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HISTORY OF THE FIGHT AGAINST TUBERCULOSIS IN THE EASTERN PROVINCE, WEST (DRC) FROM 1982 TO 2016

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ABSTRACT

The diseases historiography shows (indicates) that tuberculosis is not only infectious, but also very old. To these days, its damages are numerous. Sensibilised, governments and numerous specialised institutions have been made aware of the problem and have deployed strategies to contain it. It really is a battle against a fierce enemy bent on destroying the human race. In the Province Orientale Ouest, this fight has shown its weaknesses, generally attributable to insufficient financial resources and poor monitoring of the activities of service providers, particularly in rural areas.

Keywords: Tuberculosis – control – Eastern West Province.

1.0 INTRODUCTION

Since the dawn of time, the whole world has been confronted with epidemics and other infectious diseases. Africa and the Democratic Republic of Congo are not spared. The Orientale West Province has been hard hit by these scourges and particularly by tuberculosis. This disease comes with a heavy economic burden for the people of the world, in general, and those of the DRC, in particular. Indeed, it is the main cause of death observed among AIDS patients (World Health Organization, 2010, p.3). It is the leading cause of death among people living with HIV, while HIV infection is the most important risk factor for the development of tuberculosis (World Health Organization, 2010, Op.cit., p.4).

Having already decimated a significant number of lives and recorded an increase in cases, tuberculosis has been declared a "global emergency" since 1993 by the World Health Organization "WHO), and the Democratic Republic of Congo recognized it as such in 2006 (DRC-Ministry of Public Health-PNLT, 2017, p.11).

Beyond the suffering it inflicts on individuals and their families, TB profoundly affects the social and economic fabric of societies.

Although this disease continues on its way, the history of the fight against it remains unknown to the public. This situation does not allow us to realize how it spreads, the damage it causes and the means mobilized by the Western Eastern Province to contain it.

This research aims to evaluate the fight against tuberculosis during the period covered by this study. More specifically, the following objectives are achieved:

- To retrace, in a historical perspective, the path followed by the fight against tuberculosis in the Western Eastern Province from 1982 to 2016;
- To assess the effectiveness of TB control during the study period;
- Identify bottlenecks and propose solutions likely to contribute to the improvement of the quality of services of the latter in the Western Eastern Province.

As a result, one main question haunts our minds:

- What is the record of the fight against tuberculosis in the Western Eastern Province from 1982 to 2016?

On top of this main question, the following sub-questions are added:

- What explains the low resources allocated in rural areas?
- What is the impact of this in the fight against tuberculosis in the Western Eastern Province?

In response to the main concern, we believe that the results achieved by the fight against tuberculosis in the Western Eastern Province are weak because of the meagre resources allocated to rural areas.

The sub-questions inspired us to make the following assumptions:

- the low resources allocated to rural areas are the basis for the concentration of activities in urban areas (City of Kisangani), the non-coverage of all rural health zones in service, the under-qualification and under-motivation of healthcare staff, the under-equipment of care structures, the poor monitoring and supervision of the activities of care providers in rural areas, the low involvement of the rural community.
- The impact of this on the fight against tuberculosis is the high number of new infections in rural areas, resistance to anti-tuberculosis drugs, deaths recorded each year, and the abandonment of modern treatment for traditional treatment or prayer.

To conduct this study, we used the historical method, documentary techniques and the analysis and interpretation of statistical data.

This study goes from 1982, the year of the beginning of the struggle in the Province Orientale by the Belgian volunteers, to 2016, the year of the effective dismemberment of the Province Orientale Ouest.

In the field, our study focused on the archives (activity reports) of the coordination of the Western Orientale Province of the National Tuberculosis Control Program "PNLT" to collect useful information for this research, and the testimonies of actors and resource persons.

Acronyms and abbreviations

- APD: Friends of Father Damien
- OCZS: Health Zone Central Office
- CPLT: Provincial Coordination for the Fight against Leprosy and Tuberculosis

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

- CS: Health Centre
- CDQ: Quality Control
- CSDT: Health Screening and Treatment Centre
- DOTS: Directly observed Treatment Short
- DPS: Provincial Health Division
- ECZS: Health Zone Leadership Team
- HGR: General Referral Hospital
- WHO: World Health Organization
- NGO: Non-governmental organization
- PNLT: National Tuberculosis Control Program
- DRC: Democratic Republic of Congo
- AIDS: Acquired Immunodeficiency Syndrome
- ART: Antiretroviral therapy
- TB: Tuberculosis
- USAID: United States Development Fund
- HIV: Human Immunodeficiency Virus
- ZS: Health Zone

1.1 Presentation of the study environment

The Orientale West Province is one of the health entities of the Grande Province Orientale in relation to the fight against tuberculosis. During the period covered by this study, it included the former Districts of Bas-Uélé and Tshopo; currently in the provinces of Bas-Uélé and Tshopo. These provinces are the result of the dismemberment of the Oriental Province.

