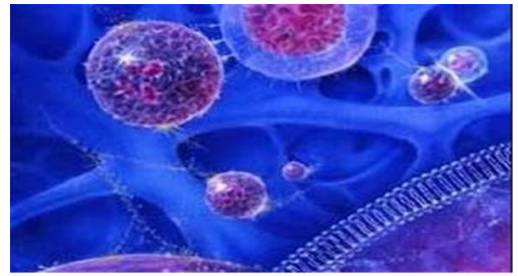
TUBERCULOSIS DISEASE ANALYSIS



Rukayat O. Rauf

Date: December 23, 2022

Table of content

Introduction

On March 24, 1882, Mycobacterium tuberculosis, the bacteria that causes tuberculosis was announced by Dr. Robert Koch.

The WHO Global Tuberculosis Programme goals are to achieve a world free of TB, zero deaths, disease and suffering due to this disease.

The team's mission is to lead and guide the global effort to end the TB epidemic through universal access to people-centred prevention and care, multisectoral action and innovation.

Background

Tuberculosis disease has been in existence for several years because most people who contracted this disease do not show symptoms nor do they fall sick.

This resulted in the easy spread of the disease through coughing and sneezing.

A lot of coughs that do not go away within two weeks can be associated with this disease.

The purpose of this Project is to analyze the spread of tuberculosis disease among the WHO countries from 2000 to 2020.

Insight from this report will enable the stakeholders to know which countries or regions need more intervention in stopping the spread of TB and to be able to declare the World TB free by eradicating the disease.

Data Preparation

Data collection

The data was downloaded from https://www.who.int/teams/global-tuberculosis-programme/data

Exploratory Analysis

After collecting the data, it was imported into Python where proper cleaning of the data was done
The dataset contains 50 attributes and 4487 rows whereby 18 attributes were retained for the analysis.

The missing values were replaced with corresponding values from similar columns
It was further imported into Power BI where the actual data analysis was done. At the same time, the data was corrected and adjusted.

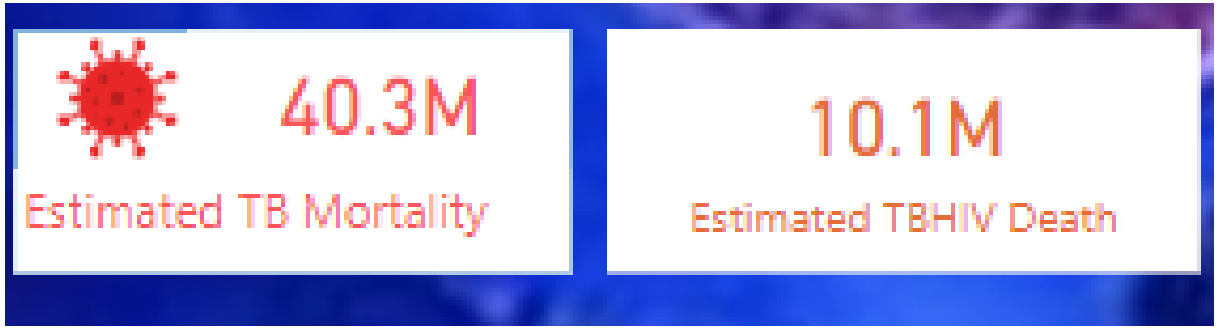
Visualization

After cleaning the data, it was imported into Power BI for proper visualization.

