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Challenges of Directly Observed Treatment Strategy implementation in eThekwini Municipality, South Africa

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Abstract

EThekwini Municipality in Kwazulu-Natal, South Africa has a high prevalence of Tuberculosis (TB) and reported a defaulter rate of 18.9% in 2007, in spite of the Directly Observed Treatment Short Course (DOTS) which was adopted in 1996. While numerous quantitative studies have evaluated aspects of the DOTS programme in South Africa, there are limited qualitative data on this issue. The aim of this study was to determine the challenges associated with the implementation of the DOTS programme in the eThekwini Municipality. Five participants, who were all involved in TB management and control within the municipality, were interviewed. Textual data were content analysed. Three themes relating to healthcare personnels' reports on the challenges associated with implementing DOTS in the municipality emerged from the inductive analysis of transcripts namely; inadequate follow up and tracing of patients, training of health care personnel and choice of DOTS supporters and DOTS sites. In spite of the eThekwini Municipality's commitment to TB control and management, problems with implementation of DOTS persist. Communication, reporting and co-ordination between the different levels of the TB programme are essential to optimise patient benefit from both the TB programme and community or home based care.

Keywords: Tuberculosis, Directly Observed Treatment Strategy, short course, community and home based care.

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Introduction

South Africa (SA) has a long history of a high prevalence of Tuberculosis (TB) where in 2005, the estimated national incidence of TB was 600 cases per 100 000 persons per annum, the third highest rate in the world (Harling, Ehlrich & Myer, 2008). TB is an opportunistic infection associated with HIV/AIDS and KwaZulu-Natal (KZN Province) in South Africa is reported to have the highest HIV prevalence of 37.4% with those of the other eight provinces ranging from 17-36.7% (Khumalo, 2012). The eThekwini Municipality, a local authority in the KZN province, services a population of 3.2 million people from both formal and informal areas. One of the key objectives of the municipality is to provide specialized services to diagnose, manage and treat TB with 135 facilities offering

TB services and a further 18 sub-districts providing primary health care services (National TB Crisis Plan: eThekwini, 2009).

Directly Observed Treatment Short Course (DOTS) as recommended by the World Health Organization (WHO), is used globally and has been a central tenet of TB treatment for at least 30 years (Shin et al., 2004). Its implementation has led to improved treatment success rates in developing and industrialized countries (Khatri & Frieden, 2002). The DOTS strategy combines five elements: political commitment; microscopy services; drug supply; standardized treatment with supervision and patient support; and monitoring and evaluation. By 2005, it was reported that 187 countries, including SA (in both rural and urban areas), had implemented the DOTS programme (Cox, Morrow & Deutschmann, 2008; Ntshanga, Rustomjee & Mabaso, 2009). However, there was a great variation regarding the training, selection and management of the DOTS supporters in these communities (Dick, Murray & Botha, 2005; Abdool Karim et al., 2009). While the five elements of the DOTS programme are somewhat interlinked, this study focussed on standardised treatment with supervision and patient support; and monitoring and evaluation of the programme.

Various DOTS models of community-based care implemented globally involved village health workers, shop keepers and family members (Chowdhury et al., 1997; Zwarenstein et al., 1998). The DOTS strategy allows for the tracing of the defaulters and returning them to treatment as soon as is possible. There has been widespread debate about the ideal approach as well as the efficacy of the DOTS programme itself. Numerous quantitative studies have evaluated the WHO TB DOTS strategy. However, there is limited qualitative data on the perceptions of health care personnel involved in the management of TB. Therefore, in order to achieve effective implementation of DOTS, it is important to gain insight into the challenges experienced by these personnel.

Methodology

The study protocol was reviewed and approved by the Faculty of Health Research Committee at the Durban University of Technology and the Health Unit of eThekwini Municipality. Informed consent in the language of choice was obtained from the health personnel participating in the qualitative interviews. All participation was voluntary and no financial incentives were provided. All data collected were treated as strictly confidential.

Textual data were collected during one-on-one in-depth interviews designed to explore factors relating to the DOTS strategy. A phenomenological approach for the purpose of exploring the TB treatment phenomena was undertaken. The interviews focussed on implementation of DOTS, training of health personnel and health care workers, tracing of defaulters and suggestions to control TB and

the DOTS supporters. Five participants, who were all involved in TB management and control within the eThekwini municipality, were purposively sampled (Houser, 2011).

