Managing tuberculosis in people who use and inject illicit drugs

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Introduction

People who use and inject illicit drugs are at high risk of contracting tuberculosis, whether or not they are infected with the human immunodeficiency virus (HIV). Studies conducted before and after the emergence of HIV infection show that, when compared with the general population, people who use illicit drugs have a higher risk not just of getting tuberculosis infection, but also of developing active disease.[1,2] Similarly, outbreaks of drug-susceptible and multidrug resistant (MDR) tuberculosis are common in this group.[1] Although the higher risk of tuberculosis observed in people who inject illicit drugs is usually the result of associated HIV infection, in people who use illicit drugs without injecting this higher risk is primarily attributable to the sharing of drug equipment, such as marijuana water pipes, and to living in cramped conditions or in dwellings with poor ventilation.[1] Co-infection with the hepatitis B and hepatitis C viruses is also common among patients who inject illicit drugs, particularly among those who are also co-infected with the tuberculosis bacillus and HIV.[2] Although most reports on hepatitis among people who use illicit drugs have come from high-income settings, some alarming reports have also been produced about middle- and low-income settings. For example, in a study among people using illicit drugs in Chennai, India, hepatitis B and C showed a prevalence of 11.9% and 94.1%, respectively.[3] Illicit drug use is often associated with alcoholism, which also increases the risk of becoming infected with the tuberculosis bacillus and of developing active tuberculosis. It also complicates tuberculosis diagnosis and treatment. Furthermore, drug use is criminalized in many settings. In a study by Hayashi et al., up to 80% of the study subjects who injected illicit drugs had been incarcerated at least once.[4] Prisons are well established breeding sites for tuberculosis and HIV infection, especially in settings where no preventive measures are in place and where illicit drug use and drug equipment sharing are common among prisoners.[2] As a result, the risk of becoming infected with the tuberculosis bacillus and the risk of developing active tuberculosis are 26 and 23 times higher, respectively, among prisoners than among members of the general population.[2] These factors, combined with an increased risk of tuberculosis-related morbidity and mortality among people using illicit drugs, complicate the clinical management of tuberculosis patients and the administration of tuberculosis programmes.

Diagnosing tuberculosis is more complicated in a high-risk population, such as people who use illicit drugs. The recent introduction of a rapid diagnostic test (Xpert MTB/RIF) offers an ideal opportunity to improve diagnosis in such groups because it detects tuberculosis twice as effectively as smear microscopy without any significant difference in performance as a function of HIV status.[2] The World Health Organization recommends it as the initial diagnostic test in individuals suspected of having MDR-tuberculosis or tuberculosis associated with HIV infection. The test may therefore expedite the diagnosis of tuberculosis among people who use illicit drugs, since MDR-tuberculosis and HIV infection are common among them. At the same time, little evidence has been generated in terms of the clinical management of people who use illicit drugs and who also have either drug-susceptible or drug-resistant tuberculosis, HIV infection or hepatitis. The management of these co-morbid conditions requires sound clinical judgment; treatment should be guided by the patient's clinical condition and by the possibility of drug side-effects and interactions. Additive adverse effects, overall pill burden and adherence to treatment require special attention as well.

The prevention, diagnosis and treatment of tuberculosis among people who use illicit drugs have been neglected and require immediate attention. Open dialogue on policy in this area should be encouraged, and a coordinated programme response from stakeholders working in prisons and in harm reduction, HIV infection, hepatitis and tuberculosis services should be sought. People who use illicit drugs and prisoners should be provided with evidence-based, integrated tuberculosis, HIV, hepatitis and harm reduction services that fully respect basic human rights.

Recommended measures

In light of this situation, we recommend five urgent measures. First, the role played by punitive drug policies and laws in fuelling the tuberculosis epidemic among people who use illicit drugs must be acknowledged and addressed. Harmful law enforcement practices and the criminalization of illicit drug use drive the drug users away from prevention and care services.[5,6] They also result in a crisis in the criminal justice system because increased incarceration further fuels the tuberculosis epidemic in many settings because of overcrowding and lack of access to effective prison health services.[6] Policy-makers at the national level should initiate a transparent, open dialogue on punitive drug policies and their impact on the epidemic of tuberculosis. The harms emanating from these policies need to be mitigated. Similarly, the root causes of reluctance on the part of programme managers to deliver evidence-based services for people who use illicit drugs need to be discussed. Civil society organizations can influence community structures as well as governmental institutions and can play an important role in these discussions.[7] Thus, civil society organizations and patient groups must be meaningfully involved in national dialogue for positive outcomes to be attained.

