



TB-LAMP IN CAMEROON

TWO YEARS AFTER – RESULTS AND LESSONS LEARNED

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CONTEXT



Cameroon map

- **Land area:** 475,440 sq km
- **Population:** 24 863 337 inhabitants
- **254 DTCs (Diagnostic and Treatment Centers):** 1 DTC/90 000 inhabitants
- **Epidémiological regions:** 12
- **Incidence:** 194/100000 inhabitants

TB DIAGNOSIS BEFORE 2017



Microscope

Main diagnostic tool for initial diagnosis of Pulmonary Tuberculosis (TB)

Less sensitivity

Need to improve TB case finding in primary health care

Less notification of TB Cases
49 000 cases estimated per year by **WHO**,
But, only about **25000** cases are notified

HOW IT CHANGED?



Challenges

5

2019: Scaling up of TB-LAMP in 21 DTCs

4

2018: Procurement of TB-LAMP reagents and materials

3

2018: Validation of National TB Programme application

2

2017: Search for funding using the results of pilot phase

1

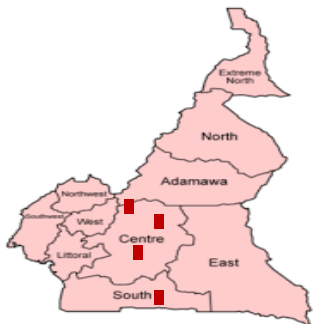
2017: Introduction of TB-LAMP in Cameroon with 4 HumaLoop T instruments

Procurement of 21 HumaLoop T and 45000 tests

*Procurement of TB-LAMP materials
Training of Laboratory technicians
Supervisions of the TB-LAMP sites*

2018-2020 NTP funding request addressed to the Global Fund

About 30% increase in positivity at the four sites after two months





PROCUREMENT

Issues

- Absence of all TB-LAMP materials on the GDF catalogue to facilitate procurement
- Partial procurement of materials which were not used
- About 10 months of negotiation by Human and Eiken to obtain all TB-LAMP materials available on the GDF catalogue
- Additional materials not provided with the kits (scissors, gloves, marker pen, tissue papers)

Challenges

- Get all TB-LAMP materials available on the GDF catalogue



IMPLEMENTATION

Issues

- Late availability of funds for the training of laboratory technicians
- Absence of funds from GF for HumaLoop installation
- Lack of a well defined transport system for sputum-smear negative specimen transfer to TB-LAMP site

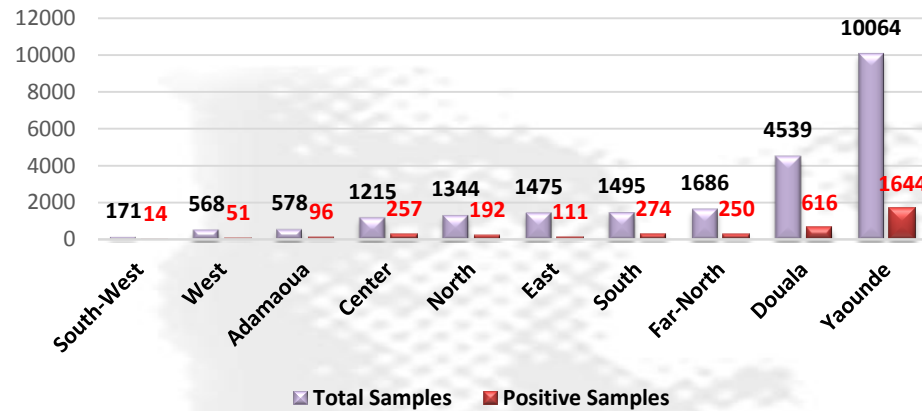
Challenges

- Installation of the 21 HumaLoop T instruments at 21 sites for initial TB diagnosis
- Organization of DTCs by pools at all the regions for sputum-smear negative specimens transfer to TB-LAMP site
- Organization of a well defined sample and results transportation system
- Organization of sensitization meetings with physicians

