

Tabby2

A User Friendly Web Tool for Exploring Future State-Level TB Outcomes for User-Specified Scenarios

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User-interface linked to a detailed TB policy model for interactive modelling and projections.

Web interface allows users to examine pre-built future scenarios or create their own tailored scenarios for analysis.

Projections of future TB outcomes produced for a geography of interest, results available as graphs or downloadable data files for further analysis.

BACKGROUND

Transmission-dynamic mathematical models can be used to simulate infectious disease outcomes.

However, these models can be hard to work with, and published analyses generally focus on a single setting and a limited number of policies for comparison.

Locally-tailored information on the future trajectory of TB incidence, LTBI prevalence, and the impact of potential policy changes is useful for program planning.

This work is an extension of the Tabby web tool available at ppmftools.org/tabby.

METHODS

We used R Shiny to develop a user-friendly, web-based interface for a detailed mathematical model of TB, so users could access the model, choose geographies of interest, specify policies for comparison, and visualize results.

KEY FEATURES

A user selects a geography and the mathematical model (MITUS) is automatically parameterized with data from the selected geography.

Users can then view the results of pre-programmed policy comparisons, or design their own policies to compare.

User-defined scenarios are created by first specifying the characteristics and size of a target population, then specifying the interventions targeted to that population.

Users can also explore the effects of broader, population-level interventions, such as changes in elements of the LTBI and/or active TB care cascades.

INCLUDED DEFINED SCENARIOS

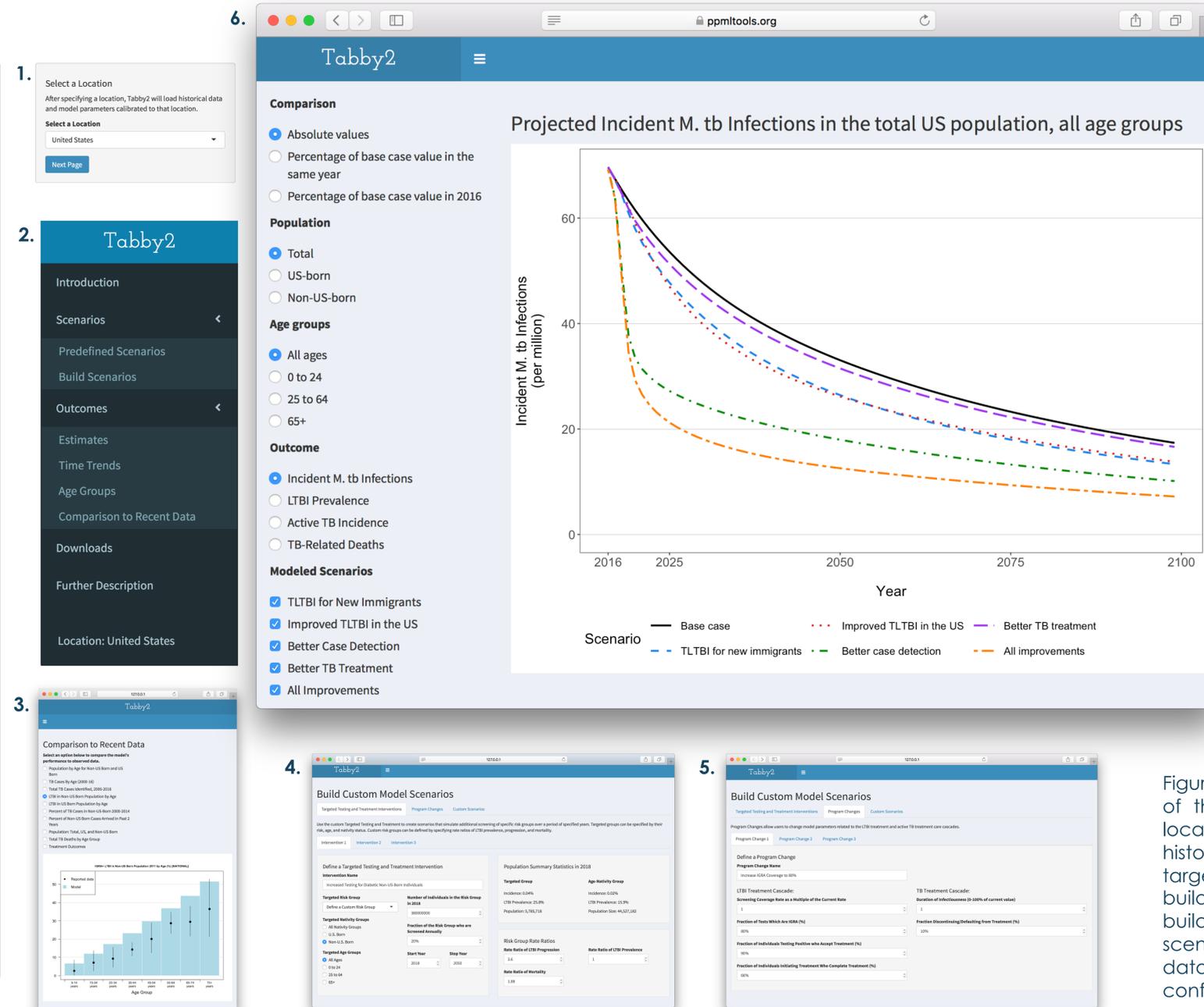
TLTBI for New Immigrants: Provision of LTBI testing and treatment for all new legal immigrants entering the US.