Second, the programmatic management of tuberculosis, HIV infection, hepatitis, illicit drug use and prison health services in a vertical or

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silo fashion needs to be minimized, if not eliminated. For example, the vertical management of programmes in the countries of the former Soviet Union has been a serious barrier in the delivery of integrated harm reduction, tuberculosis and HIV services.[8] In addition, prison health services are often the responsibility of the justice ministry or the ministry of correctional services, rather than the ministry of health. As a result, policies and programmes are not always linked with national health guidelines and processes and are often not consistent with international standards.[8] Anecdotal evidence from central Asia shows that the quality of prison health services improved with increased leadership by the ministry of health.[8] Some have suggested increasing the availability of non-custodial alternatives as an essential public health measure to alleviate overcrowding within facilities and thereby facilitate the prevention and control of HIV infection and tuberculosis in African prisons.[9] Stronger leadership on the part of ministries of health or greater engagement of health ministries with the ministries responsible for prison health services is crucially important in any setting. It would be useful to establish national multisectoral coordination mechanisms under the leadership and stewardship of the ministry of health, with inclusion of health, social service, criminal justice and civil society stakeholders, to deal with all co-morbid conditions related to the use of illicit drugs.[10] The main goal of such a national coordinating body is to create a policy and programmatic environment conducive to the implementation and monitoring of integrated tuberculosis prevention, diagnosis and treatment services, and to changes in local legislation on illicit drug use if the national laws conflict with human rights or impede smooth service delivery.

Third, the prevention, diagnosis and treatment of tuberculosis among people who use illicit drugs require effective models of integrated delivery of HIV, hepatitis and harm reduction services that respect human rights. The type of integrated service delivery model can vary from one setting to the other and can range from the provision of multiple services in a single venue to service delivery at multiple venues through effective referral and coordination mechanisms.[5,10] In developing such models, special attention should be paid to ensuring a client-centred approach in keeping with the national and local health infrastructure. Sound and effective infection control measures and the availability of clinical expertise to manage complicated cases need to be prioritized. The goal should be to deliver all services at the same time and in the same facility and with respect for basic human rights.[10] Establishing or strengthening social protection schemes that benefit drug users at risk of contracting tuberculosis and co-morbidities is essential. Structural and organizational barriers hindering the delivery of integrated services need to be removed. To combat stigma against people who have HIV infection or tuberculosis or who use illicit drugs, appropriate anti-discriminatory laws and practices need to be enforced and implemented. Interventions should be evidence-based and should ultimately seek to improve the lives of drug users and their families. In addition, these services should provide for the special needs of people who use illicit drugs, including women and children, teenagers, men who have sex with men, internally displaced people and migrants.

Fourth, quantifying the global, regional and national burdens of tuberculosis among people who use illicit drugs is important. Routine monitoring and evaluation will be needed to assess the coverage, quality, effectiveness and delivery of tuberculosis prevention, diagnosis and treatment services for people who use illicit drugs. Existing and established data collection systems, such as those belonging to the United Nations, should include data on tuberculosis, particularly in regions in which tuberculosis, HIV infection and illicit drug use frequently converge. The use of modern information technologies and electronic systems should be encouraged.

Finally, needs in clinical and programmatic research surrounding the use of illicit drugs must be addressed through a multidisciplinary approach involving medical and social science researchers as well as policy-makers and other key stakeholders. Developing simple, rapid tools for the diagnosis of tuberculosis and shorter, more user-friendly anti-tuberculosis drug regimens tailored to people who use illicit drugs or who are on opioid agonist maintenance treatment is crucially important. A greater understanding of opioid agonist maintenance treatment and of the strategies required for optimal co-treatment with new and existing drugs against tuberculosis, HIV infection and hepatitis is essential. Evidence needs to be generated on the use of the antiretrovirals and anti-tuberculosis drugs currently in development among tuberculosis patients on opioid agonist maintenance treatment who have HIV infection and hepatitis B or C. Evidence is also needed on the effectiveness of best practice models of integrated service delivery and on their effect on the uptake of tuberculosis prevention, diagnosis and treatment services as part of harm reduction services.

