



Difficulties encountered by health workers in using directly observed treatment (DOT) for tuberculosis

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Abstract

In the global fight against tuberculosis (TB), the Directly Observed Treatment, Short-Course (DOTS) strategy stands as a crucial weapon, especially in regions grappling with limited healthcare infrastructure. This strategy hinges on ensuring patients adhere to their medication regimens under direct observation. In the Republic of Congo, where TB remains a pressing public health concern, healthcare workers play a pivotal role in implementing DOTS. However, they encounter multifaceted challenges spanning logistical, organizational, socio-economic, and cultural domains.

Logistical challenges loom large, particularly in rural or isolated areas where transportation difficulties impede healthcare workers' ability to conduct home visits for medication observation. Moreover, ensuring proper storage conditions for TB medications adds another layer of complexity in regions with limited infrastructure. Socio-economic factors compound the issue, with poverty hindering patients' access to medications and follow-up visits, while the stigma associated with TB can deter individuals from seeking treatment.

Organizational hurdles, such as the lack of qualified human resources and funding shortages, pose significant obstacles to DOTS implementation. Moreover, suboptimal coordination among stakeholders further undermines the strategy's effectiveness. In the Republic of Congo, as in many Central African countries, TB control efforts are further complicated by HIV co-infection, cultural barriers, and language disparities.

Addressing these challenges demands a multifaceted approach. Community involvement, improved healthcare infrastructure, enhanced healthcare worker training, and destigmatization efforts are imperative. Integration of TB and HIV services, alongside partnerships with international organizations, can bolster TB management in the region. By tailoring strategies to the socio-economic, cultural, and health landscape of Central Africa, strides can be made towards more effective TB control and, ultimately, its elimination.

Keywords: Tuberculosis, Directly Observed Treatment, Healthcare workers, Healthcare

Introduction

Tuberculosis (TB) continues to be a significant global health challenge, particularly in regions with limited healthcare infrastructure and resources ^[1]. The Republic of Congo, situated in Central Africa, is no exception to this problem. In the Republic of Congo, as in many other countries, the Directly Observed Treatment (DOT) strategy is a cornerstone in the battle against TB ^[2]. However, the successful implementation of DOT faces numerous obstacles, making it crucial to examine the specific challenges encountered by healthcare workers in the Republic of Congo ^[3]. The DOT strategy, recommended by the World Health Organization (WHO), involves the supervised administration of anti-TB medications to patients

by trained healthcare personnel or designated community members ^[4, 5]. Directly Observed Treatment (DOT) is an approach to TB management that involves patients taking their medication under the supervision of a health worker ^[6]. DOT is an important strategy for improving adherence to treatment, which is essential for curing tuberculosis ^[7, 8]. This approach aims to ensure that patients complete their full course of treatment, which is essential for achieving cure, preventing drug resistance, and interrupting TB transmission within communities. In the Republic of Congo, where TB remains a significant public health concern ^[3], healthcare workers play a vital role in the DOT strategy ^[9]. However, they encounter a range of challenges that impact the effective implementation of this approach. These

challenges can be categorized into various domains, including logistical, organizational, socio-economic, and cultural factors ^[10]. Understanding and addressing these challenges are crucial for improving TB control efforts in the country.

This paper aims to provide a comprehensive examination of the difficulties faced by healthcare workers in the Republic of Congo when implementing the DOT strategy for TB treatment. To achieve this, we will review relevant scientific articles and reports that shed light on the specific challenges encountered in this context. By identifying and understanding these challenges, policymakers and healthcare practitioners can develop targeted interventions to enhance the success of TB control programs and reduce the burden of the disease in the Republic of Congo. The article systematically examines the problems encountered and proposes solutions, drawing on data and references from the existing literature.

The vital role of observers in tuberculosis Control: Overcoming treatment challenges with DOTS strategy

Tuberculosis (TB) remains a significant global health challenge, particularly in regions with limited healthcare infrastructure and resources ^[1]. One of the cornerstones in the battle against TB is the implementation of the Directly Observed Treatment, Short-Course (DOTS) strategy ^[11]. This strategy, recommended by the World Health Organization (WHO), is crucial for ensuring effective TB control and preventing the emergence of drug-resistant strains of the *Mycobacterium tuberculosis* bacterium ^[12]. At the heart of the DOTS strategy lies a critical component: the role of observers. Observers, often healthcare professionals or trained volunteers, play a vital role in supervising and ensuring that TB patients adhere to their medication regimens ^[13]. This introduction explores the essential role of observers in TB control, addressing the challenges they encounter and the strategies employed to overcome these obstacles ^[7].