Data Analysis and Results

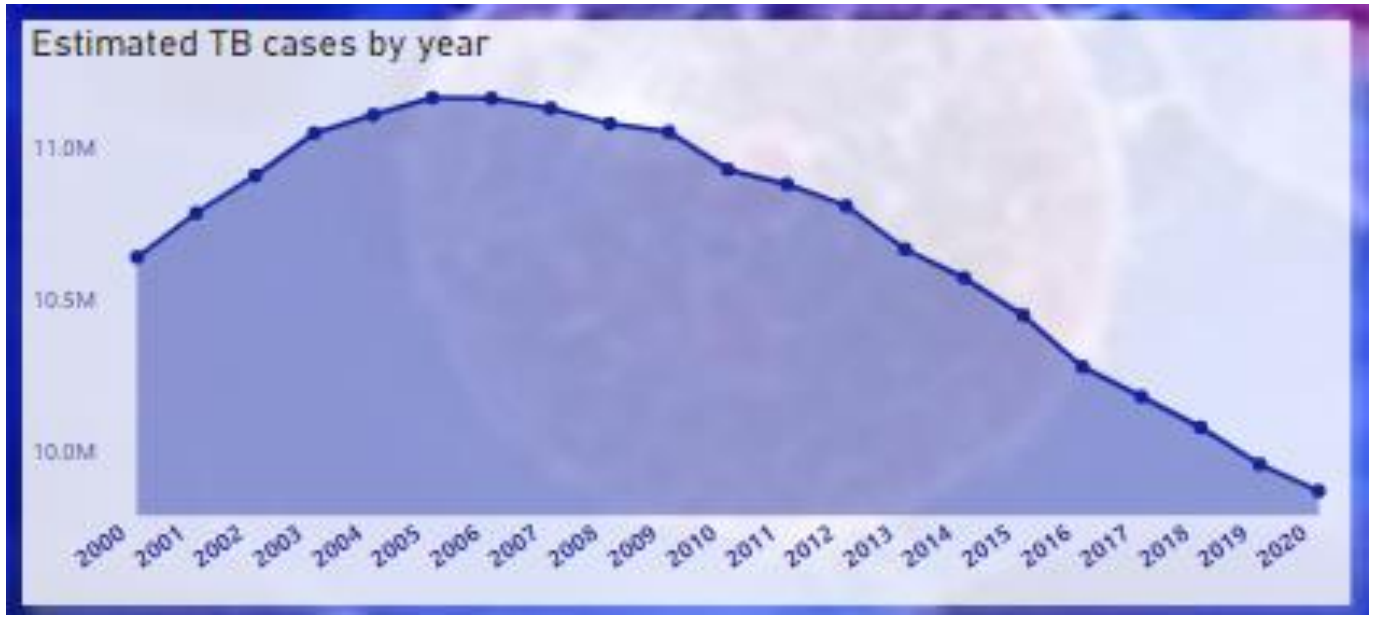
There are **217** Countries from **6** WHO regions. The estimated total population across these countries as of 2020 was **7.8bn** people. The estimated TB cases were **224.8m** with which a total of **28.6m** people affected with both TB and HIV.

Data Analysis and Results



The estimated number of people who have died from Tuberculosis is **40.3M** as of 2020 while an estimated **10.1M** people died from the combination of TB and HIV

