

What are the Experiences and Barriers in Tuberculosis Directly Observed Treatment Short Course (Dots) Implementation in Northern and Muchinga Provinces of Zambia?

Davies Chisenga Kalunga^{1,2*}, E Sinkamba¹, Chomba Obbie¹, Phiri¹, Chibeka Brian¹, S Phiri^{1,2} and M Kabwe^{1,2}

¹Kasama General Hospital, Zambia

²Provincial Office, Mbala General Hospital, Zambia

*Corresponding Author: Davies Chisenga Kalunga, Kasama General Hospital and Provincial Office, Mbala General Hospital, Zambia

DOI: 10.31080/ASPS.2020.04.0462

Received: December 06, 2019

Published: December 23, 2019

© All rights are reserved by Davies Chisenga Kalunga, et al.

Abstract

Today, tuberculosis is still one of the major public health problems in many places in the world especially in Africa and Asia. The aim of the study was to determine the experiences and barriers in tuberculosis directly observed Treatment Short course implementation in Northern and Muchinga provinces of Zambia. The sample was composed of data from 12 districts of Northern and Muchinga provinces. Two tools were utilized in this study: A structured interview questionnaire to collect data about experiences and barriers in tuberculosis dots implementation; and an observational checklist for assessing dots implementation. Results revealed that significant experiences and barriers were highlighted. This study concluded that 8/12 districts had a minimum count of 0.04 of all the 23 variables meaning they had more barriers and experiences than the 4/12 districts which were above the significant level. The study recommended that barriers like long distance to drug collecting points, inadequate transport; inadequate TB corner nurses, treatment supporters, drug stock outs and poor referral system especially in international borders in adequate funds and HIV/AIDS co infection, reduced notifications, be improved in order to achieve the 2015 MDG because of the many barriers to Directly observed Treatment Short course.

Keywords: Directly Observed Treatment Short (DOTS); Experience; Barriers; Tuberculosis

Introduction

Tuberculosis (TB) is a bacterial disease caused by infection with *Mycobacterium tuberculosis* (Myco tb). *M. tuberculosis* is transmitted by air borne and spread in infectious droplets that are produced when an infected person coughs or sneezes. The droplets containing the *Mycobacterium* can remain in the air a long time, but their concentration is reduced by good ventilation and killed by exposure to ultra-violet light such as sunlight [1]. Directly observed treatment short course was introduced to promote patient's adherence, to achieve universal access to high quality diagnosis and patient - treatment, to reduce the human suffering and socioeconomic burden associated with TB, to protect the poor and vulnerable populations from TB, TB/Human immunodeficiency virus and Multidrug-resistant TB(MDRTB). Therefore this study wishes to determine the barrier and experiences to this strategy.

Global epidemiology

The world health organization declared tuberculosis as a global emergency in recognition of its increasing infection and mortality rates [2]. In 2006 there were 9.27 million new TB cases and approximately 2 million deaths due TB. Most of the estimated number of cases was 55% in Asia and 31% in Africa with small propor-

tions of cases in the Eastern Mediterranean Region (6%), European region (5%) and the region of the Americas [3].

Zambia epidemiology

TB continues to be among the major public health problems in the country, more than 40 years after launching a first TB control programme. The number of TB has steadily increased from 4,572 cases in 1964 and 5,8070 cases in 2004. The majority of cases appear in young adult population groups aged 15 to 45 years the same age group affected by HIV/AIDS. The rapid increase tuberculosis in Zambia from 1985 onwards is mainly attributed to the HIV epidemic, but other factors like population growth, urban overcrowding and improved case detection have also contributed [4]. In 2006, Zambia notified 51,179 patients of TB (all forms), giving a notification rate of 466/100,000. This number is more than 5 times higher than the amount of TB that was found in Zambia in the pre-HIV era. The WHO estimated the TB incidence of all forms of TB to be 64,632 in 2006 and therefore, this translated into a case detection rate of all forms of TB to be 79% (TB and TB/HIV Manual, 2008). In 1994 an internationally recommended strategy for Tuberculosis (TB) control was launched which later was named Daily observed treatment Strategy (DOTS), introduced by World health Organiza-

