Project Write-Up

Tuberculosis time bomb: COVID's Impact

Abstract

The goal here is to predict the TB cases reported per country for each year and analyze the gap between actual reports for **2019** and **2020** (during COVID) period. The COVID-**19** pandemic has disrupted prevention and treatment of a host of diseases. As countries went into lock down last year, mass vaccination campaigns for measles, polio, meningitis and more ground to a halt, leaving millions of children at increased risk of deadly, preventable diseases. Some health facilities were closed; health-care workers were redeployed to fight the pandemic. Shipments of essential medicines and devices were delayed, and fewer people than usual sought treatment at clinics for fear of catching COVID-**19**.

More than a year into the pandemic, analysts are trying to gauge its impact on diseases that have largely slipped from public attention. India, the only country that collects real-time TB data, showed that cases were going undiagnosed and untreated as many nations diverted medical resources to tackling COVID-**19**.

To identify the impact of COVID on TB a disease that kills **1.4** million people a year, WHO wants to analyze the data to find out under reporting of TB cases. By doing so, WHO can:

Take preventive steps:
- By funding more campaigns in countries with more need.
- Combat TB
  - By diverting more medical supplies to countries in need.

Impact Hypothesis

By analyzing the TB dataset from various sources, we can create a TB outbreak maps that WHO can use to take actions. This data will be shared with the local governments ensuring timely attention is given preventing another pandemic like COVID.

Using this WHO can predict which country or area is a likely target for the next TB outbreak. Thus, we need to predict the TB cases reported and deaths per country for each year and analyze the gap between actual reported for 2019 and 2020 (during COVID) period.

Design

solution

The solution path pursued here is to build a geospatial clustering model to predict customer spend based on:

1. the number of pet-owning households,

2. the number of existing options available for in-person purchase of pet supplies,

3. the historical total customer spend (per capita) on Chewy products, and

4. how these factors have changed (e.g., increase/decrease of pet ownership) since March 2020.

Data:

- WHO provides comprehensive data on TB deaths and incidents:
- https://www.who.int/data/gho/data/indicators/indicator-details/GHO/deaths-due-to-tuberculosis-among-hiv-negative-people-(per-100-000-population)
- TB cases : https://www.who.int/data/gho/data/indicators/indicator-details/GHO/number-of-incident-tuberculosis-cases
- BCG DATA: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/bcg-immunization-coverage-among-1-year-olds-(-)
- Substance abuse Data: https://www.who.int/data/gho/data/themes/topics/sdg-target-3_5-substance-abuse

•Air pollution data:
https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-(pm2-5
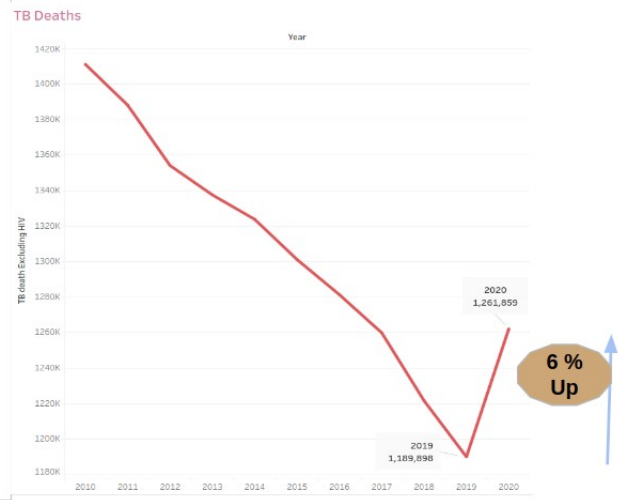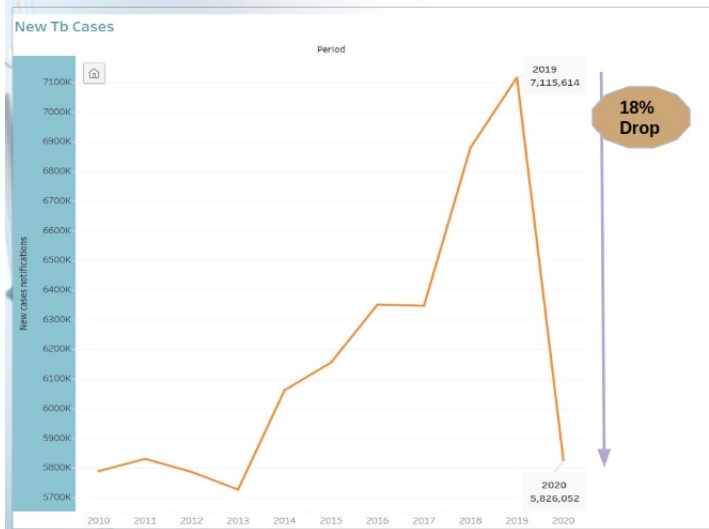
•Poverty:https://www.who.int/data/gho/data/indicators/indicator-details/GHO/population-using-safely-managed-sanitation-services-(-)

