



INVESTMENT CASE FOR HIV IN PAPUA NEW GUINEA



UNAIDS



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Minister's Foreword

Through several policy measures and legislation, the Government of Papua New Guinea has committed to eradicating the transmission of HIV and to assist those who live with the disease. In his foreword to the *National STI and HIV Strategy 2018-2022*, the Prime Minister highlighted these commitments, writing that “the government has demonstrated its commitment through *Vision 2050, Medium Term Development Plans, National Population Plan 2016-2025* and the *Sustainable Development Goals (SDGs)*. This Government also gives special attention to HIV and AIDS which is highlighted in the *Alotau Accord 1 Priority Areas 17-23 (2012)*, and *Alotau Accord 2 Priority Area 63 (2017)*”. Internationally, Papua New Guinea is party to the *United Nations High Level Meeting Declaration 2016 to eliminate HIV by 2030*”.

Past efforts have prevented the further growth of the HIV epidemic, but they have not been sufficient to eliminate the disease. At the same time, it is essential that every kina spent on HIV is carefully targeted and spent wisely. Foreign aid contributions to HIV have fallen from around 76% to below 50%, creating gaps in funding. Meanwhile, the domestic budget is under pressure.

The investment case provides policy makers with evidence and analysis of the optimal strategy for decisive action to most effectively halt the epidemic in PNG

In this context, the *Investment case for HIV in PNG* is essential and timely, for it allows us to assess what HIV investments will yield the optimal return both in terms of health outcomes and the financial cost. It does this by modelling the projected health impact and costs of the United Nations “*Fast Track Scenarios to end AIDS by 2020 and 2030*”. It compares these with the projected costs and health outcomes of the new *National HIV and STI Strategy 2018-2022*. The *Investment Case* finds that of the five scenarios analysed, the optimal investment is the new *National HIV and STI Strategy 2018-2022*. The *National Strategy* will deliver essential results in terms of averting new infections and preventing deaths, as early as possible, while having targets that are achievable. There are scenarios which would in theory produce earlier results, but the investment case shows that they will be more expensive, and their targeted outcomes would be unachievable. There are slower projections, too, and it might be tempting to defer health investments. But the investment case show that delay could be catastrophic, resulting in many more new infections and deaths from AIDS. New infections are avoidable, but when they occur, the nation is obliged to provide life long, highly expensive treatment. The *National HIV and STI Strategy 2018-2022 is achievable, will save over USD 13 million in the first 5 years, and will avert over 15,000 new HIV infections by 2030. The cost of providing treatment for those 15,000 averted HIV infections would be over \$US150,000,000 over twenty years, illustrating how important it is to fund and implement the National HIV Strategy 2018-2022.*

The investment case highlights the funding gap and provides measured, practical solutions that will “fund the gap”

The investment case also shows that there is an important and rising gap in necessary funding. This is around USD2.5 million in 2018, rising quite sharply to 2022 when the program reaches its full capacity. The investment case highlights that the full National Strategy is needed – especially since essential outreach for key populations has already ceased. The *investment case* recommends several important efficiencies that will be provided the funding and increase the effectiveness of the HIV program.

The investment case provides health officials with a powerful, evidence-based tool to advocate for essential HIV funding with domestic and international partners.

I therefore urge my colleagues in Health, in other PNG government departments, Provincial Health Authorities and District Development Authorities to use this advice in planning and budgeting to address the HIV epidemic. The Investment case for HIV in Papua New Guinea is accompanied by a short and concise policy brief which you can use to share the ideas in the investment case and help me to secure the funding that is essential to meet our commitments to end the HIV epidemic.



Hon. Sir Dr Puka Temu KBE CMG MP
Minister for Health and HIV/AIDS

Executive summary

National investments in HIV work

This *Investment case for HIV in PNG* shows that because of the hard work and considerable investments of the Papua New Guinea (PNG) Government, its international partners, church groups, civil society and people living with HIV, the HIV epidemic has been checked with prevalence at a little under 1 percent of the total population. With estimates in 2000 predicting an HIV epidemic at five times that level, it is clear that investments in HIV work.

...but the job is far from complete

The *Investment case for HIV in PNG* (“*the Investment Case*”) also shows that we cannot be complacent: among the general population in the National Capital District, HIV prevalence is 1.6 percent and it is above 1 percent throughout the highlands, where the bulk of the population lives. In some key populations, prevalence is much higher: around 15% of sex workers and 9% of men who have sex with men are living with HIV, and new infections are increasing in both groups. PNG also has the highest STI rates in the region.

Meanwhile, intervention coverage is patchy: only half the people who need life-giving antiretroviral drugs receive them, and preventive measures among key populations and the general community are much lower than they need to be to end the epidemic. In 2017 around 400 babies were born with HIV because we are not reaching mothers with testing and treatment.

A strategic response is essential

The results that have been achieved were reached during a period when there was more money available for HIV. Recent changes both to how much is funded from international sources, and to the parts of the program are funded, mean that important elements of the program are weaker than they were two years ago. While antiretroviral therapy (ART) saves lives and allows people to live a long and productive life, treatment is a life-long commitment and constant budgetary demand for at least 20 years, even after the epidemic is controlled. It is more beneficial to society to prevent new HIV infections – in terms of productivity, health outcomes, and economic and financial costs.

In this context it is more important than ever that the right amount of money is invested in the right places. This investment case examines 5 scenarios for accelerated HIV interventions and compares them with the results that will come from the current response. Using epidemic and economic modelling, it gauges what is likely to happen to the HIV epidemic under each scenario and compares the costs and benefits of each. The scenarios are the *National HIV and STI Strategy 2018-2022*, and four scenarios which test variations of the United Nations “*Fast Track for ending AIDS by 2030*”, to which Papua New Guinea and over 100 countries committed in 2016. The Fast Track approach and the 2016 Political Declaration has three main targets: 75 % reduction of new HIV infections, 0% stigma and discrimination, and “90/90/90”, known as the “three 90s”, under which 90 per cent of all HIV-infected people know their HIV status, 90 per cent of HIV-positive people are on treatment, and 90 per cent of people on treatment have suppressed viral loads. The scenarios in this investment case explore Fast Track coverage for ALL Papua New Guineas by 2030; Fast Track coverage for key populations by 2030; and the same for 2020 (which would obviously greatly accelerate impact). These are compared with the likely outcomes of the new *National HIV and STI strategy 2018-2022*.

The following scenarios were analysed:

- Achieve Fast Track program coverage of key populations by 2030
- Achieve Fast Track program coverage of the whole population (including key populations) by 2030
- Achieve Fast Track program coverage of key populations by 2020
- Achieve Fast Track program coverage of the whole population (including key populations) by 2020
- Implement the newly completed National HIV and STI Strategy (2018-2022), which aims to achieve Fast Track coverage of the whole population, including key populations, by 2022.

Recommendation: implement the new National Strategy to avert 15,233 new infections by 2030 and save over US\$13 million by 2022

After analysing and comparing the five scenarios, the report recommends that PNG proceed to implementation the new *National HIV and STI Strategy 2018-2022*. The *National HIV and STI Strategy 2018-2022* is superior to the other scenarios considered because it:

- scales up rapidly, achieving essential results -but not so rapidly that it will fail because it cannot meet overdemanding targets
- will achieve coverage of key populations and the general population by 2022, 8 years faster than the 2030 scenarios. It will save many lives, reduce suffering and markedly lower the number of people who need long-term medication because they were avoidably infected with HIV
- averts 15,233 new infections by 2030, compared to the baseline scenario and by doing so saves US\$150,000,000 if each of this people was on treatment for twenty years
- saves US\$13,120,000 in direct implementation costs in the period 2018-2022 compared to implementing the 2020 ALL scenario
- contains a plan and budget modelling that explicitly support the devolution of HIV programming responsibilities to the provinces.

The investment case also shows that the National Strategy is significantly underfunded. It makes recommendations which, if implemented, will fund the strategy.

The *Investment Case* analysis finds that while the 2020 scenarios would deliver optimal, early, results, neither 2020 cases are achievable. This is because to scale up from the current program to Fast Track coverage indicators by 2020 would require (1) immediate delivery of a range of services, and (2) immediate higher expenditure than the other scenarios. With the National AIDS Council Secretariat not fully staffed or functional and the transition to local management of HIV by Provincial Health Authorities underway, the program is probably not ready to scale up so fast.

The two 2030 scenarios are also attractive in some ways: they do not reach full delivery of prevention, testing or treatment for 12 years, so the pace of scaling up the program is slower and therefore easier to achieve, and the costs of the response would increase at a corresponding rate. This would be easier, managerially and financially. But in the intervening years, people will suffer and die unnecessarily without their HIV treated, new infections will have risen and the costs of keeping people on medication will be much higher. So neither the 2020 or the 2030 approaches are ideal.

Funding the National Strategy

Figure 1 below shows the anticipated cost of the *National HIV and STI strategy (2018-2022)*, calibrated to scale up to reach the 90-90-90 targets by 2022. In 2018 the program will cost around US\$35 million, rising to about US\$50 million for full delivery in 2022. The costs indicated beyond 2022 are the costs of the ongoing program.

