


Incarceration and TB: the epidemic beyond prison walls

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Globally, incarceration is a well-documented risk factor for *Mycobacterium tuberculosis* infection and tuberculosis (TB) disease.¹ Persons deprived of liberty (PDLs) in Latin America (LA) experience incidence rates of TB that are 26 times higher (95% CI 17.1 to 40.1) than those in the general population, and this disparity is the largest in the world.² Over the last decade, the prison population in LA has more than doubled, which now has some of the highest incarceration rates in the world, has not been accompanied by concomitant improvements in physical or healthcare infrastructure, creating conditions for intensified TB transmission.^{3,4}

The heightened risk of TB has long been a part of the sentence received by PDLs.⁵ Every year that a PDL spends in prison increases their risk of developing TB.⁶ The cumulative risk of TB, although decreasing once a person is released from prison, consistently remains higher than the general population rates for years afterward.^{6,7} Studies indicate that prisons are an important driver of TB epidemics, whereby rising incarceration and high transmission rates in prisons are amplifying TB at the population level, undermining the progress of TB programmes in the general population.^{6,8}

Most national TB programmes (NTPs) in the LA region define PDLs as one of the high-risk populations (such as indigenous population, drug users, immigrants, among others). The percentage of TB cases occurring among PDLs is commonly reported in the performance indicators of NTPs. However, this indicator underestimates the true fraction of all TB cases that are attributable to prisons. The significant turnover of the incarcerated population, combined with long and variable TB latency periods, results in a considerable segment of individuals (ranging from 23% to 42%) who acquire TB infection in prison but only progress to disease once they

are released.^{6,7} Even those who develop TB disease in prison may not be diagnosed until after release from prison, due to underdetection in prisons. History of incarceration is typically not an element of notification databases, so cases occurring in the community among individuals with prior incarceration are not currently recognised by the NTPs as being related to prisons. Moreover, there is evidence from molecular epidemiology studies indicating that genomic clusters of TB occurring in the community are shared among individuals with and without incarceration history, suggesting onward community transmission of prison-related cases.^{9,10}

A straightforward but crucial surveillance change is that NTP notification forms must include incarceration history, specifying facility, duration and dates. This ensures more accurate documentation of the TB burden attributable to incarceration. Furthermore, considering that the risk of developing TB is high among former PDLs, particularly during the first few years after release from prison, it is imperative to systematise this variable in the documentation of medical history or data collection tools (like questions about smoking or drug use). This approach enhances the likelihood of requesting a confirmatory laboratory test for TB in suspected cases and may also be relevant for contact tracing efforts in first-degree relatives or cohabitants. It is important to consider that a history of incarceration can be stigmatising. Asking about it may cause tensions between patients and healthcare staff. Therefore, appropriate questions should be developed with relevant stakeholders and focus groups. This helps to craft questions that reduce barriers to healthcare access.¹¹

Another politically oriented element that needs profound rethinking is the governance of healthcare within prisons. In May 2023, we interviewed communicable disease



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Table 1 The features of prisons in 14 Latin American countries are compared in terms of incarceration rates, the ratio of TB notification rates between prisons and the community, surveillance of prison history in community TB cases by national TB programmes and the institution responsible for managing health issues within correctional facilities in each country

