

Statistical Report

2011



National TB, HIV/AIDS &
other STIs Programme
Ministry of Health

TB, HIV/AIDS and other STIs in 2011

The surveillance of TB, HIV and other sexually transmitted infections continues to evolve in tandem with these epidemics; as does the data capture and socialization of information. TB, HIV along with other STIs continues to be a health priority given its' evolving dynamics, and the impact that it has over the multiple and cross sectional layers of society. This report reflects data reported in 2011. Most of the data in this report is derived from the Belize Health Information System (BHIS), except for the private entities that submit manual reports. The positive samples reported for HIV infection reflected here are those reported by the Central Medical Laboratory (CML) as reactive ELISA. It should also be noted that STIs are diagnosed on a syndromic basis.

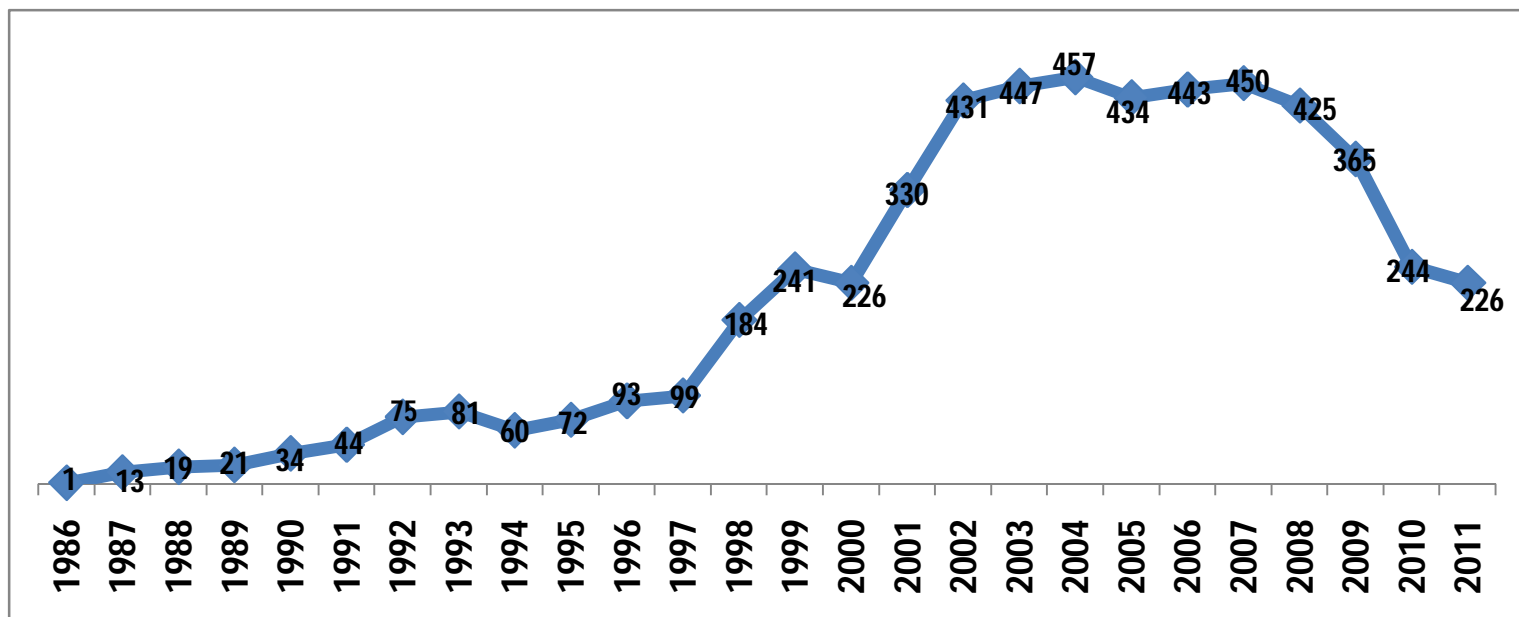
A major limitation in preparing the report was the lack of finalized population data from the 2010 census which is still being revised. This precluded the calculation of rates and proportion of population tested by district, age-group and sex which would have allowed for more meaningful comparisons along these lines.

Another limitation identified is that active screening amongst TB patients for concomitant HIV infection is done across the country but there aren't active screening strategies of HIV patients for their TB status. This would potentially underestimate the co-infection rate. Similarly, in the area of STIs, underreporting and resulting underestimation of cases also continues to pose a challenge. Additionally, the fact that the BHIS utilizes ICD-10 codes for reporting while the diagnosis of the STIs is on a syndromic basis leads to the possibility of misclassification of data.