The DOTS strategy represents a fundamental shift in TB treatment by requiring that patients take their medication doses under direct observation ^[7]. This approach addresses a pervasive challenge in TB control—the tendency for patients to feel better after a certain period of treatment and subsequently neglect to complete their full course. Such incomplete treatment not only prevents definitive cure but also fosters the development of extensively drug-resistant tuberculosis (XDR-TB) strains ^[14], infections that are not only over a hundred times costlier to treat but also nearly incurable.

Within the framework of the DOTS strategy, healthcare workers, adequately trained and sometimes complemented by volunteers, including individuals such as shopkeepers, teachers, and former TB patients, take on the responsibility of overseeing patients. These patients must adhere to a potent combination of four TB medications over periods ranging from six to eight months ^[15]. These observers operate within a highly organized system that maintains a record of patients' progress towards recovery. Ultimately, it is the checks and balances inherent in the DOTS strategy that ensure proper healthcare worker training, accurate diagnosis, and diligent monitoring of patients' progress towards recovery.

The treatment under direct observation (DOT) represents a pivotal approach in managing tuberculosis, ensuring that patients take their medications under the direct supervision of a healthcare provider ^[6, 16]. DOT plays a critical role in improving treatment adherence, a cornerstone of TB cure and control ^[8].

However, healthcare workers in Republic of Congo, a country significantly burdened by TB, face a multitude of challenges when implementing the DOT strategy ^[3]. These difficulties can substantially impede the effectiveness of TB control programs in the region. Nonetheless, it's crucial to acknowledge that healthcare workers themselves encounter challenges in executing the DOT strategy. What characterises the DOTS strategy is that it requires "observers" who are responsible for ensuring that patients take each of their doses of medication ^[6, 17]. This overcomes one of the greatest difficulties we have experienced in the fight against tuberculosis: after taking a certain amount of medication, patients feel better and therefore neglect to continue their treatment until the end. Whereas proper continuation of the treatment would lead to a definitive cure, stop the disease spreading ^[18] and prevent the emergence of resistance. Indeed, taking anti-tuberculosis drugs without DOTs monitoring leads to the emergence of polychemosensitive strains of Koch's bacillus responsible for infections whose treatment is more costly and can be rapidly and practically incurable in the context of a lack of second- and third-line drugs recommended for this purpose ^[19, 20]. As part of the DOTS strategy, trained health workers and sometimes volunteers, shopkeepers, teachers and even former tuberculosis sufferers ^[21] are responsible for monitoring patients who have to take a powerful combination of four drugs for periods of six to eight months ^[22]. These observers work within a very rigorously organised system which keeps a register showing patients' progress towards recovery ^[6, 7]. It is these therapeutic checks and balances included in the DOTS strategy that ensure that staff are properly trained, diagnoses are correctly made and the patient's progress towards recovery is duly monitored ^[7, 23].

Healthcare workers face a number of challenges when implementing directly observed treatment (DOT) for tuberculosis. These difficulties can have a significant impact on the effectiveness of TB control programmes in the region. These difficulties can be linked to organisational, logistical and socio-economic factors.

The implementation of the Directly Observed Treatment Strategy (DOT) in the Republic of Congo faces several challenges. Organizational factors are among the main obstacles. Firstly, the lack of qualified human resources and funding poses a major problem. DOT requires trained and sufficient personnel, as well as financial resources to cover the costs of medication and home visits. Unfortunately, these resources are often limited in many countries, including the Republic of Congo.

Furthermore, coordination among the various stakeholders involved in DOT is often insufficient. Effective implementation of this strategy requires close collaboration between healthcare workers, patients, and community organizations. However, it often happens that this coordination is not optimal, which can hinder the establishment of DOT.

Logistical factors are another major challenge. DOT requires healthcare workers to visit patients to observe medication intake. However, in rural or isolated areas, transportation difficulties can make this task extremely challenging. Additionally, tuberculosis medications need to be stored under appropriate conditions, which can be problematic in areas with limited infrastructure.

