

## Tuberculosis in prisons: an unintended sentence?



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See [Articles](#) page e300

Tuberculosis and HIV remain serious challenges for public health programmes globally, owing to the sustained high rates of morbidity and mortality associated with these diseases. WHO has advocated for greater control efforts, including ambitious targets for both HIV and tuberculosis that aim to reach, test, and treat high-risk populations, particularly those that are incarcerated.<sup>1,2</sup> Despite the importance of targeting high-risk populations, prisoners are not sufficiently prioritised in major policy documents, nor are prison activities integrated into national programmes. Additionally, international reporting of tuberculosis and HIV cases among prisoners remains sporadic.

In *The Lancet Public Health*, Olivia Cords and colleagues<sup>3</sup> did an updated systematic review and meta-analysis of studies of tuberculosis among incarcerated individuals, assessing three outcomes: incidence of tuberculosis, prevalence of tuberculosis, and incidence of *Mycobacterium tuberculosis* infection. This study provides the largest compilation of data on tuberculosis among prisoners so far, and includes the period in which rapid nucleic acid amplification tests were introduced (2010 onwards). The study shows that incidence rates of tuberculosis are consistently much higher in prisons than in the general population, with incidence rate ratios ranging from around four in North America to around 27 in South America, and averaging higher than ten globally. The prevalence of tuberculosis per 100 000 prisoners was greater than 1000 in all regions except for North America. Among only a few available studies on *M tuberculosis* infection, Cords and colleagues<sup>3</sup> found extremely high annual risks of *M tuberculosis* infection among prisoners. Among studies done in Iran, Colombia, Nigeria, and Brazil, the annual risk of *M tuberculosis* infection in incarcerated populations was greater than 15%. In four studies from Brazil, the annual risk was greater than 25%, among the highest rates of *M tuberculosis* infection recorded in any population.

These results show that incarcerated populations have some of the highest tuberculosis incidence rates in the world and should therefore be targeted for tuberculosis control efforts. The revolving door effect, a term used to describe the experiences of individuals who cycle in and out of correctional facilities and the community, might increase tuberculosis transmission particularly if tuberculosis therapy is interrupted and individuals return

to conditions of poverty and deprivation, which propagate tuberculosis.<sup>4</sup> Routine screening for tuberculosis at entry into facilities and periodically, isolation of presumptive and confirmed cases, infection prevention and control measures, and appropriate diagnosis and treatment for tuberculosis are a few interventions that should be prioritised. Routine screening will still require that optimised algorithms are implemented that combine sensitive screening approaches with rapid nucleic acid amplification tests to make active case finding more effective.<sup>5</sup> Efforts to control *M tuberculosis* infection require particular attention; these measures are more difficult to implement as they require infrastructural changes or policy reforms to reduce overcrowding and to ensure that facilities are built with sufficient ventilation.

Cords and colleagues<sup>3</sup> also reported that, in incarcerated individuals living with HIV, the odds of tuberculosis were more than three times higher than in those living without HIV (odds ratio 3.6; 95% CI 2.0–5.9). This finding highlights the importance of HIV prevention and treatment interventions in incarcerated populations, as these populations have a higher prevalence of HIV than the general population.<sup>6</sup> With greater prominence given to implementing tuberculosis preventive therapy among high-risk populations, including the introduction of shorter and more tolerable regimens, tuberculosis preventive therapy should be prioritised in all incarcerated individuals with HIV infection and in other high-risk groups within incarcerated populations.

Further research is required to explore how to effectively implement interventions for tuberculosis and HIV treatment in incarcerated populations. Furthermore, logistics within prisons and the impact of stigma on incarcerated individuals, and how these factors influence the uptake, acceptability, and feasibility of interventions should be considered.<sup>7</sup> Strategies to promote continued engagement in care for incarcerated individuals following their release from correctional facilities are required to ensure sustainability of efforts.<sup>8</sup> The ongoing COVID-19 pandemic and subsequent development of effective vaccines have demonstrated what can be done when there is a collective political will and resources are made available. These aspects still remain key barriers for tuberculosis and HIV control in correctional facilities. Greater advocacy for prisoners and their rights to quality health care are

needed at the highest level for tangible progress to be made towards elimination targets.

The burden of tuberculosis in incarcerated populations also raises substantial concerns about the spread and control of other infectious diseases—particularly SARS-CoV-2—in such settings. Although incarceration restricts personal liberties, this should not be done at the expense of reducing the minimum standard of health care, which should remain at least equivalent to that in the general population.<sup>9</sup> Tuberculosis control among incarcerated populations has inherent challenges, but the controlled and confined environment also provides an opportunity to implement effective strategies.<sup>10</sup> We therefore call for incarcerated populations to be included in all national efforts and advocate for better synergies with existing and broader infectious disease control programmes to meet the specific needs of prisoners. Tuberculosis elimination can only be achieved if all populations and chains of transmission are sufficiently addressed; incarcerated populations should not become the weakest link that undermines the progress being made elsewhere.

We declare no competing interests.

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