

Can District–Level tuberculosis case–finding in Malawi be improved? A qualitative study of healthcare worker perceptions in Dedza District

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Abstract

Objectives: This study aimed to identify, from healthcare workers' (HCWs') perspectives, barriers to tuberculosis (TB) case-finding that can be targeted to aid rapid TB diagnosis within Dedza district.

Design: In-depth interviews were conducted with staff routinely involved in the diagnosis and treatment of TB patients. Those identified worked at the district hospital or community healthcare centres.

Results: There was a consensus amongst HCWs that barriers to TB case-finding in the district health system include logistical problems. HCWs identified the tendency of patients with TB to seek traditional and private healthcare services, the association of TB with HIV/AIDS, difficulties in

traveling to healthcare facilities and poverty as major patient-related barriers to diagnosis.

Conclusion: This study identified perceptions of both health system and patient-related barriers to TB case-finding. Health-system related barriers highlight the need to further integrate TB case-finding into routine district service provision, particularly at peripheral health units. The Malawi National TB Programme and District Health Management Team must share responsibility for overcoming such barriers. There are also broader implications for providing healthcare in general and preventing the exclusion of certain members of the population from health services.

Introduction

Tuberculosis (TB) control in Malawi follows the guidelines described by DOTS (Directly Observed Treatment, Short course)¹ and reaches 100% of the population. However the burden of TB remains high,³ and the case-detection rate in Malawi is 36%.² This reflects global estimated case-detection rates under the DOTS strategy,³ particularly in countries where the rapid spread of the human immunodeficiency virus (HIV) has caused an increase in TB incidence whilst limiting case-detection.⁴ To reach target case-finding rates, more emphasis is now placed on improving barriers to diagnosing TB.⁴

Many delays to diagnosis have been explored from the patient's perspective. These principally relate to health-seeking behaviour and include the use of alternative health care providers,^{5,6,7,8,9,10,11,12} access to health services,^{5,12,13,14,15,16,17,18} community knowledge of TB,^{14,17,19} stigmatisation of people with TB,^{8,14,16,20} an association of TB with HIV/AIDS,²¹ poor community perceptions of health services^{7,16} and gender-related barriers (particularly for women).^{10,14,18}

There has been little work using healthcare worker (HCW) perspectives to identify such barriers.^{22,23,24} HCWs can provide invaluable information. They work in the socio-economic and cultural context of the community they serve and have greater insight into the operating of TB services. In Malawi their perceptions are particularly useful at a time of health-sector reforms. TB services are now integrated within district healthcare provision as part of the 'Essential Health Package,' providing an integrated minimum package of care for all. This study aimed to identify barriers to district-level TB case-finding which can be improved to aid rapid TB diagnosis from HCW's perspectives.

Methods

The Malawian Context

An exploratory qualitative study was conducted in the rural district of Dedza which has a population of approximately 500 000. The District TB Officer is responsible for registering and report-

ing TB cases, and liaising with the National TB Programme (NTP). District HCWs, under the District Health Management Team (DHMT), are responsible for the provision of most other TB services. Formal healthcare in Dedza is provided through one government district hospital, one mission hospital, eighteen government healthcare centres and nine mission healthcare centres. The district hospital contains the only diagnostic laboratory in the district for sputum smear microscopy.

The diagnosis of pulmonary tuberculosis in Malawi is dependent on passive case-finding. Sputum specimens submitted at peripheral health units are transported to the laboratory and results are registered at the district TB office. If a diagnosis of TB is made the patient starts the intensive phase of chemotherapy as an in-patient at the district hospital for a minimum of two weeks, followed by out-patient treatment for eight months. Drug ingestion is observed by a HCW or guardian. Consultations, diagnostic tests and drugs are provided free of charge at government facilities. TB drugs are free at mission facilities; however patients must contribute for consultations until TB is diagnosed.

Data Collection

HCWs routinely involved in TB case-finding were eligible for participation. Staff were purposefully selected to represent a range of professional groups. The final sample included seven HCWs from the district hospital and sixteen HCWs from eight community healthcare centres. Twenty of those interviewed were male and three female.