Interviews were conducted in strict confidence by the Principal Investigator (PI) at a place of convenience for both the interviewer and interviewees and lasted 40 minutes on average. The interviews were tape-recorded. Following the interviews, the PI immediately cross-checked the coded scripts to ensure full and accurate data capture. Interviews were not audiotaped, as the participants felt insecure about revealing their identities. Textual data were transcribed and content analysed, a widely used research technique and refers to the set of techniques that are used to identify, measure, describe and make inferences about specified characteristics within or reflected by written or verbal text (Waltz, Strickland & Lenz, 2010). Open coding was achieved by highlighting keywords and phrases from the transcripts to find common themes (Polit & Beck, 2006). The transcripts were analysed by categorising the interview data under key headings. Categories/themes were combined for all transcripts.

Results

Three themes relating to healthcare personnel's reports on the challenges associated with implementing DOTS in the eThekwini municipality emerged from the inductive analysis of transcripts and are presented below. These themes were: 1) inadequate follow up and tracing; 2) training of health care personnel and 3) choice of DOTS supporters and DOTS sites.

Theme 1: Inadequate follow up and tracing

DOTS was implemented at both facility and community levels in eThekwini Municipality. While the clinic should link the defaulter to a supporter at facility level, participants indicated that this was not regularly done. One participant stated that DOTS was failing due to a lack of accountability and commitment to ensuring that the programme is implemented and followed up as planned:

"*DOTS supporter not accountable to clinic … no one does proper follow ups. When the patient is diagnosed, they are asked whom they would like to be their supporter… and this supporter does not report to anyone.*"

Tracing of defaulters was a major challenge, as most patients did not provide their correct addresses. This was attributed to the stigma associated with TB as well as the desire to attend a particular clinic that was perceived to be "better." This alludes to the perceived inequality in health care in various clinics, as expressed in the following statement:

'There is a lot on why people default. At the Prince Cyril Zulu Communicable Disease Centre (CDC) our main problem is that patients give false contact details - incorrect addresses so they can be seen at this particular clinic, and incorrect telephone no's, so that we can't trace them. This doesn't seem to be unique to Durban as I have spoken to doctors working with TB patients in New York and they have the same problem- they say it is related to stigma. With the cell phones in SA-patients may give us their correct telephone no but since most patients use "pay as you go" - when that runs out they buy a new number and it becomes difficult for us to trace'.

Defaulters were often not traced in time to return to their treatment regimen due to high mobility. One of the participants stated as follows:

"*Giving wrong addresses is common, but it is beyond our control…patients seek intentional access to certain clinics, and most don't want to be known, especially foreigners"*

In the event that a patient did not return to treatment, he/she was regarded as "untraceable" and it was assumed that the patient would seek help in another medical facility. The CDC had no tracer teams and this responsibility was deferred to Environmental Health Practitioners (EHPs) or Environmental Health Assistants (EHAs) within the respective health offices. EHPs/EHAs were required to trace, render health education and return the patient to the treatment regimen. They alluded to *"lack of communication"* and were concerned about people absolving responsibility for tracing them. For instance, one participant remarked:

"EHA (Environmental Health Assistants) tracers' commitment is not very good and I am being polite when I say that..."

The lack of a standardised reporting system was also identified as an impediment to effective tracing and DOTs implementation. The CDC was the only facility with an electronic TB register that captured essential information including addresses, thereby facilitating easier tracing. A participant's comment confirms this view:

"CDC was only facility with the Electronic TB Register that made tracing easier…..other facilities had a written register."

Other facilities had a "written provincial register". These registers were often incomplete and poorly filled out which made tracing defaulters difficult. Additionally, if patients were transferred between clinics or chose to change clinics, the initial clinic of their first visit held their records, which made DOTS implementation and tracing challenging.

Theme 2: **Training of personnel involved in DOTS**

All participants were of the view that the lack of human resources was an impediment to an effective DOTS programme. It was reported that in some facilities, there was only one nurse that was designated to TB patients and that since nurses were "overburdened", they were likely to be stressed and may behave negatively towards patients.

Adequate training of nurses is vital as their attitudes and behavior towards patients may have a direct influence on whether the patient remains on treatment or defaults. Participants agreed that training was conducted on a regular basis although those in service management received the most training. Stakeholders who received training included DOTS supporters, community health workers (CHWs), facilitators and nurses. Training on TB included pathology, diagnosis, risk factors, management, side effects of medication and the TB crisis plan. Training was provided at national and provincial levels on a regular basis (approximately once every quarter on various aspects of TB management) to nurses and those personnel in the municipality who were involved in TB management. However, it seemed that DOTS supporters received limited training, if at all. DOTS supporters were also trained by nurses on a one-on-one basis. There was also the view that EHPs were too busy to deal with TB management and that other health care professionals should be involved. This view is exemplified by the following statements:

"Training used to happen but not anymore...training of volunteers in communities ceased for many years now... HCWs only receive general training. CDC Nursing Services Manager has been to all sub districts and offered training and updates are given on request. Part of the Primary Health Care training course covers TB as well."

