



## Commentary

## Lessons from Tanzania on the integration of HIV and tuberculosis treatments into methadone assisted treatment



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## ABSTRACT

To successfully address HIV and TB in the world, we must address the healthcare needs of key populations, such as drug users, and we must do this urgently. Currently in Tanzania, as in many countries, the care for these medical disorders is separated into disease specific clinical environments. Our consortium began working to integrate HIV and TB clinical services into the methadone program in Dar es Salaam, Tanzania. We present the key lessons learned in this process of integration and the importance of integrating HIV/TB into the methadone program, which serves as a critical anchor for adherence to clinical services. Integrated healthcare for people who use drugs is clearly a long-term goal and different health systems will progress upon this continuum at different rates. What is clear is that every health system that interacts with drug users must aspire to achieve some level of integrated healthcare if the incidence rates of HIV and TB are to decline.

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## Introduction

The epidemics of addiction, HIV/AIDS and tuberculosis (TB) are intertwined in many parts of the world and pose a critical public health threat in Tanzania. As of 2005, there were an estimated 200,000–250,000 individuals using heroin in Tanzania, with approximately 40,000 injectors (McCurdy, Williams, Kilonzo, Ross, & Leshabari, 2005). While the current estimate of HIV prevalence in the Tanzanian general population is 5.6% [5.3%–6.1%] (UNAIDS, 2009), among people who inject drugs (PWID) the estimate is a startling 42% (Williams et al., 2009). While a crisis in its own merit, the high HIV prevalence among PWID act as a reservoir of HIV that threatens to spillover into the general population, as has occurred in other countries.

When compared to HIV-uninfected persons, HIV-infected individuals have a 20–37 fold greater risk of TB (Getahun, Gunneberg,

Granich, & Nunn, 2010; Getahun, Gunneberg, Sculier, Verster, & Raviglione, 2012). According to the WHO, 38% of new adult TB cases in 2010 were in HIV infected persons (WHO, 2011). Understanding the overlap of heroin injection and HIV, TB is therefore of particular concern in this population (Martín, Caylà, Bolea, & Castilla, 2000; Pérez-Perdomo, 1999).

Currently in Tanzania, as in many countries, the care for these medical disorders is separated into disease specific clinical environments (e.g., the National TB Program). Although one patient may struggle with multiple diseases, the patient must move between these siloes to obtain necessary clinical care as has been described elsewhere (Bruce, Dvoryak, Sylla, & Altice, 2007; Bruce, 2010b; Sylla, Bruce, Kamarulzaman, & Altice, 2007). Using methadone as the anchor, our consortium began working to integrate HIV and TB clinical services into the methadone program following a previously discussed model (Bruce, 2010a). In the following discussion we review the key lessons learned at the start of clinical service integration for HIV/TB services into the methadone treatment program. With this foundation, we then discuss practical steps to further expand integrated treatment to drug users with HIV and/or TB.

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## Integration of HIV/TB services into methadone treatment

Understanding the clinical importance of integrating medical services, in 2009 the Tanzanian Drug Control Commission (DCC) began working in partnership with Muhimbili University of Health and Allied Sciences (MUHAS), Muhimbili National Hospital (MNH), Pangaea Global AIDS Foundation (PGAF), and Yale University to develop and support the implementation of a coordinated strategy to address HIV among PWIDs. In February 2011, the consortium introduced the first public Medication Assisted Treatment (MAT) program for people with opioid dependence in sub-Saharan Africa, offering methadone seven days a week through a clinic at Muhimbili National Hospital's Department of Psychiatry (Lambdin et al., 2012, 2013). A total of 400 MAT clients were enrolled between February 2011 and August 2012, with 92% of the clients being male. The average age was 34 years at enrollment. Not surprisingly for this group with a history of heroin injection, almost one third ( $n = 128$ ) were verified as HIV infected.

Screening for HIV was a natural first step in the provision of medical services to this population. Patients were initially skeptical about obtaining HIV testing which is not too uncommon in these settings. That is, people who are just entering into treatment with one serious health issue, namely addiction, may not be ready to face a second major health issue, namely HIV. Opt-out HIV testing can improve testing outcomes in these settings (Baisley et al., 2012). Over time patients began to realize that the methadone program was interested in more than just sobriety from heroin, but was actually interested in their overall health and wellbeing. As patients were diagnosed, the clinic worked to facilitate access to HIV therapy because onsite HIV treatment was not possible at that time. As in many international contexts, drug users are often discriminated against in HIV clinical settings due to presumptions that they will not adhere to HIV therapy. As a result, the methadone clinic's medical staff advocated for patients to have access to HIV therapy. One way to moderate concerns from the HIV clinics regarding non-adherence was to simply prescribe once daily HIV therapy and to dose that therapy seven days a week at the methadone clinic as has been described in other contexts (Berg, Litwin, Li, Heo, & Arnsten, 2011).

