

2018

STI/HIV & AIDS Program Annual Report



National Department of Health
Papua New Guinea

Preface

The HIV/AIDS and STIs epidemic continues to be a major public health problem in Papua New Guinea (PNG). Despite having made significant progress in increasing access to life-saving anti-retroviral therapy and HIV prevention interventions, transmission still remains high in many subpopulations and geographic locations.

The National HIV/AIDS and STIs program is working closely with development partners and communities to address this growing scourge. The National STIs and HIV/AIDS Strategy: 2017 – 2020 provides a roadmap on how this will be achieved. Our vision is that all people in PNG are able to protect themselves, from STIs and HIV, and all people with STIs and HIV are able to access high-quality care, treatment and support they need to maximize their health and the health of their families.

This annual report provides an overview of the progress that the country has made in achieving our targets in 2017. It provides insight into the status of our epidemic, progress on specific program indicators as well as our successes and challenges.

It is our hope that as we become more informed on the status of our epidemic and programmatic performance, all stakeholders can take stock of their contribution in addressing the epidemic.

May God guide and lead us in our aim to make PNG free of STIs and HIV/AIDS.

Mr Pascoe Kase

Secretary for Health

Acknowledgments

We are very grateful to the contributions made by all the people involved in the development, finalization, and distribution of this report. Special recognition goes to the following people/organizations;

- Health care workers who are at the frontline of our fight to address STIs and HIV/AIDS in PNG. They also generate the reports and data used in coming up with this report.
- The STIs and HIV/AIDS surveillance team who were responsible for data collation and analysis
- Our development partners namely World Vision, Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM), Centres for Disease Control and Prevention (CDC), United States Agency for International Development (USAID), World Health Organization (WHO), FHI360, Institute of Medical Research (IMR) and The Joint United Nations Programme on HIV/AIDS (UNAIDS) for their various financial and technical contributions to this report.
- The communities particularly people living with HIV (PLHIV) who are the ultimate beneficiaries of all our efforts

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Abbreviations

3TC	Lamivudine
ABC	Abacavir
AIDS	Acquired Immuno-deficiency Syndrome
ANC	Antenatal Care
ARB	Autonomous Region of Bougainville
ART	Anti-retroviral therapy
AZT	Zidovudine
BMU	Basic Management Unit
CDC	Centres for Disease Control and Prevention
EFV	Efavirenz
EHP	Eastern Highlands Province
EID	Early Infant Diagnosis
ENBP	East New Britain Province
eNHIS	electronic National Health Information System
ESP	East Sepik Province
FBO	Faith-Based Organizations
FSW	Female sex workers
GBV	Gender-Based Violence
GFATM	Global Fund to fight AIDS, Tuberculosis, and Malaria
HBsAg	Hepatitis B Surface Antigen
HBV	Hepatitis B Virus
HCT	HIV counselling and testing
HCV	Hepatitis C Virus
HIV	Human Immuno-deficiency Virus
HIVQUAL	HIV Quality of Care
HPDB	HIV Patient Database
HTS	HIV testing services
IBBS	Integrated Bio-Behavioural Survey
ICF	Intensified Case Finding
IMR	Institute of Medical research
INH	Isoniazid
IPT	Isoniazid Preventive Therapy
KP	Key populations
KPMIS	Key Population Management Information System
LTFU	Lost-to-follow-up
MDR-TB	Multi-drug resistant tuberculosis
MSM	Men having sex with men
NACS	National AIDS Council Secretariat
NCD	National Capital District

NDoH	National Department of Health
NGO	Non-governmental Organizations
NHIS	National Health Information System
NHS	National HIV/AIDS and STIs Strategy
NUIC	National Unique Identification Code
NVP	Nevirapine
PLHIV	People living with HIV
PNC	Postnatal care
PNG	Papua New Guinea
PPTCT	Prevention of Parent to Child Transmission of HIV
SHP	Southern Highlands Province
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBIC	Tuberculosis Infection Control
TDF	Tenofovir
TG	Trans-gender
UNAIDS	The Joint United Nations Programme on HIV and AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
VL	Viral Load
WHO	World Health Organization
WHP	Western Highlands Province
WNBP	West New Britain Province
WSP	West Sepik Province
WV	World Vision

Executive Summary

HIV/AIDS and STIs are major public health problems that cause significant morbidity and mortality in Papua New Guinea (PNG). The country has the highest HIV prevalence and rate of new infections in the Pacific region. In 2017, the prevalence of HIV was 0.9% among adults 15 - 49 years. It is estimated that about 48 000 people are currently living with HIV in PNG. The country has a mixed burden of HIV which is higher among key populations and certain provinces.

Enga (1.53%) and the National Capital District (NCD) at 1.52% are the provinces with the highest prevalence of HIV. The recent integrated bio-behavioural survey (IBBS) showed that the prevalence of HIV among female sex workers (FSW) ranges from 11.9% to 19.6%. Among men who have sex with men (MSM) and transgender (TG) the prevalence of HIV is ranges from 7.1% to 8.5%. The burden of HIV is at least 10 and 7 times higher in FSWs and MSM/TG respectively. These key populations are also major drivers of HIV transmission in communities.

The National HIV/AIDS and STIs Strategy 2018 – 2022 was developed to guide a coordinated response to the epidemic in PNG. There is a greater emphasis to addressing HIV among key populations and high burden provinces so as to achieve the global 90-90-90 targets.

Significant progress has been made to improve access to HIV/AIDS and STIs services in many parts of the country over the recent years. However, condom usage is still very low especially among key populations and this continues to drive transmission of both HIV and STIs. The incidence of HIV among adults 15 – 49 years at 0.60% is the highest in the region. In 2017, around 3 000 people were newly infected with HIV and this is a 5% increase from what was reported in 2010.

In 2017, a total of 198 742 clients were tested for HIV across all the HIV counselling and testing centres. The IBBS showed that HIV testing coverage is very low for MSM and FSW at 59% and 57% respectively. Among those tested for HIV, 5 543 (2.8%) were confirmed positive and referred to anti-retroviral therapy (ART) services. A total of 4 716 (85%) new people living with HIV (PLHIV) got registered in care. Of these, 3 975 (84%) of them got initiated on ART.

The triple elimination of mother to child transmission of HIV, syphilis and hepatitis B focuses in ensuring that every child has a chance to start a healthy life, free from preventable communicable diseases. Provision of ART to children and pregnant women to prevent parent to child transmission (PPTCT) of HIV are however still lagging behind. In 2017, only 42% (717/1700) of pregnant women living with HIV received ART. Similarly, only 52% of children 0 – 4 years who were confirmed HIV positive and registered in care were initiated on ART. More efforts need to be made by the program and its partners in addressing these challenges.

In 2017, the prevalence of syphilis among pregnant women attending ante-natal care (ANC) was estimated to be 4.6%. Only 54% of pregnant mothers attended ANC, of these 44.2% got tested for syphilis. In total, 81.3% of those who tested positive for syphilis got treated with at least one dose of benzathine penicillin. Unfortunately, a total of 4 397 children were estimated to be born with congenital syphilis. The congenital syphilis case rate is 2 012 per 100 000 live births for all pregnant women.

In 2016, no pregnant women with Hepatitis B infection eligible for treatment managed to get appropriate antiviral therapy. Sadly, only 61% of all children born managed to get the three dose vaccination before one year of age. In total only 35% of them got a timely dose given. No children received hepatitis B immunoglobulin along with the full vaccination regimen which are all important for preventing vertical transmission. The prevalence of hepatitis B among children less than five years of age is estimated to be 2.6%. More efforts need to be made to strengthen the triple elimination of mother-to-child transmission of Hepatitis B, syphilis and HIV in PNG.

Hepatitis B and sexually transmitted infections (STIs) are very important co-morbidities among PLHIV and the general population. In 2016, a modelling study estimated the prevalence of Hepatitis B to be 6.6% which implies that there were potentially 535 039 people infected with the virus in the country. Less than 1% (3/293 000) of those who were eligible for treatment actually received antiviral therapy. The estimated prevalence of gonorrhoea and chlamydia among the general population aged between 15 – 49 years is 13% and 19% respectively. There were an estimated 1.9 million new cases of gonorrhoea and 1 million cases of chlamydia in 2017. This translates to a very high incidence of about 48 000 and 27 000 per 100 000 uninfected people between that ages of 15 – 49 years respectively.

Key populations have a higher burden of both Hepatitis B and STI. The recent IBBS showed that Hepatitis B was nearly twice as common among FSW (9.3% Port Moresby, 10.7% Lae, and 10.8% Mt. Hagen) and MSM/TG (11.6% Port Moresby, and 13.8% in Lae) compared to the general population. More than half (range 52.1% to 60.8%) of the FSWs had at least one STI. Chlamydia was the commonest STI among FSWs affecting about a third of them while about one in five also had anorectal/urogenital gonorrhoea. Between 3.0 – 7.2% of FSWs were reported to have active syphilis infection while 10.9 – 19.7 had a previous infection. More than one in three MSM/TGs in Port Moresby and one in five in Lae were reported to have one or more STIs during the IBBS. Active syphilis infection was found in 4% and 8.3% of this population. Both urogenital (12.3% and 14.5%) and anorectal (6.5% and 9.6%) chlamydia were very common among MSM/TGs. Urogenital (3.6% and 7.5%) and anorectal (4.6% and 7.1%) gonorrhoea was less common compared to the other STIs.

PNG is among the 30 countries that have a high burden of TB/HIV co-infection. To address this challenge, the country has been implementing a number of TB/HIV collaborative activities. Some efforts have been done to strengthen TB infection control practice in most health facilities. Most PLHIV are also being screened for TB at every visit to the health facility. However, in 2017, only 16% of the newly registered PLHIV got initiated on isoniazid preventive therapy (IPT). Less than half (45%) of the TB patients notified were tested for HIV and 95% of those co-infected with HIV were initiated on ART.

Both internal and external risks continue affecting progress that is being made by the country to meet the targets to the NSP 2017 – 2022. An assessment of the strengths and weaknesses of the program as well as opportunities and threats has been provided in this report. One of the major challenges for the program is the timely submission and completeness of surveillance reports. The National Department of Health (NDoH) is working closely with development partners and provinces to strengthen surveillance systems and improve reporting.

PNG HIV/AIDS Epidemiology snapshot

HIV prevalence

Adults 15 – 49 years	-	0.9%
Men who have sex with men	-	7.1% to 8.5%
Female sex workers	-	11.9% to 19.6%

Number of people living with HIV

Estimated all PLHIV	-	48 000
Women living with HIV	-	26 000 (54%)
Children 0 – 14 years	-	3 400 (7%)

HIV incidence per 1000 population

All ages	-	0.37
Adults 15 – 49 years	-	0.60

Behaviour and response

	MSM	FSW
Condom use at last sex	71%	37%
HIV testing coverage	59%	57%

PLHIV on ART

All ages	-	26 393 (55%)
Pregnant women	-	717 (42%)

New HIV infections in 2017 – 3 000*

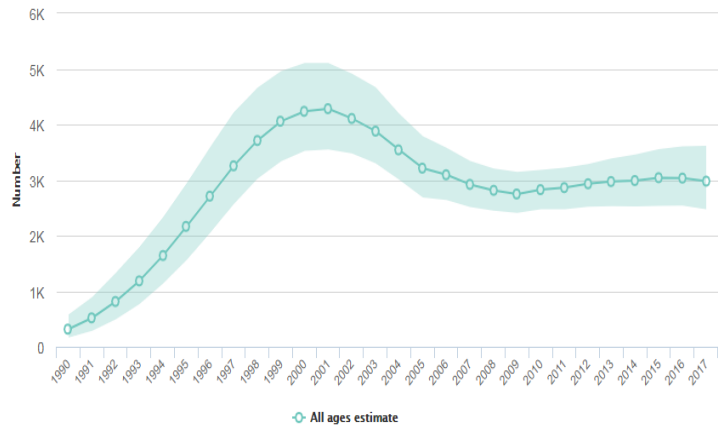
* New infections have increased by 5% since 2010

AIDS-related deaths

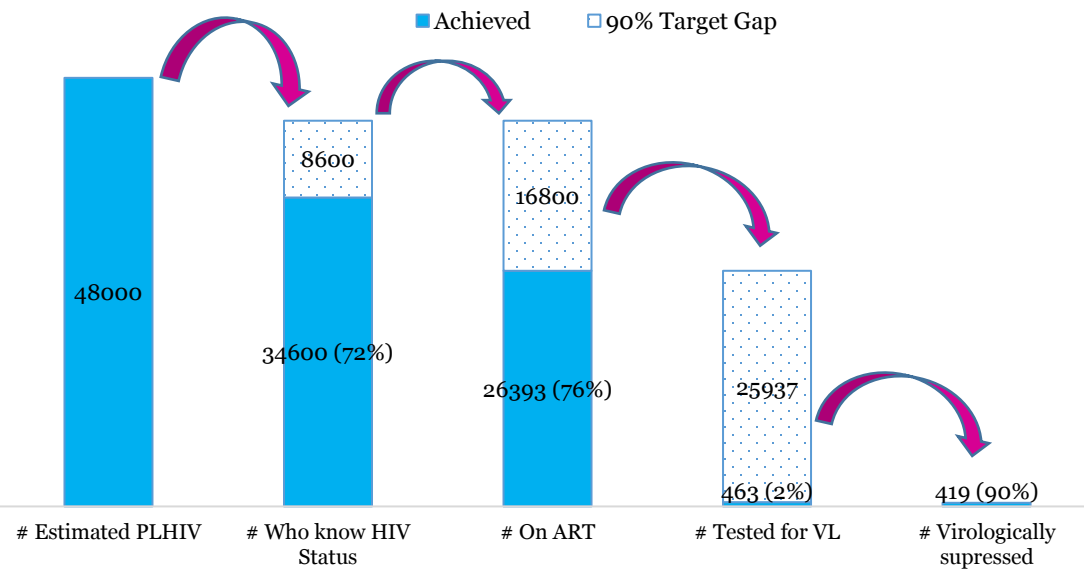
All ages	-	1 100
Children 0 – 14 years	-	<500
AIDS orphans	-	12 000

TB-HIV activities

IPT coverage	-	16%
TB patients tested for HIV	-	45%
TB-HIV co-infection rate	-	7%
TB-HIV co-infected patients on ART	-	95%



HIV care and treatment cascade



1 Epidemiology of HIV/AIDS and STIs

1.1 Global burden

HIV/AIDS remains a major cause of morbidity and mortality globally. It is estimated that around 37 million people were living with HIV worldwide in 2017¹. An estimated 1.8 million new infections occurred the same year. This represents a decline of about 18% compared to 2010 (see figure 1) and is largely attributed to increasing access to ART and HIV prevention interventions. Similarly, HIV related deaths have been on the declined by more than 32% from 2010 with 9.4 million deaths reported in 2017.

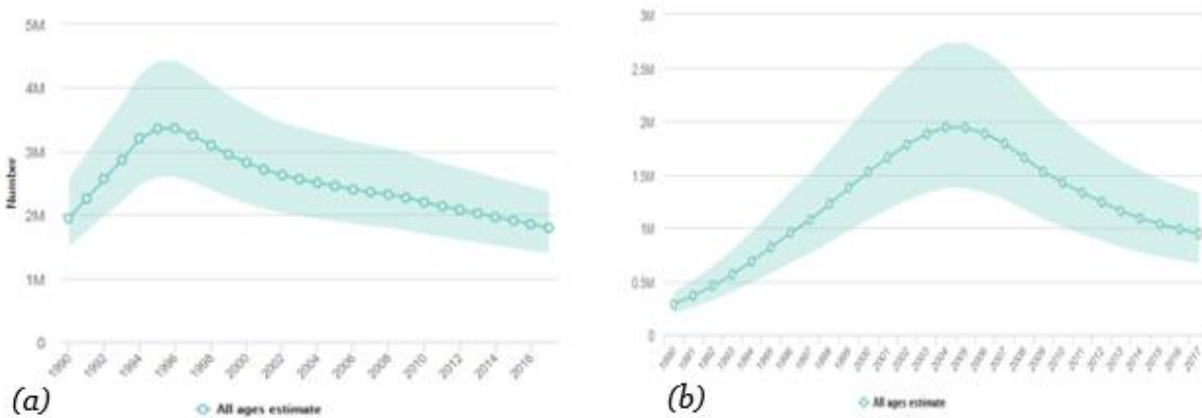


Figure 1: Trend of HIV new infections (a) and HIV/AIDS related deaths (b) globally: 1990 - 2016²

1.2 Asia and Pacific Region

Around 5.2 million people were estimated to be living with HIV in the Asia and Pacific region in 2017. This is the third highest in the world after the two African regions (see figure 2). The prevalence of HIV in the Asia and Pacific region is however much lower at 0.2% (95% CI 0.1 – 0.2). In 2017, 280 000 people were newly infected with HIV in the region. This represents a reduction of 14% since 2010. An estimated 170 000 people died due to HIV/AIDS-related deaths in 2017 and this is also a reduction of 39% from what was reported in the region in 2010.

Despite these successes, the region still falls short of achieving the 90-90-90 targets for ending the epidemic. Only 74% (3.8 million) of PLHIV in the region know their HIV status while 53% (2.7 million) were receiving ART in 2017. Access to viral load monitoring is still a challenge, particularly among the poorer nations. Around 45% (2.3 million) of all PLHIV are virally suppressed. These leakages along the continuum of care remain major challenges for the region.

¹2018 Global AIDS Monitoring Report, UNAIDS. Available online at http://www.unaids.org/sites/default/files/media_asset/2017-Global-AIDS-Monitoring_en.pdf
²Source: <http://aidsinfo.unaids.org/>



Figure 2: Adults and children estimated to be living with HIV in 2017³

1.3 Papua New Guinea

Significant progress has been made to curb the HIV/AIDS epidemic in PNG. However, the country has the highest HIV prevalence and rate of new infections in the Asia and Pacific region. No nationwide population-based survey has been conducted to measure the true burden of the disease in the country. Estimates based on anti-natal care (ANC) attendances using Spectrum put the prevalence of HIV among adults 15 – 49 years at 0.9% (0.7 – 1.0)⁴ in 2017.

³Source: <http://aidsinfo.unaids.org/>
⁴2018 Spectrum estimates

Around 48 000 people were estimated to be living with HIV in PNG in 2017 with 59% of them being women of 15 years and older and 7% being children less than 14 years. Figure 3 shows the trend in the number of people living with HIV in PNG. Between 2010 and 2017, the number of people living with HIV in PNG has increased by 26% (10 000).