Located in the north-east of the Orientale Province and the Democratic Republic of Congo (DRC), the Orientale West Province covered an area of 335,568 km². It was therefore the largest of the rest of the Orientale Province as a whole and the latter was the largest in the DRC. Its population was estimated, in 2012, at 3,753,104 inhabitants for an average density of 11 inhabitants/km² (including 14 inhabitants/km2 for Tshopo and 8 hours/km² for Bas-Uélé). In 2015, this population was estimated at 4,082,221 inhabitants" (INS/PO, 2010-2020, p.9).

It shared the northern borders with the Central African Republic and South Sudan, the southern borders with the provinces of Kasai Oriental and Maniema, the eastern borders with Haut-Uélé and Ituri, and the western boundaries with Equateur Province.

Three major ethnic groups share the extent of the region: the pygmies or Bambute, the Sudanese (with the Zandé, Ngbandi) and the Bantu (Boa in Bas-Uélé, Topoke, Mbole, Ngando, Lokele, Bali, Ngelema, Kumu, Banya-Mituku, and so) in Tshopo.

The health situation depended on the great Eastern Province. It included 5 health districts and 44 health zones, including 11 in Bas-Uélé, 18 in Tshopo and 5 in the city of Kisangani. In these 44 Health Zones (HSZs), there are 44 Hospitals and Reference Clinics, as well as 561 Health Centers (Health Development Program of the Eastern Province 2015).

With the advent of the dismemberment of the provinces of the DRC, the Orientale West Province broke up into two new administrative and health provinces: Bas-Uélé and Tshopo.

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

2.0 INTRODUCTORY NOTIONS ABOUT TUBERCULOSIS

Tuberculosis is an infectious disease caused by bacteria belonging to the genus Mycobacterium; It is the leading cause of infectious mortality due to a single germ. The tuberculosis epidemic was not brought under control until the late 1960s with the development of effective antibiotic treatments and the global mobilization against the disease (Dr. Hassan Abassi, 2013, p.11).

Tuberculosis contamination is a function of the concentration of bacilli inside the lungs and their spread to the surrounding air (DRC-Ministry of Public Health-PNLT, Op.cit, p. 17). Tuberculosis is transmitted through the air from the sick man to the susceptible person, by inhalation of droplets from coughing, laughing, talking or sneezing. Pulmonary tuberculosis is the most common form of the disease and accounts for about 70% of cases (DRC-Ministry of Public Health-PNLT, Op.cit., p. 17).

The detection of tuberculosis in a person, using clinical or paraclinical examination, is the primary means for the control of the disease. The functional signs are determined by coughing, often productive, more and more frequent over the weeks and not yielding to the usual treatment. The persistence of the signs, more than three weeks, leads to the diagnosis and leads to an X-ray of the chest. The non-respiratory signs are very varied and depend on the location of the disease (Abdelhouab Busebha, p.19)

The physical examination assesses the general condition (weight, temperature, asthenia, malnutrition). A pulmonary examination is most often recommended. Even in HIV-infected individuals, pulmonary tuberculosis remains the most common form of tuberculosis (Abdelhouab Busebha, op.cit., p.19). The clinical signs suggestive of tuberculosis are: cough, fever (temperature), night sweating, weight loss, anorexia, asthenia, dyspnea, chest pain, hemoptysis (coughing up blood), etc.

Treatment of detected or contagious cases is the best prevention of tuberculosis, as it cures the patient, breaks the chain of transmission of the disease and protects the community.

The DRC is resolutely committed, through its tuberculosis control programme, to alleviate the needs of its population who are victims of this deadly disease. The Western Orientale Province is among the territories that have suffered the horrors of this disastrous disease and has embarked on the country's politics in order to retaliate against it.

3.0 HISTORICAL OVERVIEW OF THE FIGHT AGAINST TUBERCULOSIS IN THE WESTERN PROVINCE OF ORIENTALE

The origins of tuberculosis go back a long way in human history. Since antiquity, it has spared neither the common people of ancient Egypt, nor their priests, nor their pharaohs. After centuries, tuberculosis raged relentlessly, from ancient Greece to the Renaissance where, in the 16th century, Giramo Fracastoro, an Italian doctor, determined its contagiousness (Prof. MAQUETTE and Prof. LAFFITE, p.44).

Thus, in 1867, tuberculosis was described as a contagious disease at the first international congress of medical specialists held in Paris.

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

Although it had been partially described in the time of Hippocrates, it was not until 1882, following the work of Louis Pasteur, that Robert Koch discovered the microbe responsible for tuberculosis by demonstrating the tuberculosis bacillus from human lesions (Pr MAQUETTE and Pr LAFFITE, Op.cit., 43).

The situation in the Western Orientale Province, like that of the Grande Orientale, is similar to that of the DR Congo. In colonial times, the health service was not yet well structured. Activities to combat leprosy and tuberculosis were not organized; They were carried out outside the health system by Belgian volunteers.

Considered dangerous, highly contagious and shameful diseases, leprosy and tuberculosis patients were treated in isolations called lazaretto for leprosy and sanatorium for tuberculosis.

The fight against these two endemic diseases began to be organized by the arrival of a few Belgian volunteers with the support of the Belgian NGO "Friends of Father Damien" (APD) and this in a vertical way (UKETI, O, Former nurse supervisor of the PNLT).

