

Compliance of St. Joseph's Hospital Roma, Lesotho with the National Tuberculosis Programme of Lesotho, 2007/2008

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By



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Declaration

I, Oladoyinbo Olarotimi Samuel, hereby declare that the work which I hereby submit as partial fulfillment for the degree of Mmed (family medicine), on which this thesis is based, is original (except where acknowledgement indicates otherwise) and that neither the whole work nor any part of it has been submitted, or is being submitted, for another degree at this or any other university

Dr Oladoyinbo

Date 25/10/2010

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Oladoyinbo O S

Abstract

Background and Objective: Most National Tuberculosis Programmes (NTPs) have focused their efforts on reaching the short-term internationally recommended TB control targets set in 2005 by the World health assembly;-a case detection of 70% with successful treatment of 85% of the detected cases. The National TB programme of Lesotho registered 3976 sputum smear positive cases for TB treatment in 2008, 73.5% (2834) of which were successfully treated. This falls short of the global target of at least 85% treatment success rates. The national TB programme has lamented over the last 5 years for its inability to meet targets set by the WHO for measuring effective TB programmes, because of the inability of most of the hospitals to fully implement the national TB programmes as recommended. Most of the hospitals running TB programmes in the country still have difficulty blending the clinical and programmatic components of TB treatment together, hence explained the poor treatment outcome seen over the past years. In view of this perceived gap, an investigation into programme compliance by the hospitals serving as TB roll out centres is warranted. The aim of the study was to evaluate the implementation of the national TB program in St. Joseph's hospital Roma, Lesotho (which happens to be one of the district hospitals in Lesotho providing TB service delivery), and also to come up with recommendations that will improve TB treatment outcome where gaps are identified and subsequently improve the TB programme in the hospital and contribute towards improving the overall TB programme for Lesotho.

Methods: A retrospective cohort study design was used. The study was carried out on the records of TB patients who were treated at St. Joseph's hospital Roma, Lesotho in 2007 and 2008. All patients treated for TB within the specified period were consecutively selected for the study, except for those

who did not meet the inclusion criteria. Nine hundred and ninety three (993) TB patients' records were evaluated, for 2007 (509 records were evaluated) and for 2008 (484 records were evaluated).

Results: There was a marginal improvement in the case detection of smear positive patients, sputum conversion rate, TB treatment outcome such as cure rate, mortality, treatment failure, defaulters, transferred outcome and TB/HIV collaborative activities such as HIV testing among TB patients, cotrimoxazole and antiretroviral uptake among TB/HIV co-infected. In terms of comparison of the targets achieved with the targets set by the national TB programme of Lesotho, targets were met in defaulter and treatment failure rates, but were not met in case detection of smear positive pulmonary TB, sputum conversion rate, cure rate, mortality rate, treatment success rate, HIV testing uptake among TB patients, cotrimoxazole uptake among TB/HIV positive patients and ARVs uptake among TB/HIV positive patients.

Conclusions: Although the national TB programme has got good monitoring and evaluation tools, these are mainly reporting tools. In-house result analysis, individual case studies and overall programme management evaluation are invaluable assets to control and improve programmes. There was a significant improvement in St. Joseph's TB programme, especially in the case detection of smear positive PTB, defaulter and treatment failure rates, TB/HIV co-infection detection and ARVs uptake among eligible patients, in 2008. However, meeting targets in sputum conversion, treatment outcome is still a big challenge, hence the need for implementation of the recommendations made in this document to close the identified gaps and Improve TB service delivery in the hospital.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

Literature review

The “STOP TB Partnership” launched in 2005 is global plan to stop TB that includes strong commitment to providing equitable access for all to quality tuberculosis diagnosis and treatment. One of the motivations for this plan is the inclusion of the Millennium Development goal to halt the TB epidemic. Achieving this goal relies on diagnosis of at least 70% of people with smear-positive TB and curing at least 85% of them, as recommended by the World health assembly and international standard for tuberculosis care.¹⁻² This standard set an acceptable level of care that all providers should adhere to in managing patients who have TB or are suspected of having TB. According to these standards, all persons with unexplained cough for 2-3 weeks or more should be assessed for TB, including at least two sputum microscopy examinations.² Compliance with these standards is expected to assist National TB programmes (NTPs) in reaching TB targets for diagnosis and treatment. Early diagnosis and adequate treatment of infectious pulmonary tuberculosis patients are essential to reducing transmission of tuberculosis and lead to its subsequent elimination. An effective National TB programme (NTP) is defined as one that has a high treatment success rate, a low level of acquired drug resistance and high case detection rate.³ Compliance with the national TB programme guidelines is expected to optimize the care of patients, improve outcome and prevent further transmission. Previous research has shown varying levels of compliance with national tuberculosis guideline in areas, such as notification and treatment outcomes.⁴⁻⁸

Modern TB control is based on early detection and treatment, particularly of infectious cases. Treatment generally is effective, if accurate diagnosis and prompt treatment is initiated; the average

global cure rate was 84.7% for smear- positive cases treated in 2005 following recommendations of the international standards for tuberculosis care implemented by most NTPs, especially in countries with high TB disease burden.⁹ Treatment therefore, has a direct impact on the prevalence of disease and mortality. Furthermore transmission is reduced, as infectious cases become non-infectious once treatment is started. In addition to the primary goal of TB control (early detection and treatment), national TB programmes or health authorities can influence the flow of individuals coming to access services (TB, HIV or other forms of chronic disease management) at the clinic or hospital by implementing appropriate 'infection control' strategies (ensuring adequate ventilation in health centers, minimizing contact between infectious and susceptible individuals in order to reduce transmission, by providing preventive treatment "isoniazid preventive treatment"(IPT) to infected individuals who do not have TB disease and by collaborating with the national acquired immunodeficiency syndrome(AIDS) programmes to identify and provide appropriate care for HIV infected TB patients. Progress in TB control so far, has been measured principally in terms of the implementation of DOTS.¹⁰ Data collected by the end of 2007 allowed the WHO to assess in which countries and regions the targets for 70% case detection and 85% treatment success set for 2005, were met by the end of 2006.¹⁰

Epidemiology of TB

Based on surveys of the prevalence of infection and disease, on the assessments of performance of surveillance systems and death registrations, there were an estimated 9.2 million new cases of TB in 2006, of which 4.1 million were smear positive.¹¹ The WHO African region had the highest estimated incidence rate (363 per 100,000 population), but the majority of TB patients lived in the following countries: - Bangladesh, China, India, Indonesia and Pakistan. These countries have almost half of the world's population (46%) and produced half (48%) of all the new TB cases arising worldwide in 2006.¹¹ The global burden of TB is growing, driven largely by the HIV associated TB epidemic in sub-Saharan