Socio-economic factors also play an important role in the implementation of DOT. Tuberculosis patients are often confronted with poverty, which can make it difficult to access medications and follow-up visits. Moreover, the social stigma associated with tuberculosis can discourage patients from seeking appropriate treatment.

By taking these various steps to overcome the difficulties encountered by health workers, it is possible to improve the effectiveness of DOT and contribute to the elimination of tuberculosis [21, 24]. Health workers face a number of challenges when using directly observed treatment (DOT) for TB, a protocol in which patients take their medication in front of a health professional to ensure they are following their treatment correctly. Some patients may not be aware of the importance of DOT in the treatment of TB [7]. Health workers should therefore take time to educate patients about its importance [25]. Some patients may be reluctant to participate in DOT due to the stigma associated with TB [26, 27]. Health workers must work to establish a relationship of trust with patients and encourage them to follow the treatment. In some localities, access to health services may be limited, making it difficult to implement the DOT. Health workers need to find ways to overcome these barriers, such as providing mobile services or community support. Health workers may be overworked, making it difficult to monitor DOT consistently for all patients. It may be necessary to assign more staff or train other health professionals to help. TB treatments usually last several months, which can make it difficult to keep patients motivated for DOT over a prolonged period. Some patients experience the unpleasant side effects of anti-TB drugs [28], which may affect their adherence to treatment. In some mobile or migrant populations, it can be difficult to monitor patients for DOT, as they may leave the area during treatment. Patients face financial difficulties in travelling to the health centres where DOT is administered. Transport costs and lost wages due to absence from work can be barriers. Health workers need to be properly trained to implement DOT, and this may require resources and time.

Accurate monitoring and documentation of drug administration are essential to ensure the effectiveness of DOT, but this can be tedious. To overcome these difficulties, it is important to adopt a holistic approach that includes patient education, psychosocial support, coordination with other health stakeholders, community awareness-raising and ongoing training for health workers. Adaptation to the specific needs of the population served is also essential to maximise the effectiveness of DOT in the treatment of tuberculosis.

Unique Challenges in Republic of Congo's Tuberculosis Control Efforts

The second paragraph highlights the specific challenges encountered by healthcare workers in Central Africa during the implementation of the Directly Observed Treatment

(DOT) for tuberculosis. It delves into issues related to limited healthcare access, transportation, stigma, healthcare worker shortages, resource constraints, HIV co-infection, cultural barriers, and poverty, all of which impact the effectiveness of tuberculosis control programs in the region. Access to healthcare facilities is limited, particularly in rural and remote areas [29, 30], making it difficult for patients to travel regularly to healthcare centres for TB treatment sessions. The poor state of transport infrastructure in some areas can hamper the ability of patients and healthcare staff to reach treatment facilities. Roads may be in poor condition and public transport options may be scarce. The stigma of TB remains a significant problem in Central Africa. Patients may fear discrimination or ostracism, which can discourage them from seeking treatment or complying with the DOT protocol. Central Africa often faces a shortage of qualified healthcare staff, including staff specifically trained in TB management.

This shortage can lead to overworked staff and inadequate support for TB treatment programmes [31]. Many health facilities in the region have limited resources, particularly in terms of medical supplies and diagnostic tools. This can have an impact on the quality of care provided to TB patients.

The country has a high prevalence of HIV, which increases the complexity of tuberculosis management for patients with HIV/TB co-infection, requiring appropriate care and specialised follow-up.

Cultural beliefs and language barriers also hamper communication between healthcare staff and patients [32]. This can lead to misunderstandings about the importance of completing treatment. Poverty is also a major obstacle to accessing healthcare and complying with treatment [33, 34]. TB patients find it difficult to pay for transport, nutritious food or even the cost of the treatment itself [35, 36]. In some localities, populations are highly mobile due to factors such as seasonal migration or socio-economic situations. This disrupts the continuity of care and makes it difficult to complete treatment. Lack of health education and knowledge among some patients leads to a lack of understanding of TB and the importance of DOT [7, 37].

Conclusion

Strategies need to be developed taking into account the unique socio-economic, cultural and health context of Central Africa. This may include involving communities, improving healthcare infrastructure, strengthening the training of healthcare workers and working to reduce the stigma associated with TB. In addition, integrating TB and HIV services and establishing partnerships with international organisations can help to improve TB management in the region.

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