access to and utilization of public sector health care varies regionally as well as by urban versus rural areas and by income group. It accounts for 20% of outpatient curative care, 50-55% of hospitalization care, 60% of antenatal care, and 90% of immunizations.[8] (Figure) The annual per capita health care spending in the public sector in India is higher than that of Bangladesh or Indonesia, yet health care outcomes such as infant mortality are worse in India than in either of these countries.[7]

The private sector, in comparison, accounts for an estimated 70 to 80% of health care expenditure, one of the highest proportions of private health care spending in the world.[6;7] This sector has grown astronomically in the past 15 years, making India one of the largest private health care sectors in the world. The burden of financing the private sector, however, comes almost exclusively from out-of-pocket household spending. While the exact number of private health care providers is not known as many are unregistered, approximately 80% of the 1,324,578 registered providers (633,108 allopathic, 691,470 AYUSH) work in the private sector. (Table 2) While data specific to the Indian private health sector are limited, recent studies shed light on the importance of examining practices in this sector and including it in initiatives designed to improve health outcomes.[7;9-21]

These studies have found that the private health care sector in India is highly diverse, ranging from voluntary, not-for-profit, for-profit, corporate, trusts, stand-alone specialist services, diagnostic laboratories, pharmacy shops, and unqualified providers. Through door-to-door canvassing, researchers have shown that many private providers are unlicensed.[13] The private sector consists predominantly of solo practitioners or small nursing homes having 1-20 beds, serving the urban and semi-urban population, and is largely focused on curative care rather than preventive care. [22] Data from the National Sample Survey, a nationally-representative sample of 121,000 households in 1995-96, found that the public sector largely serves the poor with one exception: the outpatient services. Approximately 80% of all outpatient visits (hospital and non-hospital based) take place in the private sector. This finding is similar by income group, urban and rural populations, by gender, by caste and tribe affiliation, and above and below the poverty line.[8] Hospitalizations and institutional deliveries (births) are shared almost equally between the public and private sectors. Preventive services such as antenatal care and immunizations, however, are predominantly
given in the public sector (60% of antenatal visits, 90% of immunizations). Therefore, the main thrust of the private health sector is the provision of curative services, particularly in the outpatient arena.

**Challenges within the Indian public and private health care sectors**

The World Bank’s assessment of the Indian public health care sector is that it is under-funded and not large enough to meet the current health needs of the country.[7] It is also criticized for being overly-centralized, bureaucratic, inflexible, and poorly managed. The quality of services is often suboptimal, and many of the disease control programs are vertical programs that are inefficient and fail to integrate resources across programs. Allocation of public health resources in the public sector is not always done practically; for example, areas with high birth rates are not allocated the appropriate number of health care workers to administer childhood immunizations. Lastly, some data of relevance to national indicators of health (infant mortality, maternal mortality, number of hospitalizations) are collected, the quality of health services in the public sector is not well-monitored and quality assurance programs are lacking. [6;7]

The public health care system may also be perceived as being of lesser quality. Studies have documented that persons accessing the public sector encounter longer waiting times, experience a lack of confidentiality and communication, and have the perception that better quality of care is offered in the private sector.[12;16;23;24] The Behavioral Surveillance Survey (2001) found that less than 20% of those suffering from sexually transmitted infections (STIs) seek treatment through government clinics in most states in India because of perceived lack of confidentiality and stigmatization. The majority of patients chose to seek care in the private health sector, and/or go to unqualified practitioners, i.e., “quacks” with home remedies.[25]

The private health care sector also has many shortcomings. It is largely unregulated with little control as to what kinds of services can be provided by whom, in what manner, and at what cost.[6;9;11;26;27] Furthermore, there are no standardized protocols to assess the quality or performance measures of such care in India. Some studies have documented that private health care lacks public health relevance, greatly varies in quality and, in some instances, is abysmal and without regard to standard guidelines. [9;10;16;19;28] One study of
private practitioners in Mumbai found that malaria was often incorrectly diagnosed and sub-optimally treated (i.e., not meeting the standards of the WHO or India’s National Malaria Eradication Programme).[16] These practices were especially prevalent among the poor who could not afford the full treatment. Similar lack of appropriate diagnosis and adherence to treatment guidelines in the Indian private health care sector has been reported in the TB literature,[20;29] however, some studies of this sector have also shown better quality of care.[12;30] A study of female outpatients in Karnataka documented that private health care practitioners were more likely to undertake a physical examination, to explain their diagnosis and prognosis to the patient, and to conduct their consultation with respect for patient privacy than public sector providers. Importantly however, more injections were given and more prescriptions were written by private providers than public providers, and the drugs prescribed or dispensed were more costly.[12;31]

