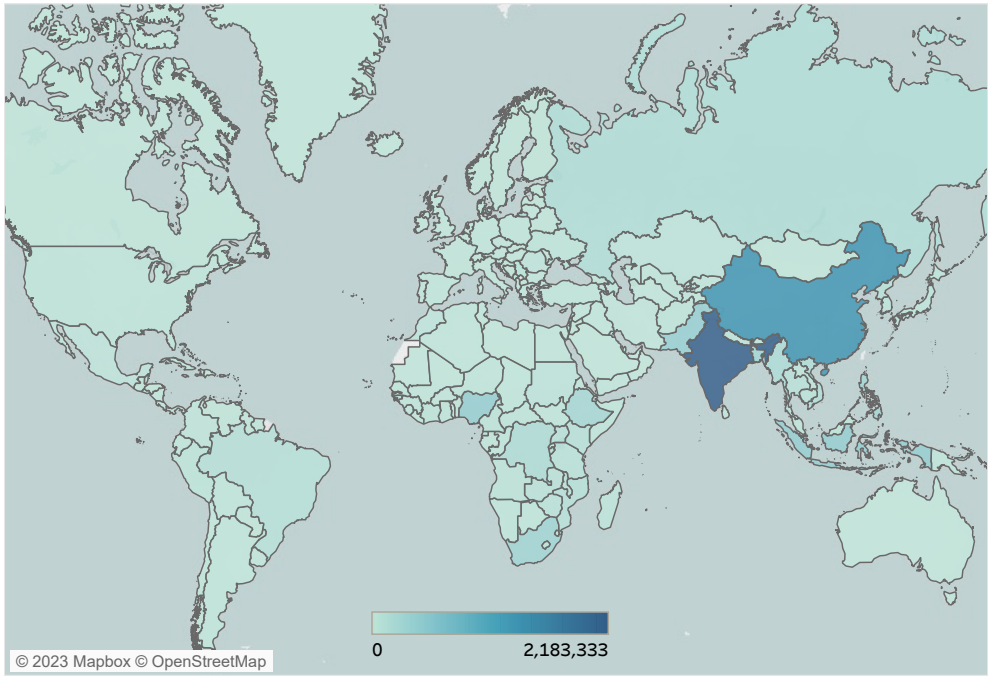
Analyzing Tuberculosis Burden

- TB is an infectious disease, primarily affecting the lungs

- Transmitted through droplets from coughs and sneezes

- A leading causes of death from infectious diseases worldwide

- Control Efforts focus on early detection, vaccination, and effective treatment



Estimated Total Cases Since 1990

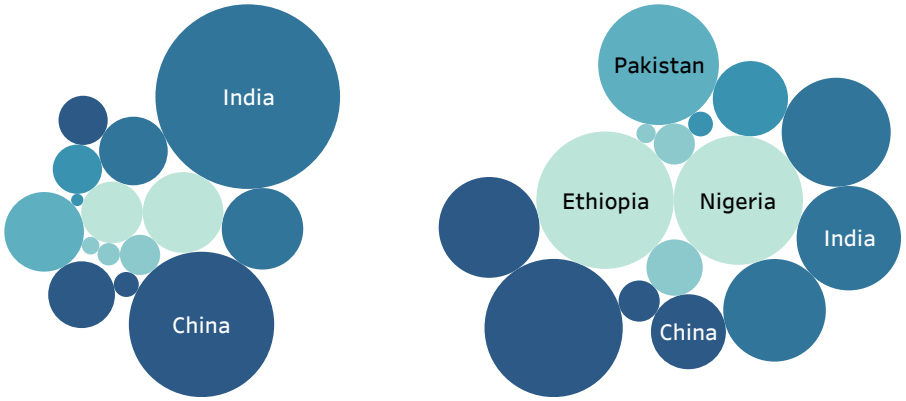