Although the dosing of HIV therapy with methadone is conceptually simplistic, it can be difficult to operationalize. In Ukraine, for example, regulatory bodies there have prevented the nurse from simultaneously dispensing methadone and HIV/TB therapy (Bruce, 2010b). The US faces similar issues with HIV therapy often dosed separately from methadone (Berg et al., 2011; Lucas et al., 2006). One recent paper by Bruce and colleagues, however, demonstrated the feasibility of directly observed therapy (DOT) conducted by the methadone dispensing nurses to promote adherence to hepatitis C treatment (Bruce et al., 2012). Key to the success of the latter study was establishing the belief at the inception of the methadone program that all dispensing nurses would be part of the DOT intervention. Similarly, in order to maximize the adherence intervention of methadone in Tanzania, it was therefore necessary to work closely with pharmacy staff so that, from the beginning of methadone, the expectation was that the methadone-dispensing pharmacist would dispense all medications necessary for the health of the patient coming to the methadone clinic. This initial policy view that the personnel of the methadone clinic are part of the normal healthcare structure and so perform the same tasks they would in other healthcare settings was critical to the success of integration at the level of methadone dispensing. To date 13 patients have received their HIV therapy via DOT with their methadone daily. With the general practice of avoiding the prescription of HIV therapy among drug users in Tanzania, it is likely these 13 patients would not have been treated with HIV therapy. Establishing HIV treatment adherence support in the methadone clinic opened the

door for individuals who were without access to HIV care to obtain that care and successfully adhere to that care.

The first death in the methadone clinic was due to overwhelming TB infection in a female injector with AIDS. Her death, and concerns about elevated TB rates among the methadone population, led to the piloting of an active case finding program for patients with TB. The use of a symptom screen and the holding of sputum smears for culture, revealed a serious problem with TB in the clinic (Gupta, Mbwambo, & Bruce, 2012). As with HIV, the methadone clinic linked patients to the TB clinic at MNH where patients were started on anti-TB treatment. As with HIV, a desire to improve adherence prompted the pharmacy staff to begin dosing TB medications with methadone. This combined dosing of HIV and TB therapies by the pharmacists at the methadone clinic was of great benefit to the patients beyond adherence because of the known drug interactions between HIV and TB medications with methadone (Bruce, Altice, Gourevitch, & Friedland, 2006). The pharmacist was able to watch for the development of opioid withdrawal and, if needed, obtain an order to increase the methadone dose. Currently 13 patients are on DOT at the methadone window for TB treatment with two additional patients having successfully completed TB therapy. Given that TB treatment is time limited, once patients are started on TB DOT at the methadone window they continue on DOT throughout the duration of their treatment. Given current healthcare structures in Tanzania, it is unlikely that any of these patients would have been diagnosed and treated for TB if the methadone program had not stepped in.

Medical visits for HIV and TB still occur at other clinical sites in MNH. An effort is underway to co-locate HIV and TB services at the methadone clinic to reduce barriers to follow-up. Ultimately the goal is to cross train physicians and other clinical staff to reduce the human resources needed to provide clinical care. This will require the methadone clinical staff to be versed in the care and treatment of HIV and TB and, ideally, that those involved in the care and treatment of HIV and TB will utilize appropriate medications for the treatment of addiction.

## Operational details of integrating and scaling-up service delivery

The specific steps to integrate service delivery and to scale-up those services nationally will depend upon the specific healthcare setting and the structural, human resource, financial, educational, legal and advocacy available in specific settings to achieve integration. In post-Soviet contexts such as Ukraine, for example, co-dispensing of methadone and anti-TB treatments are prohibited. In Tanzania, in contrast, co-dispensing is easily accomplished without regulatory hurdles, however, human resources remain a critical problem with a shortage of pharmacists, nurses, and physicians to provide the clinical care necessary to improve health outcomes. With this variability among healthcare settings, solutions must be individualized as specific operational details are constrained by the local context. There remain, however, several specific generalizable themes that programs must address in working through operational plans to integrate key healthcare sectors.