Examples of public/private health partnerships in India

Since the health care infrastructure in India is vast and complex, and no one sector is meeting all of the population’s health care needs, it is clear that public-private partnerships are necessary. Approaches to engage the private sector have been classified as market-based, administrative, and public empowerment.[32] Market-based approaches, which include contracting, financing, franchising, social marketing and collaborating, are designed to influence the behavior of the private sector to promote public interests through market approaches. Administrative approaches, which include regulating and training, are used to ensure minimum standards as well as a fair playing field between providers and payers. Public empowerment approaches, which involve informing, educating, and communicating, enhance demand, public accountability, and the ability of people to make better choices about their HIV care.

WHO has formally encouraged strategies that involve a public/private mix as a way of improving health, particularly in resource-limited settings.[33] India has had several examples of public-private health care partnerships, some of which have been successful. For example, in the case of leprosy control, an organized strategy of information, education and communication (IEC) between public and private providers has greatly improved referrals of patients for leprosy treatment.[3;21;34;35] Public-private partnerships to stem blindness due
to cataracts is another success story where an IEC strategy has led to more than 30% of the cataract surgeries being done in the private sector.[6;34] Tuberculosis control has also benefited from recent public-private partnerships, but this is only after many years of failure.[23;36;37] The TB Control Program of India has used a diverse group of strategies for engagement of community private providers to participate in the referral, diagnosis, or treatment of patients with TB.[38] For example, some programs have encouraged the referral of patients for diagnosis of TB via smear microscopy at public laboratories, while other programs encouraged the referral of smear-positive cases to public sector facilities for treatment. Additional strategies included contracting private laboratories of repute to perform smear microscopy; educating private providers regarding up-to-date guidelines; providing free drugs for treatment but allowing continuity of care within the private sector; and supervising of private providers by public sector TB control officers. Monetary incentives in some cases have also been employed. Professional societies such as the Indian Medical Association have also been involved in helping with communication between public and private health care providers. Mobilizing and partnering with local non-governmental organizations have also been very useful. NGOs have disseminated key information regarding where to seek care and treatment. They have also played a role in actual referrals, follow-up and communication between public and private providers. Such strategies have led to increased case detection and improved clinical outcomes.[36-39]

Assessing impact on clinical outcomes and cost-effectiveness is essential to evaluating whether such public-private partnerships are beneficial. A literature review of private-public collaborations for reproductive and sexual health performed by Peters et al found that overall the data is limited as few studies performed the gold standard of randomized clinical trials.[32] Furthermore, many of these studies did not all evaluate a clinical outcome, which is ultimately what policy makers, donors, public health practitioners and clinicians, and patients care about. Similar to the TB experience, the more successful approaches used a combination of private sector strategies (regulation plus training plus incentives) rather than reliance on one strategy. Furthermore, the review emphasized the need for such partnerships to be ongoing -- not just one-time activities -- and to be customized to the interests and the concerns of the private providers (i.e. business interests of private providers needs to be considered).
Not all partnerships have been successful however. Strategies of IEC, along with contracting specialists, and conducting reproductive and child health (RCH) camps have had poor outcomes.\[6;34\] Huge amounts of money were allocated for contracting services, but the services were underutilized and not available where needed most.

In summary, the key features of successful private-public health partnership programs in India involve a combination of: 1) mobilization of private health care providers via one-to-one or group IEC, 2) establishment of referral networks that provide either monetary incentives or non-financial incentives for referrals, 3) ongoing access to free continuing medical education, 4) access to free or low-cost, quality-assured diagnostics, 5) provision of free or low-cost quality-assured drugs, 6) access to continued treatment by private providers but with the guidance of local experts and 7) ongoing feedback about the progress of the program.

**HIV/AIDS epidemic in India**

How has the health care system in India responded to the HIV health crisis within its borders? What can be said of how the public and private sectors of health care are responding to this epidemic in India? To place this in context, it is helpful to understand the scope of the disease in India.

