

Manuscript Title: What's happening with HIV in Papua New Guinea?

Peter Heywood^{1 2}

¹ Menzies Centre for Health Policy, University of Sydney, Australia

² Liverpool School of Tropical Medicine, UK

Corresponding Author:

Peter Heywood¹

Menzies Centre for Health Policy, University of Sydney, NSW 2006. Australia

Email address: pfheywood@gmail.com

Abstract

Introduction

In the 30 years since its identification in Papua New Guinea the response to HIV and its subsequent spread has waxed and waned and taken new directions as the social and biomedical environment changed. More than 30 years later the surveillance system continues to falter and there has still not been a national survey on which estimates can be based.

Absent a functioning surveillance system, PNG ‘estimates’ the size of the epidemic from time to time based on mathematical models of the epidemic. This has resulted in widely varying estimates and confusion about the course of the epidemic.

After appearance of the virus PNG struggled to design and implement an effective response. A new government at the end to the 1990s saw a strengthened response and formation of a National AIDS Council located, eventually, in the Office of the Prime Minister. Around the same time PNG commenced a process of decentralizing government services to provinces and districts. DOH was expected to continue to provide services even though overall control now was with the NAC and responsibility for services was decentralised.

Discussion

PNG is now reliant on mathematical models to estimate the course of the epidemic. Even though the most recent results indicate a fall in incidence since 2005, two recent reviews indicate that programs have not been effective at most levels and that the dual architecture of the government response has failed to adjust to the decentralisation of government activities.

31 Thus we now have the situation where models indicate lower prevalence than originally projected
32 even though interventions are apparently ineffective and we have no reliable independent data to
33 indicate why?

34 There are two lessons from the PNG experience. First, the importance of establishing an effective
35 HIV surveillance system. And second, realisation that the NAC approach, originally seen as a panacea
36 by donors and agencies, has not worked in PNG. The critical thing now is to return control of the
37 HIV/AIDS program to the DOH on the condition that, except for surveillance and setting standards, it
38 decentralizes the program to provinces and districts.

39

Introduction

When the first HIV/AIDS (Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome) cases appeared in Papua New Guinea (PNG) in the late 1980s - around the same time as in many other countries – the Department of Health (DOH) had, in anticipation of arrival of the virus, already established a National AIDS Surveillance Committee to chart a response [1]. In the 30 years since its identification in PNG the response to this new infection and its subsequent spread has waxed and waned and taken new directions as the social and biomedical environment changed.

In the early 1990s, even though the response to HIV/AIDS took shape with the encouragement and some funds from the Global Programme on AIDS (GPA), there was little support from the political leadership. Efforts to establish a surveillance system faltered and, very soon, all that remained was limited passive surveillance in some locations (Jenkins as quoted in [1]).

More than 20 years later, partly as a result of confusions about the nature of the epidemic, partly for political and administrative reasons, the surveillance system continues to falter and there has still not been a national survey on which estimates can be based.

Absent a functioning surveillance system, PNG ‘estimates’ the size of the epidemic from time to time based on mathematical models of the epidemic. Among the early estimates were those made by the University of New South Wales, Australia (UNSW) [2] under contract to the Government of Australia. In 2005 they developed a mathematical model to estimate the course of the epidemic from 2005 to 2025. The estimate for 2005 was that 64,000 people (1.08% of the population) would be HIV positive and that this would increase to 120,000 (1.80%) in 2010 and more than 500,000 (5.79% of the population) in 2025 – a devastating projection by anybody’s measure.

In 2007, soon after the UNSW estimates, the Government of PNG (GOPNG) made their own estimates [3] with external input from, amongst others, the World Health Organization (WHO), UNAIDS, UNSW and the Burnet Institute, Australia using the Spectrum model favoured by UNAIDS (United Nations Programme on AIDS). These estimates painted a rather different picture. The number positive for HIV in 2005 was estimated to be 36,000 (1.02% of the population), about half the UNSW numbers, rising to 127,000 (3.22%) in 2010, not so different from the UNSW estimate.

There is an almost twofold difference between the two studies in the estimated number of people living with HIV/AIDS (PLWHA) for 2005. To make the situation even more complicated, the UNSW study estimated that the number of PLWHA would almost double between 2005 and 2010, whereas the GOPNG study estimates that the number would more than treble. More than that, the UNSW study estimated that less than half the cases would be in rural areas while the GOPNG estimate for rural areas was more than 80% of the total.