In 1982, the Belgian volunteers, Dr. Guidon and 2 nursing couples arrived to start organizing activities in the Bas-Uélé District and settled first in Titule in the Territory of Bambesa, then in Bondo and finally in Buta.

Two years later, in 1984, they expanded control activities in the city of Kisangani and its environs. They were joined by other nursing couples (from Mr. Luc and Nollet).

A year later (1985), Doctor GUIDON left and he was replaced by Doctor Peter GUY in charge of coordinating activities. The latter has expanded the struggle in some territories of the Province of Tshopo, including Basoko, Isangi, Yahuma, etc.

It should be noted that wherever the struggle began, these doctors recruited local nurses, whom they trained and motivated to do a good job. Dr. Peter coordinated the activities until 1988.

From 1988 to 1991, with the return of Dr. Luc KYENS, control activities reached more than 80% of the health zones. It was at this time that the coordination office was set up with the necessary services. We have witnessed the creation of projects, particularly in Lubunga, Kabondo (in the facilities of the social center) and in the Makiso Commune, at the Sanatorium of the current Boyoma Health Center (PNLT 2013 Annual Report).

The name "Western Provincial Coordination" is due to the fact that the Orientale Province had two other coordinations: the Eastern Coordination, based in Bunia; and the Centre in Isiro.

From 1991 to 1994, it was the turn of Dr. Blaise KARIBUSHI to coordinate the control activities. The latter focused more on the supervision of service providers. This is how he made the sanatorium the regional reference center for training in leprosy and tuberculosis (CRRF). At the same time, the Belgian NGO "Friends of Father Damien" changed its name to "Fondation Damien".

From 1994 to 2004, the coordination of activities was entrusted to Dr. Valère ARAKAYO. It was at its inception that TB control activities in Orientale West Province were integrated into

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

primary health care. Indeed, activities to combat leprosy and tuberculosis have left the vertical system to be integrated into the 31 out of 34 health zones that were part of the coordination (Bas-Uélé and Tshopo).

This period was also marked by the reorganisation of the functioning of the coordination, which was now subdivided into three sub-coordinations. These include the sub-coordination of Bas-Uélé, based in Buta, Tshopo Lindi and the city of Kisangani.

From 2004 to 2016, Dr. Jean MUSAFIRI was the coordinator of the institution. It sets as priorities: consolidating the integration of tuberculosis control activities into primary health care and improving results by supporting health zones.

With the dismemberment of the Orientale Province, the Provincial Coordination for the Fight against Leprosy and Tuberculosis, Western Oriental Province "CPLT/OOP" gave birth to two coordinations: the Bas Uele coordination and the Tshopo coordination.

It should be noted that until 2016, activities to combat leprosy and tuberculosis were still supported by the Belgian NGO/Damien Foundation, which changed its name for the second time to "ACTION DAMIEN" (PNLT 2016 Activity Report).

Other partners, including the Global Fund, the WHO, the United States Development Fund "USAID" were involved in the fight against leprosy and tuberculosis in this province.

4.0 ORGANIZATION AND FUNCTIONING OF THE FIGHT AGAINST TUBERCULOSIS IN THE WESTERN PROVINCE OF ORIENTALE

4.1 Organization of the control system

Tuberculosis, like HIV/AIDS, is linked to poverty. It is a global endemic disease. It has settled permanently in sub-Saharan Africa.

Following the increase in new cases, tuberculosis has been declared a "global emergency" since 1993 by the World Health Organization (WHO) and, in 2006, the DRC recognized it as such (DRC-Ministry of Public Health-PNLT, Op.cit., p.11).

To combat this disease, several strategies have been put in place, including the "Directly observed Treatment Short course (DOTS)" in 1996 and which became the "Stop TB strategy" in 1999. This gave rise to the global Stop TB initiative, bringing together several partners involved in the fight against TB and respiratory diseases (DRC - Ministry of Public Health - PNLT, Op.cit., p.12).

The DRC has an incidence of tuberculosis cases, all forms, of 223 cases per 100,000 inhabitants, out of an estimated population of 87,491,755 inhabitants (PNDS 2016-2020). It is among the 14 countries with a high burden of both susceptible tuberculosis, TB-HIV co-infection and multidrug-resistant tuberculosis (MDR-TB). It is one of the 30 countries that bear more than 80% of the global burden of tuberculosis and ranks 2nd in Africa and 9th in the world according to the 2017 WHO report (DRC-Ministry of Public Health-PNLT, Op.cit., p.11).

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

4.1.1 Program Missions, Objectives and Strategies

The mission of the PNLT is to control tuberculosis and, later, to eliminate it as a public health problem (DRC - Ministry of Public Health - PNLT, Op.cit., p.12). The approach of integrating TB control activities into primary health care structures is recommended to achieve the above missions, in accordance with the health system strengthening strategy (DRC-Ministry of Public Health-PNLT, Op.cit., p.12).

The TB control program in the DRC has the following objectives: to ensure effective coverage of the disease throughout the country, to reduce its incidence rate by 90%, and to reduce its death rate by 90%.

