Health care costs of HIV/AIDS in the Pacific

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Abstract

Although the incidence of HIV/AIDS is growing in a number of Pacific island countries, little is known about the cost of care of persons living with HIV/AIDS. This paper presents estimates of the cost of care for Papua New Guinea (average of at least US$2260) and Fiji (average of US$6035) based on primary data collection in these countries, and indirect estimates for fifteen Pacific island nations, derived from reported expenditures in a number of developing countries. The estimates show that the cost of care is very high: more than ten times the average expenditure on health care per capita and several times the national income per capita.

Introduction

The number of diagnosed cases of HIV/AIDS in Pacific island countries has increased from 11 in 1985 to 612 in February 1995 (South Pacific Commission, 1995). It is likely that these numbers are substantial underestimates. In a recent study of the AIDS situation in Papua New Guinea (PNG), Kault and Jenkins (1995) estimated that the actual number of HIV infections in PNG is two to ten times as large as the number of reported infections. For AIDS cases in developing countries, WHO (1992) estimated that the actual number is about ten times the number of reported cases. Bloom and Mahal (1995) surveyed a number of studies that suggest the true number of AIDS cases may be as many as 30 to 100 times the number of reported cases. Underreporting of HIV infections is likely to be more severe where: there is significant stigma attached to HIV infection; diagnostic facilities are insufficient; medical personnel are unfamiliar with the symptoms; and governments are reluctant or fail to report the full extent of the disease. Since at least a number of these factors apply to the Pacific, underreporting in many of the countries is likely.

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There are a number of reasons to estimate the impact of health care costs of HIV/AIDS. First, publicly funded health care in Pacific island countries is either free or heavily subsidized, and HIV/AIDS will place increasing demand on health care. Ministries of health require estimates of this extra burden to assist them in planning and budgeting. Second, in some countries there is significant private provision of health care and persons living with HIV/AIDS and their families need to be able to estimate the added demands on their budgets of caring for an infected family member. Third, since health care costs may be financed by individuals or Governments an estimate of total additional health care expenditures (public and private) are needed to estimate the possible decline in savings likely to accompany the AIDS epidemic. This impact will affect the macroeconomic impact of AIDS.[1]

Currently, little is known of the costs of treating persons living with HIV/AIDS in Pacific island countries. This paper presents estimates of the cost of care in two countries, PNG and Fiji, based on primary data collection in these countries, and provides indirect estimates for some of the other Pacific countries.

Health care costs of HIV/AIDS in developing countries

Information on the costs of care for people living with HIV/AIDS in developing countries comes primarily from Africa and Asia. Some of these estimates are shown in Table 1. Costs tend to be higher in countries with higher incomes and a more developed private health sector. The estimates are for symptomatic HIV-infected adults seeking at least some modern health care. The low estimates include services that can be obtained without direct charge to the individual, while the high estimates represent the costs of best available private treatment. The cost estimates do not include amounts spent on traditional healers nor on modern drug treatments such as AZT. It is estimated that in Fiji AZT would cost an average of F$15000 per person per year.[2]

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Table 1. Estimates of total direct costs of health care per AIDS case in US dollars.

Country	Low	Average	High
Kenya (1992)	-	938	-
Rwanda (1988-90)	-	358	-
South Africa (1991)	1850	-	11,800
Tanzania (1991)	-	290 (adults) 195 (children)	
Tanzania (1987-88)	104	-	631
Zaire (1987-88)	132	-	1,585
Zimbabwe (1991)	64	614	2,574
Puerto Rico (1988)	1680	-	29,000
Thailand (1991)	987	-	1,524
India (1991)	-	738	-
Indonesia (1991)	-	1,490	-

Source:
Ainsworth and Over (1994:222) - first seven countries
Shephard (1990) - Puerto Rico
Viravaidya et. al. (1993) - Thailand
Bloom and Gleid (1993) - India and Indonesia

When considering these estimates, it is important to be aware that average public expenditures on health care in sub-Saharan countries range from US$1 to US$30 per person, with an average in most countries of US$5 or less per person (Ainsworth and Over 1994:223). In contrast, estimates of health care per person indicate that most Pacific island countries spend between US$20 and US$40 per person, with an average of about US$30 (Table 2). Thus, goverment health care expenditures on persons living with HIV/AIDS in the Pacific are likely to be towards the high end of those shown in Table 1.