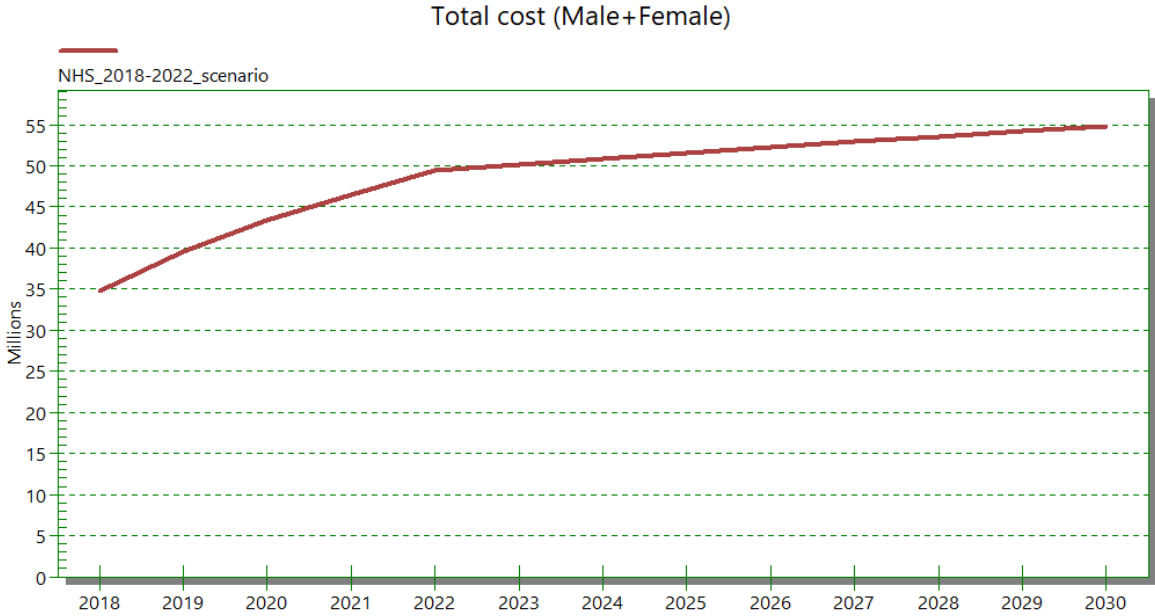


Figure 1. Cost of National HIV and STI strategy 2018-2022, and projected to 2030

Table 1 below compares the cost with the level of funding available from all sources. The international sources are the current commitments from the Global Fund, the Australian Government, the United States Government and the United Nations Organisations. The domestic contribution reflects the amount of funding PNG said it would contribute over the next few years in the context of the 2017 Funding Request to the Global Fund to fight AIDS, malaria and tuberculosis.

HIV funding 2015-2020, and funding gap analysis, National HIV & STI Strategy 2018 - 2020¹ (USD)

	2018	2019	2020
Cost of National Strategic Plan (to 2020) at scale up modelled to achieve 90-90-90 targets	35,000,000	40,000,000	45,000,000
Funding			
Domestic ²	15,000,000	15,750,000	16,500,000
International ³	17,183,285	15,265,690	12,812,578
Total Domestic and international	32,183,285	31,015,690	29,312,578
Unfunded component National HIV Strategy	US\$ 2,816,715	US\$ 8,984,310	US\$ 15,687,422

Chart 1. The National HIV and STI Strategy 2018-2022, funding gap

1 This projection ends in December 2020 as beyond that international and domestic funding are unknown.
 2 Source: 2017 Global Fund submission, funding gap analysis
 3 International funding comprises funds from Australia, United States, United Nations Organisations (WHO, UNAIDS and UNICEF) and the Global Fund to fight AIDS, Malaria and Tuberculosis.

Chart 1 shows that initially the *National HIV and STI Strategy 2018-2022* is almost completely funded. Unfortunately, the position becomes less rosy during the life of the National Strategy, because the cost of the programs will rise (as the program scales up), and at the same time, international funding will fall, increasing the funding gap.

The *Investment Case for HIV in PNG* recommends several important initiatives that will greatly improve the efficiency of the national HIV response and make substantial savings that will “fund the gap”. These are:

- 1) With the adoption of the *National HIV and STI Strategy Scenario 2018-2022*, recognise that interventions targeting key populations are by far the most important, and insist on their timely delivery. The prevention strategy should be further sharpened to reflect new analysis being conducted in late 2017 on prevention, especially among key populations. A timebound and budgeted workplan for implementation is urgently needed.
- 2) Prepare annual assessments of HIV spending and response, similar to the *National AIDS spending assessment (NASA)* which was last conducted in 2011-12. This will allow the national program to better track and guide the response, including the work of provincial health authorities, and church, NGO and other sectoral actors.
- 3) Find efficiencies and savings:
 - a) Carefully review the procurement and supply function, to find more efficient long-term practices, and better purchasing deals. There appears to be potential for very significant saving and far greater efficiency delivering services and commodities to people who need them.
 - b) Integrate HIV with other health services. Eliminating parallel services not only saves valuable resources in terms of direct service delivery efficiencies (up to 20% savings, as discussed earlier in this report), it also creates opportunities to increase the number of people accessing testing and counselling.
 - c) Introduce differentiated ART service delivery. With more people living with HIV and requiring lifelong ART, differentiated case management is an important tool for Papua New Guinea, with the potential to realise site-level cost efficiencies of up to 20% while maintaining or improving patient health outcomes.
 - d) Rationalise the architecture of NACS/NDoH which is costly, duplicative and unproductive.

In addition, the *Investment Case* recommends some initiatives that will raise new money for the program. The investment case itself, and its companion advocacy piece, are designed not only to provide the facts about HIV investment in PNG, but also to directly and strongly support the Health Minister and other leaders to seek essential funding for HIV from domestic sources and from international partners. The investment case also suggests that policy makers consider activities which have been successful in other countries, such as a small levy on alcohol (worldwide, drinking is a key driver of unsafe sex and thus of STIs and HIV, so this is a “user pays” tax, providing support to the health system which is tasked with funding and operating the HIV and STI program).

Ultimately, if the PNG government meets its commitment to fund the HIV program at the level it indicated to the Global Fund, and makes these sound interventions and adjustments, the National HIV Strategy will be fully funded, bringing an end to the suffering of many Papua New Guineans, and saving many millions of dollars that can be redeployed to achieve the priority issues of universal health care and a robust and high performing health system.

Why is an investment case needed?

The response has been heavily dependent on international funding

Historically, around 76% of the PNG HIV and AIDS response has been funded by bilateral and multilateral partners. This report shows that that portion has dropped to below 50% in the past two years, as the HIV epidemic has recovered from expected projections. Nonetheless, reductions in foreign aid support for the HIV response, including support from governments to the PNG government, multilateral donors and civil society, have changed the level and shape of interventions in PNG.

Increasing pressures on Government budgets

Fundamentally, governments are responsible for providing services to their own people and, globally, countries are being encouraged to finance an increasing share of their national HIV response to improve sustainability. For PNG, this means an increase in the level of domestic HIV funding, or finding more cost-effective ways of working. With increasing pressures on Government budgets, the allocation of domestic resources will become increasingly challenging, and the justification for investing in a particular area over another even more important.

Faced with increasing budgetary pressures, it is tempting to reduce expenditure in the short term and take longer to address the problem. The consequence of this would be that the epidemic will increase, leading to a crisis both in terms of the human and social cost, and the financial cost of repairing the damage.

Current action is insufficient to eliminate the epidemic

While the HIV epidemic in PNG has stabilised (an important achievement in itself), the risks of the situation worsening remains. In the highlands provinces and the National Capital District, HIV prevalence remains over 1%, which is usually considered the threshold of a generalised epidemic. Among key populations, prevalence is much higher: around 15% among sex workers and 9% among men who have sex with men. Over the past 6 years, the rate of new infections has not decreased. Crucially, the successes of the HIV response were achieved when there was more funding for HIV interventions. This is no longer the case and PNG cannot assume that HIV rates will remain stable at current levels.

The importance of “key interventions” and key populations

It is important to understand the role essential HIV interventions and key populations: key populations are the populations most affected by HIV and alienated from healthcare, including people living with HIV, sex workers and their clients, men who have sex with men and transgender people. Essential programs provide Papua New Guineans, especially people in key populations, with STI and HIV prevention, counselling and testing, treatment, care and support. Outside of the health sector, this will be supported by attention to human rights, supportive laws and policies and attention to the drivers of the STI and HIV epidemic like discrimination, gender norms, violence, poverty, drug and alcohol use (Source: National HIV and STI Strategy 2018-2022, executive summary).

Funding for key HIV interventions (such as those that led to previous successes) needs to continue and even be scaled up, either through PNG’s domestic resources or through other means. The social and

economic costs of not doing so will be high and potentially unsustainable – it will likely result in increased infections and an increasing number of people living with HIV who need extremely expensive lifelong medication. This places an avoidable financial burden on the health system, tying up money that could be invested to achieve other priorities, such as strengthening the health system and achieving universal health care.

Objective of the *Investment case for HIV in PNG*

The objective of this report is to identify the best way to end the HIV epidemic in PNG, consistent with PNG’s commitment to eliminate HIV by 2030.

- 1. The investment case provides policy makers with evidence and analysis of the optimal strategy for decisive action to most effectively halt the epidemic in PNG**
- 2. The investment case highlights the funding gap and provides measured, practical solutions what will “fund the gap”**
- 3. The investment case provides health officials with a powerful, evidence-based tool to advocate for essential HIV funding with domestic and international partners.**

It is intended to inform and be used by national and provincial leaders of health policy, Members of Parliament, District Development Authorities, non-government organisations including faith-based organisations, private sector companies involved in HIV work, and by International Development Partners.

PNG’s commitment to work to eliminate HIV by 2030

Through several policy measures and legislation, the Government of Papua New Guinea has committed to eradicating the transmission of HIV and to assist those who live with the disease. These are detailed in the National STI and HIV Strategy 2018-2022. In his foreword to the Strategy, the Prime Minister highlighted that “the government is party to the *2016 United Nations High Level Meeting Declaration to eliminate HIV by 2030*”. The *Declaration to eliminate HIV by 2030* contains prevention and treatment targets that set a fast-track approach to ending AIDS as a public health threat. The Fast Track approach and the 2016 Political Declaration has three main targets: 75 % reduction of new HIV infections, 0% stigma and discrimination, and “90/90/90”, known as the “three 90s”, under which 90 per cent of all HIV-infected people know their HIV status, 90 per cent of HIV-positive people are on treatment, and 90 per cent of people on treatment have suppressed viral loads. “The three 90s” and are the basis of the scenarios used in the investment case⁴.

⁴ The “three 90s” are discussed in detail in section 2 below.

“The three 90s”

The “three 90s” refers to the prevention and treatment targets recommended by WHO and UNAIDS as part of a fast-track approach to ending AIDS as a public health threat.

“The three 90s”: by 2020 -	What this means for health system
90% of all HIV-infected persons know their status	<ul style="list-style-type: none">• HIV testing is easily available including for key populations who commonly experience stigma and are hard to reach: people engaged in transactional sex, men who have sex with men, transgender people
90% of HIV-infected persons are on treatment	<ul style="list-style-type: none">• ARV medicines are available where needed, without stock-outs, including second line medicines, and medicines appropriate for mothers and children
90% of people on treatment have suppressed viral loads	<ul style="list-style-type: none">• People have access to their medicine, are taking it correctly and their treatment is working well• Viral load is being monitored

Chart 2: the 90-90-90 cascade of prevention and treatment results.

