

Quality of the Tuberculosis Control Program, Havana, Cuba, 2018

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Abstract: *Background:* Boyeros municipality is considered a high risk of tuberculosis, historically it maintains incidence rates above the provincial average. *Objective:* Evaluate the National Program for the Prevention and Control of Tuberculosis quality in Boyeros, 2018. *Methods:* a tactical evaluation was carried out according to components: structure, process and results. The universe constituted by 10 cases of tuberculosis notified during 2018 and 469 health workers who participated in the execution of the program. The information was obtained from the bibliographic and documentary review, the interview, observation and questionnaire. Summary measures such as absolute frequencies and percentage were used. *Results:* a deficit of doctors and nurses was found in the structure dimension, no update was carried out on the subject, 50% of the clinics did not have bottles, in 50% of the areas there was no availability of reagents, in the process dimension It did not comply with the indicators of second samples of sputum and cultures and in the results relapses and TB / HIV-AIDS co-infection were found. *Conclusions:* The lack of human and material resources, the lack of training on the subject, the failure to comply with the diagnostic times, the existence of relapses, loss of follow-up and TB / HIV co-infection, led to the evaluation of the National Program for the Control of Tuberculosis in the Boyeros municipality, during 2018 was evaluated as unsatisfactory, since the standards established for each dimension were not met.

Keywords: Tuberculosis, Evaluation, Structure Dimension, Process Dimension, Results

1. Introduction

Tuberculosis (TB) is an infectious disease of acute, subacute or chronic evolution whose presence has been constant in the history of humanity. In 1993 the World Health Organization (WHO) declared it as a disease in global emergency. He estimated that approximately eight million people fell ill annually from this cause, 1.1 million deaths and 350,000 deaths associated with HIV / AIDS infection. 95% of tuberculosis deaths occurred in low- and middle-income countries, being one of the three leading causes of death in women between 15 and 44 years of age. This organization believes that if epidemiological control of the disease is not improved by 2020, about 1 billion people will contract the

infection. [1-3] It is estimated that the world could move towards eliminating tuberculosis if the support of governments aimed at the fight against poverty and growing inequality is maintained and strengthened, in addition to incorporating universal access to tuberculosis care in public health programs in general. [4-5]. TB notification rate in Cuba in 2018 was 5.8 x 100,000 inhabitants. La Havana Province, however, closed above the national average with 9.6 x 100,000 inhabitants and the Boyeros municipality reached a rate of 5.1 x 100,000 inhabitants, results that are paradoxical if one takes into account that the municipality is stratified as high risk and that has a historical behavior above even the national average. [6]. Cuba, in terms of prevention and control of this disease, met the goals set by the WHO for the year 2015 (detect 70% of new cases, cure 85% and of them guarantee treatment,

maintain the sustainability of the Program National and have the political will to achieve it) that is why the current challenge is to achieve the elimination of tuberculosis in the country, for this a rate of 1 case per million inhabitants must be achieved. [7-8]. Several authors agree that program evaluation uses methods and techniques typical of social research, but it is an independent disciplinary field with specific objectives and challenges, such as the establishment of recommendations to improve programs and political negotiation. [9]. Boyeros municipality is considered a high-risk municipality, which historically maintains incidence rates above the provincial average, being one of the municipalities that drags the province in the negative results of the program, taking into account all the above, As well as the slow decrease in the incidence rate, the absence of previous studies published on the subject is that it is decided to carry out this research, in order to identify the existing gaps and provide new scientific knowledge for the adaptation of global strategies for put an end to tuberculosis as a health problem and improve the quality and health status of the population. Therefore, we propose as an objective: to evaluate the quality of the National Program for the Prevention and Control of Tuberculosis in Boyeros, 2018.

2. Material and Methods

A tactical health systems and services evaluation study was carried out through its components: structure, process and results.

The universe consisted of the total number of human resources that participated in the execution of the program in the 7 health areas that exist in the municipality, 10 new cases of tuberculosis, 190 family doctors and nurses, 32 laboratory technicians from the areas, 28 statisticians from the seven

health areas, seven: health promoters, deputy directors of Hygiene and Epidemiology, specialists in Internal Medicine and specialists in Pediatrics.