Table 2. Government expenditure on health care

Country	Year	Local currency (millions)	US$ (millions)	US$ per capita
Fiji	1992	F 43.7	29	38.51
Papua New Guinea	1992	K 114.2	120.2	31.88
Tonga	1990	P 4.151	3.24	33.61
Tuvalu	1987	A 0.249	0.174	20.57
Vanuatu	1989	Vatu 398	3.6	25.19
Western Samoa	1987	Tala 7.141	3.366	20.90

Source: Calculated from data in Asian Development Bank 1994 Vol. 25, Key Indicators of Developing Asian and Pacific Countries

Direct estimates of health care costs

The total costs of treatment per person can be estimated if all of the components of the following cost equation are available:

direct health care cost = *total inpatient costs*
+ total outpatient costs
+ total family care costs

where:

- *total inpatient costs* = ((cost per day x days per episode of illness) + tests and drug cost per episode) x episodes per year
- *total outpatient costs* = (cost per visit + tests and drug cost per visit) x visits per year
- *total family care costs* = (number of hours of care) x wage per hour

The data requirements for these calculations are publicly unavailable in Pacific island countries. In order to estimate these costs the authors developed a survey instrument to collect the necessary data. In June of 1995, one of the authors collected data in PNG and two of the authors collected data in Fiji from interviews with physicians who treat HIV/AIDS patients either in private practice or in public hospitals and from health department administrators. The respondents were asked to estimate the components of the cost of care based on their experience with their patients. In PNG, there were five respondents who have cared for 51 people with HIV and 13 with AIDS. In Fiji, there were six respondents who have cared for 21 people with HIV and seven with AIDS.

The most difficult component to estimate was the cost of inpatient care because, in general, health departments in the Pacific islands have not costed the provision of health care. One exception is Fiji. For Fiji, estimates of cost per inpatient day were based on estimates from Wong and Govind (1992). They report costs per inpatient stay from F$242 at a sub-divisional hospital to F$394 at Colonial War Memorial Hospital. Based on an average length of stay of 6.2 days, this converts to a daily cost of F$39 to F$64. We use an estimate of F$64 per day (to partly allow for inflation). Costs per inpatient day for PNG were estimated from the doctors and health administrators responses. They estimated a daily cost of 25Kina (K) but this may be far too low. Based on data on the budget for Port Moresby General Hospital and the number of patient days delivered in 1990, the per day inpatient cost is estimated by the authors to be 84K. (*Exchange rate as of mid-1995: F$1 = US$0.72 and 1K = US$0.75*).

Total family care costs were also difficult to estimate. The health care providers had little information on hours of care provided by the family

Table 3. Estimated costs of health care for people with HIV or AIDS

Country		Mean	Minimum	Maximum
Papua New Guinea	*HIV*	984K	95K	2820K
	AIDS	2031K	198K	3760K
	Total	**3015K**	**293K**	**6580K**
		US$2260	**US$220**	**US$4935**
Fiji	*HIV*	F$2456	F$136	F$3824
	AIDS	F$5926	F$986	F$7500
	Total	**F$8382**	**F$1122**	**F$11324**
		US$6035	**US$810**	**US$8150**

Key: K = Kina. F = Fiji. US = United States

and estimates of wages are not commonly available. Most respondents thought that HIV-positive individuals did not require much care from their families in the early stages of the infection, but they receive financial assistance from the family as they manifested HIV-related illness. Individuals with AIDS required full-time care for the last two to six months of their life. This care was provided by family members or friends, primarily women. Because of the uncertainty of estimates of the amount of care provided by family and friends, this was not included in cost estimates. We note, however, that it may be substantial. For example, using an estimate of weekly earnings of F$40 per week for a female garment industry worker in Fiji, a conservative estimate of the economic cost of care provided by friends or family is between F$320 and F$1040 (45 hours of care per week for two to six months). More precise estimates could be obtained by interviewing persons living with HIV/AIDS and their caregivers. This is particularly important as more and more of the cost of care is likely to be shifted from the public system to the family. Another component of cost that should be considered is travel time to treatment and the costs of fares for the individual and family members who accompany him or her. Travel times of one to two hours to a health care provider were common in both PNG and Fiji. Thus, the estimates presented here underestimate the full cost of HIV/AIDS since they do not include costs of family care nor travel costs.