African, while the incidence of TB is stable or declining in other regions. In southern Africa countries, where HIV-infection prevalence is highest, more than half of all the new cases are HIV infected. For instance, in rural Malawi, the proportion of new smear positive TB cases attributable to HIV-infection increased from 17% in 1998-1999 to 57% in 2000-2001.¹² South Africa ranked fifth on the list of 22 high-burden tuberculosis (TB) countries in the world. According to the World Health Organization's (WHO's) Global TB Report 2009, South Africa had nearly 460,000 new TB cases in 2007, with an incidence rate of an estimated 948 cases per 100,000 population – a major increase from 338 cases per 100,000 population in 1998. Annual incidence rates of about 10% are also described in HIV infected patients in South Africa regardless of tuberculin skin test status.¹³ These annual incidence rates are extremely high compared to the estimated 10% lifetime risk of active TB following latent TB infection in people without HIV infection. However, the risk of TB increases early in HIV infection, doubling within the first five years.¹⁴

TB situation in Lesotho

HIV and TB are major public health problems in Lesotho. According to the World health organization (WHO) Global report 2009, Lesotho has the fourth highest estimated TB incidence (696 TB patients per 100,000 Population) in the world.¹⁵ The estimated prevalence of TB is 544 per 100,000 population equivalent to 11,968 TB cases at any point in time. The estimated incidence of sputum smear positive cases is 281 per 100,000 population which equals 6,182 cases annually with 75% new cases among age-group 15-44 years. The estimated TB mortality is 107/100,000 annually which equals 2,354. About 80% of TB cases are HIV positive.¹⁵ The national TB programme of Lesotho registered 3976 sputum smear positive cases of TB in 2008, and reported the following treatment outcome indicators at the end of 2009 through the (WHO) Global report; success rate(73.5%) cure rate(64.4%) defaulter rate(3.8%)

treatment failure rate(2.4%), transfer out rate(1.9%) and programme patients not evaluated were (3.8%)

Case detection

Over the 12 years (1994-2006), a total of 30 million TB patients were diagnosed and reported under DOT programmes world wide. In 2006, DOT programmes worldwide reported 5.3 million new and relapse cases among which 2.5 million were smear- positive. This gives a smear positive case detection rate of 61%, shorts of the 70% target. The estimated case detection rates by DOT programmes increased linearly from 12% globally in 1995 to 23% in 2000. Case detection then accelerated and, though it has slowed somewhat since 2004.¹⁶

Treatment success

Of 2.4 million smear positive patients registered for treatment under DOT in 2005, 2.0 million (84.7%) were successfully treated (i.e cured judged by sputum conversion, or completed treatment without final smear examination), just short of the 85% target. The global treatment success rate under DOTS has been high since the first observed cohort in 1994 (77% of 245,000 patients), and has remained above 80% since 1998.¹⁷ For patients diagnosed in 2005, the 85% target achieved was reached by eight of the 22 high- burden countries, and by WHO regions in (South-East Asia, Western pacific). In the four regions that did not meet the target , the reasons for poor result were high rates of death (Africa, Europe), treatment failure (Europe) and unknown outcomes through default, transfer without follow up or evaluation (Africa, America, Eastern Mediterranean and Europe).^{17,18}

Organization of National Tuberculosis control programmes

It is currently accepted that to have the desired effect of decreasing the burden of TB in a given population, a TB control programme must be able to detect at least 70% of the estimated cases of

smear-positive pulmonary TB and successfully treat and or cure at least 85% of these cases and to sustain this level of performance over a prolonged period of time. To achieve the goals of high case detection and high cure rates, the national TB programme (NTP) must have a presence that is nationwide, permanent and based upon delivery of inexpensive and simplified technologies through health services. Tuberculosis case management, including diagnosis and treatment, has been simplified and standardized so that the general personnel can be trained to diagnose and treat the disease. While this approach is currently recommended for TB care and prevention, most experts agree that there is the need to maintain some form of specialization especially for managerial functions and support of health facilities.^{2, 18} To implement the managerial functions of TB control, most NTPS are currently structured with a central unit (national level) staffed by a national programme manager who takes overall responsibility for activities of the programme.¹⁹

Functions of the national TB control programmes

The NTP has numerous functions shared by different levels of the health care system. The overarching function is the organization and delivery of TB care and prevention services to reach, find and cure all persons with TB. Policy formulation, definition of strategies and planning activities are functions of the national level. Other functions are carried out by other levels with stewardship of the national level. The NTP has capacity for routine surveillance, regular supervision and rigorous monitoring of programme performance. The credibility of the programme is often judged by the quality, timelines, security and supply of the antituberculous drugs it provides. Credibility can be easily damaged by interruptions in the supply or shortage of antituberculous drugs.^{19, 20}

The key functions of NTPs remain the organization and delivery of TB care and prevention services. In particular smear microscopy and antituberculous drugs, are provided free by most TB control

programmes in recognition of the facts that TB is primarily a disease of the poor who are alienated from health services that involve cost recovery schemes.²⁰

The future of national TB control

Most NTPs have focused their efforts on reaching the short-term internationally recommended TB control targets set for 2005. These targets, as earlier discussed were, approved by the WHO Health assembly (WHA) and agreed upon by the international TB technical agencies and progress towards them has recently been evaluated. By the end of 2005, 26 countries had achieved both targets and globally 60% of existing cases were identified and 84% of infectious cases were successfully treated.¹¹

Countries that achieved these targets will have to maintain this level of performance to achieve the Millennium development goal target of halting and beginning to reverse the incidence of TB, and the Stop TB partnership target of having the prevalence and mortality due to TB reduced by 2015 compared with the 1990 levels. For most countries, achieving the MDGs and Stop TB partnership target will involve going beyond the 70/85 targets. Innovative approaches for finding TB cases and supporting patients on treatment will need to be adopted in order to increase cure rates and hence reduce transmission. This entail strengthening of many NTPs, as well as closer coordination with HIV/AIDS programmes supported by national advocacy groups.²¹ Engagement of other sectors beyond health, such as private, educational and development sectors will also be important. A higher level of political commitment at the global, national and sub-national levels will be required to provide additional resources for TB care and prevention.