The investment case scenarios

Using different timeframe scenarios for ending HIV (including that outlined in the National STI and HIV Strategy and other global best practice models), this report assesses the different types of interventions and the resources required under each. It compares the approaches and outlines their key benefits (such as lives saved, new infections averted) and consequences (economic cost and number of deaths) to determine the best approach. This information can be used by policy makers to advocate for HIV and make funding and programming decisions.

Each scenario considered in this report model the likely trajectory of the HIV epidemic up to 2030, under different settings of the Fast Track prevention and treatment targets.

- UNAIDS Fast Track scenario 2020 (for key populations)
- UNAIDS Fast Track scenario 2020 (for all Papua New Guineans)
- The National STI and HIV Strategy 2018-2022
- UNAIDS Fast Track scenario 2030 (for all Papua New Guineans)
- UNAIDS Fast Track scenario 2030 (for key populations).

The accompanying policy brief

This investment case is accompanied by a short policy brief that summarises the key points. This can be used as an advocacy tool by the Minister for Health and other leaders, to seek necessary domestic and international funding.

Summary

The Investment case for HIV in PNG:

- Shows that investment works by highlighting achievements in terms of new infections averted and lives saved
- Demonstrates the high cost of inaction and delay
- Describes the optional allocation of funds for maximum impact – the resources needed, and their expected impact

- Highlights the need to avoid wasteful investments
- Shows how efficiencies can be found to fund the HIV response
- Provides a powerful advocacy tool to help policy makers raise funds from domestic and international sources.

HIV investment case structure and methodology

The structure of this report reflects the HIV investment case approach which was developed by UNAIDS and partners and is an increasingly important tool for policy makers in countries⁵. The UNAIDS approach has four steps, which have been adopted for the *Investment case for HIV in PNG*:

Understand

To maximize impact of HIV investments, a thorough understanding is required of the extent and dynamics of the national HIV epidemic, based on the latest epidemiological evidence and the current response. This includes an understanding of the key locations and populations with the greatest HIV burden and the greatest unmet needs for HIV services, as well as structural obstacles to service uptake and reach.

Design

Based on this evidence, countries decide on the combination of interventions to prioritize — considering the effectiveness of interventions in reducing their HIV epidemic and keeping people alive with a view to achieving the greatest impact.

Deliver

To increase impact, the response needs to be delivered at scale, i.e. aimed at reaching all those in need. It is thus recommended that countries identify major inefficiencies in HIV programs, and strategies to address key bottlenecks and barriers to access, delivery and quality of HIV services. In this context, pursuing efficiency gains through the minimization of commodity procurement costs and cost-efficient delivery methods can be important. Particular attention will also be required to devise effective means for overcoming human rights and gender-related barriers and reaching key populations and vulnerable groups, including mothers and children.

Sustain

Countries should address challenges related to a sustainable AIDS response, e.g., by synergizing health investments with investments in other development sectors that can have a positive effect on HIV programs and outcomes, integrating key services and avoiding duplications. It also emphasizes the need for more sustainable financing of the HIV response through identifying new and innovative sources of domestic and external funding.

⁵ UNAID (2013) Smart Investments.

1. Understand: In Papua New Guinea, what have HIV investments achieved, and what important gaps remain?

Investment in HIV works

In 2000, experts anticipated that PNG would experience a severe HIV epidemic, with 5% or more of the population infected by HIV.

Concerted effort by the PNG government, with support from its partners, has been successful: in 2017 the increase in HIV prevalence has been halted and prevalence among the general population is steady or slightly decreasing at around 0.89 percent (as measured by women attending antenatal care clinics)⁶. Treatment coverage has greatly increased: over half the adults and children who need medication were undergoing treatment in 2016, compared with about a third in 2011.

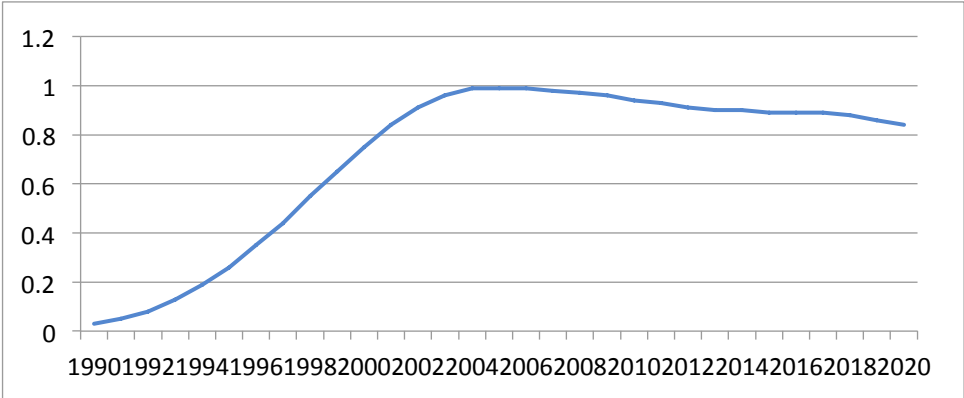


Figure 2: HIV prevalence in PNG under the past response, with projection to 2020

Observed in more detail (Fig. 3 below), we see that investments to date have achieved the following important results:

- AIDS deaths have decreased, due to the availability of new and effective drugs and the hard work of PNG’s government and non-government health workers.
- The slide “Number of people living with HIV” shows that in 16 years the population living with HIV has more than doubled - this indicates not that more people have HIV, but that more are surviving due to antiretroviral therapy (ART).
- The slide “percent of people living with HIV receiving ART” shows that 50% of PLHIV are receiving antiretroviral therapy, and each year many more people are placed on ART.

⁶ The apparent reduction in prevalence may reflect the expansion of testing at ANC centres in areas of low prevalence, rather than actual reduction in national prevalence (c.f. Godwin, P., et al, Mid Term Review of Papua New Guinea HIV and AIDS Strategy (2011-2015), 2014: 6

PAPUA NEW GUINEA
SELECTED TRENDS

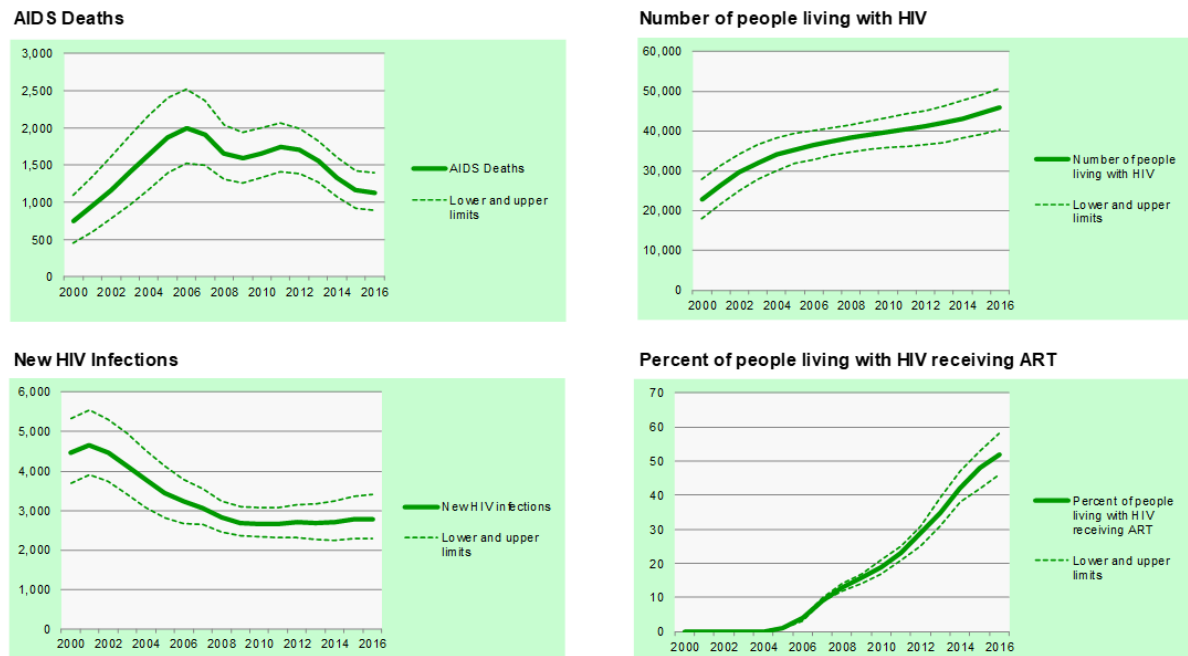


Figure 3: HIV trends in PNG to 2016

The cost of inaction: new infections, high prevalence, great and avoidable cost

While the spread of HIV has been slowed, its management still poses formidable public health challenges. Essential issues which are yet to be resolved include:

- Although new HIV infections halved from 2001 to 2009, new infections (adjusted for population increase) have been rising for 6 years. This represents both a dangerous driver of the epidemic, and an avoidable financial burden on the health systems since lifesaving antiretroviral drugs must be taken for life and are expensive.
- In some highlands provinces and in the National Capital District, HIV prevalence is higher than the national prevalence shown in Figure 3. Around 1.6 % of people in Port Moresby are living with HIV: in the highlands provinces, prevalence ranges from 1.12% to 1.5%. The generally accepted threshold of a generalised epidemic is 1 percent.
- HIV prevalence is about 15 times higher among sex workers and women who have transactional sex, and 9 times higher among men who have sex with men and transgender people
- Rates of sexually transmitted infections are the highest in the region
- Condom use is low, and since condoms are a vital prevention tool, their availability and use needs to be much higher
- HIV prevention remains a significant challenge. The main elements of an HIV prevention program are outreach and behaviour change, condom coverage, STI management, and testing and treatment: none of these are adequate
- Testing in antenatal care facilities is low: as a result, 400 babies will be born HIV positive this year

- Although tuberculosis is the main killer of people living with HIV (PLHIV), only a third of PLHIV are tested for TB
- Only half of PLHIV are on treatment, even though treatment transforms a lethal disease to a manageable syndrome and allows people to live a full life
- A high level of transmitted HIV drug resistance in PNG's young, sexually active population threatens to limit the on-going effective use of a key component of first-line ART⁷
- Meanwhile, the cost of managing the HIV epidemic reduces the amount of funding that can be deployed to broader health priorities, including universal health care.

