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Assessing control strategies and timelines for Mycobacterium tuberculosis elimination, Nunavut as a case study

Tuberculosis (TB) continues to have a disproportionate impact on Inuit communities in Canada, with reported rates of active TB that are over 300 times higher than those of Canadian-born, non-Indigenous individuals. The Inuit Tuberculosis Elimination Framework aims to reduce the incidence of active TB by at least 50% by 2025, with the ultimate goal of eliminating it by 2030. However, whether these objectives can be achieved with the resources and interventions currently available is not assessed yet. During this colloquium, I will present an agent-based model (ABM) of TB transmission that we developed to assess the feasibility of these goals in Nunavut, Canada. Our model takes into account factors such as case identification, contact tracing and testing, patient isolation, housing infrastructure, and the potential impact of a therapeutic vaccine. Our findings suggests that the time-to-identification of active TB cases is a crucial factor in achieving the goals, emphasizing the importance of investment in early case detection.