Weak health system constitute the basic problem in most developing countries and a lot of effort is being put into health sector reforms intended to address the health system weaknesses. NTPs need to be active participants in this process to ensure that essential TB control activities are not negatively affected by reform policies that countries may be adopting. By adopting the innovative approaches such

as Practical Approach to Lung Health (PAL) and supporting the development and implementation of an essential laboratory package among other efforts, NTPs may significantly contribute to the strengthening of the health care system.²¹

TB surveillance

Surveillance is one of the key elements in TB control. The standardization of data recording, collecting and reporting has been crucial in moving forward in global TB control. The annual reports of the World Health Organization (WHO) provides information for all nations and force jurisdictions to be accounted for their progress (or lack thereof) in TB control.¹¹ This has been key in engaging political commitment and has been effective in encouraging those countries that are lagging in their efforts to greater diligence. Nevertheless, the comprehensiveness of the surveillance remains a matter of concern and continuous efforts must be made to ensure a high level of quality.²²⁻²⁴

Motivation for the study

As at the time of conducting this study, no study has been done in Lesotho to assess if any of the district hospitals in the country is complying with the national TB programme. They have only being sending data to the National TB programme for routine monitoring and evaluation exercise, and most of the data sent have been quite disappointing, because targets in the area of case detection of smear positive pulmonary tuberculosis (PTB), sputum conversion rates, treatment outcome and TB/HIV collaborative activities are not being met. The current case detection rate (69%) of pulmonary TB in Lesotho and treatment success rates of (73.5%) were achieved in 2009. Most of the hospitals in the country still has a problem blending the clinical and programmatic component of TB treatment together. A good blend of these two programmes is necessary to improve case detection and treatment outcome in TB patients. Lack of the implementation of the NTP as expected will constitute a public health danger

to the entire community that we serve. In view of this, an evaluation of the TB programme as per compliance with the national programme is warranted in St. Joseph's hospital Roma, (which happens to be one of the district hospitals in the country rolling out TB treatment). In recent times a patient centered approach to TB care and prevention has been advocated on the understanding that public health goals can be achieved if every individual received the best possible care. The national TB programme has lamented over the years for its inability to meet the targets set by the WHO for measuring the effectiveness of the TB programme, hence the need to investigate if St Joseph's hospital, is complying with the national TB programme and come up with recommendations that will improve TB service delivery where gaps are identified.

The Researcher hoped that this study will achieve the following;

- Contribute to the body of knowledge on running the TB programme in St Joseph's hospital Roma, especially in understanding the following ; case detection rate of PTB, diagnostic work up of TB patients, trends in sputum conversion, TB treatment outcome and TB/HIV collaborative activities.
- To identify factors responsible for poor TB programme performance in the hospital, and hence make recommendations that will contribute towards improving TB service delivery in St. Joseph's Hospital.
- To use the findings of this study to stimulate further operational research that will improve the quality of the TB service in the hospital

CHAPTER2

METHODOLOGY

Research question

- How did the TB programme in St Joseph's district hospital Roma Lesotho, perform with respect to clinical management of patients, in comparison with the standard of care set by the National TB programme of Lesotho: During the period 2007/2008?

Aim of the study

- To evaluate the implementation of the national TB program in St. Joseph's hospital Roma, Lesotho.
- To make recommendations that will improve TB treatment outcome where gaps are identified.

Objectives

- To determine the proportion of TB suspects screened and diagnosed for TB by sputum examination or Chest-X-ray or both. This will help determine case detection rate of PTB and mode of TB presentation in the hospital.
- To determine the different category of TB patients (New, relapse, treatment after failure, treatment after default and transfer in) seen in the hospital at the start of TB treatment during the study period.
- To determine sputum conversion rate among smear positive patients, who completed TB treatment within the specified time period.

- To determine TB treatment outcomes among those patients enrolled for treatment, within the specified time period: cure rate, death rate, defaulters' rate, % of treatment success and % of treatment failure.
- To assess TB/HIV collaborative activities: % of HIV testing uptake, % on ARVs, % on cotrimoxazole among TB/HIV co-infected patients.
- To compare Indicators relating to case detection rate, sputum conversion rate and treatment outcome achieved by St. Joseph's hospital with the Lesotho national TB programme targets.

Study design

This was a retrospective cohort study.

Study setting

The study was done at St. Joseph's Hospital Roma, Lesotho. It is a 120 bed district hospital located in Roma, a Semi-urban area in the Kingdom of Lesotho with an estimated population of over 14,000. Roma is about 45km south of Maseru, the capital of Lesotho. The facility serves Roma town and its neighboring villages through 6 primary health care centers located in those villages

Study population

This was the population of all TB patients treated and registered in the TB register in St Joseph's Hospital Roma in 2007 and 2008.

Sampled population: For assessing TB programme in 2007, the sampled population was the population of all TB patients enrolled in the TB register and treated at St. Joseph's in 2007 and for assessing TB programme in 2008, the sampled population was the population of all TB patients treated in the hospital and registered in the TB register for 2008.

Sampling frame

The sampling frame is the TB register (of St Joseph's hospital) for the study period. All patients treated for TB within the specified period were evaluated and included in the study.

Sampling technique

All patients were consecutively selected from the TB register, except for those who did not meet the inclusion criteria.

Inclusion criteria

All patients registered in the TB treatment register in 2007 and 2008 were included in the study, except for those with incomplete records.

Exclusion criteria

All patients who started treatment, but were later transferred to other health facilities outside the hospital catchment area or who did not have their treatment record well documented. This was done because treatment outcome of such category of patients was difficult to work out. In all, 7 records (2007 and 2008 combined) were not included because of poor documentation of treatment outcome in these patients.

Sample size

This was a clinical audit of the performance of TB programme in St. Joseph's hospital. All the patients with complete clinical records in the TB register for 2007 and 2008 were included. In 2007, 509 patients were treated and registered in the TB register and in 2008, 484 patients were treated and registered in the TB register. In all, 993 patients were evaluated.

Measurement

Baseline outcome measurement: This includes; age, sex, mode of diagnosis and mode or type of presentation, % of TB patients offered HIV testing and HIV status documented in the register, % offered Cotrimoxazole and Antiretroviral therapy.

Two or three months intensive phase outcome measurement: Smear conversion at 2months or 3months

Six months end of treatment outcome measurement: number of patients who were cured, completed treatment without smear done at the end of treatment, had treatment failure, died while on TB treatment, treatment defaulters and transferred to another TB treatment facility.

Definition of TB terms (TB case definition and type of TB patients)

TB case definition: TB case definition is defined by the site of TB (which could be pulmonary or extra-pulmonary), severity (extra-pulmonary TB is more severe than pulmonary TB), bacteriology (smear positive or negative) and history of previous TB treatment which could be new or retreatment cases. Retreatment cases can be further subdivided into the following (relapse, treatment after failure, treatment after default, transfer out and chronic TB).

Definition of type of patients

New patients: A patient who had never had treatment for TB or who has taken anti-TB for less than 1 month.

Relapse: A patient previously treated for TB who has been declared cured or treatment completed, and is bacteriologically positive (smear or culture) TB.

Treatment after failure: A patient who is started on a re-treatment regimen after having failed previous treatment.

Treatment after default: A patient who returns to treatment, positive bacteriologically, following interruption of treatment for 2 months or more.

Transfer in: A patient who has been transferred from another TB register to continue treatment.

Others: All cases that do not fit the above definition. (This group includes **chronic case**, a patient who is sputum-positive at the end of a retreatment regimen or a **previously-treated patient** with extrapulmonary or pulmonary TB who returns to treatment and is not bacteriologically positive.)