While advances in medicine are keeping people alive and productive, antiretroviral therapy (ART) coverage is low at around 55% and needs to be much higher, both to care for the 50% of people who need but are not receiving treatment, and to help prevent further spread of HIV infection⁸. Treatment has a very important preventive element, but it only becomes an important part of the prevention strategy when coverage is high. All the scenarios examined below, including the targets in the *National HIV and STI Strategy 2018-2022*, seek to nearly double ART coverage from the current 53% coverage for men and 57% for women, to 90% or more. It is particularly important to increase treatment coverage among key populations: the 2016 NCD IBBS reported HIV testing rates of only 44% of female sex workers and only 49% of MSM and transgender people.⁹

The financial significance of averting new infections

The cost of managing the HIV program is substantial, as even when people are tested and treated, the lifelong cost of antiretroviral medicines is very significant. However, compared to the cost of NOT treating people, the financial benefit of averting new infections is enormous.

There is limited information about facility-level costs of providing HIV treatment, care and support to adult HIV patients on ART in PNG. In 2015 UNAIDS analysed global HIV treatment costs while preparing the UNAIDS Fast Track analysis. For East Asia and Pacific they estimated US\$109 for service delivery, US\$255 for labs and US\$148 for first line ART, totalling US\$512 per person per year¹⁰. Noting that in PNG logistical challenges make procurement and supply relatively expensive compared to other countries in the region, but conversely that the cost of treatment may go down over time, the *PNG HIV Investment Case* has cautiously used the figure of US\$500 per person per year to calculate the savings on projected HIV infections averted.

In PNG, the National HIV and STI Strategy scenario will save 15,000 new infections in the period 2018-2030 alone. Assuming each person lived on treatment for 20 years, and the treatment was comprehensive, and using the UNAIDS East Asia and Pacific cost above (US\$500) to illustrate the risk to

⁷ Lavu E, Kave E, Mosoro E, Markby J, Aleksic E, Gare J, et al. (2017) High Levels of Transmitted HIV Drug Resistance in a Study in Papua New Guinea. PLoS ONE 12(2): e0170265.

⁸ Modern antiretroviral treatment is highly successful not only at restoring PLHIV to long-term good health, but in reducing infectiousness. As people's viral load is reduced to undetectable levels through correct treatment, their infectiousness is reduced to extremely low levels. This gives rise to the term "treatment as prevention". However, this only works if population coverage is above a threshold which is far higher than the current 55% coverage.

⁹ IBBS 2017, NCD preliminary data

¹⁰ Stover J, Bollinger L, Izazola JA, Loures L, DeLay P, Ghys PD, et al. (2016) What Is Required to End the AIDS Epidemic as a Public Health Threat by 2030? The Cost and Impact of the Fast-Track Approach. PLoS ONE 11(5): e0154893. doi:10.1371/journal.pone.0154893

the Treasury, the total savings achieved from those averted 15,000 infections would be US\$150,000,000¹¹.

Overall, increasing coverage of outreach services, testing and treatment is essential to ending the epidemic and allowing policy makers to release funds currently earmarked for HIV, to other parts of the health response. Not funding ART and other interventions at an appropriate level will certainly lead to an increasing in HIV prevalence and a correspondingly high health and economic burden. As shown above, it is essential to stop new HIV infections.

Trends in funding

Past efforts and past funding levels have checked the HIV epidemic, though as noted, there has recently been a worrying upturn in new infections. Successive strategies in the past have been supported by donor funding (76%) while the national government has contributed 24% towards implementation¹². Analysis of funding from 2015 to 2020 shows that the overall availability of funding for HIV is decreasing: international funding is shrinking, and domestic funding is under pressure. The new *National HIV and STI Strategy (2018-2022)*, (which was costed at a modest 20% of the budget of the previous *National HIV Strategy*) will still cost more money than is available, and the gap will widen over time.

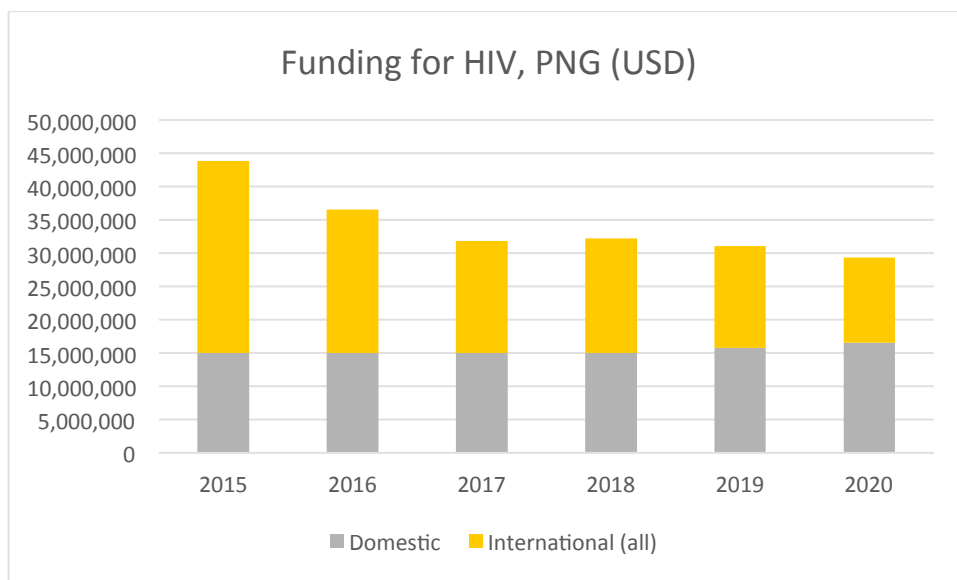


Figure 4: Funding trends from domestic and international sources for HIV in PNG from 2015 to 2020¹³.

Implications of changes in the funding landscape

There have recently been changes in the funding of PNG's HIV response. Support for some parts of the program remains strong and essential, but other parts of the program are no longer funded. Key interventions which are less well supported than they were two years ago include:

¹¹ 15,000 averted infections x \$500 per person/year x 20 years = US\$150,000,000.

¹² PNG National HIV and STI Strategy 2018-2022, Prime Minister's foreword.

¹³ This chart assumes that PNG will maintain domestic funding for HIV at the level stated in the Global Fund proposal, 2017 (Global Fund funding request 2017: funding gap analysis)

- Funding support for community activities targeting key populations: essential outreach to sex workers and men who have sex with men ceased in Mount Hagen, Lae and Madang. At present PNG’s only outreach programs for key populations are in the National Capital District, although the need is clear in all high prevalence provinces
- The viral load testing program which was previously being scaled up, has been shut down. This will hinder important strategic information capacity
- Condom distribution, which is an essential part of the prevention effort, has been patchy
- There is a real risk of stockouts in antiretroviral medications.

Emerging gaps in programming need to be resolved urgently. Fortunately, these gaps are recognised and addressed in the new *National HIV and STI Strategy (2018-2022)*, and a suitable response to each of the issues is implied in all of the Fast Track scenarios reviewed in this investment case.

Note that the baseline for this analysis is built on national data from 2016, and the results of these changes are not yet visible in reporting or modelling. This means that the baseline/business as usual case in the following analysis is “best case”- in fact, there are important gaps that will produce less positive result in the baseline case over time.

2. Design: what optional allocation of funds will achieve maximum impact?

In this section, building on the evidence of results already achieved, several scenarios are modelled with the view to helping policy makers decide on the combination of interventions to prioritise. The modelling considers the effectiveness of interventions in reducing the HIV epidemic and keeping people alive with a view to achieving the greatest impact.

This investment case examines 5 scenarios for accelerated HIV interventions and compares them with the results that will come from the current response. Using epidemic and economic modelling, it gauges what is likely to happen to the HIV epidemic under each scenario and compares the costs and benefits of each. The scenarios are the *National HIV and STI Strategy 2018-2022*, and four scenarios which test variations of the United Nations “*Fast Track for ending AIDS by 2030*”, to which Papua New Guinea and over 100 countries committed in 2016. Under the Fast Track approach, known as the “three 90s”, 90 per cent of all HIV-infected people know their HIV status, 90 per cent of HIV-positive people are on treatment, and 90 per cent of people on treatment have suppressed viral loads. The scenarios in this investment case explore 90-90-90 coverage for ALL Papua New Guineas by 2030; 90-90-90 coverage for key populations by 2030; and the same for 2020 (which would obviously greatly accelerate impact). These are compared with the likely outcomes of the new *National HIV and STI strategy (2018-2022)*.

“The three 90s”

The “three 90s” refers to the prevention and treatment targets recommended by WHO and UNAIDS as a fast-track approach to ending AIDS as a public health threat.

“The three 90s”: by 2020 -	What this means for health system
90% of all HIV-infected persons know their status	<ul style="list-style-type: none"> HIV testing is easily available including for key populations who commonly experience stigma and are hard to reach: people engaged in transactional sex, men who have sex with men, transgender people
90% of HIV-infected persons are on treatment	<ul style="list-style-type: none"> ARV medicines are available where needed, without stock-outs, including second line medicines, and medicines appropriate for mothers and children
90% of people on treatment have suppressed viral loads	<ul style="list-style-type: none"> People have access to their medicine, are taking it correctly and their treatment is working well Viral load is being monitored

Chart 2: the 90-90-90 cascade of prevention and treatment results.

The following scenarios were analysed:

- Implement the newly completed National HIV and STI Strategy 2018-2022, which aims to achieve 90-90-90 coverage of the whole population, including key populations, by 2022
- Achieve 90-90-90 program coverage of key populations by 2030
- Achieve 90-90-90 program coverage of the whole population (including key populations) by 2030
- Achieve 90-90-90 program coverage of key populations by 2020
- Achieve 90-90-90 program coverage of the whole population (including key populations) by 2020.

