A RAPID ASSESSMENT OF TUBERCULOSIS TREATMENT, CARE AND PREVENTION IN BELIZE

June 2010

A Study commissioned by: the Ministry of Health, Belize and Pan American Health Organization, WHO

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EXECUTIVE SUMMARY

The National Situational Analysis of TB in Belize was commissioned by the Ministry of Health and PAHO/WHO. The objective of the assessment exercise was to identify the strengths and gaps in Belize's current TB & TB/HIV treatment and care programme and to make recommendations that would inform the development of a national operational plan for the integration of effective tuberculosis, TB-HIV treatment and care into the health care system.

The report covers the global, regional and national situation of TB. The new cases of TB in Belize averages around 20 to 25 cases per quarter with an annual mean of 85 to 100 cases. More males are affected by the disease representing 65.2% of the total cases. The co-infection rate has shown no variation and men continue to be those most affected, with a total of 15 in 2009 and 17 in 2008. In 2009 there 89 new cases and 14 new deaths related to TB. The Belize, Stann Creek, Toledo and Cayo Districts continue to be the major areas where TB is being found as Latent Tuberculosis infection (LTB1) or active Tuberculosis disease. These districts represent 91% of the total new infections for 2009, with the Belize District alone representing 50.6% of the new cases.

The national response to TB in Belize has improved over the last ten years. However the response needs to be scaled up to ensure a more comprehensive approach similar to the response given to the HIV/AIDS situation. This is critical considering that HIV/AIDS patients are ten times more likely to get TB than the average person.

The national response includes improvement in the areas of treatment and care, testing and medication. Free medication is provided to TB patients, contact tracing is carried out and laboratory service for sputum microscopy is available through the central medical lab. A National TB Coordinator who is also a doctor was hired in 2009 to develop and manage the national TB program.

The weaknesses and gaps in the national response include:

(1)Centralization of laboratory services.- Lab services for sputum testing are only available through the CML in Belize City.

(2) Limited human resources available for a national scaled up response. This is particularly true at the district level. In the districts the management and care of TB is carried out by the public health nurse who has other primary responsibilities.

(3) Lack of culture testing in the country. Cultures are sent outside of the country for testing which is very costly and also results take a long time.

(4) Lack of a budget for the National TB Program. The program presently only has a budget for salaries. The National AIDS Program does provides limited support in the area of training and the development of educational materials.

(5) Lack of research, policy and a national strategic plan - No comprehensive study exists on TB in Belize to guide the development of policies and strategies. Also there is no national policy or national strategic plan go guide the national response for TB.

(6) The control of TB continues to be approached as a medical or public health problem. Efforts to control TB should include other ministries such as education, housing, immigration, human development as well as other non governmental organizations and community based organizations.

Several key recommendations are being proposed for a more scaled-up response to the TB situation in Belize. These are summarized below:

1 Human Resource Development needs to be scaled up particularly at the district level. This should include ongoing training and also the involvement of people with TB, their families and members of the wider community.

2 Continuous testing of high risk groups, development of care and management guidelines, increase access to transportation for staff to conduct follow-up care and treatment and outreach activities and provision of social assistance to patients to facilitate adherence to medication.

3 HIV – TB Collaboration – Active monitoring of TB in all HIV positive case, initiation of IPT in new HIV AIDS patients, joint planning and monitoring and evaluation for HIV-TB patients.

4 Laboratory services_–develop the infrastructure at the district level for lab testing, acquisition of diagnostic kits, tools for TB, TST, chest Xray, culture and DST studies in all TB patients

5 _Multisectoral response – promote linkages between relevant line ministries, NGOs and community based organizations

6. Financing, Research, Policy and National Strategy Development - Develop a national policy and strategic plan for TB and ensure financing for its implementation.

The challenges of dealing with TB in Belize will require a strong political commitment and resources, including additional infrastructural, financial and human, to “scale up” the response.

A Rapid Assessment of Tuberculosis Treatment and Care Services in Belize

SECTION I

1.1 Introduction

The National Tuberculosis Programme (NTP), Ministry of Health (MOH), Belize, undertook a rapid assessment of its tuberculosis treatment, care and prevention services during the period, June 15th, 2010 to June 24th 2010-06-with support from the Belize Office of the Pan American Health Organisation/World Health Organisation (PAHO/WHO).

Technical assistance for the actual conduct of the assessment was provided by a PAHO/WHO consultant.

1.2 Focus of the Report

The rapid assessment consisted of three distinct components that were each assessed separately, albeit within the same time frame and are detailed in section III of this report. These three areas are as follows:

- Treatment, care and prevention services
- Patient records and health information system
- Human resources

In keeping with the manner in which the rapid assessment was conducted, this report presents the findings and recommendations in three sections as described following:

- Section III reports on the analysis of treatment, care and services
- Section IV reports on the key issues in the national response to TB
- Section IV of the report includes the summary of recommendations and the conclusion

1.3 Rationale for the Rapid Assessment

The MOH Belize is about to embark on a five-year project to improve and expand its National Tuberculosis Treatment, Care and Prevention Programme. It also plans to integrate the clinical management of Tuberculosis into the primary health care system and to decentralise Tuberculosis services so that all regions of the country would be served equitably. The intent was that the rapid assessment would identify strengths and gaps and make recommendations for improving the provision of comprehensive, integrated and quality services for people living with Tuberculosis. Those results would then be used to inform the development of a national operational plan for comprehensive Tuberculosis care and treatment.

1.4 General Objective of the Rapid Assessment

The objective of the assessment exercise was to identify the strengths and gaps in Belize's current Tuberculosis, TB/HIV treatment and care programme and to make recommendations that would inform the development of a national operational plan for the integration of effective Tuberculosis, TB/HIV treatment and care into the health care system.