Definitions of Sputum conversion, cure rate and treatment success

Cure: Sputum smear-positive patient who is sputum smear-negative in the last month of treatment and on at least one previous occasion.

Treatment completed: Patient who has completed treatment but who does not meet the criteria to be classified as a cure or failure (for instance, a patient who did not have bacteriological confirmation at the end of treatment, but was discharged based on radiological findings suggestive of improvement).

Treatment failure: Patient who is sputum smear-positive at 5 months or later during treatment (Also sputum-negative patients who become sputum smear-positive at 2 months).

Died: Patient who died for any reason during the course of treatment.

Default: Patient whose treatment was interrupted for 2 consecutive months or more.

Transfer out: Patient who has been transferred out to another recording and reporting unit and for whom the treatment outcome is not known.²⁵

Definition of sputum conversion, treatment outcomes and success rate

Sputum conversion rate: This is defined as the percentage of new smear positive PTB cases that are smear negative after two months of anti-TB treatment and are therefore no longer infectious.

Numerator: Number of new PTB cases who were smear+ before starting treatment but converted to smear negative after 2 months treatment.²⁵

Denominator: Total number of new smear positive cases registered during the specific time.

Cure rate: This is defined as percentage of cases that are proven to be cured using smear microscopy at the end of treatment.

Treatments success rate: This is defined as the percentage of TB patients cured (TB patients cured judged by sputum conversion + TB patients who completed treatment without final smear examination) at the end of the sixth month of TB treatment.²⁵

Data tools and procedure for data collection

Data collection tools: TB registers 2007 and 2008. The TB register is a reliable and valid instrument recommended by the WHO for running TB programmes in all countries. The TB register in Roma was adapted from the WHO TB register, which was provided to the hospital by the national TB programme of Lesotho for surveillance purposes.

Procedure for data collection: Data was captured from the TB register for the year 2007 and 2008. Data was captured on all TB patients treated from 1st January- 31st December 31st for 2007 and 2008. It was then captured into an Excel spread sheet between October –December 2009, by me and my assistant data collector. Data was collected on the following variables: Age, sex, mode of diagnosis of TB, types of TB presentation (pulmonary or extra-pulmonary), types of TB patients (New, relapse, treatment after

failure, treatment after default and transfer in), sputum result at baseline , 2months and end of TB treatment, treatment outcome was specified for each individual patient (which was any of the following: cured, completed treatments, default, died, treatment failure and transferred out); HIV status, antiretroviral uptake (for those that are TB/HIV co-infected) and lastly cotrimoxazole uptake for those with HIV/TB co-infection. All these variables were now used to work out the Impact factors such as (Cure rate, sputum conversion rate, success rate, defaulter rate, % treatment failure, % retreatment case, % of TB patients offered HIV testing, % eligible TB/HIV patients on ARVs, % of patients classified as either pulmonary or extra-pulmonary TB and lastly % of patients diagnosed through Sputum examination or Chest- X-ray).

HIV related activities such as; voluntary test counseling (VCT), known HIV status, CD4 counts, and cotrimoxazole uptake was also retrieved from the TB register. There were columns in the TB register where each of these variables were entered and well documented.

Data management: Data checking was done on all categorical and continuous variables captured for values that were not within plausible range, and cross checking of variables was also done.

Data analysis

Data was collected on Excel spread sheet and imported to STATA 10.0 for analysis. Descriptive statistics of the sample was done. Comparison of continuous measurements was done with a t-test and categorical measurement was done with a chi-square test. Nine hundred and ninety three (993) patients' records were analyzed in 2007 and 2008. Statistical significant level was set at 0.05. TB indicators achieved by St Joseph's hospital was compared with the national targets set by the Lesotho national TB programme.

Ethical considerations

Confidentiality of the data collected from the TB register was maintained and used for the intended purpose. No reference was made to any patient's name or other details that might compromise confidentiality. Confidentiality of data collected was maintained through the following process;

- A separate code number known as patient's identifier was used during data collection, which was kept separately by me and my data assistant. No reference was made to any patient's name or TB number during data entry or other details that might break confidentiality
- All data was captured in an Excel spread sheet by the TB data assistants under my supervision and effort was made to prevent unauthorized access to it, by coding this data in such a way that it was difficult for anyone who did not participate in the study to be able to interpret unless given the codes.

CHAPTER 3

RESULTS

Table 1. Showed demographic and clinical characteristics of the study population by comparing the various variables captured for 2007 and 2008 with the appropriate statistical tests. In this study, Nine hundred and ninety three (993) records of patients were evaluated. In 2007, 509 records were evaluated and in 2008, 484 records were evaluated. The results of analysis done are described below under the following subheadings;

Socio-demographic characteristics

Crude mean age of presentation at the TB Clinic for 2007 and 2008 was 38.4 years (p -value= 0.70) and pattern of sex distribution was similar for both years, but there was an increase of about 8.6% in the female population that attended the TB clinic in 2008 compared to females who attended in 2007.

Mode of TB diagnosis

Diagnostic work up of TB patients showed an increase of about 30% in the proportion of patients diagnosed by sputum microscopy without Chest X-rays from 110(21.7%) recorded in 2007 to 239 (51.8%) recorded in 2008. There was also a slight increase of about 7% in the proportion of patients diagnosed only by chest- x-rays from 109(21.5%) recorded in 2008 to 142(30.8%) recorded in 2009 (p -value=0.000). It was however, noticed that there was about 32.1% decrease in the proportion of patients diagnosed by the combination of sputum microscopy and chest x-rays from 282(55%) in 2007 to 62(13.4%) in 2008. Diagnosis by other methods either through tissue biopsies, cerebrospinal fluid analysis and other forms of analysis was 18(3.9%) of the total diagnostic work up of the TB patients. 716

(72.1%) of the total patients seen in 2007 and (68.5%) of those seen in 2008 had baseline sputum examination.

TB presentation

In terms of the mode TB presentation, of the 993 patients evaluated 332(33.4%) had smear positive pulmonary TB, 447(45.0%) had smear negative pulmonary TB and 214(21.6%) had extra-pulmonary TB. However, there was an increase in the detection of smear positive pulmonary TB from 147(28.9%) in 2007 to 169(36.8%) in 2008 and a reduction in the proportion of smear negative pulmonary TB cases from 300(59.1%) in 2007 to 140(30.4%) in 2008, and an increase in extra-pulmonary TB from 61(12.0%) in 2007 to 152(32%) in 2008 (p-value=0.000).