Conclusion

The management of tuberculosis in people who use and inject illicit drugs calls for a systematic, coordinated approach because of the common convergence of tuberculosis, HIV infection, viral hepatitis and incarceration. Key national policy-makers in countries carrying the brunt of the problem need to engage in an open dialogue with other stakeholders, including civil society organizations, to address the negative impact of punitive laws, ways to improve the management and quality of prison health services, and ways to prioritize the special needs of key populations such as women and children, teenagers, men who have sex with men, internally displaced people and migrants. Structural and organizational barriers that hamper an effective response to tuberculosis in people who use and inject illicit drugs, such as vertical programme management and reluctance in delivering evidence-based services, also need urgent attention, especially now that the global response to tuberculosis is entering a new post-2015 era of zero tuberculosis discrimination, disease and deaths. ■

Competing interests: None declared.

References

1. Deiss RG, Rodwell TC, Garfein RS. Tuberculosis and illicit drug use: review and update. *Clin Infect Dis* 2009;48:72–82. doi:10.1086/594126 PMID:19046064
2. Getahun H, Gunneberg C, Sculier D, Verster A, Raviglione M. Tuberculosis and HIV in people who inject drugs: evidence for action for TB, HIV, prison and harm reduction services. *Curr Opin HIV AIDS* 2012;7:345–53. doi:10.1097/COH.0b013e328354bd44 PMID:22678489
3. Solomon SS, Hawcroft CS, Narasimhan P, Subbaraman R, Srikrishnan AK, Cecelia AJ et al. Comorbidities among HIV-infected injection drug users in Chennai, India. *Indian J Med Res* 2008;127:447–52. PMID:18653907
4. Hayashi K, Milloy MJ, Fairbairn N, Kaplan K, Suwannawong P, Lai C et al. Incarceration experiences among a community-recruited sample of injection drug users in Bangkok, Thailand. *BMC Public Health* 2009;9:492. doi:10.1186/1471-2458-9-492 PMID:20042105
5. Belani H, Chorba T, Fletcher F, Hennessey K, Kroeger K, Lansky A et al. Integrated prevention services for HIV infection, viral hepatitis, sexually transmitted diseases, and tuberculosis for persons who use drugs illicitly: summary guidance from CDC and the US Department of Health and Human Services. *MMWR Recomm Rep* 2012;61(RR-5):1–40. PMID:23135062
6. Wood E, Werb D, Kazatchkine M, Kerr T, Hankins C, Gorna R et al. Vienna Declaration: a call for evidence-based drug policies. *Lancet* 2010;376:310–2. doi:10.1016/S0140-6736(10)60958-0 PMID:20650517
7. Getahun H, Raviglione M. Transforming the global tuberculosis response through effective engagement of civil society organizations: the role of the World Health Organization. *Bull World Health Organ* 2011;89:616–8. doi:10.2471/BLT.11.086801 PMID:21836760
8. *Report of the 16th core group meeting of the TB/HIV Working Group*. Geneva: World Health Organization; 2010. Available from: http://www.stoptb.org/wg/tb_hiv/assets/documents/Final%20Report16CG%20meeting.pdf [accessed 8 January 2013]
9. Todrys KW, Amon JJ. Criminal justice reform as HIV and TB prevention in African prisons. *PLoS Med* 2012;9:e1001215. doi:10.1371/journal.pmed.1001215 PMID:22589705
10. *WHO Policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva: World Health Organization; 2012. Available from: http://www.who.int/tb/challenges/hiv [accessed 8 January 2013]

Corrigendum

In Volume 91, Issue 1, January 2013, on page 75: the 5th author should read "Olga Popova" and her affiliation should read "Crucell, Leiden, Netherlands".