The National Tuberculosis Control Program "PNLT" is one of the specialized programs of the Ministry of Health. It is structured into three levels: the central level (the central unit of the PNLT), the intermediate level (provincial coordination of the fight against tuberculosis) and the peripheral level (the health zone).

The Orientale West Province, in relation to the fight against tuberculosis, is at the intermediate level and depends on the Provincial Health Division (DPS) which, within it, is organized by a Provincial Coordination for the Fight against Tuberculosis and Leprosy, "CPLT" in acronym.

The CPLT is part of the 2nd office of the Provincial Health Division, technical support office or trades, responsible for activities relating to the organization of service and health care delivery. It is responsible for technical support (training, supervision, supervision of employees of health zone structures) and logistical support for the activities of this program at the provincial level. At this level, a provincial mycobacterium reference laboratory is also organized, whose function is to supervise and control the quality of tuberculosis examinations, the preparation of reagents, and the training of the peripheral level.

The office of the coordinating physician is composed of at least one nurse supervisor and two laboratory technicians. The other members are set up according to the needs of the coordination.

At the level of the Health Zone (ZS), there are: the central office of the Health Zone (BCZS), with the management team of the Health Zone (ECZS). At the bottom, we find: the General Referral Hospital (HGR), the health centers (CS).

4.1.2 Strategies

In the DRC, the TB strategy is based on key global strategies, including: screening, effective treatment, prevention of transmission, vaccination, risk factor control, awareness and education, and community involvement.

a) Screening

Tuberculosis screening, using clinical and paraclinical examination, is an essential action for the overall control of the disease in the country. Its aim is to identify, within the community,

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

in a sustainable way, the cases of tuberculosis to be treated and cured with appropriate drugs (PIUBELLO, A., p.14).

In the Western Orientale Province, the management of tuberculosis cases has long since begun. While the management of tuberculosis patients co-infected with HIV only began in the second quarter of 2011 with the technical support of the School of Public Health and the University of North Carolina. At that time, the Orientale West Province included 13 CSDTs that provided testing and treatment across 5 health zones in the city.

In rural Tshopo and Bas-Uélé, activities to combat tuberculosis were already evolving, but those of the tuberculosis-HIV comorbidity were not yet implemented due to the lack of partners who could support them.

At the end of 2016, the Orientale West Province included 461 health centers participating in the referral of suspects, the transport of samples and the follow-up of treatment, 361 CSDTs which have become CDTs providing diagnosis, a single provincial reference laboratory installed in Kisangani, organizing the quality control (CDQ) of microscopy and carrying out the culture of mycobacteria (PNLT 2016 Annual Report).

b) Effective treatment

Treatment of TB patients is the best prevention, as it cures the patient, breaks the chain of transmission of the disease and protects the community. The essential elements of successful treatment are: the availability of good quality medicines, an appropriate treatment regimen, the supervision of patients to obtain their adherence to the prescribed treatment, taken regularly until the end.

It is generally recommended to follow a combined therapeutic regimen of at least 6 months to eliminate the bacteria responsible for the infection and prevent drug resistance. Patients should adhere rigorously to the recommended course of treatment to ensure complete recovery.

c) Prevention of transmission

The best prevention of tuberculosis is to detect and treat reported cases early (RIITTA, A. et al., 2019, p.50). An untreated tuberculosis patient infects or contaminates up to ten people per year. Rapid detection and treatment is the effective way to break the chain of transmission of TB.

People with TB should take steps to reduce the transmission of the infection to others. This may include the use of respiratory masks, the adoption of adequate respiratory hygiene by covering the mouth when coughing or sneezing, avoiding places that are less well-ventilated or poorly ventilated (ORTH, G and SANSONETTI, P., 2005, p.13).

d) Vaccination

Vaccination is an important means and technique for the prevention of any infectious disease, especially tuberculosis. The BCG (Bacille Calmette-Guérin) vaccine is used in many countries,

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

including the DRC, to reduce the risk of developing a severe form of tuberculosis, especially in children. However, it is not entirely effective in preventing all forms of the disease.

e) Addressing risk factors

Several external factors determine the individual risk of exposure to bacilli de coch: (RIITTA, A. et Alii, Op.cit., p.18) the concentration of droplets of PFFLUGES (respiratory droplets) in the contaminated air, the length of time that this person breathes this contaminated air, promiscuity, people who share the same roof as a treated tuberculosis patient, poorly or unventilated houses, etc.

TB is often more common in vulnerable populations, such as populations living in unsanitary conditions, immunocompromised people, people with HIV, etc. It is recommended that measures be put in place to improve living conditions, strengthen immune systems and prevent the transmission of the disease (Riitta, A. et al., Op.cit., p.19).

f) Awareness and education

Awareness and education, at all levels, are the effective means and techniques for preventing new infections. They contribute to the success of the treatment. Informing the public about symptoms, modes of transmission, prevention methods, and the importance of early TB detection and treatment is essential to combat stigma, encourage appropriate health behaviors, and increase access to health services (RIITTA, A. et al., Op.cit., p.20).

k) Community Involvement

Community involvement is one of the approaches to the TB elimination strategy (PIUBELLO, A., Op.cit., p.33). The fight against TB requires everyone's participation. The struggle with health workers alone has shown its limits. A third of patients suffer from tuberculosis in the community and are not reached for diagnosis and treatment because of its low involvement.