Types of TB cases

In terms of the type of TB cases, of the 993 cases evaluated 873(88.7%) were new TB cases, 74(7.4%) were TB relapse cases and the remaining 12(3.69%) were cases of TB treatment failure, treatment after default and transfer out. Similar pattern was noticed in 2007 and 2008 (p-value=0.000)

TB treatment outcome

In terms of TB treatment outcome, of the 993 evaluated, 253 (25.4%) were declared cured (smear examination was negative after completion of TB treatment), 501(50.5%) completed treatment (these category of patients completed treatment, but did not have smear examination), 10 (1.0%) had treatment failure (did not convert from smear positive to negative by the 5th months of TB treatment), 162 (16.3%) died in the course of TB treatment, 7 (0.7%) defaulted treatment (these category of patients interrupted treatment for more than 2months) and 60 (6.0%) of the patients were transferred out to other health facilities on patients request, outcome of these set of patients were not known. Stratified

analysis showed that there was about 10% increase in the cure rate recorded in 2008(29.9%) compared to 19.9% cure rate reported in 2007. All other outcomes compared in 2007 and 2008 showed similar pattern (p-value=0.000).

TB/HIV collaborative activities

In terms of TB/HIV collaborative activities, of 993 patients evaluated 760 (76.7%) had HIV testing, of which 592 (77.7%) had positive HIV results. Also, 338 (65.5%) of the TB/HIV patients were commenced on antiretroviral treatments in the course of the TB treatment. Stratified analysis based on programme year 2007 and 2008 showed an increase in HIV testing among TB patients from 353 (69.5%) in 2007, to 388 (84.5%) in 2008. There was also about 10% increase in the TB/HIV co-infection rates among TB patients from 280 (55.1%) in 2007 to 297 (64.7%) in 2008. Cotrimoxazole uptake among TB/HIV infected patients showed marginal increase from 60.3% to 69.7% and there was about 60% increase in the proportion of TB/HIV co-infected patients on ARVs in 2008(277(93.3%) compared to 2007(97(34.6%) (P-value=0.000). The mean CD4 counts of TB/HIV co-infected patients admitted into the TB programme in 2007 was (146.13cells/UI), 2008 (171.2 cells/UI,) and the crude Cd4 counts for both years combined was 163.1cells/UI (p-value= 0.24).

Table 1: Demographic and clinical characteristics of the study population (mean (sd), n (%))

Variables	Crude analysis	Stratified analysis 2008	Stratified analysis 2009	P-value
Mean age of presentation	38.4(15.0)	38.6(14.8)	38.4(15.2)	0.7
Sex				
Male	569(57.3%)	271(53.3%)	285(61.8%)	0.008
Female	424(42.7%)	231(46.7%)	176(38.2%)	0.008
Mode of diagnosis				
1.Sputum microscopy only	370(37.3%)	110(21.7%)	239(51.8%)	0.000
2. Smear microscopy + Chest X-ray	346(34.8%)	282(55.5%)	62(13.4%)	
3. Smear microscopy + Tissue biopsy	5(0.5%)	5(0.98)	0(0%)	
4. Chest X-ray only	251(25.3%)	109(21.5%)	142(30.8%)	
5. Others(CSF analysis, etc	21(2.1%)	2(0.39%)	18(3.9%)	
Mode of TB presentation				
1. Smear positive PTB.	332(33.4%)	147(28.9%)	169(36.7%)	0.000
2.Smear negative PTB	447(45.0%)	300(59.1%)	140(30.4%)	
3.Extra PTB	214(21.6%)	61(12.0%)	152(32.9%)	
Type of TB cases				
1.New TB	873(87.9%)	445(87.6%)	409(88.7%)	
2.Relapse TB	74(7.4%)	54(10.6%)	17(3.7%)	
3.Transfer in	1(0.1%)	0(0%)	1(0.22%)	0.002
4.Treatment after default	6(0.6%)	5(0.9%)	1(0.22%)	
5.Treatment after failure	2(0.2%)	0(0%)	2(0.43%)	
6.Others	36(3.7%)	4(0.8%)	31(6.7%)	
Sputum conversion	51.3%	48.8%	53.1%	0.078
TB treatment outcome				
1.Cure	253(25.4%)	101(19.9%)	138(29.9%)	
2. Treatment completed	501(50.5%)	279(54.9%)	216(46.9%)	
3.Treatment failure	10(1.0%)	6(1.2%)	4(0.87%)	0.004
4.Died	162(16.3%)	87(17.1%)	72(15.6%)	
5. Treatment defaulted	7(0.7%)	3(0.6%)	4(0.8%)	
6. Transferred out	60(6.0%)	32(6.3%)	27(5.9%)	
TB/HIV collaborative activities				
1.HIV testing uptake	760(76.7%)	353(69.5%)	388(84.5%)	0.000
2.TB/HIV co-infected	592(59.4%)	280(55.1%)	297(64.7%)	0.000
3TB/HIV co-infected patients on ARVs	388(65.5%)	97(34.6%)	277(93.3%)	0.000
4 TB/HIV co-infected patients on cotrimoxazole	270(45.6%)	169(60.3%)	207(69.7%)	0.000
Mean Cd4 counts	163.10(161.43)	146.13(173.72)	171.20(155.08)	0.24

Comparison of outcome indicators with the national target TB targets

Table2. Showed comparison of Targets achieved by St. Joseph's TB programme with the national target set by the Lesotho national TB programme for 2007 and 2008.

Case detection indicators

There was an increase in notification of pulmonary smear positive TB from the baseline value of 28.9% (2007) to 36.7% reported in 2008, though still less than the (national target of at least 50%).

Sputum conversion indicators

An increase from baseline value of sputum conversion (new smear positive pulmonary TB) from 48.8% to 53.1% was noticed (national target is >85%).

Treatment outcome indicators

There was an improvement of about 20% in cure rate by the end of 2008 (from 10.9% in 2007 to 29.9% in 2008), though this was still far below the national target of 85% and above. However, treatment success increased from (74.2% in 2007 to 76.8%) in 2008, 8.2% less than the national target of 85% and above. There was no significant fluctuations in the defaulter rate between 2007 and 2008, defaulter rates was less than 1% in both years, 0.6% and 0.8%(national target <5%). There was a 2% reduction in mortality by the end of 2008 from (17.2% in 2007 and 15% in 2008), national target (<5%)

TB/HIV collaboration indicators

In terms of TB/HIV collaboration activities; the proportion of TB patients offered HIV counseling and testing increased from 69.9% in 2007 to 84.7% in 2008(national target 100%) and the proportion of HIV positive TB patients started on cotrimoxazole increased by 7% from 60.3% in 2007 to 67.5% in

2008(national target 100%). An increase of about 60% was seen in the proportion of HIV positive patients eligible for Haart and commenced on it by the end of 2008. In 2007 (30.2%) of those eligible for HAART were commenced, and by the end 2008 it had increased to (93.3%), national target (100%).

