

**Who is Bearing the Cost
of the AIDS Epidemic in Asia?**

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Abstract

This chapter infers the distribution of AIDS costs in India, Indonesia, and Thailand from data on the costs of detecting and treating AIDS and from information on the nature of different countries' health care finance systems and related institutions. The main finding is that the AIDS epidemic will contribute to increased economic inequality in these countries because (a) it is disproportionately affecting low-income groups and (b) public and private institutions that could spread the costs of the epidemic (for example, health, life, disability, and social welfare insurance) are relatively limited and do not reach the majority of the populations. The chapter also develops a new approach to measuring AIDS medical care costs that yields estimates of US\$738 per case in India and US\$1490 per case in Indonesia. Finally, the chapter discusses the political economy of HIV prevention and speculates that more effective control of the epidemic may result from a system in which the government pays for the medical care costs of AIDS than one in which individuals with AIDS and their families bear most of the costs.

Biographical Material

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Who Is Bearing the Cost of the AIDS Epidemic in Asia?

During the past two decades, the human immunodeficiency virus (HIV) that causes acquired immune deficiency syndrome (AIDS) has been introduced into the populations of many countries in both the developed and the developing world. Because of the long lag (an average of eight to ten years) between the time of HIV infection and the onset of AIDS symptoms, most individuals who carry the HIV are unaware that they are infected and, more important, that they may be infecting others through unprotected sex, blood donations, reused needles, and so on. Perhaps the most dangerous feature of the HIV is that it can spread silently through a population for many years before it overtly signals its presence.

Because HIV disproportionately infects individuals in their prime working years (see, for example, Over and Piot, forthcoming), who typically die within two years of the onset of AIDS symptoms (sooner in developing countries), and because the disease is relatively expensive to treat, the epidemic may have important economic impacts. An expanding literature within the field of economics has sought to quantify the epidemic's actual and potential costs. By applying standard methods for measuring the costs of illness, economists have established that the per case costs of AIDS are high relative to those of other serious illnesses. (For example, see Bloom and Carliner 1988 for the U.S., Eastwood and Maynard 1988 for the United Kingdom, Hassig and others 1990 for a study on Zaire, and Chela, Campbell, and Siankanga 1989 for Zambia). This finding implies that the aggregate cost of the epidemic will also be high if many people are infected.

Beyond the aggregate cost of AIDS, the distribution of those costs is of considerable significance. Those who potentially bear the cost of AIDS are: (a) individuals who develop AIDS and their families and friends, (b) employers of individuals with AIDS, (c) health and life insurance companies, (d) health care providers, (e) users of the health care system that do not have AIDS, (f) taxpayers, and (g) international agencies and charitable organizations. Despite economists' interest in measuring the costs of AIDS, they have devoted little attention to the distribution of those costs. In addition to helping define the structure of incentives that can affect the future course and costs of the epidemic, the distribution of costs may have important implications for economic inequality.

The main objective of this chapter is to examine the distribution of AIDS costs in selected Asian countries. As no data are available that directly measure who pays those costs, their distribution is inferred by applying standard economic reasoning to basic information on the costs of detecting and treating AIDS, and on the nature of different countries' health care systems and related institutions. The countries studied are India, Indonesia, and Thailand, which differ considerably from each other in the nature and financing of their health care institutions, income levels, patterns of HIV transmission, and current and projected incidence of the HIV and AIDS (see table 1).

Our main finding is that the AIDS epidemic is contributing to increased economic inequality in these countries because (a) it is disproportionately affecting low-income groups, and (b) public and private institutions that could spread the costs of the epidemic (for example,

health, life, disability, and social welfare insurance) are relatively limited and do not reach the majority of the population. We also discuss the political economy of HIV prevention and question the applicability of the view that concentrating AIDS costs upon individuals that have AIDS will promote control of the epidemic.

The Cost of AIDS

AIDS costs can be separated into direct and indirect components. Direct costs refer to the value of scarce resources that must be diverted to prevent, diagnose, and treat AIDS. As measuring expenditures on prevention is extremely difficult, the discussion that follows will use the term direct medical care costs to refer solely to the costs of diagnosis and treatment. Indirect costs refer to the value of income foregone because of AIDS-related morbidity and mortality. (For a discussion of the computation of indirect costs in this context see Bloom and Mahal 1992; Glied 1990.) Because they are so difficult to measure, the psychological costs associated with illness-related morbidity and mortality are not typically included in cost of illness studies.

