THE FEASIBILITY OF A MODEL FOR INNOVATIVE CARE OF TUBERCULOSIS PATIENTS AT AN URBAN CLINIC IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

-A QUALITATIVE ASSESSMENT

EBRAHIM YUSUF HOOSAIN

A minithesis submitted in partial fulfilment of the requirements for the degree of Magister Public Health in the Faculty of Health Sciences of the University of the Western Cape.

Supervisor: Dr Mickey Chopra

November 2002

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KEYWORDS

South Africa

Tuberculosis

Innovative Care

Qualitative

Urban

Multi-faceted Intervention

Communicable Disease

Primary Health Care

Volunteer

Adherence

ABSTRACT

THE FEASIBILITY OF A MODEL FOR INNOVATIVE CARE OF TUBERCULOSIS PATIENTS AT AN URBAN CLINIC IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

A QUALITATIVE ASSESSMENT

EBRAHIM YUSUF HOOSAIN

MPH minithesis, Public Health Programme, Department of Health Sciences, University of the Western Cape.

In this mini-thesis, I used qualitative methods to assess the feasibility of implementing a multi faceted intervention designed to improve tuberculosis treatment adherence in an urban primary health care setting in the Eastern Cape Province of South Africa.

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Non-adherence to tuberculosis (TB) treatment is a major factor contributing to poor treatment outcome and programme performance especially in an era of health system transformation. TB is a chronic disease requiring continuity of care to support a patient centred approach. Multi-faceted interventions have been found to be more effective in changing behaviour than single faceted interventions. The behaviour of both patients and health provider staff needs to be supported in order to attain therapeutic goals. Unfortunately only very few studies have been done in this area.

This multi-faceted intervention design was based on social learning behavioural theory to support a patient-centred care approach. The intervention comprised reorientation training of health provider staff, a patient- adherence interview, a hand-held context-specific picture story educational novella, a system of pre-packed TB medication and trained TB treatment supporters, as a package of care.

I used purposive sampling to identify subjects for in-depth interviews. Three focus group discussions were held, one each with volunteer TB treatment supporters, patients on clinic-based treatment and patients on community-based treatment. Finally a clinic observation study was done to verify health provider practices. The results were then triangulated and a thematic analysis done to identify facilitating factors and barriers to the implementation of this intervention.

The intervention was well received by both health provider staff and patients. It was implemented with some difficulty. The patient-adherence interview was found to be the most difficult to implement successfully. I found this tailored multi-faceted intervention feasible to implement with more careful training and implementation of the patient-adherence interview required.

November 2002

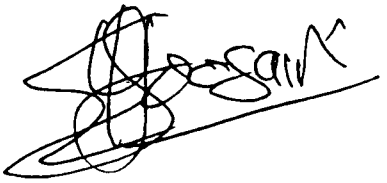
DECLARATION

I declare that The feasibility of a model for innovative care of tuberculosis patients at an urban clinic in the Easter Cape Province of South Africa – a qualitative assessment is my own work, that it has not been submitted before for any degree or examination in any other university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

NOVEMBER 2002

EBRAHIM YUSUF HOOSAIN

SIGNED: …..



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To God, Allmighty, for giving me the strength and guidance to complete this task.

To my wife Kamiela and my two sons Salim and Irshaad, for their patience, sacrifice and support to allow this work to happen. Thank you for making my life richer.

To all my colleagues and patients without whom I probably would never have started on this work.

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CHAPTER 1

INTRODUCTION

There has been considerable effort to accelerate worldwide progress to contain the tuberculosis (TB) epidemic ever since 1993, when the World Health Organisation (WHO) took the unprecedented step to declare TB a global health emergency.[1-4] The spread of TB however, continues unabated affecting more than 2 billion people globally despite the widespread availability of effective treatment and promotion of the internationally recognized Directly Observed Treatment, Short-course (DOTS) strategy to control the TB epidemic.[4] The global TB burden with respect to morbidity and mortality still occurs in mainly under-developed countries where an estimated 75% of cases occur within the economically active age group (15-54 years) and 98% of global TB deaths occur.[3]

In a large number of these countries a significant proportion of TB patients are also co-infected with the human immunodeficiency virus (HIV) resulting in dual infection.[2] In TB infected persons the presence of HIV increases the risk of TB activation by 10% for each year following HIV infection. The activation of TB infection in the presence of HIV accelerates progression of HIV infection to the Acquired Immune Deficiency Syndrome (AIDS). TB is recognized by the WHO as an AIDS-defining disease, and is the single most important cause of death among HIV infected persons especially in under-developed countries.[3] TB/HIV dually-infected patients have an increased susceptibility to repeat TB infection

and activation of latent TB infection, resulting in an HIV-related increase in the number of TB patients presenting at health facilities.[2,9, 20]

In addition, there is an increasing number of TB patients who now harbour strains of TB that are confirmed in the laboratory to be multi-drug resistant (MDR-TB) and remains a looming spectre in predominantly high TB burden countries with poor TB control. The development of MDR-TB results predominantly from unbridled and repeated interruption of treatment for drug susceptible TB, and is spread in the same way as drug-susceptible TB. Currently, the most cost-effective strategy promoted by the WHO for the management of MDR-TB in especially poorly resourced settings is prevention of MDR-TB by successful case management of patients with drug susceptible TB.[6, 7] Clinical management of patients with confirmed MDR-TB rely on the prolonged use of relatively toxic drugs that consume immense resources and has only limited success in even the best hands worldwide.[6, 7]

South Africa, a middle-income country, was ranked ninth among the 22 high TB burden countries (representing 80% of the worlds' newly diagnosed TB cases) hampering global efforts for TB control in 1999.[4] In 2000, South Africa had the second largest proportion of TB/HIV co-infected persons in the world, with MDR-TB forming approximately 5% of the national TB caseload.[10] Despite a government declaration that TB is a national health priority and substantial revision of the National TB Control Programme in 1996 to bring it in line with

recommendations from the WHO, TB remains a serious public health concern in South Africa.[7]

In 1999 South Africa registered a total of 118 686 newly diagnosed pulmonary TB cases. Only 60,3% of the New smear positive cases were eventually cured and 17,2% interrupted their treatment.[10] This is already 25% less than the WHO target for cure rate and more than three times the targeted interruption rate required for the adequate control of TB in South Africa. The high interruption rate in a TB control programme is the most important indicator of both poor performance and prevailing attitudes of health providers.[9]

In 2000 the national incidence rate for all TB cases was 345 per 100 000 with the Eastern Cape Province exceeding this at 422,3 per 100 000.[10] In 1999, the Eastern Cape Province reported an interruption rate of 18,1% and a cure rate of 59,9% for new smear positive cases, the group most amenable to improving programme performance according to the WHO.[10]

The TB incidence rate worsens in selected urban and rural areas of the Eastern Cape Province with Port Elizabeth, the largest urban area accounting for almost one third of all provincial TB cases and reporting an estimated 893 cases per 100 000, a cure rate of 62,8% and an interruption rate of 25,5% during 1999. The HIV prevalence rate in 2000 was estimated at more than 25% in the Port Elizabeth metropolis.[12]

Main causes of the problem

The WHO has cited the following factors as being responsible for the poor progress in global TB control.[4]

- Lack of political commitment
- Insufficient and ineffective use of financial resources
- Neglect of human resource development
- Poor health system organization and TB managerial capability
- Inadequate quality and regular supply of anti-TB drugs
- Lack of information

In summary, the major obstacles at a global level are political, managerial and financial, rather than technical.

In South Africa, a country with a high TB/HIV burden, at least two groups of causes may contribute significantly to the problem of non-adherence to TB treatment:

1. **Poor support for health provider staff**

Political and other efforts to transform the health sector have contributed immensely to equity in the delivery of health services resulting in a tremendous increase in utilization of clinic services by patients. In particular, the introduction of a free comprehensive primary health care service at primary health care clinics has resulted in a massive increase in the number of patients attending these

clinics. The high prevalence of HIV infection has aggravated this picture by adding more patients with active TB to the growing nursing workload.

In most instances this increase in patient clinic attendance has exceeded the capacity of existing clinic staffing levels to deliver good quality health services. Unfortunately there has not been a corresponding increase in support or incentives for health providers to adequately cope with this increase in workload and changing work environment. Consequently, staff at these clinics become demotivated with many displaying a trend of increasing absenteeism and low morale that impact negatively on the quality of interaction with patients.[11] Poor health system organization together with inadequate managerial capacity to support health provider staff may be the underlying reason for poor TBCP performance, particularly at Provincial and local levels. This poor performance is reflected in the high levels of poor case holding indicated by the current high levels of treatment interruption rates for TB.

2. Inappropriate care practices for TB patients

The TBCP in South Africa is integrated with comprehensive primary health care services that are predominantly nurse-run at clinic level. Clinic doctor support is usually required mainly for the management of difficult clinical cases or for the interpretation of chest X-rays.

Currently, clinics provide health services using an approach in which staff emphasize acute care for even chronic illnesses such as TB. In essence the

continuity of care required for the management of chronic illnesses and TB is generally absent. Current TB care practices tend to fragment the patient's "treatment journey" with little or no visual cues available to assist both patients and health provider staff in recognizing any progress toward achieving therapeutic goals in a therapeutic patient centred alliance. The interruption of treatment by patients with chronic illness may result largely from the use of strategies by health providers that fail to ensure continuity of patient-centred care.[5]

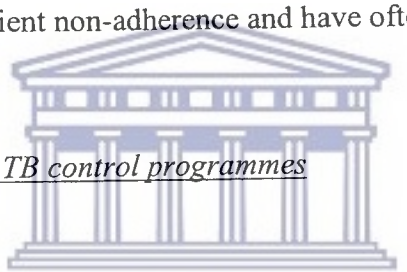
Models of care that apply comprehensive innovative strategies to address the problem of non-adherence are needed in high TB-burden, poorly resourced countries because current health systems apply episodic, acute care to chronic illnesses that are lengthy, expensive and require continuity of care.[5] There are very few studies published on this aspect of TB care.[31]

This study aims to provide a qualitative assessment on the feasibility in implementing an innovative multi-faceted intervention model to improve adherence to anti-tuberculosis treatment in patients attending an urban clinic in the Eastern Cape Province, South Africa.

CHAPTER 2

LITERATURE REVIEW

A strong "biomedical approach" underpins the way traditional TB control programmes have been managed. Quantitative research on adherence to TB treatment has identified a wide variety of factors that may be associated with patient non-adherence to treatment.[21,31] Studies have shown that these factors do not assist in predicting patient non-adherence and have often been contradictory.[15]



Weaknesses of traditional TB control programmes

Traditional TB control programmes reflect the period prior to formal adoption of the DOTS strategy by the WHO in 1991. Almost universally, these programmes were of poor technical quality and characterized by insufficient focus on the cure of infectious TB patients the first time round.

At a technical level, the routine use of chest X-rays to diagnose and monitor patient progress has resulted in many infectious TB patients with no obvious X-ray evidence of pulmonary TB being missed, resulting in under-treatment of infectious cases. Similarly, patients who had obvious chest X-ray changes such as lung scarring that resembled pulmonary TB, but later found not to be active TB by sputum testing resulted in over-treatment of non-infectious cases often with very poor patient adherence to treatment. This practice in the use of routine chest X-

rays consumed valuable resources for patients who were probably not contributing to the spread of the TB epidemic in already under-resourced TB control programmes in especially poor socio-economic settings.