1.5 Focus of the Assessment

The Consultant was assigned the task of conducting a rapid assessment of the services listed as follows and to make recommendations for improving, expanding and decentralising them:

- Chest clinic
- Laboratory support services
- HIV/TB services and collaboration.
- Treatment and care for persons living with TB
- Health Education and Information
- Involvement of stakeholders

In order to obtain a comprehensive overview of Tuberculosis health service delivery in general and the relationship of the above-mentioned assigned areas to the wider picture, the following areas were incorporated into the assessment:

- Epidemiological data
- Health promotion with a focus on Tuberculosis, TB/HIV
- Involvement of stakeholders, including people living with TB and their families, and non-governmental organizations (NGOs)
- Treatment of LTBI , contact tracing

- State of the current infrastructure, facilities, including procurement systems and storage facilities
- Utilization of current services (appropriateness, availability, accessibility and perceptions about TB treatment)

The PAHO/WHO Team was asked to:

- Determine the human resources and training necessary for the effective implementation of comprehensive Tuberculosis treatment and care and to assist with the development of an appropriate strategy

1.6 Methodology

Theoretical Framework for the Assessment

The theoretical framework for the assessment was based primarily on WHO standards for Tuberculosis treatment programmes and for situation analyses for such programmes. These are delineated in the publication, Global Tuberculosis Control 2009.

In keeping with WHO recommendations, the rapid assessment sought to answer the following questions in respect of each of the areas identified for study.

- What is the extent of current treatment requirements?
- What treatment facilities and capacities currently exist?
- What is currently being done and by whom?
- What do we know about what is going well, and could be expanded?
- What do we know about what is not going well, and could be changed?
- What opportunities exist for expansion?

In addition to the aforementioned considerations, the assessment was carried out against the backdrop of essential contextual information including the following:

- Epidemiological data
- Health promotion with a focus on Tuberculosis, TB/ HIV/AIDS
- Involvement of stakeholders, including possible NGO or other government institutions
- State of the current infrastructure, facilities, including procurement systems and storage facilities
- Utilization of current services (appropriateness, availability, accessibility)

1.7 Data Collection

Data collection took place during the period, 11 June 2010 to 21st June 2010. In this phase, the objective was to gather enough qualitative and quantitative data to accommodate the questions posed and to fulfil the scope of the assessment. In order to ensure that all the aspects of the theoretical framework were adequately addressed, the assessment team relied on the following key publications to guide the actual data gathering process:

- Global Tuberculosis Control 2009, WHO
- A Guide to monitoring and evaluation for collaborative TB/HIV activities, WHO
- Tuberculosis Infection Control, National Tuberculosis Center
- National Health Indicators – Statistical Institute of Belize
- Tuberculosis Manual of Prevention & Control Procedures - MOH

Various methods were utilised for the data collection process. These included site visits, a review of pertinent documents, interviews with people who have Tuberculosis, and interviews with key individuals working in the area of TB or in related areas in the public sector.

1. ***Site visits*** were the primary data collection mechanism. MOH Tuberculosis service delivery programmes are located in all six districts. Site visits were carried out on selected services in Punta Gorda, Orange Walk and Belize City. During these visits the consultant reviewed the physical infrastructure, as well as the organisation and functioning of services, all in keeping with parameters defined by the theoretical framework for the assessment. Physical reviews were complemented by in-depth interviews with key health personnel present at the respective sites.

Box 1: Sites Visited for the Assessment

- VCT Services at the PRO-Care and Treatment Clinic, Belize City
- Chest Clinic
- Southern Regional Hospital
- Central Medical Laboratory
- Belize Health Information System
- Northern Regional Hospital
- Office of the National TB Coordinator

2. ***Documents*** were the second source of information. These included critical publications such as situation and response analyses, TB & HIV/AIDS epidemiological profiles, reports, protocols, strategic and operational plans. *See Appendix 1 for a complete listing of the documents reviewed*.

SECTON II – Global, Regional & National Situation on TB/HIB

2.1 Global Situation

According to the WHO – 2009 update Tuberculosis Facts, more than 2 billion people, equal to one-third of the world's population, are infected with TB bacilli, the microbes that cause TB. One in ten people infected with TB bacilli will become sick with active TB in their lifetime. In 2008 there were an estimated 9.4 million new TB cases of which 1.4 million cases were among people living with HIV. Most of the estimated number of cases in 2008 occurred in Asia (55%) and Africa (30%).with small proportions of cases in the Eastern Mediterranean Region (7%), the European Region (5%) and the region of the Americas (3%) (Global Tuberculosis Control – A short update to the 2009 report - WHO).

Tuberculosis continues to be the biggest killer in the world resulting from a single pathogen. Deaths from TB comprise 25% of all avoidable deaths in developing countries. 95% of TB cases and 98% of TB deaths are in the developing countries. Seventy five percent of TB cases in developing countries are in the economically productive age group (15-50 years). In 2008 an estimated 13 million deaths, including 5 million deaths among women, occurred among HIV-negative incident case of TB and an estimated 0.5 million deaths among incident TB cases who were HIV-positive. The estimated number of TB deaths per 100,000 population among HIV-negative plus the estimated TB deaths among HIV-positive people equates to a best estimate of 28 deaths per 100,000 population (Global Tuberculosis Control – WHO).

There were an estimated 0.5 million cases of MDR-TB in 2007. According to a WHO report, countries are responding "far too slowly" to multi drug resistance TB. New diagnostic testing and drugs are expected to be available in the next few years and should accelerate control of MDR and XDR Tuberculosis.

Progress in TB control is slow despite acceptance that emergence and or increasing trends for the disease pose a threat to public health. The challenge ahead is to deal with tremendous barriers, ensuring access to quality DOTS services and achieving TB control targets. There is urgent need to upgrade TB services by following through with implementing the components of the Stop TB strategy. The components are defined under the following headings:

1) Pursuing quality DOTS implementation/expansion,
2) Address TB/HIV, MDR-TB and other special challenges,
3) Contribute to health systems strengthening,
4) Engage all care providers,
5) Empower patients and communities and 6) Enable and promote research.

The Stop TB strategy sets out the steps that the NTP and other stakeholders must embark upon assisted by the national, regional and global TB community. When

customizing the manual, it must incorporate all facets of the strategy, the organization and management structure of the NTP, (diagnostic modalities, how cases are registered, reported, treated and followed up). In addition, monitoring and reporting requirements, roles and responsibilities for the different health care providers, as well as human resource needs must be defined.)