And now to add to the confusion, the latest GOPNG projections, again using the Spectrum models (also used for the 2007 estimates), are for a national prevalence of 0.65% in 2014 and that the prevalence will be the same in 2021 [4]. Explanations of the differences, including by some authors of the UNSW projections, are not convincing [5].

The main driver of the PNG epidemic is sex between males and females. But these epidemiologic principles play out within a distinctive PNG cultural milieu, many aspects of which increase the risk of HIV transmission [6]. It is common for both males and females to have multiple partners before marriage. The practice of taking more than one wife occurs in many parts of the country. At the same time men may have other sexual partners outside their marriage. Women may do the same although to a lesser extent. Without appropriate precautions these practices increase the risk of HIV transmission. In addition, gender based violence is common, often in relation to sex – this includes rape, often by groups of men.

Against this general background there is a continuum between casual, transactional and commercial sex. A young woman may have several casual partners as part of deciding who to marry. She may also desire certain consumable and life style items for which she will exchange sex as the need arises, other women may exchange sex on a more commercial basis, the number of partners in a given period increasing with the degree of commercialisation [6].

And PNG is changing rapidly, both socially and economically, making understanding and control of HIV more difficult. High levels of alcohol and marijuana use are associated with increased sexual violence. Poor distribution of the fruits of economic development heavily reliant on enclave extractive industries means poverty persists in many areas. Formal employment opportunities, especially for women, are limited, and there is increased demand for sexual services from those with the money.

Other sexually transmitted infections, highly prevalent in most of the country, some resistant to antibiotics and many untreated, increase the risk of transmission [7].

So the social and biological context of transmission is social acceptance of multiple partners by men, high levels of forced sex, both in and out of marriage, the practice of group sex, widespread commoditization of sex, alongside low levels of treatment of sexually transmitted infections (STI), poor knowledge about sex, and unequal economic development.

The enclaves – whether they be Port Moresby, provincial capitals, a mining site, a mission station, or a logging camp – are the place of services, some from the government perhaps, also for demand and supply of personal services, including sex; these enclaves are the loci of development in PNG today.

For the last 100 years churches have been important cultural agents in PNG and deliver approximately half the health and education services of the nation. Their attitudes to sex and sexuality, mostly conservative, have been major factors in the reaction of the population to AIDS when it becomes manifest, the emergence of a sexual identity related to homosexuality, and to the adoption of control measures, such as condoms, and detection and treatment of STIs. Religious training undoubtedly played an important part in the decisions of some politicians and senior health officials about funding AIDS programs.

Discussion

PNG's response to detection of HIV in its population was very much influenced by developments in the international arena. The World Health Organization (WHO) had established the Global Programme on AIDS (GPA) in 1986 – in 1994 this Program became the United Nations Program on AIDS (UNAIDS). Because of the nature of the disease, HIV captured the attention of public health specialists who painted a gloomy picture of its possible effects on populations as well as individuals. GPA and, later, UNAIDS were strong international advocates of the need for national, multisectoral responses to HIV [8]. Reflecting the sense of urgency felt, these specialists forcefully advocated for an "all-of-government" response in which most government departments would be expected to participate. Ideally, this multisectoral response was to be strengthened by placing its management in the office of the President or Prime Minister. Early examples of this approach were found in Africa where the spread of HIV seemed to be most rapid.

The struggle to formulate a response in PNG was to reflect all the tensions of making and implementing policies to address a new infectious disease widely thought to have the potential to devastate economies in a newly independent nation struggling to deliver general health services. The National AIDS Surveillance Committee formed within DOH expanded its membership to include representatives from other government departments and became the National AIDS Committee, still within the DOH but now seeing itself with a wider remit. Even so, some senior doctors, unsure about whether the potential to devastate the economy was real, were reluctant to give HIV control priority over other health service problems. For a variety of reasons politicians were not convinced either – some were opposed for religious reasons, others found it hard to imagine a new disease that would wreak the devastation predicted. Some churches, responsible for delivery of half the health services, were opposed to promotion of condoms, the main control measure. Even though the DOH had, with international support, moved quickly in the early stages, PNG was not prepared to allocate resources to the control of HIV [1].

Irrespective of funding issues, the establishment of a multisectoral control program raised problems in the public service. The structure of the program advocated internationally was to give authority to

implement programs, including surveillance, to a new entity – the National AIDS Council (NAC) – preferably located outside the DOH even though the information required for surveillance as well as the facilities and staff for care and treatment would come from DOH activities. The NAC would also have some authority to coordinate the activities of other government departments. As would ultimately become clear, this was difficult to achieve. Politicians and bureaucrats were unconvinced. The first decade of the epidemic in PNG saw little response.