Table 2 reports direct medical care cost estimates for India, Indonesia, and Thailand. The direct medical care cost estimates for Thailand and the lower bound estimate of direct medical care costs for India come from independent studies. The estimates for India and Indonesia are derived in this chapter.

The standard approach to estimating AIDS medical care costs involves analyzing hospital data on costs or charges associated with treating AIDS and its symptoms (see Bloom and Carliner 1988). This approach is, however, prone to underestimation as individuals may receive treatment

from a number of medical facilities and personnel or may treat themselves. This source of bias is an especially relevant concern in the countries under study. Thus, we develop and apply an alternative method for estimating the medical care costs of AIDS based on three sources of information: (a) the distribution of AIDS symptoms expected in a developing Asian population; (b) the number of medical examinations and hospital days and the nature of the drug treatments typically prescribed for various AIDS symptoms; and (c) the unit cost of medical examinations, hospital days, drugs, and HIV tests in each country. Tables 3 and 4 provide details of the cost calculations.

The estimates of direct medical care costs are reasonably close-- between US\$738 and US\$1522--for the different countries, even though their national per capita income varies by a factor of nearly four. This result mainly reflects (a) the similar range of treatments in the different countries, for example, none of these countries use AZT, DDI, or aerosolized Pentamidine on a regular basis; and (b) the importance as a component of cost of tests and drugs whose prices vary relatively little across countries.

We estimate indirect costs by assuming that an individual infected with the HIV foregoes earnings of GDP per adult from the age at which he or she becomes symptomatic (assumed to be 35) to the average retirement age in his or her country (assumed to be 60). GDP per adult may overstate the true earnings loss given the evidence (cited and discussed below) that the epidemic is disproportionately affecting low-income groups. But this bias is presumably offset by the assumption of no future economic growth and the assumption of no family earnings loss caused by other family

members foregoing work or school to care for the individual with AIDS. We also assume a real discount rate of 3 percent. The resulting indirect cost estimates (shown in table 2) are considerably larger than the direct medical care costs and exhibit much greater variation across the countries.

The third column in table 2 shows the sum of direct and indirect AIDS cost estimates for each country. The resulting figures indicate that an AIDS case costs about US\$11,000 in India, US\$16,000 in Indonesia, and US\$36,000 in Thailand. The fifth column multiplies the per case costs by the number of cases currently projected through the year 2000 (reported in table 1) to project the cumulative aggregate cost of AIDS by the year 2000. These estimates range from US\$81 million for Indonesia to US\$11 billion for India to US\$18 billion for Thailand. The figures for India and Thailand are sizable, representing 5 percent and 23 percent of their respective 1990 GDP's. Note, however, that these projected cumulative AIDS costs will occur in the future, and that they will be spread over many years and have not been fully discounted.

The Distribution of AIDS Costs

The preceding section identified the components and magnitude of AIDS costs in the three countries under study. The purpose of this section is to examine the distribution of those costs among different payers.

The Distribution of Indirect Costs

Lost income is considerably larger than AIDS medical care costs. In the three countries under study, individuals with AIDS and their families tend to bear the burden of lost income, mainly because relatively few

people have disability or life insurance. For example, in 1987 fewer than one in fifteen working-age Indians had any life insurance coverage (Balachandran 1987). Even among those with life insurance, coverage amounts are typically small in relation to annual earnings. Calculations based on Indian data reported in Balachandran (1987) indicate that the amount insured per policy averaged around US\$1230 (assuming \$1 = Rs 13), only about five times per capita income in India and considerably less than the average income loss due to AIDS. As relatively few people are covered and insurance levels are relatively low among those covered, the total amount of life insurance coverage is low in all three countries. In Indonesia the amount insured under life insurance was 6 percent of the national income in 1988, while in Thailand the corresponding figure was 16 percent. In contrast, the figure for Japan was 165 percent (American Council of Life Insurance 1990). Rough calculations, based on data reported in Balachandran (1987) and World Bank (1988) suggest that the corresponding figure for India was 16 percent in 1987.