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Estimates of the annual cost of health care for a person with HIV or AIDS for PNG and Fiji are shown in Table 3. The following profiles of the average patient emerged from the interviews with the doctors. The range of experience is quite broad, so low and high cost estimates are also reported (in parentheses with low, then high). In PNG, the average person with HIV visited the doctor ten times per year (4, 12), four times for illnesses, the remainder for follow-up consultation (3, 4). The average fee per visit was 19K (5K, 35K). For each case of illness, the individual paid 35K in doctor's fees (5K, 40K) and 25K for drugs and tests (14K, 55K). Annual outpatient costs were 354K (95K, 580K). The average patient was hospitalized twice (0, 4) for ten days per episode of illness (3, 21). The cost per hospital stay was 315K, 25K per day for hospital services and 65K for drugs (zero, 560K). Thus, total inpatient costs were 630K (0, 2240K). The high maximum inpatient cost reflects the experience of several individuals who had been infected for some time and had several quite long stays in hospital. If the actual cost of a hospital day is 84K rather than the 25K estimate from the doctors, then total costs per episode are 905K (zero, 1150K). The significant difference in the estimates points to the importance of Pacific governments doing cost analysis of health care delivery.

The average person with AIDS in PNG visits the doctor every two weeks (9, 52) and receives some kind of treatment for illness on half of the visits. The average fees are the same as those noted above, so annual outpatient costs are 780K (73K, 1660K). The average person with AIDS requires hospitalization three times per year (1, 5) for 12 days per episode (4, 18). The cost per episode of hospitalization was 417K, 47K for drugs and the remainder for hospital charges including tests. The annual inpatient cost was 1251K (125K, 2100K). Thus, the estimated annual cost of health care for a person with AIDS in PNG is 2031K (198K, 3760K). If inpatient costs are 84K per day, the estimated average inpatient cost is 3375K and total average cost 4155K. An average cost per AIDS case is obtained by adding the estimate of annual costs for a person with HIV and a person with AIDS. In PNG, this is 3015K (283K, 6580K) but is significantly higher if daily hospital costs are 84K. The breadth of the range of costs reflects the very different circumstances of people with AIDS. Some patients are ill very often and have a private physician, others are seen at a public outpatient clinic. Incomes and prices of care, along with illness and accessibility of care, affect health care expenditures. Since the respondents were mostly from Port Moresby, the mean and maximum estimates primarily reflect the cost of urban cases. It is likely that the cost of many rural cases will be closer to the minimum because of more limited provision of care.

In Fiji, because of stigma and because care at public hospitals is free to the patient, two distinct patterns of behaviour were observed. One set of individuals uses the public system and uses it very frequently. The other set primarily uses private physicians and does so less frequently. They do so to keep their HIV infection a secret.[3] The private physicians estimated that their patients visited them about 25% of the times that they were ill whereas the physicians in

the public hospitals said that patients saw them whenever they felt the need. Thus, the distribution of costs is very bimodal. This should be kept in mind when considering the average estimates. The minimum reflects representative public sector care and the maximum representative private sector physician care. Because public care is free to the patient, the number of visits and cost of care is higher than it would be under a fee-for-service system. The cost estimates use data from Wong and Govind (1992) of F$7 per outpatient visit and F$64 per inpatient day for public sector costs and from our interviews for private sector costs.

The average person with HIV in Fiji visited the doctor about every six weeks (4, 12) and is ill about six times per year (3, 8). The average fee per visit is $16 (F$7, F$28) and the average cost of drugs and tests is F$36 per episode (F$13, F$70). Total outpatient cost per year were F$344 (F$136, F$624). The average person with HIV is hospitalized three times per year (0, 8) for an average of 11 days per episode (2, 30). The length of hospital stay is almost twice the average for all patients estimated by Wong and Govind (1992). The average cost per episode is F$704 (F$0, F$1920) and the annual cost $2112 ($0, $3200). Thus, the annual estimated cost of care for a person who is HIV positive is F$2456 (F$136, F$3824). The average person with AIDS visited the doctor every month (6, 24) and was ill 11 times per year (2, 24). Average outpatient cost was F$550 (F$90, F$780) consisting of F$23 average fee (F$7, F$38) and F$25 for drugs (F$15, F$200). A person with AIDS was hospitalized four times per year (2, 6) for an average stay of 21 days per episode (7, 35), a little over three times the national average, at a total cost of F$134 per episode or F$5376 per year (F$896, F$6720).[4] The average annual cost of health care for a person with AIDS was F$5926 (F$986, F$7500). The average estimated cost of care per AIDS case is F$8382 (F$1122, F$11324).