IMPLEMENTATION RESULTS

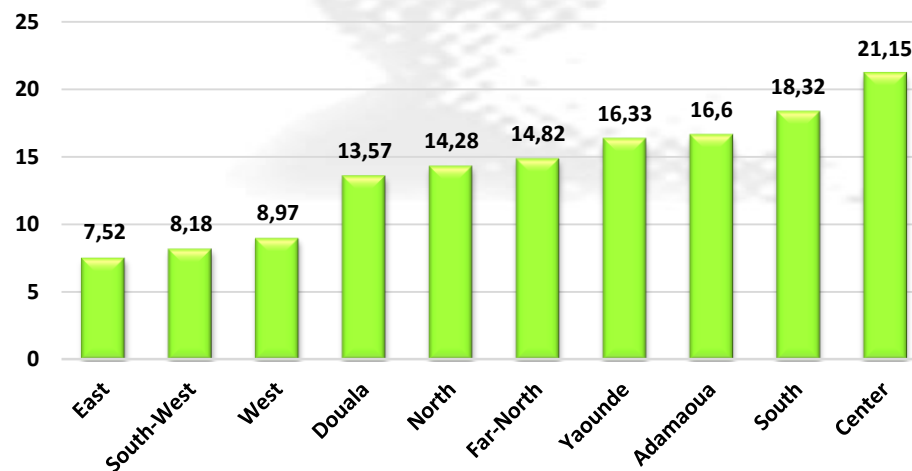


TB DIAGNOSIS USING TB-LAMP from November 2018 to September 2019



- **21 new TB-LAMP sites** selected according to their workload
- Replacement of microscopy test on the selected sites by TB-LAMP test for initial diagnosis of pulmonary TB
- Organization of Sputum-smear negative specimens transfer from microscopy sites to TB-LAMP site
- Organization of TB mass screening in prisons and villages

TB-LAMP Positivity Rate

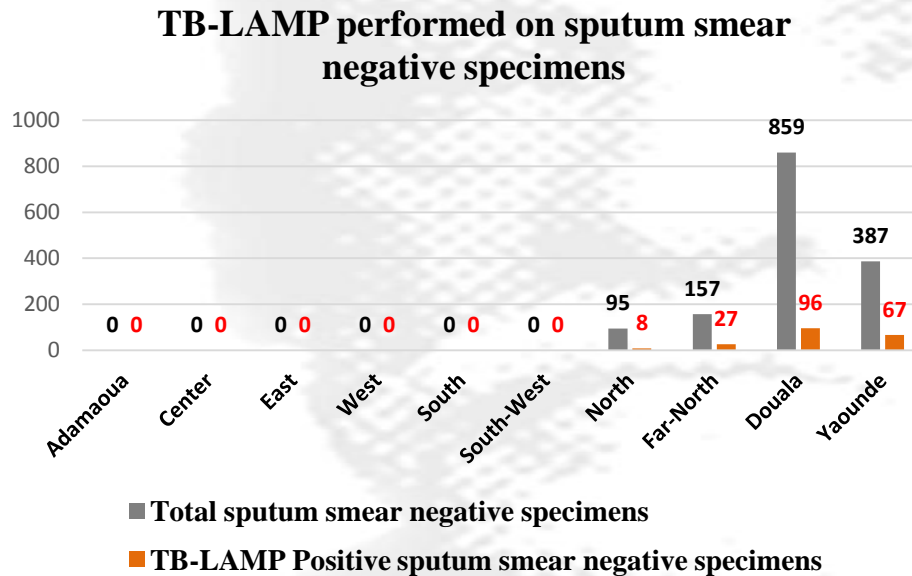


- ❑ So far, **23135 tests** already performed from November 2018 to September 2019 with **3505 positive (15.15% positivity rate)**
- ❑ **Yaounde** diagnosed more TB presumptive patients (**10064 with 1644 positive, 16.33% positivity rate**)
- ❑ **Center Region** displayed the highest positivity rate (**21.15%**)