Coverage rates in all three countries are highest among government employees, employees of large firms, and high-income groups, but these individuals tend to be relatively well educated and at low risk for contracting the HIV given current transmission patterns in these countries. As social assistance benefits (for widows, orphans, and so on) are also limited in these countries, public insurance does not effectively spread the income losses associated with AIDS morbidity and mortality beyond the immediate, or perhaps the extended, family of the individual with AIDS.

Personal income losses because of AIDS morbidity and mortality do not translate directly into income losses from the standpoint of society. For

example, in a pure labor surplus economy, (that is, one in which an unlimited number of workers can be hired at the going wage), personal income losses that result when individuals with AIDS are unable to work are perfectly offset by personal income gains to other previously non-employed individuals who take their jobs, with no net impact on national income. Insofar as both India and Indonesia have many features of classic labor surplus economies (at least in certain industrial and occupational sectors), personal income losses probably overstate national income losses associated with AIDS mortality.

At the other extreme, in a fixed labor supply economy, personal income losses represent only one component of social losses, with an additional component arising from the loss of profit accruing to firms that hire less labor at a higher wage (provided the demand for labor is not completely insensitive to the wage rate). In a competitive economy in which labor is not the only factor of production, this loss of profit will lead to higher output prices, forcing consumers to bear some of the economic burden of AIDS. In this situation, which is likely to be applicable to the case of Thailand as Thai labor markets are generally tight (including the market for long-haul lorry drivers, as detailed in the chapter by Giraud in this volume), AIDS mortality improves the economic well-being of workers who do not have AIDS; diminishes the well-being of consumers, who must pay higher prices for goods and services; and generates social losses that exceed personal income losses. (Employment increases will generally result from higher output prices, but they will not outweigh the initial employment losses associated with AIDS mortality. See Bloom and Mahal 1992.)

AIDS mortality could have further adverse implications for private and social well-being if the epidemic attacks a critical resource that is available in relatively fixed supply, such as educated labor. (See Lucas 1988 and Romer 1986 for general analyses of beneficial spillover effects associated with an economy's accumulation of human capital.) In this scenario, the epidemic could disrupt an economy beyond the level captured by the output lost due to AIDS deaths by leading to output reductions in other firms and sectors. However, because the epidemic in India, Indonesia, and Thailand is not heavily concentrated among the skilled workforce (as opposed to the situation in Africa), costs are not likely to be appreciably magnified and spread through this mechanism.

For the impact of AIDS on the educated work force in Africa, see Hassig and others (1990) and Hira and others (1990). For Asia, available evidence suggests a relatively greater impact on the low-skilled, in particular, commercial sex workers, migrant workers, and commercial blood donors. For example, with respect to the case of India see Bailey (1991), Bhattacharya (1992), McDonald (1992), Nataraj (1990), and National AIDS Control Programme, India (1992), and with respect to the case of Thailand see the chapter by Viravaidya, Obremskey, and Myers in this volume. See also the chapter by Thant in this volume for a discussion of the incidence pattern among ethnic groups and commercial sex workers in various Asian countries. Although these studies generally suggest disproportionately high rates of HIV infection among individuals with relatively low socioeconomic status, the fact that none are based on nationally representative samples is a notable qualification to some of our results. Indeed, most of the reported cases of HIV infection and full-blown AIDS in these countries are among middle and upper class individuals since they

are more likely to see medical personnel and undergo HIV testing. On the other hand, personal communications with epidemiologists in India, Indonesia, and Thailand all highlight a growing connection between HIV infection and low income, based on patterns of infection among commercial sex workers who serve different income groups, patterns in the prevalence of other sexually transmitted diseases (an important cofactor of HIV infection) among commercial sex workers and their clients, and health practices among different socioeconomic groups.

The Distribution of Medical Care Costs

Medical care costs are incurred when individuals are diagnosed and treated for AIDS. Table 4 breaks down the components of these costs, namely, HIV tests, physician consultations, drugs, and days spent in the hospital.

Although diagnosis and treatment protocols vary across patients, especially those in different income classes, and may include services not considered in table 4 (for example, x-rays and the use of respirators for tuberculosis cases), the typical protocol for treating AIDS in all three countries involves prescribing drugs to alleviate the common symptoms of the disease (see table 3). Relatively expensive drugs such as AZT, DDI, and aerosolized Pentamidine, which are used widely to treat AIDS in wealthy industrialized countries, have thus far been used only rarely in the developing countries of Asia. (However, Handley (1992) reports the possibility of clinical trials for various new AIDS drugs in Thailand in the near future and India is reported to be well on its way to manufacturing AZT domestically.)