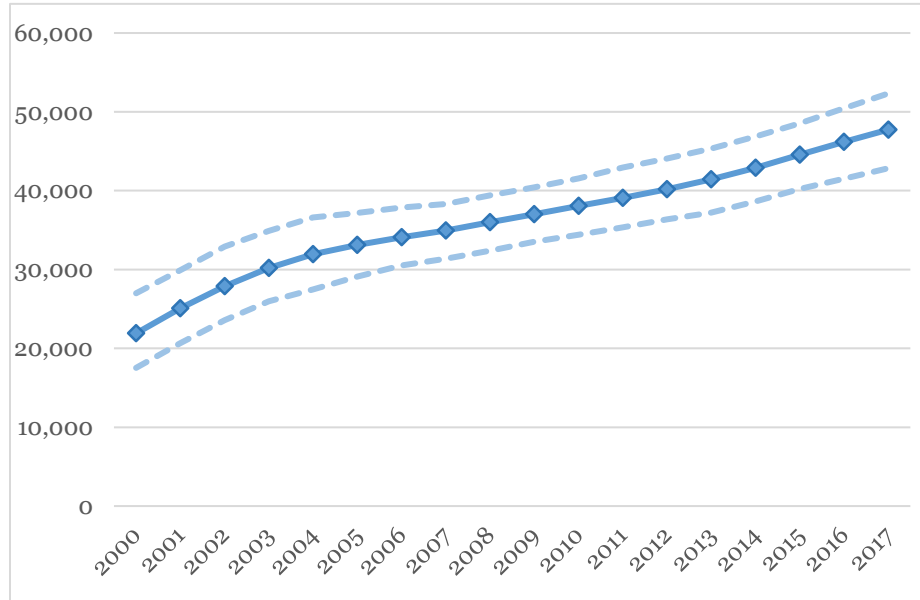


Figure 3: Trend of estimated people living with HIV in PNG: 1990 – 2017⁴

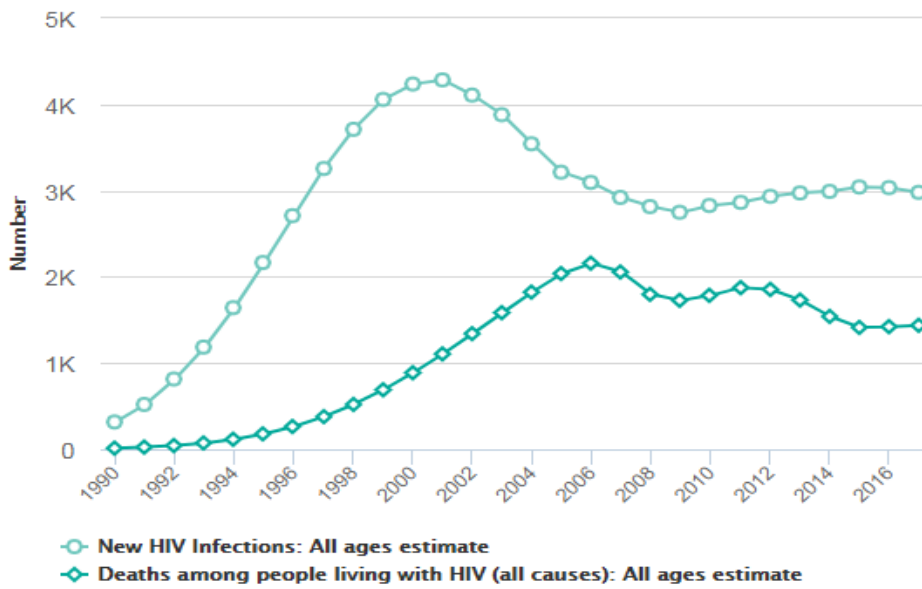


Figure 4: Trends for the number of new HIV infections and deaths among PLHIV in PNG: 1990 - 2016⁵

In 2017, 3 000 people are thought to be newly infected with HIV. Overall, there has been a marginal decline in the rate of new infections by 5% since 2010. Likewise, HIV/AIDS-related deaths have steadily declined by 28% since 2010 to 1 100 in 2017 (see

⁵ Source: <http://aidsinfo.unaids.org/>

PNG along with many other countries signed to UNAIDS 90-90-90 targets. The focus was to ensure that 90% of people living with HIV know their status, 90% of those who tested positive are started on ART and achieve viral suppression in 90% of those on treatment by 2020. With two years remaining, significant progress has been made by the country in meeting the first two targets while limited access to viral load (VL) monitoring significantly affects progress made in meeting the last 90. Complete and accurate data on the cascade remains a major challenge. In 2017, 72% of PLHIV know their status, 76% of positive patients are on ART. Only 2% of people accessed VL but, 90% of those who did were virally suppressed (see figure 5).

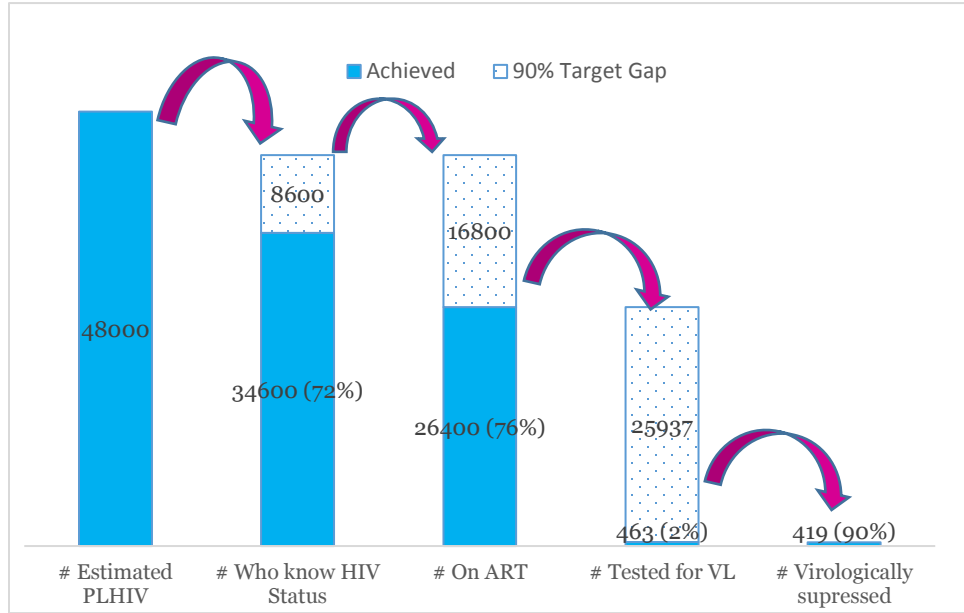


Figure 5: 90-90-90 Treatment cascade for PNG in 2017^s

The HIV burden in PNG is concentrated in some sub-populations and geographic locations. The recent integrated bio-behavioural surveillance (IBBS) study revealed a prevalence of 14.9% among female sex workers (FSW) and 8.5% among men-who-have-sex-with-men (MSM) and transgender (TG) people in NCD. Table 1 summarizes the prevalence of HIV and STIs among key populations that participated in the IBBS. Whilst the burden is significantly higher in a set of key populations, there are many people at risk of and affected by HIV who do not fit neatly into these populations.

Table 1: Prevalence of HIV, Hepatitis B and STIs in KPs in PNG

Population	HIV prevalence	Syphilis prevalence	Gonorrhoea prevalence	Chlamydia prevalence	Hepatitis B prevalence
FSW [†]	11.9 - 19.6%	3.0 – 7.2%	15.4 – 21.5% ^U 15.1 – 22.6% ^A	29.7 – 32.5% ^U 31.8 – 32.1% ^A	9.3 – 10.8%
MSM/TG [†]	7.1 - 8.5%	4.0 – 8.3%	3.6 – 7.5% ^U 4.6 – 7.1% ^A	12.3 – 14.5% ^U 6.5 – 9.6% ^A	11.6 – 13.8%
Adults 15 – 49 years	0.9%*	4.6%*	13%*	19%*	6.6%‡

FSW = female sex workers; MSM = men who have sex with men; TG = transgender^U Urogenital; ^A Anorectal

* Source: 2018 Spectrum estimates; [†]Source: 2018 IBBS report,

[‡] Source: Razavi-Shearer et al, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. *The lancet Gastroenterology & hepatology*. 2018 Jun 1; 3(6):383-403.

The burden of HIV is higher than the national average in the Highlands region and NCD. Figure 6 shows the distribution of HIV by provinces.

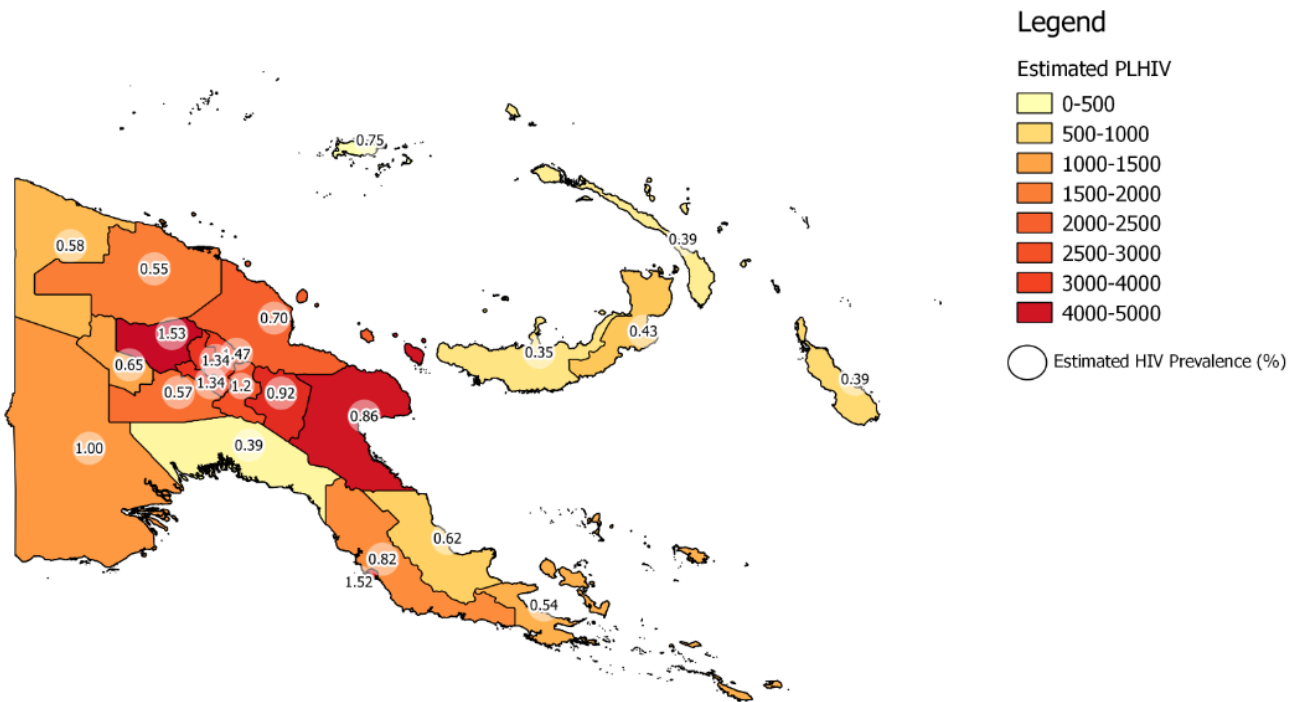


Figure 6: Prevalence of HIV and the estimated number of PLHIV by province in PNG: 2017⁶

⁶ Source: 2018 Spectrum estimates

2 Program vision and strategic goals

2.1 Vision

All Papua New Guineans are protected, and able to protect themselves, from STIs and HIV, and all people with STIs and HIV are able to access the treatment and support they need to maximize their health and the health of their families.

2.2 Strategic direction and goals

Table 2 summaries the strategic direction and goals of the National STI/HIV & AIDS program.

Table 2: Strategic direction and goals of the National STI/HIV & AIDS program⁷

Strategic Direction	Goal	Strategic Result
1. Leadership, coordination, and sustainability	An efficiently managed, capable and well-resourced national, provincial and district response to STIs and HIV	<ul style="list-style-type: none"> 1.1. Efficient and effective structures and mechanisms in place to manage the STI and HIV response 1.2. A workforce that is sufficient, skilled, properly remunerated, accountable, managed and supported 1.3. Medical supplies, medicines, equipment, test kits, and reagents are fit for purpose and available in the right place at the right time 1.4. An STI and HIV response that is adequately funded at all levels and is sustainable
2. Strategic Information	A successful response to STIs and HIV that is driven by accurate and up-to-date strategic information and research	<ul style="list-style-type: none"> 2.1. A harmonized, efficient and effective strategic information system is in place 2.2. The range and quality of data collected is sufficient to guide the key priority areas of the Strategy 2.3. Accurate and timely strategic information is used to drive changes in program and service design at all levels 2.4. Planners and implementers have an accurate picture of the changing context of HIV risk and impact and of the effectiveness of the intervention models being used
3. Prevention, Continuum of care	Decreased STI and HIV transmission and improved health and well-being of PLHIV	<ul style="list-style-type: none"> 3.1. The elements of the Standard Service Package are available across every province (with the Enhanced Package in higher-burden provinces), integrated into existing services wherever possible 3.2. Reduction in the transmission of STIs (including HIV) in the general population 3.3. Equitable access for people in key populations to services across the continuum of STI and HIV prevention, treatment, care and support 3.4. Increased level of knowledge of HIV status among PLHIV 3.5. Improved health and wellbeing of PLHIV, (with a priority focus on TB-HIV)
4. Advocacy and Enabling Environment	An environment that is safe and supportive of people's efforts to remain healthy	<ul style="list-style-type: none"> 4.1. Healthcare, police, justice, welfare and other services that can be accessed by the people who need them without stigma and discrimination 4.2. People from key populations have greater autonomy over their health and well-being 4.3. A supportive legal and policy environment for the STI and HIV program

⁷ Source: National STI and HIV Strategy 2018 - 2022

3 Overview of Program Indicators

The National STI/HIV & AIDS program is working within the framework for the National STI/HIV & AIDS strategy: 2018 – 2022 (NHS). The NHS highlights the vision and strategic goals of the program.

3.1 National HIV/AIDS and STIs surveillance system

3.1.1 National database for HIV/AIDS and STIs

There are four databases used by the National Department of Health (NDoH) to collect information critical for the HIV/AIDS and STIs surveillance program. These are HIV Patient Database (HPDP), National Health Information System (NHIS), electronic National Health Information System (eNHIS), HIV Surveillance database, and Key Population Management Information System (KPMIS). The national program is making efforts to harmonize these systems with the eNHIS serving as the data hub for all the systems. Preliminary work to harmonize the systems has already begun. Below we discuss the status of each on the surveillance systems.

- a) **eNHIS** – This is currently being used in five provinces (230 healthcare facilities) and is capturing real-time data for TB, STI and HIV using Surv1, and 2 aggregated reports and Surv4 reactive case forms. However, the HIV surveillance data captured in the pilot sites are limited for two reasons, currently, the reporting formats do not comply with the most current surveillance reporting formats and end-users are not trained on how to enter the HIV data into the system. The program has however received additional support to address these challenges and scale up to three additional provinces.
- b) **HPDB** - The HPDB is utilized for case-based surveillance. The HPDB contains the clinical information for people living with HIV (PLHIV) including TB test results and treatment, risk and demographic information but lacks data for sexually transmitted infections. Currently, 30 ART facilities use the HPDB. In 2019 the HPDB Data Portal will be upgraded to a national HPDB Data hub to allow for automated aggregation of national HPDB data. This will allow integration with eNHIS and when combined with HIV Surveillance data and viral load data will allow for the generation of national and sub national HIV Care and Treatment cascades and real-time monitoring of national HIV Quality of Care (HIVQUAL) indicators.
- c) **HIV Surveillance database** - The database stores HIV demographic, risk, laboratory, testing and treatment data, and antenatal care Syphilis results and non-specific STI results, as well as TB testing and treatment data. Some TB testing sites are also testing clients for HIV which is reported through the SURV 1 form and those also providing ART

report via SURV 2, the data are entered into the SURV database. The platform is SQL and it is housed on its own server with three computers for multiple use data entry.

- d) **KPMIS**- This was developed data at on KP activities and services provided to them. Data is captured using the KPMIS tool from health facilities. Data on individuals from KP groups is collected using a National Unique Identification Code (NUIC) generated to minimize the risk of exposing KPs who are often stigmatized within communities.

3.1.2 Surveillance reports submission

The late submission of reports continues to be a major problem affecting tracking of program indicators and HIV/AIDS surveillance in PNG. In 2017, the national reporting rate for Surv1, Surv2 and Surv4 forms was only 73%, 50%, and 70% respectively. This is much lower than the 80% target for the program. The average monthly reporting rate for Surv1, Surv2, and Surv4 forms was 73%, 52%, and 70% respectively. Figure 7 shows the trend in the submission of monthly reports in 2017.

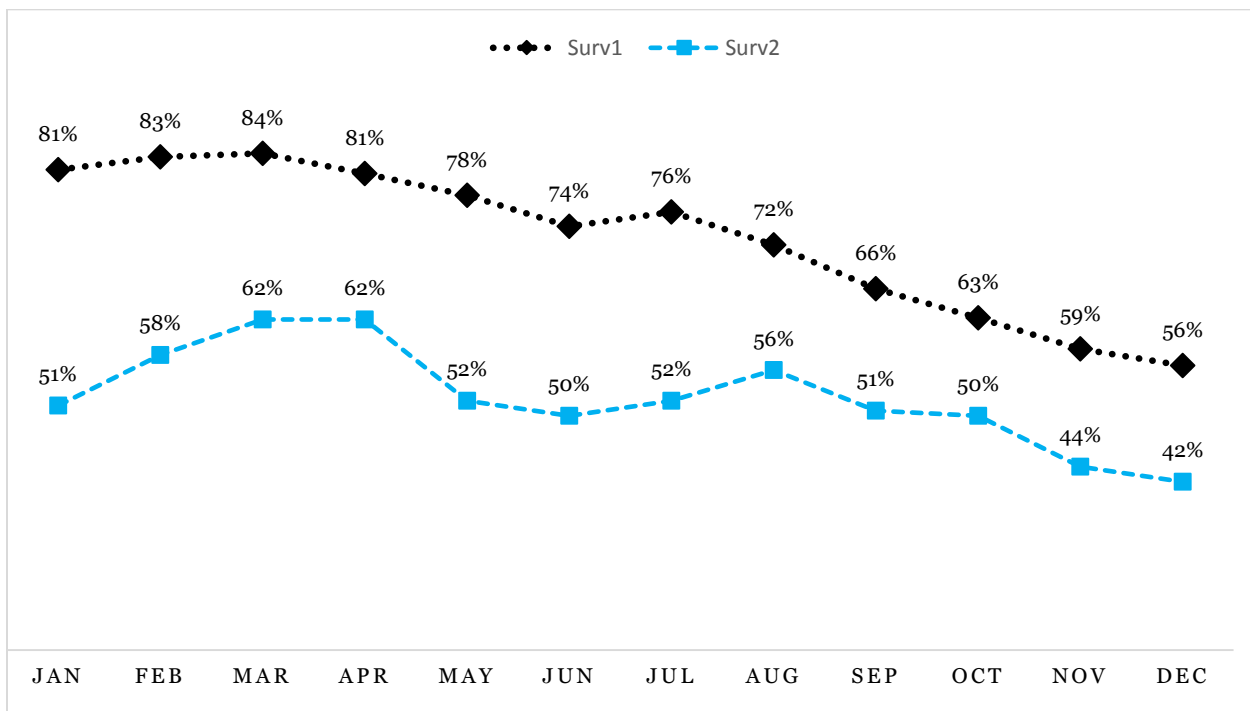


Figure 7: Trend of National Surv1 and Surv2 monthly report submission rates in 2017⁸

Late submission of data means that the program is unable to monitor effectively program implementation. One of the reasons for the delays is that hard copies of the reports are generated by the health facilities and sent physically to the provincial office. The provinces then collate these reports, verifies them and the sends them to NDoH where they are captured in the HIV surveillance database. This process is very cumbersome and could be one of the major reasons for

⁸ Source: NDoH HIV Surveillance Database

these delays. The STI/HIV & AIDS program is has initiated a process to improve efficiency in reporting by decentralizing data capturing to the provincial levels.