Country	Prison TB incidence*	General population TB incidence*	Incarceration rate†	TB incidence rate ratio in prisons/community*	Incarcerated population*	Total TB cases‡	Proportion of TB in prison†	Incarceration history reported in TB surveillance§	Governance of health services within prisons§
Paraguay	3211.6	48 (40–59)	234	62.5	15 000	3480	16.9	No	Ministry of Justice
Chile	87.6	16 (13–18)	259	5.0	51 113	3184	1.3	No	Ministry of Justice
Dominican Republic	1075.1	45 (33–57)	223	48.9	25 416	4881	7.3	No	Public ministry
Uruguay	712.7	32 (27–37)	408	34.4	14 965	1112	7.3	No	Ministry of Interior
El Salvador	5151.6	49 (36–64)	1086	51.0	71 000	3136	55.5	No	Ministry of Justice
Guatemala	829.4	27 (20–35)	142	40.7	23 765	5090	5.9	No	Government Ministry
Ecuador	1592.3	48 (35–62)	224	41.7	31 143	8793	10.7	No	Ministry of Health
Peru	3566.3	130 (102–161)	262	20.8	92 352	43 094	10.3	No	Ministry of Justice
Costa Rica	166.4	11 (7.8–14)	301	334.9	15 700	560	8.0	No	Ministry of Justice
Colombia	633.9	41 (32–51)	196	29.3	102 168	20 862	6.0	No	Ministry of Justice
Argentina	267.3	30 (26–36)	249	10.0	11 4074	14 198	2.5	No	Security Secretary
Brazil	1250.4	48 (42–56)	389	31.3	835 643	102 029	11.3	No	Ministry of Justice
Honduras	1160.6	33 (24–42)	218	33.3	19 619	3268	2.4	No	Security Secretary
Panamá	525.0	42 (32–53)	499	16.0	22 239	1812	5.2	No	Ministry of Health

*<https://www.paho.org/es/documentos/tuberculosis-americanas-informe-regional-2021>

†<https://www.prisonstudies.org/world-prison-brief-data>

‡Global TB Report 2022.

§In May 2023, we interviewed representatives from several countries who are involved in TB control efforts. TB, tuberculosis.

surveillance professionals and TB researchers from 14 countries in the LA region. These individuals are actively working on TB control efforts in their respective countries. In most countries, except Ecuador and Panama, prison healthcare is not governed by the Ministries of Health (MoHs). This responsibility is primarily vested in the Ministry of Justice (MoJ). In all instances, MoH only intervenes in response to large-scale issues reported from prisons. This causes the entire hierarchical structure of the healthcare staff in prisons to have different rules, codes and work cultures than the rest of the healthcare system. This adds complexity to the management and communication with the country's healthcare service network (table 1). It may also pose challenges to continuity of care for individuals who are released from prison or become incarcerated during TB treatment.

There are experiences of good practices regarding governance of healthcare in prisons by MoH, mainly in Europe. In the 90s, the HIV epidemic and the increase in intravenous drug use exacerbated the health problem in European prisons and led to an increase in TB.¹² This led to the creation of a network dedicated to improving prison health in the WHO European Region. The European Health in Prisons Program (HIPP) is the only WHO network addressing prison health, and it is not available in other regions. This network has greatly facilitated the exchange of experiences, the evaluation of the impact of various interventions and the development of best health practices in prison settings. The transfer of governance in healthcare within prisons from the MoJ to the MoH is one of the initial and key recommendations of the HIPP.^{13 14} The implementation of this change not only affects TB indicators or the ability to effectively track cases once released from prison. It has a positive impact on the more comprehensive approach to the health of PDLs, as demonstrated in several studies.^{15–17}

El Salvador and Brazil are countries that are in the process of transitioning the health governance in prisons. The former is making significant investments in improving the infrastructure of its prisons, amidst a crisis of excessive incarceration rates, but with an increasingly empowered support from the MoH. In the case of Brazil, the transfer of governance of health within prisons is being shifted from the MoJ to local governments, which oversee healthcare systems within their jurisdictions.^{18 19} These transitions are gradual and linked to the organisational healthcare system of each country.

The WHO in its 2023 Global TB Report emphasised the importance of TB in prisons. The report measures TB in prisons, but not as extensively as other known risk factors such as alcoholism, smoking, malnutrition and diabetes.²⁰ This shows recognition of the role of incarceration in driving TB transmission and the need for interventions in prisons. While these are important steps, it will be critical to ensure that TB surveillance includes information regarding history of incarceration (either the person or close contacts), and to expand reporting of incarceration-related TB in other regions. This will

improve our understanding of the TB burden attributable to incarceration, which will inform targeted prevention efforts to accelerate progress towards TB elimination targets.

To achieve a more holistic approach to addressing this crisis, we need to shift our focus from discussing TB in prisons to discussing incarceration-related TB. This would facilitate a more appropriate and comprehensive approach that would help us understand that this is a public health issue, centred in prisons, but extending beyond their boundaries and increasingly impacting community health in many countries.

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