While treatment protocols are similar, the institutions that provide

these treatments differ greatly across the three countries. These differences are likely to have a significant impact on the distribution of medical care costs among different payers. The appendix describes the health care systems of India, Indonesia, and Thailand. There are three key points to note with respect to this information. First, each country operates both a public and a private health care system. High income groups and urban populations tend to rely on the private health care system (see Griffin 1990), which is the larger of the two components in each countries' overall system. For example, over 60 percent of all health care spending in India occurs through the private system (see Berman 1991; Griffin 1990). Moreover, the private system charges user fees that generally cover the full cost of medical care (although each country's private sector has some voluntary hospitals that effectively provide subsidized care). Such arrangements will tend to concentrate the personal medical care costs associated with AIDS upon the individuals living with AIDS and their families.

Second, Indonesia and Thailand (but not India) charge user fees for public health care. Although these fees do not cover the full costs of the health care provided, they are designed to recover a significant portion of them. Such fees place a significant burden of medical care costs upon AIDS patients and their families.

Of the three countries under study, AIDS medical care costs will be spread most widely in India, given the absence of user charges by its public health care system. However, the absence of such charges results in relatively long lines at Indian public hospitals and clinics, thereby increasing the cost of the epidemic by the value of the time spent seeking

medical care. These costs are heavily concentrated upon individuals living with AIDS and their families.

Third, all three countries have health insurance schemes that will spread AIDS medical care costs among all their participants. However, these schemes involve relatively small fractions of the population in each country: 4 percent in India, 8 percent in Indonesia, and 30 percent in Thailand (Griffin 1990). The insurance schemes in India and Thailand provide coverage to low-income individuals, although little is known about the extent of the coverage. All three countries have cooperatives to provide free health care to rural populations, but membership in these cooperatives is limited (see Roemer 1991; Griffin 1990). Most insurance schemes in these countries are employment-based. However, these schemes are generally funded on a capitation basis, implying that premiums do not vary with the payout experience of individual organizations. As a result, the insurance systems do not provide employers with an incentive to treat employees differently who have, or are perceived to have, different HIV status. (For a contrasting case, in which employer incentives for differential treatment will lead AIDS costs to become concentrated on individuals perceived to have AIDS, see Bloom and Glied 1991.)

As epidemiological evidence suggests that the HIV is disproportionately affecting low-income groups in all three countries, and institutions for spreading health care costs are limited, it follows that AIDS medical care costs are likely to increase the inequality of economic well-being in these countries and contribute to further immiseration of the poor.

The National and International Division of AIDS Costs

The AIDS epidemic in Asia has evoked an international aid response. This response has focused mainly on measures to control the spread of HIV infection, rather than on the care of individuals with AIDS. For example, the objectives of the Indian National AIDS Control Project (which will receive most of its funding -- over US\$85 million over the next five years -- from the International Development Association and the World Health Organization (WHO)), include increasing public awareness of HIV/AIDS, improving blood safety, expanding the AIDS surveillance system, and controlling the spread of other sexually transmitted diseases. Similarly, a recent WHO grant of US\$630,000 for Indonesia in 1992 provides technical assistance to support blood screening. The WHO is also providing technical assistance to support AIDS surveillance and health education in Indonesia.

Future research might well focus on the determinants of international aid for HIV/AIDS. For example, does altruism underlie the behavior of international donors? If so, why are donor agencies not emphasizing the priorities of national governments, focusing their aid more heavily on prevention than care? Alternatively, are international donors mainly interested in protecting national economies from the potentially crippling effects of AIDS to safeguard existing loans and investments and the development of future markets for products from their countries (or from the countries of their main principals)? Or is another motive to protect their own economies and societies from the international transmission of the HIV? Finally, to what extent is international aid in this area motivated by a concern that national AIDS policies are not sufficiently forward looking, perhaps as a consequence of election cycles

or national budget constraints?