The late submission of reports is not uniform across the provinces. For Surv1, the Islands region is the worst performing overall with West New Britain Province (WNBP) having a Surv1 report submission rate of 34% in 2017 (see Figure 8). The poorly performing provinces will be prioritized for support to ensure that they improve on their reporting rates.

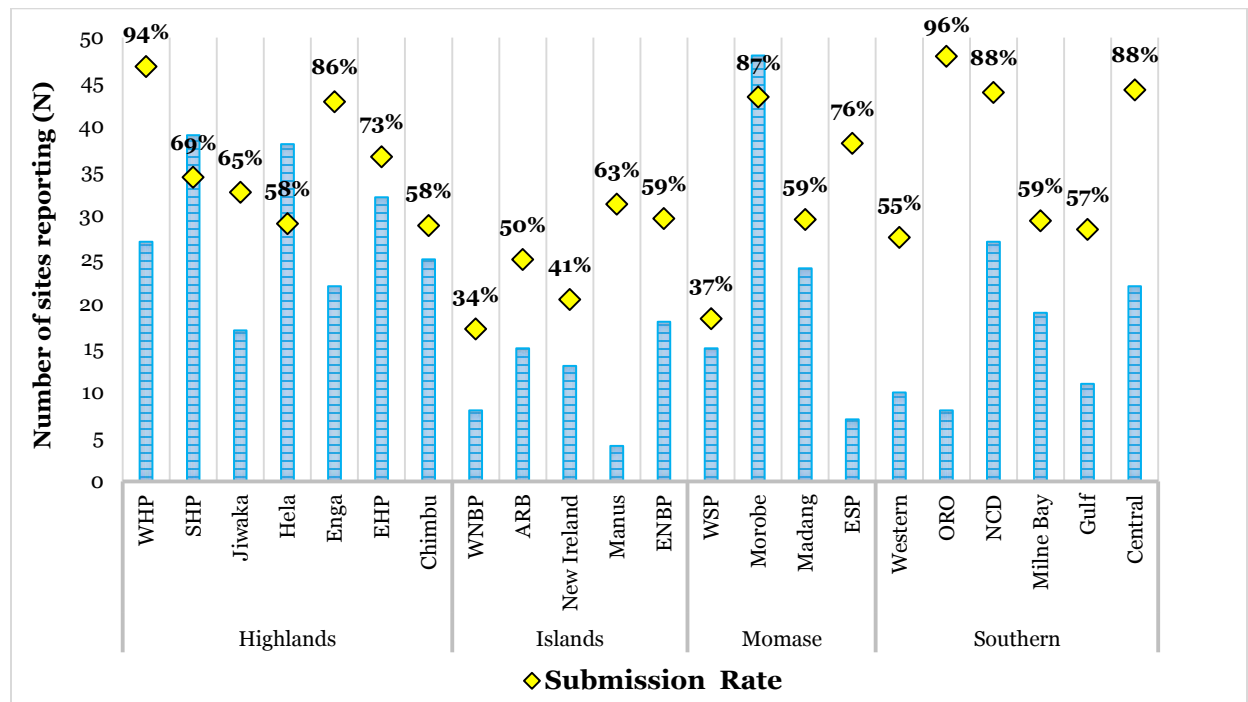


Figure 8: Provincial submission rates for Surv1 forms in 2017⁹

Submission rates of Surv2 reports also vary across provinces. Overall, the Islands region is the least performing in terms of annual submission rates in 2017. The lowest submission rate was 19% for West New Britain Province (WNBP) (see figure 9).

⁹ Source: NDoH HIV Surveillance Database

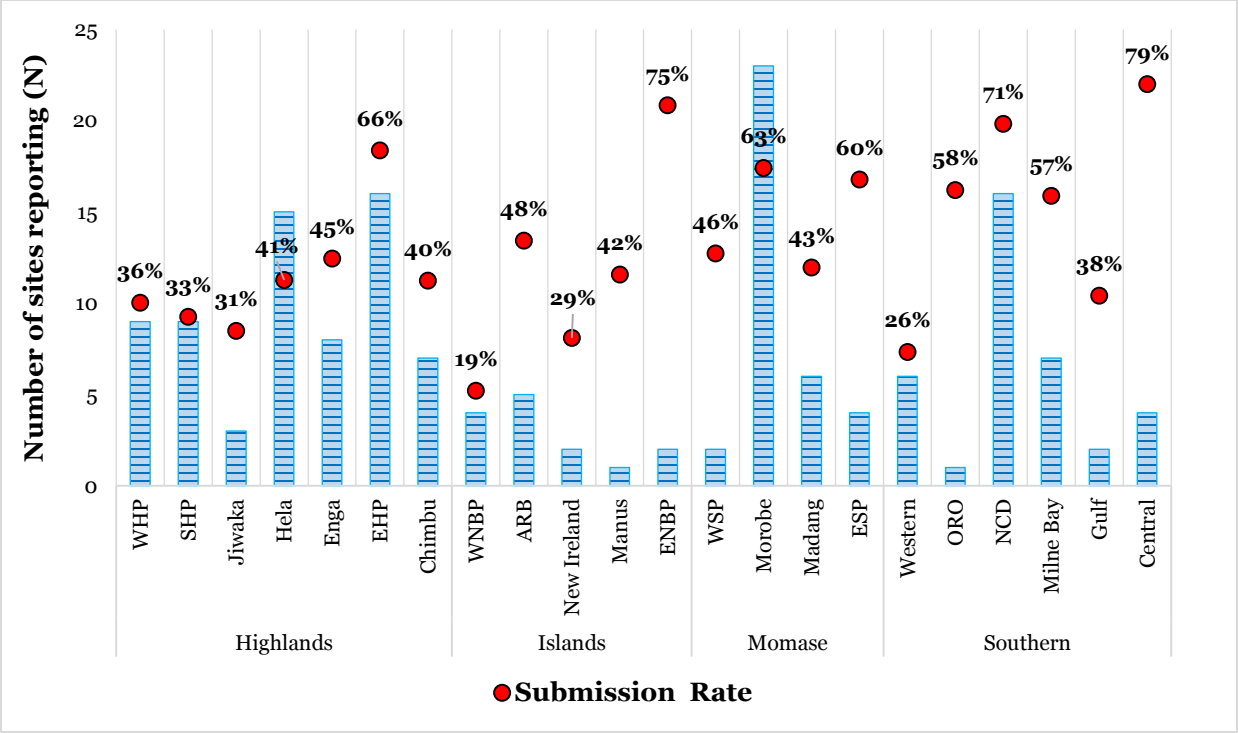


Figure 9: Provincial submission rates for SurV2 forms in 2017¹⁰

¹⁰ Source: NDoH HIV Surveillance Database

3.2 HIV Counselling & Testing services

HIV counselling and testing (HCT) is the entry point to all prevention, care and treatment services for HIV/AIDS. The country has adopted several strategies to improve coverage of HIV Counselling & Testing (HCT) services across the country in many settings. This is in line with the country's efforts in reaching the first 90 on the global UNAIDS targets to end HIV by 2020.

3.2.1 HIV testing by gender

In 2017, a total of 198 742 clients [Males 59 007 (30%); Females 139 735 (70%)] were tested for HIV. Of these, 5 543 (2.8%) tested HIV positive (see figure 10). HIV positivity was higher for males tested at 3.49% compared to females at 2.49%. More efforts need to be made to get men them early and get them on treatment as part of primary prevention.

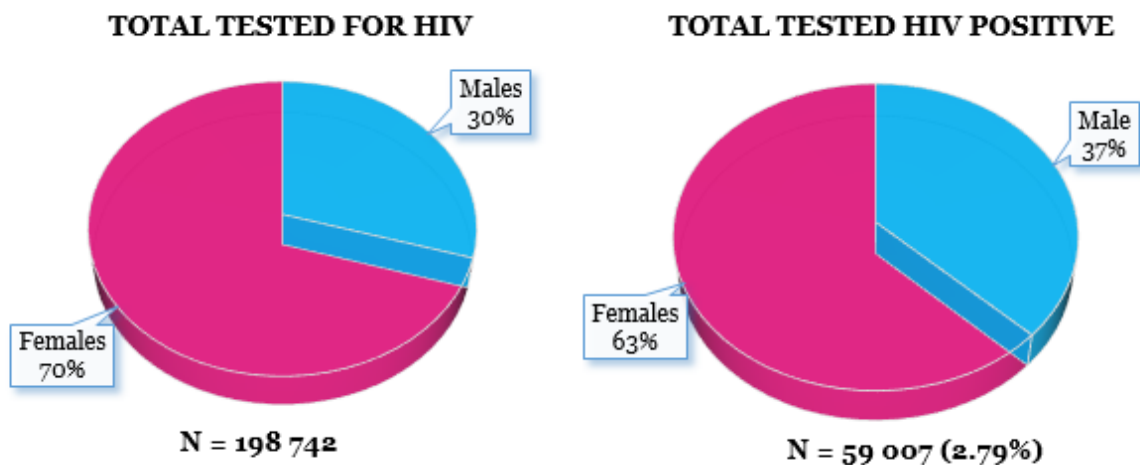


Figure 10: Number of people tested for HIV by gender in 2017¹¹

3.2.2 HIV testing by entry point

Most of the HIV testing is happening in ante-natal clinics (ANC) (37%) and voluntary counselling and testing (VCT) centres (32%). There is a wide variation in the positivity rate for HIV across the different entry points. The TB clinic (4.56%), VCT (4.49%) and Others [Outpatients attendances, in-patients, etc.] (7.01%) have the highest HIV positivity rates (see figure 11).

The HIV positivity rates in all the other entry points except blood donors are much higher than what is observed in the ANC. However, we use data from ANC to estimate HIV prevalence rates in Spectrum. It is thus very possible that we are under-estimating the true HIV prevalence

¹¹ Source: NDoH HIV Surveillance Database

in PNG. A population-based prevalence survey or other models may be needed to give a more precise estimate of the HIV prevalence in the country.

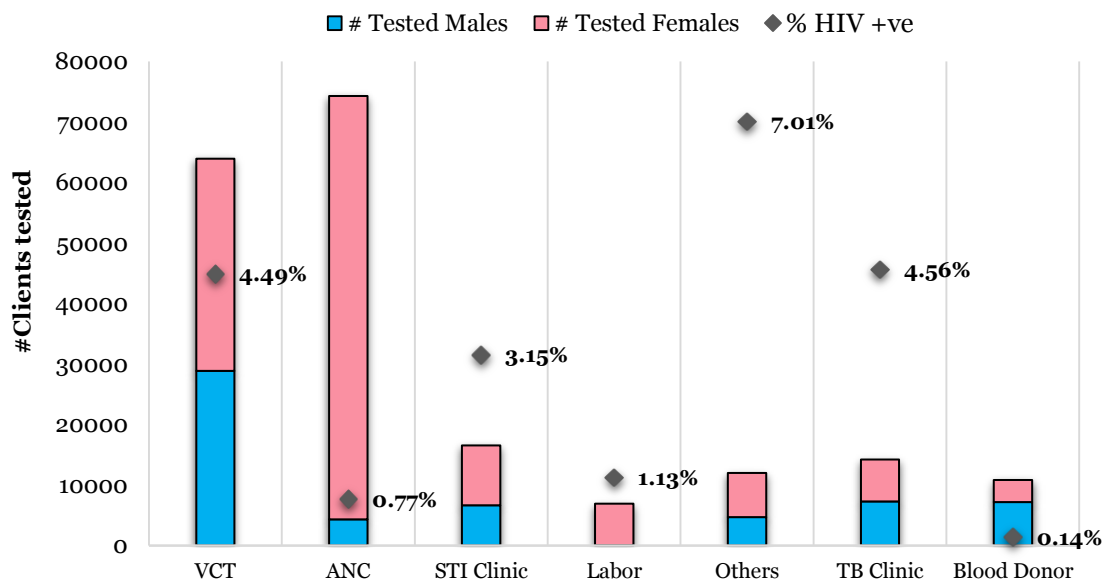


Figure 11: Yield for HIV testing for different entry points in 2017¹²

3.2.3 HIV testing by province

There was a wide variation of HIV positivity across all the provinces. Seven provinces namely Western Highlands province (WHP), Eastern Highlands Province (EHP), Morobe, Southern Highlands Province (SHP), Hela, Enga and National Capital District (NCD) account for more than 70% of the clients tested. The Highlands region has the highest yield overall with WHP having the highest HIV positivity rate of 5.77%. The Islands region, in contrast, have the lowest yield and in particular, ARB had an HIV positivity rate of 0.41% (see figure 12).

It is very important to understand the demographic, cultural and socio-economic factors driving higher transmission in the Highlands region compared to the rest of the country. Once done, appropriate public health interventions can be put in place to curb this observed high transmission.

¹² Source: NDoH HIV Surveillance Database

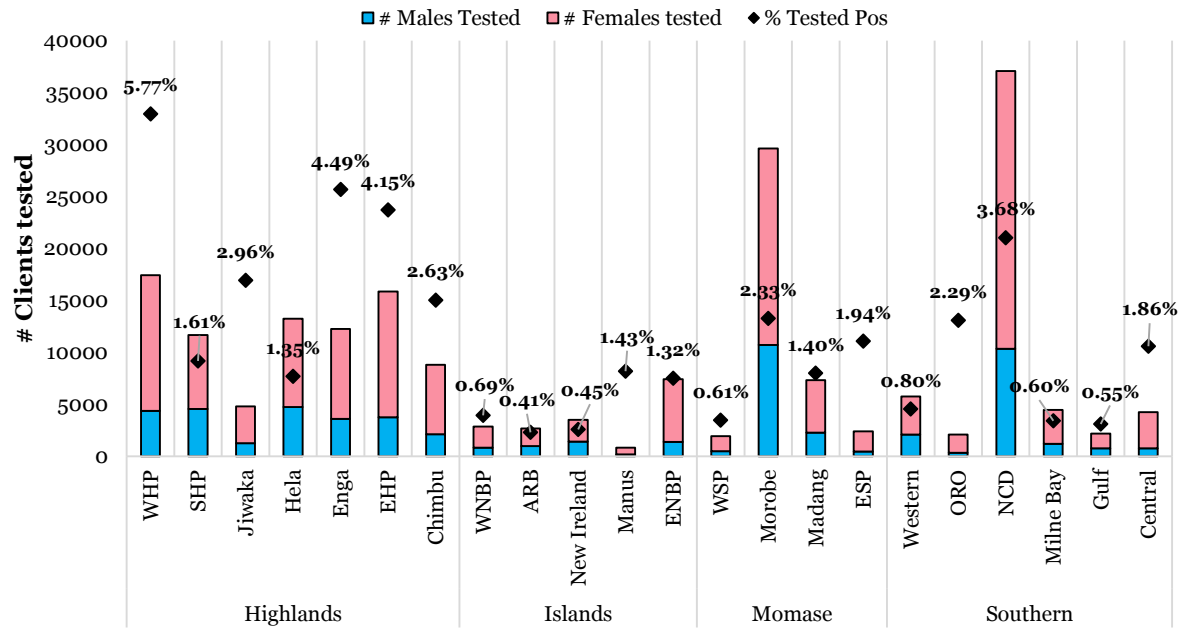


Figure 12: Number of clients tested for HIV and yield by province in 2017¹³

3.3 HIV care and treatment

3.3.1 The 90-90-90 Care and Treatment cascade

In 2017, around 48 000 people were estimated to be living with HIV. Of these, 34 600 (72%) were aware of their HIV status. A total of 26 400 (76%) PLHIV were on ART. The country missed 16 800 PLHIV to reach the 90% target. Access to VL remains a challenge and only 463 (2%) of the PLHIV on ART had VL done in 2017. Of these, 419 (90%) were virologically suppressed (see figure 13).

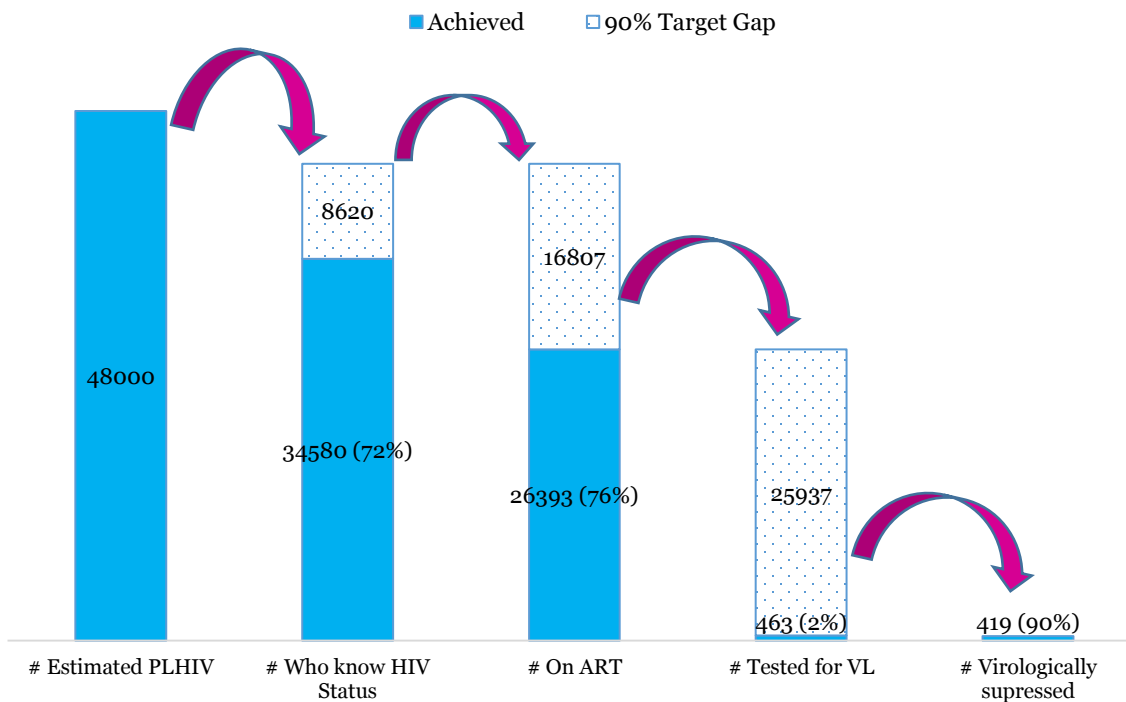


Figure 13: 2017 HIV care and treatment cascade¹³

The current estimates show an improvement and progress towards meeting the 90-90-90 targets. However, around 8 620 PLHIV did not know their status by the end of the year and thus the country failed to meet the first 90. Similarly, 16 807 PLHIV were not initiated on ART and the country also failed to meet the second 90. Access to VL monitoring is still very limited and thus the country is far from meeting the third 90.