The information was obtained from the bibliographic and documentary review, the interview, observation and questionnaire. Information sources: Interviews with deputy directors of hygiene and epidemiology and heads of human resources, case records from the statistics department, review of notifiable disease cards (EDO), prevalence cards from the statistics department, laboratory records, provincial and municipal databases, medical records of the cases reported in the family doctors' offices, treatment control cards and the epidemiological records of the reported cases.

Instruments validated by the National School of Public Health and used in tuberculosis evaluation studies in health areas of Havana were applied. The values of the chosen indicators were compared with the standards established by the program. Absolute and relative frequencies were used in the analysis. For the final evaluation of the program it was considered: Satisfactory: when the three dimensions were evaluated as acceptable. Unsatisfactory: when at least one of the dimensions (process or result) was evaluated as not acceptable or both, regardless of the result of the evaluation of the structure.

3. Results

In the structure dimension, of the 20 criteria evaluated, seven were insufficient, which represented 35%, table 1, medical and nursing coverage was not met in the seven health areas with 76.3% and 88.4%. The existence of a deputy director of hygiene and epidemiology is breached in 57.1%, epidemiologist coverage only reached 14.2%.

Table 1. Evaluation of the structure. Boyeros Municipality. 2018.

Criterion	No	%	Standart	Evaluation
Family doctor coverage	145	76.3	100%	Insufficient
Family nurse coverage	168	88.4	100%	Insufficient
Existence of deputy director of hygiene and epidemiology	4	57.1	100%	Insufficient
Existence of an epidemiologist	1	14.2	100%	Insufficient
Training on the subject for family doctors and nurses.	0	0	100%	Insufficient
Availability of flasks to carry out sputum.	95	50	100	Insufficient
Availability of reagents for diagnosis.	95	50	100%	Insufficient

Fuente. Plantilla de recursos humanos y materiales, dirección municipal de salud.

Training for family doctors and nurses was insufficient as it was found that there was no evidence in the last two years that training courses on the subject were held in the municipality.

The availability of bottles and reagents was insufficient, not complying with the established standard since only 50% was reached. The rest of the indicators were evaluated as sufficient.

General evaluation of the structure dimension in the municipality was insufficient for not complying with the proposed standard (80%) for this dimension.

In the process dimension, 20 criteria were evaluated, of which (55%) were considered unsuitable, table 2, in all areas

the indicator of 0.5% uptake of respiratory symptoms plus 21 days (SR + 21) detected is not met in internal medicine, general medicine and pediatric consultations. The proportion of second samples was breached in 87.8%. The proportion of cultures considered the gold standard for tuberculosis diagnosis was not met, reporting 82.0%.

Cases must be notified in the first 48 hours after the patient is diagnosed, however in the study it was met in 10%, that is, in only one case, related to a woman under 15 years of age, in the rest of the cases they were diagnosed in the past 48 hours.

Table 2. Evaluation of the process activities. Boyeros Municipality, 2018.

Criterion	No	Resultado %	Standart	Evaluation
Proportion of SR + 21 detected in consultations.	189	0.2%	0.5%	Not suitable
Proportion of second samples.	166	87.8%	90%	Not suitable
Proportion of crops grown.	155	82.0%	95%	Not suitable
Cases notified in a timely manner.	1	10%	< 48 horas	Not suitable
Proportion of epidemiological surveys completed correctly	4	60%	100%	Not suitable
Average number of contacts per case	8	53,3	15 contactos	Not suitable
Time between 1st symptoms and consultation.	42 días		30 días	Not suitable
Time between first symptoms and diagnosis of TB.	80		32 días	Not suitable
Time between diagnosis and start of treatment	8	40%	2 días	Not suitable
Duration of focus control.	25 días	0%	15 días	Not suitable
TBp cases with positive smear microscopy diagnosed in APS.	4	40%	80%	Not suitable

Fuente. Bases de datos y Encuestas epidemiológicas de casos tuberculosis

The indicator of the time between the first symptoms and consultation is not met, exceeding 30 days, nor the time between diagnosis and start of treatment: it is only reached in 40% of cases. The duration of the outbreak controls was breached in all the diagnosed cases, lasting more than 25 days on average. Only 40% of the cases reported with positive smear microscopy were diagnosed in primary health care.