Discussion and Conclusions

The distribution of AIDS costs is of concern to economists because of its implications for the inequality of economic well-being. With respect to the AIDS epidemic in Asia, the foregoing analyses suggest that the current distribution of costs, in conjunction with the socioeconomic characteristics of individuals with AIDS in these countries, is likely to promote increased inequality. In particular, AIDS costs are heavily concentrated upon individuals with AIDS and their families who, as current epidemiological evidence suggests, are being drawn disproportionately from the relatively poorer segments of the Indian, Indonesian, and Thai populations. Thus, it appears that AIDS is having a regressive economic impact in the Asian countries under study. By contrast, AIDS costs are spread much more widely in the United States, where private health, life, and disability insurance are considerably more widespread, and where taxpayers support a large system of public health care and social welfare programs (see Bloom and Carliner, 1988).

In addition to its implications for increasing the inequality of economic well-being, the distribution of AIDS costs may also affect economic efficiency by altering the epidemic's future course. An economic system that concentrates the costs of the epidemic on individuals with AIDS and their families will increase individuals' incentives to avoid HIV infection (as argued, for example, by Kristol 1992), but presumably those incentives are already quite large, especially in Asia, where lost income is the dominant portion of private AIDS costs and is borne almost entirely

by the individuals with AIDS and their families. Moreover, most individuals are probably not sufficiently well informed about the dangers associated with various high-risk activities to behave in such a way as to avoid them. Further, even if the dangers are perceived accurately, they are associated with costs that may be incurred well into the future, and that may be heavily discounted in individual decisionmaking, especially in developing countries where the future may already be clouded by other uncertainties. Thus, economic systems that concentrate AIDS costs upon individuals with AIDS may not, as some believe, promote increased control of the epidemic.

At the other end of the cost sharing spectrum are economic systems in which the government pays the bills associated with AIDS and thereby spreads the costs among taxpayers. Such systems are usually rationalized on the grounds that they improve the distribution of economic resources in society, that is, they improve equity. Standard economic reasoning suggests that the share of costs the government bears should have no effect on its incentives to pursue programs that promote economic efficiency. Maximization of social welfare requires that governments pursue policies that promote economic efficiency by correcting market failures, intervening in the market in ways that control the epidemic. For example, such intervention is desirable under any distribution of costs if government officials are better informed than the public about how the disease spreads, or if society has a lower discount rate than members of high risk groups. Government intervention is also justified to remedy negative externalities associated with the possibility that private individuals undervalue the costs they impose upon other members of society when they engage in high risk behavior.

However, characterizing governments as promoters of economic efficiency may be inappropriate. Popularly elected officials may be reluctant to divert scarce resources to controlling an epidemic that is currently almost invisible, and that will not be blatantly obvious for years. In addition, the groups that are currently at highest risk of developing the disease are often marginalized and may have little political power (for example, intravenous drug users, commercial sex workers, and homosexuals). Finally, governments may simply not have the fiscal flexibility to devote resources to AIDS prevention and care.

If Asian governments behave short-sightedly for any or all of these reasons (liquidity constraints, the distribution of political power, or public myopia), instead of purely promoting economic efficiency, their behavior with respect to the AIDS epidemic may be affected by their country's health care financing system. Governments whose treasuries are strained by the epidemic may behave differently than governments whose treasuries do not feel the burden of AIDS costs. Indeed, it may be efficiency enhancing to distribute costs in ways that strengthen policymakers' incentives to overcome their myopia and correct any market failures that exist.

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Table 1. Incidence and Projections of HIV Infection and AIDS in India, Indonesia, and Thailand (number of people)

Country	Reported Incidence (Cumulative)		Estimated Incidence (Current)	Year 2000 Projections (Cumulative)	
	AIDS	HIV+	HIV+	AIDS	HIV+
India	116 ^a	7,272 ^a	1 million ^e	1 million	5-7 mil.
Indonesia	24 ^b	46 ^b	2,500	5000	50,000
Thailand	2135 ^c	34,545 ^d	450,000	500,000	3 mil.

a. As of April 1992.

b. As of October 1992.

c. As of September 30, 1992.

d. As of October 1991, after which this statistic was no longer reported.

e. Expected incidence as of December 31, 1992.

Sources: Reported incidence of HIV and AIDS for India: WHO (1992); estimated incidence and projections for India: private correspondence with Dr. James Chin; reported and estimated incidence of HIV and AIDS for Indonesia: Jakarta Post (1992), and correspondence with Dr. George Loth; projections for Indonesia: correspondence with Dr. George Loth; reported incidence of HIV and AIDS for Thailand: UNDP (1992) and private correspondence with Mr. Steven Kraus; estimated incidence and projections for Thailand: private correspondence with Mr. Steven Kraus and Ministry of Public Health, Thailand (1992).