HIV

For the year 2011, there was a further documented decrease in the number of new HIV infections, with a total of 226 new infections for the year; this represents a further 7.4% decrease when compared to 2010 data. This is now the third year in a row that documented decreases in confirmed HIV cases has happened. This represents close to a 100% reduction in cases from the peak number in 2004. This decreasing trend also reflects a better data collection and processing, which would eliminate duplication. (*see graph 1*)

New HIV infections continue to affect all age groups, albeit, the majority of the new cases continue to be in the younger age groups, particularly those between 20 to 34 years. The male to female ratio has undergone changes over the last years and the previous notion of a 'feminization' of the disease is no longer applicable to the Belize epidemic as there is a gradual transition towards a higher ratio for males. This is particularly detailed in tables 1 and 2 where it is evident that males had an overall higher number of new HIV infections despite the fact that fewer tests were conducted in this population.



Graph 1 – Laboratory confirmed new HIV infections in Belize 1986 – 2011

Age group	Male	Female	Total
0-4	1	3	4
5 to 9	1	0	1
10 to 14	0	0	0
15 to 19	2	13	15
20 to 24	13	27	40
25 to 29	12	16	28
30 to 34	16	12	28
35 to 39	13	12	25
40 to 44	21	7	28
45 to 49	12	6	18
50 to 54	14	7	21
55 to 59	7	2	9
60 to 64	5	2	7
65 +	2	0	2
Total	119	107	226

Table 1: Number of new infections by sex and age groups

When the ratio is further explored, based on total number of tests conducted, the ratio is actually 2.1 times higher for males than for females, with a percentage rate of 1.36% of tests being positive, as opposed to a percentage of 0.64% for the female population, with almost twice as many tests conducted in the female population. The overall percentage positive rate for the overall population was 0.89% for the year 2011.

Sex	Positive cases	# tests	Rate
Male	119	8,747	1.36%
Female	107	16,702	0.64%
	226	25,449	0.89%

Table 2: Rate of HIV positivity by sex

In reference to the geographic distribution and disease burden, the majority of the cases are still concentrated in the Belize District, accounting for almost 65%. The Cayo and the Stann Creek Districts have the second and third highest in total numbers (*table 3*). Further analysis by rate of positivity by district population, and proportion of population per district tested was precluded as the census population data by district is still to be finalized.¹ This limitation holds for the subsequent sections as well.

District of Residence	Male	Female	Total (%)
Belize	79	67	146 (64.7)
Cayo	17	18	35 (15.4)
Stann Creek	9	13	22 (9.7)
Orange Walk	5	6	11 (4.9)
Toledo	4	3	7 (3.0)
Corozal	5	0	5 (2.2)
TOTAL	119	107	226 (100)

Table 3: Number of new HIV infections by district

¹ Census data is still being finalized by Statistical Institute of Belize and this limitation applies for the subsequent sections as well.

The number of tests done as reported here includes those done at Central Medical Laboratory in the form of ELISA tests, rapid tests done at public health facilities, rapid tests done at BFLA clinics countrywide and rapid tests done at Loma Luz Hospital, as these are the reporting entities in 2011. The overall rate for those who were tested is at 0.89% and concurs with numbers documented in the prevention of mother to child transmission reflected over the last two years. A further breakdown by district reveals a rate in the Belize district of 1.5% of those tested, which doubles that reported by the Cayo and Orange Walk district. Toledo and Corozal have traditionally reported much lower rates and this is further documented in *table 4*.

District of Residence	Total # of New Infections	# of Tests (both ELISA & rapid tests)	Rate
Belize	146	9,712	1.50%
Cayo	35	4,774	0.73%
Stann Creek	22	2,991	0.74%
Orange Walk	11	3,412	0.32%
Toledo	7	2,611	0.26%
Corozal	5	1,949	0.05%
TOTAL	226	25,449	0.89%

Table 4: Rate of HIV infection amongst those tested

All the positive samples reflected here are those reported by the Central Medical Laboratory (CML) as reactive ELISA tests, since all rapid reactive tests are sent on for further ELISA testing and this allows us to also eliminate the issue of ‘double counting’. The reactive samples from some private entities are also sent on to CML for processing. Most of these reports are derived solely from the Belize Health Information System (BHIS) except for the private entities that submit manual reports.