IMPLEMENTATION RESULTS

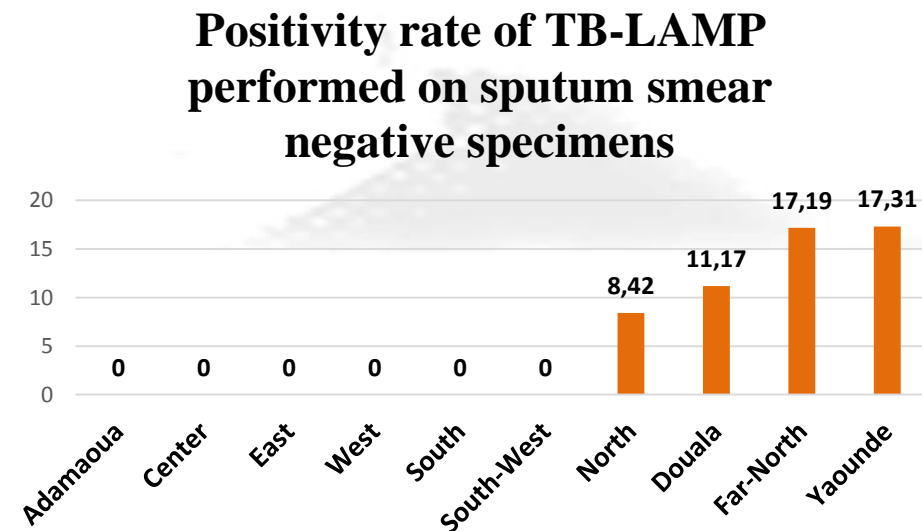


- ❑ Organization of Sputum smear-negative specimen transfer from microscopy centers to a TB-LAMP center for further testing (*Organization of DTCs by pools*)
- ❑ Use of biker, taxi and travel agencies for samples and transportation and results



As at now, 1498 sputum smear negative specimens have been transferred for TB-LAMP testing with 198 positive cases. It displayed 13.21% positivity rate

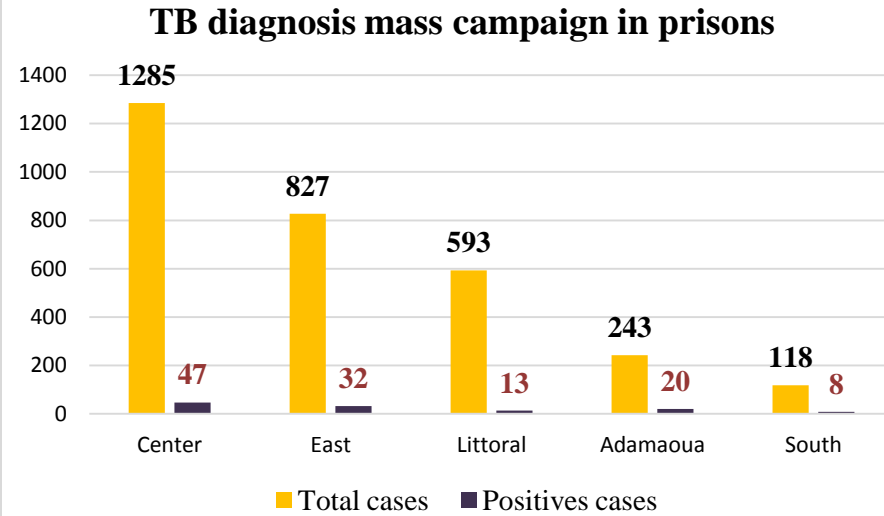
Douala transferred more sputum smear negative specimens for TB-LAMP testing (859 with 96 positive cases)
Yaounde displayed the highest positivity rate (17.31%)