Data Analysis and Results

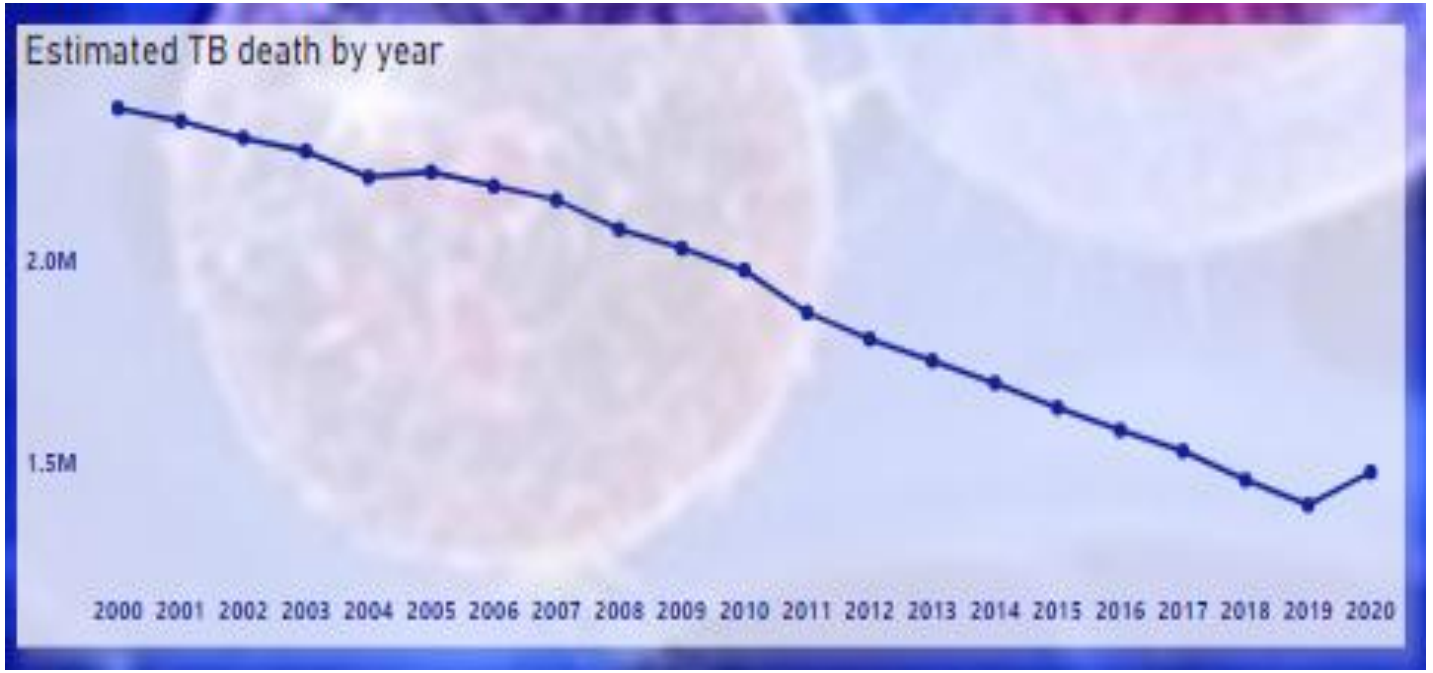


There was a significant decrease in the number of TB cases from 2012 to 2020 with **8.6%** reduction rate