At the end of 2011, 1,358 persons (*table 5*) were receiving medical care from the thirteen different facilities giving anti-retroviral treatment countrywide. The total number of females receiving treatment is slightly higher than for males and the majority of those receiving therapy are those between 25-44 years. These total numbers have grown steadily over the last four years as the Programme aims to provide universal coverage of those meeting medical criteria. Currently those receiving ART are those with a CD4 count of fewer than 350 and the new

updated guidelines for Belize completed at the end of 2011 call for patients with a new threshold of 500 as the new criteria for ART therapy. This would therefore significantly increase the number of patients requiring medical treatment but is in tandem with current evidence based medicine, and falls under the notion of the “treatment as prevention” strategy.

Age group	Female	Male	Totals
< 1	1	1	2
1 - 4	16	9	25
5 - 9	17	15	32
10 - 14	23	6	29
15 - 19	19	4	23
20 - 24	52	22	74
25 - 29	82	63	145
30 - 34	107	96	203
35 - 39	126	97	223
40 - 44	86	96	182
45 - 49	63	85	148
50 - 54	44	71	115
55 - 59	33	41	74
60 - 64	20	27	47
65 +	12	24	36
TOTAL	701	657	1,358

Table 5: # of patients on anti-retroviral medications by sex and age groups

The prevention of mother to child transmission component of the programme continues to have greater than 90% coverage. For 2011, 92.2% of pregnant women got an HIV test with 0.97% of those tested being positive (*table 6*). The total number of cases was 65 with 18 of those (27.7%) being previously known cases and 47 being new, undocumented cases of HIV. The 65 cases in 2011 all received triple ARV therapy to reduce the risk of MTCT; out of these, 61 women delivered babies in 2011. All exposed infants received prophylaxis at delivery and all exposed infants got a PCR test done prior to their discharge from the hospital. Throughout 2011, there were 4 cases of vertical transmission for an overall MTCT rate of 6.2%; a slight decrease from what was reported in 2010. This is still far from the 2015 target of having a MTCT rate of fewer than 2%. The overall numbers in the PMTCT component are relatively small so that the global target of zero cases of vertical transmission is achievable.

	2010		2011	
	Total	Percent	Total	Percent
# of Pregnant women registered	6,631		7,258	
# of Pregnant women counseled for HIV	6,631	100	7,258	100
Tested for HIV	6,178	93.2	6,695	92.2
New HIV Positive	33	0.53	47	0.70
Known HIV cases	20	0.32	18	0.27
Total Positive	53	0.85	65	0.97
Women Received ARVs while pregnant	50	94.3	65	100
Deliveries by HIV pregnant women	55		61	
Mothers received ARVs at time of delivery	54	98.1	61	100
Total # of New born	54		61	
Infants Received ARV at birth	53	98.1	61	100

Table 6: Comparative reports of PMTCT data 2010-2011

The PMTCT component is directly tied in to the “Elimination Initiative for Congenital Syphilis,” and components of this have been directly linked to the 2009 PMTCT Guidelines which is when they were last updated and published for Belize (*table 7*). The screening rate is virtually the same as that for HIV, with 92.3% of women being screened for syphilis, and out of which 55 were positive for a rate of 0.82%. However, the treatment for this population was a mere 67.3% of those who were reactive; however, we had zero cases of congenital syphilis in 2011.

	Total	Percent
# of Pregnant women registered	7,258	
# of Pregnant women screened for syphilis	6,698	92.3%
# of women who tested positive for syphilis	55	0.82%
# of positive women who received at least a dose of penicillin	37	67.3%

Table 7: Syphilis screening in pregnant women – Initiative to eliminate congenital syphilis

Other Sexually Transmitted Infections

For the year 2011, more than 1700 cases of sexually transmitted infections other than HIV were reported countrywide via the Belize Health Information System. Anecdotal evidence continues to indicate that cases are underreported. Another potential limitation stems from the fact that the BHIS utilizes ICD-10 codes for reporting while the diagnosis of the STIs is on a syndromic basis without laboratory confirmation and this leads to the possibility of misclassification of data. Notwithstanding limitations, the majority of these infections were in both the Belize and Cayo districts with the fewest cases being reported in the northern districts. The following table summarizes the infections reported by district.

While not elaborated on in this table, like in HIV, the majority of cases are those in the same age groups, and the most sexually active groups, however, all age groups are affected. As the data becomes more routinely collected and processed/analyzed strategic information for planning purposes will continue to improve.

It should be noted that while this report focuses on syndromes reported based on regional indicators and reporting commitments, as well as other infections known to be solely sexually transmitted, the data includes a further 3559 cases of syndromes which may or not have been sexually transmitted as they have other known aetiologies. This included 2099 cases of vaginitis, 1370 cases of candidiasis and 18 cases of balanitis.