Table 2: Comparison of Targets achieved by St. Joseph’s TB programme with the national target set by the Lesotho national

Indicators	Target achieved by St. Joseph’s hospital (2007)	National Target set by the National TB programme of Lesotho (2007)	Target Met(2007) Yes or NO	Target achieved by St. Joseph’s hospital (2008)	National Target set by the National TB programme of Lesotho (2008)	Target Met (2008) Yes or No
1. Proportion of TB Cases who were smear positive detection	28.9%	At least 70%	No	36.7%	At least 70%	No
2. Sputum conversion rate at 2 months	48.8%	>85%	No	53.1%	>85%	No
3. Cure rate	19.9%	>85%	No	29.9%	>85%	No
4. Treatment success rate	74.8%	>85%	No	76.5%	>85%	No
5.Defaulter rate	0.6%	<5%	Yes	0.8%	<5%	Yes
6. Mortality rate	17.1%	<5%	No	15.6%	<5%	No
7. Treatment failure rate	1.2%	<5%	Yes	0.8%	<5%	Yes
8.Proportion of TB patients offered HIV testing and counselling	69.5%	100%	No	84.5%	100%	No
9. Proportion of HIV positive TB patients started on cotrimoxazole	60.3%	100%	No	69.7%	100%	No
10. Proportion of HIV positive patients eligible for ARVS who are on Haart.	34.6%	100%	No	93.3%	100%	No

Summary of results

Demographic and clinical presentation of patients (2007 and 2008)

- There was no difference in the median age of presentation of TB patients in 2007 and 2008
- More males attended the TB programme in 2007 and 2008
- There was a decrease in sputum bacteriological coverage of patients from 77.2% recorded in 2007 to 65.2% by the end of 2008. There was an increase in practice to diagnose patients with TB by chest X-ray, instead of sputum smear examination requested by the NTP.
- Mode of TB presentation showed significant reduction in Smear negative PTB (from 59.1% recorded in 2007 to 30.4% by the end of 2008), but an increase in the detection of smear positive patients from 28.9% in 2007 to 36.7% by the end of 2008. There was a significant increase in extra-pulmonary TB from 12.0%, to 32.9% by the end of 2008.
- There was no change in the pattern of TB presentation in the patients in 2007 and 2008. New TB cases treated in 2007 was (87.6%) and 2008 was (88.7%). Cases of retreatment, transfer in, treatment after default, treatment failures and others, accounted for the remaining proportion.
- Sputum conversion showed marginal increase from 48.8% in 2007 to 53.1% by the end of 2008.
- Treatment outcome showed marginal increase in cure rate and treatment success by the end of 2008. There was also marginal decrease in mortality, treatment failure, defaulters and transferred outcome by the end of 2008. Overall, treatment outcome by the end of 2008 showed improved outcome.
- HIV collaborative activities showed improved outcome in HIV testing among TB patients, cotrimoxazole and antiretroviral uptake among TB/HIV co-infected patients.
- There was a decrease in the mean CD4 counts of patients who presented in 2008 (155 cells/UI) when compared to 2007 (173 cells/UI).

Summary of results of indicators when compared with the national TB programme

Ten TB programme indicators were compared in 2007 and 2008 with the national Target.

In 2007 targets were met in the following domain;

- Defaulter rate,
- treatment failure rate,

In 2007 targets were not met in the following domain;

- Case detection of Smear positive pulmonary TB (Should not be less than 70%)
- Sputum conversion at the end of intensive phase
- Cure rate
- Mortality rate
- Treatment success rate
- HIV testing uptake among TB patients
- Cotrimoxazole uptake among TB/HIV positive patients
- ARVs uptake among TB/HIV positive patients.

In 2008, similar pattern was also observed. In effect, out of the 10 indicators of care compared with the National TB programme indicators, St Joseph's hospital was only able to meet 2 in 2007 and 2008.

CHAPTER 4

Discussion

This was a retrospective cohort study that investigated the compliance of St. Joseph's hospital with the national TB programme of Lesotho. A two year evaluation was done to assess the compliance of the hospital's TB programme with the National TB programme. Some of the results were statistically significant. However, the goal of this study is not statistical significance, but clinical implication, for instance HIV testing uptake, cotrimoxazole uptake, ARVs uptake were statistically significant in terms of percentage rise, but from clinical and audit point of view it would be desirable to achieve 100% in order for these indicators to be declared to have met the targets set by the national TB programme.

Study in relation to other studies

Case detection, sputum conversion and treatment outcome

A positive trend was seen in the diagnostic work-up of TB patients coming to St Joseph's hospital (in terms of sputum smear microscopy), an improvement was also noticed in the proportion of patients diagnosed with sputum microscopy only, and sputum microscopy + chest x-ray in 2008 compared to the practice in 2007, where most of the patients that treated were only diagnosed by chest x-rays and no sputum examination. The increase observed from 28.9% in 2007 to 36.7% in 2008 in the proportion of smear positive pulmonary TB reported, could be attributed to the improvement in the diagnostic work up of patients in 2008 and also an indication of better case detection of smear positive pulmonary TB in the study setting. Thought, this figure is still below national minimum targets of at least 70% detection of smear positive TB patients, which is in keeping with the STOP TB strategy.^{2, 16}

The low sputum conversion rates noticed for the period under study was majorly due to the poor diagnostic work up of most of the patients during follow up , about 30% of the patients did not have their sputum evaluated at the end of the intensive phase , but were commenced on 2nd phase of TB treatment by Chest X-ray findings alone without any sputum examination and about 10.2% sputum results collected during follow up were not available for evaluation at the end of the intensive phase, hence they could not be reported as sputum converted or treatment failure.

Results of treatment outcomes (in smear positive patients) showed improvement in reducing unwanted outcomes such as death (from 17.2% to 15%), treatment defaulters' of 0.8% and treatment failure to less than 1%. Meeting targets in cure rate is still a big challenge; this may not be unconnected with the diagnostic work up of the patients that were commenced on TB treatment. The current cure rate of 29.9% is unacceptably low¹⁷ and reasons that the low cure rate identified in this study could be attributed to are; poor sputum conversion during intensive phase (53.0% at the end of intensive phases), and high rate of treatment completed cases (54.5% in 2008). The high treatment completed rate reported could be attributed to high TB/HIV co-infection rate meaning that most of the patients would either present with smear negative TB and extra-pulmonary TB and only few with good immune status could be picked up as smear positives and a similar pattern was observed in this study. Another reason for the high treatment completed cases seen could be due to the fact that most of the patients treated for TB in 2007 and 2008 did not have end of treatment sputum examinations done to confirm cure, so there was no way they could have been described as cured without sputum bacteriological confirmation, hence they were described to have completed treatment (TB treatment), instead of cured. This finding was consistent with the result seen in the diagnostic workup of the patients during TB treatment in 2007 and 2008. This finding could also mean that majority of patients who were started on treatment did not have baseline sputum examination, they could have been solely diagnosed by chest X-rays and only repeat chest x-rays were done at the end of treatment without sputum

examination for bacteriological confirmation of cure. The fact that 50.5% and 54.9% of the TB patients treated in 2007 and 2008 were declared as treatment completed and not as “cured” has serious implications for the interpretation for treatment success in any TB programme. The treatment success rate in any TB programme is defined as addition of cured patients and treatment completed patients (mostly used in smear negative patients) and must be at least 85%. The treatment success rate recorded in the study setting in 2007 was (73.5%) and 2008(76.7%). This implies that majority of the patients treated for TB in 2007 and 2008 were either smear negative patients or extra-pulmonary TB. From public health perspective early diagnosis and adequate treatment of infectious pulmonary tuberculosis patients are both essential for the reduction of tuberculosis transmission and hence, its elimination thereby achieving the targets set by the world health assembly and international standards for tuberculosis care.¹⁸