2.2 Regional Situation – Tuberculosis in Belize and the Caribbean

The Carec Member Countries (CMC) have also experienced a resurgence of TB. During the first half of the 1980s, there was a progressive decline in the number of TB cases, followed by a leveling off in 1988 to 1989 in CMCs. Since then, there has been a gradual but distinctly notable increase in TB in some member countries (Tuberculosis Manual of Prevention & Control Procedures – MOH) . The upward trend in HIV and Acquired Immunodeficiency Syndrome (AIDS) and the socio-economic decline with its attendant problems are factors which favors the increase of TB. The risk of drug resistant tuberculosis is a potential threat to management of the disease. In the absence of well organized services to effect early case-finding, treatment and cure, it is imperative that resources are mobilized and effective strategies, actions be implemented. (Global Tuberculosis Control 2009 – WHO)

In recent times, a number of major changes in health policy have been made by the Ministry of Health (MOH). This is in keeping with the reforming of the health sector. One of the major challenges to the MOH is in implementing and managing these changes to achieve equal health for all. Further still, the interaction between AIDS/HIV and tuberculosis has shown that there is a need for change in strategies if the programme goals are to be achieved. These programmes have evolved separately, although the biological link has been evident for some time. The MOH in an attempt to improve on collaborative activities between the NTP and the HIV/AIDS program, has merged both programs under one umbrella, The National TB, HIV/AIDS and other STIs Programme. Collaborative activities are now coordinated and governed vertically by one programme while the interventions are delivered by general health services under the influence of the broader determinants of health. (e.g. poverty, education).

Health Care providers in tuberculosis control have been slow to adopt the multi-sectorial approach. As with HIV/AIDS, TB control must be mainstreamed into the health agenda. It must be included in the broader strategic planning approaches and financial framework aimed at poverty reduction. (

Political commitment, co-operation and collaboration with health workers at all levels of the health sector, and the population at large are essential for the achievement of programme goals .

2.3 The National Situation

The overall number of Tuberculosis cases has shown an endemic pattern but of stable character as it oscillates around a mean of about 20 to 25 new cases per quarter, or an annual mean of 85 to 100 new cases. In first quarter of 2009, twenty new cases were reported which is almost twice that of 2008. Additionally, the number of cases reported in the remaining quarter has shown little or no variation when compared to the number of cases in the last 3 years. The male population continues to be predominantly affected representing 65.2 %. As the year progressed the appearance of relapse showed a similar nature to that of the previous year with 6 new cases being defined as such (Tuberculosis Statistical Report – January – December 2008 & 2009).

Table 1 - Tuberculosis Cases by District

YEAR	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo	Total
2004	2	1	35	27	19	7	91
2005	1	11	36	29	15	14	106
2006	3	10	41	19	4	14	91
2007	3	5	27	9	10	9	63
2008	2	3	45	14	16	8	88

(Health Statistics of Belize – 2004-2008)

The co-infection rate has shown no variation and men continue to be those who are more affected, with a total of 15 in 2009 and 17 in 2008 respectively. As always there is a need to stress that these figures represent the patients who are HIV positive or were diagnosed as HIV positive when they made their debut with Tuberculosis disease, vice versa it also reflects those with Tuberculosis who later tested positive for HIV.

Table 2 – TB/HIV Co-infection – Cases by District

DISTRIC	2008			2009		
	Male	Female	Total	Male	Female	Total
Corozal	1	0	1	1	0	1
Orange Walk	1	0	1	0	0	0

Belize	10	1	11	12	2	14
Cayo	1	0	1	0	0	0
Stann Creek	4	0	4	1	0	1
Toledo	0	0	0	1	0	1
TOTAL	17	1	18	15	2	17

Source – TB Statistical Report 2008-2009 - MOH

Five deaths associated with Tuberculosis as the underlying cause were reported in first quarter for a representation of 1.6 %, at the end of the year this more than doubled with 14 new deaths due to Tuberculosis. The outcome of fewer deaths when compared to last year can be attributed to rapid and effective treatment. The number of total deaths represented 0.9% of all deaths reported for the year 2009.

The Belize, Stann Creek, Toledo, and Cayo District continue to be the major areas where Tuberculosis is being found as Latent Tuberculosis infection (LTBI)or active Tuberculosis disease. These four Districts represent 91.0% of the total new infections for the year end. This maybe particularly so due to the greater number of new cases being diagnosed in the Belize district a for a total of 50.6% and being treated at Chest Clinic. Fifth eight percent of all new case were in the age group of 20-49 years, which constitutes the economically active population in our country; this also represents a targeted group for future screening activities. It is clearly evident that Tuberculosis will continue to be a health problem as the major areas that have been affected in our country continue to have the same number of cases. The advent and presence of HIV in our society contributes to such numbers, as well as the problem of factors such as migration and lack of adherence that has introduced Multiple Drug Resistant Tuberculosis and extensive drug resistant strains in our society. Hence an increase in drug adherence is needed to decrease the number of cases and increase the number of those that are cured. This is where the introduction of FDC by the programme is essential.

In the last 10 years (2000-2009) the number of all TB cases notified in Belize has been 1019 new cases with about of 85-100 per 100,000 population in a given year.

2.4 HIV/AIDS Situation

The rapid growth of human immunodeficiency virus (HIV) epidemic in many countries has resulted in an equally dramatic rise in the estimated number of new tuberculosis (TB) cases (A guide to Monitoring and evaluation for collaborative TBV/HIV activities-WHO). Collaborative TB/HIV activities are essential to ensure that HIV-positive TB patients are identified and treated appropriately and to prevent TB in HIV-positive people.

The first case of HIV/AIDs in Belize was detected in 1986. Since then there has been an increasing trend in the rate of infection with a peak in 2004. The HIV epidemic has changed little over the last six years with the rate of newly diagnosed HIV cases remaining fairly stable since 2003 (A Rapid Assessment of HIV AIDS – MOH 2005). Heterosexual contact is the main mode for HIV transmission.