**Epidemiology**

The first case of HIV in India was identified in 1986, and since then, there has been rapid spread of the epidemic in some parts of the country. India now has the world’s largest HIV population with an estimated 5.2 to 5.7 million infections as of December 2005. [1;2] Approximately 0.91% of India’s adult population between 15-49 years was infected in 2005. With a country prevalence of less than 1%, India is considered a low prevalence country. However, given India's vast population of 1 billion, with most of the Indian states having a population greater than a majority of the countries in Africa, a 0.1% increase in the prevalence rate would increase the number of adults living with HIV/AIDS by over half a million people. [1;40] Furthermore, the true prevalence is debated. Accurately estimating the number of HIV positive people is difficult, in part because of the fact that there is wide national variation in the kinds of factors which put people at risk, which thereby means that uniform testing is not employed, and reporting is incomplete. Various projections of the epidemic exist, with the most
sobering being that India should expect 20-25 million HIV cases by 2010.[3;41] Therefore, by some projections, India is anticipated to overtake South Africa and become the world’s largest burden of HIV if current trends remain unabated. In terms of deaths due to AIDS in India, the United Nations has projected 12.3 million AIDS deaths by 2015, and 49.5 million deaths during 2015-50.[42] Already HIV has led to tremendous human suffering and has begun to put a stress on the Indian health system. This, in turn, has had a significant economic impact.[43] HIV/AIDS affects individuals in prime-working age groups and is expensive to treat. One study found that households spend up to 30% of their monthly household income just on medications to treat their HIV family members.[44] Another study conducted in four Indian states among households affected by HIV found that incomes declined by as much as a third while average monthly expenditure on food and treatment increased substantially.[45] This will only continue to get worse if the tide of the epidemic is not reversed. The nation’s gains in poverty reduction over the last decades, therefore, will be threatened.

According to NACO’s surveillance data, the majority of infections have been acquired through heterosexual transmission (85.7%).[46] Injection drug use accounts for 2.2% of infections, blood or blood products for 2.6%, mother-to-child transmission for 2.7%, and 6.8% were unidentified. The epidemic is concentrated in 6 high-prevalence states -- Maharashtra, Tamil Nadu, Manipur, Andhra Pradesh, Karnataka and Nagaland -- where HIV prevalence exceeds 5% among high-risk groups (sexually transmitted disease clients, commercial sex workers, injection drug users, men who have sex with men) and exceeds 1% among antenatal women, a group whose HIV prevalence is thought to reflect the general population.[1;46] The southern and western states of Maharashtra, Tamil Nadu, Andhra Pradesh, and Karnataka, which account for 30% of India’s population, have 75% of the HIV cases. India, therefore, has multiple epidemics of HIV occurring in different geographical settings and among people with different types of risk. Over time there has been a diffusion of the epidemic away from recognized "high risk groups" and into the general population in some areas. In 2005, HIV prevalence was greater than 1% among antenatal mothers in 95 districts of India, including 9 districts in low-prevalence states. Furthermore of the 5.2 million Indians living with HIV, 57% were of rural background and the male:female ratio was approximately 3:1.[1]

**Care and Treatment of HIV in India**
While no cure is available for HIV/AIDS, the advent of antiretroviral therapies (ART) has dramatically reduced the morbidity and mortality of HIV among those who have had access to these drugs.[4;5] Until 2004, it was estimated that approximately 550,000 had AIDS in India and were in need of ART, but that only 2-5% of persons were receiving it. [47] Like other resource-poor countries, the use of ART was limited to the few patients who could pay out-of-pocket for these expensive drugs, the majority of whom were seeking care in the private health care sector. With some exceptions, small studies suggest that much of this treatment has been unstructured and did not conform to the WHO or NACO treatment guidelines.[17;48];[49] In 2000, Indian pharmaceutical companies introduced generic ART drugs. By 2004, the costs of an appropriate combination of these drugs were under $1 per day, allowing an increasing number of Indians to afford them.[50] In April 2004, the Government of India launched a program to provide ART for free, prioritizing the following groups: 1) persons accessing government hospitals in selected high-prevalence areas and in New Delhi, 2) HIV-infected women enrolled in government antenatal clinic transmission prevention programs, and 3) children less than 15 years of age.[46;47] The program began at 8 government hospitals and has subsequently expanded. The goal of the program is to have 100,000 HIV-infected Indians receiving free ART by 2007. Currently, an estimated 28,664 have been enrolled as of April 30, 2006 at 54 ART centers. At each ART center, NACO provides funds for two doctors, one counselor, one lab technician, one data entry operator, and one pharmacist. Drugs and laboratory equipment to perform CD4 cell count testing are also provided. While these efforts are to be commended, it is likely that the government programs are not able to manage the large numbers who need treatment. Furthermore, because of the perception of increased privacy, less waiting time, greater attention, and easier access, many patients will continue to seek care in the private health sector. With a few exceptions, physicians in the private sector in India have had limited training and experience in treating HIV patients with ART. [47] The optimal monitoring strategies and guidelines used for ART treatment in developed countries including CD4 counts, quantitative viral load testing, and resistance genotyping are not available or are too expensive for patients to pay for out-of-pocket. Currently, little is known about how patients are accessing HIV care or using ART, how adherent patients have been to their ART, how physicians are managing their HIV-
infected patients on ART, and what the prevalence of ART resistance is among patients being
treated in the Indian private health care sector. Preliminary data from our group show that of
1,667 HIV-patients surveyed, only 36% had ever heard of ART. Twenty-four percent were
on ART of some form, but only 32% had ever had a CD4 count and only 11% had ever had a
viral load; 15% of patients who thought they were on ART were determined not to be on
ART by their physician.[44] These data suggests that there is poor patient knowledge of
ART and limited use of monitoring tests by physicians. Other data from physician surveys
indicate that private providers have varied knowledge of HIV-care and that the Indian
community is using suboptimal ART regimens.[17] (unpublished data)