**Table 2. Estimated Costs of the AIDS Epidemic in India, Indonesia, and Thailand.
(1991 US\$)**

Country	Direct Costs per Case (A)	Indirect Costs per Case (B)	Total Costs per Case (A) + (B)	Projected AIDS Cases by 2000 (See Table 1) (C)	Aggregate Cost C*(A + B)
India	738*	10,100	10,838	1 million	11 billion
Indonesia	1,490*	14,680	16,170	5,000	81 million
Thailand	987-1,522	34,322	35,309-35,844	500,000	18 billion

Note: These figures do not take into account direct costs associated with the prevention of HIV infection.

a. These direct cost figures are the arithmetic mean of the full cost of treatment in the public and private sectors in India and Indonesia respectively.

Sources: Direct Costs for India: World Bank (1992) and authors' calculations based on data from physicians at Madras Medical College (see table 4); direct costs for Indonesia: authors' calculations (see table 4); direct costs for Thailand: Viravaidya, Obremskey, and Myers in this volume; indirect costs are based on the following assumptions:

- on average individuals with AIDS leave the labor force at age 35 in all three countries
- the social discount rate is 3 percent
- individuals retire from the work force at age 60
- average annual earnings equal GDP/adult (US\$ 580 in India, US\$ 843 in Indonesia and US\$ 1,971 in Thailand (World Bank 1991)).

Table 3. The Cost of Drug Therapies to Treat Opportunistic Infections Associated with AIDS in Indonesia

<u>Infection</u>	<u>Proportion of AIDS patients affected (%)</u>	<u>Episodes (Length of Treatment)</u>	<u>Drugs</u>	<u>Total drug cost (per month) (US\$)</u>
Tuberculosis	61	1 (6 months)	INH	4.15
			Myambutol	5.40
			Rifamycine	40.50
			Thiacetazone	5.00
Oral candidiasis	60	2-3	Acyclovoir	25.00 (per episode)
Chronic fever	52	1 (1 month)	Tylenol	5.00
Chronic diarrhea	25	1 (1 month)	Oral rehydration therapy solution	5.00
Cryptococcal meningitis	13	1 (10 days)	Ampicillin or amoxycillin	30.00 (per episode)
Pneumocystis carinii pneumonia	6	1 (1 month)	Bactrim	40.00

Source: correspondence with Dr. George Loth. The expected pattern of opportunistic infections is based upon the actual experience of a particular sample of individuals in Thailand.

Table 4. Components of the Cost of Diagnosing and Treating HIV Infection in India and Indonesia

Country and System	Services provided (unit)	User cost as a % of full cost	Full cost/unit (1991 US\$)	Number of units/case	Full cost/case (1991 US\$)
<i>India</i>					
Public health care system	Tests				
	ELISA	0	1.00-3.50	1	1-4
	Western Blot	0	24.80-35.50	1	25-36
	Consultation/visit	0	3.00 ^{a,b}	20	60
	Drugs ^c	0	10.60-17.70	20	212-354
Hospital (day)	0	2.00-16.00 ^{a,b}	25	50-400	
Private health care system	Tests				
	ELISA	100	10.60	1	11
	Western Blot	100	24.80-35.50	1	25-36
	Consultation/visit	100	1.00-9.00 ^b	20	20-180
	Drugs	100	10.60-17.70	20	212-354
Hospital (day)	100	4.00-32.00 ^b	25	100-800	
<i>Indonesia</i>					
Public health care system	Tests				
	ELISA	100	3.00	1	3
	Western Blot	100	40.00	1	40
	Consultation/visit	30-50	.30-8.20	12-15	4-123
	Drugs	10-50	-	-	249 ^d
Hospital (day)	20-50	5.00-59.00	30	150-1770	
Private health care system	Tests				
	ELISA	100	5.00-7.00	1	5-7
	Western Blot	100	40.00	1	40
	Consultation/visit	100	2.50-12.00	12-15	30-180
	Drugs	100	-	-	249 ^d
Hospital (day)	100	25.00-59.00	30	750-1770	

- = not available

- a. Based on private cost of treatment and our assumption that the full cost of hospitalization and treatment in the public sector is less than in the private sector.
- b. We have assumed that these figures (from World Bank (1992) and from correspondence with Chandna Salgaocar and Sanjay Chaudhry) do not include drug costs.
- c. The drugs administered provide treatment for symptoms of AIDS and do not include drugs that treat the actual HIV infection.
- d. Expected drug costs based on table 3.