On a more positive note, ART coverage has been on the rise over the years. Between 2010 and 2017, the ART has more than doubled from 20% to 55% for all ages. The ART coverage for children 0 – 14 years is still lagging behind at 40% (31 – 45) in 2017 compared to 56% (50 – 62) for adults 15 years and older (see figure 14). The gap has widened since 2010. This demands greater efforts by all stakeholders to work closely with the program to address ART for the children and prevention of parent to child transmission (PPTCT) of HIV.

¹³ Source: 2018 Spectrum modelling

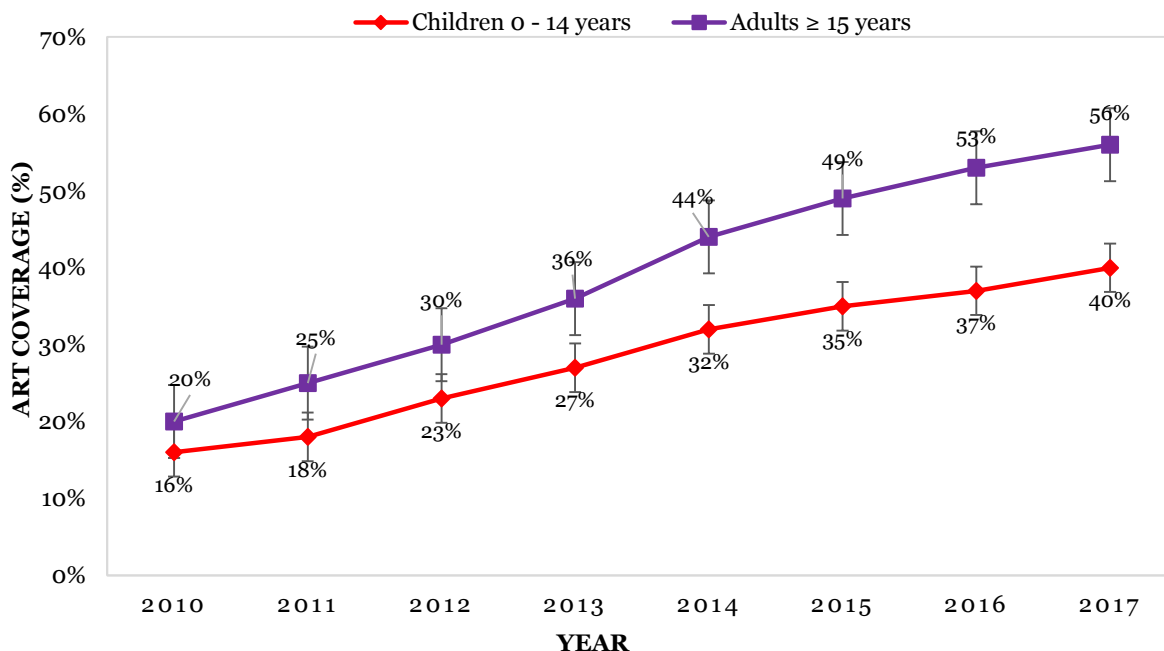


Figure 14: Trend for ART coverage for adults and children: 2010 - 2017¹⁴

3.3.2 Test-and-treat approach to ART initiation

The country has since adopted a test-and-treat approach that ensures that all people who test HIV positive are promptly started on ART. A total of 5 543 (2.79%) clients were tested HIV positive in 2017. Of these, 4 716 (85%) got registered in care and 3 975 (84%) of them got started on ART (see figure 15).

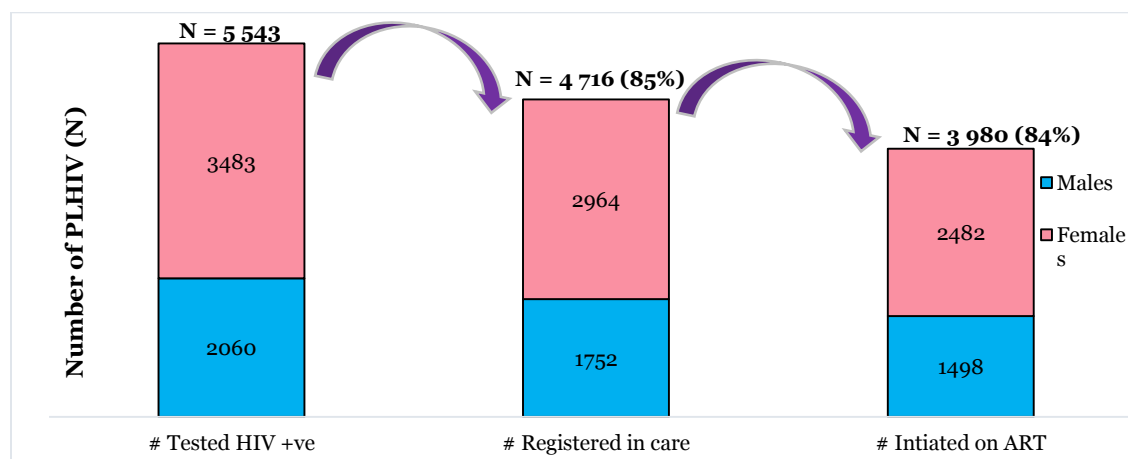


Figure 15: National linkage to care cascade for new HIV positive patients in 2017¹⁵

¹⁴ Source: <http://aidsinfo.unaids.org/>

¹⁵ Source: NDoH HIV Surveillance Database

In total, 827 (15%) of the PLHIV who tested positive were not registered in care. This is particularly worrying given that the reason people get tested is to get them on treatment. Part of the reason for this could be the disparity between HCT centres and facilities that initiate ART. More often people who test positive at HCT centres get referred to health facilities that initiate ART and get lost along the referral pathway. Similarly, 736 (16%) of those who got registered at ART clinics were not initiated treatment. There were no gender differences in leakages along the cascade. This high initial defaulter rate reflects the challenges that the country has in fully implementing the test-and-treat approach.

3.3.3 ART initiations by province

The majority of new HIV positive patients were registered in NCD (32.6%), WHP (14.3%), Morobe (13.7%), EHP (11.2%) and Enga (9.6%). Overall, the Highlands region has the highest number of newly registered HIV positive patients with the Islands region being the lowest. Similarly, the majority of new HIV positive patients initiated on ART were from NCD (27.4%), WHP (15.9%), Morobe (14.9%), EHP (11.2%) and Enga (9.7%) as shown in figure 16.

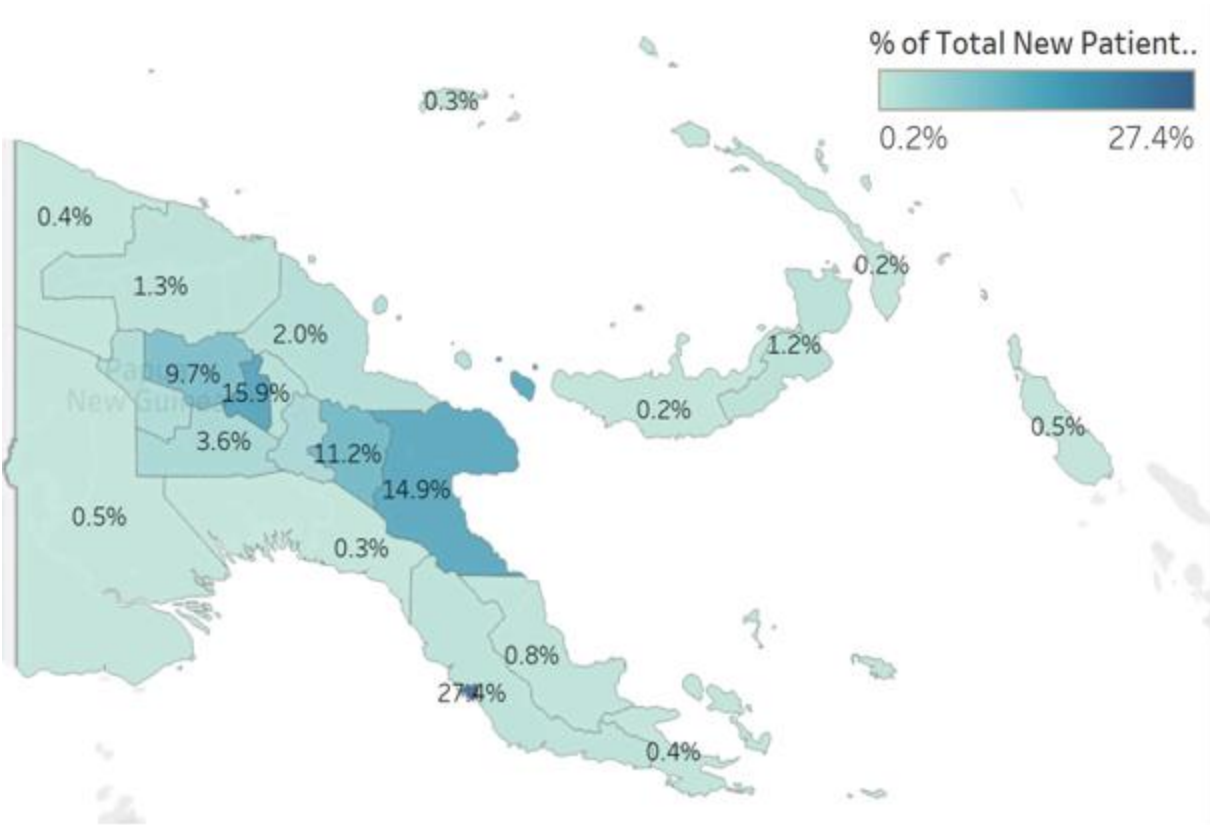


Figure 16: ART initiations by province in 2017¹⁶

¹⁶ Source: NDoH HIV Surveillance Database

Two thirds (1 026/1 563) of all HIV positive people identified who were not initiated on ART were from the highlands region. The highest number of patients that were not started on ART were seen in WHP (374), NCD (273), EHP (213) and Enga (165). The provinces with the highest proportion of initial defaulters are WNBP (55%), Western (54%), ENBP (51%), Milne Bay (48%) and Jiwaka (48%) as shown in figure 17. The high initial defaulter rates reflect challenges in accessing ART services by PLHIV in these provinces/regions. There is also need to address the other social determinants of health that may be barriers to ART initiation for these communities.

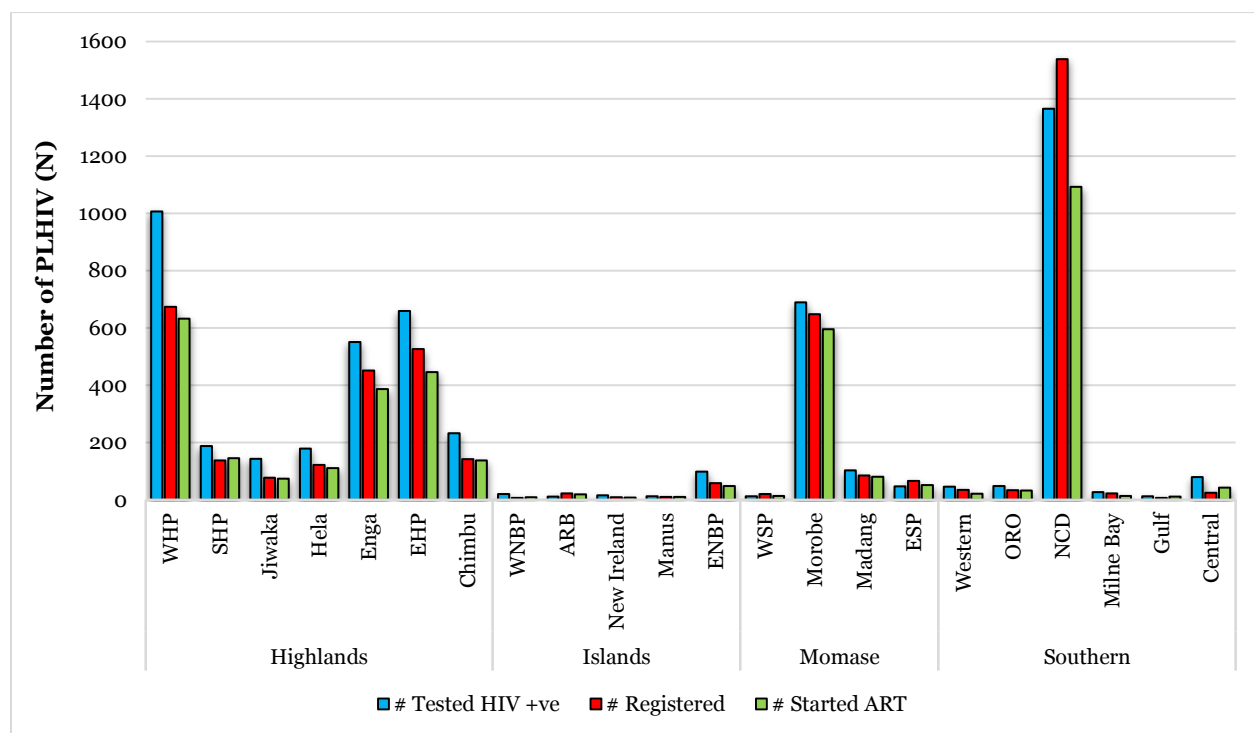


Figure 17: Provincial linkage to care cascade for new HIV positive patients in 2017¹⁷

3.3.4 ART initiations by age and gender

The majority of patients newly registered in care are between the ages of 30 – 49 years (41%). There is variation in the proportion of PLHIV registered who are initiated on ART across the age groups and younger people are being neglected. Children less than 2 years (52%) and adolescents 10 – 14 years (70%) have the lowest rates for ART initiation (see figure 18).

There are fewer children between the ages 0 – 14 years compared to adults 15 years and older that were registered in care. However, the proportion of children started on ART is significantly lower. This reflects the challenges that PLHIV from these ages face in accessing ART services. More needs to be done to build the capacity for HCWs to initiate children on life-saving ART. In addition, the program should focus on creating more child-friendly ART facilities, follow up on

¹⁷ Source: NDoH HIV Surveillance Database

the exposed infants who are missed by PPTCT and are unfortunate to get vertical transmission. More is needed to be done so as to ensure PNG has an AIDS-free next generation.

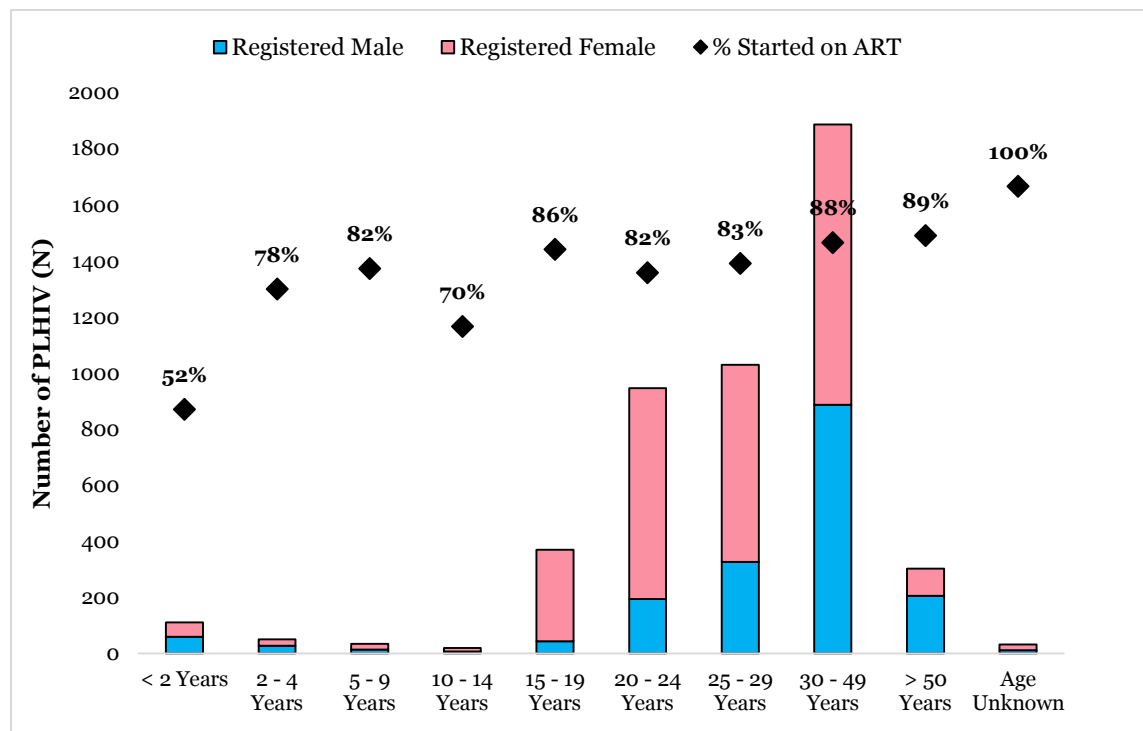


Figure 18: Proportion of newly registered PLHIV started on ART by age-group in 2017¹⁸

3.3.5 ART regimen for new patients

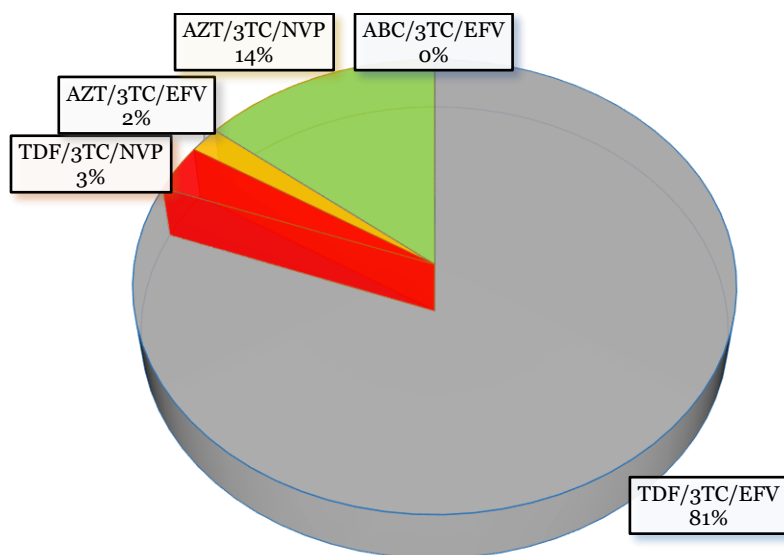


Figure 19: ART regimen for newly registered PLHIV starting ART in 2017¹⁸

¹⁸ Source: NDoH HIV Surveillance Database

The greater majority of newly registered patients were initiated on TDF/3TC/EFV regimen (81%) and AZT/3TC/NVP (14.1%) as shown in figure 19.