Improved TLTBI in the United States: Intensification of the current LTBI targeted testing and treatment policy for high-risk populations, doubling treatment uptake within each risk group compared to current levels, and increasing the fraction cured among individuals initiating LTBI treatment, via a 3-month Isoniazid-Rifapentine drug regimen.

Better Case Detection: Improved detection of active TB cases, such that the duration of untreated active disease (time from TB incidence to the initiation of treatment) is reduced by 50%.

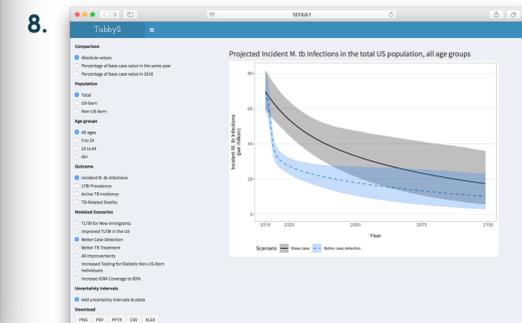
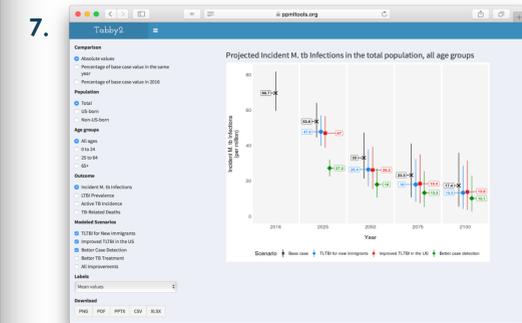
Better TB Treatment: Improved treatment quality for active TB, such that treatment default, failure rates, and the fraction of individuals receiving an incorrect drug regimen are reduced by 50% from current levels.

All Improvements: The combination of all intervention scenarios described above.



CONCLUSIONS

This user-friendly web tool provides TB controllers, public health officials, and others a way to more easily understand current and future TB trends and assess the potential impact of TB interventions.



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See Also

Our poster entitled: MITUS: Modeling Interventions for TB in the United States: a flexible framework for modelling TB epidemiology and policy effects

The Tabby web tool available at ppmftools.org/tabby.

Figures 1-8: Depicted are several components of the Tabby2 web tool: 1. the geographic location selector, 2. the sidebar, 3. fit to historical case identification data, 4. the targeted testing and treatment intervention builder, 5. the program changes scenario builder, 6. projected incident infections in five scenarios, 7. point-estimates of infections with data labels, and 8. projected infections with confidence intervals.