216,004,364

Estimated Total Deaths Since 1990

44,352,169

Overview

1. Totals vs Normalized values



Incidences vs Incidences per 100k

2. Mortality and TB-HIV Co-infection

3. Progress

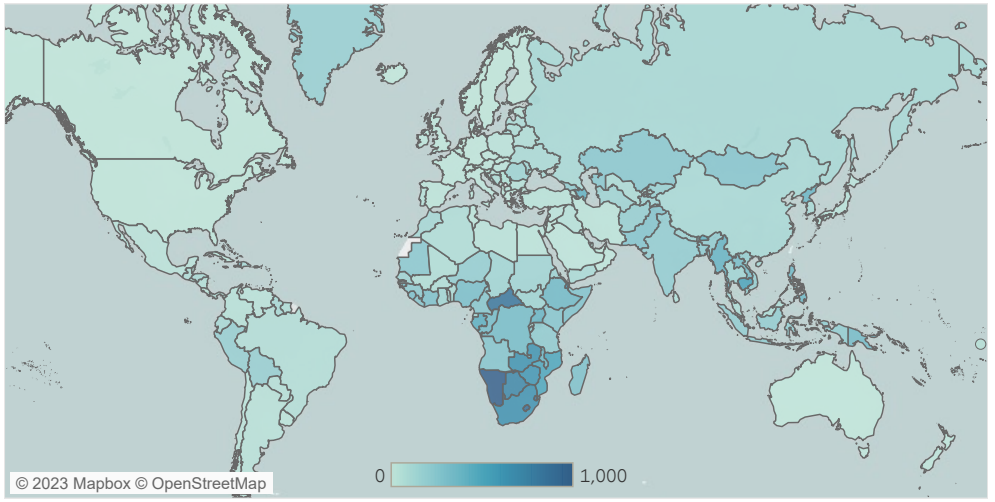
4. Recap

Data Normalization

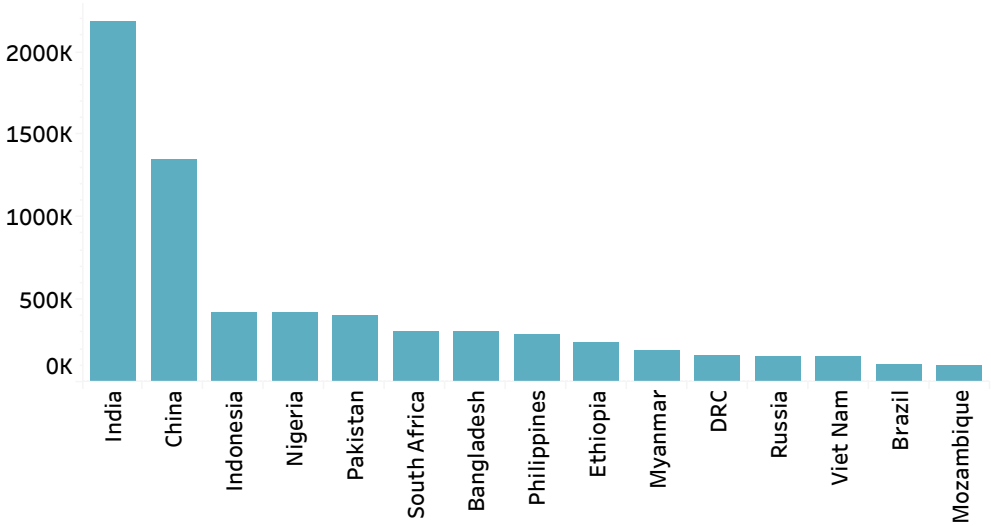
- The distribution of total cases is skewed extremely large populations