Data Analysis and Results

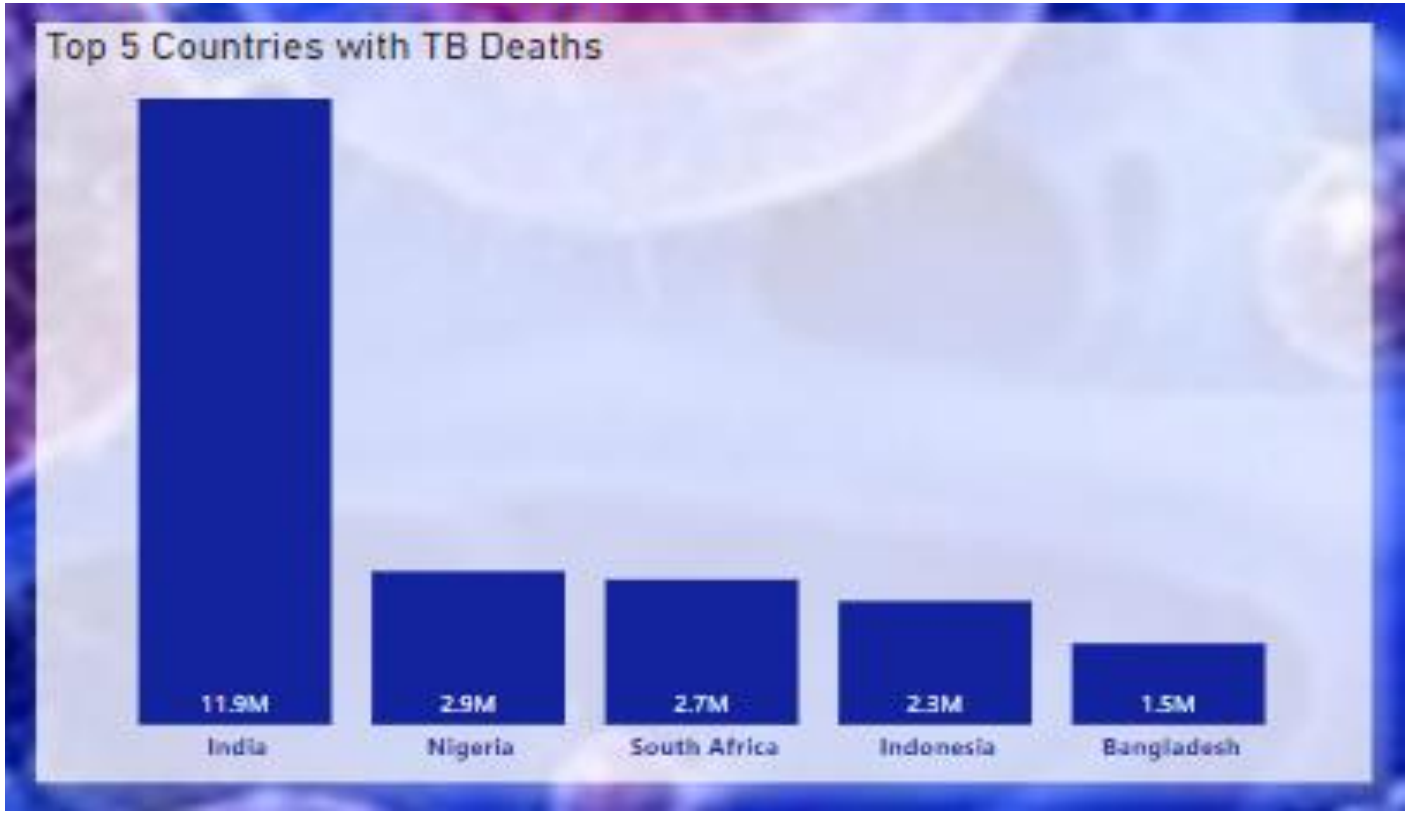
Countries like India, China, Indonesia, South Africa, Philippines recorded the highest TB cases.
India(**62.6m**) and Indonesia(**17.3m**) account for more than **35%** of the total cases, making the South-East Asian region the region with the highest TB incidence.