The community contributes, through advocacy with political and administrative authorities and leaders, awareness-raising and home support visits, referral of suspected tuberculosis patients to the health centre, application of treatment observed at home to bedridden or sick people who are unable to attend, recovery of irregular or lost patients, community awareness of tuberculosis, etc.

5.2 Resource mobilization and management

5.2.1 Source of funding

The sources of funding for the fight against tuberculosis for the implementation of the strategies mentioned above come mainly from funds mobilized internally and from external funds through several mechanisms in the context of development assistance.

The overall cost of TB control expenditure in the Western Eastern Province during the period covered by this study is not reported. However, surveys conducted on tuberculosis control expenditure show that the cost of investment in tuberculosis control is largely dependent on

Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

external sources, accounting for 96.81% of expenditure. The government was in charge of the staff bonus, which was estimated at 3.19% (PNLT Annual Report 2011).

In 2011 alone, in the Orientale Province, the total funds allocated to the fight were 2,767,323 US. Of these funds, the State contributed only US$88,542 and the difference (US$2,767,323) came from funds from foreign financial partners (PNLT Annual Report 2011).

5.2.2 Control system (internal and external)

In order to ensure transparency and management of the funds mobilized for the fight against tuberculosis disease, the monitoring, evaluation of resources and the flow of expenditure, which constitute internal control, were only put in place in 2004. The system did not provide sufficient information on the rationality of resource allocations in relation to beneficiaries (PNLT Annual Report 2015).

As for external control, the various financial resources mobilized and housed in the accounts and sub-accounts for the fight against tuberculosis, the various structures, as well as the financial support partners, were not regularly audited by the competent services or by international donors. The consequence of this is the flight of capital intended for the fight against tuberculosis in the Western Orientale Province, and, as a result, the low quality of the service offer.

5.3 Monitoring and evaluation

The Monitoring and Evaluation Task Force is an appropriate framework for consultation and consensus, where all discussions on monitoring and evaluation strategies should be conducted. Within it, partners should ensure the successful implementation of the major provincial, national and international orientations defined in various TB control plans.

It may be noted, however, that the monitoring and evaluation mechanism has not functioned as a full-fledged unit in the CPLT Orientale West Province. It was the supervising nurse who was responsible for this. The collection of data, the processing, the analysis of information and the reporting to facilitate decision-making are among its responsibilities.

Supervision and monitoring were organized. The reports of the latter proposed solutions on the following subjects: Validation of control data from the different structures, harmonization of the actions of partners in the field in order to avoid overlap.

6.0 THE RESULTS OBTAINED

Our study focused on 7 indicators below to capture the progress of the results obtained in relation to the efforts made in the fight against Tuberculosis in the Western Eastern Province during 6 years, from 2011 to 2016. These indicators were selected and grouped into two categories: service coverage indicators and results indicators.

For the provision of services, the study selected two: number of health zones that have integrated TB control activities and many of the health zones that have integrated TB-HIV comorbidity activities.

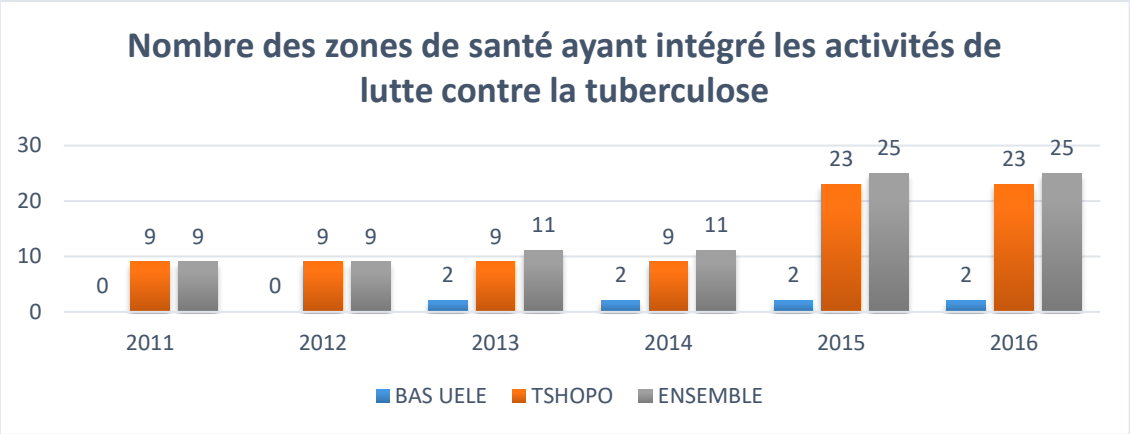
Volume 06, Issue 04 "July - August 2025"

ISSN 2583-0333

As for the outcome indicators, the study selected the following 5: number of registered TB patients, number of TB patients on anti-TB treatment, number of TB patients screened for HIV, number of co-infected TB patients and number of HIV+ TB patients on antiretroviral treatment.