TB/HIV collaborative activities (HIV testing uptake, Antiretroviral uptake and Cotrimoxazole)

There are fairly good TB/HIV collaborative activities in place especially with respect to HIV testing uptake which increased from 69.5% to 84.5% and in the provision of antiretroviral treatment to eligible patients, significant improvement was seen in the provision of ARVs to eligible TB patients from 34% uptake documented in 2007 to 93.3% uptake reported in 2008. This finding could possibly be responsible for the slight decrease in mortality reported in the programme in 2008 compared to 2007. Several studies have shown that ART improves the quality of life and greatly improves survival for people living with HIV (PLHIV) and reduces the incidence of TB in HIV-infected persons, although patients with advanced pre-treatment immunodeficiency can persistently have an increased risk of TB. However, in order to prevent a significant fraction of TB cases, antiretroviral drugs should be initiated early in the course of HIV infection and will need high coverage and high rates of compliance.²⁶⁻³⁰

However, there is still the need to improve cotrimoxazole uptake from present value of 67% to 100%

This low cotrimoxazole (CPT) uptake could have accounted for the high mortality among TB patients reported in this study, when compared with national targets of less than 5% of TB programme patients. The TB/HIV infected patients are at higher risk of dying during and after TB treatment.³¹ In sub-Saharan Africa 30% of TB/HIV patients dies within 12 months of treatment, largely because of HIV related infections.³² In a 7- year cohort analysis of TB mortality in Malawi, 50% of the cumulative mortality occurred during anti-tuberculosis treatment, half occurred during the first month of TB treatment. Several randomized controlled trials of CPT have shown reduction in mortality among HIV infected, smear positive TB patients.³³ Cotrimoxazole is also shown to be beneficial for CD4 cell count and viral load and to reduce hospitalization and morbidity among PLHIV, including TB patients. However, the added benefit in terms of reduction of morbidity and mortality from cotrimoxazole prophylaxis in TB/HIV patients on ARVs is not known.³⁴ Until more evidence is available, CPT should be part of adjunct intervention irrespective of the availability of ART and also look at the possibility of starting Isoniazid preventive therapy and institute proper infection control measures that will reduce cross infection among TB patients, which are presently not in place in the study setting.

Strengths found in TB programme

- Low defaulter rates (<1%)
- Increasing HIV testing among TB patients and improved ARVs uptake among eligible TB patients (modest evidence of good TB/HIV collaborative activities)
- Improved ARVs uptake among eligible TB patients.

Weaknesses/Challenges found in TB programme

- Poor diagnostic work of patients, less than 50% of patients who were commenced on TB treatment in the study period had baseline sputum examination
- Low cure rate for new smear positive patients (29.9%)
- Low sputum conversion rate at 2months and 3months in new smear positive patients (53.1%)
- High mortality (15%) among patients on TB treatment.
- Low cotrimoxazole(67.9%) uptake (poor evidence of TB/HIV collaborative activities)

Issues with regard to study design

This was a retrospective cohort study design. Therefore, it was essentially an outcome assessment study that compared important TB indicators in St Joseph's hospital with those indicators set by the national TB programme of Lesotho. Historical data on how TB activities performed for the specified study period was obtained from the hospital TB registers. This study design was chosen because the outcome events being evaluated actually occurred in 2007 and 2008, and moreover was also suitable for cohort analysis needed for the interpretation of various clinical and programmatic outcomes of importance in running any TB programme.

Bias and confounding

An attempt to reduce bias was made throughout the study.

- Firstly the selection of patient files or record: The sampling frame is the TB register of patients with confirmed TB treated in 2007 and 2008. All patients treated for TB within the specified period were consecutively included and evaluated in this study thereby, preventing selection of patients with poorer outcome. (Selection bias)

- At analysis level, stratified analysis based on programme year was done so as to rule out any confounding effect on the overall TB programme outcomes based on the year of programme.

Limitation of this study

- An improvement was seen in the quality of data entered in 2008. The TB staffs on the ward were given training on reporting and recording TB activities by the National TB programme, this could be one of the reasons why better outcome was seen in 2008 compared to 2007.

CHAPTER 5

Recommendations for Improving TB programme in St. Joseph's Hospital Roma, Lesotho

Based on the challenges and weaknesses identified in the TB programme at St. Joseph's hospital, adaptation of the WHO recommendations for improving TB programme (discussed below), is warranted to optimize clinical and programmatic aspect of the TB programme in the Hospital. As discussed earlier, the HIV epidemic has led to a dramatic increase in the burden of TB especially in the Sub-Saharan Africa where case notification rates have increased more than five folds since mid-1980s.³⁵ The impact on most NTPs include increased case load, impaired NTP performance, increased need for access to ART and difficulties in reaching TB control targets at National and even district level offering TB services.

In other to improve TB programme at St. Joseph's hospital, stepwise implementation of the following evidenced based strategy will have to be adopted to address the identified gaps;

Improving case detection through intensified case finding

- Interrupts disease transmission by infectious cases and delay mortality, decrease the risk of nosocomial TB transmission and offers opportunity of providing TB preventive therapy to HIV-infected individuals without symptoms and signs of active TB infection. This is not difficult to implement, it can be mainstreamed into pre-existing HIV services in the hospital outpatients department with little additional cost.
- There is the need to develop evidence-based TB screening questionnaires that will be used in screening patients (this can improve TB detection by about 11%), as case detection recorded in this study is unacceptably low. In terms of sensitivity and specificity, at least the questionnaires must contain the following symptoms as the minimum, Cough of > 2weeks, fever, weight loss, night sweats (have been found to have sensitivity of 100% and specificity of 88% to diagnose

TB, and positive and negative predictive values of 44% and 100% respectively). Another study in South Africa claimed that inclusion of chest X-ray significantly increased the sensitivity and negative predictive value of the screening process.³⁵⁻³⁶

- Develop or adapt treatment algorithm from WHO TB treatment algorithm so as to standardize TB treatment by health care workers working in the hospital for all TB patients coming to the facility and all health care staff should be trained on the current ways of treating TB patients.