3.3.6 PLHIV currently on ART by province

In 2017, we estimated that 26 393 PLHIV were currently on ART. Our surveillance system was not able to correctly capture this information in the past so we currently rely on estimates. The national ART coverage in 2017 was 55% and estimated to be uniform in all provinces.

However, the Highlands region has the highest number of people who are still not on ART. Provinces that still have the highest number of people in need of ART are Enga (2 059), NCD (1 757), Morobe (1 757), EHP (1 685), WHP (1 580), Jiwaka (1 562), Chimbu (1 433) and Madang (1 077) as shown in figure 20. These provinces will need to be prioritized for scaling up HCT to identify PLHIV and strengthening initiation of HIV positive patients ART. Such interventions will help the country to achieve the second 90 target.

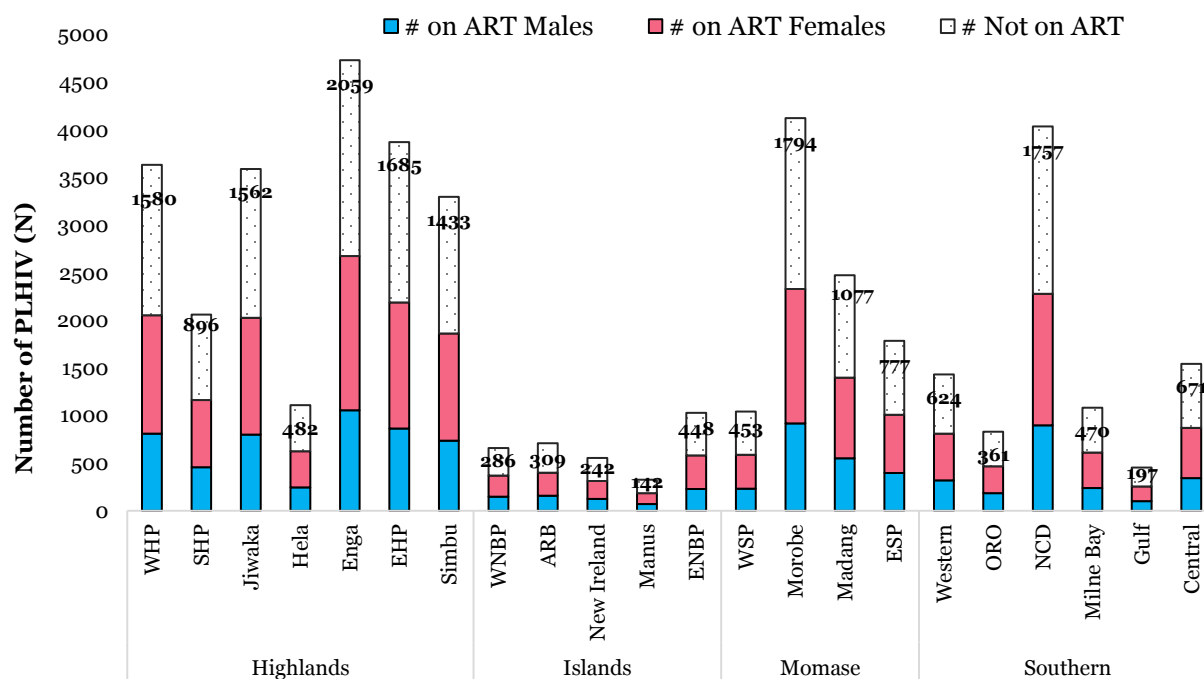


Figure 20: Estimates of the number of PLHIV on ART and not yet on treatment by province in 2017¹⁹

¹⁹ 2018 Spectrum estimates

3.3.7 AIDS-related deaths

In 2017, an estimated 1 100 PLHIV died due to AIDS-related causes. There were no significant differences in AIDS-related deaths by gender. The rollout of the ART has significantly reduced mortality among PLHIV. Over the past 10 years, AIDS-related deaths have declined by around 42% (see figure 21).

Sadly, AIDS-related deaths have not declined as much for children 0 – 14 years compared to adults 15 years and older. This could be because of challenges in the provision of ART among children in this age group. More effort needs to be put by the program to address this challenge and ensure that no one is left behind.

Despite the fact that the country seems to be winning the fight against mortality, there were an estimated 12 000 AIDS orphans (0 – 17 years) in the country in 2017. These people need social support initiatives to mitigate against risk behaviour that can perpetuate the spread of HIV. The government, faith-based organizations (FBOs) and development partners need to work closely together to help this vulnerable group.

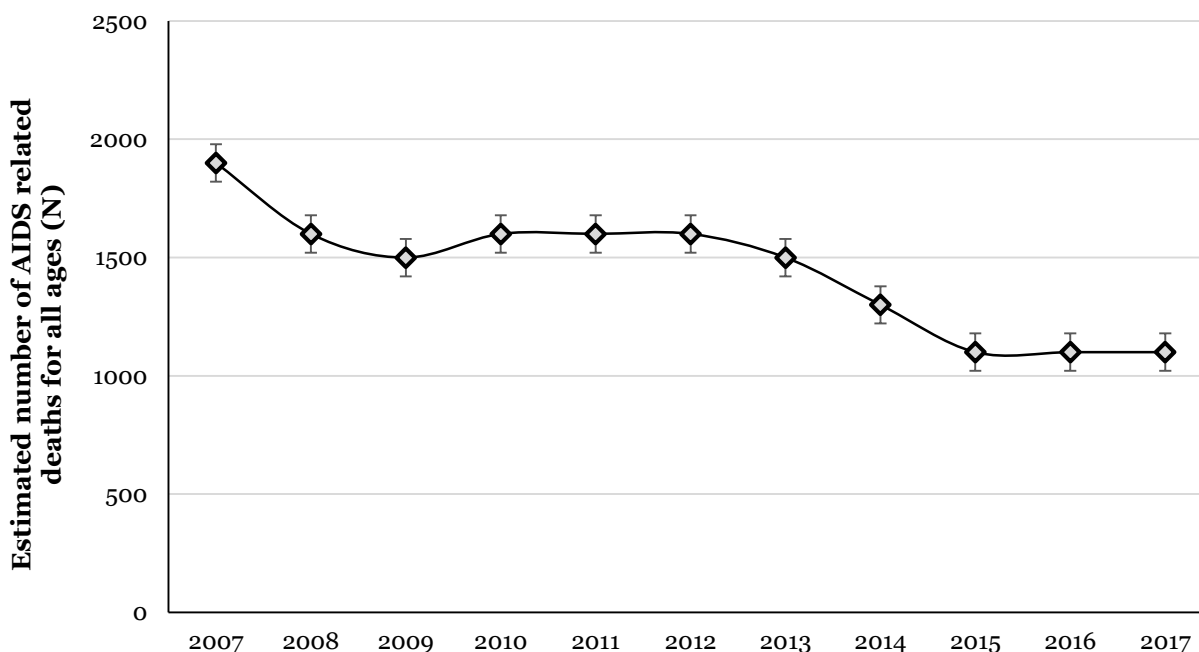


Figure 21: Trend of estimated AIDS-related deaths for all ages: 2007 - 2017²⁰

²⁰ Source: <http://aidsinfo.unaids.org/>

3.4 Prevention of Parent to Child Transmission of HIV

While significant progress has been made in the management of the HIV in the country, the PPTCT program still has many challenges. In total, 54% of all pregnant women attended ANC at least once and 53% of all births are delivered where delivered by a skilled birth attendant²¹. Not all babies born in PNG have contact with the primary health care system in ANC, during labour or the post-natal period. However, it remains very important for the HIV/AIDS and STIs program to ensure that all mothers presenting to health facilities have access to high-quality PPTCT services. This is a crucial area that needs strengthening if PNG is going to succeed in ensuring an HIV free generation.

3.4.1 Provincial HIV screening in for pregnant women

A total of 76 896 women were tested for HIV in ANC and labour ward in 2017. Of these, 593 (0.8%) were confirmed HIV positive. WHP (1.5%), Chimbu (1.4%) and NCD (1.2%) have the highest HIV positivity rates. A couple of provinces, WNBP and Gulf did not report any HIV positive pregnant woman in the year (see figure 22).



Figure 22: Number of pregnant women tested for HIV by province in 2017²²

²¹UNICEF Data 2018, available online at <https://data.unicef.org/country/png/#>

²² Source: NDoH HIV Surveillance Database

3.4.2 Pregnant women receiving ART for PPTCT

The proportion of pregnant women that are receiving ART has been steadily rising over the recent years. Between 2010 and 2017, the proportion of pregnant women accessing ART for PPTCT has increased from 5% to 41% respectively (see figure 23). This is largely due to the success in the decentralization of ART services.

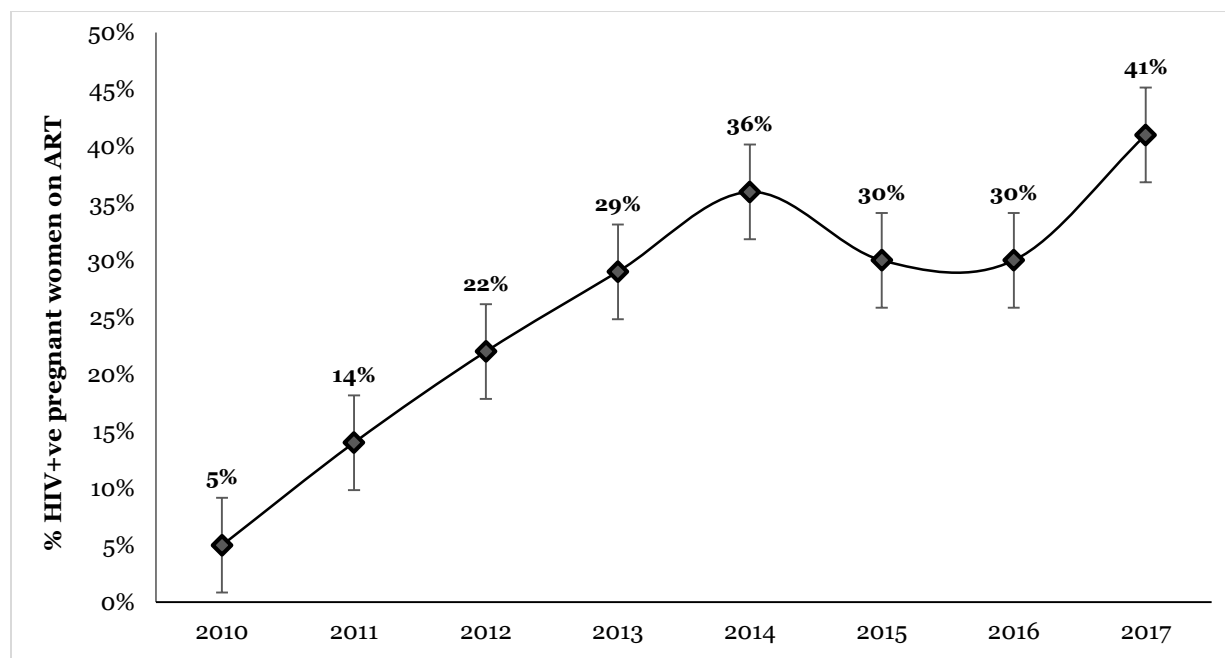


Figure 23: Trend of ART coverage for PPTCT among pregnant women: 2010 - 2017²³

Despite these notable successes, a large number of pregnant HIV positive women fail to get ART after presenting to health facilities. There is an urgent need to close the taps and ensure that all HIV positive pregnant women access ART. Most mothers are likely to be highly motivated to take ART because they do not want to transmit HIV to their unborn child. The program needs to avail PPTCT services to such women and in so doing help the country move slowly towards the elimination of vertical transmission.

3.4.3 Exposed infants accessing early-infant diagnosis

All exposed infants are expected to have the early-infant diagnosis (EID) of HIV done between 4 – 6 weeks or at the earliest opportunity thereafter. This is because mortality for HIV infected children is highest during the first few years of life. Early identification of those infected and prompt initiations on ART is very important for the program as it helps minimize mortality.

In PNG, the coverage of EID for exposed infants has been fluctuating and has declined over the last three years (see figure 24). In 2017, only 35% of the exposed infants had EID done. This poor coverage can be attributed to several issues mostly related to poor awareness among

²³ Source: <http://aidsinfo.unaids.org/>

HCWs, logistical challenges in sending DBS samples or receiving results on time. Some communities are also very remote and difficult to access which makes it difficult for HCWs to adequately monitor the mother-baby pair. In addition to all this, the surveillance system currently in place to record and report PPTCT is weak and needs strengthening. The program also needs more support and commitment from all stakeholders to strengthen its coordination role and address these challenges.

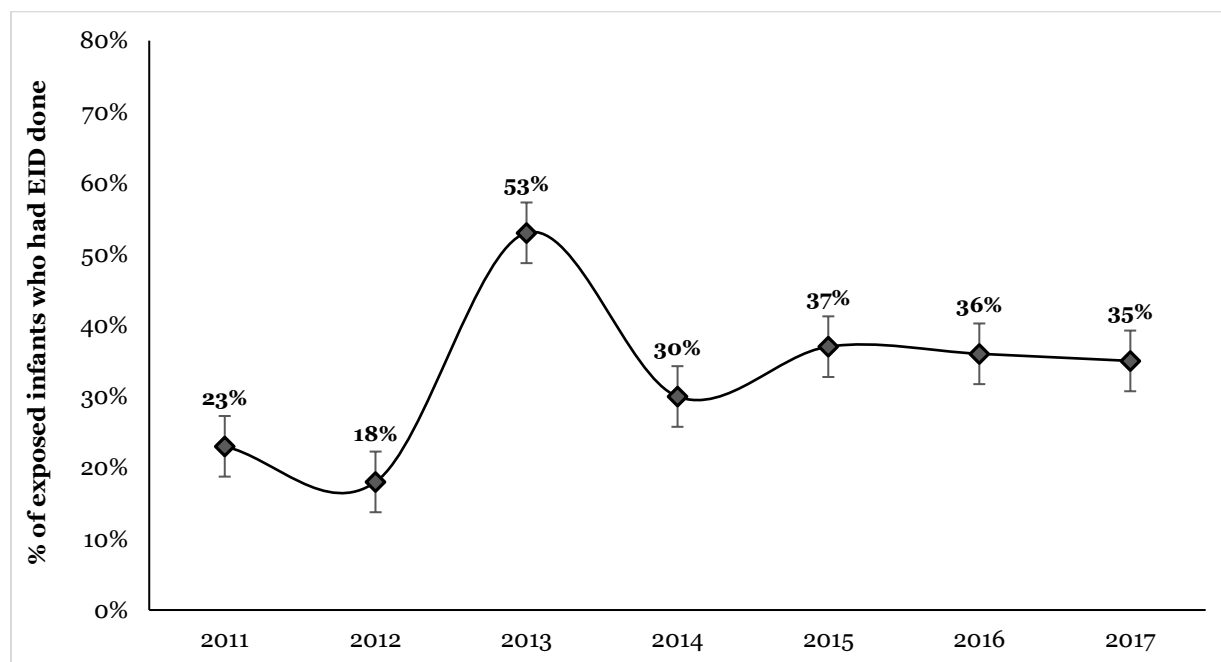


Figure 24: Trend of Early-Infant-Diagnosis coverage for exposed infants: 2011 – 2017²⁴

3.4.4 Elimination of mother-to-child transmission of syphilis

In 2017, the prevalence of syphilis among pregnant women attending ante-natal care (ANC) was estimated to be 4.6%. Only 54% of pregnant mothers attended ANC, of these 44.2% got tested for syphilis. In total, 81.3% of those who tested positive for syphilis got treated with at least one dose of benzathine penicillin (see figure 25).

A total of 2 252 (1.1%) children experienced adverse birth outcomes (ABOs) due to syphilis. The ABOs were namely still births 928 (41%), clinical congenital syphilis 658 (29%), neonatal deaths 398 (18%), and preterm/low birth weight 268 (12%) as shown on table 3. Unfortunately, a total of 4 397 children were estimated to be born with both symptomatic and asymptomatic congenital syphilis. The congenital syphilis case rate is 2 012 per 100 000 live births for all pregnant women.