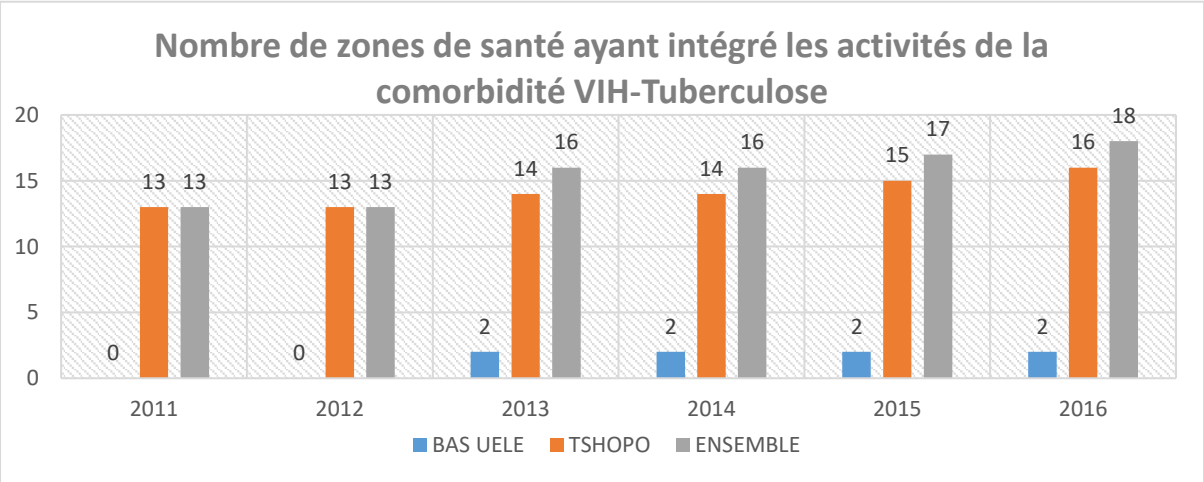
6.1 Indicators of service coverage

a. Number of health zones that have integrated TB management activities



The fight against tuberculosis in the Orientale Ouest Province began with the 5 urban health zones of Kisangani and has expanded to the 4 rural health zones of Banalia, Bafwasende, Bengamisa and Isangi. It was in 2013 that 2 health zones in the Bas-Uele District (Buta and Bondo) joined the fight. The situation in Bas-Uélé remained stable until 2016. While that of Tshopo has grown exponentially, in 2015 covering all rural health zones. The overall situation has evolved in an increasing manner, but the Bas-Uele District was insufficiently covered by TB control activities during the period of our investigations.

b. Number of health zones that have integrated HIV-TB comorbidity activities



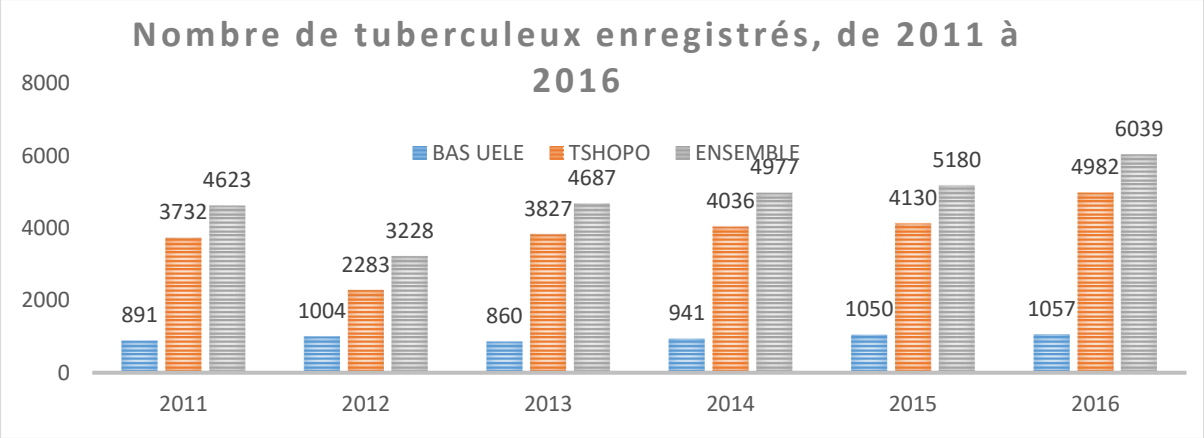
The fight against HIV-TB comorbidity in Orientale West Province began its integration in the health zones by the 5 health zones of the city of Kisangani and in the same year (2011) in the 8 rural health zones of Tshopo (Isangi, Bafwasende, Banalia, Bengamisa, Opala, Ubundu,

Basoko and Yakusu). The evolution of this integration is growing overall, as in Tshopo. The situation is rather weak in Bas-Uélé with the late integration of health zones. It was not until 2013 that the 2 health zones (Buta and Bondo) integrated the activities of the Tub-HIV co-infection. Bas-Uélé has not experienced growth in terms of coverage of HIV-Tub co-infection activities, but a status quo (2 health zones integrated until 2016).