Table 3 - HIV Positivity Rate by District 2004-2008

District	2004			2005			2006			2007			2008		
	TESTED	POSITIVE	RATE	TESTED	POSITIVE	RATE	TESTED	POSITIVE	RATE	TESTED	POSITIVE	RATE	TESTED	POSITIVE	RATE
Corozal	607	1	02	451	3	0.7	231	9	3.9	247	5	2.0	431	3	0.7
Orange Walk	969	6	06	658	3	0.5	927	8	0.9	539	12	2.2	627	10	1.6
Belize	9617	403	4.2	9383	396	4.2	7386	366	5.0	6716	366	5.4	6359	358	5.6
Cayo	1253	19	1.5	583	9	1.5	972	17	1.7	1085	22	2.0	838	28	3.3
Stann Creek	1012	26	26	847	21	2.5	815	42	5.2	380	43	11.3	392	26	6.6
Toledo	492	2	0.4	99	2	2.0	88	1	1.1	110	2	1.8	99	0	0
Total	13950	457	3.3	12021	434	3.6	10419	443	4.3	9077	450	5.0	8746	425	4.9

Source (Health Statistics of Belize – 2004-2008)

Belize City is by far the most affected area. In 2004 the rate of HIV infection was 84.4 per 10,000 inhabitants in 2003. After the Belize District, the Stann Creek is the country's second most affected area.

The National response is presently coordinated by the National AIDS Commission (NAC) which is made up of twenty-three (23) organizations, representing the highest level of government, as well as NGO's, religious leaders, CBO, people living with HIV/AIDS, and with technical representation from the UN agencies resident in Belize (A Rapid Assessment of HIV/AIDS – MOH 2005).

The NAC is mandated to facilitate, coordinate and monitor the implementation of the National Strategic Plan (NSP) which was developed in 2005-2006. This agency is also responsible for resource mobilization, policy and legislation and advocacy.

The Voluntary Counseling and Testing (VCT) program was established in September 2003. The Pro-Care and Treatment Centre in Belize City is the main VCT site in the Country. It offers comprehensive services to people who are HIV-Positive. The full range of services offered at the centre are as noted in the following: (1) – Convention VCT services such as pre and post test counseling, Rapid IV testing, confirmatory testing, Referrals to clinicians. (2) – Outpatient HIV Care and Treatment services are available five days weekly between the hours of 8:00am – 500pm and (3) – National ARV Drug Distribution

SECTION 3 – The National Response

3.1 Population & Health Services

Belize has an area of 8,866sq miles with a population of 322,100 (Health Statistics of Belize – 2004-2008), out of those 52% live in urban areas and 48% are rural with a female: male ratio of 1.04 male(s)/female for those under 15 years and a 1.02 male(s)/female for the ages between 15—64 Population below the age of 15 is 38.9% and 69.01% is above 15 years .

Public health facilities includes

- A total of 7 government hospitals
    - One national referral hospital (KHMH) located in Belize City
    - One psychiatric unit
    - Three regional hospitals
    - Four polyclinics
    - 42 health centers
    - 49 health posts
    - There are also three private hospitals, numerous private clinics and diagnostic centers.

      Source (A situational Analysis of HIV/AIDS 2009)

Since the late 1980s the Ministry of Health has embarked on Health Sector Reform. The objective of this initiative is to improve quality of care, efficiency and equity in the delivery of health services. Emphasis is currently placed on:

- The restructuring of the health sector
- Service rationalization and improvement
- The introduction of a national health insurance scheme
- Supporting the strengthening of private sector health services

There is one Central Medical Laboratory and 6 stat labs, of which two have the ability to process sputum.

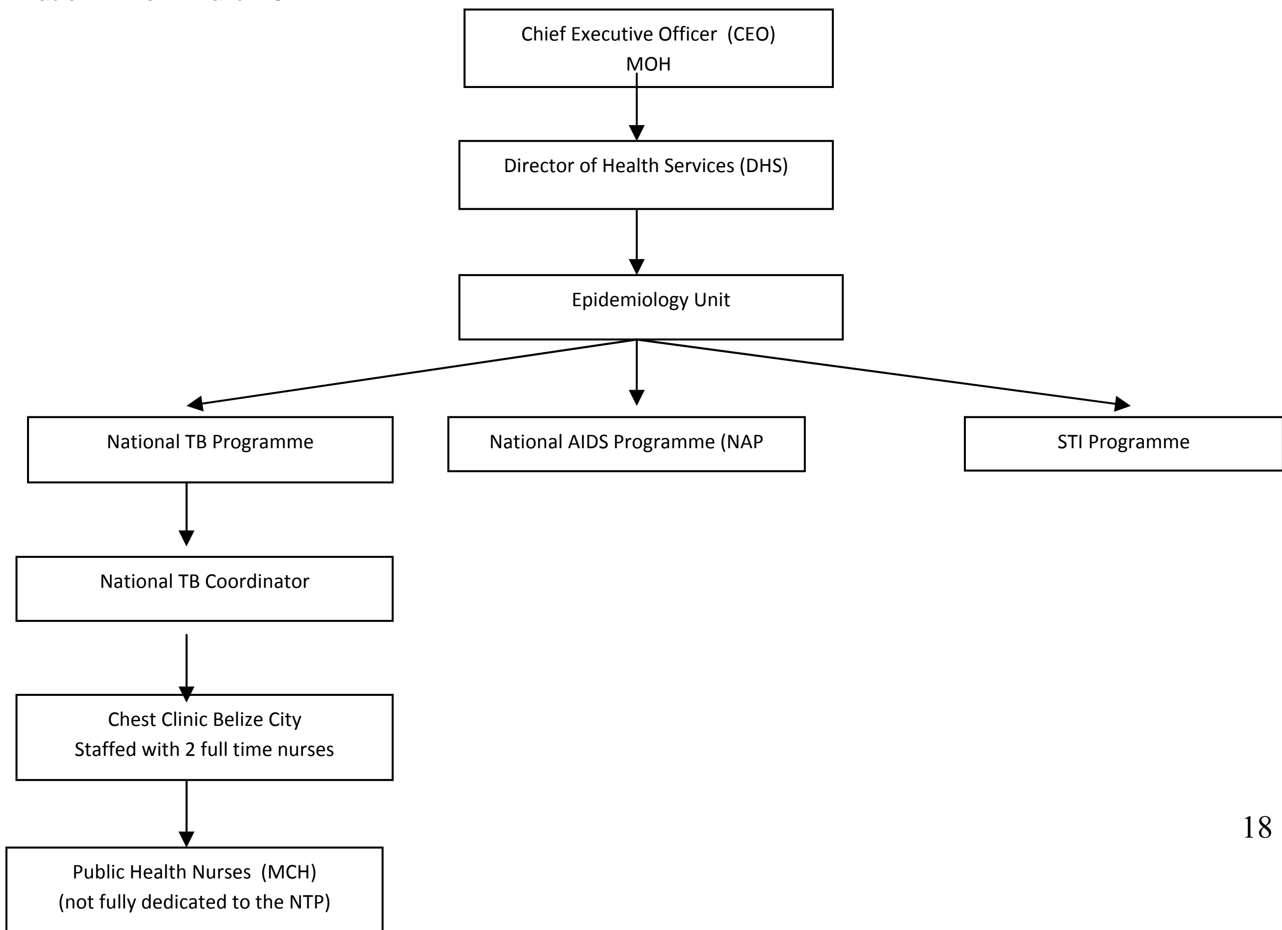
3.2 – The National TB, HIV/AIDS and STI Programme