- Normalized values show that the infection rate is typically higher in Africa

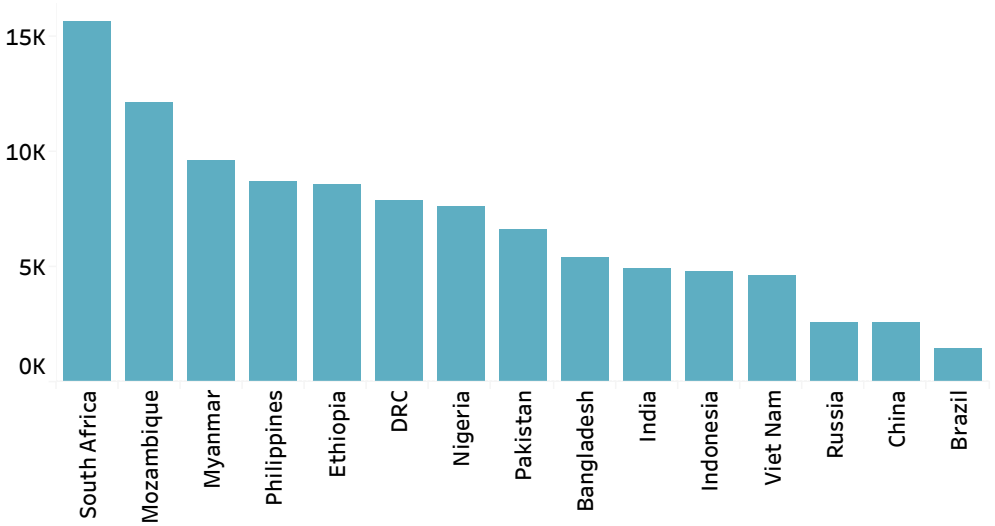
- Smaller variance



Average Yearly Cases



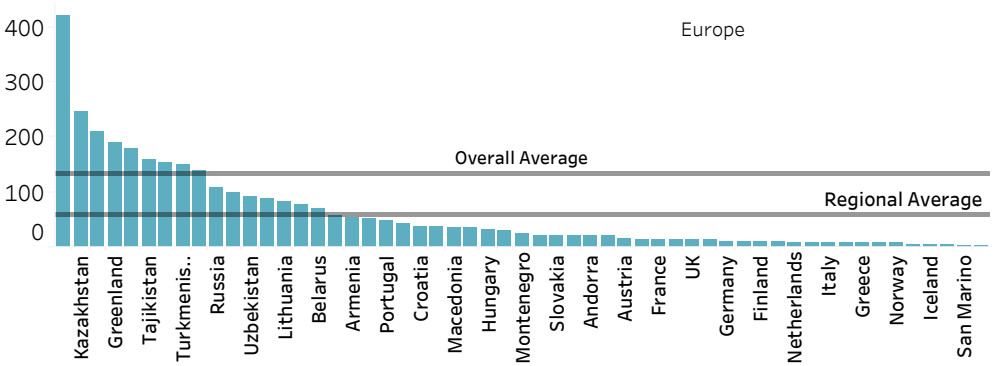
Average Yearly Cases/100k

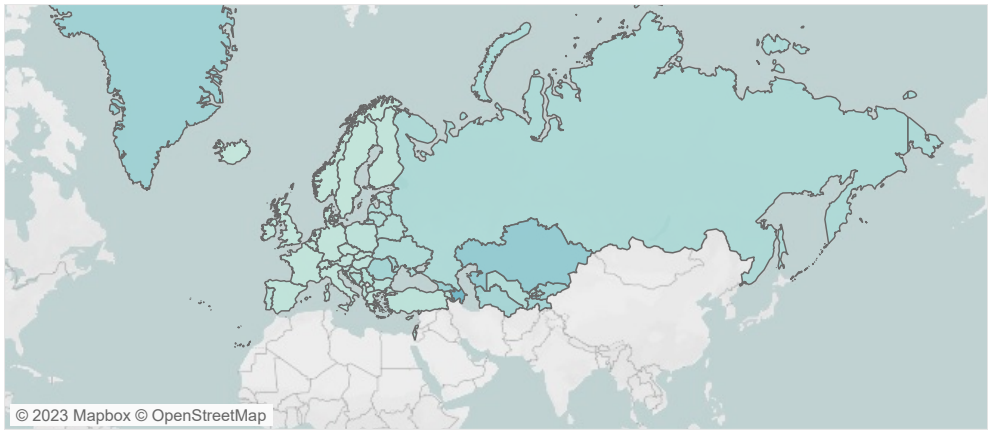


Top Countries
15

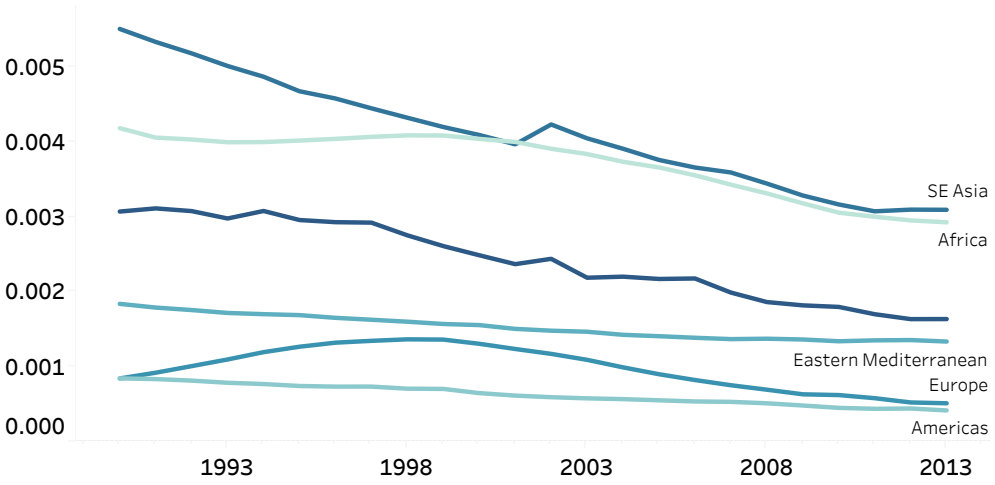
Data Normalization