The arrival of a new government in 1997 [1] meant that the latter years of the 1990s saw a marked change in HIV/AIDS policy. Legislation to establish a National AIDS Council (NAC) as a statutory body was passed, Australia funded a project (rather than provide budgetary support) that included the usual activities of support for STI services, condom distribution and targeted intervention for sex workers and their major clients in the transport industry.

Up to 2004 the lead agency and bureaucratic home for the NAC was the Office of National Planning and Implementation and United Nations Development Programme provided funding for a small secretariat. In 2004 the NAC was transferred to the Department of the Prime Minister and Cabinet.

In essence, DOH, at least some of its staff, anticipated the coming of HIV and prepared a response. That response was then passed to others - first to the Office of National Planning and Implementation and later to the Department of Prime Minister - who had no experience of health programs and no one on the ground to actually do anything. Despite the many problems of the DOH, they were the only ones with any experience of disease control and they did, at least on paper, have a network of service delivery points. Now in a secondary role DOH was expected to, nevertheless, carry out many of the HIV control activities; hospitals and health centres and mobile clinics were the places where health education was delivered, some semblance of surveillance possible, health care provided.

The outcome in PNG, as in other countries, was a split in the HIV control effort between the NAC and the DOH and, as might be expected, little coordination between the two.

But there were other reforms underway that were to make things even more complicated. At Independence PNG inherited a highly centralised system in which those at the district and provincial levels acted at the bidding of central authorities and had little discretion over policies, budgets and the like. During the 1980s and 1990s the PNG government formulated and implemented reforms to decentralize government functions and services [9]. These reforms had particular implications for health. The initial Organic Law on Provincial Government 1976 essentially provided a basis for provincial government. It was followed 20 years later by Organic Law on Provincial Governments and Local-level Governments 1995 which created a third level of government at the district level. Politicians made their presence felt and changed the relationship between centre and periphery in

ways that were designed to preserve the privilege of those in power rather than improve the delivery of services. Neither the politicians nor the laws they produced have done much to improve the delivery of services at the provincial and district levels. They complicated the task of those who aimed to build on existing structures with the express purpose of controlling a single infectious disease for which there was little support from politicians and no consensus, even if a little more support, from DOH officials.

Despite being in a secondary role and the complications of decentralization, many of the critical activities remained with the DOH – STI, care of people living with HIV/AIDS, especially diagnosis and treatment of co-infections, points of contact with population through the health system, disease surveillance, health education, antenatal and postnatal care. But the critical point about these services was that while the policies might be set at the centre, the day to day activities essential for their execution occurred at service delivery points at the periphery of the system and were carried out by staff nominally responsible to the provincial and district governments, not to the central authorities. The continuing change as PNG struggled through attempts to decentralize first, to the provinces and subsequently to the districts, meant that provincial level AIDS control activities failed to get off the ground. And insistence on a one-size-fits-all model meant that all provinces struggled to implement the same activities irrespective of local variation in the nature of the epidemic and administrative and management capacity.

As if these political and administrative changes were not enough, the HIV scene was also changing. The most dramatic of those changes was the advent of treatment drugs. Initially very expensive, the price soon fell and international, national and interest group pressures resulted in the introduction of a treatment program to PNG in 2004 [10].

Funding for the HIV control effort in PNG has come largely from external sources to which Australia is the largest contributor. Various other donors have also contributed. Beginning in 2005 the Global Fund for AIDS, TB and Malaria also became an important contributor; the recipient agency was the DOH. Control of funds and keeping corruption under control while actually getting the work done remain the biggest issues for PNG. As many expected, corrupt practices were uncovered in use of the Global Fund resources by DOH [11]. The recipient agency for the most recent Global Fund grant is now the Oil Search Health Foundation, a charity established by Oil Search Limited, a major player in PNG's oil and gas sector. Five of the six sub-recipients of funds from the Global Fund are non-government organizations [12]. In 2015 Australia significantly increased its allocation to the Global Fund, presumably in the hope that this new model will lead to increased program effectiveness and less diversion of funds.

There have also been shifts over time in the way people think about the epidemic and model its effect and progress. Initially, in the early 1990s, HIV was seen as an epidemic concentrated in high risk groups with only limited overlap to the general population. However, the apparent connection between high risk groups and the general population as a result of more relaxed sexual norms led to a view that the epidemic was likely to be more general. Within a few years the view had changed again and the epidemic was once again seen as being concentrated [3]. The most recent project document to support the Global Fund activities for PNG refers to the epidemic as ‘mixed’ [12]. These changes are important as the models used change with the type of epidemic and along with the model change comes a change in estimates of the current size of the epidemic and projections about where it is likely to go in the future.