Theme 3: Choice of DOTS supporters and DOTS sites

DOTS supporters included members of the community, CHWs and nurses. As soon as the patient was diagnosed, they were asked to choose a DOTS supporter from an available list at the clinics. In most cases, patients chose supporters who were known to them. Participants agreed that familiar supporters could provide the care, love and commitment needed to ensure successful treatment. However, while CHWs and nurses perform this as part of their job responsibilities, family and community volunteers are neither renumerated nor given any incentives. A participant remarked:

'The bad side of it is that there is not enough volunteer supporters because there is no stipend…everybody wishes for something'.

It was mentioned that previously there were many DOTS sites around the municipality and these have seemingly diminished over time. The reasons for this were uncertain. DOTS sites included shops, clinics, "workplace DOTS" or any place that may be easily accessible to a patient. Faith-based organizations, such as churches and non-governmental organisations (NGOs), strengthened relationships between the supporter and the patient. It was important to have DOTS sites within walking distance of the patient's residence as the cost of transport could have impacted on this support system. One participant stated that at the CDC, *"once a patient is diagnosed they are dotted (allocated to the DOTS programme) at the clinic for the first two months"* and are then referred to another clinic which should introduce them to a supporter. Nurses provided DOTS support at the CDC as they believed that patients' family and friends often sympathised with the patient and allowed them to miss treatment. One of the participants indicated that compliance was very low when family members served as DOTS supporters.

"*When DOTS supporters are family...it's very difficult when she is not feeling well, they feel sorry, and can't tell her what to do… oh shame… she does not want to take it."*

It was believed that community DOTS supporters were more effective at improving adherence and cure rates. Involving faith-based organisations such as churches produced a higher success rate for adherence to treatment as patients found it "convenient" to be supported there.

"Involvement of local people, councillors, nkosis and business people is one way of improving this, local people can be involved and incentives given… but the options would depend on the situation."

CHWs also played a role in DOTS and were given adequate training. These CHWs received a stipend for carrying out a range of home-based care duties, one of which was DOTS. One participant related a particular success story with DOTS in Bottlebrush, which is a large informal settlement south of Durban in Kwazulu-Natal. An institute conducting research studies in the area provided a full time nurse based in the area and patients were monitored by the nurse. They initially had 45 patients which rapidly grew to over 200 patients with a high cure rate. Participants were asked for implementable suggestions to improve the DOTS programme. They suggested that a stipend be considered for DOTs supporters with some sort of system of accountability in place. Further, the involvement of key figures from the community such as pastors, councillors and representatives from NGOs could improve adherence to treatment. It was also recommended that nurses might be contracted to work on a shift basis enabling DOTS clinics to be operational over 24 hours. The "mother clinic" at which the initial diagnosis was made should have the patients' records. Very often, patients

would access different clinics during the course of their treatment and needed to have a card that gave them access to medication at other clinics. Mobile records were equally important to monitor patients' history. It was mentioned that more dedicated staff and facilities were needed to successfully cure TB.

"*They need to employ more nurses at clinic level, increase tracing teams, partnerships with other departments, need to have community health awareness, once every quarter, need to treat HIV/ TB.*"

Discussion

Our study revealed that there were many challenges to the proper implementation of the DOTS programme in eThekwini. The results highlighted three areas of concern, which may contribute to the disjuncture between planned policy and action at the grassroots level of health care delivery. These were accountability, inadequate systems for follow up and tracing of defaulters, limited training of DOTS supporters and the choice of DOTS supporters and sites. The eThekwini Municipality adopted the DOTS programme in 1996 which is implemented at both the clinic and community levels. While the action plan was well documented, execution and successful implementation required a level of coordination amongst all stakeholders. A standardized reporting protocol to ensure accountability should therefore be implemented with the roles of various stakeholders involved in TB management clearly delineated.

Nurses played a pivotal role in implementing DOTS; they provided health education counseling and rehabilitation of patients. Clinics were often understaffed with only one designated TB nurse. This may have adversely impacted on record keeping as nurses viewed this as an administrative burden. Globally, patient registration in a TB register is imperative at all health care facilities and includes information such as smear, culture, susceptibility results; clinical status; chest radiograph results; and doses of medication. This allows for early identification of patients who may have potential problems with adherence or response to therapy (e.g. patients who have persistently positive sputum or who are showing resistance to treatment) (Abdool Karim et al., 2009; Ntshanga et al., 2009).