The absence of standardized, accurate recording and regular reporting of patient information made it difficult to assess and compare TB programme performance. The most commonly reported indicator used was the TB notification rate still used today for continuity and reference only.

The majority of TB treatment programmes included an initial period of hospitalization for patients, but this period was often prolonged at tremendous cost to both the state and patients.

Treatment protocols for TB were often not standardized and placed a tremendous burden of responsibility on patients to ingest approximately thirteen pills each day for variable and often extended periods of more than a year in many cases.

TB services were often not integrated with other clinic services for comprehensive primary health care. Some clinics provided no treatment for TB while others were specialized to provide TB services alone.

Political expediency in high TB-burden countries like South Africa contributed to marginalizing those most vulnerable to the consequences of TB infection by withholding the necessary political commitment required to ensure improvement

in the quality of TB service provision.[13] Indeed, in South Africa TB was a neglected epidemic closely related to the underdevelopment of a broad section of the population.

Attempts to improve adherence to TB treatment

The DOTS strategy, formally adopted by the WHO in 1991 as a minimum and cost-effective intervention package for control of the TB epidemic, comprises five essential elements: [10, 12]

1. **Political commitment**

Government commitment to tuberculosis control as a specific health system activity integrated into primary health care and supported technically at national level.

2. **Passive case finding based on appropriate laboratory services**

Case detection through passive case finding, using standardized case definitions and a diagnostic service based primarily on a network of peripheral microscopy centers.

3. **Directly observed treatment (DOT) with short-course chemotherapy**

Standardized, directly observed short-course treatment, with the focus on ensuring cure of smear positive patients and a more vigorous treatment approach to retreatment cases.

4. **Uninterrupted drug supply**

A regular supply of high quality drugs.

5. A reliable recording and reporting system with supervision and feedback

Careful recording and reporting of patients and their treatment outcome and evaluation of control programme effectiveness by pre-determined performance criteria. The tuberculosis register forms the basis of this system.

The DOTS strategy has been used with significant success in settings as diverse as China, Tanzania, Vietnam, Peru and elsewhere. [3,17,18]

Hlabisa, a well-studied, rural part of South Africa, has provided evidence that effective implementation of the DOTS strategy can improve TB control significantly even in South Africa.[19]

The element of DOT (Directly Observed Treatment) contained in the DOTS strategy has been studied and promoted as the key factor for improving adherence to TB treatment.[10] Thirty-two studies applying DOT (Directly Observed Treatment) to improve TB treatment adherence were recently reviewed.[23] In addition to DOT other inputs were added in virtually every one of these studies ostensibly to improve the quality of patient-centred care and treatment adherence. These factors varied from intrinsic factors such as motivational level in programme implementers, staff using non-judgmental attitude and staff with friendly behavior; to more extrinsic factors such as financial inputs for additional staff, patient incentives, patient reminders and health education. In none of these studies was comment made about whether relevant behavioural theory was considered in the formulation of the intervention.

An American consensus statement issued by a panel of public health experts and based on a review of twenty-seven studies, endorsed the use of DOT when combined with multiple enablers and enhancers to improve pulmonary TB treatment adherence significantly.[27] Studies based exclusively on the element of DOT performed less well while modified versions of DOT, such as DOT for only the intensive phase of treatment in a hospital, performed even less well.

Three randomized controlled trial studies comparing DOT with self supervised TB treatment has produced conflicting results. One study done in South Africa demonstrated no difference in results when comparing clinic DOT with self supervised therapy.[25] In fact researchers in this study have speculated that the use of DOT may also contribute to poor treatment outcomes by forcing clinic health workers into a more "alienating and authoritarian" role of constant surveillance and thereby dilute the supportive role that was intended. In this regard the WHO has, in its 1997 Report on the TB Epidemic, explained that DOT should be implemented in a "flexible and innovative" manner so that the emphasis should be on a well-managed health systems approach rather than simply having a health worker watch TB pills being swallowed by a patient.[10]

A study in Thailand demonstrated significantly improved treatment outcome results with DOT offered by health care staff, family members (supervising the largest proportion of patients) and community members.[24] This study had the advantage of doing frequent follow-up home visits and providing patients with a

variety of supervision options. While these elements contribute to a patient centred care approach where health workers are not placed into a position of an authoritarian role, the resources it requires may not be feasible in the under-resourced settings that exist in under-developed countries. This fact may support the WHO's concern that DOT should be used in an innovative manner.

A third study in Pakistan compared three groups of patients using different treatment supervisory options; health worker DOT, family member DOT and self supervised treatment.[26] No significant difference in treatment outcome results were found between these treatment options. Therefore the evidence that DOT alone improves TB treatment adherence remains in doubt. In addition this study found no significant difference in treatment outcome with DOT when supervision was by health workers or family members.

One response to this situation is that a solution to the complex problem of TB treatment adherence behaviour cannot simply be reduced to only the "direct observation" of TB treatment. Several researchers have suggested that patient adherence behaviour is a multi-faceted problem requiring a multi-faceted solution. Some researchers have gone further to suggest that such a solution should be based upon relevant behavioural theory.[21, 27, 30]

One such theory proposed by Bandura is called Social Learning Theory (SLT), more recently known as Social Cognitive Theory. This theory suggests that human behaviour may be explained using a model comprising three

simultaneously interacting elements; behaviour, environmental influences and personal factors, a psychological construct known as reciprocal determinism. The advantage of using SLT is that it provides the basis for developing intervention strategies that influence health behaviour even in under-resourced settings.[21, 28]

SLT differs from an earlier behavioural theory known as the "Health Belief Model" which is built around the perceptions of an individual. In this model the patient's perceptions of susceptibility to an illness and the efficacy of the health-oriented action determines the behavioural outcome.[21] This model is closely related to the concept of "locus of control" where the patient may believe that he/she has control over the outcome (internal locus of control), or (an external locus of control) when the cause may be related to fate, "bad spirits" or other people, indicating no control over the eventual outcome. The approach used in this model to understand behaviour is limited because patients may also infer their attitudes and beliefs by observing their own behaviour.[21]

The "Stages of change" model proposed by Prochaska considers behavioural change as a series of steps before the desired change is attained. An individual may move from "pre-contemplation" to "contemplation", "contemplation" to "maintenance" or "relapse" phases. This model proposes that patients will change their behaviour only when they are convinced of the need to change by an effective intervention. This model is helpful for health care workers to understand the need for continuous support to assist patients through the various stages of behavioural change.

In order for health care workers to identify and modify aspects of the pscho-social context within which health care is being delivered they require a comprehensive theoretical basis. SLT is able to assist in the development of appropriate intervention strategies by identifying behavioural determinants, reveal their inter-relationships and the methods for developing changes in suitable variables. It has been recommended for use in understanding health behaviour in the socio-political context of South Africa.[21]

Components of the multi-faceted intervention to improve adherence to TB treatment and its relationship to Social Learning Theory

1. Reorientation training of health provider staff

This training used experiential, adult learning methods to assist health provider staff in identifying factors that affect patient adherence to TB treatment. These staff members then assist in developing an appropriate multi-faceted intervention to address the problem of poor patient adherence. In essence they were contributing to the solution of their own problems without waiting for assistance from senior levels of management. This approach involved using the concepts of self-efficacy, reinforcement and reciprocal determinism from SLT.

2. Patient adherence oriented interview

When staff became more aware of the actual experiences of TB patients during the reorientation training they also realized the need to allow patients to express their own concerns and problems that may represent an obstacle to TB treatment adherence. This opportunity to engage patients in this way was introduced to immediately after diagnosis during a mini-interview. This approach used the concept of self-control by providing the opportunity to patients to begin a self-monitored commitment to treatment by reducing the traditional dominance of health provider staff during patient-provider interactions. The patient is also introduced to the other intervention components at this time to allow the patient an opportunity to adjust to the support mechanisms being provided.

3. Hand-held, context-specific, picture story educational photo-novella

This component, already successfully piloted in Cape Town, was now adapted for the context of Zwide clinic. The booklet is handed to the patient at the end of the patient adherence interview. The interview includes an outline of the picture story by the clinic health worker. The heroine in the story represents a typical TB patient (a "role model") who is eventually cured of TB when completing treatment. The concept of observational learning through the use of a role model is used together with the concept of expectations of positive outcomes of behavior.

4. A system of pre-packed TB medication

This system of pre-packed medication promotes the idea of continuity of treatment using the concepts of reinforcement, self-efficacy, expectations, expectancies and self-control from SLT. The patient can see on a daily basis the progress of treatment until a whole month of treatment is completed. This process is bolstered by the sputum test result mid-way through treatment. It also provides a visual cue to both patient and health provider of progress.

5. A network of TB treatment supporters.

This component of the intervention, like the other facets, influences the patient's environment by improving access to TB treatment closer to their home. It also improves the patients' self control by presenting a choice of treatment site, community or clinic-based DOT.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Problem statement

The problem of non-adherence to anti-tuberculosis treatment

The problem of patient non-adherence to anti-tuberculosis treatment has been well researched and also cited as a major barrier to the control of TB.[13, 23,27,28] The behaviour of both patients and health providers appears complex, often requiring treatment-adherence enhancing strategies to focus on the many obstacles preventing continuation of treatment by patients. Successful interventions include multi-faceted strategies that increase the quality of patient-health provider interaction, improve the convenience of TB care and provide psychosocial support to the patient to complete treatment. These patient-centered strategies are difficult to implement in the current era of cost containment and transformation in the South African health care system. Many local authority areas have been trying to implement comprehensive primary health care services while available resources are being diminished.

Study aim

To explore the feasibility of developing and implementing an innovative multi-faceted intervention designed to improve patient adherence to anti-tuberculosis

treatment in an urban setting in Zwide clinic in the Eastern Cape Province, South Africa.

Research objective

- To identify useful facilitators and barriers in the implementation of an innovative multi-faceted intervention to improve patient adherence to anti-tuberculosis treatment in an urban setting at Zwide clinic in the Eastern Cape Province, South Africa.
- To make recommendations to the Municipal, Provincial and National TB Control Programme based on the qualitative results, regarding strategies to improve case holding of TB in similar urban settings.

Use of qualitative methods for evaluation

Qualitative and quantitative methods have often been presented as being antithetical but should really be seen as complementary approaches that, when combined, maximize the strengths and minimize the limitations of each.

Quantitative methodology has dominated research in the quest to unravel the problems around treatment adherence, but with minimal success. The adherence of patients to treatment is a complex behavioural phenomenon. In order to develop and evaluate an appropriate patient adherence strategy informed by relevant

behavioural theory the use of a qualitative methodology may provide a better understanding of the nature of the behavioural change required. Qualitative methodology is more suited to provide answers to questions such as why the findings of randomized controlled trials are often difficult to apply in day-to-day clinical practice.

It is the actual nature of the research question that will determine whether a quantitative or a qualitative methodology is the most appropriate to use. Research questions around the issue of complex behaviours or attitudes are more easily answered using qualitative methods because data is then obtained from the point of view of the subjects being studied in order to understand the meaning of their behavior.