The National STI and HIV Strategy 2018-22

The first scenario analysed is the *National STI and HIV Strategy 2018-2022*. PNG has committed to ending AIDS by 2030, and the new national strategy is currently being adopted. To implement the strategy, PNG will need to increase funding levels. The timeframe is achievable, but tight, and to reach its targets, the strategy will need to be implemented immediately and vigorously.

The new (draft)¹⁴ *National STI and HIV Strategy 2018-2022* addresses the vital issues of expanding HIV and STI testing and treatment, especially among mothers and children and among key populations¹⁵; the production and management of strategic information needed to track and respond to the epidemic; and provides advice and tools to provincial health authorities about how to cost and manage an appropriate response. If the *National Strategy* is followed, HIV will decline substantially by 2022, putting PNG in a good position to eliminate HIV entirely, and free up the resources for other health imperatives.

The PNG approach, as outlined in the *National Strategy*, to responding to STIs and HIV requires focussed and concentrated effort on several fronts. In the health sector, PNG will provide services and programs across a continuum of prevention, treatment, care and support. This will involve regular HIV testing for people at risk, STI treatment and prevention outreach to support safer behaviours for people who test negative for HIV and STIs, TB prophylaxis (or treatment if living with TB) and HIV treatment care and

¹⁴ At the time of writing this report, the Strategy was awaiting formal approval by the National Executive Council.

¹⁵ Key populations are groups of people who bear disproportionate burdens of HIV infection and who at the same time experience stigma and lack of access to services.

support for PLHIV. The response to HIV requires focused work from many sectors, not just the health sector: policy makers and civil society need to continue to improve the “enabling environment”, ensuring a progressive approach to human rights, supportive laws and policies and attention to drivers of the STI and HIV epidemic like discrimination, gender norms, violence, poverty and drug and alcohol use.

The *National Strategy* stipulates targets to be achieved by 2022. These are the global prevention and treatment targets, revised for PNG conditions (there is no drug injection epidemic; male circumcision is not seen as a necessary prevention, and cash transfers to young women are not necessary, given the low national prevalence, nor are they affordable).

Intervention	National HIV Strategy targets 2022
General population	
Condom promotion	90%
Cash transfers for young women (15-24)	Not included
Most at risk populations	
Services for sex workers	90%
Services for MSM	90%
Services for PWID	Not included
Opioid substitution therapy	Not included
Voluntary medical male circumcision	Not included
PrEP	30%
ART (coverage among all PLHIV)	90%

Chart 3: PNG’s modified program targets for prevention and treatment.

When these are included in the modelling, projected HIV prevalence falls substantially. Prevalence reduces more sharply from 2022 because in that year the 90-90-90 prevention and treatment measures reach full force.

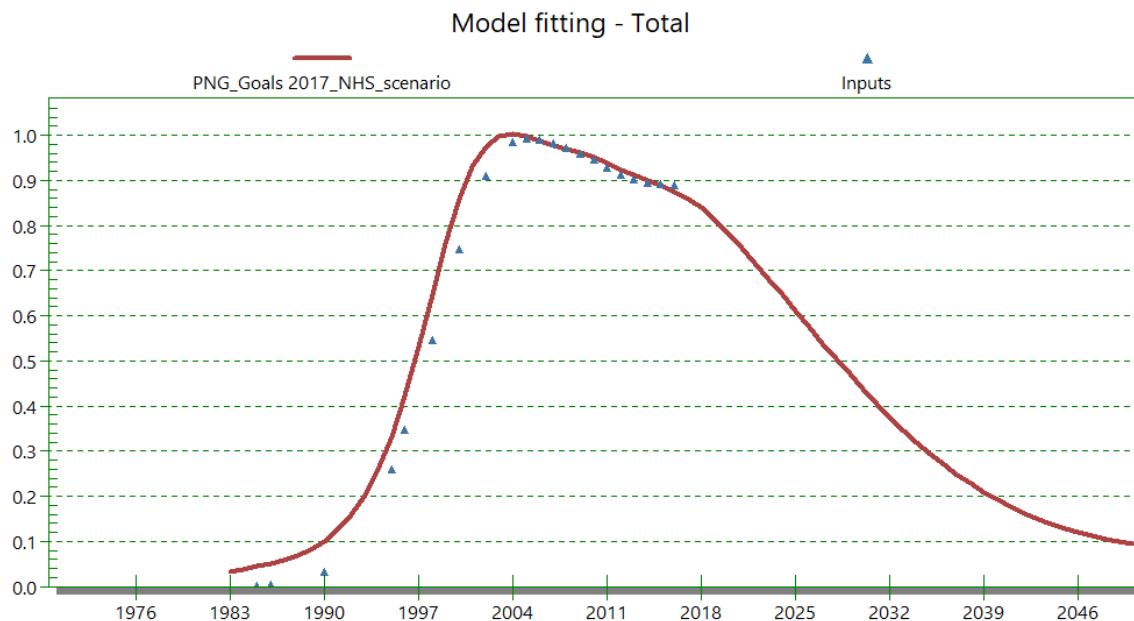


Figure 5: The projected epidemic if National HIV & STI Strategy targets are met

The chart above shows an epidemic in retreat. There is no doubt that the *National HIV & STI Strategy* is a powerful plan which will sharply curtail the epidemic.

Comparing the fast track scenarios for PNG

Turning to the other four scenarios, each examines what will happen to the epidemic if 90-90-90 coverage is provided for Key Populations and the General Population (“ALL”), by 2020 and alternately, 2030. The National HIV and STI strategy, which is an “ALL” scenario reaching full capacity by 2022, has already been introduced, but it is included in the modelling analysis below. The following table shows the main variables between the scenarios.

Intervention	NHS 2018-2022	Key Populations by 2020	ALL populations by 2020	Key Populations by 2030	ALL populations by 2030
General population					
Condom promotion	90%	90%	90%	90%	90%
Most at risk populations					
Services for sex workers (peer education, general IEC, condom distribution and STI testing and treatment)	90%	90%	90%	90%	90%
Services for MSM (as above + lubricant)	90%	90%	90%	90%	90%
Pre-exposure prophylaxis (PrEP)	30%	10%	30%	30%	30%
ART (coverage among all PLHIV)	90%	90%	90%	95%	95%

Chart 4: Targets for the different fast track scenarios.

Epidemic impact of the scenarios – prevalence

The chart below shows the decline in HIV prevalence over time under the scenarios. The greatest decline occurs with the earlier interventions (i.e., the 2020 Key Populations; the 2020 ALL and the 2022 *National Strategic plan*): The baseline/business as usual scenario is least effective. The reason prevalence does not drop more markedly is that antiretroviral drugs keep people alive and productive for close to their normal lifetime.

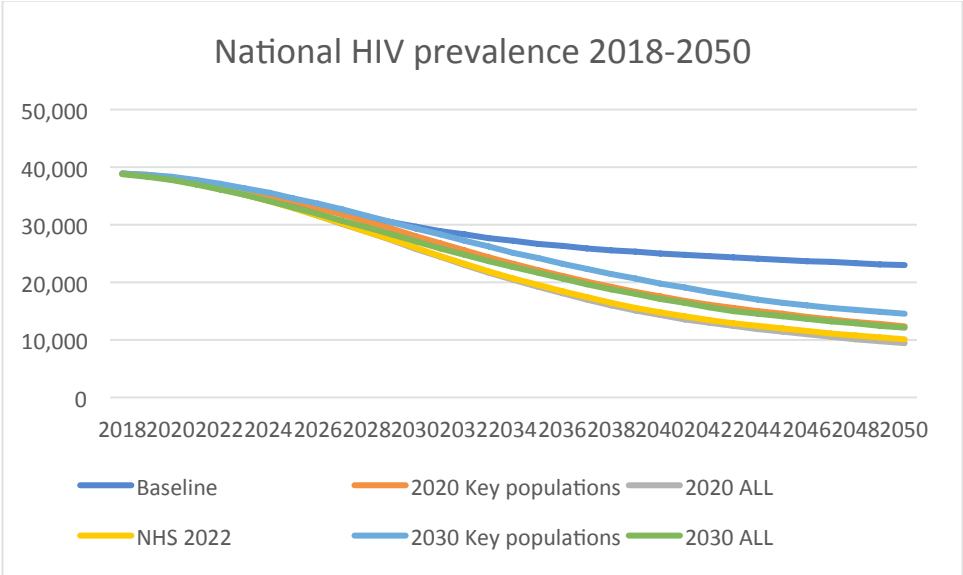


Figure 6: Prevalence projected to 2050 under the analysed scenarios.

Epidemic impact of the scenarios - new infections averted

The following graphs show what will happen with new infections among the main risk groups, high risk females and men who have sex with men, if each of the 5 scenarios is followed. *The pale blue line is the baseline – what would happen if PNG does not follow the NHS or the other Fast track scenarios.*

High risk heterosexual women

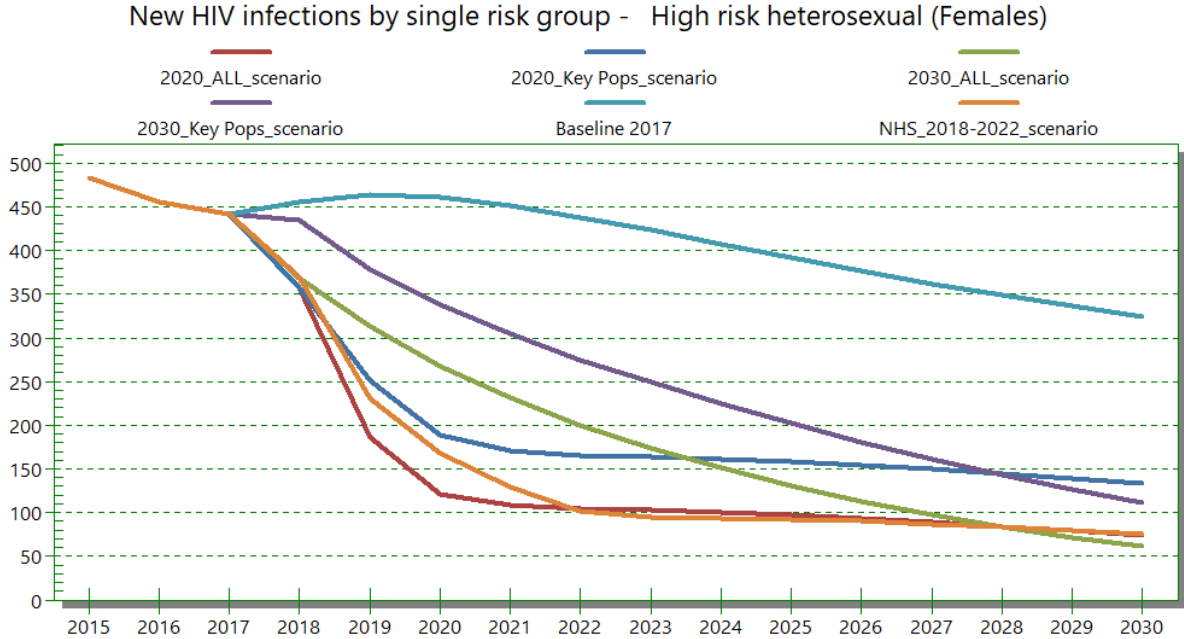


Figure 7: Projected HIV Prevalence among high risk heterosexual women, by scenario.