In-depth interviews were carried out using a semi-structured topic guide (derived from reviewing relevant literature). This provided an opportunity to thoroughly explore individual HCW's perceptions of TB case-finding. Interviewees could introduce new topics. No further interviews were undertaken when little new information emerged (the point of saturation).

All participating HCWs voluntarily took part in the study, giving informed oral consent. The interviews were all conducted in English by the principal investigator (RW) in private rooms.

They were timed to cause minimal disruption to clinical work and lasted 25 to 50 minutes. All interviews were recorded for subsequent transcription and collated information was made anonymous. This study was given ethical approval by the Health Sciences Research Committee of Malawi.

Data Analysis

An early analysis was undertaken after six interviews. This ensured the quality of information being gathered and developed the coding framework used in the final data analysis. All interview transcripts were openly coded, identifying key themes perceived by HCWs as barriers to TB case-finding. Topics relating to each code were organised using a cut-and-paste technique. The framework was revised if any new themes emerged. Where the HCW worked (district or community) and gender differences were noted and apparent differences explored. Statements illustrating key findings are presented.

Figure 1 - Barriers to TB case-finding identified by HCWs

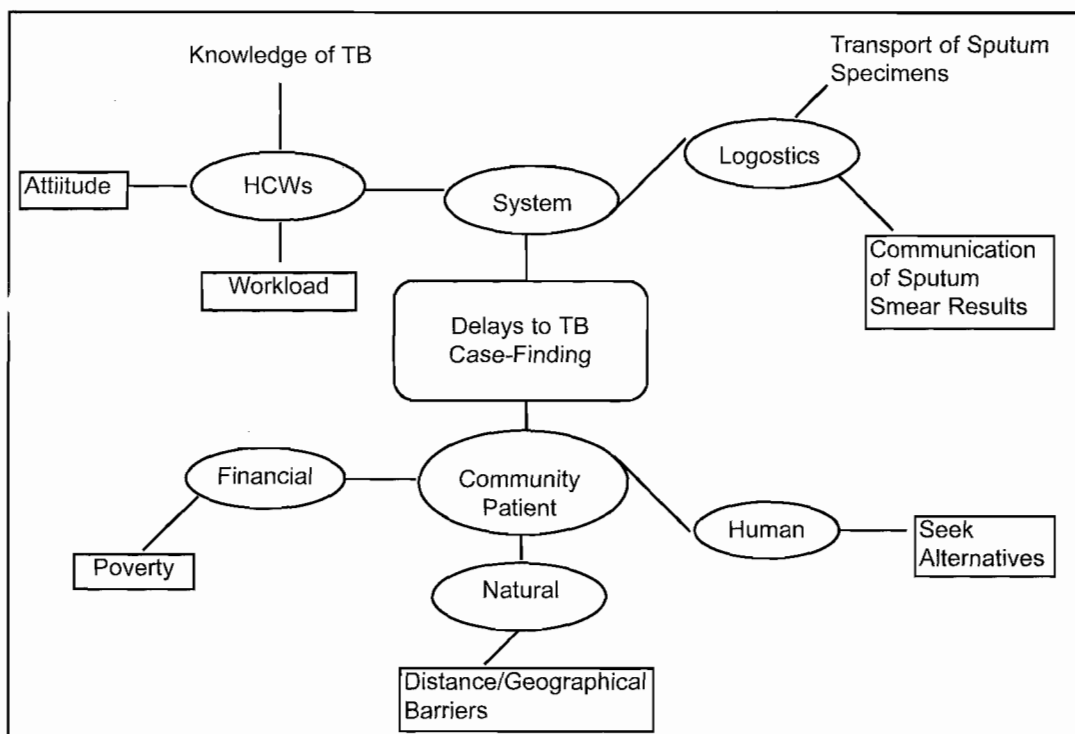


Table 1 - Quotations illustrating health system related barriers

Delays between Sputum Submission and Receipt of Results
a. "Even those who come to collect the sputum sometimes take time ... when you complain they [district staff] say transport problem ... transport to come and collect them. And sometimes they tell us to go on our own to bring the sputum. We have a transport problem too because there's no means of transport here." - Community HCW017, male
b. "Sometimes other health personnel refuse to take the sputum to the district. Or else they take the specimen but on their way they throw it away ... without actually taking it to the laboratory." - Community HCW014, male
c. "Sometimes [the sputum] spends days in the fridge ... and when sending to the district the laboratory assistant says 'Ah, this is not a good specimen. Go back and tell the patient to get another set of sputum.' So that makes it difficult for us." - Community HCW014, male
d. "You find that we are only told when somebody is positive ... that is when we are told ... some negative results, they are not communicated to us ... sometimes it is only those that have been found positive ... they are the ones that are communicated to us." - Community HCW007, male