Data Analysis and Results



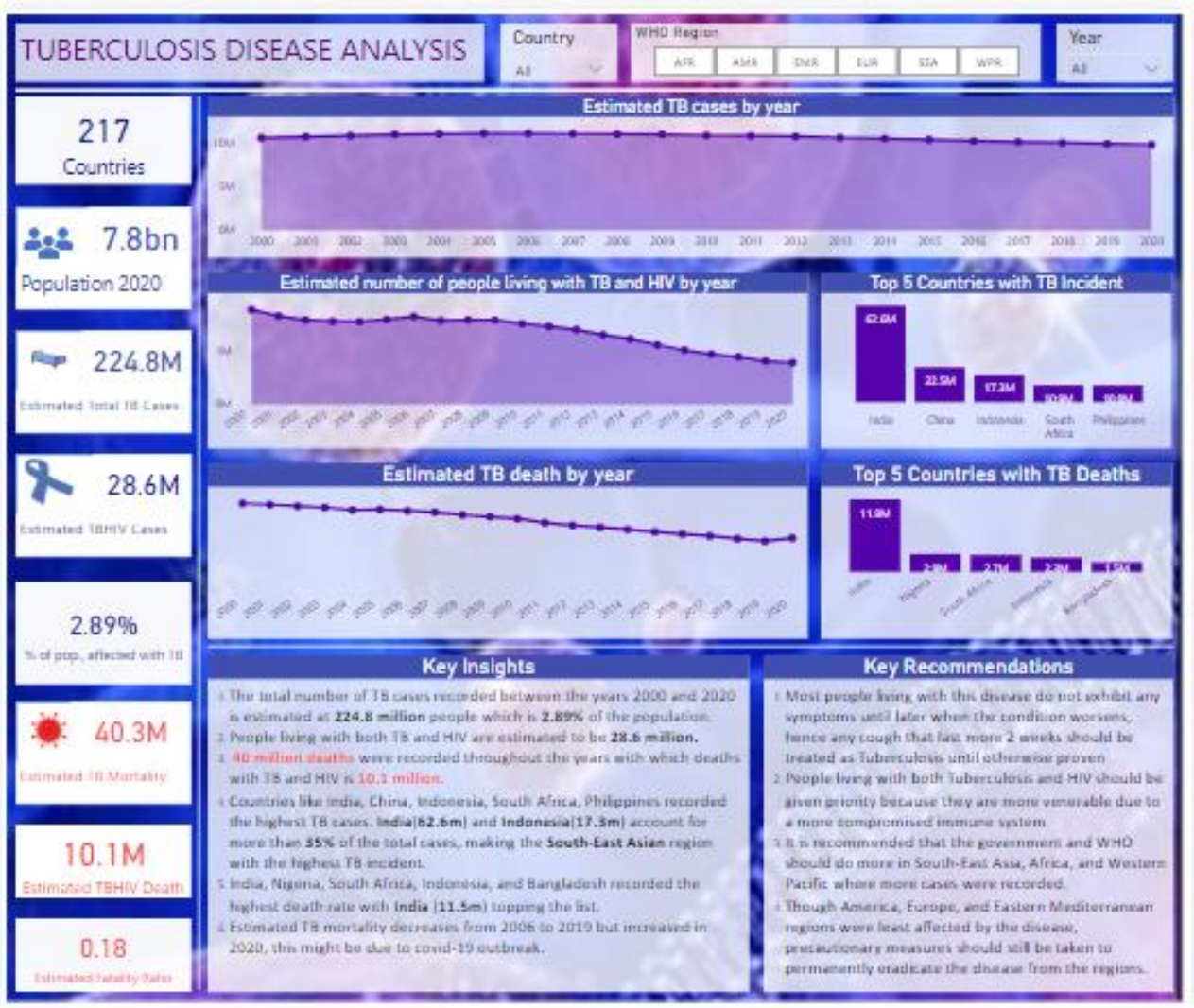
Estimated TB mortality decreases from 2006 to 2019 until 2020 when there seems to be a surge in the death of patients, this might be due to the outbreak covid-19 pandemic.

Data Analysis and Results



India, Nigeria, South Africa, Indonesia, and Bangladesh recorded the highest death rate with India (**11.9m**) topping the list.

Data Analysis and Results



Conclusion

- WHO divided the regions into 6 which are South-East Asia, Africa, the Western Pacific Region, Eastern Mediterranean, Europe, and America which comprises 217 countries.
- Estimated Tuberculosis cases are 224.8m people out of which 40m deaths were recorded.
- India has the highest TB cases likewise the highest number of deaths recorded from this disease
- The South-East Asian region accounted for 44% of the total Tuberculosis cases
- Covid-19 pandemic might be a major contributor to an increase in TB death in 2020

Recommendation

- Most people living with this disease do not exhibit any symptoms until later when the condition worsens, hence any cough that lasts more 2 weeks should be treated as Tuberculosis until otherwise proven
- People living with both Tuberculosis and HIV should be given priority because they are more venerable due to a more compromised immune system
- It is recommended that the government and WHO should do more in South-East Asia, Africa, and Western Pacific where more cases were recorded.
- Though, America, Europe, and Eastern Mediterranean regions were least affected by the disease, precautionary measures should still be taken to permanently eradicate the disease from the regions.

Link to the full story on medium:
https://medium.com/@raufrukayat/tuberculosis-disease-analysis-d5697bfb4261

Interactive Dashboard on Power Bi:
https://app.powerbi.com/view?r=eyJrIjoiOWE0ODgyOTYtNTk3My00ZjY2LTlhYTMtOWE3NWQzMjVlNmE5IiwidCI6IjExODg4MzNmLTRiMTktNDYzYS04OThmLWM2ODMxNmRjOTQ1NiJ9