Table 4. Estimates of direct health care costs per AIDS patient, 1991 (US dollars)

Country	Low	Average	High
Cook Islands	1320	5720	10560
Fiji	1100	4760	8780
French Polynesia	3600	15600	28800
Federated States of Micronesia	950	4130	7630
Kiribati	450	1950	3600
Marshall Islands	950	4130	7630
New Caledonia	3600	15600	28800
Niue	600	2600	4800
Papua New Guinea	500	2160	3990
Western Samoa	560	2420	4460
Solomon Islands	340	1460	2690
Tokelau	480	2080	3840
Tonga	660	2860	5280
Tuvalu	320	1380	2540
Vanuatu	670	3090	5380
Average	**US$1070**	**US$4660**	**US$10590**

Notes: GNP per capita data from Ahlburg (1995), World Bank (1993b). Estimates of direct health care costs are GNP per capita x 0.6 (low), GNP per capita x 2.6 (average), and GNP per capita x 4.8 (high) as discussed in text.

Estimates of length of hospital stay for HIV/AIDS patients in PNG and Fiji are comparable to estimates from some African and Asian countries. In Thailand, average length of stay is from 12 to 25 days (Kongsin et al. 1992; Viravaidya et al. 1993) and in Africa, 11 days for non-TB cases and 45 days for HIV-positive persons with TB (Ainsworth and Over 1994). Daily hospital costs in the Pacific tend to be higher than in Thailand and Kenya: in Fiji about US$46 and PNG $US20 to $US60 (depending upon whether the real cost is 25K or 84K per day) compared with $US20 to $US30 a day in Thailand, and $US11 to $US33 in Kenya.

These are not the only direct costs of the epidemic. To these costs must be added family care costs and travel costs mentioned above, and national costs of blood testing, HIV testing, HIV/AIDS education and prevention, and recruitment and training costs of health care workers. To these public costs could be added similar costs to international organizations, NGO, and private companies, and the private costs of expenditure on testing, condoms, the welfare loss of changes in sexual behavior, and the economic loss of productive work life from morbidity and mortality. Estimates of the economic value of years of work lost because of death from AIDS are between F$30000 and F$100000 in Fiji, and between 10000K and 200000K in PNG, depending upon the individual's job.

Indirect estimates of health care costs

Because the data required to estimate health care costs are difficult to come by, an indirect approach based on average expenditures in other developing countries was employed. Direct health care costs per HIV/AIDS case in developing countries in Asia and Africa vary from a low of 60% of GNP per capita to a high of 480% of GNP per capita. The average expenditure is 260% of GNP per capita. These estimates accord well with those of Ainsworth and Over (1994) who found AIDS treatment costs to be two to four times per capita income. Way and Over (1992) found costs to be four times GDP per capita for those with secondary education, two for those with primary education, and equal to GDP per capita for the rural uneducated.

If spending on health care as a percentage of GNP per capita is similar in Pacific countries, estimates of direct health care costs per AIDS case can be calculated. Such a set of estimates is presented in Table 4. The low, average, and high estimates are calculated by multiplying GNP per capita figures (in US$) by 0.6, 2.6, and 4.8 respectively. Since Pacific countries allocate two to three times as much of public expenditure to health care as the average for all developing countries, the high estimate of HIV/AIDS health care costs is the most likely, and may even be too low. If Pacific islands spend a similar percentage of GNP per capita on health care for persons living with HIV/AIDS as the average Asian or African developing country, their average expenditures on direct health care costs for treating a person living with AIDS are: US$1070 (low), US$4660 (average), and US$10590 (high). To put these costs in perspective, average government expenditure on health care per citizen for Pacific countries is US$20 to US$40 per year. It is clear that the costs of treating persons living with AIDS is extremely high in relation to the average patient.