The government's response to TB has improved over the last ten years, however, more efforts are necessary as this report details.

The government is committed to meeting the goal of decreasing the rates of Tuberculosis in Belize to the minimum; so efforts are directed at keeping patients on treatment, contact tracing and monitoring and supervision. Great efforts have been placed in the diagnosis, treatment and follow up of patients. There has also been improvement in the data collection, information system, cohort analysis and implementation of the DOTS strategy at national level.

In 1999 the TB program was incorporated along with HIV/AIDS and other STIs program to form The National TB, HIV/AIDS and other STIs programme. The program is managed by a Director and a Programs Officer.

Table 4 – The NTP and MOH



In May 2009, the position of National TB Coordinator was filled after a two year vacancy. The national coordinator who is also a doctor is responsible for developing the national strategy for TB control and also to develop and implement protocols and guidelines for the management of TB. The National TB Coordinator recognizes the importance of having a strong TB Program at central, regional and local health levels but his progress in this regard is limited because the office does not have a budget allocation outside of salaries. The TB program receives limited support from the NAP through the acquisition of new FDC and TST for the country, development, reproduction of educational materials and training and seminars.

3.3 – Treatment, Care and Services – Findings and Analysis

Diagnosis & referrals

The MOH adheres to traditional methods of diagnosing and treating tuberculosis. These practices are based on identification through presenting clinical symptoms, X-ray, and subsequent bacteriological confirmation.

Treatment is focused on out-patient services that are administered at the Chest Clinic in Belize City or the MCH clinics in the districts. TB manuals and charts are available at all the clinics to guide the treatment and care of TB patients. The manual is presently being revised to provide more updated information on the management of TB.

Referrals are made to these clinics from the public clinics and hospitals and also from the private sector. However many cases continue to go unreported because of limited private sector reporting and also some people are accessing TB services in the neighboring countries of Guatemala and Mexico and there are no policies or systems in place to support the reporting of TB cases among these countries. The referral system needs to be strengthened so that it can perform efficiently and effectively.

Cases of TB are also detected through contact investigation of family members of infected persons and screening of high risk groups such as inmates, homeless persons, BDF, Police, etc. Much more could be done in the area of contact investigation and surveillance of high risk group such as inmates, BDF and homeless persons but the

NTP does not have the human resource capacity or transportation to conduct extensive surveillance.

Medication, adherence & multiple drug resistance TB

The government provides free medication to TB patients which includes Rifampicin, Isoniazid, Ethambutol and Pyrazinamide. The chest clinic in Belize City maintains a supply of medication and distribute to the districts based on their requests and number of patients being treated. In May 2010 the NTB introduced the fixed dose combination (FDC) (combination of 2,3 or 4 drugs) to increase adherence by patients on treatment. The supply of medication seems to be adequate based on this assessment but as the response is scaled up more cases will be detected and additional medication will be required. Therefore the national strategy must ensure the availability of an adequate supply of medication for TB.

Adherence to medication is a problem among some of the patients. Factors influencing patient's failure to take medication has been attributed to poverty and homelessness which are two of the main social issues affecting persons with TB. The nurse in Punta Gorda reported that most of the TB patients in that district live in a rural community. The Toledo District has the highest rate of poverty in the country (79%-Belize Basic Indicators 2008) and TB patients in that area cannot afford the cost of transportation to Punta Gorda on a weekly basis to access the treatment. These cases are managed through monthly mobile visits to the villages which again highlights the issue of limited transportation and human resources. Additionally the issue of social assistance to TB patients must be addressed as a part of the national strategy.

In view of drug resistance TB, MDRTB, XDRTB, TB/HIV and other risk factors that fuel the TB burden, the National Tuberculosis Programme (NTP) needs to forge partnership with others and get their help in order to effectively tackle the issues surrounding the special populations who are infected or at high risk of being infected. To decrease the risk of drug resistance, an early detection and effective treatment of cases is needed to decrease the morbid-mortality caused by tuberculosis.

Co-mangement HIV-TB

There has been progress in implementing interventions such as testing TB patients for HIV and providing CPT and antiretroviral therapy (ART) to HIV-positive TB patients. To facilitate collaboration, the VCT Clinic and the Chest Clinics are strategically located in the same building in Belize City. This has resulted in a decrease in the number of HIV positive patients with TB.