Sources: India: Madras Medical College data; National AIDS Control Programme, India; World Bank (1992); correspondence with Chandana Salgaocar and Sanjay Chaudhry.
Indonesia: correspondence with Dr. George Loth and Hilman Akil.

Appendix: Background Information

Table A1. India

System	Description
<p>Public system</p> <p>Health Centers</p>	<p>The Ministry of Health and Family Welfare operates a system of public health centers. The various health centers are organized in a hierarchical structure, ranging from community health centers that offer out-patient and limited in-patient care, to village health guides that offer primary health services and health education to the rural population. The community health centers each serve approximately 100,000 people. The primary health centers have a smaller medical staff than the community health centers and each serve 20,000 to 30,000 people. Subcenters, which are staffed by para-professional health workers, each serve roughly 3,000 to 5,000 individuals. The subcenters tend to be used by the poorer population, which would otherwise depend on traditional or Ayurvedic practitioners. Approximately 64% of India's population has access to the public health care system. There are no user charges for the services offered at public health centers.</p>
<p>Hospitals</p>	<p>Approximately 75% of all hospital beds are publicly administered. Most of the beds in public hospitals are used by low-income patients, and there is no charge for their use.</p>
<p>Private system</p> <p>Physicians</p>	<p>Private physicians (numbering 331,000 in 1987) practice mainly in large cities. General practitioners often price discriminate, charging rich patients more than poor patients. Specialists treat mainly wealthy patients in urban areas. Among all physicians, including those in the public sector, 60% of physician time is spent treating private patients.</p>
<p>Central Government Health Insurance Corporation (CGHIS)</p>	<p>The CGHIS provides health insurance for all central government employees. There were approximately 3.3 million government employees in 1987. The CGHIS operates its own health care facilities, which include 293 clinics.</p>

<p>Employee State Insurance Corporation (ESIC)</p>	<p>The ESIC provides health insurance for employees of firms with 20 or more workers. Employees who earn less than Rs.1600/month are eligible, but must contribute 2.25% of their salaries, while employers must contribute 5% of total wages payable. State governments contribute about 12.5% of ESIC expenditures. Workers who earn less than Rs.6/day are not required to contribute but are entitled to all the benefits. The ESIC operates dispensaries and clinics that are staffed by physicians and offer out-patient treatment. The ESIC administers its own hospitals and reserves beds for its beneficiaries at public hospitals. As of 1987, approximately 28 million people were covered by the ESIC.</p>
<p>Hospitals</p>	<p>Private hospitals generally provide more amenities and have more modern medical equipment than do government hospitals. Approximately 25% of the total hospital bed supply is administered by the private sector, which includes voluntary and religious hospitals. These hospitals serve predominantly wealthy patients, but do reserve some beds for poorer patients. Patients must pay for the services provided.</p>

Sources: Bhatnagar (1985); Directorate General of Health Services (1990); Roemer (1991); Ron, Abel-Smith, and Tamburi (1990); correspondence with Chandana Salgaocar.

