



Published in final edited form as:

Int J Tuberc Lung Dis. 2019 October 01; 23(10): 1122–1123. doi:10.5588/ijtld.19.0201.

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More should be done now for patients with TB-associated chronic lung disease

We thank the correspondents for their comments on our study of chronic lung disease (CLD) in adult recurrent tuberculosis (TB) survivors in Zimbabwe.¹ We agree that chronic pulmonary dysfunction, as well as other consequent comorbidities, including psychiatric illness, are critically underappreciated in this group. Given an estimated 8.2 million people with ‘cured’ TB annually, and a majority of cases occurring among young to middle-aged adults, these sequelae are an enormous contributor to the global burden of disease and economic impact attributable to TB. More needs to be understood about individual-level predictors of severity and heterogeneity of post-TB sequelae, as well as which aspects of evidence-based management of chronic obstructive pulmonary disease (COPD) or chronic bronchiectasis should be most appropriately applied to TB-CLD.

Although evidence-based affordable measures exist, patients with disabling symptoms currently have little recourse within the national health systems of most high TB burden countries. Smoking cessation should be a public health priority, basic and essential medicines such as bronchodilators should be made more frequently available, and low-cost airway clearance techniques and devices could be relatively easily implemented with appropriate training. While sputum culture for common and atypical pathogens is not feasible in many areas, sputum smear examination for acid-fast bacilli to identify *M. tuberculosis* and non-tuberculous mycobacteria is widely available. The importance of such investigation is supported by our finding of undiagnosed recurrent TB among 5% (95% confidence interval 2.4–8.8) of study participants,¹ none of whom felt that their symptomatology was unusual enough to revisit their local outpatient clinics.

As the correspondents note,² pulmonary rehabilitation improves symptoms, quality of life, functional capacity, and healthcare utilization in patients with chronic respiratory disease. This provides a strong rationale for adjunctive pulmonary rehabilitation (PR) programmes in the management of TB-CLD in limited-resource settings.^{3,4} These programmes should be introduced and studied within an implementation science framework (e.g., RE-AIM)⁵: they must be accessible to patients at the peripheral health centre level, deliver essential components of PR, including supervised exercise and self-management training, focus on long-term behaviour change, and result in equivalent benefits to the current ‘gold standard’ of hospital-based PR.³ Patient-centered PR should make use of functional activities or equipment readily accessible in the home environment. For example, these could include walking around the house for aerobic training, resistance training, including step ups on an internal or external step and using water bottles as upper limb weights.³ The five-repetition sit-to-stand test (5STS) is a simple assessment tool that is feasible in all settings, and may be considered as a rapid method of screening for poor physical function and assessing changes in exercise capacity with program implementation.⁶ The advantages of 5STS include its performance with easily available equipment (chair and stopwatch), simplicity, and space requirements.⁶ As an extension of our findings, we intend to evaluate a broad-based TB-CLD randomized intervention incorporating patient-centered PR with a view to contribute to the evidence base around feasibility, acceptability, pragmatism, and expansion of TB-CLD management in high-burden settings.

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