Studies in India have also shown that it is not uncommon for individuals to seek the
advice of pharmacists and medicine shops rather than trained physicians for the treatment of
common ailments. [51] It has also been observed that having a valid prescription is not
necessary to obtain medications, including antibiotics, anti-tuberculosis drugs and
psychotropic medications. [52] It is currently unknown if and how often patients in India are
accessing ART without physician guidance or the use of a valid prescription.

The concern remains that because of limited patient and physician understanding,
inadequate patient adherence, and suboptimal regimens, there will be rapid emergence of HIV
resistance among HIV-infected patients who are receiving suboptimal ART in private, non-
clinical trial settings in India.

The Need to Engage the Private Health Sector to Combat HIV/AIDS

Given the popularity and frequency by which the Indian population seeks health care
and treatment in the private sector, it is clear that India cannot afford to ignore HIV care and
delivery in the private sector and focus only on the public sector as a means of addressing the
epidemic. As mentioned earlier, while researchers have paid greater attention to trying to
understand health care provision in India’s private sector as well as to acknowledge the
importance of engaging the private sector, few data specific to HIV care and treatment are
available.[48;53]

One recent study found that private providers in Pune, India are offering HIV
diagnosis and treatment but the methods employed are not always conforming to international
best practice guidelines. Private health providers were conducting HIV testing without
informed consent and without knowledge of validated testing kits. They were also
prescribing inappropriate ART regimens.[17;54;55] We have done similar studies and
identified similar patterns of practice among private health care providers in urban areas such
as Pune and Mumbai. [44;49](unpublished data)

WHO, the Indian government and many international agencies have called for public-
private partnerships to stem India’s HIV crisis.[18;48;55] An example of apparently
successful public-private partnerships to combat HIV is in the realm of community-based
voluntary testing and counseling (VCT) through the help of NGOs. Care and treatment,
however, have not been coordinated. Some of the recent success documented with TB
control provides hope that mixed public-private strategies for HIV care and treatment are
likely to be beneficial on both a macro and micro-economic as well as health perspective.

Recommendations

What can be done to promote quality public-private partnerships for HIV care and
treatment? Some key recommendations are as follows:

Market-based Approaches

• Contract with licensed/certified clinical laboratories, private providers and
  pharmacies
  o Provide incentives of low-cost or free laboratory reagents so long as
    those laboratories are willing to participate in quality assurance
    programs on an ongoing basis
  o Provide subsidized drugs to pharmacies that are willing to undergo
    quality assurance programs (e.g. maintain proper dispensing practices
    to patients and maintain high quality records)
• Establish provider networks of HIV experts at the local and state level
• Perform social marketing of preferred private providers, laboratories and
  pharmacies

Administrative Approaches

• Establish rules and regulations for prescribing and dispensing ART
- Certify providers that can prescribe ART
- Certify pharmacies that can dispense ART
- Certify laboratories that can perform HIV diagnostics and monitoring tests
- Enforce above-mentioned regulations

**Public Empowerment Approaches**

- Inform, educate, and communicate (IEC) with the formal private sector (i.e. registered allopathic and non-allopathic providers). Provide information about best practices for HIV care and management.
  - Provide free-access to ongoing, high-quality continuing medical education
- Mobilize NGOs to serve as the bridge between the HIV-infected population, and the network of public and private providers, laboratories, and pharmacies that are committed to the best HIV care and treatment practices

**Other Approaches**

- Design studies that measure the impact of the above-mentioned interventions to assess whether they are effective and cost-saving
- Have a diverse menu of private-public mix strategies that are selected by consensus with key public and private players at the state and local level