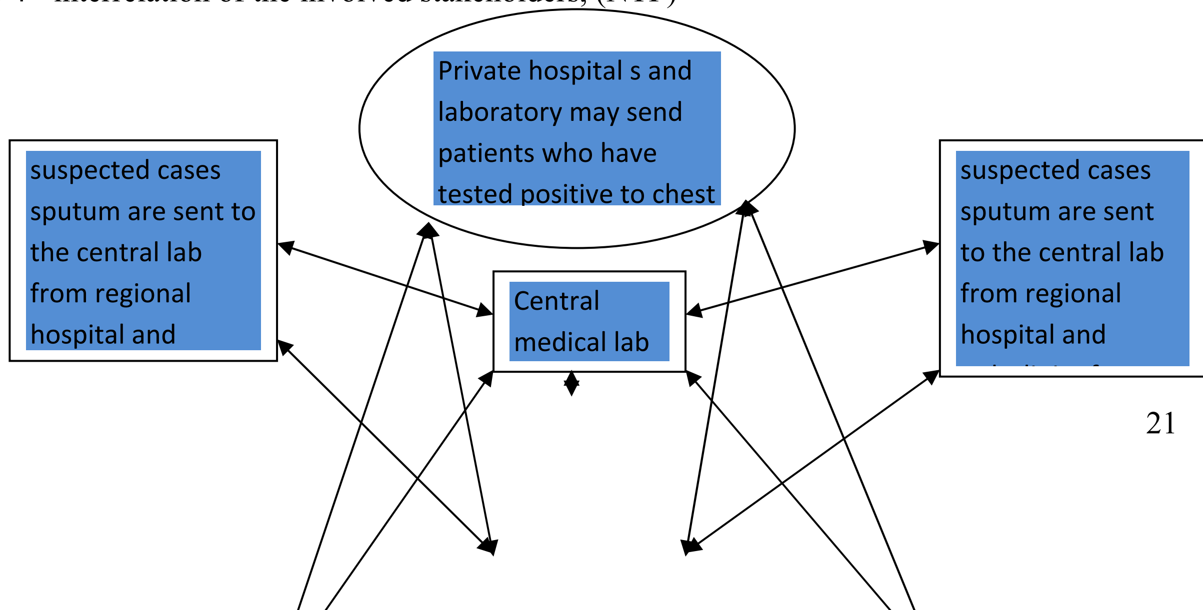
Collaborative TB/HIV activities are essential to ensure that HIV positive TB patients are identified and treated appropriately, and to prevent TB in HIV-positive people. While there has been much improvement in this area, there needs to be more joint TB/HIV planning and TB testing of HIV patients and patients with other STIs.

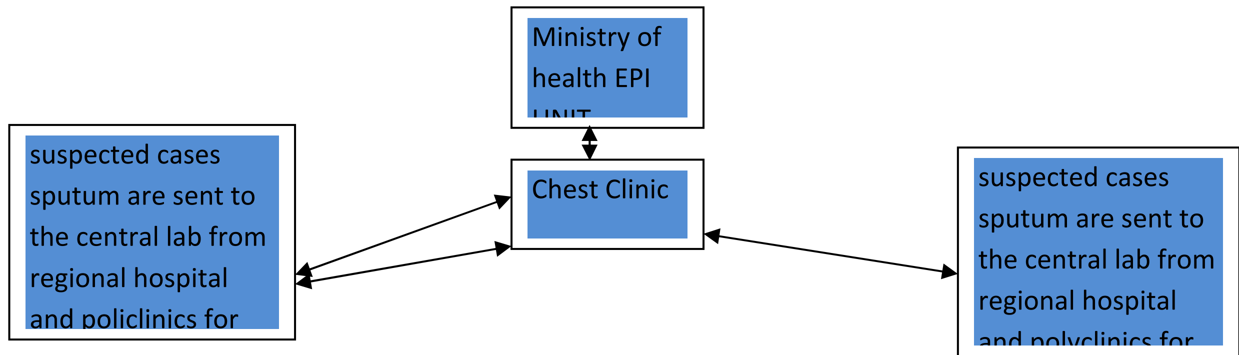
Laboratory Testing

Sputum smear microscopy is the primary tool for diagnosis of TB in most countries including Belize. The sputum smear microscopy is used for all individuals suspected of having TB.

The Central Medical Lab (CML) located in Belize City is the only lab with the infrastructure to carry out sputum microscopy. The NTP has personnel trained in sputum microscopy in all the districts but the CML has the task of studying the majority of the slides for mycobacterium tuberculii, hence any patient from any district or region that is a suspect must have their sample sent to the Central Lab for confirmation. In Belize City patients are referred directly to the CML. Central Lab confirms the results and sends the samples back to their respective origin for follow up and treatment if necessary. Other private laboratory facilities that do microscopic test for TB are few and eventually send their patients with positive results to the Chest Clinic for management and follow-up

Table 4- interrelation of the involved stakeholders, (NTP)





Culture and DST services are not available in Belize. CAREC used to provide the services to Belize but this arrangement has been discontinued and samples have to be sent to a lab in Massachusetts. This process is very costly and the results can take up to three months before they are returned.

Culture services are very important for diagnosis of smear negative TB, especially in settings where the prevalence of HIV is high (Global Tuberculosis Control – 2009). The limited and centralized laboratory services available in Belize creates a delay between the time the patient first visits the clinic and the time treatment is administered. The gap in services creates an opportunity for increase in transmission of TB and demonstrates the need for rapid introduction of new diagnostic tools such as the strengthening of laboratory infrastructure , deployment of additional human resources and funding for the purchase of new technologies.

Health Promotion, Communication & Education in the context of TB

The Health Education and Community Bureau (HECOPAB) is the Ministry of Health's Unit responsible for health promotion activities. However limited financial and human resources have prevented the effective development and implementation of its ongoing services and activities. The National TB Coordinator has been developing most of the educational materials for the NTP while the NAP assists with reproduction of the materials. This area of the national response needs to be scaled up and a comprehensive plan developed to strategically disseminate information and educate the public about TB.

Involvement of Stakeholders, including people with TB

Outside of the Government's response there are little services available for persons with TB. The private clinics and doctors offer services but mostly refer the patients to the government clinics for TB treatment.

Community participation is limited to immediate family members of persons with TB who provide support to the TB program by ensuring the infected person is adhering to the treatment regimen and who also ensure that precautionary measures are in place in the home to reduce transmission.

Community and patient empowerment are central to a human rights approach to care for TB patients and prevention of the disease (Global Tuberculosis Control 2009). The involvement of the private sector, NGOs and the community in TB programs is extremely limited. Hence strategies must be identified and a comprehensive plan developed to include the participation of key stake holders at central, regional and district level of the national TB response.