Staff Workload

Staff workload was described as a barrier to TB case-finding by district and community HCWs, and most perceived it due to understaffing. Those working in clinical settings felt they did not have enough time for each patient, resulting in hurried and inadequate consultations. Community HCWs felt their catchment areas were too large with not enough time to dedicate to TB activities (e). Some HCWs acknowledged the workload of other HCWs, for example district workers felt community HCWs were overstretched.

Staff Attitude

It was felt that workload also caused staff to have a bad attitude/manner with their patients, which hindered TB services (f). Other contributing factors were an insufficient salary, fear of infection with TB or the character of the HCW (g).

Staff Knowledge of TB

There was the opinion that increasing staff knowledge of TB would improve case-finding. There were differing ideas as to which HCWs lacked knowledge of TB. Some HCWs felt all clinicians required more training. On probing, most said that staff specifically trained by the NTP only needed access to refresher courses whereas many other HCWs managing TB patients were inadequately trained (h & i). There were mixed opinions on current staff-education initiatives. A few community HCWs felt that current briefings were not thorough enough.

One HCW felt that offering allowances for training days was the prime incentive for staff attending, not the benefit of the training. This was thought to create mistrust amongst the community of the HCWs' knowledge and validity of their advice.

Patient-Related Barriers**Seeking Alternative Treatments**

Both district and community HCWs felt many patients first consulted alternative sources for treatment. Three alternatives were identified; traditional healers, private clinics and grocery stores. Several reasons were given for first consulting traditional healers. These included lack of knowledge about the symptoms of TB, traditional beliefs, fear of symptoms being associated with HIV/AIDS, distance to the medical facility and the need to stay at home for food (j). Private clinics were also perceived to provide inadequate TB services for patients. Patients were thought to attend private clinics because they feel they receive better care and have more choice of treatments. Both traditional healers and private practitioners were perceived not to refer TB suspects to government health services.

Distance/Geographical Barriers

The distance to the health centre was raised by both district and community HCWs. On probing many added other contributing factors such as geographical barriers, accessibility to some areas only by foot, people having no means or being unable to pay for transport (k & l).

Table 2 - Quotations illustrating health system related barriers

Staff Workload
e. "We have the workload ... it gives us pressure of work. Maybe you are just interested in finishing the queue and we tend to miss diagnoses in the early stages. But after maybe he or she gets treatment, goes and doesn't improve, it's now we come up to thorough physical examinations." - Community HCW007, male
Staff Attitude
f. "Someone can work for so many hours ... so when they see that case ... sometimes they can be harsh ... like that ... instead of tiredness, which shouldn't be done." - Community HCW020, male
g. "Some of the hospital staff are reluctant to work on the TB ward because they are afraid to contract TB ... Some feel when they work in TB they need special ... I mean some extra money. We call it hazard money ... something like that." - District HCW011, male
Staff Knowledge of TB
h. "For us clinicians and nurses ... we know what TB is, how to diagnose and how to treat but maybe just to be updated on the new developments ... the essentials. I think our colleagues ... like the auxiliary nurses ... they don't have much training in TB diagnosis and treatment. When the auxiliary nurses are giving the containers, I think that they are not in a position to explain exactly how the patient should submit sputum." - District HCW006, male
i. "At the district level we already know about the diagnosis [of TB]. But we have not even gone to the health centres to see how those patients are being taught. There are also health surveillance assistants at health centres but we do not know how they give health education." - District HCW002, male

Poverty

Poverty was first raised by HCWs in the context of paying for transport to health facilities. Other important aspects included patients' lack of clothing, illiteracy and food. This was empha-

sised by community HCWs(m). The initial cost of going to mission health facilities was felt by many to be inhibitive, particularly where there was no government alternative nearby (n).