One of the first steps towards integrating healthcare services is defining the assets for integration and the liabilities, or obstacles, which must be overcome. The specifics will clearly vary between settings, but this initial assessment is critical. If this first step is skipped, organizations will try to partner with the wrong people or try to implement structural changes that require new legislation. Knowledge of these assets and liabilities reside within the healthcare system and so it is necessary for external organizations wishing to foster integration to listen to indigenous healthcare providers and healthcare administrators to understand the healthcare and legal context in which integration can occur. This will reveal

critical elements such as the financial reimbursements for TB physicians in Ukraine that encourage physicians to hospitalize TB patients for 2 months despite evidence that patients typically drop out of treatment early. Thus, in the current system, a Ukrainian TB physician will oppose decentralization of TB treatment – even if it is more effective – because such decentralization will directly impact his/her salary. The critical point is that integration is more than simply presenting scientific evidence that it improves health outcomes and then watching for systems to naturally integrate. There are many varied pressures in a government's healthcare system and before integration can occur a true understanding of the forces at play which can promote integration (assets) and the forces in motion which will prevent integration (liabilities) must be clearly defined.

Identifiable assets should, where feasible, be partnered with to effect a change towards integration and scale-up of services. Beyond partnering with specific individuals, structural assets must be considered. At the Muhimbili National Hospital, for example, the methadone program is in the psychiatry department, located at the same hospital as the TB and HIV programs. This proximate location helped improve the ability to integrate services at Muhimbili. In many locations, a working knowledge of healthcare law is critical. Although the methadone nurse cannot dispense methadone and TB medications in Ukraine, a physician knowledgeable regarding Ukrainian healthcare law was able to co-locate directly observed therapy onsite with the methadone program – locating it down the hall in a separate room with the infection control required by the Ministry of Health. Through knowledge of the healthcare law, the structural requirements to effect the localization of a needed service, and some creativity, this physician created the first TB DOT situated in a methadone clinic in Ukraine.

Liabilities come in two forms: (1) things that can be easily changed and (2) things that are only changed with great effort. With liabilities, the goal is not to reform an entire healthcare system immediately, but to isolate those specific issues that are preventing healthcare integration and either change them directly (e.g., the repeal of a law) or find a creative way around the obstacle (e.g., the Ukrainian TB solution described above). This may mean avoiding a nurse, physician, hospital, or even a city to partner with a group willing to integrate. This avoidance is not forever, and ultimately the goal will be to bring change on a large scale – even in areas where liabilities outweigh assets. Before the difficult sites can be integrated, however, a few demonstration projects must establish locally the benefits of integration.

Especially in the early stages, the goal is to find something people are willing and capable of integrating – that is, maximize the assets and minimize the liabilities and search for simple projects that can lead to integration and demonstrate to stakeholders the benefit of integration. In Tanzania, administering HIV and TB medications with methadone to patients was the simpler project. The assets were clear: the patients already attend the methadone clinic daily, the pharmacists are legally allowed to dispense these treatments, and the pharmacists were willing to adopt this responsibility. No additional staff was necessary since all the component parts were already in place. The major liability was the prescribing of the medications. To overcome that liability, the team at Muhimbili linked patients to the HIV care and treatment program and/or the TB program where the patients could be diagnosed and started on treatment as per the current clinical guidelines. Once the medications were prescribed, the medications were dispensed with the methadone at the methadone clinic. As the Muhimbili team began to see the effectiveness of this kind of integration, healthcare providers began to wonder at the necessity of linking patients to other physicians at the hospital – why not learn to diagnose and treat HIV and/or TB onsite at the methadone program? Additionally, integration of medical treatments resulted in a growing need

to integrate counseling on multiple aspects of treatment. Treatment staff had to be educated on the effects of TB and HIV treatment on methadone, for example, to educate the patient on the probability of opioid withdrawal when starting various treatments and the need to increase methadone doses. Integration at one level led to a desire to integrate at other levels.

With the successes of these small projects and the establishment that integration is of benefit to both the patient and the healthcare provider, scaling-up of healthcare integration can be undertaken. While many would like to see dramatic changes occur in a healthcare system, dramatic change is often resisted simply because many like the established order and do not want change. Change is more successful when it happens slowly over time and those who were opposed to change are allowed an opportunity to acclimate to small changes. Sometimes the greatest liability in the effort to see healthcare integrate can, overtime, become the greatest asset.

## Conclusion

Currently HIV and TB incidence rates remain higher among people who use drugs than the general population. These isolated epidemics never remain concentrated among drug users, but history has taught us that these epidemics will spill out into the general population. To successfully address HIV and TB in the world, we must address the healthcare needs of key populations, such as drug users, and we must do this urgently. Tanzania has worked successfully to integrate HIV and TB treatment into the methadone clinic system to improve both diagnosis and treatment of HIV and TB among people who inject drugs.

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