Table A2. Indonesia

System	Description
Public system	
Health centers	<p>There are two types of permanent public health facilities in Indonesia: <i>puskesmas</i> (health centers) and <i>puskesmas pembantu</i> (health subcenters). <i>Puskesmas</i> provide preventive, maternal and child health care, and outpatient health services. As of 1986, 14 percent of the population had access to <i>puskesmas</i>. There are approximately 5,000 <i>puskesmas</i>, and fewer than 3 percent of these offer in-patient services. The <i>puskesmas pembantu</i> consist of a small clinic, Balai Pengobatan, and a maternal and child health center, <i>Resehatan Ibu Dan Anak</i>. The <i>puskesmas pembantu</i> are usually headed by a nurse or midwife. The <i>puskesmas pembantu</i> provide more coverage to rural areas than do <i>puskesmas</i>. However most people in rural areas do not use these facilities, depending instead on traditional healers, private physicians, and medication from private drug stores. <i>Puskesmas</i> and <i>puskesmas pembantu</i> charge user fees that vary considerably across the country.</p>
Hospitals	<p>Public hospitals are operated by the Ministry of Health and are divided into four classes that differ by the quality of the medical services they offer. There are user fees at the public hospitals. The poorer population generally uses these hospitals, as the fees are lower than in private hospitals. Even though the majority of the population is poor, the Ministry of Health hospitals have low occupancy rates. The Ministry of Defense also operates certain public hospitals.</p>
Service posts (<i>Posyandu</i>)	<p>These are not permanent facilities, but exist on a temporary basis as monthly clinics. The staff is comprised of village health volunteers (<i>kaders</i>) and aids from the <i>puskesmas</i>. The <i>posyandu</i> serve mainly populations in rural areas as <i>puskesmas</i> are often not able to serve these areas.</p>
Private system	
Physicians	<p>Seventy percent of Indonesian physicians serve urban populations that constitute 25% of the population. Most Indonesian doctors work for the government, but also practice privately. Medical school graduates are expected to fulfill a two- to five-year mandatory term of working for the government.</p>
Hospitals	<p>Approximately 23% of hospitals are private nonprofit, while 47% are private for profit. Private hospitals tend to provide higher quality care than public hospitals. The private sector is the predominant provider of inpatient health care. Private hospitals are required by the government to reserve 10% of their beds at the lowest room rate for poorer patients.</p>

ASKES	<p>ASKES is a health insurance scheme for government employees and their families that covers an estimated nine percent of the Indonesian population. Government employees must use health facilities operated by the Ministry of Health, with ASKES covering all fees. The program is funded by a two percent salary deduction from all government employees.</p>
PKTK	<p>PKTK is a voluntary health insurance scheme for private employees that requires participants to use the puskesmas. The scheme is funded by a seven percent salary deduction from all participating employees. Many employees are deterred from joining the program due to the relatively high cost.</p>
Dana Sehat	<p>This is a health insurance scheme for rural villagers to cover user charges at puskesmas. The premium is approximately 40-50 rupiahs/month.</p>

Sources: Kurian (1992); Roemer (1991); World Bank (1989).

Table A3. Thailand

System	Description
Public system	
Hospitals	<p>There are two types of public hospitals in Thailand administered by the Ministry of Public Health: provincial and district hospitals. Provincial hospitals provide more advanced medical care than do district hospitals and are larger. All public hospitals charge user fees.</p>
Health centers	<p>Commune health centers are operated by the Ministry of Public Health and provide primary health care services to rural populations. In general, individuals tend to use private drug stores more than health centers. People from urban areas more frequently consult private physicians than health centers.</p>
Village drug cooperatives	<p>These cooperatives are operated by the Ministry of Public Health to provide rural populations with drugs through the public health center structure. They are run by village health volunteers and village health communicators working for the ministry. The cooperatives are funded through private contributions of approximately US\$1 per family.</p>
Health Card Fund	<p>This is an insurance scheme that provides up to four members of each enrolled family with free care at the health centers six times per year and a 10% discount at the village drug cooperative. Enrollment costs US\$12/year.</p>
Private system	
Physicians	<p>Only 10% of Thailand's physicians are engaged in private practice full time. The remaining 90% work for the Ministry of Public Health and most also engage in private practice. The urban poor and rural populations receive little private physician care.</p>
Hospitals	<p>There are 989 hospitals in Thailand, and approximately 25 percent are privately run. Of all private hospitals, one-third are nonprofit and two-thirds are for profit. Private hospitals provide relatively high quality services to patients in terms of staffing, room conditions, and medical care.</p>
Insurance schemes	<p>A number of insurance schemes exist for public and private employees. Government employees are entitled to free medical care at facilities operated by the government. Private companies often offer their own medical services to employees or contract with public and private health facilities to serve their employees. Firms having more than 500 employees are required to provide a physician on call to their employees.</p>

Social security system	As of March 1991, the Thai government launched a social security system to provide health care for employees. Enterprises with 20 or more workers are covered. In the next few years, social security coverage will be extended to include smaller enterprises. This system is funded by the government and by a 1.5% wage deduction from employers and from employees. As of 1991, 3 million people were covered.
Free Medical Care Project	This insurance scheme provides free services to the poorer population. Individuals earning less than US\$66 per month and families earning less than US\$87 per month are covered. As of 1985, there were 11 million members.

Sources: Giraud (in this volume); Griffin (1990); Kurian (1992); Roemer (1991).