In summary, to optimize HIV/AIDS care in India, it is critical that the private sector is engaged effectively alongside the public sector, in particular for the successful management of curative services in the outpatient arena. It is likely that a combination of strategies that are tailored at the state and local level, and not simply one strategy, will be the most effective. The combination will need to include regulatory activities such as regulation of pharmacies (licensing only those pharmacies qualified to dispense ARVs), regulation of providers who are competent and up-to-date on the management of HIV and who can ensure a minimum standard of quality, and IEC strategies directed towards not only the providers in the community but also the consumers -- the HIV-infected people of India. The training and quality assurance of physicians may take the form of certification processes such as continuing medical education credits. Lastly, measurement of access, quality, and clinical
outcomes in a standardized fashion is necessary. Determining which methods of mixed public-private health care are efficient, cost-effective and of high quality will ensure the most appropriate allocation of resources in a country where the health care budget is very limited. The strategies that prove successful will have to be ongoing and sustainable. The time has come to actively engage the private health sector alongside the public sector, only then will the fight against HIV/AIDS be successful in India.
Reference List


[44] Ramachandani S, Mehta S, Saple DG, Vaidya S, Pandey V, Vadrevu R et al. Knowledge, attitudes, and practices of antiretroviral therapy among HIV-infected persons attending public and private clinics in India. AIDS Patient Care and STDs. 2006; [In press].


Table 1. A Comparison of key sociodemographic, economic and health indicators of India, China, South Africa and the United States

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>India</th>
<th>China</th>
<th>South Africa</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, millions</td>
<td>1103</td>
<td>1323</td>
<td>47</td>
<td>298</td>
</tr>
<tr>
<td>Urban, %</td>
<td>27</td>
<td>31</td>
<td>49</td>
<td>79</td>
</tr>
<tr>
<td>Population growth, %</td>
<td>1.6</td>
<td>0.6</td>
<td>0.8</td>
<td>1</td>
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<tr>
<td>Adult Literacy</td>
<td>60</td>
<td>86</td>
<td>86</td>
<td>97</td>
</tr>
<tr>
<td>Life expectancy, years</td>
<td>62</td>
<td>72</td>
<td>48</td>
<td>77.5</td>
</tr>
<tr>
<td>Maternal mortality rate per 100,000</td>
<td>540</td>
<td>56</td>
<td>230</td>
<td>17</td>
</tr>
<tr>
<td>Infant mortality rate per 1000 live births</td>
<td>60</td>
<td>25</td>
<td>60</td>
<td>7</td>
</tr>
<tr>
<td>Per capita GNI, $</td>
<td>3100</td>
<td>1100</td>
<td>10980</td>
<td>39710</td>
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<tr>
<td>Per capita government health expenditure, $</td>
<td>20</td>
<td>101</td>
<td>258</td>
<td>2548</td>
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<tr>
<td>Government expenditure for HIV, domestic sources</td>
<td>73.3</td>
<td>99.2</td>
<td>446</td>
<td></td>
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<tr>
<td>Number of HIV, millions</td>
<td>5.7</td>
<td>0.65</td>
<td>5.5</td>
<td>1.2</td>
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<tr>
<td>Adult HIV seroprevalence, %</td>
<td>0.9</td>
<td>0.1</td>
<td>18.8</td>
<td>0.6</td>
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<tr>
<td>Deaths due to AIDS per year</td>
<td>450,000</td>
<td>31,000</td>
<td>320,000</td>
<td>16,000</td>
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<tr>
<td>Receiving antiretroviral therapy, %</td>
<td>7</td>
<td>unk</td>
<td>21</td>
<td>70</td>
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Legend: Data sources from references [1;2;40;42;56;57]
Table 2. Characteristics of public sector versus private sector health care in India

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Public</th>
<th>Private</th>
</tr>
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<tbody>
<tr>
<td>Percent of GDP</td>
<td>5%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Financed by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax and non-tax revenue</td>
<td></td>
<td></td>
<td>Household out-of-pocket expenditure</td>
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<tr>
<td>Doctors*</td>
<td>1,324,578</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Nurses*</td>
<td>867,000</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Hospitals*</td>
<td>71,860</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>Hospital beds*</td>
<td>1,217,427</td>
<td>36%</td>
<td>64%</td>
</tr>
</tbody>
</table>

*Numbers are estimates

NR: specific breakdown not reported

Adapted from references [6;7]
Figure. The public and private sector shares in service delivery across India.

Adapted from references [6;7]