



WORLD TUBERCULOSIS 2023

Correlation and prediction of Tuberculosis incidences
according to socio-economic and environmental circumstances



WHO TUBERCULOSIS REPORT 2024

Tuberculosis (TB) = contagious lung infection caused by *Mycobacterium tuberculosis* (MTB) bacteria.

TB was the world's leading infectious disease killer in 2023.

Worldwide 1.25 million people died due to TB in 2023.

Worldwide 10.8 million people fell ill with TB in 2023.

Development of incidence rates per country over time were reported.

Still no effective prevention (vaccine) available.

Bacillus Calmette-Guérin (BCG) vaccine statistics reported.

Only suboptimal treatment options available.

DATA ENRICHMENT OF TUBERCULOSIS REPORT

Objective: Correlate TB incidences in 2023 with socio-economic (poverty index) and environmental (air pollution) circumstances.

Task: Data Enrichment

- Include air pollution index data per country for obtained from the Air Quality API (Open Meteo)
- Include multidimensional poverty index (MPI) data per country for 2023 obtained from UNDP (United Nations Development Programme) Human Development Report (HDR)



PREDICTION OF TUBERCULOSIS INCIDENCES

Objective: Implement supervised machine learning models to predict number of TB incidences for 2023 according to poverty index and air pollution levels.

Task: prediction model testing

- clean data set, select features & target
- split data in training & test data
- normalize data
- test balance of data, if necessary sample
- run different ML algorithms
- hyperparameter tuning