Table 3 - Quotations illustrating patient-related barriers

<p>Seeking Alternative Treatments</p> <p>j. "They trust the traditional healers ... more than us ... not that we do not do our best. The traditional healers are there in the community so they [patients] think the first thing to do is go there before the hospital. So they need education."</p> <p>- Community HCW017, male</p>
<p>Distance/Geographical Barriers</p> <p>k. "Maybe a health facility is a long distance ... say over ten to fifteen kilometres. That can prevent those people to attend health services ... unless those that have maybe got bicycles or sometimes cars that can bring those patients to the clinic. And sometimes there's a barrier, like a bridge or a mountain ... especially in wet season. So it happens that there are patients in that village but they are failing to cross to get treatment."</p> <p>- Community HCW014, male</p> <p>l. "They say 'I don't have transport to go there [the district hospital].' That's the main point. Some are willing to go ... but due to transport problem. From here to Dedza is close to three hundred kwacha [USD\$3]... that's going. Coming back close to six hundred kwacha. So talking of somebody from the village ... even he finds it difficult to take his or her daily food ... to find that money to go there and back is a problem."</p> <p>- Community HCW017, male</p>
<p>Poverty</p> <p>m. "Some families are very very poor that they even lack some clothes. Such type of people ... they feel shy to come to the health facility where they can meet a big number of people. But to some extent it's their education level ... I think our rural areas are very very illiterate. They cannot read. They cannot write. And these people are the ones who are very very much keeping their traditional belief."</p> <p>- Community HCW016, male</p> <p>n. "Well, with us here, we are under CHAM [mission]. So these people ... they come, they pay, they get treatment. So some people maybe that they don't have money ... so they can just be suffering in the villages."</p> <p>- Community HCW00013, male</p>

Discussion

Identifying system-related delays is important in the provision of effective TB services that aim to maximise case-finding. This paper identifies such delays from the HCW's perspective as being principally logistical problems with sputum smear microscopy and staff workload, attitude and knowledge of TB. These findings are supported by other research into access to TB services undertaken in Malawi²³ and other countries.^{5-18,21}

Services such as the diagnostic laboratory can only be decentralised to a district level where human resources, safety and quality can be maintained.^{9,25} Good communication between healthcare facilities is essential with a centralised laboratory, but HCWs identified inadequate transportation of sputum samples and communication of results as sources of significant delays in TB diagnosis. This is supported by Squire *et al.* who also found sputum submission to be a perceived source of delay.²⁴ The Essential Medical Laboratory Services Project identified delayed submission of sputum specimens to be principally limited to those collected at community health centres²⁵. Harries *et al.* quantified this delay as 27% of all sputum specimens from health centres taking 8 days or longer to reach the laboratory.²⁶ Our findings highlight the need to better coordinate the transportation of sputum specimens and smear results with district

transportation mechanisms, ensuring that it is the responsibility of all healthcare staff, not just TB-related staff.

37% of TB sufferers first consult a traditional healer before seeking formal medical care⁶. This was identified as a perceived problem in this study. An effort has been made in Malawi to work with traditional healers by conducting training sessions and encouraging the referral of symptomatic patients^{27,28}. A significant factor for first consulting traditional healers based within rural communities is that they are easy to access.⁵ Geographical access to formal healthcare services was also specifically identified as a significant barrier to TB case finding. Improving access to government TB services that may be some distance away may bypass the need to incorporate traditional healers into TB case-finding programmes.

The impact of poorly delivered health services on TB case-finding has been described in other countries^{13,20,22}. In this study an emphasis was placed on understaffing and insufficient training preventing HCWs from diagnosing TB optimally. Staff shortages are acute in Malawi, with up to half of all health posts unfilled and 90% of all health facilities unable to deliver the minimum Essential Health Package²⁹. Given such shortages these findings highlight the need to better integrate TB case-finding and diagnosis into the remit for all health care workers,

particularly those working at the periphery. Currently some tasks or specialised training are perceived to be reserved for the limited number of 'TB staff'.