²⁴ Source: <http://aidsinfo.unaids.org/>

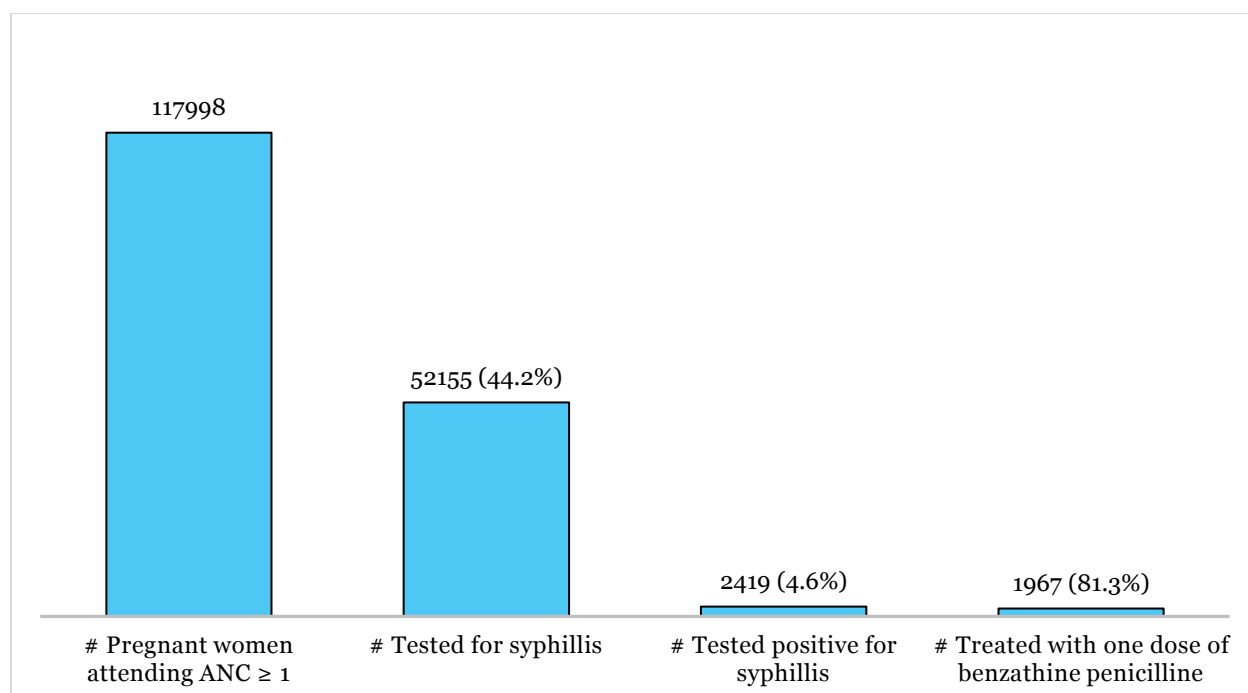


Figure 25: Cascade for elimination of mother-to-child transmission of syphilis²⁵

Table 3: Adverse birth outcomes due to syphilis²⁶

Indicator	2016**	2017**
Total number of normal births	212 142	214 057
Number of adverse births outcomes due to syphilis		
Still births	919 (0.4%)	928 (0.4%)
Neonatal deaths	394 (0.2%)	398 (0.2%)
Preterm/Low birth weight	265 (0.1%)	268 (0.1%)
Clinical congenital syphilis	651 (0.3%)	658 (0.3%)
Congenital syphilis cases (clinical + asymptomatic)	4 352 (2.1%)	4 397 (2.1%)
Congenital syphilis case rate / 100 000 live births per woman	2010	2012

**The numbers in the brackets represent column percentages with denominator total number of live births

²⁵ Source: 2018 Spectrum estimates

²⁶ Source: Wijesooriya, N. S. *et al*, Global burden of maternal and congenital syphilis in 2008 and 2012: a health systems modelling study. *Lancet Glob Health*, 4(8), e525-533. doi:10.1016/S2214-109X(16)30135-8

3.4.5 Elimination of mother-to-child transmission of hepatitis B

Viral hepatitis B infection can be vertically transmitted and can result in severe complications for children. In 2016, no pregnant women with Hepatitis B infection eligible for treatment managed to get appropriate antiviral therapy. Sadly, only 61% of all children born managed to get the three dose vaccination before one year of age. In total only 35% of them got a timely dose given (see table 4). No children received hepatitis B immunoglobulin along with the full vaccination regimen which are all important for preventing vertical transmission. These vaccination coverage levels are the lowest in the region. The prevalence of hepatitis B among children less than five years of age is estimated to be 2.6%. More efforts need to be made to strengthen the triple elimination of mother-to-child transmission of Hepatitis B, syphilis and HIV in PNG.

Table 4: Hepatitis B prophylaxis coverage for the prevention of mother-to-child transmission²⁷

Indicator	Prophylaxis coverage (%)
Proportion of all infants born that received three-dose vaccination before age 1 year	61%
Proportion of all infants born that received timely birth doses	35%
HBIG and full vaccination [‡]	0%
Antiviral treatment of mothers	0%

HBIG – Hepatitis B immunoglobulin. HBsAg – Hepatitis B surface antigen

[‡] Proportion of infants of HBsAg-positive mothers who received HBIG, first dose of hepatitis B vaccination ≤ 24 h after birth, and two or more doses of vaccine in the first year of life.

²⁷ Razavi-Shearer *et al.*, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The lancet Gastroenterology & hepatology. 2018 Jun 1;3(6):383-403.

3.5 Sexually transmitted infections in the general population

STIs are an important public health problems related to the reproductive and sexual health of individuals. Individuals that have STIs are at increased risk of getting HIV mainly because the diseases often weaken the structural integrity of the mucosal lining or skin around their genital organs. This makes it easier for the HIV virus to infect them during sexual intercourse. In addition, risk factors for STIs like having multiple sexual partners, being part of wide sexual network, and having unprotected sex also the same risk factors for HIV transmission. In fact, HIV is also a sexually transmitted infection. It is estimated that annually there are 357 million new cases of four curable sexually transmitted infections among people aged 15–49 years²⁸. In this section we discuss the epidemiology of STIs in the general population and report on specific indicators for the program for PNG.

3.5.1 *Chlamydia*

Chlamydial infection, caused by *Chlamydia trachomatis* (*C. trachomatis*), is the most common bacterial STI and results in substantial morbidity and economic cost worldwide.. Occurring most commonly among young sexually active adults, *C. trachomatis* causes cervicitis in women and urethritis in men, as well as extra-genital infections, including rectal and oropharyngeal infections.

Asymptomatic infections are common in both men and women. Untreated chlamydial infection may cause severe complications in the upper reproductive tract, primarily in young women, including ectopic pregnancy, salpingitis and infertility. Lymphogranuloma venereum caused by a more invasive serovar of *C. trachomatis*, is increasingly prevalent among MSM in some settings. Maternal infection is associated with serious adverse outcomes in neonates, such as preterm birth, low birth weight, conjunctivitis, nasopharyngeal infection and pneumonia.

In 2012, there was an estimated 131 million new cases of chlamydia globally. This translates to a global prevalence among adults aged 15 – 49 years of 4.2%. The global incidence was estimated to be 38 per 1,000 in women (regional range: 15–72) and 33 per 1,000 in men (regional range: 13–64). The western pacific region has the second highest incidence rate among women (see figure 26) and highest among men (see figure 27)²⁹.

²⁸ WHO Global Health Strategy on Sexually Transmitted Infections 2016 – 2020. Available online at <http://apps.who.int/iris/bitstream/handle/10665/246296/WHO-RHR-16.09-eng.pdf?sequence=1>

²⁹ Newman L *et al.*, Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. PloS one. 2015 Dec 8;10(12):e0143304.

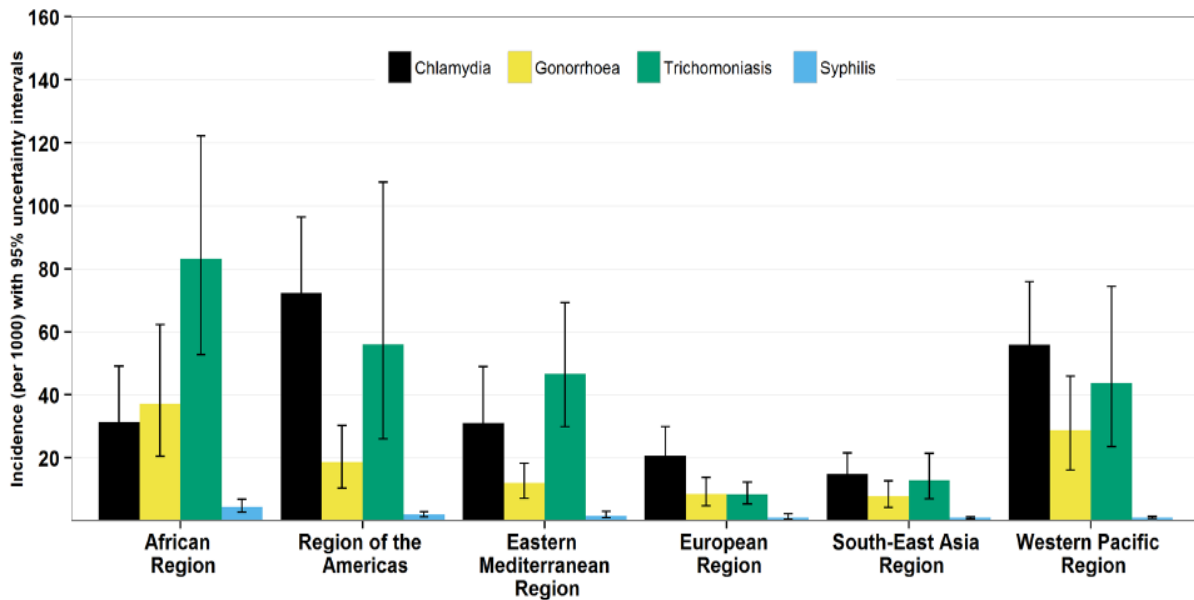


Figure 26: Estimated incidence of STIs by WHO region for women aged 15 – 49 years based on 2005 – 2012 data³⁰

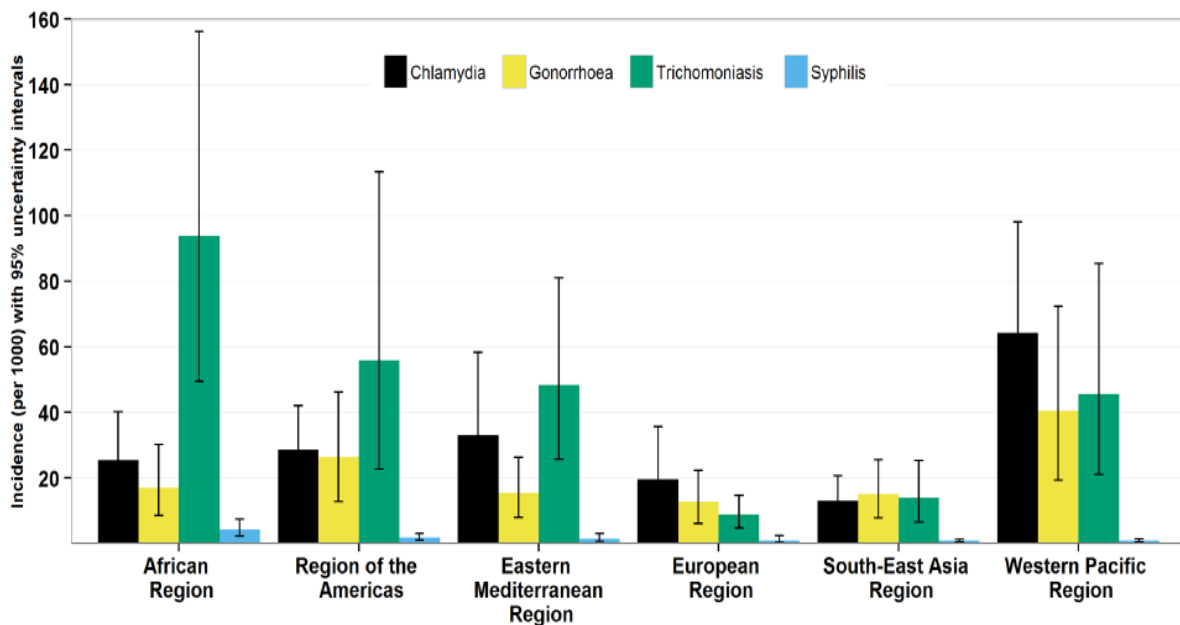


Figure 27: Estimated incidence of STIs by WHO region for men aged 15 – 49 years based on 2005 – 2012 data³⁰

In PNG, diagnosis and treatment of STIs is based on syndromic management. Very little effort is made to identify/confirm the STI in the laboratory because of limited laboratory capacity. In

³⁰ Newman L *et al.*, Global estimates of the prevalence and incidence of four curable sexually transmitted infections in 2012 based on systematic review and global reporting. PLoS one. 2015 Dec 8;10(12):e0143304.

addition, the surveillance system to record and report on STIs is very weak. As such, we rely on modelled estimates to measure the burden of STIs in the country.

The estimated prevalence chlamydia among the general population aged between 15 – 49 years is 19%. There were an estimated 1 million cases of chlamydia in 2017. This translates to a very high incidence of about 27 000 per 100 000 uninfected people between that ages of 15 – 49 years respectively. The number of incident cases of chlamydia has been rising sharply since 2011 (see figure 28). More efforts need to be made in reducing transmission by improving access to condoms and ensuring those infected are identified early and treated with effective antibiotics.

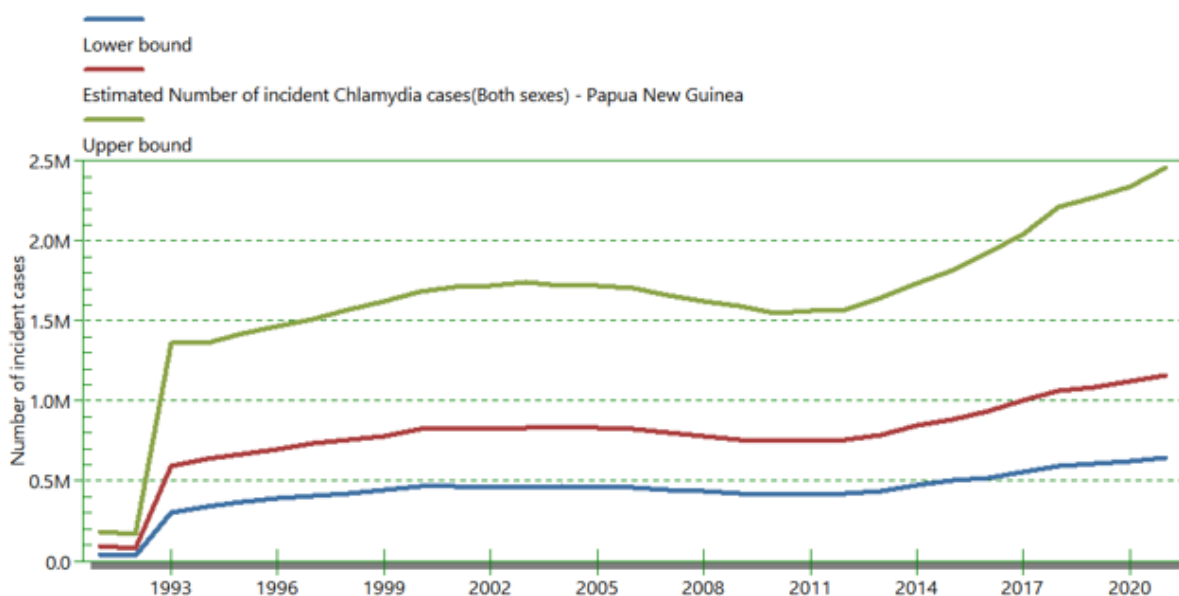


Figure 28: Estimated number of incident cases of chlamydia: 1993 - 2020³¹

3.5.2 Gonorrhoea

Gonorrhoea, caused by *Neisseria gonorrhoeae*, is the second most common bacterial STI and results in substantial morbidity and economic cost worldwide. WHO estimates that in 2012, 78 million new cases occurred among adolescents and adults aged 15–49 years worldwide with a global incidence rate of 19 per 1000 females and 24 per 1000 males. The estimated 27 million prevalent cases of gonorrhoea in 2012 translates to a global prevalence of gonorrhoea of 0.8% among females and 0.6% among males aged 15–49 years, with the highest prevalence in the WHO Western Pacific and African Regions. Co-infection with *Chlamydia trachomatis* is detected in 10–40% of people with gonorrhoea³².

³¹ 2018 Spectrum estimates

³² 2016 WHO guidelines for the treatment of *Neisseria gonorrhoeae* available online at <https://www.who.int/reproductivehealth/publications/rtis/gonorrhoea-treatment-guidelines/en/>

Uncomplicated gonococcal infection commonly manifests as urethritis in men with symptoms of urethral discharge and dysuria. On examination, the urethral discharge may range from scanty and mucoid to copious and purulent. Gonorrhoea is often asymptomatic in women; less than half of infected women complain of non-specific symptoms such as abnormal vaginal discharge, dysuria, lower abdominal discomfort and dyspareunia. The most common clinical signs are vaginal discharge and cervical friability due to mucopurulent cervicitis. Rectal infections in men and women are largely asymptomatic; occasionally patients complain of rectal and anal pain or discharge. Pharyngeal infections are mainly asymptomatic, but mild sore throat and pharyngitis may occur. In the majority of women with gonorrhoea, the lack of discernible symptoms results in unrecognized and untreated infections.

Untreated infections usually resolve spontaneously but may lead to serious complications such as pelvic inflammatory disease, including endometritis, salpingitis and tubo-ovarian abscess, which can lead to ectopic pregnancy and infertility. Untreated urethral infection in men can lead to epididymitis, urethral stricture and infertility. The risk of complications increases with repeated infection. Infants of mothers with gonococcal infection can be infected at delivery, resulting in neonatal conjunctivitis manifesting as purulent ocular discharge and swollen eyelids. Untreated conjunctivitis may lead to scarring and blindness.

The estimated prevalence of gonorrhoea among the general population in PNG aged between 15 – 49 years is 13%. There were an estimated 1.9 million new cases of gonorrhoea in 2017. This translates to a very high incidence of about 48 000 per 100 000 uninfected people between that ages of 15 – 49 years respectively. Since 2011, the number of incident gonorrhoea cases per year have increased by around 27% (see figure 29).

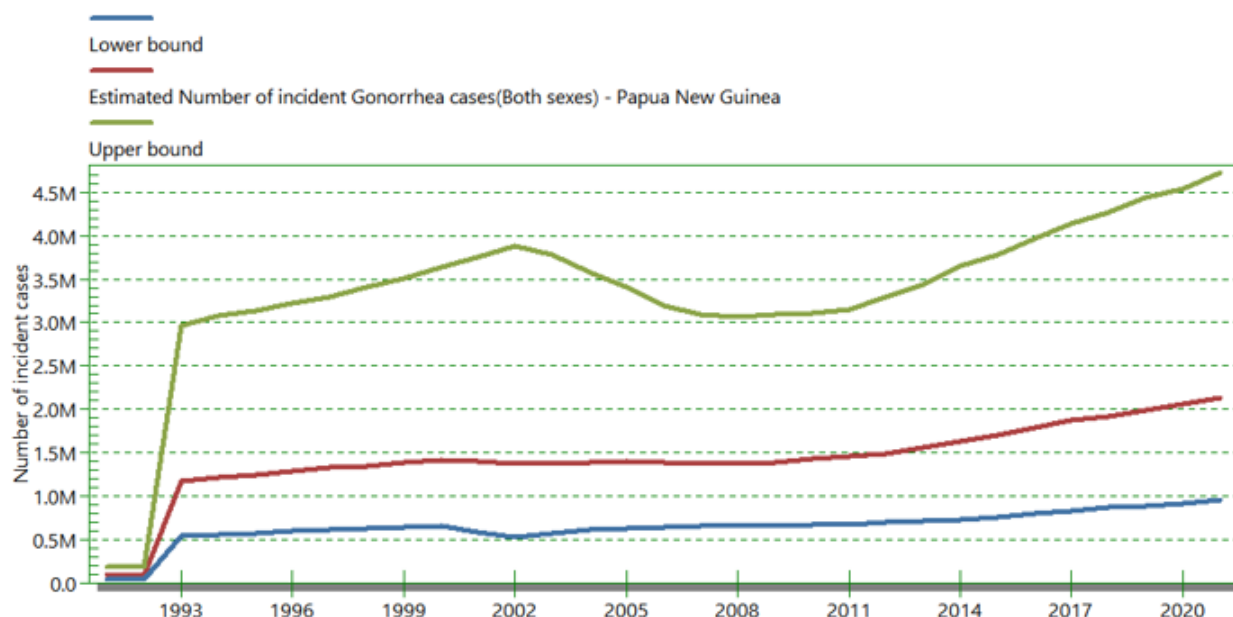


Figure 29: Estimated number of incident Gonorrhoea cases: 1993 - 2020³³

³³ Source: 2018 Spectrum estimates

3.5.3 Syphilis

Syphilis is a systemic disease from the outset and is caused by the spirochete, *Treponema pallidum* (*T. pallidum*). The infection can be classified as congenital (transmitted from mother to child in utero) or acquired (through sex or blood transfusion). Acquired syphilis is divided into early and late syphilis. Early syphilis comprises the primary, secondary and early latent stages. Late syphilis refers to late latent syphilis, gummatous, neurological and cardiovascular syphilis. Primary syphilis is characterized by an ulcer or chancre at the site of infection or inoculation. Secondary syphilis manifestations include a skin rash, condylomata lata, mucocutaneous lesions and generalised lymphadenopathy.