EDA

Figure: Screencap of the interactive Tableau dashboard.
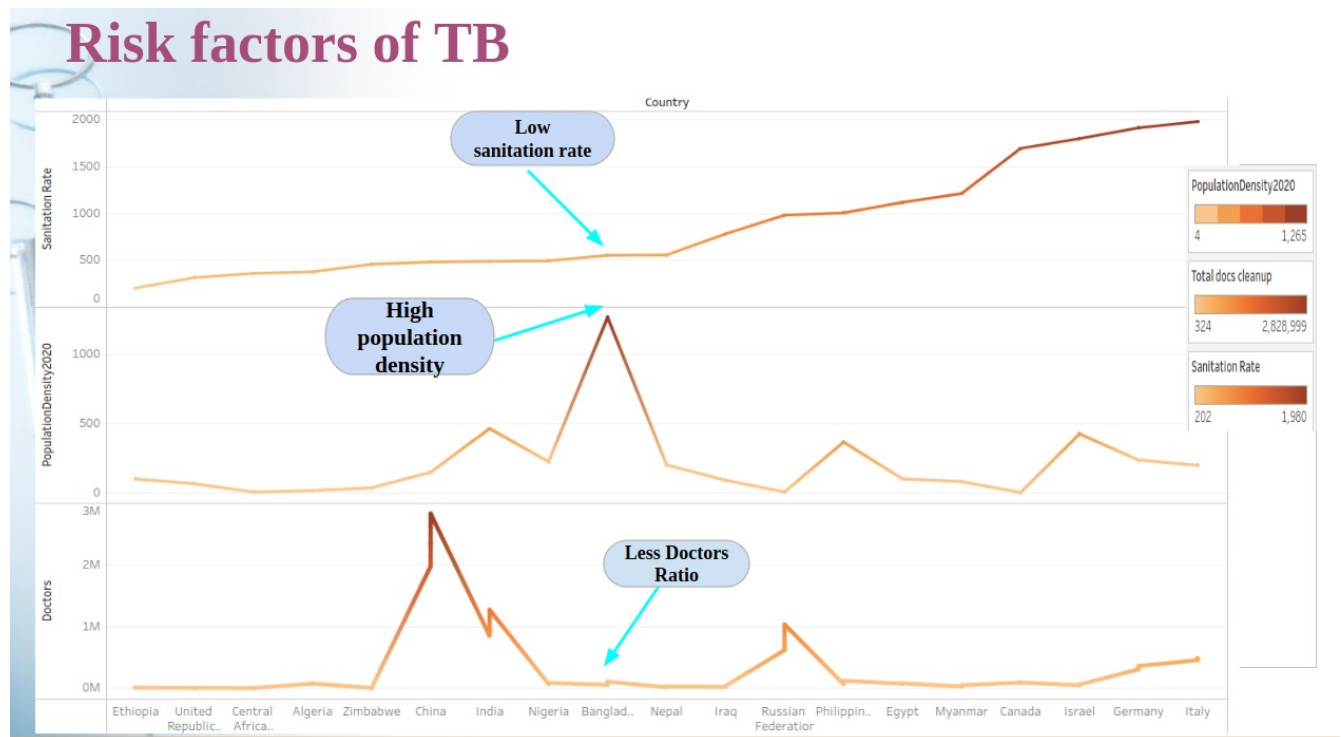
Big global changes in notification for year 2020

Tools

- Excel for data cleaning, aggregation, and analysis

- Tableau for plotting and interactive visualizations

Model

Using Autocorrelation modeling technique we can forecasts TB cases & death.