tion (WHO) in the year 2000. The vision of the strategy was a world free of Tuberculosis whose goal was to drastically reduce the global burden of TB by 2015 in line with the millennium development goals (MDG) and the stop TB partnership targets. The stop TB Strategy objectives were: to achieve universal access to high quality diagnosis and patient - treatment, to reduce the human suffering and socioeconomic burden associated with TB, to protect the poor and vulnerable populations from TB, TB/Human immunodeficiency virus and Multidrug-resistant TB (MDRTB), support development of new tools and enable their timely and effective use. Targets linked to the MDGs and endorsed by stop TB partnership were that by 2005, detect at least 70% of new sputum smear positive TB cases and cure at least 85% of these cases under DOTS, by 2015, reduce the prevalence of and deaths due to TB by 50% compared to 1990 levels. This means reducing prevalence to 150 cases per 100,000 population or lower and deaths to ~15 deaths per 100,000 populations per year or lower by 2015 including TB cases co infected with HIV. The number of people dying from TB in 2015 should be less than 1 million. By 2050 Global incidence of active TB will be less than 1 case per million populations per year. Zambia adopted the new stop TB strategy in 2006 and has remained at the heart of TB control the strategy is called Drug Observed Treatment Strategy (DOTS). This strategy consists of five technical main technical elements which are political commitment, case detection through quality assured bacteriology, standard treatment with supervision and patient support, an effective drug supply and management system and a monitoring and evaluation system that incorporates impact measurement. Other newer elements included are: Community and Non-Governmental Organization (NGO) participation in TB care, advocacy, communication and social mobilization and improved management of TB./HIV and drug resistant TB. So far since implementation the strategy has not been evaluated and it is difficult to tell and know whether it is working or not. Therefore this subject of study was appropriate for the TB control in Zambia.

Significance of the study

Tuberculosis is an important public health problem in the world, more people will die from tuberculosis than in any other disease and almost all deaths from tuberculosis are preventable. In relationship to the incidence of tuberculosis, Zambia is ranked among the 22 TB disease burdened countries. The WHO estimated the TB incidence of all forms of TB to be 64,632 in 2006 and therefore, this translated into a case detection rate of all forms of TB to be 79%. Zambia is one of the countries experiencing high TB notification rates of over 500 per 100,000 with an annual increase of 20% with no evidence that the rates of infection are stabilizing. Since 1984 the advent of HIV pandemic, Zambia has experienced a five increase in TB notification rate from 100/100,000 to 532/100,000 with new smear positive case rates of 122 per 100,000 (Ministry of health MOH, 2000). In fact, the estimated TB case rate in Zambia is 656 per 100,000 with projected new smear positive cases as 266 per 100,000 which is unacceptably high.

Aim

To determine the experiences and barriers in tuberculosis dots implementation in Northern and Muchinga provinces of Zambia.

Specific objectives

To determine the experiences and barriers in tuberculosis dots implementation using patients records.

Methodology

This was a prospective descriptive cross sectional study, conducted in the 12 districts of Zambia by using hospital, district health centre registers in order to determine morbidity and mortality rates, with focus group in order to share experiences and discuss the referral system. To conduct focus group interviews with the TB Corner staff and TB treatment supporters at each health facility to evaluate patient compliance, drug accessibility and travel costs by either the patient or treatment supporters. If patients are referred, feedback is provided; also questionnaire are administered at the district office.

Sample

The sample size was composed of data from hospital and district registers from 12 districts of the province under study.

Research instrument (tools)

Two tools were used to collect study data: interview and questionnaire. They were used by the researchers to collect data on the following: political commitment, sustained financing, case detection, external quality assurance, number of defaulters, tracing of defaulters, the reason for failure of tracing and referral system, health education contacts, supporter groups of patients, availability of anti-tuberculosis drugs, supervision by care givers and patients' record.

Statistical analysis

Statistical presentation and analysis of the present studied data were carried out, using the mean, standard deviation, chi-square, linear correlation coefficient and analysis of variance (ANOVA) test and statistical Package of Social Sciences (SPSS), version 16.

Results

The data management tool used is SPSS version 16.0. The asymptotic significance was used as the data was large. The significance level was 0.05 and the standard statistic was 4.6 as the minimum expected count was 0.04 of all the variables.

There were 12 centres under analysis in the study and the findings for all the specific objectives are given in Table 1 below.

All the centres achieved the minimum expected count of 0.04 indicating that they had similar experiences and barriers. The significance level was 0.05 and the standard statistic was 4.6.