Such health system-related barriers reveal problems arising from the decentralisation of TB services. The integration of the vertically organised TB programme with district health services can greatly strengthen existing health systems, providing good general practice (the Essential Health Package) in a publicly orientated health service. However it is important that both administrative and operational aspects are integrated simultaneously.³⁰ In the past, recommendations to improve TB services would have been the direct responsibility of the NTP. Now the responsibility for district-level TB services lies with the DHMT. This was highlighted by one HCW who felt that paying specific allowances for TB training by the NTP hindered the service. The NTP should be involved in training all HCWs involved with TB patients, but should do this by ensuring TB control is included in the pre-service curriculum for all cadres and fully integrated into the 'in-service refresher training' offered to HCWs. In offering a comprehensive healthcare service, all HCWs should consider dealing with TB patients as part of their job description with no extra financial gain. The poor communication between district and community healthcare facilities needs a district-wide solution. New measures to improve access to existing district healthcare services which all now support TB control should improve national TB case finding rates.

Participants selected were routinely involved in TB case-finding. 87% were male which reflects the gender disparity of HCWs involved in TB services in Malawi. This could affect the delivery of such services and may highlight a specific need to target women members of society, such as including TB screening in medical services aimed at women (for example ante-natal clinics). The findings of this study are based on a small, purposeful sample of staff in one rural district of Malawi. However a wide cross-section of staff involved with TB case-finding were interviewed at a range of healthcare facilities all employing nationwide TB protocols.³¹ Thus the perceptions presented should be relevant to TB case-finding within other districts in Malawi.

Conclusion

The aim of providing TB control within an Essential Health Package is to provide a readily accessible TB control programme integrated within the formal health system. This study has explored new health system-related barriers and other patient barriers to TB case-finding in Malawi. This highlighted the need for further integration of TB case-finding into routine district healthcare provision, particularly at peripheral centres. The NTP and DHMTs must share responsibility for overcoming these barriers. Although identified here in a disease-specific context, this sharing of responsibility will create positive outcomes for the provision of healthcare in general. All members the population should be guaranteed access to the same minimum standards of healthcare.

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References

- World Health Organisation. What is DOTS? World Health Organisation website 2004. Cited 2004 Feb 26; Available from: URL: <http://www.who.int/gtb/dots/whatisdots.htm>.
- World Health Organisation. Global tuberculosis control – surveillance, planning, financing. WHO/HTM/TB/2004.331. Geneva, Switzerland: WHO; 2004.
- Dye C, Watt CJ, Bleed DM, Williams BG. What is the limit to case detection under the DOTS strategy for tuberculosis control? *Tuberculosis*. 2003;83:35–43.
- Raviglione MC, Harries AD, Msiska R, Wilkinson D, Nunn P. Tuberculosis and HIV: current status in Africa. *AIDS*. 1997;11(Suppl B):S115-S123.
- Cambanis A, Yassin MA, Ramsay A, Squire B, Arbide I, Cuevas L. Rural poverty and delayed presentation to tuberculosis services in Ethiopia. *Trop Med Int Health*. 2005;10:1-6.
- Brouwer JA, Boeree MJ, Kager P, Varkevissier CM, Harries AD. Traditional healers and pulmonary tuberculosis in Malawi. *Int J Tuberc Lung Dis*. 1998;2:231-234.
- Godfrey-Faussett P, Kaunda H, Kamanga J, et al. Why do patients with a cough delay seeking care at Lusaka urban health centres? A health systems research approach. *Int J Tuberc Lung Dis*. 2002;6:796-805.
- Liefooghe R, Baliddawa JB, Kipruto E M, Vermeire C, De Munynck A O. From their own perspective. A Kenyan community's perception of tuberculosis. *Trop Med Int Health*. 1997;2:809-821.
- Needham DM, Bowman D, Foster SD, Godfrey-Faussett P. Patient care seeking barriers and tuberculosis programme reform: a qualitative study. *Health Policy*. 2004;67:93-106.
- Needham DM, Foster S D, Tomlinson G, Godfrey-Faussett P. Socio-economic, gender and health services factors affecting diagnostic delay for tuberculosis patients in urban Zambia. *Trop Med Int Health*. 2001;6:256-259.
- Salaniponi FM, Harries AD, Banda HT, et al. Care seeking behaviour and diagnostic processes in patients with smear-positive pulmonary tuberculosis in Malawi. *Int J Tuberc Lung Dis*. 2000;4:327-32.
- Steen TW, Mazonde GN. Pulmonary tuberculosis in Kweneng District, Botswana: delays in diagnosis in 212 smear-positive patients. *Int J Tuberc Lung Dis*. 1998;2:627-634.
- Demissie M, Lindtjorn B, Berhane Y. Patient and health service delay in the diagnosis of pulmonary tuberculosis in Ethiopia. *BMC Public Health*. 2002;2:23.
- Khan A, Walley J, Newell J, Imdad N. Tuberculosis in Pakistan: socio-cultural constraints and opportunities in treatment. *Soc Sci Med*. 2000;50:247-54.
- Lawn SD, Afful B, Acheampong JW. Pulmonary tuberculosis: diagnostic delay in Ghanaian adults. *Int J Tuberc Lung Dis*. 1998;2:635-640.
- Rubel AJ, Garro LC. Social and cultural factors in the successful control of tuberculosis. *Public Health Rep*. 1992;107:626-636.
- O'Boyle SJ, Power JJ, Ibrahim MY, Watson JP. Factors affecting patient compliance with anti-tuberculosis chemotherapy using the directly observed treatment, short-course strategy (DOTS). *Int J Tuberc Lung Dis*. 2002;6:307-312.
- Thorson A, Hoa NP, Long NH. Health-seeking behaviour of individuals with cough of more than 3 weeks. *Lancet*. 2000;356:1823-1824.
- Watkins R, Plant A. Pathways to treatment for tuberculosis in Bali: patient perspectives. *Qual Health Res*. 2004;14:691-703.
- Jaramillo E. Pulmonary tuberculosis and health-seeking behaviour: how to get delayed diagnosis in Cali, Colombia. *Trop Med Int Health*. 1998;3:138-144.
- Ngamvithayapong J, Winkvist A, Diwan V. High AIDS awareness may cause tuberculosis patient delay: results from an HIV epidemic area, Thailand. *AIDS*. 2000; July 7;14(10):1413-1419.
- Watkins R, Rouse C, Plant A. Tuberculosis treatment delivery in Bali: a qualitative study of clinic staff perceptions. *Int J Tuberc Lung Dis*. 2004;8:218-225.