IMPLEMENTATION RESULTS

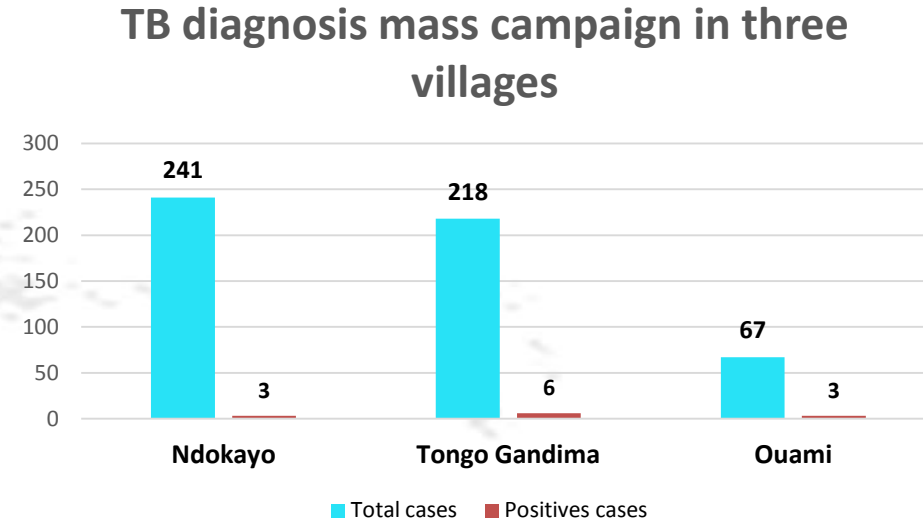


Tuberculosis active cases finding in prisons



- ✓ **3066** TB presumptive patients in prisons have been diagnosed using TB-LAMP.
- ✓ **120** were positives (**3.9%** of positivity rate) and submitted to GeneXpert MTB/RIF to detect RIF-Resistance.
- ✓ **03 MDR** cases have been detected and put on second line treatment

Tuberculosis active cases finding in villages



- ✓ **526** TB presumptive patients in three villages of the East region have been diagnosed using TB-LAMP
- ✓ **12** were positive (**2.3%** positivity rate) and submitted to GeneXpert MTB/RIF to detect RIF-Resistance
- ✓ **No MDR** cases have been detected

NB:

- ❖ All TB diagnosed patients have been rapidly put on treatment
- ❖ TB-LAMP and GeneXpert MTB/RIF have been used together

USEFULNESS OF TB-LAMP TEST DURING TB MASS SCREENING



Tuberculosis active case finding in prisons

Case 1: Nkondengui in Yaoundé

- Sputum sample collection time: 03 days
- Number of sputum samples: 745
- Days used for TB-LAMP analysis: 8 (112 samples/day)
- Number of positive samples analyzed with GeneXpert: 19
- MDR cases detected: 01
- Time to release of results: 02 days
- Total time required for this activity: 13 days

Tuberculosis active case finding in villages

Case 2: Ndokayo village in the East Region

- Sputum sample collection time: 02 days
- Number of sputum samples: 241
- Days used for TB-LAMP analysis: 04 (60 samples/day)
- Number of positive samples analyzed with GeneXpert: 03
- MDR cases detected: 00
- Time to release of results: 01 day
- Total time required for this activity: 7 days

Conclusion:

- ✓ **Reduction of turn around time:** Only One week used in Ndokayo village for TB mass screening



➤ Search for Funding

- Include funds for installation and supervision in application
- Include funds to conduct related activities

➤ Training

- Train a maximum of 4 technicians in three days on one HumaLoop T
- Prepare theoretical and practical training

➤ Procurement

- Order all materials through GF
- Take into account the lead time

➤ Installation

- Install the HumaLoop T instrument in the week following the training of laboratory technicians
- Supervise TB-LAMP tests performed by the trained laboratory technicians during installation

➤ Improve TB diagnostic and intensified case finding

- Develop a well organized system for sputum smear negative specimen transportation to perform TB-LAMP test
- Organize meetings with physicians to inform them about the availability of the new technique for TB diagnosis
- Include TB-LAMP in TB diagnosis algorithm



We cannot completely replace microscopy with TB-LAMP in Cameroon, else the HumaLoop will be underused.

Our challenge now is to:

- ✓ Facilitate access to TB-LAMP test for all TB presumptive cases through sample transportation
- ✓ Organize more TB screening campaigns in order to increase the number of screening TB presumptive cases
- ✓ Develop a system of rapidly sending test results through SMS

SUMMARY



- **22135 tests** already performed from November 2018 to September 2019 with **3505 positive (15.15% positivity rate)**
- **1498** sputum smear negative specimens have been transferred for TB-LAMP testing with **198 positive cases**. It displayed **13.21%** positivity rate
- **HumaLoop T** is robust, adequate for peripheral laboratories and useful during TB diagnosis mass campaigns to respect the turn around time
- **HumaLoop T and GeneXpert MTB/RIF** were used together for TB mass screening

Recommendations to other countries



- Use TB-LAMP for initial diagnosis of pulmonary TB
- Organize transfer of Sputum smear negative specimens to TB-LAMP analysis to give at all the patient access to molecular test.
- During fund search, include a budget line for instrument installation, supervision and related activities
- During purchase, order all materials through GF and do so well ahead of time to avoid delays.

ACKNOWLEDGMENT



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**THANKS FOR YOUR KIND
ATTENTION**