STIs	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo	ND	TOTAL
Syphilis	1	3	33	0	3	3	0	43
Gonorrhoea	1	1	14	4	2	1	0	23
Chlamydia	1	0	6	5	4	0	0	16
Chancroid	0	0	1	0	0	0	0	1
Granuloma Inguinale	1	0	1	1	1	3	0	7
Trichomoniasis	7	4	148	20	4	121	0	304
Genital Herpes	2	1	15	3	7	5	0	33
Ano-genital Warts	2	6	13	13	10	4	0	48
Pelvic Inflammatory Diseases	86	80	308	383	201	199	0	1257
Total	101	95	538	429	232	336	0	1732

Table 8: STIs by district

Tuberculosis

Tuberculosis had shown a gradual increase over the last two years despite the fact that when compared to data from the early 90s, the overall incidence cases per population was still fairly low and Belize remains on target to meet the Millennium Development Goal #6 for tuberculosis. For 2011, there were a total of 76 total cases of TB with 64 of these being new cases and 12 being relapse cases (*table 9*); this represents a marked (46%) decrease from 2010 data. This could be in part due to the two outbreaks reported in the previous two years that documented a higher number of TB cases.

Out of these, there were a total of 24 cases (*table 10*) of HIV for a co-infection rate of 32% which mirrors what was reported in 2010. Active screening amongst TB patients for concomitant HIV infection is done across the country but there aren't active screening strategies of HIV patients for their TB status. A similar pattern as documented for HIV is also observed here with a majority (92%) of the cases of co-infection being in the male population attesting to the fact that males are entering into the health system in more advanced stages of HIV infection. The geographic distribution for the cases of co-infection is similar to that of HIV infection.

District	New Cases			Relapse Cases		
	Male	Female	Total	Male	Female	Total
Corozal	6	3	9	1	0	1
Orange Walk	1	0	1	0	0	0
Belize	26	5	31	7	1	8
Cayo	4	3	7	0	1	1
Stann Creek	6	2	8	0	1	1
Toledo	3	5	8	1	0	1
Total	46	18	64	9	3	12

Table 9: New & relapse TB cases for 2011 by district and sex

A total of 2,069 PPD tests were done countrywide and 783 patients were screened for acid fast bacilli (AFB) in their sputum samples as part of the active TB screening across the country. Whilst the former test is unspecific for active TB infection, we are utilizing this as an initial screening test within certain at risk populations as part of the active TB screening processes countrywide.

Districts	Male	Female	Total
Corozal	3	0	3
Orange Walk	0	0	0
Belize	15	2	17
Cayo	2	0	2
Stann Creek	1	0	1
Toledo	1	0	1
Total	22	2	24

Table 10: Cases of TB-HIV co-infection by district

Conclusions and Recommendations

- A further decrease was documented in the number of new HIV infections of 7.4% compared with 2010 data and this may be in part a reflection of further data cleaning as well as an actual decrease in infection rates. The majority of the new cases continue to be in the younger age groups, particularly those between 20 to 34 years with a higher ratio for males and the highest burden geographically in the Belize and Cayo districts.
- The evidence continues to imply that Belize has a more concentrated epidemic.
- The coverage rate of ART for general population and the number of persons on treatment is expected to increase when the updated guidelines are implemented. This is due to increase in CD count threshold for initiation of therapy from 350 to 500 cells/cm³
- The number of TB cases was less than in the previous two years with a 46% decrease compared with 2010 data. This could be in part due to the two outbreaks reported in the previous two years that would have documented a higher number of TB cases and somewhat skewed the overall picture.
- PMTCT success continues as relates with prenatal screening for HIV and Syphilis at greater than 90% and ARV coverage at 100%. On the other hand, the vertical transmission rate for 6.2%, though slightly decreased from what was reported in 2010, is still below the 2015 target of having a less than 2%.

It is evident that with the growing culture of monitoring and evaluation and the development of information technology, data processes and products have improved and thus, better data is available for usage in our planning and policy development. The national programme has been a premiere advocate of the use of health information systems and is one of the prime users of the Belize Health Information System. As of November 2009, most of the data being captured and reported is coming directly from the BHIS – HIV module, with supplementation of data from manual reports where necessary and appropriate.