Average Yearly Cases per 100k

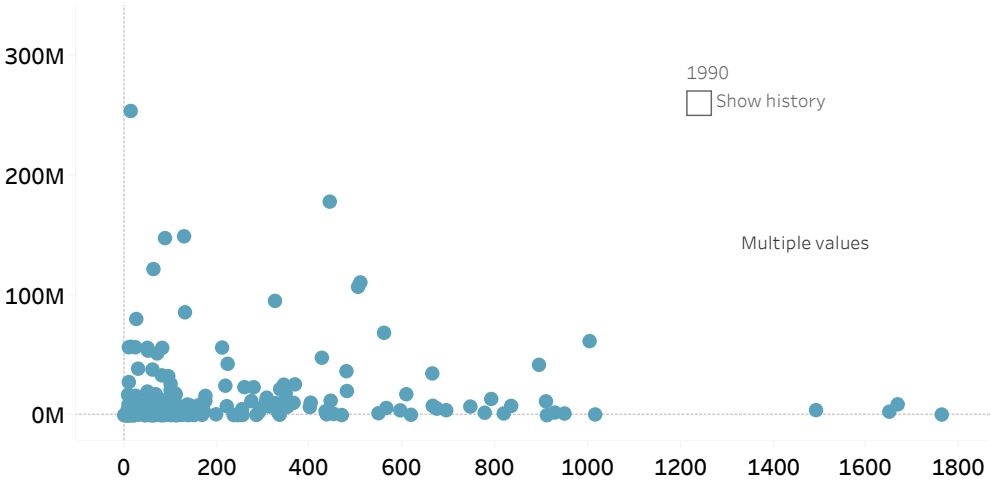




Prevalence Rate



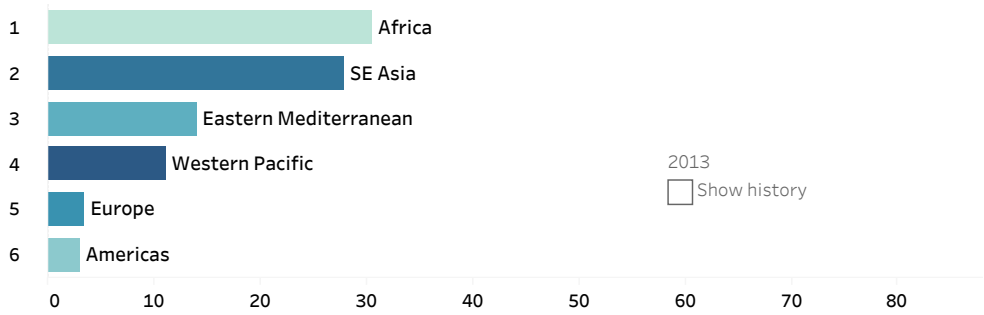
Prevalence/100k vs Population



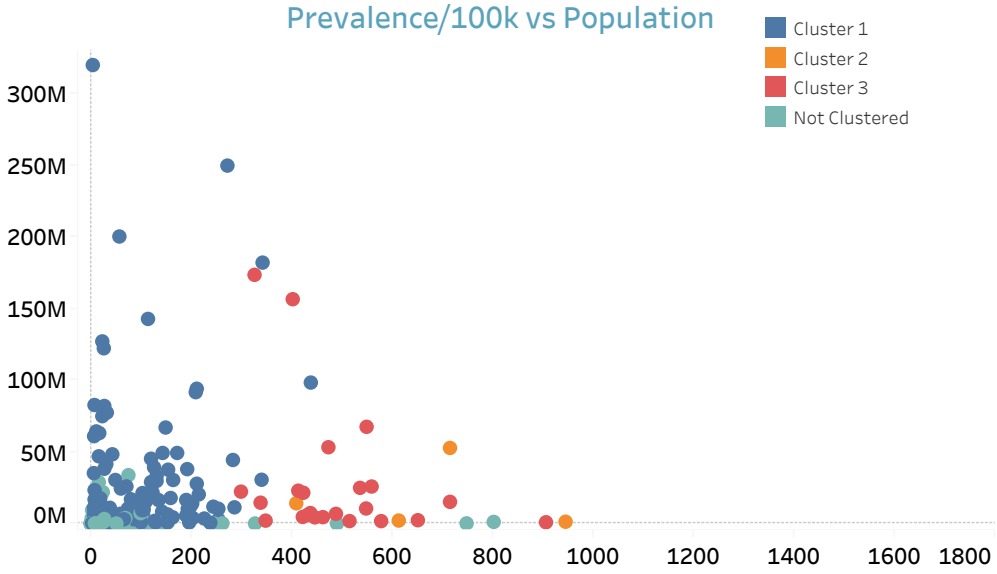
Mortality Rates and HIV

- In order to determine burden, need to consider mortality rates
- Lower deaths per case implies treatment strategies are effective