21. Thorson A, Johansson E. Equality or equity in health care access: a qualitative study of doctors' explanations to a longer doctor's delay among female patients in Vietnam. *Health Policy*. 2004;68:37-46.
 22. Squire B, Belaye AK, Kashoti A, et al. "Lost" smear positive pulmonary tuberculosis cases; where are they and why did we lose them? *Int J Tuberc Lung Dis*. 2005;9:25-31.
 23. Mundy CJF, Harries AD, Banerjee A, Salaniponi FM, Gilks CF, Squire SB. Quality assessment of sputum transportation, smear preparation and AFB microscopy in a rural district in Malawi. *Int J Tuberc Lung Dis*. 2002;6:47-54.
 24. Harries AD, Nyirenda TE, Banerjee A, Mundy C, Salaniponi FML. District sputum smear microscopy services in Malawi. *Int J Tuberc Lung Dis*. 1998;2:914-918.
 25. Harries AD, Banerjee MD, Gausi F, et al. Traditional healers and their practices in Malawi 2002. *Tropical Doctor*. 2002 Jan; 32(1):32-33.
 26. Banerjee A, Harries AD, Nyirenda T, Salaniponi FML. Local perceptions of tuberculosis in a rural district in Malawi. *Int J Tuberc Lung Dis*. 2000;4:1047-51.
 27. Kemp J, Aitken J M, LeGrand S, Mwale B. Equity in Health Sector Responses to HIV/AIDS in Malawi. Regional Network for Equity in Health in Southern Africa. (EQUINET). Discussion Paper Number 5. 2003. Available from: www.equinetafrica.org.
 28. Unger JP, De Paeppe P, Green A. A code of best practice for disease control programmes to avoid damaging health care services in developing countries. *Int J Health Plann Manage*. 2003;18 Suppl 1:S27-39.
 29. Ministry of Health and Population. Manual of the National Tuberculosis Control Programme of Malawi, 5th ed. Lilongwe: Malawi Ministry of Health and Population; 2002.
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