

# Building a Supply Chain Approach for an Improved Laboratory Sample Referral Network in the Dominican Republic

Alan George<sup>1</sup>; Edgar Barillas, MD MSc.<sup>2</sup>; Claudia Valdez<sup>3</sup>, MD; Martha Herrera<sup>4</sup>;

<sup>1</sup>Consultant SIAPS, Dominican Republic; <sup>2</sup>SIAPS; <sup>3</sup>Lead Consultant SIAPS, Dominican Republic; <sup>4</sup>Consultant SIAPS, Dominican Republic



## BACKGROUND

The disease control programs for HIV and TB in the Dominican Republic (DR) reported difficulties with transporting laboratory samples and the turnaround of test results, by way of non-systematic and empirical evidence.

At the request of the Dominican Ministry of Health and with resources from the USAID Mission in the DR, MSH/SIAPS assisted in the execution of an extensive baseline study, from March to July 2014 to help identify the constraints in the supply chain of HIV and TB laboratory samples, and their test results.

## OBJECTIVES

- To identify constraints in the supply chain of TB and HIV laboratory samples and test results
- To contribute to the design of a nationwide referral network for HIV/TB samples with flexibility so that other types of samples can be transported to a more advanced processing facility
- To build capacity of local personnel involved in the laboratory samples referral network

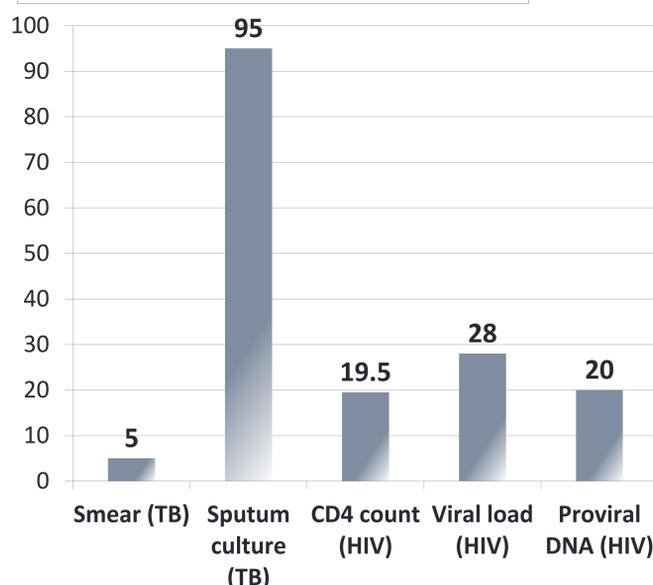
## METHOD

- Early involvement of local health personnel with the formation of a technical roundtable to help design the baseline study and propose solutions for improvement
- In-person interviews with HIV and TB program leaders
- A quantitative-qualitative, evidence-based intervention consisting of on-field data collection stemming information from 124 health centers that were selected with several established criteria, such as complexity level of the laboratory, volume of samples processed (high and low), and geographical situations (city and rural establishments)
- Data analysis and situational assessment



## STUDY RESULTS

### Average turnaround time (days)



- The baseline study showed long turnaround times for the samples that were monitored.
- Turnaround time was measured from the moment a sample was sent to the processing laboratory to the moment the test results were returned to the establishment that sent the sample.

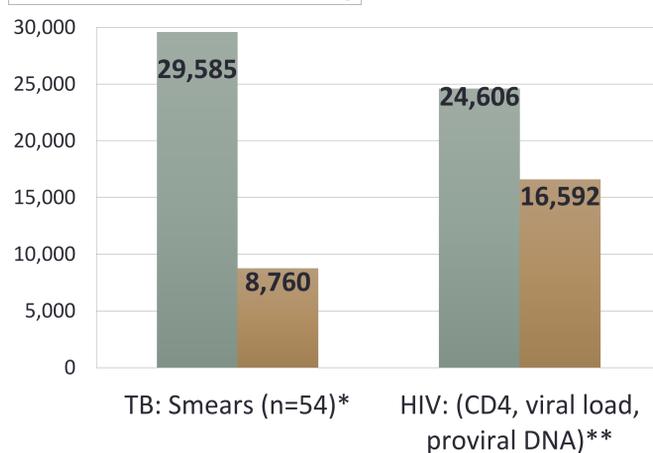
### Productivity in 2013

Sample Type	Number of samples received	Number of samples processed	Productivity (%)
TB: Smears (n=50)*	100,862	85,737	85%
HIV**: CD4, viral load, proviral DNA	40,118	39,496	98%

\* In the original selection of establishments, there were only 50 health centers that received and processed smears.

\*\* Samples sent to and processed by the National Reference Laboratory.

### Turnaround efficiency



■ Number of samples sent in 2013

■ Number of test results received in 2013

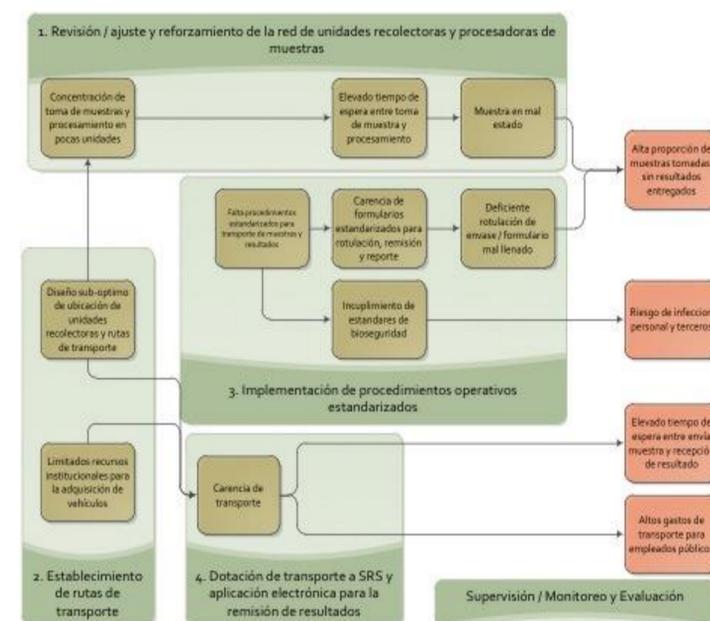
\* In the original selection of establishments, there were only 54 health centers that sent smears for processing.

\*\* Only samples sent from outside the capital region are taken into account, as in the capital patients go in person to the National Reference Laboratory to be tested and to pick up results.

## DISCUSSION

Transport operations for biological samples and test results seldom consider the use of approaches and tools normally applied in medical supplies.

The local personnel in charge do not have the know-how or experience to improve the overall performance of the referral network, because their main focus is the clinical outcome of patients. They need to be trained to understand the importance they have as a link in the supply chain of biological samples, and how the effective use of the network hinders or aids in obtaining the clinical results.



An evidence-based approach and the early involvement of local health personnel in the conception of the baseline study, and the design and implementation of interventions, can help correct the identified problems and effectively train the staff.

## LESSONS

- As evidenced by the intervention in the DR, supply chain management concepts are applicable to the everyday operations of a referral network for laboratory samples.
- Involving personnel in the elaboration and validation of SOPs builds their understanding of how a unified sample referral network properly and efficiently functions.
- Personnel involved in the preparation, transportation, and receipt of laboratory samples must be trained to have a supply chain mindset to understand and implement best practices in the search for continuous improvement.



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