In 2017, 1% or more of antenatal care attendees in 37 of 83 reporting countries were diagnosed with syphilis³⁴. Syphilis in pregnancy is the second leading cause of stillbirth globally and also results in, prematurity, low birthweight, neonatal death, and infections in newborns. These adverse outcomes can be prevented with a simple and inexpensive rapid test followed by treatment with benzathine penicillin.

PNG is among the countries with the highest positivity rates of syphilis among pregnant mothers attending ANC (see figure xx). In 2017, the prevalence of syphilis among pregnant women attending ante-natal care (ANC) was estimated to be 4.6%. This is much higher than the regional prevalence of maternal syphilis as 0.24% for the Western Pacific Region and 0.32% for the South-East Asia Region in 2012³⁵. Details on the elimination of mother to child transmission of syphilis and key indicators for the program have been discussed in detail in section 2.5.4.

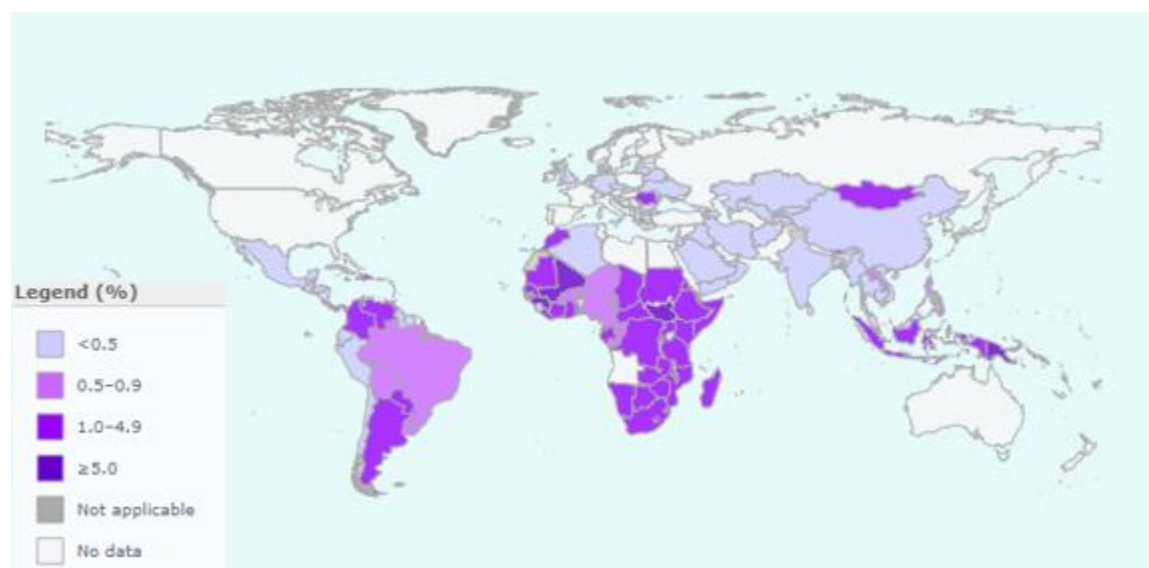


Figure 30: Percentage of antenatal care attendees positive for syphilis globally in 2018³⁶

³⁴ 2018 WHO Global Health Observatory Data

³⁵ Wijesooriya, N. S. *et al*, Global burden of maternal and congenital syphilis in 2008 and 2012: a health systems modelling study. *Lancet Glob Health*, 4(8), e525-533. doi:10.1016/S2214-109X(16)30135-8

³⁶ Source: WHO available online at http://gamapserver.who.int/gho/interactive_charts/sti/anc_syphilis_positive/atlas.html

3.5.4 Viral Hepatitis infection

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus (HBV). It is a major global health problem. It can cause chronic infection and puts people at high risk of death from cirrhosis and liver cancer.

Most people do not experience any symptoms during the acute infection phase. However, some people have acute illness with symptoms that last several weeks, including yellowing of the skin and eyes (jaundice), dark urine, extreme fatigue, nausea, vomiting and abdominal pain. A small subset of persons with acute hepatitis can develop acute liver failure, which can lead to death. In some people, the hepatitis B virus can also cause a chronic liver infection that can later develop into cirrhosis (a scarring of the liver) or liver cancer.

Globally, in 2015, an estimated 257 million people were living with chronic HBV infection. The global prevalence of HBV infection in the general population was 3.5%. Viral hepatitis caused 1.34 million deaths in 2015, a number comparable to deaths caused by tuberculosis and higher than those caused by HIV. Hepatitis B prevalence is highest in the WHO Western Pacific Region and the WHO African Region, where 6.2% and 6.1% respectively of the adult population is infected³⁷ as shown on table 5.

Table 5: Prevalence of Hepatitis B infection by WHO region in 2015³⁷

WHO Region	Estimated Prevalence (%)	Estimated number of people living with HBV
Africa	6.1 (4.6 – 8.5)	60 million
Americas	0.7 (0.4 – 1.6)	7 million
Eastern Mediterranean	3.3 (2.6 – 4.3)	21 million
European	1.6 (1.2 – 2.6)	15 million
South-East Asia	2.0 (1.5 – 4.0)	39 million
Western Pacific	6.2 (5.1 – 7.6)	115 million
Total	3.5 (2.7 – 5.0)	257 million

About 1% of persons living with HBV infection (2.7 million people) globally are also infected with HIV. Conversely, the global prevalence of HBV infection in HIV-infected persons is 7.4%³⁷. Since 2015, WHO has recommended treatment for everyone diagnosed with HIV infection, regardless of the stage of disease. Tenofovir, which is included in the treatment combinations recommended in first intention against HIV infection, is also active against HBV.

³⁷ 2017 WHO Global hepatitis report available online at <http://apps.who.int/iris/bitstream/handle/10665/255016/9789241565455-eng.pdf?sequence=1>

Viral hepatitis is an emerging public health concern in Papua New Guinea. In 2016, the prevalence of prevalence of HBV infection in the general population at 6.6%³⁸. The country has one of the highest prevalence of hepatitis detected using hepatitis B surface antigen (HBsAg) as shown in figure 31. Underreporting of hepatitis-related morbidity and mortality is expected given the current limited serological testing for HBV and HCV and weak vital statistics reporting system.

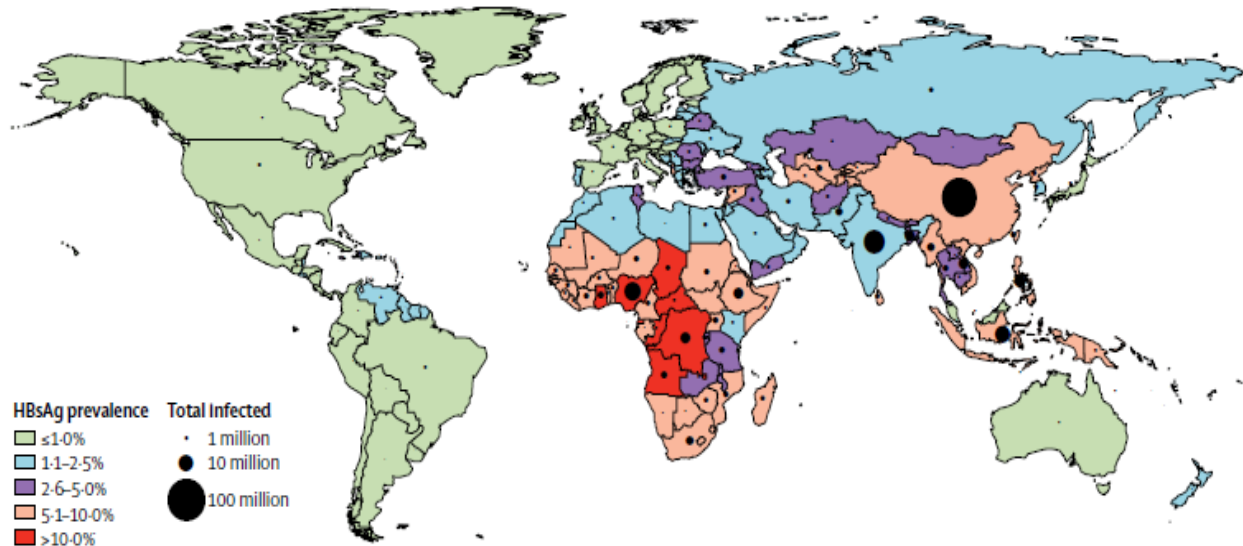


Figure 31: Map of estimated prevalence of HBsAg by country in 2016³⁸

An early win to viral hepatitis was achieved through the effective scaling up of hepatitis B vaccine. Section 2.5.5 has discussed in detail the progress that has been made in PNG in the elimination of mother-to-child transmission of hepatitis.

Access to affordable hepatitis testing is limited and even fewer people among those diagnosed get access to affordable treatment. In 2015, globally only 9% (22 million) of HBV-infected people were diagnosed. In total, 8% (1.7 million) of those diagnosed with HBV infection were put on treatment³⁹.

In 2016, less than 1% (3/293 000) of those who were diagnosed with HBsAg and eligible for treatment actually received antiviral therapy³⁸.

³⁸ Razavi-Shearer D *et al*, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The lancet Gastroenterology & hepatology. 2018 Jun 1;3(6):383-403

³⁹ 2017 WHO Global hepatitis report available online at <http://apps.who.int/iris/bitstream/handle/10665/255016/9789241565455-eng.pdf?sequence=1>

3.6 HIV/AIDS and STIs among key populations

The HIV epidemic in PNG is mostly concentrated in some geographic locations (NCD and the Highlands region) and among key populations. The prevalence of HIV is 15 times higher in FSWs than the general population. Similarly, the prevalence is 10 times higher among MSM and the TG. The program working closely with the National AIDS Council Secretariat (NACS) and development partners has made significant strides in providing HIV/AIDS and STIs prevention, care and treatment to key populations.

The government of PNG has one coordinated response to HIV/AIDS and STIs among key populations. The STI/HIV & AIDS program in NDoH focuses on care and treatment while NACS is responsible for coordinating prevention. Deliberate efforts have been made by the NDoH to provide high-quality HIV care and treatment services in health facilities to all people including key populations. All HCWs are trained and expected to respect human rights, guarantee confidentiality and patient privacy in the discharge of their duties. In 2017, a lot of work was done by the program to ensure the health facilities are safe for all key populations.

3.6.1 HIV prevention among KPs

The recent integrated bio-behavioural survey (IBBS) provided important information regarding HIV/AIDS and STIs among KPs. Although the survey was carried out in only three cities (Port Moresby, Lae and Mt Hagen), the results can be used by NDoH to improve service delivery. This is particularly important because the burden of HIV is mostly concentrated among the KPs.

The survey showed that very few KPs were reached by the outreach workers who are the main conduits used by the program to reach them. Between 31 – 51% of FSWs and 26 – 35% of TG/MSM had never had an outreach worker talk to them about HIV. Similarly, more than half of the participants had never received information on condom use and safe sex. As a result condom use at last vaginal (32 – 44% for FSWs) and anal (7 – 37% for FSWs; 30 – 42% for TG/MSM), sex with last casual partner is very worryingly low as shown in table 3.

A lot of work needs to be put by the program to improve on these indicators. The KP outreach interventions need to be strengthened and improved so that all KPs are reached with the minimum HIV prevention package including condom distribution. There is need to raise awareness among communities and KPs specifically about safe sex practices so as to minimize transmission of HIV as well as other STIs. More than half of the FSWs (52 – 61%) and around half of TG/MSM (34 – 47%) had at least one STI. And likewise, the prevalence of HIV among these KPs is also very high compared to the general population.

In addition to strengthening HIV prevention, the program must also ensure that infected KPs get access to high-quality care and treatment. The package of care must also be patient-centred, maintain confidentiality and respect of human rights. A one-stop-shop package of care that includes HIV, STI, Hepatitis and TB care and treatment plus gender-based violence (GBV) is strongly recommended.

Table 6: Summary of some IBBS results⁴⁰

INDICATOR	FSW	TG/MSM
% Never had an outreach worker talk to them about HIV		
Port Moresby	31%	35%
Lae	31%	26%
Mt Hagen	51%	N/A
% In the last 12 months who received information on condom use and safe sex		
Port Moresby	55%	62%
Lae	52%	51%
Mt Hagen	42%	N/A
% Who used condom use at last vaginal sex with a casual partner		
Port Moresby	34%	N/A
Lae	44%	N/A
Mt Hagen	32%	N/A
% Who used a condom at last anal sex with a casual partner		
Port Moresby	7%	30%
Lae	37%	42%
Mt Hagen	24%	N/A
% Who had one or more STIs		
Port Moresby	52%	34%
Lae	61%	47%
Mt Hagen	53%	N/A
HIV prevalence		
Port Moresby	15%	9%
Lae	12%	7%
Mt Hagen	20%	N/A

FSW – female sex worker, MSM – men who have sex with men

TG – transgender, N/A – not available, STIs – sexually transmitted infections

3.6.2 KPs reached with HIV prevention package

To a greater extent, interventions that address HIV/AIDS and STIs in the country have been implemented with development partners, NGOs and FBOs working closely with the NDoH. The high burden provinces have largely been the focus of these programs. The program's support for KP interventions is still in its infancy in most parts of the country. A lot of work is currently being done to improve service delivery plus recording and reporting in KPMIS.

In 2017, a total of 8 885 FSWs, 4 376 MSM, and 411 TGs were reached with the minimum HIV prevention package. In the same year, a total of 4 520 FSWs, 1 969 MSM, and 132 TGs were tested for HIV as shown on figure 32.

⁴⁰Source: 2018 IBBS report. Available online at http://www.pngimr.org.pg/assets/Multisite%20summary%20Report_IBBS.pdf

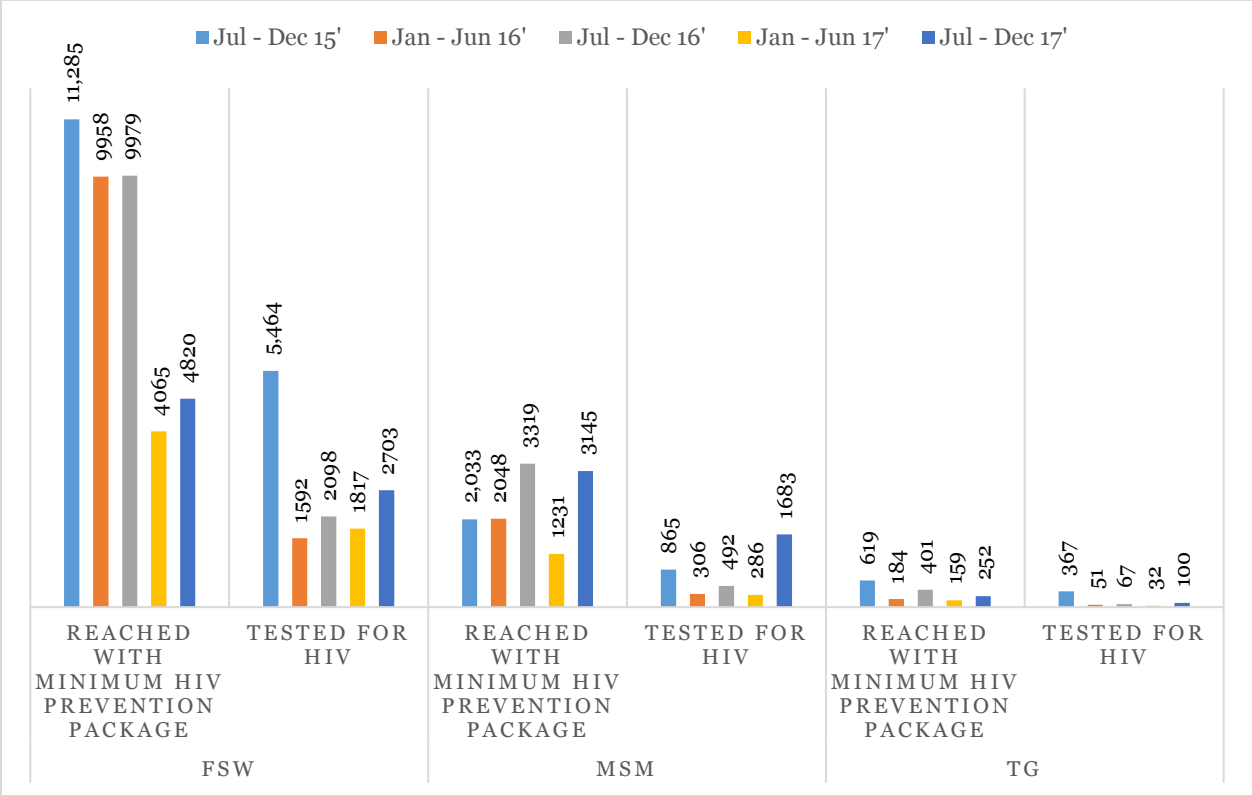


Figure 32: Number of KPs reached with minimum prevention package and tested for HIV: 2015 -17⁴¹

3.6.3 KPs who are HIV positive linked to ART services

In 2017 a total of 1 895 KPs were tested for HIV in NCD. Of these, 126 (6.6%) tested HIV positive and 82 (65%) of them were initiated on ART as shown in figure 33. The HIV positivity rate varied across the KPs and was 8.7% (101/ 1 161) for FSWs, 6.6% (6/91) among TGs, 4.5% (18/403) among MSM and 0.4% (1/240) for MSM. Sadly, not all HIV positive clients identified were initiated on ART and this will need to be improved on in the future.

