

## The Global Relationship between the Prevalence of Diabetes Mellitus and Incidence of Tuberculosis: 2000-2012

**Authors :** Alaa Badawi, Suzan Sayegh, Mohamed Sallam, Eman Sadoun, Mohamed Al-Thani, Muhammad W. Alam, Paul Arora

**Abstract :** Background: The dual burden of tuberculosis (TB) and diabetes mellitus (DM) has increased over the past decade with DM prevalence increasing in countries already afflicted with a high burden of TB. The coexistence of the two conditions presents a serious threat to global public health. Objective: The present study examines the global relationship between the prevalence of DM and the incidence of TB to evaluate their coexistence worldwide and their contribution to one another. Methods: This is an ecological longitudinal study covering the period between years 2000 to 2012. We utilized data from the WHO and World Bank sources and International Diabetes Federation to estimate prevalence of DM (%) and the incidence of TB (per 100,000). Measures of central tendency and dispersion as well as the harmonic mean and linear regression were used for different WHO regions. The association between DM prevalence and TB incidence was examined by quartile of DM prevalence. Results: The worldwide average ( $\pm$ S.D.) prevalence of DM within the study period was  $6.6\pm 3.8\%$  whereas TB incidence was  $135.0\pm 190.5$  per 100,000. DM prevalence was highest in the Eastern Mediterranean ( $8.3\pm 4.1$ ) and West Pacific ( $8.2\pm 5.6$ ) regions and lowest in the Africa ( $3.5\pm 2.6$ ). TB incidence was highest in Africa ( $313.1\pm 275.9$  per 100,000) and South-East Asia ( $216.7\pm 124.9$ ) and lowest in the European ( $46.5\pm 68.6$ ) and American ( $47.2\pm 52.9$ ) regions. Only countries with high DM prevalence ( $>7.6\%$ ) showed a significant positive association with TB incidence ( $r=0.17$ ,  $p=0.013$ ). Conclusion: A positive association between DM and TB may exist in some - but not all - world regions, a dual burden that necessitates identifying the nature of this coexistence to assist in developing public health approaches that curb their rising burden.

**Keywords :** diabetes mellitus, tuberculosis, disease burden, global association

**Conference Title :** ICDM 2015 : International Conference on Diabetes and Metabolism

**Conference Location :** London, United Kingdom

**Conference Dates :** February 16-17, 2015