Centre	Pearson chi-square	Likelihood ratio	Interpretation
8/12	0.7	1.00	Barriers to DOTS
1/12	0.6	1.00	Few barriers in dots
2/12	0.8	1.00	More barriers in dots
1/12	0.95	1.00	More barriers in dots

Table 1

8/12 districts had a minimum count of 0.04 of all the 23 variables meaning they had more barriers and experiences than the 4/12 districts which were above the significant level.

Variable	Value	df				
Pearson chi-square	1.840E2a	64	0.000	0.000		
Likelihood ratio	94.639	64	0.008	0.000		
Linear-by-linear association	22.000b	1	0.000	0.000	0.000	0.000
Fisher’s exact test	93.688			0.000		
N of valid cases	23					

Table 2

a: 81 cells (100.0%) have expected count less than 5.
The minimum expected count is 0.04.
b: The standardized statistic is 4.690.

Discussion

In the national tuberculosis and leprosy programme tuberculosis manual, the Daily Observed Treatment (DOT) under the Daily Observed Treatment Short course (DOTS) strategy, drugs were administered under direct observation of designated trained observer- this included health care worker, community volunteer or trained relative, drug intake is recorded daily immediately after each intake, the identity and address of the patient is properly recorded and the patient and his relatives are well aware of the importance of daily observed treatment for the sake of the patient’s own health, health staff are available for tracing irregular and defaulting patients in collaboration with local community based organizations [5]. The treatment Centre is supervised by the District TB/Leprosy Officer, at least once monthly but because of the variables observed on the study the above ideal situations have not been implemented. According to the TB manual [6-8] the distances between the health facilities are still in the range between 30 to 50 kilometers for clients to access the microscopy tb diagnostic facility, this not increases the defaulter rate but also provides grounds for resistance development. Experiences included good adherence and drug wastage was minimal, most clients converted after the month intensive phase. In most centers smear microscopy by both Ziehnelson stain (ZN) and fluorescent (FM) methods were scaled up. With this picture in view the challenges seem huge and the number of people dying from TB in 2015 should not be less than 1

million. By 2050 Global incidence of active TB will not be less than 1 case per million populations per year [9-11].

Conclusion

The study shows that it may not be possible to achieve the 2015 MDG because of the many barriers to DOTS strategy. Barriers included long distance to drug collecting points, inadequate transport for the District TB/Leprosy Officer; TB corner nurses, treatment supporters, drug stock outs and poor referral system especially in international borders in adequate funds and HIV/AIDS co infection, reduced notifications, treatment supporter.

Bibliography

1. TB and TB/HIV. Manual (2008).
2. WHO. Global Tuberculosis Report 2012. World Health Organization, Geneva (2012b).
3. World Health Organization. Report Geneva: N 3 (2006): 31-43.
4. Ministry of health. Report (2000).
5. National Tuberculosis and leprosy Programme Tuberculosis. Manual (2008): 51
6. National Tuberculosis and leprosy Programme Tuberculosis. Manual (2008): 52.
7. Wright., *et al.* “Epidemiology of anti-tuberculosis drug resistance 2002–07: an updated analysis of the Global Project on Anti-Tuberculosis Drug Resistance Surveillance”. *The Lancet* 373 (2009): 1861-1873.
8. WHO. Multidrug and Extensively Drug-Resistant TB (M/XDR-TB): 2010 Global Report on Surveillance and Response. Geneva (2010).
9. Zignol M., *et al.* “Surveillance of anti-tuberculosis drug resistance in the world: an updated analysis, 2007–2010”. *Bulletin of the World Health Organization* 90 (2012a): 111-119.
10. Kapata N., *et al.* “Scale-up of TB and HIV programme collaborative activities in Zambia - a 10-year review”. *Tropical Medicine and International Health* 17 (2012): 760-766.
11. Mulenga C., *et al.* “Low Occurrence of Tuberculosis Drug Resistance among Pulmonary Tuberculosis Patients from an Urban Setting, with a Long-Running DOTS Program in Zambia”. *Tuberculosis Research and Treatment* (2010).

Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

Website: <https://www.actascientific.com/>
 Submit Article: <https://www.actascientific.com/submission.php>
 Email us: editor@actascientific.com
 Contact us: +91 9182824667