Tuberculosis control in New York City: the importance of vulnerable populations

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According to WHO, tuberculosis incidence has been gradually falling, with an average annual rate of decline of 1·4% per year between 2000 and 2015.[1] As global tuberculosis rates fall, 33 countries have entered a low-incidence phase, whereby their tuberculosis notification rate was less than 100 cases per million population in 2012.[2] In these low-incidence settings, big cities, such as New York, have been important geographical locations for the concentration and clustering of cases.[3]

In *The Lancet Public Health*, Anthony Fojo and colleagues[4] have examined the drivers of historical trends in tuberculosis in New York City between 1950 and 2015, and projected future trends up to 2025. The investigators examined five possible scenarios to see which best explained historical trends in tuberculosis incidence using detailed epidemiological data available in New York City to parameterise a mathematical model. The scenario that best fit these historical trends was then used to estimate the future incidence of disease.

Fojo and colleagues report that two of the five scenarios best explained the historical trends. The first scenario (so-called differential progression) assumed there was a declining risk of reactivation of tuberculosis as the dominant driver of recent tuberculosis trends. Under this assumption, the rate of decline between 2015 and 2025 was estimated to be similar to those over the last decade, at 4·4% per year (95% credible interval [CrI] 2·5–6·4) in the total population and 4·3% per year (2·1–6·9) in individuals who were foreign-born. The second scenario assumed that reduced importation of tuberculosis by migrants was the dominant driver, and showed declines of 2·0% per year (95% CrI 0·4–3·5) in the total population and 1·1% per year (0·3–2·1) in foreign-born individuals. The model also suggested that recent historical trends were unlikely to be due to demographic changes in the New York City population alone.

These results have several important implications for the control of tuberculosis in New York City. Recent declines in case notification rates are likely to be explained by several interlinked factors, including a reduction in cases among migrants, and changes in the rates of reactivation of tuberculosis in this population. Although the model cannot provide answers to the underlying mechanisms of any future decline in tuberculosis, these changes might be partly driven by the systematic screening of longer-term migrants before entry to the USA[5] and the addition of sputum culture testing into this screening protocol, which is a more sensitive test than the previously used sputum smear.[6] These results would be consistent with those found elsewhere, including the UK, for which analyses have shown low levels of tuberculosis transmission between migrant and UK-born populations[7]—a finding that is also consistent with these results.

Fojo and colleagues' data also support the importance of ongoing screening for active tuberculosis in individuals immigrating to the USA. Their data suggest that screening for latent infection in migrant populations could have an important role in further reductions of case notifications. This screening could be done alongside the existing migrant pre-entry screening system for active tuberculosis, or by health or public health systems after arrival in New York City.

These findings suggest that further declines in tuberculosis in the USA might not be possible without reductions in importation of tuberculosis or widening of interventions to reduce progression from latent infection to active disease. More effective migrant pre-entry screening and wider use of preventive treatment could further reduce levels of disease beyond the very low levels already achieved in the USA. However, the cost-effectiveness of these strategies has not been addressed and the ethical implications of this approach should be carefully considered. The substantial rise in tuberculosis in New York in the 1980s should remind us that, when tuberculosis reaches low levels, there is a threat that disinvestment from core control services can lead to resurgence. Maintenance of high-quality, core diagnostic and treatment services should remain the priority for control. People with tuberculosis do not present to health-care systems with a diagnosis of tuberculosis, they often have vague symptoms such a cough, fever, and weight loss. Access to comprehensive health care for vulnerable groups is therefore an essential part of tuberculosis control—something

that is increasingly under threat from the current administration in the USA. Fojo and colleagues' work also points to the importance for the USA of continuing to invest in tuberculosis control in high tuberculosis incidence countries. The Centers for Disease Control and Prevention has been a leader in this area; however, it feels increasingly unlikely that this evidence-based philosophy of "enlightened self-interest"[9] can compete with "America First" politics.

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We declare no competing interests.

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