Each of the 5 scenarios deliver a steep reduction in new infections among this critical risk group. The 2020 scenario achieves the best results, fastest, and the three early scenarios including the NHS (which scales up fully by 2022) achieve essential results faster than the 2030 scenarios.

The 2020 ALL case is more effective and rapid than the others because in addition to the specific sex worker interventions of IEC, peer education, condom promotion and STI services, it promotes condoms and general knowledge about HIV and STI to men and women in the general population in a way that is considerably more focussed than the current program.

Unlike the fast track scenarios plus the National HIV and STI strategy, the “business as usual” case/baseline (pale blue) shows an increase in new infections among high risk females for the first 3 or 4 years, followed by a slow decrease in new infections. Many new avoidable infections will occur under this scenario.

Overall, in terms of difficulty curtailing the epidemic among female sex workers, the ideal scenarios are the 2020 and 2022 cases. However, from a practical programming perspective, both 2020 cases call for very dramatic increases in services (discussed below) and immediate significant expenditure (also discussed below).

Men who have sex with men

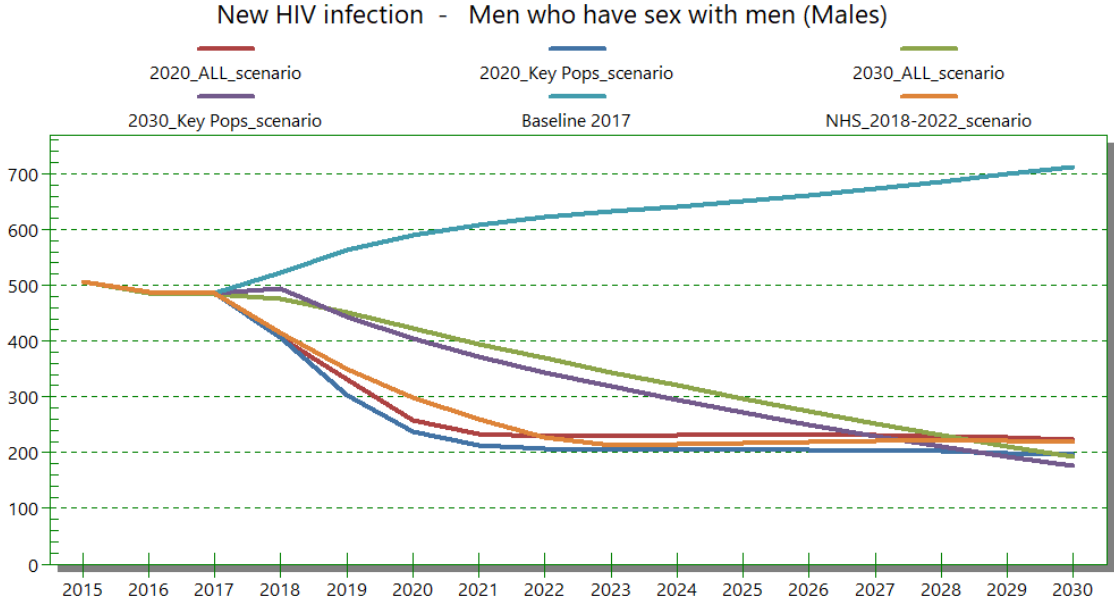


Figure 8: Projected HIV Prevalence among men who have sex with men, by scenario.

In the case of MSM, it is immediately apparent that the “business as usual” case will not work. New infections would rise quite steeply. Also, as discussed above, the business as usual case doesn’t really exist anymore: there is less money available and fewer outreach services for MSM (and high-risk women) than were required to achieve the current state.

Otherwise, each of the 5 scenarios delivers a reduction in new infections among MSM. None of them are as successful as interventions among high risk women – by 2030, all Fast Track scenarios will reduce new infections among high risk women to 100-150 per year, compared to about 200 new infections per year among MSM¹⁶.

As with the high-risk women, the early scenarios yield the earliest results, with similar results from the 2020 ALL, 2020 Key Populations and the NHS (which as noted is a 2022 ALL scenario). Both 2030 scenarios take longer to achieve similar results, but by 2030 have similar results. This is because the 2030 scenarios do not suddenly start delivering services: rather, they are scaled up from the baseline at 2018 to reach their full force in 2030. Also, the 2030 Fast Track scenarios have higher impact than the 2020 scenarios, because they actually reach 95% of coverage, compared to the 90% of the 2020 scenarios. That probably explains why the 2030 scenarios appear to achieve a better result in term of new infections: MSM, in the key population case, and the whole population, in the ALL case, will have

¹⁶ Given that there are many more high-risk heterosexual women and men who have sex with men, this suggests that the PNG program should look carefully for innovative approaches to reducing new infections among MSM. The new key population prevention study sponsored by UNAIDS in late 2017 will provide important support.

been receiving messages, condoms, STI treatment, and increased ART coverage for a long time, with higher final coverage. High ART coverage has a strong preventive effect¹⁷.

Overall, from the perspective of curtailing the epidemic among men who have sex with men, the 2020 and 2022 scenarios achieve faster results, but not necessarily deeper reductions in new infections. As with the high-risk females, both 2020 cases call for dramatic increases in services and immediate significant expenditure (both discussed below).

Medium risk heterosexual women

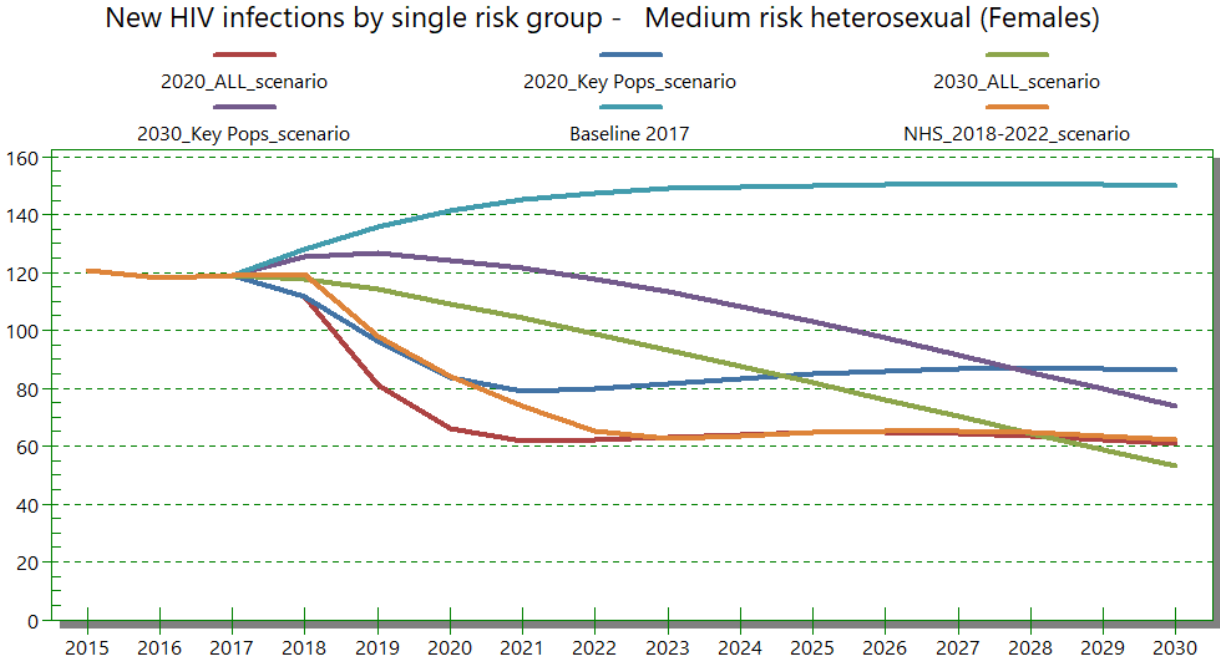


Figure 9: Projected HIV Prevalence among medium risk women, by scenario

A third important group is women at medium risk of HIV infection. As everywhere, Papua New Guinea has a female sex worker population, which has been reviewed above. In addition, a high proportion of women engage in transactional sex, sometimes, with a not very large number of clients. The recent IBBS (2016) suggests that 16% of all women aged 15-49 may engage in transactional sex. There is no definitive information about how many partners they have, on average, or how often they have sex with each partner, but it is far from the classic sex worker model. This is an important group but in the SPECTRUM modelling software, they cannot be grouped under “high risk heterosexual women”, as exponential errors would result. They are therefore grouped under “medium risk heterosexual women”. The scenario curves above show that new infections would not fall under the baseline

¹⁷ ART has a strong preventative effective when people are reached and put on treatment within the first two years of infections. Given that the epidemic is around the high-risk settings, the treatment for all needs to be linked with programmes for key pops, otherwise, people will be diagnosed late and treatment will not have a preventative effect (UNAIDS, 2018).

scenario, and that the fastest reduction in new infections would result from the 2020 ALL case, followed by the NHS case. This is logical, as some of the women on this category will be reached by the key population interventions, and some will not – but will benefit from the ALL population interventions. The 2020 key populations scenario will have an early positive impact on medium risk heterosexual women but will fail to hold new infections low for long: a result of missing the many women engaged in transactional sex work who are not reached by key population activities. Both 2030 scenarios cause a slower but steady and ultimately more effective result in terms of reduced new infections: some medium risk women, in the key population case, and others, in the ALL case, will have been receiving messages, condoms, STI treatment, and increased ART coverage for a long time, with higher final coverage. As with the MSM, high ART coverage has a strong preventive effect.

