Informing evidence-based strategies for Bolivia to achieve the World Health Organisation target of zero catastrophic costs for tuberculosis-affected households.

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Abstract:
The World Health Organization mandates that zero-tuberculosis-affected households should experience catastrophic costs and advocates for providing socioeconomic interventions to reduce poverty associated with tuberculosis. We studied costs experienced by tuberculosis-affected households in Bolivia given there are no catastrophic cost surveys in the country and we modelled strategies to inform the design of future socio-economic interventions. Between January and March 2020, patients with tuberculosis who were completing treatment at 17 health centres in impoverished areas of Santa Cruz de la Sierra, Bolivia were recruited using convenience sampling. Data were collected on demographics; household income; and direct (household expenses) and indirect (lost income) tuberculosis-associated costs. Data were collected in Bolivian Bolivianos (Bs) and converted to United States Dollars ($). Catastrophic costs were defined as tuberculosis-associated costs exceeding 20% of the household’s annual pre-illness income. 91 patients were recruited. The mean annual pre-illness household income was $7,076 (SD=$3,528) and mean total tuberculosis-associated costs were $1,152 (SD=$858) of which $645 (56%) was lost income and $507 (43%) was direct expenses. Overall, 27/91 households (29%) incurred catastrophic costs, with households in the lowest income quartile significantly more likely than those in the highest income quartile to incur catastrophic costs (65% versus 5% p<0.001). A standardized intervention to reduce catastrophic costs by 90% in this cohort would cost $1,055 per household and avert 25 households from
incurring catastrophic costs per $100,000. In contrast, targeted intervention for the poorest households aiming to completely reimburse their direct expenses would cost $409 per household, avert 117 households from incurring catastrophic costs per $100,000, and would reduce catastrophic costs in this cohort by 41%. Despite the provision of free tuberculosis treatment, tuberculosis-associated costs were high and inequitable among impoverished people in Santa Cruz. This study highlights the importance of integrating socio-economic interventions with biomedical interventions for tuberculosis and provides data informing the design of such interventions.

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