These changes are indicators of the confusion about the nature of the epidemic amongst the government’s technical advisers. Their importance is that the approach to surveillance depends on judgements about the nature of the epidemic.

Do the new, lower estimates have any relation to reality? We don’t know because PNG has not yet carried out a national survey that provides a population-based assessment of the course of the epidemic. There have been plans but no action for at least 10 years. Consequently there is no independent evidence of what is happening with the epidemic. In essence PNG relies on mathematical models of the epidemic for which it has no independent verification.

If we believe the latest versions of the models, it seems that the dismal scenarios painted at the beginning of the epidemic and as late as 2007, have not come to pass in the case of PNG. The prevalence rates quoted for this year and next are way below what was predicted for this year only 5 years ago. Were the initial estimates wrong? Did we get the story wrong? Perhaps we over-reacted to the more relaxed sexual mores of Papua New Guinea. Perhaps there never was an epidemic on the scale originally predicted or was it that we have misjudged the effectiveness of all the interventions? Or maybe there really was an epidemic but the interventions were carried out so well that the epidemic never really got going.

The one thing on which there seems to be something approaching consensus is that the interventions were nowhere near as effective as we hoped they would be. Both the Independent Review Team in 2011 [13] and the Mid-Term Review of the Australian HIV/AIDS project [4] found ‘minimal progress’ in implementing control programs over the previous decade. Condoms were procured but not distributed, let alone used, behaviour change efforts were not effective, treatment programs have not been able to achieve high levels of coverage, many of those treated do not return for their next treatment. There has been little sentinel surveillance in recent years, the quality of laboratory testing is low, drug stockouts are common, and there are high rates of loss to follow-up in the drug treatment

program. Drug resistance is an emerging problem [10]. The list goes on. Along with Worth [14], the Reviews concluded that there was little direct evidence that prevention, treatment and policies have had an impact.

The Reviews also found that the dual architecture of the government response with both the NAC and DOH apparently in charge was limiting effectiveness and that the NAC, in particular, had failed to adjust to the decentralisation of government activities.

PNG, with the advice and urging of the international community, responded to a new disease by imposing a top-down, centralist model copied from Africa. And all of this happened at a time when the country was involved in an ongoing and only partially successful attempt to decentralize its government structures and services. Further, HIV control was taken away from DOH and passed to first, the National Planning Office, and second, to the Department of Prime Minister – both of them departments with no expertise or interest in implementing anything. At the same time the DOH was actually expected to deliver most of the required services at a time when decentralization was making it impossible for service delivery to function effectively. Amidst the confusion the surveillance system failed and continues to do so. More effort and resources are now put into treatment than into surveillance.

Then models came along and offered some numbers. But it turns out that the models are confused as well. Now, within a decade we have gone from predictions of devastation to predictions that all is under control.

How did this happen? The truth is, we are not sure. Both the Independent Review and the Mid-Term Review concluded that programs are not working. PNG has the unvalidated output of mathematical models, the suggestion that prevalence is much lower than originally thought, apparently ineffective interventions, and the intent to do a national survey. So, where to from here?

Perhaps we could start by asking if there are any lessons in all of this for the HIV program in particular and, more generally, for PNG and donors. The most important general lesson for us all is that there are no panaceas, no general solutions that we can just take down off the shelf, dust off, put a country's name on it, and implement from the top down in the sure knowledge that it will work. The NAC approach was seen as a panacea, not just in PNG. It has not worked in PNG and we need to admit that. For the time being, at least, return the control of HIV/AIDS in PNG to the DOH on the condition that, except for surveillance and setting standards (e.g. definitions and treatment regimen) it decentralizes the program to provinces and districts.

This decentralization will need to be based on an acceptance that PNG, even though it is a small country in terms of population, is extraordinarily diverse culturally and geographically. Donors and

agencies tend to operate on the assumption that if the total population is small the country must be homogeneous culturally and physically. But the understanding of disease, including HIV/AIDS, will vary between cultural groups. So will administrative capacity and solutions. One size does not fit all in PNG. This also means that national departments, donors and technical agencies must be prepared to allow and support variation in approaches to disease control. Port Moresby, let alone Canberra and Geneva, does not know best.

And there is no certainty at all that the modellers know best. Models are useful, but they are not a substitute for good surveillance and measurement using agreed definitions, and models need validation against actual field measurement. Models have become a substitute for, rather than an adjunct to, field measurement. In a way it's easier, and there's a lot less fieldwork!

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