Improving sputum conversion rate

- Decrease mortality rates during treatment by good clinical practice by starting TB/HIV co-infected on antituberculosis treatment as early as possible on HAART.²⁶
- To ensure all smear results of patients are collected and reviewed at the end of initiation phase (TB data capturer and the laboratory technologists should take up this responsibilities).
- Decrease defaulter rate by prompt contact tracing, and identify factors that could constitute adherence bearers (good adherence counseling will go a long way in solving this problem).

Decreasing mortality

- Prompt initiation of ARVs in TB/HIV co-infected patient. Majority of the deaths noticed were due to late initiation of ARVs among eligible patients (only 20% of patients eligible for ARVs were initiated before they died). Late presentation on the part of patients was another major contributory factor. Most of the patients that died during treatment in 2008, presented when they had already developed advanced immune-suppression, hence compromising their treatment outcome.
- Improve on cotrimoxazole uptake. As demonstrated by several studies, this improves treatment outcomes in patients that are given.

Improving cure rate

- decrease in mortality rates among TB/HIV co-infected patients from (15.6%) to less than 5%
- Improved sputum conversion during intensive phase (from 53% to above 85%) by implementing recommendations made for improving sputum conversion rate.
- Maintaining present defaulter rates (0.8%).
- Maintaining present treatment failure rates < 1%.
- Improve on the diagnostic work up and follow up of patients as discussed above.

Other measures that could help improve the quality of TB programme in the hospital are;

A. Establish the mechanism for TB/HIV collaboration at St. Joseph's hospital by;

- Setting up a coordinating team for TB/HIV activities which will ensure monthly surveillance of HIV prevalence among TB patients. Carry out joint TB/HIV planning, monitor and evaluate TB activities through analysis of the following indicators therefore assessing collaborative activities (TB/HIV co-infection rate, % of HIV positive patients screened for TB and started on TB treatment or given treatment for latent TB infection (Isoniazid Preventive therapy), Cotrimoxazole preventive therapy or antiretroviral treatment (ART) and revision of TB forms and register necessary to be able to capture all data.

B Activities that will reduce burden of TB among people living with HIV (PLHIV)

Under this, the 3I's known as "intensified case finding" "Isoniazid preventive therapy" and "infection control" measures can be implemented by during the following;

Intensified case finding and treatment of TB among HIV-infected patients: already discussed above under case detection.

Tuberculosis preventive therapy (To be able to do this effectively, diagnostic work up in TB patients must be improved upon from the present level identified in this study)

- Several RCT trials have shown that Isoniazid preventive therapy (IPT) is effective in reducing the incidence of TB in HIV-infected patients with the greatest reduction observed in tuberculin positive patients (TST).³⁷ A 20% reduction in the incidence of TB among TST has been demonstrated in some stud.³⁷
- Side-effects observed more in patients on Isoniazid and rifampicin and HIV negative patients.³⁸
- In a retrospective study from Brazil it was found that combined use of IPT with ART in HIV infected patients is associated with significant reduced TB incidence and its wider use with expanded access to ART will improve TB control in high burden areas.³⁹
- The inclusion of chest X-ray as part of the diagnostic work up for ruling out TB is still a subject of controversy.⁴⁰⁻⁴¹

TB infection control (The aim of these measures is to reduce nosocomial infections among patients coming to the hospital and also to protect health care workers working in the health facility).

The following infection control measures should be implemented;

- The hospital should have a clear cut infection control policy that should be pasted for all to see and fully implemented by all cadres of staff.
- Early recognition, diagnosis and treatment of TB suspects, particularly smear positive patients.
- Separation of TB suspects from others until diagnosis is confirmed or excluded
- Maximizing natural ventilation.

- Protecting HIV infected persons from possible exposure to TB (face mask and N-95 masks).
- Offering of TB preventive therapy to HIV positive patients who do not have active TB.
- Protecting health workers at risk (N-95).⁴²

C Decrease the burden of HIV in TB patients by doing the following;

Provide HIV testing and counseling (This is important for the following reasons);

- HIV testing of TB suspects is the gate way to tailored care and support for HIV- infected TB patients, linking prevention activities and adherence support for both HIV and TB (This should be done in all TB suspects, even before TB is confirmed).
- Voluntary knowledge of serostatus reduces risk of HIV acquisition or transmission.⁴³
- Provider-initiated HIV testing should be offered to all adolescents or children who present to clinical settings with signs and symptoms of TB, including those suspected to be having it.⁴⁴
- The uptake of HIV testing is generally high and can be simplified by using techniques using sputum HIV testing.
- It required availability of knowledgeable, trained and committed health workers at service delivery points.

Provide HIV preventive methods

- Tuberculosis control programme should implement comprehensive HIV preventive strategies aimed at reduction of sexual, parenteral and vertical transmission of HIV.
- Providing preventive methods to TB patients in TB clinic or through establishing effective referral linkage with service outlets (e.g VCT centre or sexually transmitted infections (STI) clinic.

- Linking prevention and care support programmes generates synergies and strengthens HIV/AIDs programmes.
- Condom promotion and screening for STI and their syndromic management in the context of TB services.⁴⁵

Provide Cotrimoxazole prophylaxis and prompt initiation of ARVs in eligible patients

- All HIV positive TB patients must have cotrimoxazole preventive therapy (Cotrimoxazole uptake in this study was 69.7% at the end of 2008).
- Prompt initiation of ARVs among eligible patients, as early as 2 weeks is recommended. ARVs uptake among eligible TB patients is commendable; however, effort should be made to improve it from the 93.3% documented in 2008 to a desired level of 100%.

Chapter 6

Conclusion

Although the national TB programme has got good Monitoring & Evaluation tools, these are mainly reporting tools. In- house result analysis, individual case studies and overall program management evaluation are invaluable assets to control and improve programmes. In terms of St. Joseph's compliance with the national TB programme, this study established the following;

- There was significant improvement in St. Joseph's TB programme, especially in the case detection of smear positive PTB, defaulter and treatment failure rates, TB/HIV co-infection detection and ARVs uptake among eligible patients, by the end of 2008. However, meeting targets in sputum conversion, treatment outcome such as; cure rates, treatment success rates and mortality rates is still a challenge; hence the need for implementation of the evidenced based recommendations made in this document to close the identified gaps in order to improve TB service delivery in the hospital.
- Lastly, further operational research that would address issues such as; reasons for high mortality in the TB programme should be conducted as a matter of priority, and strategy for improving case holding in the TB programme and TB/HIV integration should be put in place in the next 3years, in order to meet up with the targets of the national TB programme of Lesotho and also meet the millennium development goal of reducing the prevalence of TB by half by 2012 and achieving the prescribed cure rate of 85% and above, in all smear positive patients.

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