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Editorial Comment: Cost-Effectiveness Analysis for Prioritization of Limited Public Health Resources - Tuberculosis Interventions in Texas

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Abstract

Public health departments have limited evidence to understand and analyze the costs and benefits of different health programs, including tuberculosis control and prevention programs. The study by Miller et. al addresses this challenge to estimate costs and benefits of tuberculosis prevention programs in Texas and identify cost-effective diagnostic and treatment combinations, thereby improving the evidence-based decision making power of the public health departments.

Economic evaluation of a public health program or intervention analyzes the costs and epidemiological effectiveness of alternate programs. The estimated incremental cost-effectiveness ratio assists the decision makers, both practitioners and policy makers, with an objective metric to prioritize programs that are more cost-effective. In 2012, there were 9,945 tuberculosis (TB) cases reported at the rate of 3.2 cases per 100,000 persons in United States; both cases reported and case rate had declined by 5.4% and 6.1% respectively compared to 2011[1]. With declining TB incidence, public health departments may opt to divert resources allocated to TB control and prevention programs towards alternative health programs focused on other diseases. But this risks the reemergence of the TB epidemic with a potential to cause a higher disease burden that outweighs the health benefits derived by alternative programs.

Using California demographic estimates, Porco et al conducted economic analysis of tuberculosis follow-up and evaluation interventions among new immigrants to United States and inferred that domestic follow-up and latent tuberculosis treatment of asymptomatic patients with abnormal chest radiograph was highly cost-effective[2]. Shepardson et al evaluated the cost-effectiveness of the 3HP program (12-dose regimen of weekly rifapentine plus isoniazid as directly observed treatment) compared to the 9H program (9 months of daily self-administered isoniazid), and inferred that 3HP is a cost-effective alternative to 9H[3]. Dowdy et al highlighted the challenges in economic analysis of diagnostic tests for tuberculosis, and cautioned against misleading results in analyzing the scale-up of TB diagnostics[4]. Oxlade et al analyzed methodological differences in economic analysis of using assays for the detection of latent tuberculosis infection, and raised quality concerns of inconsistent results that necessitate the need for specific and standardized guidelines in modeling approaches, inputs, assumptions, and presentation and interpretation of results[5].

In the article by Miller et. al, the authors analyze the value of TB prevention programs in Texas and analyze the cost-effectiveness of alternate diagnostic and treatment combinations. The academic public health department partnership of this study and the context sensitive analysis to the demographics of Texas strengthens the validity and translation of the findings into the decision making process of the public health departments. The estimated incremental cost-effectiveness ratios for the different tuberculosis diagnostic and treatment combinations provide not only objective metrics to prioritize among these combinations, but also compare against the costs and effectiveness of programs focused on other diseases. This study adds to the evidence-based policy making process of the health departments, and estimates the incremental cost-effectiveness ratios to objectively quantify the value of different TB control and prevention programs in Texas, and identify the optimal diagnostic and treatment combinations.

REFERENCES

1. CDC | TB | Data and Statistics. Available at: http://www.cdc.gov/tb/statistics/default.htm. Accessed April 22, 2014.

2. Porco TC, Lewis B, Marseille E, Grinsdale J, Flood JM, Royce SE. Cost-effectiveness of tuberculosis evaluation and treatment of newly-arrived immigrants. *BMC Public Health*. 2006;6:157. doi:10.1186/1471-2458-6-157.

3. Shepardson D, Marks SM, Chesson H, et al. Cost-effectiveness of a 12-dose regimen for treating latent tuberculous infection in the United States. *Int J Tuberc Lung Dis Off J Int Union Tuberc Lung Dis*. 2013;17(12):1531-1537. doi:10.5588/ijtld.13.0423.

4. Dowdy DW, Cattamanchi A, Steingart KR, Pai M. Is scale-up worth it? Challenges in economic analysis of diagnostic tests for tuberculosis. *PLoS Med*. 2011;8(7):e1001063. doi:10.1371/journal.pmed.1001063.

5. Oxlade O, Pinto M, Trajman A, Menzies D. How methodologic differences affect results of economic analyses: A systematic review of interferon gamma release assays for the diagnosis of LTBI. *PloS One*. 2013;8(3):e56044. doi:10.1371/journal.pone.0056044.