Study setting

The Community

The study was carried out in the areas of Zwide and Govan Mbeki, that together comprise the clinic catchment area of Zwide clinic, located adjacent to each other and situated 12 km north-east of the city-centre in Port Elizabeth. During the apartheid years these areas were classified as 'black' township residential areas, and thus the population is still composed of predominantly black and coloured cultures, belonging principally to the lower socio-economic group, with less than 50% of the potentially active residents gainfully employed.[33, 34] The main sources

of employment in these areas are the motor manufacturing industry, domestic work or casual labour.[33, 34]

The reported human development index, a composite measure of life expectancy, literacy and income is 0.32 for historically "black" residential areas such as Zwide and Govan Mbeki, compared to 0.67 for Port Elizabeth as a whole (A high level of human development is 1, while the minimum value is zero). [33] The Zwide and Govan Mbeki communities are both plagued by numerous social problems. Both unemployment and poverty are at very high levels resulting in many parents being unable to provide for their families.[34] A shortage of housing is very obvious in these areas resulting in overcrowded housing and mushrooming of informal settlements in a large proportion of the area.[34] There is evidence of serious substance abuse, with alcohol and drug abuse perpetuating the problems of unemployment, malnutrition and poverty-related diseases.[34]

The health services

The Municipal health department of Port Elizabeth runs thirty-three primary health care clinics distributed between three adjacent sub-district areas. Zwide clinic, a community health centre, is located in the high TB incidence area of sub-district two and provides the communities of Zwide and Govan Mbeki with comprehensive primary health care services. In July 2000, treatment for chronic illnesses was started at selected community health centers, including Zwide clinic, based on a directive from the health department. This decision led to a sudden influx of patients attending Zwide clinic from surrounding hospitals.

Description of the multi-faceted study intervention

A multi-faceted intervention was designed based on the principles of behavioural theory to promote continuity of care for TB patients. The five components of the intervention are:

1) Reorientation training offered to health provider staff.

This training was geared towards providing clinic staff the capacity to take responsibility for decisions at clinic level that improve working conditions. The aim of this process was to equip nursing staff with skills to work innovatively within the broad framework of the TB control programme. In order to achieve this level of reorientation a selection of staff from the NMMM health department were supported through a five-week training course. Training was done for three hours, one afternoon per week for five consecutive weeks. Only a few members of the Zwide clinic staff were selected to become part of the intervention team. These team members included clerical staff, clinic management and nursing staff. Middle and senior level district health management staff were also selected in the hope that they would be able to support clinic staff through the intervention. Six active, volunteer TB treatment supporters from among the Zwide community TB volunteer base were selected to join this training to assist with a community perspective during training. During the last training session three TB nurses from Zwide clinic were nominated by the group to lead the development of the remaining facets of the intervention assisted by the principal investigator and a

research assistant as part of a core research team. Weekly and/or monthly meetings of the core research team ensured regular communication and support during development of the intervention package.

2) Adherence orientated TB patient interview

The traditional nurse-dominated patient interview was restructured to facilitate a patient-centred approach where focus is on the social context of the patient and also allows the patient an opportunity to meaningfully participate in the development of a tailored treatment plan within the framework of the TB control programme. The health provider is guided during the interview by a series of prompts adapted for the context of Zwide. When the interview is completed, a record of the interview is entered in the blue clinic folder for TB patients.

3) A context-specific educational booklet for TB patients

A picture-story novella booklet was developed using community volunteer models and pictures of the Zwide area. The story is about a typical TB patient who, after her symptoms have subsided, decides to interrupt treatment. At this point supportive measures, that include a caring approach from the nursing staff, influences the family to encourage the patient to complete treatment. The attractive booklet, with glossy colour photographs was produced in the three dominant local languages. An appropriate copy is handed to the patient at the end of the patient interview. The back of the booklet contains a weekly count-down

calendar that is clearly marked with both "start" and "end" dates for treatment as well as sputum collection dates. The issuing of the booklet to each patient is recorded in the blue clinic folder for TB patients.

4) A pre-packed TB medication system

In this system TB medication is now packed at the municipal pharmacy instead of at the clinic. It incorporates three essential parameters; "patient treatment category", "treatment phase" and "patient weight category". Pills are packed for a month's supply containing twenty individual daily doses in twenty pill packets each joined into string of pill packets, rolled into an orderly bundle and bound by an elastic rubber band. In order to access a pill packet, the pill bundle is unrolled to the required packet, the pills are removed and the pill packet bundle is again re-coiled to its original state. This process is repeated on a daily basis for DOT. Several pill packet bundles constituting an entire treatment course are packed sequentially into a labeled, treatment box stored at the clinic with the "active" bundle always contained within a labeled treatment envelope. This system individualizes TB patient treatment in a systematic way and ensures that the correct daily dose is always ready for use during DOT at the clinic. Each monthly pre-pack issued for community-based DOT is recorded in the blue TB patient clinic folder while the previous month's pre-pack is returned to the treatment box. Treatment for community-based DOT is stored within a lockable metal box at the home of the TB treatment supporter.

Additional advantages when using this system are that:

- It frees up time for nursing staff who already deal with large patient numbers,
- It can motivate the nurse because the patient's progress can easily be measured by simply examining the string of daily pill packets and the treatment box rather than, as in the previous system, looking at a full bottle of pills,
- It can motivate patients by allowing them to observe the steady decrease in the number of remaining doses required to complete treatment instead of, as in the previous system, an apparent ceaseless number of pills being dispensed from a "bottomless" pill bottle on the treatment table.

5) Community-based volunteers trained as TB treatment supporters

Volunteers from the Zwide community were recruited through a process involving community based organizations and trained by clinic staff over four weekday mornings at a convenient venue. The process of recruiting volunteers was guided by a list of "high priority" street names selected by Zwide clinic TB nurses. These trained TB treatment supporters assist TB patients by providing support and treatment closer to the patient's home at a mutually convenient time. This arrangement with community volunteers helps to reduce the number of patients attending the clinic daily. Each month the TB nurse takes a supply of pre-packed

TB medication to the TB treatment supporter and the pre-pack dose number is recorded in the blue clinic folder for TB patients. Patients are offered a choice of treatment site (clinic or TB treatment supporter) and of TB supporter from a clinic wall chart containing photographs of all the trained volunteers.

Study design and study population

The multi-faceted intervention was implemented at Zwide clinic from the 01 January to 31 December 2000.

In this thesis, semi-structured in-depth interviews, focus group discussions and unstructured participant observation were used one week after the intervention ended, to evaluate the feasibility of an innovative multi-faceted intervention model to promote TB treatment adherence at Zwide clinic.

A total of eighteen in-depth interviews were held with representatives of senior-level and middle-level managers, members of the project team and other clinic nurses. Focus group discussions were held with three separate groups; patients on clinic-only DOT, patients on community-based DOT and volunteer TB treatment supporters. Observations were done at Zwide clinic.

An external, experienced qualitative researcher was employed to do the in-depth interviews and assist with clinic observations. The focus group discussions were conducted in Xhosa by a second, experienced qualitative researcher. The team

doing clinic observations included an external researcher, the project leader, a research assistant for the project and a training facilitator who was involved in the training of the research team. The qualitative evaluation started one week after the intervention period was completed, and ended six weeks later.

Sampling

a) In-depth interviews

The multi-faceted intervention was implemented by Zwide clinic staff with management support from staff at middle and senior levels, key informants were therefore selected from these health provider groups. Clinic staff that were not directly involved, but clearly affected by the presence of the intervention were also selected for interview, as were informants involved in the research team and training of health providers.

b) Focus discussion groups

i) Volunteer TB treatment supporters

The Zwide clinic catchment area comprises Govan Mbeki and Zwide proper, both with a similar density of TB patients (as illustrated by a manual mapping exercise) except that Govan Mbeki has a higher proportion of its residents living very far from the clinic. A randomly selected purposeful sample comprising equal numbers of volunteers (comprising six volunteers) from each

of these residential areas were selected to prevent a bias in perceptions from one area.

ii) Patients on clinic DOT

Two broad criteria were applied during the selection of these informants, equal representation from each of the two areas in Zwide and the two categories of patient, New or Retreatment cases.

iii) Patients on community DOT

Similarly, as with patients on clinic DOT, two broad criteria were used in the selection of these informants. Both areas of Zwide were equally represented, as were the two TB treatment categories of New and Retreatment cases, from which the sample was selected.

c) Observations

All clinic staff members that would make contact with a typical TB patient that "journeys" through Zwide clinic from the reception clerk to the nursing stations for diagnosis and subsequent treatment of TB, had observations done of their actual clinic activity over a period of three full consecutive clinic working days.

Procedure

Both external researchers were supplied with written material developed for the Zwide TB project as background information. This was necessary because the external researchers were contracted after the intervention period. The background material included the project proposal, minutes of meetings, training material and minutes of training sessions.

a) In-depth interviews

The in-depth interviews were tape-recorded, transcribed and analyzed manually into themes to identify what worked or was useful in this intervention (facilitators) and what did not work or was not useful (barriers). All in-depth interviews were based on the question:

- ***How have you experienced this intervention over the past year?***

The semi-structured in-depth interviews were done using topics that were pre-determined by the interviewer. The interviewer also decided both the sequence and wording of prompts as the interview progressed. This method was intended to provide a systematic, comprehensive approach while keeping the interview conversational and situational.

b) Focus group discussions

The focus group discussions depended upon discussions among members of a semi-structured group. This method was used to help the group to identify and explore beliefs, attitudes and behaviours within a short time period, assisted by the experience of the facilitator to guide the discussion. The discussion was geared toward exposing factors that either facilitate or form barriers to behaviour change in terms of improving TB treatment adherence.

In the focus group discussions the volunteer TB treatment supporters were asked the question:

- ***How have you found the experience of being a volunteer?***

Patients were not informed that the manner in which they were treated during the intervention period was any different from the manner in which patients were treated previously. The group of patients comprised an equal number of patients who were treated for the first time (New cases) and patients who were treated previously but were now getting treatment again (Retreatment cases). Retreatment patients were encouraged to compare their experiences.

Patients on clinic DOT were asked in their focus group:

- ***How have you experienced treatment at this clinic over the past year?***

Patients on community DOT were asked in their focus group:

- ***How have you experienced treatment with the volunteers over the past year?***

c) Clinic Observations

The unstructured clinic observation was done over three full weekdays using non-participant observation in a broadly focussed manner and within the total physical and social context of the clinic situation being observed. This method was adopted because of its potential in identifying unanticipated behaviour or events that may either prevent (barrier) or enhance (facilitate) behaviour change to improve TB treatment adherence, following implementation of the multifaceted intervention.

Analysis

The in-depth interviews and focus group discussions were tape-recorded with the permission of all participants involved. The taped interviews were all transcribed and, in the case of the focus group discussions, translated into English by the external researchers. The principal investigator analyzed the transcribed notes manually by identifying the issues raised during the interviews and grouping them

into themes. Similarly, the observations noted by the team of observers were typed and also manually analyzed into themes by the principal investigator.

Only 13 of the 18 interviews could be analyzed due to very poor technical quality of the taped interviews.

Table .1. Analysis of in-depth interviews with key informants.