6.2 Indicators of results

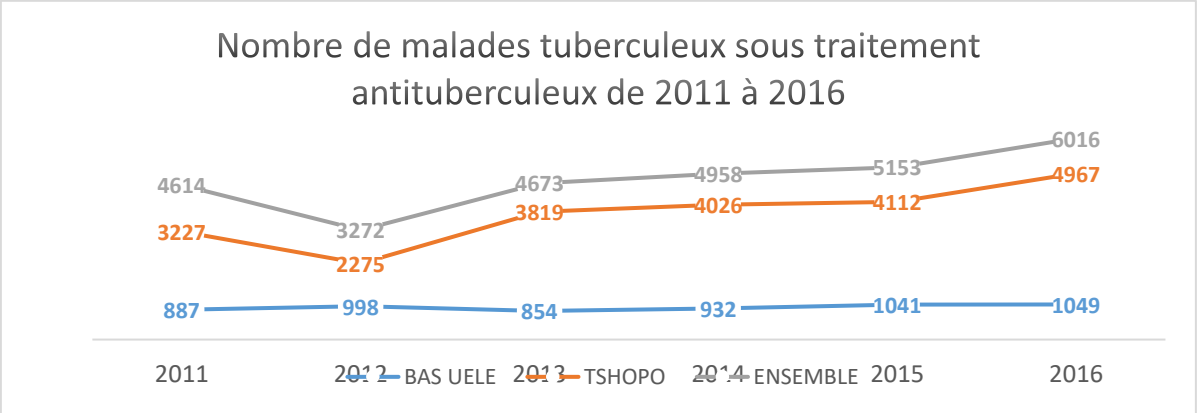
The aim is to capture the results obtained in the process of the fight against tuberculosis in the Western Eastern Province from 2011 to 2016, with regard to the coverage of the available service offer.

a. Number of tuberculosis patients registered



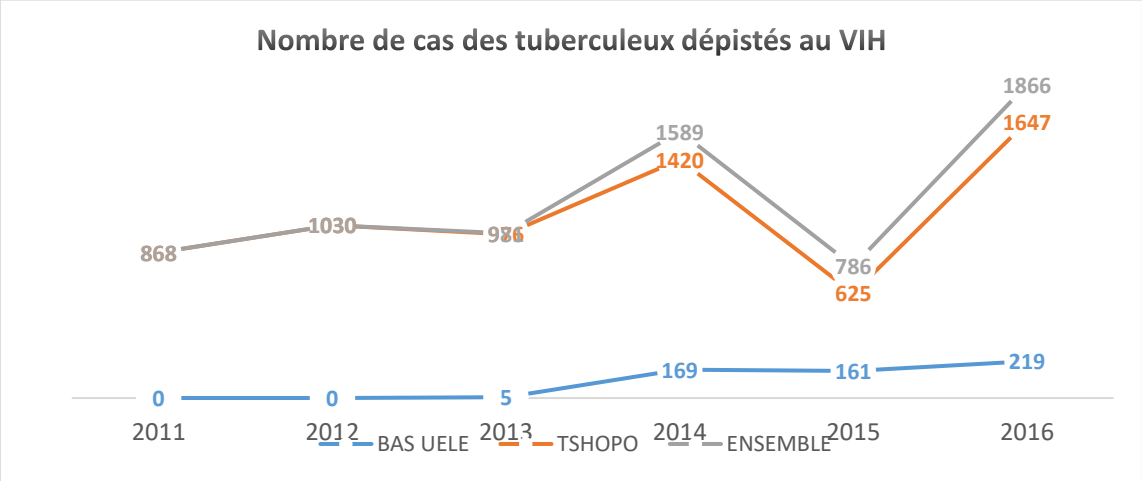
The evolution of the number of patients tested positive for tuberculosis in the Western Province from 2011 to 2016 is increasing overall, except in 2012 when there was a decrease of 30.17% compared to 2011, and an increase of 45.19% in 2013. The share of Tshopo is much higher than that of Bas-Uélé because of the influence of the city of Kisangani, which was able to supply more than half of the number of tuberculosis patients compared to the whole of the Western Orientale Province, following the greater concentration of the service in Kisangani than in rural areas.

b. Number of TB patients on TB treatment



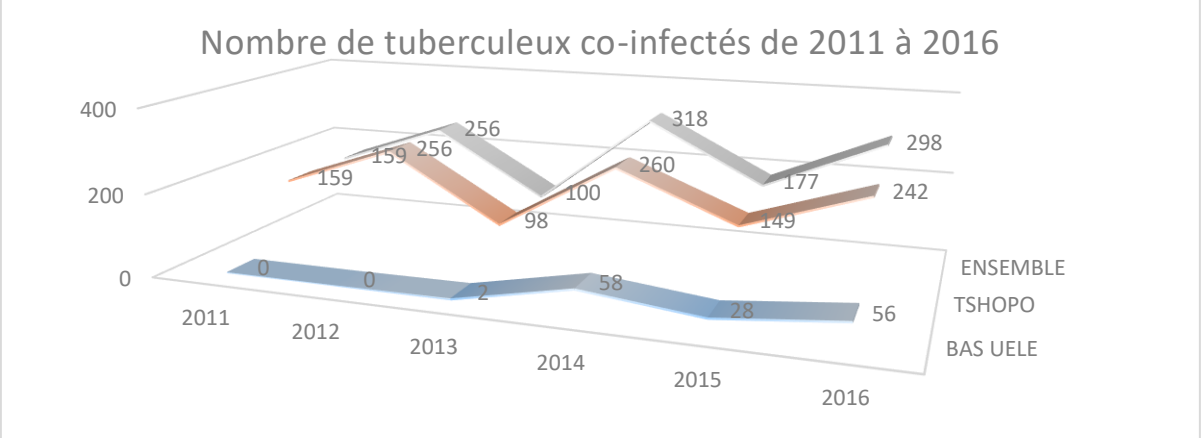
From this graph, the evolution of the number of TB patients on anti-TB treatment is increasing overall, except in 2012 when the number had decreased by 29.08% compared to the number in 2011 and had increased by 29.87% in 2013. This decrease is due to the shortage of medication and a large number of people lost to follow-up during this period. The increase in the number in 2013 is a function of the availability of medicines, but also of the increase in funding compared to 2012.