Epidemic impact of the scenarios - lives saved

The following slides show the effect of the different scenarios in averting deaths, compared to the baseline/business as usual case. Between 2018 and 2030, the different scenarios will save between 12,122 and 15,356 Papua New Guineans from avoidable death from AIDS.

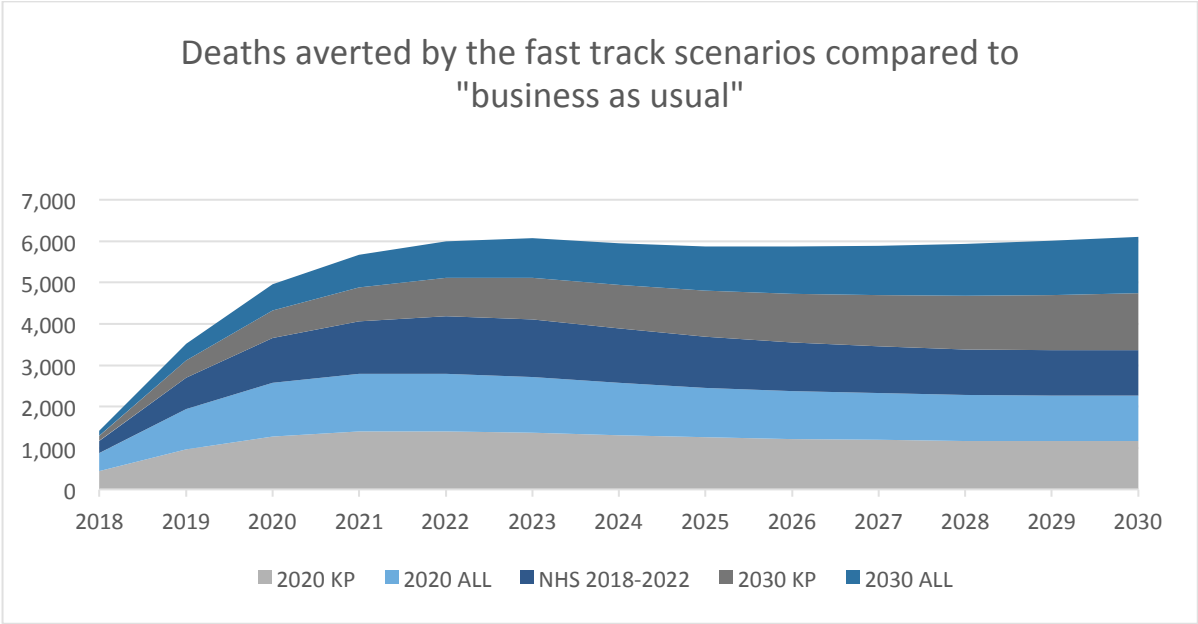


Figure 10: AIDS deaths averted by the fast track scenarios, compared to the baseline case.

Total deaths averted by scenarios, compared to the business as usual case, 2018 to 2030

Scenario	2018-2030
2020 Key population	15,356
2020 ALL	14,899
NHS 2018-2022	14,331
2030 Key population	12,536
2030 ALL	12,122

Chart 5: Cumulative AIDS deaths averted compared to the business as usual case.

4. Delivery: implementing the right program and addressing inefficiencies

Having outlined the results that the different scenarios will deliver in terms of new infections, lives saved and the overall HIV prevalence, we turn to the practicalities of implementing the scenarios. This section considers four main issues:

- The relative costs of the scenarios
- The question of whether service delivery can be scaled up to the required level in time to meet scenario targets
- How important inefficiencies in the PNG HIV response can be improved, with great benefits
- Strategies to address key bottlenecks and barriers to access, delivery and quality of HIV services.

Relative costs of the scenarios

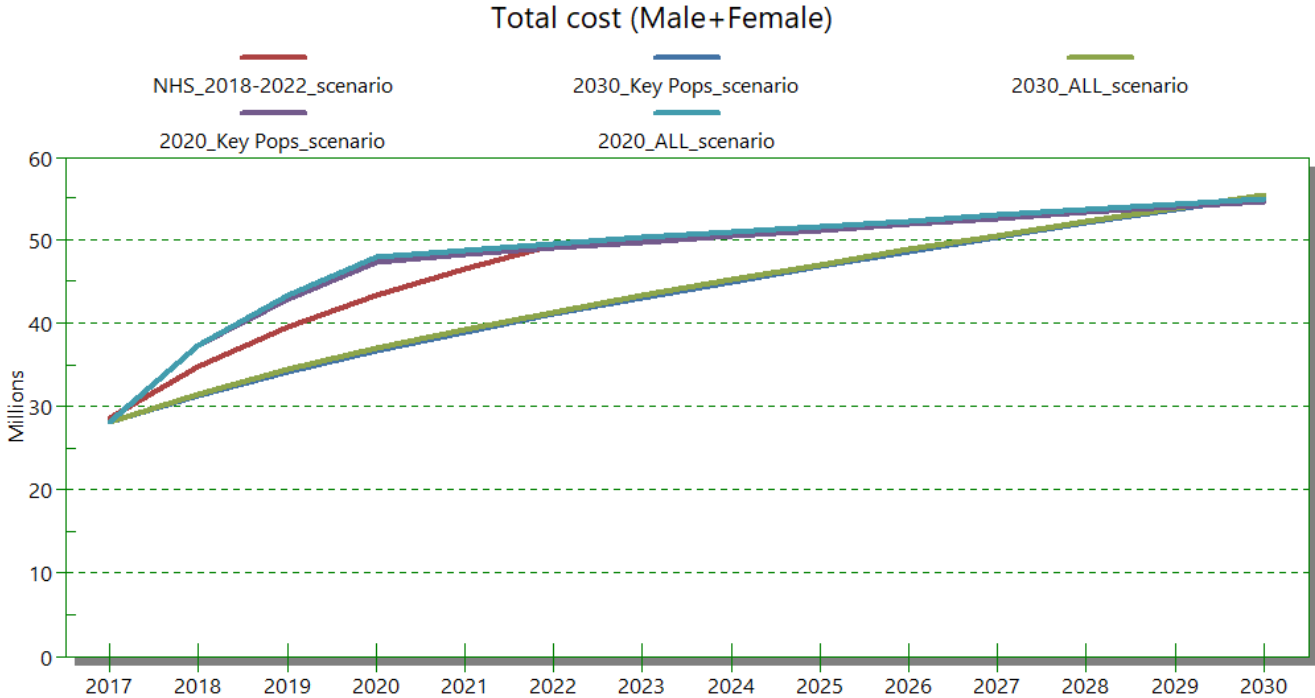


Figure 11: costs by year of the five scenarios.

The chart above shows that the annual budget required for each of the scenarios is different in the next 5 years. The two 2020 scenarios have similar costs, which climb steeply in the period 2018 to 2020, after which they level off. The *National HIV and STI Strategy 2018-2022* has a similar curve but reaches full effectiveness and full annual cost in 2022, rather than 2020. Both 2030 scenarios have a slow increase from 2018 to 2030, at which point the annual costs of all five scenarios will be similar.

To illustrate this, the table below shows the annual cost difference between the 2020 ALL scenario and the *National HIV and STI Strategy 2018-2022* (which is, as noted, an “ALL” scenario reaching full potential by 2022) for the period 2018 to 2022.

	2018	2019	2020	2021	2022	Total 5 years
Savings USD	2,400,000	3,740,000	4,610,000	2,260,000	110,000	13,120,000

Chart 6: Amount saved 2018-2022 by adopting the NHS rather than the 2020 ALL scenario

This represents a saving of \$13,120,000 from 2018 to 2022. Given the current budgetary situation, this may be an important consideration for policy makers.

Scale up

The best scenarios, epidemiologically, are the two 2020 scenarios. However, 2020 is no great distance away and to achieve either of them, PNG would need to scale up the HIV response rapidly and dramatically. The table below shows the pace of scale up required over the years 2018-2020:

Intervention	Baseline	Key Populations by 2020	ALL populations by 2020
General population			
Condom promotion	4.8% of all sex acts	Unchanged from baseline	90% of needed
Most at risk populations			
Services for sex workers (<i>peer education, general IEC, condom distribution and STI testing and treatment</i>)	48%	90%	90%
Services for MSM (<i>as above + lubricant</i>) ¹⁸	12%	90%	90%
Pre-exposure prophylaxis (PrEP)	0%	10%	30%
ART (coverage among all PLHIV)	53%	90%	90%

Chart 7: Scale up needed to achieve the targets of the two 2020 scenarios

It is reasonable to ask whether the PNG Government can realistically scale up for either the 2020 scenarios given the resources available. This is a doubly important question when considering the cost difference shown in the previous section. This would require extremely agile institutions which are able to drive and measure a scaled-up response, including the multisectoral aspects of the intervention around prevention and key populations.

On the other hand, scaling up over the 5 years of the *National HIV and STI Strategy 2018-2022* to achieve the 90-90-90 targets for all by 2022 is much more achievable and realistic within the current environment. Although the *National Strategy* will deliver slightly slower results for both the Key Populations and the general population than the 2020 key population or 2020 ALL scenarios, it stands a better chance of success - and as observed above, would represent less of a burden on the national budget. It would also allow space for the NACS/NDoH architecture and other important partnerships to be addressed in a thoughtful way.

Importantly, as shown above, there is a growing funding gap and to achieve the targets of the *National Strategy* there would be an increase in resources.

¹⁸ Note SPECTRUM definition is "% of KP reached by outreach interventions per year", which is FSW 48% and MSM 12%, and not other standard parts of coverage - condom coverage (FSW 44%; MSM 26.9%), HIV testing (FSW 44%; MSM 49%), or STI testing (no data). All from IBBS NCD 2016.