The indirect estimates for Fiji and PNG are generally quite close to the direct estimates based on interviews with doctors and administrators. The mean, minimum, and maximum indirect estimates for Fiji in 1991 were US$4760, US$1100, and US$8780. The direct estimates for 1995 were US$6035, US$810, and US$8150. For PNG, the mean, minimum, and maximum indirect estimates were US$2160, US$500, and US$3990 while the direct estimates were US$2260, US$220, and US$5140. Thus, the estimates of health care costs based on the indirect approach are reasonably close to those based on estimates of health care costs from interviews with health care providers and administrators. Thus, the indirect estimates of Table 4 give an indication of the likely costs of caring for a person with HIV/AIDS in Pacific countries.

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Conclusion

Reported cases HIV/AIDS in the Pacific are increasing and the number of actual cases is likely to be substantially higher than those reported. Direct and indirect estimates of the cost of health care for a HIV positive person or a person living with AIDS show that these costs are very high: they are more than ten times the average expenditure on health care per capita and are several times the national income per capita.

The health care systems of some Pacific countries are already experiencing funding difficulties, if not crisis (Pacific Islands Monthly, 1995; World Bank 1993a). Increasing demand for health care from people with HIV/AIDS will put further pressure on the system, perhaps displacing other patients from treatment and thus increasing mortality among persons not living with HIV/AIDS. Such a crowding-out of other patients would add further to the already substantial costs of HIV/AIDS. And, if public systems of health care cannot cope with the additional demand, families will be called on to further help support the cost of care. Despite good will and a tradition of caring, families are already experiencing financial stress in an increasingly cash-based economy and many are unlikely to have adequate resources to deal with increased medical costs associated with HIV/AIDS.

At present many individuals use more expensive private care because they believe that this provides secrecy that is not possible in the public health care system. Thus, the current cost of care for HIV/AIDS patients could be reduced if the stigma attached to the disease could be overcome.[5] Costs in the public system could also be reduced if user fees were instituted for all forms of medical care. At present, with no direct cost to the individual, patients are perceived to use the public system excessively (according to respondents, as much as up to four times as much as persons with HIV/AIDS in the private sector). For a number of reasons to do with inadequate information on the part of family members and other caregivers, individuals with AIDS are often hospitalized when it is believed by doctors that care could be provided at home, either by family members and friends or by visiting medical personnel. By providing family members and other potential caregivers with information on their risks and appropriate care, hospitalization could be reduced. At present there are relatively few individuals who can provide such information to family members. The stigma attached to the illness also inhibits a family seeking information on home care for the family member living with AIDS.

While the cost estimates presented in this study are important for planning a response to the growing number of HIV infections and AIDS cases, they also point to the importance of timely (and cost effective) initiatives to prevent the further spread of HIV/AIDS. Policymakers should not ignore those currently infected. For economic and ethical reasons, discrimination against those infected and their families must be confronted and policies to support HIV-affected families need to be adopted. These initiatives are imperative to improving the quality of life of those living with HIV and AIDS and their families.

Endnotes

1. It is generally believed that domestic saving are very low in most Pacific nations (Fairbairn 1991). However, Brown (1994) disputes this and estimates savings in Tonga and Western Samoa to be about 5% of household income. If it is

true that savings are greater than previously thought, the potential economic impact of HIV/AIDS may be larger than believed because that impact is larger than the share of health care costs have taken from savings (Ainsworth and Over, 1994).

2. Dr Salik R. Govind (personal correspondence).

3. If one assumes that the quality of public and private sector physician care is equal, then the difference between the two, F$16, is the amount that patients are willing to pay per visit to maintain privacy. This is a maximum amount since the time one must wait to see a doctor in the public sector is longer than that in the private sector.

4. One person was hospitalized for 105 days over the six months before death at an estimated cost of F$6720. This estimate was not included in the average.

5. This assumes that the true cost of public care is less than the cost of private care.

" For economic and ethical reasons, discrimination against those infected and their families must be confronted and policies to support HIV-affected families need to be adopted. "

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Editor's endnote: Further discussions of the various impacts of HIV/AIDS in the Pacific will be published in a forthcoming UN-interagency study on the vulnerability of the Pacific to HIV/AIDS. This study is supported by the UNDP Regional HIV/AIDS Project based in New Delhi, UNFPA, Unicef, WHO in collaboration with the South Pacific Commission.

" Women are the key to achieving health for all. But it will take all of us - men and women alike -to prevent AIDS ... Anyone can get AIDS. All of us, however, can stop AIDS. "

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