Health Worker interviewed	*Analysis done
1) Senior Health Manager	✓
2) Deputy Nursing Services Manager	0
3) Chief Professional Nurse	0
4) Middle Level Manager	✓
5) Principal Nursing Tutor	✓
6) Assistant Nursing Tutor	0
7) Zwide Clinic Manager	✓
8) Nurse 1 (TB)	✓
9) Nurse 2 (TB)	✓
10) Nurse (TB)	✓
11) Health Advisor/Educator	✓
12) Zwide Clinic Clerk	✓
	✓

13) Project Leader	✓
14) Project Research Assistant	✓
15) Nurse 1 (Chronic Diseases)	✓
16) Nurse 2 (Chronic Diseases)	✓
Total number of interviews analyzed	***13***

* *Technical problems during tape-recording of some interviews made these impossible to transcribe and therefore analyze (Denoted by "0").*

Table 2. Analysis of Focus Group Discussions

a) Patients on Clinic DOT (n = 12)

Patient Category	**Number of Patients (n)**
New	
a) Zwide	3
b) Govan Mbeki	3
Retreatment	
a) Zwide	3
b) Govan Mbeki	3

b) Patients on community based DOT (n =12)

Patient Category	Number of Patients (n)
New	
a) Zwide	3
b) Govan Mbeki	3
Retreatment	
a) Zwide	3
b) Govan Mbeki	3

c) Volunteer TB Treatment Supporters (n = 12)

Origin of Volunteer	Number of Volunteers (n)
Zwide	6
Govan Mbeki	6

Timing of the intervention

While all components of the intervention were planned for implementation from the beginning of January 2000, this did not happen. The intervention was eventually implemented as depicted in Figure 1.

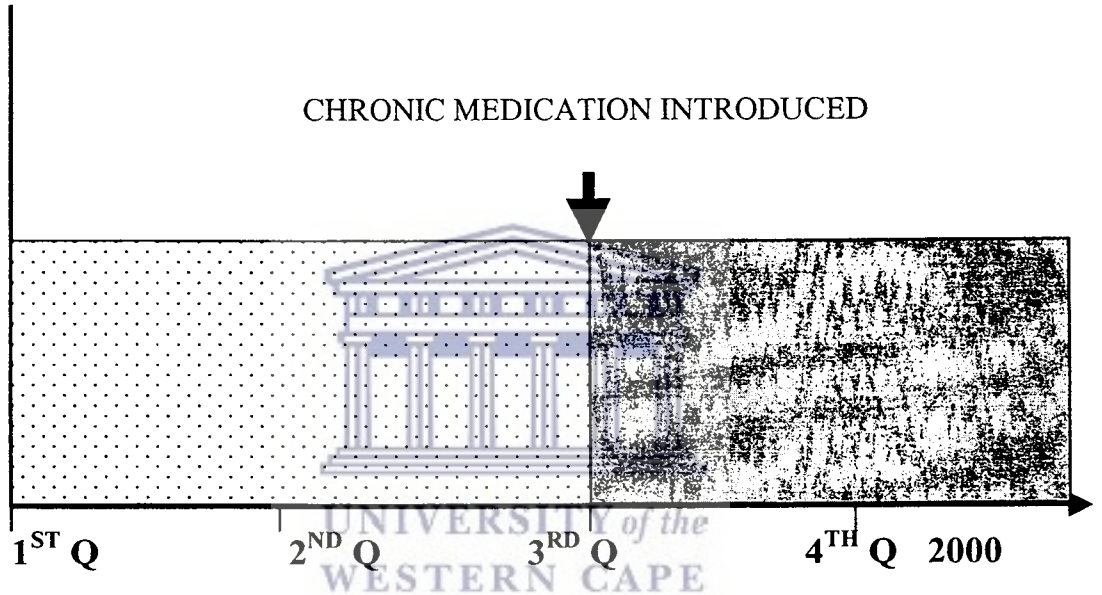
Three of the five intervention components, the staff re-orientation training, the adherence oriented patient interview and the network of TB treatment supporters,

were ready for implementation at the beginning of the intervention period in January 2000. The context-specific TB educational booklet was ready for implementation on 01 April 2000, while the pre-packaged TB medication system was implemented on 01 July 2000. In addition, the pre-packaged TB medication was issued only to those TB patients on community-based DOT.

A large number of patients on treatment for chronic illnesses (such as hypertension, diabetes mellitus, asthma and epilepsy) at local hospital out-patient departments were referred to Zwide clinic from early July 2000. This action was based on a directive issued from the senior district health management staff apparently in line with national and provincial imperatives to begin comprehensive primary health care clinic services.

Figure 1

ACTUAL IMPLEMENTATION OF THE MULTI-FACETED INTERVENTION DURING AT ZWIDE CLINIC (Jan-Dec, 2000)



1ST Q	2ND Q	3RD Q
TRAINING	TRAINING	TRAINING
INTERVIEW	INTERVIEW	INTERVIEW
VOLUNTEERS	VOLUNTEERS	VOLUNTEERS
	BOOKLET	BOOKLET
		PRE-PACKED MEDS

CHAPTER 4

RESULTS

The results are presented according to identified themes in which each have a number of sub-themes. This is followed by representative quotes written in narrative style from the transcriptions to illustrate each theme.

A] Perceptions of TB Control Practices *before* implementing the intervention

Before the intervention, respondents strongly suggested that patient care practices were generally not supportive to help patients complete their TB treatment. Little attention was given to the practical value of health messages from clinic staff:

"Before we used not to worry about the social life of the patients or whatever. We just talk to the patient and give the information whether it's worthwhile or not, we didn't care about it." (TB Nurse)

Poor health provider-patient attitudes often resulted in poor relationships with patients:

"Meanwhile with that attitude we had before, there was a break, there was not much relationship between the patients and the nurses, it was not good." (TB Nurse)

The predominant attitude from clinic staff was one of authority conveyed through a number of instructions to patients:

"Before the training, what we did and the patient is sputum positive, we just tell him, "your sputum is positive, you are going to start treatment, it's going to be six months" and all that. You don't find out from the patient, 'okay, you are sputum positive, how do you feel about that'. You didn't take much notice of the patients feeling. ... You just tell him, 'you're sputum positive, you're going to take treatment'." (TB Nurse)

The clinic experience for most patients was characterised by long waiting times:

"That at least there must be a fast lane, patients mustn't stay there for long hours, we must try and do things that will make patients not wait a long time." (TB Nurse)

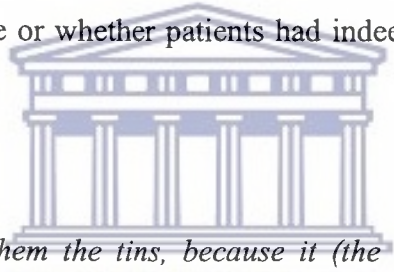
The nurse would dominate the initial patient interview in a task-oriented manner:

"...we're doing the same interview, but now in a different way." (TB Nurse)

Volunteer TB treatment supporters, already enlisted by the clinic during 1999, were providing a poor quality service to patients:

"And there was misuse of the tablets by the volunteers, cause you find out when they see somebody with TB signs in the location, they will just take the treatment and give to that person instead of sending that patient, to the clinic." (TB Nurse)

Clinic nurses found it difficult to monitor the quality of DOT rendered by TB treatment volunteers. Nurses could not be confident that patients had received the correct daily treatment dose or whether patients had indeed taken their treatment for a full week:



"Unlike when we giving them the tins, because it (the loose pills) was in the container, so we don't know whether he has taken for the full week." (TB Nurse)

As a result of poor patient care practices nurses found a high proportion of TB patients were interrupting their treatment:

"...before we started this intervention we had a lot of interruptions." (TB Nurse)

TB patients tended to also interrupt their treatment in order to attend traditional healers for their care:

"...because some of them didn't finish treatment because they went to Sangoma's and all that."(TB Nurse)

Trained community volunteer TB treatment supporters are convinced that there is a huge burden of undiagnosed TB within the community:

"Because you find that in the areas you live in, there are many people who have TB. And the day Sister Dorana approached us about looking for volunteers, for us to go to workshops. We found that – in fact I found that it helps me because even at home there is someone who has TB, in fact who works at my home. You see I took him/her to the clinic, and I sent him/her to Sister Dorana and she got help there." (TB Treatment Volunteer)

Respondents also suggest that several factors contributed to a poor working environment at the clinic. There was a high absenteeism rate among nurses according to middle level managers:

"Previously nurses that are working used to get sick a lot. Some of them ... You know when you are stressed, stress goes..." (Middle-level Manager)

Pill-packs comprising loose pills, for assisting patients supported by the volunteer TB treatment supporters, often took up to two days to prepare at the clinic:

"...the packing was taking two days or more, to pack them." (TB Nurse)

Nurses spent an inordinate amount of time outside of the clinic delivering TB medication to TB treatment supporters.

"...before we used to go and deliver the packet, but when we used to go and deliver, the nurses had to be on the (TB) spot for almost half a day." (TB Nurse)

The clinic headcount, used by the district management to plan for clinic staffing, was incorrectly done: 0

"...so we lost about 200 patients per day, 100 per day for TB's because they are not given numbers, so we are losing them." (Clerk)

The poor quality patient care results from the "over-working" of clinic staff:

"...I said not doing it properly yes, yes. You see I feel that if they have time, they're following supporters, they're following (the) patient properly, then they're doing it properly, they're going to have proper outcomes, whereas when there's too much work, they (will) perhaps skim over and miss things like (when) somebody is defaulting, they're not out following the supporter and saying how are your patients, are they coming in everyday, ..." (Project Research Assistant)

The clinic manager felt that staff who previously worked in the TB section tended to adopt an attitude that prevented further learning about the TB control programme:

"...to me as a nurse, number one is the attitudes, attitudes are very, very important. When you work in a profession like nursing, as the time goes on some of the things that you were very good at with the changes that are taking place especially in a service like TB, you know TB there are so many changes. If you were good at TB at the time I started as a nurse and you have left, at least you know the basics. You know that TB is preventable, TB can be cured, all that. It made me to make, to feel like saying to all the nurses they must, even (if) they are (not) allocated to work in the TB section they must keep on going to the TB service so that they are kept serviced, well informed about TB all the time." (Clinic Manager)

The data suggests that staff were poorly supported at all levels of district health management resulting in poor management of TB services. Senior district management was unable to visit the clinic and the project to provide support and recognition of staff effort:

"Since last year, I haven't been to any clinics. So I cannot tell you, to be honest, that I have been to Zwide to observe, I haven't had the opportunity ...first of all I've never been there to observe them, I just haven't got the time." (Senior-level Manager)

Middle level district managers were also unable to provide adequate support to clinic staff due to time constraints:

"You know there is no time, we never have time to go to the clinics as supervisory staff and find out what their problems are." (Middle level Manager)

The result of not supporting clinic staff is that the recording and monitoring of TB data, and general performance, started to deteriorate. This is confirmed by the poor quality of recording in the TB registers for 1998:

"...I really feel that the management has not had the time to get in and to supervise the clinics because my experience has been that I found a lot of information that was not correct ... the middle management people I feel should have more time, more opportunity to spend time looking at tuberculosis records, looking at registers, drawing odd cards because the 1998 information was terribly wrong we had to actually send registers back and say please complete." (Project Research Assistant)