c. Number of TB cases tested for HIV



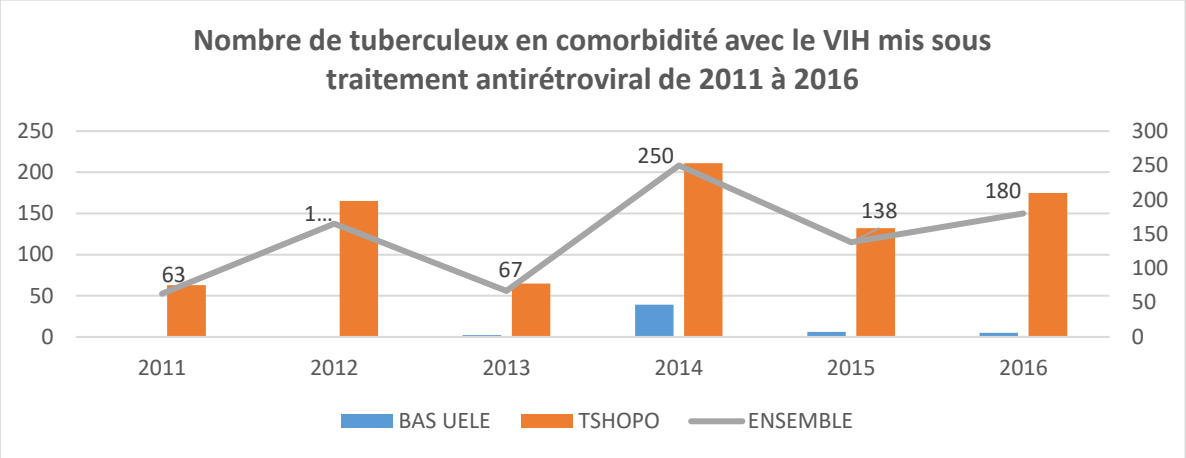
The evolution of the number of TB patients on HIV treatment from 2011 to 2016, overall, has evolved in a rollercoaster fashion. This situation is similar for Tshopo, while the reality is different for the District of Bas-Uélé, where the evolution was increasing from 2013 to 2016. It should be noted, however, that, from 2011 to 2012, no data are provided for this indicator, due to the absence of tuberculosis screening during these two years, following the late start of activities for the management of Tub-HIV comorbidity in Bas-Uélé. For the first three years, in Bas-Uélé, there was only the Buta health zone, through its two health structures: HGR and CS Mobenge, which had organized HIV testing of tuberculosis patients. The entire District had only 2 health zones that had integrated HIV-TB comorbidity activities.

d. Number of co-infected TB patients from 2011 to 2016



The evolution of the number of tuberculosis patients with comorbidities with HIV/AIDS, from 2011 to 2016, is, on the whole, up and down. This situation is the same for both Districts. However, the District of Bas-Uélé, from 2011 to 2012, had no data for this indicator, for the simple reason that HIV testing of tuberculosis patients was not organized there. The share of Tshopo is always greater than that of Bas-Uélé because of the importance of the city of Kisangani, where access to information and service is easier.

e. Number of TB patients with HIV comorbidity on antiretroviral therapy



The evolution of the number of TB patients with comorbidities with HIV, put on antiretroviral treatment, from 2011 to 2016, for the most part, has been up and down. Bas-Uélé only began to provide information on this indicator in 2013. This situation is the result of the lack of data on the number of TB patients with HIV comorbidity for the first two years (2011 and 2012), following the failure to organize HIV testing for TB patients on treatment.

7.0 CONCLUSION

In the light of the data collected in the field, after having analyzed and interpreted them, it should be stated that the results achieved by the fight against tuberculosis in the Western Eastern Province are weak due to the modicity of resources allocated to rural areas.

The fight against tuberculosis in the Western Eastern Province, during the period studied, went through several stages in its evolution. For a long time, it was concentrated in urban areas to the detriment of rural areas and did not rise to the challenges expected of it.

This deficit is reflected in the lack of coverage of all the health zones in service, the under-equipment of care structures in rural areas, the high number of new infections, the late start of the fight against the tuberculosis-HIV comorbidity, etc.

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