The evaluation of the process dimension was not adequate as it did not reach the established standard.

To evaluate the results dimension, 9 criteria were taken into account, of which 4 were evaluated as unsatisfactory, 44.4%. Proportion of cured: in the same the program establishes that it must reach 90%, however in the study only 30% was achieved, Table 3.

Table 3. Evaluation of results, Boyeros municipality, 2018.

Criterion	Result	Standard	Evaluation
Proportion of Cured patients.	30%	90%	Not acceptable
Relapse Rate	20%	Menos de 2%	Not acceptable
Loss of follow-up	30%	0	Not acceptable
Patients notified with TB / HIV-AIDS coinfection	10%	0	Not acceptable

Fuente: Base de datos de la UMHE

The proportion of relapses reached 20%, loss to follow-up 30%, and according to the program it should be equal to or less than 2%.

The evaluation of the result dimension was not acceptable as it did not reach the established standard of 80% of the criteria evaluated as acceptable. The existing gaps in compliance with the tuberculosis control program in the Boyeros municipality were evaluated as unsatisfactory, since out of a total of 49 criteria, 48.9% of them were unsatisfactory.

4. Discussion

When there are no doctors and nurses in 100% of the clinics, the execution of actions to control the focus of communicable diseases is committed, their presence and active leadership in the community being essential for better control and absolute control of the area and thus prevent their spread. [10] This result coincides with the study by Rosado et al., Who found that there was no availability of the binomial, 65.5% of medical coverage and 91.3% of nurses. [11] Unlike the results found in other studies, [12, 13] where human resources are evaluated as satisfactory. Failure to train human resources has a negative impact because what is not thought is not diagnosed and if the staff is not trained it is impossible for the disease to be diagnosed in a timely manner, if one takes into account that this program is subject to systematic updates according to behavior of the disease in the national and international context. This aspect could be related to the

poor results achieved by the program in terms of late diagnosis of cases. Bottles and reagents are vitally important resources considering that the first sputum sample must be taken in the office under the supervision and advice of the nurse, this allows better diagnostic opportunities. This result agrees with the literature. [14] and differs from what was found in other studies where training is evaluated as acceptable. [15]. The investigation of respiratory symptoms is the first of the activities to be carried out by family doctors aimed at finding cases to find the largest number of patients and prevent them from infecting new cases. The main cause of non-compliance with this indicator stands out: "the failure to identify vulnerable groups". Failure to comply with the second samples and the culture indicator demonstrate the organizational difficulties in the program and the possibility of timely diagnosis. This result agrees with the literature. [16]. The unfavorable behavior in the treatment of patients could be related to the lack of control of doctors and nurses by not adequately scheduling established field visits to patients, not daily supervising compliance with anti-tuberculosis treatment, or being focused mainly on other activities, in addition to indiscipline on the part of patients who frequently abandon treatments. These results coincide with the literature consulted where the proportion of cured patients was evaluated as not acceptable with ranges that ranged between 60 and 80%. [17, 18]. The loss of follow-up speaks in favor of the indiscipline of the patients when they comply with their treatment, which they abandon, having no

perception of risk about their disease. The final evaluation of the result dimension was not acceptable as it did not reach the established standard of 80% of the criteria evaluated as acceptable. The existing gaps in compliance with the tuberculosis control program in the municipality were evaluated as unsatisfactory, this could be due to the lack of material resources, the lack of training of the family doctors and nurses in relation to the program, the failure to investigate vulnerable groups, as well as non-compliance with the essential process indicators in the final results of the program, all this leads to late diagnosis of cases, that is, they are not diagnosed in primary health care. The results obtained in the investigation were compared with similar studies which were also insufficient. [19]

5. Conclusions

The lack of human and material resources, the lack of training on the subject, the failure to comply with the diagnostic times, the existence of relapses, loss of follow-up, led to the evaluation of the National Tuberculosis Control Program in the Boyeros municipality, was evaluated as unsatisfactory, since the standards established for each dimension were not met.

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