For the third year in a row since 2008, there is a documented decrease in total number of new HIV infections; this despite conducting more HIV testing in 2011 when compared to 2010. There is salient data to be gathered when a further analysis is done. Males are seemingly testing in fewer numbers than females and while this can be in part due to the PMTCT arm of the programme, it highlights the increasing need for promoting earlier testing in the male population. This is particularly so because the overall rate in males is twice as high as in females and data is also indicating that males are seeking health services at a much later stage in the HIV infection than are females (again, in part due to the PMTCT programme). While the latter finding has therefore been explained by differences in health-seeking behavior between the genders, the former seems to support the hypothesis of the Epidemiology Unit that there are concentrated pockets of infection within the population that could be fueling the epidemic. This is also consistent with what the estimates Spectrum has been providing from 2007, and which has

persistently given the overall prevalence greater than 2.1% for the country while the PMTCT data has persistently been less than 1% over the last seven years. The data for 2011 as shown in previous tables underscores this. This evidence, which also implies a shift in the dynamics of transmission from what was inferred at the onset of the epidemic, would suggest the existence of a concentrated versus a generalized epidemic. This highlights the need for more analysis of data and further studies, particularly among specific populations known to be most at risk, to improve the evidence. Efforts are ongoing and studies completed to date for specific populations include sero-prevalence surveys done amongst inmates earlier in the past decade and the most recent study completed amongst the armed forces in 2010; with the former showing a prevalence rate of almost 5% and the latter showing a 1.2%. A Behavioural Sero-prevalence Survey among female sex workers and men who have sex with men was started in 2011 and is expected to produce initial results by mid-2012. The results of this are highly anticipated, but in the meantime the call for more targeted interventions and strategic planning is now being laid out with the current data.

It is necessary for Belize to be able to document what works and what evolving strategies are needed in order to continue to keep the impact made so far. This is evident in the impact indicator – “Percentage of young men and women age 15-24 who are HIV infected” which is an indirect incidence indicator; this was first reported in 2009 at 1.01% and the data for 2011 (*table 11*) now puts this at 0.81%. This is a clear indication that Belize is on its way to meeting the MDG goal # 6 as the HIV epidemic is now on a reversal trend.

Definition	Total number
Number of antenatal clinic attendees tested whose HIV test results are positive	33
Number of antenatal clinic attendees tested for HIV infection	4,075
Overall Rate	0.81%

Table 11: Percentage of young women (15-24 yrs) who are HIV infected

When looking at overall survival rate from an initial 2008 cohort of 133 persons (*table 12*) starting antiretroviral therapy and tracking these patients over the last three years, we note a fairly acceptable survival rate of 89.5% at the first 12 months; 87.2% at the first 24 months and 81.2% of these patients starting therapy in 2008 were still alive in 2011. The coverage rate of those in need has been increasingly steadily since 2007 and currently stands at greater than 80% of those in need, therefore, it is expected that the survival rates would actually remain stable. As part of the “treatment as prevention” strategy, the new treatment guidelines are advocating for patients to be started on ART at CD4 counts of 500 so that is it expected that the three major expected outputs from this would be the following:

- i. An expected increase in survival rates as we would place patients on medication before they get to advanced stages of infection
- ii. Starting patients on treatment earlier serves as a prevention strategy as it has been scientifically proven that this reduces the transmission of HIV
- iii. The number of patients on ART and adhering to medication will also increase

	2008 (initial cohort)	2009 (12 month survival)	2010 (24 month survival)	2011 (36 month survival)
# of persons with HIV known to be on treatment	133	119	116	108
Percentage		89.5%	87.2%	81.2%

Table 12: Survival rates at 12-24-36 month intervals with a starting cohort in 2008

The PMTCT arm of the Programme also needs to be further strengthened. Even though we have had a consistently good coverage rate with HIV and syphilis testing, the vertical transmission rate has remained well above the 2% target for HIV. The “getting to zero cases” by 2015 is within reach and highlights the stronger relationship that must be made with the newborns exposed to HIV as well as with the mothers who are known to be HIV positive. No cases of congenital syphilis were documented for Belize for 2011.

Recommendations

- Continue efforts to improve data analysis and the evidence – including a revision of rates and proportions with the finalized Census data and continued support for studies among most-at-risk populations, as well as increased capacity in data analysis and reporting.
- Step up efforts in STI arm of the programme with training and retraining in syndromic classification and management and reporting
- Continue efforts to strengthen the PMTCT Programme to reduce the vertical transmission rate to less than 2%. Moreover, since the overall numbers in the PMTCT component are relatively small the global target of zero cases of vertical transmission is achievable.
- Implementation of active screening of HIV patients for Tuberculosis as per the revised new guidelines.

As the data becomes more routinely collected and processed, we will be able to give further strategic information for planning purposes.