In addition, the general practice of staff rotation in the district has had a negative effect on the performance of the TB control programme according to the research assistant:

"...I know rotation is important but I feel actually that rotation upsets the tuberculosis programme somehow. Because you're getting a new person who maybe hasn't got the understanding (or) the interpretation (skills), they don't interpret what they've been asked the correct way. And therefore sometimes I find

the treatment outcomes weren't as they should be when you follow through the (TB) register." (Project Research Assistant)

B] Perceptions of TB Control Practices *after* implementing the intervention

1.a) Factors facilitating implementation of the "Package of Care"

Respondents report many factors that facilitated the implementation of the as a "package of care". There was a lot of enthusiasm for the project high from all stakeholders including community volunteer TB treatment supporters:

"I found that it was the right thing to start with...." (TB Volunteer)

The clinic staff showed excitement at the prospect of working in a project team comprising representatives of all the major stakeholders especially senior management. This sentiment probably also reflects the fact that senior management is scarcely seen at the coalface with clinic staff:

"The training was fantastic. And it made our, because we also had the volunteers. And they had also had the chance,... it was nice, because we're working with our...(senior) admin people. So you can feel that we're on the same level when you do your work you see." (TB Nurse)

Middle management staff expressed confidence in the project especially with regard to improving TB control performance:

"That is what I like with Kopana, that you treat the person in totality. That is why I wish this Kopana could be extended, that is my objective, (it) can go on to all our clinics." (Middle-level Manager)

"So if we can apply this,... Kopana, effectively, we'll be able to improve the defaulter rate, interruption rate and also increase our cure rate." (Nursing Tutor)

Only three of the five intervention components were ready for implementation at the beginning of the intervention period in January 2000. A willing and able community volunteer TB treatment supporter network was one the three intervention components available to this project. Generally, clinic staff experienced the volunteer network to be helpful to the TB programme. The involvement of treatment volunteers has resulted in a perceived improvement in treatment adherence for community-supervised patients:

"And we noticed that by training these people there is improvement for the patients to finish the treatment." (TB Nurse)

Volunteers also assist clinic staff with outreach home visits to help with the recall of TB patients who have missed treatment doses:

"So the volunteers also help us with the visiting of the homes even it's after hours, because they are staying together." (TB Nurse)

Most volunteers are now quite effective in the service that they render and work well with the clinic staff:

"Now, mama, I can promise you that they are coming right, but when we started we had hiccups with them, but now they're on the groove." (TB Nurse)

Volunteers are confident in their ability to interact with the TB control programme. They are also confident that the clinic has now come to depend on them for the delivery and marketing of effective TB services to the community:

"...and they also say that they can't work alone without us, because they see that our contribution is big. And they don't have too much work now; it's because they can see the part we play. So they also find that in other things they are not satisfied if we are not there. Like if there is TB day, they need us to be there in all those things. So they are not people who put us behind themselves, and they want to be at the front." (TB Volunteer)

The technical and research support available to the project helped to ensure co-ordination of all aspects of this multi-layered intervention. The project leader and the research assistant met regularly with the project team to help develop, support and implement the intervention:

"...they're having regular meetings, together as a team. And we also have meetings with them and (the project leader) where evaluate from time to time and open up to them...themselves" (Middle-level Manager)

It was important to carefully plan entry into the community to obtain their support. The project was first presented to representatives of the Zwide community before it was initiated. The community has also helped to facilitate aspects of the intervention:

"...for example the TB committee was formed in a meeting here in Zwide and (the project leader) explained about this project, this Kopana project. So now we work together with the TB committee, and Kopana team, there's no problem..." (Health Advisor)

1.b) Barriers to implementation of the " Package of care"

There were many barriers to the successful implementation of this "package of care". The unplanned introduction of chronic medication at mid-year and midway through the intervention period contributed significantly to the project losing much of the momentum it had gained by then. Senior district management was aware of the impending rush of patients requiring chronic medication sent from hospital outpatient departments to the clinics:

"I can only say that the only down side in (my) mind is, are you going to have enough quality time to train the people adequately and are they going to be given enough time with the ...Because with the introduction of comprehensive health care and the move away from hospitals, supposed to be, the hospitals out patients to the community health clinics, there's a tremendous amount of work at the clinics..." (Senior level Manager)

Clinic staff were also aware that the increase in clinic patient numbers was due to the additional services now being offered at the clinic:

"...And what what was happening, towards 1999 the year 2000, when I looked at the numbers really it was clear that the head count during the time when we were doing Kopana, the numbers were on the increase because of the increase of the numbers of the services that we're doing. Prior (to) 1998 we didn't do any adult curative, we didn't do any chronics, the numbers were quite low." (Clinic Manager)

"Because of pressure, because, this thing, that is why I say to you, Kopana was introduced at the same time that other services also, that is the chronics were also introduced" (TB Nurse)

The negative impact of clinic staff shortages, while widely acknowledged by district management and project participants, could not be resolved by senior management staff who were aware of this problem:

"...also people are now, they (are) hopping from one clinic to the next, they're brow beating staff, so that is also an impact on it. In the end it's the same thing with HIV/Aids epidemic, if we're not going to have quality, you're not going to achieve results." (Senior level Manager).

All levels of clinic staff are concerned about the impact of additional services accompanied by no increase in staff. These concerns may have contributed to the increase in tension between project and non-project staff:

"...I was saying that this research came at an unfortunate time when the service, in the services, we had to include services like adult curative, chronic services, which services have got growing numbers of patients and that made the work a little bit difficult." (Clinic Manager)

"She (would) say, 'Where must I get somebody, (there) is a shortage of staff, finish those patients before you go out." (TB Nurse)

"Only I see that there's a shortage (of staff), the sisters are very busy, they must do this (pill) packing, they must take it to the community. At the same time there's also work that is waiting for them." (Health Advisor)

Non-project staff who were trying to cope with the extra load of patients saw the project only as additional work in a context of insufficient staff:

"And er the other thing is with the additional work, work load there was no additional staff. ...They had to divide themselves, the people who were doing research, they had to do the chronic patients, they had to attend to research." *(Non-project Nurse)*

The lack of staff support was felt at all levels of management. The clinic manager appeared to be overwhelmed by the demands made upon her and, despite being part of the project team, found it difficult to develop innovative solutions that could support her staff in these challenges:

"If you tell them 'look I do want to do this for the TB patients but because of the unavailability of the car or because of the overload of work that I've got to do inside I'm not able to go out', they'll tell you, 'no, you are supposed to do it, do it because its your duty, you must see the patient, all the nurses supposed to see all the services', meanwhile they know that practically you are not able to." *(TB Nurse)*

Project clinic staff perceive middle management as being unsupportive in their response to clinic problems that developed as a result of the increase in the number of patients now attending the clinic. The development of tensions among staff was contributing to the intervention not being implemented effectively:

"Even when we had this problem, this conflict in between the two groups, the Kopana group and the other nurses, it even reached Mrs Ncandana, she didn't have much to say,she just ends up saying'no try and bear with the others', that's all." (TB Nurse)

Senior management admitted to not being able to provide clinics with the required support. It would appear that this level of management also felt unsupported in the work that they needed to do:

"You know, to be completely honest with you, we are totally understaffed and I am not making any excuses for that. I am so busy, I have a deputy, because I run this department alone...Since last year, I haven't been to any clinics. So I cannot tell you to be honest that I have been to Zwide to observe." (Senior-level Manager)

Various logistical barriers arising mainly from poor management practices made the work of the project team more difficult. Poor management of the frequent competition for clinic transport sometimes meant it was not available on time to deliver the TB medication pre-packs and render support to volunteer TB treatment supporters:

"Like if I've got a problem with the car...you find that you don't get the car." (TB Nurse)

The clinic was not being supplied with basic filing stationery resulting in an inefficient filing system. This also affected the filing of TB folders:

"...we do get files that are now missing because of the type of file that we're having, the file(s) that are having no cover..." (Clinic Manager)

Inadequate shelving space and non-disposal of "old" files was becoming a problem:

"... and we are running short of space now all the time they are full, they must get, take out cards that are over five years for, take them out and place them out for burning,..." (Clinic Manager)

TB folders were filed alphabetically instead of by TB registration number. This often made it difficult for someone who was not familiar with the clinic filing system to find TB files. The project research assistant needed to access TB folders to verify the data being entered in the TB registers:

"What I was looking for was register number cards, ...now in the TB programme everybody is given a register number...it would have been that much easier if they were filed...numerically, (but) they were filing alphabetically,..." (Project Research Assistant)

2.a) Factors facilitating the delivery of each component of the "Package of Care"

I. Staff re-orientation training

The training was well received by all participants in the project. Participants showed enthusiasm for the training even though it revealed shortcomings in their own prevailing clinic practice:

"The training, it was very fine because you find out at times, after the training you notice that there is a lot of things that you've been overlooking, meanwhile they were vital." (TB Nurse)

Staff found the training exercises on teambuilding and developing relationships helpful in contributing to a stronger and more caring health team:

"Also relationships with the community, with the patients, and the relationships amongst yourselves as nurses is very important and during that session all those things came up." (Clinic Manager)

"In this project, the project was not only focussing on nurses, we had volunteers, we had cleaners, we had clerks, the top management and middle management (the) in-charge of the clinic, everybody was involved." (Nursing Tutor)

The training content was described as "impressive". Unlike most other technical training on TB to which participants had been exposed, this training focussed on improving the motivation of participants, the illness experience of TB patients and general management support of clinic staff:

"But what I like with Liz, she also included other aspects, team building, other things that can also contribute to the management of TB. ... So I was somehow impressed because with me as a trainer, I was mainly concentrating on ... how to prevent, how to treat." (Nursing Tutor)

Participants appreciated the opportunity to reappraise themselves during the training:

"So through the training you were able to introspect yourself, and say okay, I think I've been doing the correct, meanwhile I was not doing it as it's supposed to be." (TB Nurse)

Management staff also appreciated this opportunity to reappraise themselves:

"You look at yourself first. Cause the thing that ...introspection was done and be honest with yourself ...then from there you would take a step forward, during the sessions ...to try and develop the skills that you have. This has also developed us ...Changed the bad for the good ..." (Middle-level Manager)

The emphasis of the training on taking an empathetic approach was found to be very useful:

"And it helped us because once you get that chance of talking to that patient and try and help him solve the problems that makes him to drink, that patient ends up really stopping drinking. Which helps also the compliance of the treatment." (TB Nurse)

"It does make (a) difference, because you'll find out now that you've talked to the patient to help him solve the problems, the patient will get better and she'll have more confidence in you. ... and then by so doing, you are able to help him and she is able to continue the treatment and finish." (TB Nurse)

Participants found it useful to learn the technique of using a client-flow analysis to help them understand ways of improving the patients "journey" through the clinic during the treatment experience:

"So we decided to discuss the things that make the patient to wait for so long. ...Instead of staying there for long hours, the patient will stand in ..., must go straight to the TB section and the nurse who is there is going to investigate until the results are back, the patient is admitted in the TB register and the folder is made in the reception." (TB Nurse)

Participants appreciated the way in which techniques of communication could be used when interfacing with caregivers:

"So you must just accept the supporter as she is, and you must just come to the level of the supporter because we have got supporters who are not educated, so I must just come to their level. So you must talk the same language with the supporters, that's to communicate. To teach the supporters ...to also communicate with their patients in the community." (Health Advisor)

Staff found the training exercises on teambuilding and developing relationships helpful in contributing to a stronger and more caring health team:

"Also relationships with the community, with the patients, and the relationships amongst yourselves as nurses is very important and during that session all those things came up." (Clinic Manager)

The clinic manager found the problem solving approach used in this training very encouraging because it promoted confidence in clinic staff to attempt innovative solutions at the source, rather than waiting for interventions from district management staff. This participative approach probably made her feel less burdened:

"The group intervention is always important. For instance the problems that we're experiencing in this clinic could not be solved by any other person, even the management could not solve the problems that we (are) dealing with in Zwide. The problems are going to be solved by the people working in that clinic." (Clinic Manager)

The TB clinic staff felt confident that most of the intervention objectives planned during the training had been successfully achieved:

"To me, it has been a success because some of the problems that we planned to overcome we did overcome, most of them. It's just here and there that we couldn't meet, couldn't solve the problems." (TB Nurse)

II. Patient Adherence interview

The patient adherence interview allowed clinic staff to gain insight into the importance of providing the patient an opportunity to voice their own problems. Participants gained an understanding that the need for a patient-centred consultation was necessary for patients to have an opportunity to speak out their concerns at the initial interview:

"In the training we did exercises on how to interview a patient effectively and how to (do) the interview and now when you interview the patient, you must not, your

questions must not be leading to the answers, give the patient a chance to speak out all his problems and then we talk together to try and get the solution instead of giving the patient the solutions, ..." (TB Nurse)

Participants saw the adherence interview as an appropriate opportunity to introduce the educational photo-novella to patients:

"...we're doing the same interview, but now in a different way. But in a way it was the same but slightly in another aspect I will say and the booklet has also helped us. Cause when you talk, when you show them the booklet, you've got something to talk about and puts the emphasis." (TB Nurse)

III. Educational Photo-novella

The use of an educational, photo-novella on TB was easily accepted as the most appropriate method of approaching the twin challenges of education and support for the patient, simultaneously. This approach was aimed at helping patients improve their illness experience in several ways. The novella reflects the actual physical environment of Zwide in the background of the photo-story creating an immediate familiarity with and interest in the story:

"It's interesting because the things it describes are things that you find happening in the community, even to you perhaps. You find that what you are reading affects you in a certain part perhaps that is in there." (Patient on clinic DOT)

By personalizing the novella with the name of the patient it was hoped that patients would be able to identify with the story more closely:

"Firstly on the first cover it's personal to them, you can see it's written so and so, 'Dear so and so'. Meaning that it belongs to you, so and so. 'Dear Phumi', because we always write the clients names. Then you can, you can read what is written there, because it's written there, straight. And you explain to them, 'Look at this cover, this is written, is written'. You read this from here." (TB Nurse)

The simple and interesting storyline would hopefully encourage patients to actually read the contents and identify with the illness experience described:

"Because if you are not the kind of person who likes to read, so when you take it to read it, you find that it doesn't bore you and you put it down, maybe like other books that you feel 'Oh no this is just a story it doesn't affect me', but you are interested in reading it until you get to its end. And it's small; it's not a big book, So that (is) what makes it – to me anyway – interesting." (Patient on clinic DOT)

The countdown calendar at the end of the story was introduced to encourage patient retention of the photo novella for at least the duration of treatment. The calendar was also meant to serve as a reminder to complete treatment:

"Like you see now I've come to so many weeks of having the injection. You see at the time when I used to go there I would scratch, scratch, scratch, scratch until my days were finished,...so now I know where my last date is for finishing....you are clear now where you are. Rather than not knowing, because that's another thing that's going to make you lazy, it's not knowing, because that book guides you in that." (Patient on community DOT)

The central character's experience in the story becomes a role model experience with which patients can easily identify and emulate:

"And because it's about TB, maybe you read it and maybe you put it down, you know that you also have TB, you are like (the) person in that book. When you see that thing, when you see that what was in that book happened to me, you take it again and you will finish it, ..."(Patient on clinic DOT)

Patients feel encouragement and hope from the story line:

"So that book encourages us then, it says we shouldn't lose hope, it shows us that as the time goes on we will be well, and we will be like her. Because she accepted

everything she was advised until it was time for her to be well. So with us as well, as time goes on, when we have finished we will be well." (Patient on Clinic DOT)

The novella also helped clinic staff to reinforce many verbal health messages:

"Sometimes you find that when you are giving the education to the patient, the patient doesn't absorb all of what you have explained to her and to him ... you find that all the signs and symptoms of TB are here, even if you didn't know that you had TB, but if you read that book you will help even the one that is next door." (TB Nurse)

The novella also relates to a common respected cultural practice in Zwide, the use of traditional healers. The story line reinforces the patient's adherence to TB treatment despite the perceived common use of traditional healers by patients:

"But it did help, because some of them did find out they had similar problems and now they are able to, once they read that book they are able to, comply and finish their treatment, because some of them didn't finish treatment because they went to Sangoma's and all that, now through reading that book they do get advice."(TB Nurse)

IV. Pre-packed TB medication system

This system helps TB patients in a systematic way to complete their treatment. The system helps patients to feel secure that the full course of treatment contained in a "treatment box" will always be available to them while on treatment. It also motivates patients by providing a visual cue with regard to treatment progress on a daily basis:

"So when he insists, that okay this is hundred, so this is hundred to 20, they already know that this is the last packet, so they can see, 'I've finished another string nurse, I've finished another string'. So it's the string thing which makes them also to see that at least it gives them that 'Okay, I've finished this one so I must go for, I've got three to go'. They've got something that they're looking forward." (TB Nurse)

It also helps clinic staff in several ways to render DOT. It assists in correcting past strategies by ensuring that volunteer TB treatment supporters have a more efficient method of delivering the correct daily dose to the patient and also in preventing the practice of TB "pill-sharing":

"And there was misuse of the tablets by the volunteers, cause you find out when they see somebody with TB signs in the location, they will just take the treatment

and give to that person instead of sending that patient, to the clinic. Now that there are pre-packs they don't get that chance..." (TB Nurse)

This system helps to save "pill-packing" time because the municipal pharmacy supplies the TB pre-packs, saving the clinic staff valuable time and effort:

"...the packing was taking two days or more, to pack them. But now when the packs came ready... it's easier. If I go to the pharmacy room, I just get that string (of twenty pill packets), it depends what (string type) he must get, then you get that string and then you just write the name and it's easy." (TB Nurse)

The monitoring of missed doses is improved because the system allows for a rapid visual assessment of "missed doses" that can be checked against the written record for the past treatment month:

"But now with twenty you can see when you go and check these volunteers and that twenty string, that is a whole month, you can see, when he came in the month, he didn't came for four days or for three days and when you ask, then they'll tell you "no he didn't come on that day, no, that day he went to PE". So you will see at least how he, how much he had." (TB Nurse)

The system is user-friendly and easily accepted by volunteer TB treatment supporters:

"So if it is that yellow envelope they know it's a re-treatment patient and this patient must have treatment for 8 months and if it's that white envelope, that envelope is specially for new patients. So they know that this patient is supposed to get treatment for 6 months. So that is why I like this (pre)-packed medication, it is more easier for them to use than this er treatments." (TB Nurse)

V. Volunteer TB treatment supporter network

This network helps patients in several ways agree to receive TB care support from community volunteers. It improves patient access to TB treatment at minimal cost when compared to clinic treatment:

"You no longer suffer with things like the fare because you know that there is this person who is close-by, who gives pills. That is another thing that helps some of us because what makes it difficult for us, it's living in other areas and not having a clinic close-by." (Patient on community DOT)

There is less waiting time for patients being supported by the volunteers when compared to the experience of these patients at the clinic:

"Because it happens sometimes that you get up early because you have to go (to) the clinic, you have to walk a long distance, when you get to the clinic you have to queue up. The people who are from Zwide , and from Govan Mbeki, you all take

treatment in the same place. At least when its give to me privately on the side, there's nothing to hold you up (delay) because its cool, you are the only person they are waiting for, you are given, you take it, you leave." (Patient on community DOT)

Attending a volunteer TB treatment supporter in the community provides a caring, individualised experience closer to home:

"My volunteer, where I take the pills, I take them from her at nine, when I get to her, just as I come in, she asks me how I feel, and she's a kind person. Sometimes I stay and forget that I have come for treatment, she chats and gives me the pills and water and I drink in front of her. And at home as well, if I'm sleeping, I'm woken up to go and get the pills, I'm reminded that I should go and take the pills." (Patient on community DOT)

The network of volunteers also helps clinic staff in many ways. Volunteers are able to assist with visiting the homes of patients who may be interrupting treatment or who may require to provide sputum specimens at the clinic:

"So the volunteers also help us with the visiting of the homes even it's after hours, because they are staying together." (TB Nurse)

Volunteers are aware that they are of great assistance to the clinic because there are now fewer patients that need to attend clinic for daily treatment.

"Because truly that thing of volunteering has made our nation to improve well. The clinic don't have a problem, it's not full." (TB Treatment supporter)

The report on patients given by volunteer TB treatment supporters helps clinic staff appreciate the experience of patients living in the community.

"If you are working with each other as a team we'll be able to solve some of the problems because they'll be able to report the problems that they are encountering in the community to the nurses and we'll be able to solve that problem with them and with the rest of the community, because they are the ones that are staying with the clients, we don't know really how are the clients behaving when they are with them, because they are with us. They pretend as if they are good or whatever. But because they are the people who are staying with the clients they are able to tell us more about the clients and will be able to understand the clients more."(Nursing Tutor)

Volunteers also benefit from the experience of supporting TB patients by learning new skills and becoming part of a caring team:

"...their skills have been developed too, listening, sharing and interaction. And they have been trained as well. They have developed themselves skill wise, they have also developed themselves in team wise, attitude..."(Middle-level Manager)

2.b) Barriers to the delivery of each component of the "Package of care"

I. Staff reorientation training

Some aspects of the reorientation training served as a barrier to its success. The selection of only certain staff for the training may have contributed to the development of staff tensions:

"Unfortunately I think that because of the workload we were not able to train the rest, the whole staff of Zwide Clinic, we just selected few from Zwide Clinic, so that's why there is a problem. If they were all trained I think they would be able to support each other."(Nursing Tutor)

The co-facilitator felt that the short contact training time available to participants was insufficient:

"But I felt that the time was somehow short, because we were starting at one to 4 o'clock.... some nurses were staying far away they were forced to leave earlier.... it was not enough for the project..."(Nursing Tutor)

Volunteers and cleaners found difficulty at times with the use of English as the main training language despite translation into Xhosa being made available:

"...we've mixed the top management the cleaners and the volunteers, the language was a problem, we were supposed to interpret in between and it was also delaying and the level of the understanding was not the same."(Nursing Tutor)

Volunteers found it difficult to be openly critical of nursing and management practices:

"And with the volunteers really it was also difficult for them to say negative things about the nurses, because the nurses were also here..."Nursing Tutor)

A perceived weakness in the training was the minimal content on the technical aspects of TB, for the benefit of volunteers:

"...she didn't say anything about TB, how is, what is TB infection. She only focused on this, so what I'll just add is for the volunteers, especially the volunteers, to know more about TB."(Nursing Tutor)

The duration of pre-training briefing for co-facilitators was perceived as being insufficient:

"...we used to meet at 11 o'clock, for plus minus 30 minutes, and we were expected to go (into the training session) immediately after that so we didn't have enough time to meet with each other to prepare for the session."(Nursing Tutor)

II. Patient-adherence interview

Unstructured observations at the clinic revealed several areas of concern with regard to the client-adherence interview. The client interviews were often prolonged due to frequent and unnecessary interruptions:

"The next patient comes in...The patient wants to change the venue where they get medication...(the TB nurse) goes off asking for something and the man who wants to change dots venues is left sitting. She comes back and fills out a card for the man to change. She asks questions but the man looks irritated... The man wanting to change is still sitting and (the TB nurse) is talking to him....While taking a call, (the TB nurse), who is still not done with the man does other things like stapling, then continues with the call before completing with the man." (External observer)

A large and impersonal distance of about 4-5 metres and a large desk separated the client from the nurse:

"I get the impression that the nurses separate the patients from themselves with the desks because they speak to the patients from far across the desks." (External observer)

Clients are usually grouped (2-4 clients per group) during the interview making client confidentiality and participation problematic:

"There are two patients in the room, plus another nurse." (External observer)

The consultation room setting was noisy, untidy and appeared disorganised:

"The room looks untidy to me. There are some photocopied posters which have been coloured in, a basin and HBP meter. Boxes stand on the cupboard with stickers of the New Apostolic Church on them. There is a box of gloves, medication which looks like pre-packs, a lever-arch file, cup, unused box of files, some posters not yet pasted up. The desks are full of stuff. There is a box under the desk with what seems like unfiled specimen/sputum results, in other words lying loose." (External observer)

III. Educational Photo-novella

The unstructured observation sessions revealed that the photo-novella was usually issued in a task-oriented manner at the end of an impersonal client interview that lacked individualised attention to patients:

" This feels very impersonal to me. The book is just another task. She seems to enjoy showing and explaining it, but no one gets individual attention." (External observer)

IV. Pre-packed TB medication system

Several aspects of the TB Pre-pack medication system did not allow the system to be fully implemented. It was difficult to find sufficient and appropriate clinic space to store the individual pre-packs:

"But here at the clinic the packs were also another story, because of, we didn't have a space to pack it. It's only recently that we have some cupboards and we still don't have the whole lot, but at still at least now we're trying because if we, if that can be successful and we have the cupboards." (TB nurse)

Some additional work is required to prepare the "patient treatment box" that contains the full course of treatment for each patient. Thereafter more time could be spent in supporting patients through their treatment:

"...client and it's supposed to be six months, then I keep the whole six months, okay for today it's going to be some (additional) work for me, but it will be only for today. Because each and every time now that guy comes in, when that first string finishes, you take off that twenty, just push it at the back, bring one to the

(white) packet. So you'll be having that whole (treatment) for the six months (in one box)." (TB Nurse)

Patients on community DOT appear to regard pill taking as more important than the testing of their sputum, resulting in delayed or even no sputum specimens being submitted to the clinic:

"With the TB clients what we found out, I would say, as long as they've hear(ed) that they've got TB..., some of them they think okay, it's okay they're taking tablets, what they want to do is just to take tablets, so it's a not a new thing for them not to come in for sputum production." (TB Nurse)

Delayed delivery of TB treatment pre-packs resulted in patients missing doses of up to three days:

"...we don't have time. Because that some of them they finish their packet on Monday some on Tuesday and you are going out only on Thursday. Now... you find that the patients and the volunteers some of them, they're not prepared to come to the clinic or they don't have money to catch a taxi to come to the clinic. Now there is that break of two, three days in between." (TB Nurse)

The pre-pack system was seen as more work by clinic staff because it requires additional writing work and checking of stock documentation:

"But with the packaging, that writing is a lot of work, because we've got to write on the packets, you've got to, that checking forms and all that, that is the problem." (TB Nurse)

Clinic transport is a shared resource that was not available at times for planned TB work:

"We didn't have time on Thursday, it was impossible on Friday, because of (staff) shortages, because we can' make it at times, because the car is not available." (TB Nurse)

V. Volunteer TB treatment supporter network

The process of involving volunteer TB treatment supporters has also met with barriers. Both volunteer TB treatment supporters and TB patients in Zwide are faced with the daily effects of poverty but the additional burden of being a TB patient makes it difficult for supporters to ignore the immediate needs of patients:

"Maybe you also don't have anything at home, 'No then so and so wait then, when you have something to eat perhaps during the day, come back and take it' If maybe you have food, even if its bread you give him/her that bread, just so that s/he can take the pills. Others have a problem with food in the morning; maybe

s/he doesn't have it. That is another thing that gives us a hard time." (Treatment supporter)

Volunteers found certain clinic staff to be "insulting" at times:

"Maybe I say to, 'lady I have a certain patient and this certain patient doesn't want to take the pills maybe in the morning', s/he runs away from me, 'Now what do you want me to do about that? 'It's your patient', she talks like that, she doesn't consider your feelings when she answers you. And yet when you were going to her, you wanted help from her as a person who is above you, to advise you." (Treatment supporter)

Volunteers do not feel valued or respected when they are made to wait at the clinic before being allowed to give a report on a patient. This experience may cause the volunteer to provide less care to TB patients:

"Yeah you see that they are fed up with us, and you feel that mm- so much that I have decided that when a person has a problem or not, I don't care. Because I will never leave my home to go and sit on a queue at the clinic because I have brought my patient's problem. And it's like you have to sit on the benches there, and your problems have to stop." (Treatment supporter)

CHAPTER 5

DISCUSSION

This multi-faceted intervention to improve tuberculosis patient care practices in an urban primary health care setting was implemented with some difficulty in the context of a district health system undergoing transformation. In this transforming health care system many varied problems created barriers to patients completing their prescribed anti-tuberculosis treatment.[14] This posed particular challenges for all levels of health care providers when implementation of this innovative intervention to support patients during the long treatment period was attempted.

Respondents indicate that prior to the intervention TB patient care practices were particularly not encouraging for patients to complete their TB treatment.

Similarly, all levels of management found it difficult to provide time for adequate support to staff that would enable health providers do their work competently. The intervention, developed as a "package of care" in consultation with health providers, appears to have been widely accepted by all participants with middle-level management showing positive sentiment for the potential of this approach to improve patient care in this setting.

Implementation of the "package of care" had already gathered momentum mid-way through the intervention period when a management policy decision to

introduce chronic medication at primary health care clinics was implemented. Patients who had previously been seen at hospital outpatient departments were now referred in droves to identified clinics. The process of introducing this new service created further barriers to the delivery of this intervention to improve the TB service at Zwide clinic.

During this period of increasing work pressure clinic staff involved in the project experienced minimal support from the clinic and middle management level for the intervention. At this point the regular supply of vital monthly pre-packed medication and provision of support to the community-based network of trained volunteer TB treatment supporters was also difficult to sustain.

With regard to the components of the intervention "package", the patient-adherence interview was perhaps the most problematic to implement. This component of the intervention was shown through clinic observations to take place in an environment that lacked privacy and confidentiality. This impersonal context was not conducive to patients becoming involved in their own care because their needs could not easily be expressed.

The motivation of patients to complete their TB treatment, an integral theme in this intervention, was well supported through the staff reorientation training that all respondents acknowledged as being beneficial.

As a context-specific educational tool, the photo-novella was found to be particularly helpful by patients in providing confidence and encouragement to continue treatment. The "role-modelling" of the TB illness experience and the familiar residential setting of Zwide depicted in the novella contributed significantly to the self-efficacy that many patients reported to have felt.

Similarly, in a user-friendly way, the pre-packed TB medication systematically promoted completion of treatment by providing a visual cue to patients and health providers regarding treatment progress.

Patients suggest in their interviews that, apart from the improved cheaper access to TB treatment, the volunteer TB treatment supporters provided a caring experience in which waiting time was significantly reduced.

In this study factors that worked well to facilitate the feasibility of the intervention included the following:

a) Enthusiasm: Participants response to the project

Overall, participants were exceptionally happy and excited by this intervention despite some of the problems they encountered. In particular most respondents seem to link success of the intervention with their perception that the treatment interruption rate had decreased.

b) Openness and communication: the impact of the training

The TB clinic staff who participated in this intervention had experienced a change in the way that they work with patients and volunteer TB treatment supporters. The nurses say that the intervention has made them more open and able to communicate in their approach to patients. Before the intervention they ignored the feelings of patients and issued instructions rather than communicated with patients. The in-depth interviews suggest that this new approach included openness, joint problem solving, not asking leading questions and developing an understanding of the cause of their illness. The middle level manager also acknowledged feeling the same effect from the intervention.

c) An increase in patient education: Motivation to complete treatment

Patients on clinic DOT found their treatment at the clinic very helpful and linked the educational aspect of the intervention to being cared for. Patients were very impressed with the simple storyline in the novella that related well to their own illness experience and the countdown calendar that helped to motivate them through treatment. The data strongly suggests that the educational photo novella impacted on patients increased understanding of TB and the need to complete treatment. This is despite the observation that the environment in which the educational photo novella was issued was reported as being "impersonal".

d) The pre-packed TB medication system

The concept that pre-packed medication could also serve to motivate patients contributed to this aspect of the intervention being accepted by both clinic staff and patients. Both the volunteers and the clinic staff agreed that this system made it easier to detect when patients were interrupting treatment and facilitated the early recall of these patients. Packed in this particular way the volunteer was expected to only offer the pills as packaged for that day. Unfortunately, the implementation of this component of the intervention coincided with the entry of

large numbers of patients requiring chronic medication at Zwide clinic mid-way through the intervention period. The clinic manager and staff found it increasingly difficult to implement this pre-packed medication system at this time resulting in only those patients on community-based DOT using the system. The other problem experienced with this system related to the delayed delivery of pre-packed medication resulting in problems with patients missing up to three doses of treatment occasionally. Patients on clinic-based DOT still received their medication the "old way" from a tub of pills.

e) The volunteer TB treatment supporter network

Patients, clinic staff, and management commended the involvement of community volunteers in providing care and TB treatment. The data suggests that volunteers felt empowered by the role they serve in the community and that they enjoyed the task. Also, volunteers appeared to have built positive relationships with the people they served.

When clinic staff were not able to always visit the volunteer as scheduled, problems arose when volunteers had to attend to patient-related issues that they were not able to deal with themselves.

The health advisor in the clinic formed a very good relationship with the volunteers, according to the data. She commented in her interview that she learnt to communicate better with the volunteers through the staff reorientation training and that she thought that this in turn would help with better communication with

patients. The volunteers suggest that they enjoyed a good rapport with her, but that they sometimes had difficulty with other staff. When volunteers needed to sometimes present their patient-related problems at the clinic they disliked waiting in the queue like the other patients and were not always well received by some of the nursing staff. Another problem experienced by volunteers was the poverty of their patients. They were not always able to provide food, which they felt obligated to do, because their own financial status did not always allow for this.