Inefficiencies in the HIV program

Need to better track HIV spending, and avoid wasteful investments

The last National HIV and AIDS Spending Assessment (NASA) was produced for the period 2011-2012. The NASA approach to resource tracking is a systematic methodology used to determine the flow of resources intended to combat HIV. The tool tracks actual expenditure (public, private and international) both in health and non-health sectors that comprises the National Response to HIV. Since PNG stopped producing the NASA report, it has become remarkably difficult to track expenditure. This limits the ability of the national program to assess the effectiveness of HIV expenditure and identify inefficiencies.

For example, the NASA 2011-2012 showed that administrative costs of the HIV program were around 50%. This is an extremely high figure by global standards. It is not clear whether the national program has become more efficient since then.

Commodity procurement and supply

Delays and inefficiencies in procurement and supply limit the effectiveness of the HIV response. In 2017 there were procurement and supply issues around condoms and antiretroviral drugs, which are important elements of the HIV program, both because they are essential for prevention and treatment, and also because these two commodities represent a large part of HIV related expenditure. [In some countries, procurement and supply represents 75% of the entire HIV budget]. In preparing this modelling, the reported cost of delivering commodities and services such as testing and treatment for the PNG program was compared with similar items and services in the region. The differences between PNG and the region are substantial. While it is well known that PNG is expensive because costs relating to transport and security add to the cost of procurement and supply management, it is important that these cost areas are systematised and made much more efficient. In addition to the management aspect, PNG might consider working with partners such as UNAIDS and the Global Fund to ensure we are getting the very best prices available: several global mechanisms are in place to help.

Parallel HIV/STI clinics and primary health clinics

Efficiency can be improved by integrating HIV with other health services. Eliminating parallel services not only saves valuable resources in terms of direct service delivery efficiencies, it also creates opportunities to increase the numbers of people accessing testing and counselling. A 2012 review of available evidence on integrating HIV services with other health services¹⁹ found broad support that integrating services reduces service costs. For instance, in India, Kenya and Uganda integrated HIV counselling and testing services are less costly than standalone HIV counselling and testing services by 31% to 79%²⁰.

For some time, PNG has run HIV and STI services parallel to primary health services. This is inefficient since the staff, buildings, laboratory and equipment and some commodities are duplicated. In addition, people are deterred from visiting the health service when signage or location make it clear that the service provided is for HIV or sexually transmitted infections. They may experience stigma or feel embarrassed or ashamed to visit the service. The Catholic Health Service has already moved toward

¹⁹ Sweeney S, Obure CD, Maier CB, Greener R, Dehne K, Vassall A. Costs and efficiency of integrating HIV/AIDS services with other health services: a systematic review of evidence and experience. *Sex Transm Infect.* 2012; 88:85–99.

²⁰ UNAIDS (2013) Smart investments: 14.

integration of HIV and STI services with other health services: the benefits are clear, and it is an important opportunity to remove inefficiencies, and potentially, stigma. The national HIV program might consider better integrating:

1. HIV prevention in children into antenatal care and maternal and child health settings
2. HIV and TB services
3. HIV service in primary care.

The national HIV “Architecture”

Globally, system of a National AIDS Commission coordinating a multi-sectoral response while the health department is responsible for the majority of ‘services’, is being reviewed. General this dual architecture is being regarded as duplicative in the context of concentrated epidemics. This point was made about the PNG architecture by the *Mid-term review of the 2011-15 National HIV Strategy*, which also noted that the dual process is likely to have constrained the development of more public health-oriented approaches to health service delivery, and the coordination of civil society and governmental sector implementation of such approaches. In early 2018 the situation continues to be unresolved.

In addition, the Provincial AIDS Councils have been dismantled, and responsibility for implementation has shifted to the Provincial Health Authorities/Provincial Health Offices. As decentralisation reform gathers pace, it will be crucial to coordinate and support the Provincial Health Authorities, which are currently engaging in the complicated process of absorbing responsibility for HIV. In addition, the work of the churches, NGOs, business sectors and other government departments such as policy, justice, education and welfare is very important, and coordination between multisector partners is essential. The *National HIV and STI strategy 2018-2022* places immediate priority on ensuring this happens.

Introducing differentiated models of care and service delivery

Significant efficiencies could be made by adopting differentiated models of care, described below.

Successful implementation of **differentiated ART service delivery has the potential to realise site-level cost efficiencies of up to 20 percent while maintaining or improving patient health outcomes.**

“A key aspect of improving program quality and efficiency focuses on the improvements in implementation and service delivery to ensure more and more people are reached with tailored (differentiated) services. This will lead to an increase in impact and efficiency. Differentiated care is a client-centred approach, which simplifies and adapts HIV services across the prevention, testing, treatment and care cascade, to reflect the needs, preferences and expectations of various groups of PLHIV while also reducing unnecessary burdens on the health system. The recently updated WHO consolidated guidelines on the use of ART therapy show a shift in the delivery of HIV treatment, to recognizing the diverse needs of PLHIV; new guidance now includes service delivery recommendations based on a differentiated care framework. By providing differentiated care, the health system can refocus resources on those most in need. Adapting ART delivery and support services to specific client populations and context is required to reach the 90-90-90 targets”.

Source: WHO (2015) HIV treatment and care: What’s new in service delivery.

Other initiatives to fund the HIV response

If introduced rapidly and completely, the initiatives detailed above should create efficiencies and savings that will “fund the gap” in the *National HIV and STI Strategy*. Recognising that these require significant decisions and that change will not be immediate, it will be helpful to consider mechanisms that have helped other developing countries to fund their HIV programs.

Increase domestic funding to control the HIV epidemic

This investment case has showed how expensive it will be to not fund the HIV response. The investment case and the companion policy brief can be used by policy makers to seek necessary additional funding for the HIV program, knowing that implementing the HIV program will save money and well as lives.

Seek new sources of international funding

Similarly, the investment case and policy brief arms policy makers and health leaders with evidenced arguments and an advocacy tool to present to international funding agencies, to seek assistance with funding the *National HIV and STI Strategy*.

Consider integrating DISP funds to support primary health care

There is discussion of how to best use the DISP funds. One idea that has been presented is to integrate DSIP funds to support primary care, some of which would help with HIV service delivery at the district level.

Taxation initiatives:

Some countries have introduced an airport tax on international airline tickets to support the HIV response. A small levy is not noticed by passengers but can raise very useful funding. In PNG, levying a modest (\$5) fee on arriving or departing passengers could raise between \$2.5 and \$5 million annually²¹.

Alcohol is a key driver of unsafe sex and thus HIV and STI, and there is sound logic to introducing a levy on alcohol to fund the national HIV response. Uganda, Zimbabwe and Botswana are all considering introducing an alcohol levy to fund HIV. One advantage of a levy on alcohol is that it reaches people in the informal sector as well as the formal economy – drinkers would pay the HIV tax whether or not they pay other taxes. If the proceeds were directed to fund PNG’s *National Strategy*, it could make a very important contribution to the HIV response.

4. Sustaining the response

Papua New Guinea is experiencing a tight fiscal environment, and like other sectors, the HIV response needs to demonstrate value for money. PNG needs to address challenges related to a sustainable AIDS response.

The following recommendations will help PNG fund the response, by finding efficiencies in procurement and supply, by synergising HIV investments with investments in other health programs, by integrating key services and avoiding duplications.

They also emphasise the need for more sustainable financing of the HIV response through identifying new and innovative sources of domestic and external funding.

²¹ Assuming 100 flights departing weekly with between 100 and 200 passengers each paying \$5.

Recommendations

- 1) Fund and prioritise delivery of the *National HIV and STI Strategy Scenario 2018-2022*. Compared to other scenarios reviewed in this report, it:
 - Will achieve early, important, nationwide results, saving many lives compared to the 2030 scenarios
 - Averts 15,233 new infections by 2030, compared to baseline scenario
 - Scales up fast, but not so fast that it will be doomed to failure from overdemanding targets
 - Will reach coverage of key populations and the general populations by 2022, 8 years faster than the 2030 scenarios, with very considerable saving of life, suffering and long-term costs treating people unnecessarily infected with HIV
 - Saves US\$13,120,000 in direct implementation costs in the period 2018-2022 compared to implementing the 2020 scenarios.
 - Specifically addresses the key issue of devolving responsibility for HIV management to the provinces, including by providing a costing tool to help provinces understand the implied cost of decisions they make about standard and enhanced clinics to address the epidemic.
- 2) With the adoption of the National HIV and STI Strategy Scenario 2018-2022, recognise that interventions targeting key populations are by far the most important, and insist on their timely delivery. The prevention strategy should be further sharpened to reflect new analysis being conducted in late 2017 on prevention, especially among key populations. A timebound and budgeted workplan for implementation is urgently needed.
- 3) Prepare annual assessments of HIV spending and response, similar to the National AIDS spending assessment (NASA) which was last conducted in 2011-12. This will allow the national program to better track and guide the response, including the work of provincial health authorities, and church, NGO and other sectoral actors.
- 4) Find efficiencies and savings:
 - a) Carefully review the procurement and supply function, to find more efficient long-term practices, and better purchasing deals. There appears to be potential for very significant saving and far greater efficiency delivering services and commodities to people who need them.
 - b) Integrate HIV with other health services. Eliminating parallel services not only saves valuable resources in terms of direct service delivery efficiencies (up to 20% savings, as discussed earlier in this report), it also creates opportunities to increase the number of people accessing testing and counselling.
 - c) Introduce differentiated ART service delivery. With more people living with HIV and requiring lifelong ART, differentiated case management is an important tool for Papua New Guinea, with the potential to realise site-level cost efficiencies of up to 20 percent while maintaining or improving patient health outcomes.
 - d) Rationalise the architecture of NACS/NDoH which is costly, duplicative and unproductive.
- 5) Find new sources of sustainable financing for the HIV response. Some possibilities outlined in this investment case are:
 - a) Increase domestic funding to control the HIV epidemic
 - b) Seek new sources of international funding
 - c) Consider integrating DSIP funds to support primary care, some of which would help with HIV service delivery at the district level

- d) Introduce an airport tax to support the HIV response. This has been successful in some countries. Levying a modest (\$5) fee on departing passengers could raise between \$2.5 and \$5 million annually
 - e) Introduce a levy on alcohol, which is a key driver of HIV. This could make a very important contribution to the HIV response.
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