In order to improve the services all stakeholders need to become involved and unify their efforts in the fight against TB in order for the country to be able to reach the goal of detecting 70% of new cases through sputum positive samples and a cure rate of at least 85 % of those,

3.4 Human Resources

The Chest Clinic in Belize City is staffed by two full time nurses, a family health practitioner and a rural health nurse whose responsibilities are dedicated to the care and treatment of patients with TB. The National TB Coordinator who is also a doctor works at the Clinic one day per week (on Fridays). TB services at the district level are carried out by the Public Health Nurse who also has other major responsibilities including maternal and child health.

The lack of human resources specifically dedicated to the treatment and care of TB is a huge gap in the national response to TB. Not only is it important for treatment and care but to strengthen the multi-sectoral response and community involvement at the district and regional level. Human resource development has to be an integral part of the national strategy to strengthen Belize's national response to TB and ensure an adequate, competent and performing workforce for TB control.

3.5 Patient records and health information system

The BHIS allows for data to be collected and entered into an electronically networked system. The patient data on TB is entered into the system at the clinic that he/she attends and is included as part of that patient's medical history. This information is available immediately and can be viewed from any of the government or NHI clinics countrywide. It is particularly useful to monitor the health status of patients who migrate locally. All the TB clinics countrywide have access to the BHIS. The system has to be accessed with a password and is used by the nurses to:

1. Register patients
2. Access patient information
3. Requests lab tests
4. Obtain lab tests request
5. Enter dates of treatment and medication received

The challenge for the TB program with the BHIS is the delay in the entering of TB data into the system. This is presently the responsibility of the nurses, however because of the limited staff dedicated to NTP, there is always a delay in data entry. As a result, data is not always readily available for proper monitoring and evaluation of the TB situation.

3.6 Public Health Policy

The Belize Public Health Act Chapter 40 Revised Edition 2003 recognizes TB as an infectious disease. Section 67 – 70 of the act refers to the Interpretation of an infectious disease and notification by head of family and medical practitioners. The law does not address other issues such as testing, treatment and the psychological and social issues affecting persons with TB. Hence there is an urgent need to develop a national TB Policy to address the gaps in the Public Health Policy.

3.7 Monitoring and Evaluation

Monitoring and evaluation is another key component of the national response. Routine monitoring and evaluation of TB control is carried out to understand the trends in the

TB epidemic and progress in TB control. The National TB Coordinator collects data on the key indicators that allows documentation of achievements, identification of challenges, better estimation of the epidemiological burden of TB and informed planning. Information is collected from the BHIS and documented in periodic reports which are disseminated to the relevant stakeholders.

Section IV - Key Issues in the National Response (Strengths, challenges & Gaps)

The TB situation in Belize is a major public health and development issue which must be addressed through prevention, care and support. The control of tuberculosis continues to be approached as a medical or public health problem only. Efforts to control tuberculosis should therefore include more than just the ministry of health but must also include other ministries such as housing, immigration, human development and education as well as private sector and community involvement. Similar efforts that have been applied to "scale up" the national response to the HIV/AIDS situation needs to be applied to the TB situation considering that HIV positive persons are ten times more likely to get TB than the average person.

This section of the report identifies the major challenges associated with the National Response and analyzes strengths, weaknesses, challenges and gaps in the services, resources, interventions and approaches of the National Response.

STRENGTHS IN THE NATIONAL RESPONSE

- The hiring of a National TB Coordinator to lead the national response.
- Experienced and trained nurses providing treatment and care to TB patients.
- Adequate supply of TB medication at the clinics
- Free TB medication provided by the government
- TB manual of prevention available to guide treatment and management of TB
- Strategic positioning of the VCT Clinic and the Chest Clinic in the same building.
- Sputum microscopic testing available through the CML

CHALLENGES/GAPS IN THE NATIONAL RESPONSE

Human Resource

- Limited human resources dedicated specifically to TB management and care at the central, regional and local levels.
- Limited education and seminars on TB management, diagnosis and care for health care workers and other stakeholders
- Limited access to transportation for mobilization and campaign for TB education and follow up care

Treatment and Care

- Limited adherence to medication due to psychological, social and economic issues facing TB patients.
- Limited human resources dedicated to TB treatment and care

HIV-TB Collaboration

- Limited TB testing of HIV positive patients
- Limited joint planning between the HIV/AIDS Program and the TB Program

Laboratory services

- Limited TB infrastructure in the districts to support laboratory testing
- Lack of culture and DST at country level
- Substance and availability of FDC for TB
- Decreased financial support for the development of infrastructure in the regions for sputum microscopy.
- Lack of diagnostic kits, tools for TB, TST, Chest Xray machine in the rural areas

Involvement of stakeholders

- Limited involvement of the private sector and NGOs in the national response
- Limited involvement of other ministries such as education, immigration, human services, etc. in the national response
- Limited educational materials on TB

Financing, Research, Policy & National Strategy

- Lack of a budget for TB programs and activities
- Lack of a national TB Policy and a national strategic plan to guide the national response.
- Limited research available on TB in Belize

SECTION 4 – RECOMMENDATIONS AND CONCLUSIONS

The following recommendations are being made to address the gaps and weaknesses in the national response:

1 Human Resource Development

- Establish a team of regional coordinators whose primary responsibility is the implementation of the national TB strategy at the district level
- Training and implementation guidelines must be developed defining function, duties and relationships among the team.
- Continuous education and seminars on TB management, diagnosis and care
- The active involvement of people with TB, families and members of the wider community.

A comprehensive strategic plan for human resource development (HRD) should be developed which ensures both financing and guidance for an adequate, competent and performing workforce for TB control. Plans should be based on a needs assessment for various categories of health care providers and include (1) clear vision and goal, and associated objectives and strategies; (ii) definition of training and staffing needs for all components of the Stop TB Strategy, (iii) ongoing training for existing staff at all levels of the health system and (iv) systematic supervision and monitoring.