A participant involved with TB management revealed that many clinics in eThekwini did not have access to a computer and used written registers for TB patients instead. These were often inadequately completed in terms of legibility and information. Proper recordkeeping, which is essential to the successful implementation of DOTS, was therefore compromised. Specific information such as addresses of patients was not fully recorded and tracing was thus difficult, even when they were transferred or moved from one clinic to another.

A centralised electronic registration system with records of all TB patients across the province would be ideal for systematic monitoring and evaluation.

The current DOTS programme at eThekwini aimed to use tracer teams to identify defaulters, DOTS supporters and education programmes rendered to patients. However, the findings revealed that there was uncertainty among health personnel interviewed about whose responsibility it was to trace defaulters. They did not know the protocol to follow if a DOTS supporter stopped supporting a patient or could not find the patient and did not report this to the clinic. Participants agreed that it was the responsibility of the EHAs and the DOTS supporters to trace defaulters. However, EHAs were expected to do this as part of their job functions and most volunteer DOTS supporters were expected to do it without any monetary incentive until those supporters servicing Bottlebrush. There was little accountability and communication between different role-players with the added challenge that tracing was extremely difficult in the South Africa context, given that many TB patients lived in informal settlements, gave false addresses, were foreigners and may not have been able to maintain a stable mobile phone number.

Adequate training of nurses and supporters was vital as their attitudes and behaviour towards TB patients have a direct influence on patients' adherence to treatment (Tshabalala, 2007). From responses, it would appear that nurses were adequately trained on a relatively frequent basis, although personnel at management level were given more extensive training. However, participants believed that CHWs who also supported TB patients, received only brief orientation training. On-going education could be a specific responsibility of the CHW, whether or not they act as treatment supporters. Community DOTS volunteers received training from nurses. Even though tracer teams are part of the eThekwini's TB management plan, these health personnel were unaware of any available trained tracer teams. The effectiveness of training at all levels should therefore be regularly monitored and re-evaluated.

Apart from being listed and adequately trained, all DOTS supporters need to follow a set of standard operating procedures and report to a supervisor overseeing DOTS implementation. One participant indicated that all DOTS sites should be listed and DOTS sites at clinics should ideally be operational for 24 hours so that patients do not have to take time off work to collect medication. Participants did not know of any consolidated list of DOTS sites. They knew that some shops and religious places served as DOTS sites, and they assumed that these were operational. Therefore, patients had to choose a supporter from areas close to their homes to facilitate accessibility. The participants in this study believed that allowing patients to choose family members as DOTS supporters was not ideal. Sympathetic family and friends may not provide a firm attitude that was required to continue with treatment in spite of distressing side effects.

Conversely, a study conducted in Senegal found that DOTS delivered by a family member produced greater cure rates and lower defaulter rates compared to that implemented by nurses and CHWs (Frieden & Sbarbaro, 2007). Interestingly, in South Africa, patients were more likely to adhere to treatments with traditional healers as supporters (Colvin et al., 2001).

Volunteer DOTS supporters were generally unemployed members of the community. Unfortunately, they apparently abandoned patients assigned to them once they received employment, often without informing the clinic. A possible solution to maintain this support is to provide incentives as it was shown to improve compliance rates in numerous studies (Davidson et al., 2000; Chan-Yeung et al., 2003; Volmink & Garner, 2004; Jakubowiak et al., 2007). This is controversial as the concept of volunteerism is associated with self-sacrifice. It is very doubtful whether one can expect people living in poverty to dedicate their energies towards assisting the health services to achieve statutory objectives without any compensation (Dick, Murray & Botha, 2005).

This study found that the implementation of the DOTs strategy still has numerous challenges, in spite of the extensive research and efforts made to improve its delivery. Communication and reporting between the different tiers of the TB programme, in both directions, is essential. There should be efficient coordination among formal (nurses, EHAs and EHPs) and informal workers (CHWs and volunteer supporters) to ensure that patients derive optimal benefits from both the TB programme as well as community or home based care.

Conclusion

According to the health personnel interviewed, there were many challenges hindering the implementation of the DOTS strategy. In spite of the municipality's commitment to managing TB, the overarching challenge seems to be the lack of communication and accountability between the various healthcare personnel and community members involved in TB management and the DOTS programme.

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