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Multidrug-resistant tuberculosis in Sierra Leone



See [Articles](#) page e543

Tuberculosis has persisted as a human challenge since antiquity. The WHO's Global Tuberculosis Report of 2021 indicated that there were 9.5 million cases and 1.5 million deaths due to tuberculosis in 2021, surpassing deaths attributable to HIV and ranking as the second leading infectious cause of death after COVID-19.¹ The impact of the tuberculosis pandemic has been felt most profoundly in Sierra Leone and 30 other countries with a high tuberculosis burden, mostly countries of lower wealth index, which collectively account for almost 90% of the global burden of the disease.¹ The WHO's End Tuberculosis Strategy is an ambitious campaign aiming to end tuberculosis as a global health threat by 2030.² In the pre-COVID-19 era, tuberculosis treatment indicators showed steady improvement, with global death rates declining 2–3% annually since 2010.¹

Despite the advances made, the emergence and spread of multidrug-resistant tuberculosis (MDR-TB) is now stalling progress and in some regions threatening to reverse the hard-earned gains, while exacerbating the intractable developmental challenges some of the hardest-hit countries continue to face.^{1,3} In Sierra Leone, MDR-TB might not represent a new phenomenon and the problem might be decades old. In the earliest study from Sierra Leone, Gibson⁴ observed resistance rates of 10.5% to isoniazid and 7.7% to isoniazid plus streptomycin among patients treated for tuberculosis at a provincial hospital between 1978 and 1984. Gibson⁴ further noted a preponderance of MDR-TB strains over single-drug-resistant strains in her clinical cohort of patients. Few studies have since assessed the prevalence and associated factors of MDR-TB in Sierra Leone or the wider WHO African region, due to the lack of the requisite expertise, laboratory infrastructure, and technology needed to undertake disease surveillance to help inform health policy.⁵

In their study published in *The Lancet Global Health*, Rashidatu Fouad Kamara and colleagues⁶ used nationally representative programmatic data to summarise the clinical outcomes of MDR-TB in Sierra Leone for the first time. The analysis found that people who underwent treatment for MDR-TB between 2017 and 2019 showed a treatment success rate of 73% (267 of 365 patients).⁶ This result represents a marked improvement on

the 60% treatment success rate observed by Lakoh and colleagues⁷ among patients with drug-sensitive tuberculosis at the largest treatment centre in Sierra Leone in 2017, but lower than the 88% treatment success rate for drug-sensitive tuberculosis reported countrywide in 2020.¹ These findings are encouraging and suggest that the considerable investments made by the government of Sierra Leone and international partners in establishing a dedicated treatment centre for the care of patients with MDR-TB in 2017 are already yielding public health dividends.

Furthermore, Kamara and colleagues⁶ investigated the social and health determinants of adverse MDR-TB treatment outcomes. Among the factors examined, HIV positive status was particularly relevant in Sierra Leone. Untreated HIV increased the risk of unsuccessful treatment 10-fold (adjusted odds ratio 10, 95% CI 2.6–40), consistent with multiple studies from Sierra Leone and sub-Saharan Africa.^{7,8} Traditionally considered a low-HIV-prevalence country (prevalence of 1.7%),⁹ there is growing evidence that the HIV epidemic in Sierra Leone has been expanding over the past 10 years,⁹ and its impact on the tuberculosis epidemic is evident in the findings of Kamara and colleagues and others.^{6,7} In 2020, about 97% of all notified tuberculosis cases in Sierra Leone were screened for HIV, higher than the average 85% screening rate reported for the WHO African region,¹ reflecting a move towards greater integration of tuberculosis and HIV services. Nevertheless, clinical management of tuberculosis and HIV coinfection poses unique challenges, including polypharmacy, which often results in drug–drug interactions, increasing the risk of drug toxicity and adverse treatment outcomes.⁵ These challenges highlight the crucial need for scaling-up of tuberculosis treatment options with better safety profiles (eg, aminoglycoside-sparing regimens) in resource-limited settings.

Fundamentally, tuberculosis remains a disease of poverty, housing insecurity, stigmatisation, and other social inequities.¹⁰ Kamara and colleagues were unable to specifically explore these factors in their analysis, due to the retrospective design of their study. However, as the largest single-country study to date from west Africa, their findings provide crucial insight into the current

MDR-TB epidemic in this region and underscore the importance of integrative clinical care. Notably, their findings support current calls advocating for the urgent tackling of entrenched socio-cultural and economic inequities, as countries in this region intensify public health efforts towards meeting the End Tuberculosis goals by 2030.

GAY reports personal fees from Pfizer. SL declares no competing interests.

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