⁴¹ Source: Oil Search Foundation PUDR data

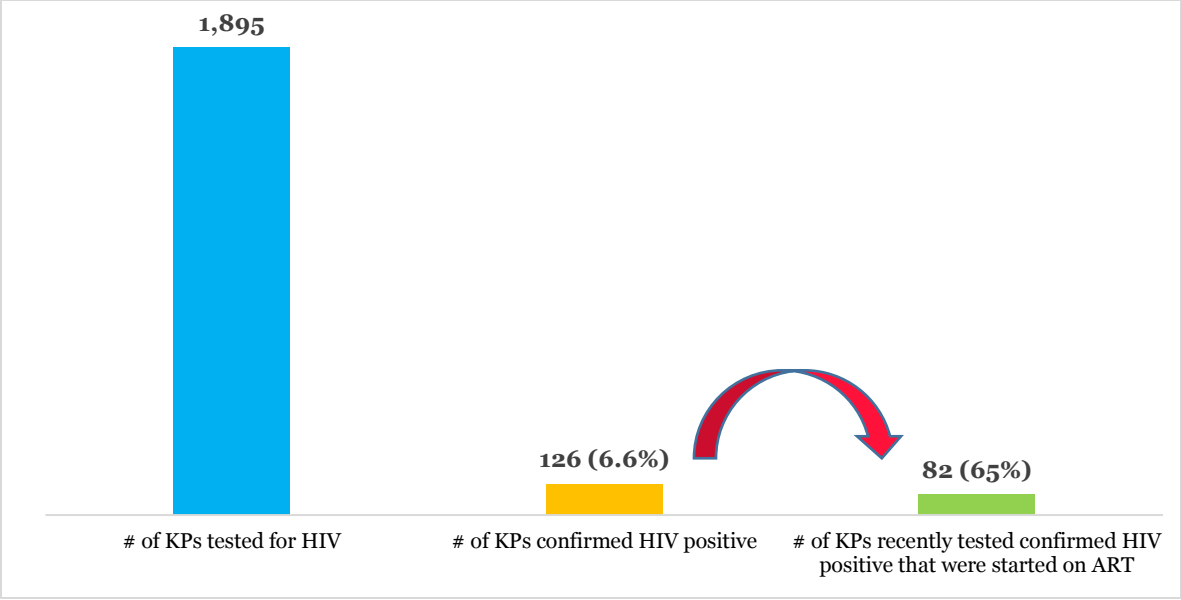


Figure 33: KPs tested for HIV and initiated on ART in NCD: 2017⁴²

3.6.4 STIs among KPs

Key populations have a higher burden of both Hepatitis B and STI. The recent IBBS showed that Hepatitis B was nearly twice as common among FSW (9.3% Port Moresby, 10.7% Lae, and 10.8% Mt. Hagen) and MSM/TG (11.6% Port Moresby, and 13.8% in Lae) compared to the general population. More than half (range 52.1% to 60.8%) of the FSWs had at least one STI.

Chlamydia was the commonest STI among FSWs affecting about a third of them while about one in five also had anorectal/urogenital gonorrhoea. Between 3.0 – 7.2% of FSWs were reported to have active syphilis infection while 10.9 – 19.7 had a previous infection. More than one in three MSM/TGs in Port Moresby and one in five in Lae were reported to have one or more STIs during the IBBS.

Active syphilis infection was found in 4% and 8.3% of this population. Both urogenital (12.3% and 14.5%) and anorectal (6.5% and 9.6%) chlamydia were very common among MSM/TGs. Urogenital (3.6% and 7.5%) and anorectal (4.6% and 7.1%) gonorrhoea was less common compared to the other STIs. Table 7 summaries the prevalence of STIs among KPs from the IBBS.

⁴² Source: FH1360 program reports from the facilities they supported (Koki, Kilakila, Kaugere, and Ela-Beach)

Table 7: Prevalence of STIs among KPs⁴³

STI	FSW		MSM/TG	
	Urogenital	Anorectal	Urogenital	Anorectal
Chlamydia				
Port Moresby	29.7%	31.8%	12.3%	9.6%
Lae	35.3%	32.1%	14.5%	6.5%
Mt. Hagen	32.5%	32.0%	N/A	N/A
Gonorrhoea				
Port Moresby	18.6%	19.3%	3.6%	7.1%
Lae	21.5%	22.6%	7.5%	4.6%
Mt. Hagen	15.4%	15.1%	N/A	N/A
Active Syphilis				
Port Moresby	7.2%		4.0%	
Lae	6.9%		8.3%	
Mt. Hagen	3.0%		N/A	
Hepatitis B				
Port Moresby	9.3%		11.6%	
Lae	10.7%		13.8%	
Mt. Hagen	10.8%		N/A	

3.7 TB/HIV collaborative activities

Globally, PLHIV are 26 times more likely to develop TB disease⁴⁴. This is because HIV infection weakens the host's immune response against TB. Quite often, TB occurs early in the course of HIV infection and shortens patient survival if not rapidly diagnosed and treated appropriately.

PNG is among the 30 countries in the world that have a high burden of TB/HIV co-infection (see figure 34). As such, the program has responded by implementing recommendations from WHO on the implementation of TB/HIV collaborative activities (see table 8). Specifically, the TB and HIV programs fall under one director in NDoH and the programs meet regularly to plan, monitor and evaluate the programs. Efforts are being made to provide a more patient-centred one-stop-shop integrated TB and HIV care and treatment in health facilities.

In the new approach, all PLHIV in care are routinely screened for TB and those confirmed not to have the disease are initiated in isoniazid preventive therapy (IPT). In addition, all health facilities are strengthening TB infection control (TBIC) to minimize transmission in health facilities. Likewise, all patients diagnosed with TB are supposed to be tested for HIV and those positive initiated on ART.

⁴³ Source: 2018 IBBS report. Available online at http://www.pngimr.org.pg/assets/Multisite%20summary%20Report_IBBS.pdf

⁴⁴WHO 2015. World Health Organization. Global tuberculosis control: WHO report 2015. WHO/HTM/ TB/2015.22

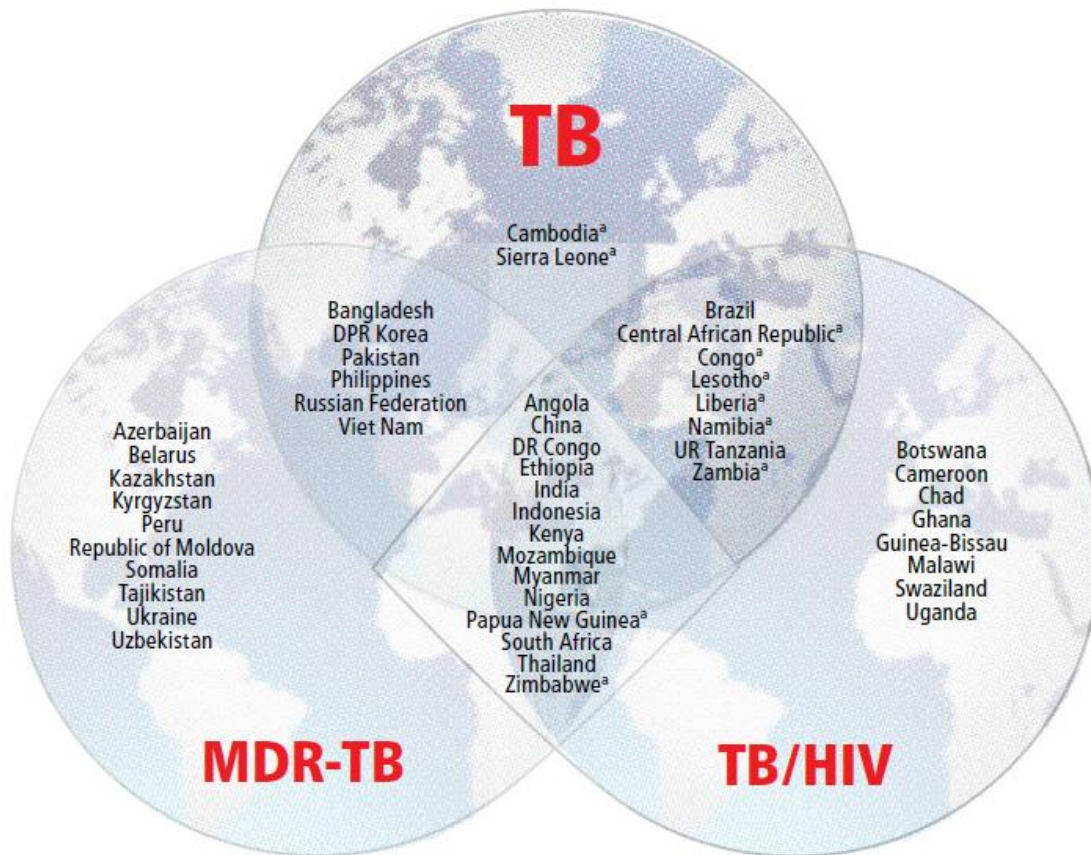


Figure 34: Countries in the WHO's high-burden country list for TB, TB/HIV and MDR- TB⁴⁵

⁴⁵Source: WHO 2017 Global TB report

Table 8: WHO recommended collaborative TB/HIV activities⁴⁶

A. Establish and strengthen the mechanisms for delivering Integrated TB and HIV services
A.1 Set up and strengthen a coordinating body for collaborative TB/HIV activities functional at all levels
A.2 Determine HIV prevalence among TB patients and TB prevalence among people living with HIV
A.3 Carry out joint TB/HIV planning to integrate the delivery of TB and HIV services
A.4 Monitor and evaluate collaborative TB/HIV activities
B. Reduce the burden of TB in people living with HIV and initiate early antiretroviral therapy (the three I's for TB/HIV)
B.1 Intensify TB case finding and ensure high-quality antituberculosis treatment
B.2 Initiate TB prevention with isoniazid preventive therapy and early antiretroviral therapy
B.3 Ensure control of TB infection in health care facilities and congregate settings
C. Reduce the burden of HIV in patients with presumptive and diagnosed TB
C.1 Provide HIV testing and counselling to patients with presumptive and diagnosed TB
C.2 Provide HIV prevention interventions for patients with presumptive and diagnosed TB
C.3 Provide co-trimoxazole preventive therapy for TB patients living with HIV
C.4 Ensure HIV prevention interventions, treatment and care for TB patients living with HIV
C.5 Provide antiretroviral therapy for TB patients living with HIV

3.7.1 Intensified TB case finding and IPT for PLHIV

The country has since adopted the recommendations from WHO for intensified case finding (ICF). All PLHIV must be screened for TB symptoms at every contact with the health facility. Those where TB has been excluded are then initiated on TB preventive therapy.

In PNG, all newly registered PLHIV where TB has been excluded must be given IPT for six months. In 2017, 16% of HIV positive patients newly recruited in care were on IPT⁴⁷.

The low IPT coverage is due to several reasons which include poor drug supply, lack of training and awareness among HCWs, reluctance by some patients to start IPT as well as issues related to poor recording and reporting. A number of interventions have been rolled out by the program to improve IPT coverage among newly registered patients. One such program is HIVQUAL project being implemented in NCD to improve the quality of care provided to PLHIV at selected high volume facilities. Significant investments are also coming from GFATM.

⁴⁶Source: WHO policy on collaborative TB/HIV activities

⁴⁷ 2018 WHO Global TB report

3.7.2 HCT and ART for TB patients

A total of 27 037 TB patients were notified in 2017. Between 2013 and 2017, the proportion of TB patients tested for HIV has almost doubled from 26% to 45% respectively. HIV co-infection rate has declined from 13% to 7% in the same period. In addition, ART coverage for TB patients co-infected with HIV has significantly improved from 35% in 2013 to 95% in 2017 (see figure 35).

The improvements in these indicators show some of the early successes in the implementation of collaborative TB/HIV activities in the country. However, more than half of the notified TB patients are still not accessing HCT. The program needs to continue working at ensuring that HCT services are available at all BMUs. This is in line with the approach of providing the patient-centred one-stop-shop integrated TB/HIV care at all health facilities.

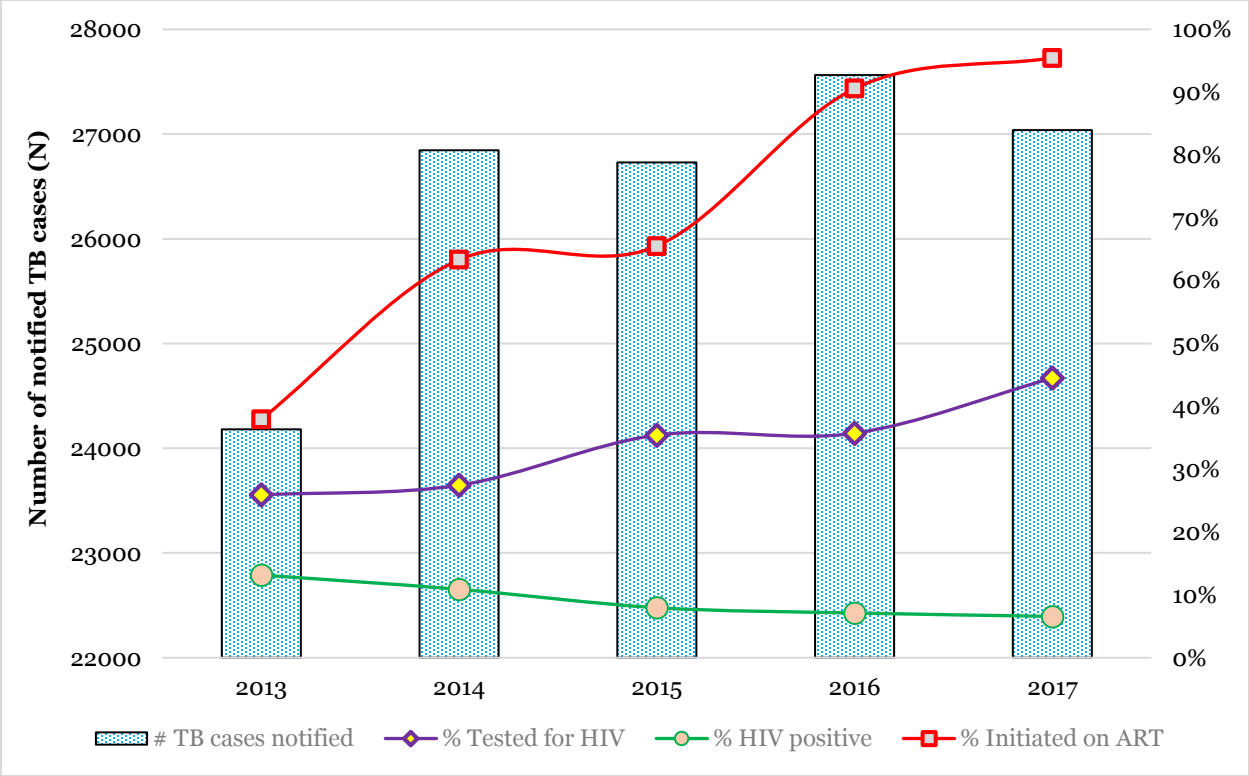


Figure 35: Trend of notified TB patients tested for HIV and initiated on ART: 2013 - 2017⁴⁸

3.7.3 TB/HIV collaborative activities across provinces

Implementation of TB/HIV collaborative activities is not uniform across the country. Only 9% of notified TB patients from the Islands region managed to get an HIV test done compared to 57% in the Highlands. One possible explanation is that the number of health facilities that provide HCT is fewer in the Islands region. As such, notified TB patients have challenges accessing these

⁴⁸ Source: National TB program database

services when referred. Other health system or patient-related challenges may also need to be explored by the program so that tailor-made solutions can be addressed.

The HIV co-infection rate across the province ranges from 0% in Gulf to 20% in Manus. The Highlands region has the highest HIV co-infection rate and this is because it also has the highest HIV prevalence.

Poor data quality makes interpretation of the proportion of TB/HIV co-infected patients started on ART difficult. In total, 64% (14/22) of provinces reported more people started on ART than who were reported to be HIV positive. It is very possible that the provinces are under-reporting the proportion of TB patients co-infected with HIV. Conversely, the TB/HIV co-infected patients started on ART could be overinflated. The program needs to look further into this and work closely with provinces and HCWs from the BMUs to improve the quality of reports being submitted to NDoH.

4 Risks to successful program implementation

The HIV/AIDS and STIs program is mandated to lead and coordinate the response to the epidemic in PNG in line with the NSP 2018 – 2022. Successful implementation of activities laid out in the strategic plan demands a clear understanding of both internal and external risks. It is within the program’s means to manage internal risk. However, the program needs to work closely with other stakeholders to mitigate or leverage on the external risks.

4.1 Internal risks

A number of internal factors for the STI/HIV & AIDS program affected the overall progress in achieving the set targets. Table 9 summarizes the strengths and weaknesses of the program that will need to be addressed. This will help ensure meaningful progress is made in achieving the NSP 2018 – 2022.

Table 9: Strengths and weaknesses of the HIV/AIDS and STIs program

Strengths	Weaknesses
<ul style="list-style-type: none"> • Roll out of the HPDB to 31 high-volume health facilities • Decentralization of data-entry for the HIV Surveillance database in NCD. This needs to be decentralised to other provinces • Regular TWGs meetings (HIV, TB-HIV, SI, and VL) to review program implementation • Good collaboration with NACS, NGOs, FBOs and development partners • Strong HIV Surveillance team 	<ul style="list-style-type: none"> • Delays in the submission of surveillance forms by the provinces • Poor reporting of data on KP interventions, PPTCT and STIs • Surveillance data is captured and reported using paper-based systems • Shortage of the latest recording and reporting tools in some facilities • Stock interruptions of HIV/AIDS and STI drugs and commodities • Limited feedback from NDoH and provinces on how the health facilities • Lack of high-quality, regular and focused support supervisory visits, coaching and mentorship to HCWs and data quality audits • HCT and ART services are limited to a small number of health facilities and patients have to travel long distances for them to access services. • The STI guidelines are now old and need revision • High LTFU rate for PLHIV • Multiple surveillance databases in use • Too many recording and reporting tools and demands/expectations for HCWs at the primary health care level • Limited access to VL monitoring for PLHIV on ART

4.2 External risks

External risk also played an important part in the progress made by the program in achieving the targets for 2017. Going forward the program will leverage on the opportunities and mitigate against various threats to ensure successful implementation of NSP 2018 – 2022. A table 10 summarizes the threats and opportunities that exist.

Table 10: Threats and opportunities for the HIV/AIDS and STIs program

Opportunities	Threats
<ul style="list-style-type: none"> • Roll out of the eNHIS • Good working relations with donor agencies and willingness to support the program • Restructuring of the provincial structures and formation of PHAs • Revamping of NACS 	<ul style="list-style-type: none"> • Too much donor dependency with limited domestic funding of interventions • Staff shortages at health facilities • Stigma and discrimination for key populations (MSM, TG, and FSW) affects access to HIV/AIDS and STIs services • High levels of Gender-based violence (GBV) affects disclosure and access to ART for women • Tribal conflict in some parts of the country • No ownership of program data at the provincial and district levels. As such, program data is not used at local level to strengthen implementation of HIV/AIDS and STI prevention, care and treatment interventions.