2 Treatment and Care

- Continuous testing of high risk groups (health care workers, elderly, persons, with HIV, homeless persons, conglomerated housing (police , inmates, BDF soldiers)
- Finalize the Development of new TB care and management guidelines
- Provide social assistance to TB patients who need it to facilitate adherence to treatment
- Ensure access to transportation for staff to conduct follow-up care and treatment and other outreach activities
- Increase and advocate use of the BHIS for better assessment of data for completion and evaluation of the program with important indications

The NTP policy and services must be strengthened according to the strategy of the Stop TB partnership, as one of these services is the adaptation of the guidelines. A well coordinated referral system, well managed diagnostics, with management and care under the DOTS are important features of an effective progamme. Other key areas that would increase the success would be the involvement of communities and the private sector. As care and treatment scale-up proceeds there will be the need to increase the complement of TB medication. Consequently, an efficient procurement and distribution medication supply system must be maintained to ensure the continued supply of treatment for TB.

3 HIV – TB Collaboration

- Active monitoring of TB in all HIV positive cases that is both adult and pediatric ages
- Advocate for TB status in all HIV Positive cases
- Having a working knowledge of all HIV/TB patients who receive treatment for TB
- Initiation of IPT in new HIV clients (isoniazid preventative therapy)
- Nationwide monitoring and collaboration between HIV care givers with effective infection control practices, that ensure and decrease the burden of TB in HIV
- Incorporation of CPT/IPT in HIV clients

The provision of HIV testing for TB patients is a critical entry point to interventions for both treatment and prevention (Global Tuberculosis Control 2009). Mechanisms for

collaboration must be clearly established between TB and HIV programmes. This should include joint planning, monitoring and evaluation and intensified case finding among people living with HIV.

4 Laboratory services

- Advocate for sputum microscopy at all levels in the regions and sputum culture in the face of drug resistance TB
- Develop infrastructure and re-train personnel in sputum microscopy
- Collaboration with laboratories and reference level CML for increased quality control (private and government institutions)
- Culture and DST studies in all the individuals who are said to be suffering from TB
- Acquisition of diagnostic kits, tools for TB, TST, Chest Xray

Laboratories with the capacity to provide culture and DST services are essential for diagnosis of drug-resistant TB; culture services are also important for diagnosis of smear negative TB, especially in settings where the prevalence of HIV is high. Capacity to perform culture and DST is very limited. This demonstrates the need for a rapid introduction of new diagnostic tools and infrastructure at the district level. As scale-up proceeds the cost for culture testing will increase and resources must be provided to sustain this.

5 Involvement of Stake Holders / Prevention

- Promote linkages between healthcare delivery organizations, social protection services and community-based organizations
- Involvement of relevant government sectors, private sector and CBOs to form a multi sectoral response (include immigration officers)
- Development of educational materials (brochures, posters, etc.)

A comprehensive response to HIV/TB situation in Belize requires a scaled up program including public and private sector along with contribution of NGOs and community based organizations. Mechanisms for collaboration and referrals will need to be established, as well as the utilization of standards including national protocols and continuing medical education training. Partnerships with these providers are essential

to ensure delivery of TB services that are in line with international standards and to achieve global targets.

6 Financing, Research, Policy and National Strategy Development

- Development of a national policy and strategic plan
- Ensure adequate and sustainable financial support for the implementation of the national strategic plan

Research is important to help scale up the various components of the Stop TB Strategy. The research needs surrounding the TB situation in Belize must be identified and the studies carried out to guide planning and interventions.

Several policy and legislation issues impact on delivery of TB-HIV care and treatment programmes. Currently there are no legislations that exist which requires TB patients to adhere to treatment regimens. Anti-discrimination policies and legislation are required to prevent stigma and discrimination practices in the health care setting and in the wider community.

The national policy and strategic plan are essential tools to ensure a more rigorous and comprehensive response to the TB situation in Belize.

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Annex 2 - Acronyms

Acronyms

- AIDS Acquired Immune Deficiency Syndrome
- ART Antiretroviral therapy
- ARTI Annual Risk of Tuberculosis Infection
- ARV Antiretroviral
- BCG Bacilli Calmette Guerin
- CAREC Caribbean Epidemiology Centre (CAREC)
- CMCs CAREC Member Countries
- CSF Cerebrospinal fluid
- CXR Chest X-ray
- CPT Co-trimoxazole preventive therapy
- DTB Disseminated TB Disease
- DOTS Directly Observed Therapy Short-Course
- DST Drug susceptibility testing
- EMB/E Ethambutol
- EPTB Extra Pulmonary Tuberculosis
- HAART Highly Active AntiRetroviral Therapy
- HIV Human Immunodeficiency Virus
- IGRA Interferon –gamma release assay
- INH/H Isoniazid
- IPT Isoniazid preventive therapy
- ISTC International Standards for Tuberculosis Care
- LTBI Latent Tuberculosis Infection
- MDG Millennium Development Goal
- MDR Multidrug resistant
- MDR-TB Multidrug-resistant tuberculosis
- MOH Ministry of Health
- NAP National AIDS Programme
- NGO Non Governmental Organization
- NTP National Tuberculosis Programme
- PAHO Pan American Health Organization
- PHC Primary Health Care
- PZA Pyrazinzmide

- RIF/R Rifampicin
- TB Tuberculosis
- TST Tuberculin skin Test
- VCT Voluntary counselling and testing
- WHO World Health Organization
- XDR Extensively drug resistant
- XDR-TB Extensively drug resistant tuberculosis
- ART Antiretroviral Therapy
- ARV Antiretroviral
- CAREC Caribbean Epidemiology Centre
- CBO Community-Based Organisation
- CML Central Medical Laboratory
- DOT Directly Observed Therapy
- GDP Gross Domestic Product
- KHMH Karl Heusner Memorial Hospital
- MCH Maternal and Child Health
- MOH Ministry of Health
- NAC National AIDS Commission
- NAP National AIDS Programme
- NGO Non-Governmental Organisation
- PAHO Pan American Health Organisation
- STI Sexually Transmitted Infections
- TB Tuberculosis
- UN United Nations
- VCT Voluntary Counselling and Testing
- WHO World Health Organisation