The following factors posed as barriers to the implementation of the intervention:

a) Inadequate management support

Respondents have suggested that prior to the intervention there was inadequate support from management. The intervention strategy sought to involve management at the outset so that clinic staff could be supported during the implementation of the intervention, but this did not work well. Senior management cited time and staff constraints but also felt that the intervention was progressing well based on reports from the middle manager or project leader.

The middle level manager was more involved in the intervention but also admits not having the time to support clinic staff. This lack of support included not doing the usual TB programme activity that required doing a clinic supervisory visit for TB support on a regular basis. Clinic staff also suggest from their interviews as having had no support from the middle manager.

A shift in management style towards an increase in support for staff involved in this intervention, did not take place.

b) An unfavourable social context

In the clinical setting of this intervention only a few of the total nursing staff were included in the intervention training. The number of patients being seen for the chronic care services being provided at the clinic increased from the middle of the intervention period. As a result nursing staff were coping with a change in practice resulting from the intervention and an increase in the number of chronic patients.

This eventually caused staff not included in the intervention to feel excluded with an additional workload of patients and in which the project staff were perceived to be doing only "research" and not helping with the increase in patients. This perception of the intervention staff created tension between clinic staff resulting in an unfavourable social setting for intervention staff to fulfil the requirements of the intervention.

c) Poor clinic resource management

The intervention was introduced at a clinic with a relatively high patient load and with only one clinic car available for all activities requiring transport. The intervention introduced new ways of working especially regarding the support of TB volunteers and the delivery and monitoring of the pre-packed TB medication system. This aspect required transport for the additional visits to TB volunteers

placing an increased demand on the limited clinic transport. The data does not suggest that a management plan for the use of the clinic transport did exist. In fact intervention staff faced increasingly difficult access to the clinic car that made scheduled visits to volunteers difficult to maintain. In response to their request to the clinic manager for assistance the intervention staff found little support. Patients on community-based DOT were therefore interrupting their TB treatment because the pre-packed medication could not be delivered on time.

Clinic staff are also rotated within the clinic and between clinics. The project research assistant commented on this as promoting ineffective practices when staff are not given the opportunity to become fully competent in an area of work before being moved to another area of work. Towards the end of this intervention two nursing staff and the clinic manager were moved just as they were becoming used to the intervention.

d) The patient-adherence interview

Participants were sensitised to doing a patient-centred interview during the staff reorientation training and were assisted in this task with written guidelines from the project leader. Respondents suggest that their attitude had changed towards patients in this intervention with a greater understanding of the patient's social context. Patients also confirm in their interviews that staff were more supportive and also offering education supported with an educational photo-novella.

Observation of intervention staff at the clinic however, show a lack of privacy for the patient and an impersonal setting that created an environment not conducive to the patient's perspective being revealed in the interview.

e) Accuracy in record keeping

The TB register is the cornerstone of monitoring progress in TB at all levels of the TB control programme in South Africa. Allied to this qualitative evaluation, the study was also being evaluated quantitatively. The TB register was requested at regular intervals by the project research assistant for data capture. No additional training or support for the accurate completion of the TB register was offered through this intervention, as this was already part of the usual nursing task. It was found during the process of this intervention that the nursing staff were not keeping an accurate record of TB data in the TB register and were also not receiving management support in this task. Clinic staff were therefore not coping with tasks already required of them prior to the intervention.

All the components of this multi-faceted intervention, except the pre-packed TB medication system, have already been tested in Cape Town in South Africa. The feasibility of the intervention as a package has never been tested before. The evidence for each component of this intervention can be considered separately.

Staff Reorientation Training

The training programme used in this study has previously been tested in a cluster randomised controlled trial in a similar urban setting in Cape Town.[27] While the

results of the Cape Town study has not yet been published, personal communication with one of the authors (J Dick) has confirmed that the training was well accepted by staff and that there was a significant qualitative improvement in the motivation and communication strategies of health providers when compared to those who did not undergo this training. The main barrier in the Cape Town study was that management level personnel did not support the changes introduced by clinic staff resulting in a statistically insignificant improvement in TB treatment outcome parameters. The data in the present study strongly suggests a similar effect with TB health provider staff where respondents reported a perceived improvement in treatment interruption rates and minimal management support. The effect of training for TB nurses that incorporated the WHO DOTS strategy, patient education and default tracing is reported from another study in Siberia.[35] The enhancement in knowledge and morale of TB nurses together with a reliable TB drug supply resulted in a significant improvement in TB patient treatment adherence mainly through the setting of achievable targets. The Siberia study reports on only the nursing component of a much wider reform of TB services. In the present study the entire health system is experiencing transformational change accompanied by uncertainty at all levels, freezing of health posts and shortages of staff. These factors among many others may serve to demotivate senior district health management to the point where they may be unable to support staff at lower levels to take up new interventions successfully.

Patient-adherence interview

The type of patient-adherence interview adopted in this study was previously tested in Cape Town where it was delivered as a package together with an educational photo-novella.[22,23] As in the Cape Town study, participants were very enthusiastic and reported that their communication style had become more open to allow space for patients to talk about their own concerns regarding possible interruption of TB treatment. In this study the interview did not take place as planned. Clinic observations found that nurses were following the prescribed guidelines but lacked innovation and insight to adapt the available setting for doing the interview to the best possible advantage of patients. It is possible that the preparatory training given to nursing staff was insufficient to demonstrate the way the interview should be done. It is also possible that staff felt pressurised by the relatively large patient workload (now including patients on chronic medication) at the time of the observation study and so lapsed into authoritative mode to deal with the situation at hand. In examining the provider/patient relationship Sbarbaro argues that the modification of behaviour to improve adherence to treatment depends less on the transmission of factual information and more on the quality of the relationship.[52] This supports the rationale for engaging TB patients from the time of the initial interview in order to support patients through their treatment. In this intervention staff tended to relapse into habits that allow them to cope with large patient loads at the expense of quality patient care. Rollnick et al have developed a brief motivational interview that may well help to minimise the time during this interview process but still allow patients to become engaged in the process of behaviour change.[53] There are no

studies from South Africa that have tested this modality to improve TB case holding.

Educational photo novella

The idea of an educational photo novella was proposed and tested by Dick et al in Cape Town.[22,23] This idea was adapted for this study in the predominantly Xhosa-speaking area of Zwide. Patients easily accepted the novella. The tailored presentation and the fact that patients could identify with the illness experience described in the novella increased its acceptability despite the poor state of the environment in which it was issued and the poorly handled adherence interview. The data also suggest that patients felt supported by the role modelling behaviour of the main character in the novella and the countdown calendar at the end. A randomised clinical controlled trial involving an incentive scheme to reward positive health behaviours with targeted educational counselling sessions, also resulted in improved adherence rates of TB patients in the USA.[48] It was not possible however, to separate the effect of each component because the intervention was delivered as a package.

Pre-packed TB medication system

There has been no published research in South Africa on similar pre-packed medication systems for TB. A recent review of 18 studies globally to improve the use of TB medication concluded that a successful strategy should include; (1) an accessible, uninterrupted drug supply (2) increased supervision, preferably DOT (3) defining the expectations and commitments in a written contract, and (4)

simplified treatment to lesson the need for three to four dug formulations.[38] The system used in this study was developed locally. Apart from a written contract, this system achieves all of these conditions and also promotes behaviour change systematically in the way that treatment is packaged for daily treatment. The problems experienced in this study had more to do with delays in delivery of the monthly pre-packs to volunteer TB treatment supporters and in arranging adequate storage space at the clinic than with the system itself. The use of blister calendar packs for TB was tested in the Philippines with great success reaching completion rates of over 80% and 91% smear conversion rates.[46] This method also reports occasional problems in the systematic distribution of drugs but advantages in administrative, operational and logistics outweigh this disadvantage. The Philippine study does not describe a patient-centred context or any behavioural strategy to support the administration of treatment. The monitoring of the correct daily dose is also not well described.

Volunteer TB treatment supporter network

Many studies have been published on this aspect of the intervention in South Africa. In the first South African published study on the use of TB volunteers in 1995 no significant improvement was found in treatment adherence rates.[24] In a follow-up to this study it was found that the effectiveness of using volunteers depended greatly on the persons involved.[25] Several other studies, rural and urban, however report having significant success when involving volunteers to support TB patients in taking their treatment.[14,29,49,50,51] In this intervention the use of volunteer TB treatment supporters was widely accepted by all participants. It is

possible that the method of entry into communities may be as important as the volunteer that is recruited for training. In this intervention entry was obtained through the community based organisations and the clinic committee. Unfortunately this aspect in the involvement of volunteer TB treatment supporters is often not reported in the literature.

Another challenge confronting this intervention is the encounter with poverty in the relationship between volunteers and patients. The Hlabisa TB study mentions this aspect as a positive aspect of the use of volunteers in that rural setting. In this urban intervention this is a potential threat to sustaining the involvement of volunteers and even in the recruitment of new volunteers. The Hlabisa study does not reveal much about the relationship between volunteers and the formal health provider based at the clinic. In this intervention the relationship was good overall except for one report of a negative experience with a clinic nurse.

The Hlabisa study also reports using pre-packed TB medication where the treatment "supervisors" retain all TB drug treatment for a patient and fieldworkers visit the "supervisor" once a month. This strategy could well be applied in this intervention because all treatment is kept for every patient in a patient treatment box at the clinic. The problem of missed doses resulting from delayed delivery of medication could then be minimised.

Many other studies support the central thesis expounded here that patient-centred care is essential to the improvement of TB treatment adherence. The randomised

controlled trial by Zwarenstein et al in Cape Town exposed the possibility that DOT may be used in an authoritative relationship dictated by health providers resulting in poor adherence to treatment.[30] This intervention addresses this strong possibility by advocating for supportive patient measures with every component of the intervention described in this thesis. Indeed, randomised controlled trials in Thailand and Pakistan and other reviews support the view that DOT, including all the elements contained in the DOTS strategy, in a patient-centred context is more likely to lead to improved treatment adherence.[29,31,32,50]

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

In the final analysis the intervention described in this thesis was found through a rigorous qualitative evaluation to be acceptable to both staff and health providers. It was also found to be feasible to implement this intervention in a context of a transforming health system to support patient-centred care practices and motivate health providers in this process despite all the difficulties encountered. Concern can be expressed for only one component of the intervention, the patient-adherence interview, which may require additional attention during health provider training as well as providing an appropriate setting for a private patient interview.

Recommendations to improve the case holding of TB patients in urban settings:

a) The intervention described in this thesis should be implemented as a package and not as individual component interventions.

b) This intervention was tested in an urban, primary health care setting and can therefore be recommended only for similar settings.

c) The re-orientation training of health provider staff should include the majority of staff to avoid the development of unnecessary staff tensions in the long term. Adequate representation from management staff should be solicited.

d) The patient-adherence interview requires training of staff on special communication techniques.

e) The educational photo novella should be context specific as far as possible and designed with the typical TB patient in mind.

f) The pre-packed TB medication system requires the identification of an appropriate supplier of the packaging material and then packing of the pills at a pharmaceutical depot. Appropriate packing space should be made available at the facility.

g) Appropriate entry into the community for recruitment of community volunteers to become trained as TB treatment supporters.

h) This multi-faceted intervention requires that all the components of the DOTS strategy should be present, and is not a replacement for it.

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