- Country could have high cases but low death rate
- Co-infection rates for TB-HIV as high as 65%

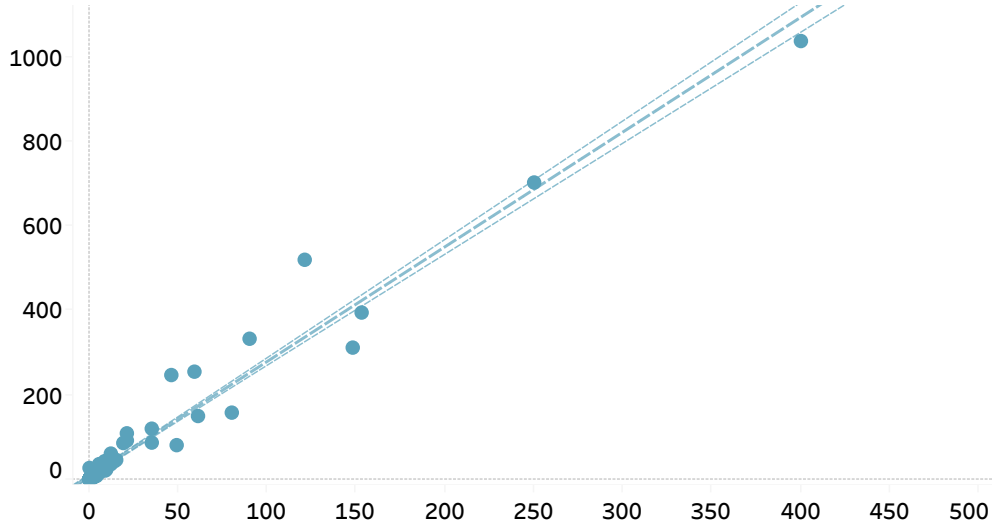
Average Deaths per 100k



Prevalence/100k vs Population



Mortality vs Incident for TB-HIV infections

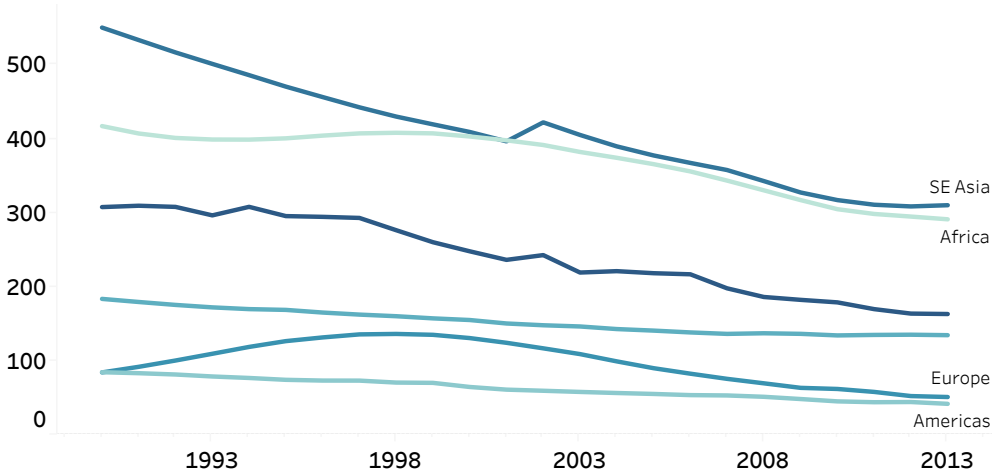


Positive Trends and Progress

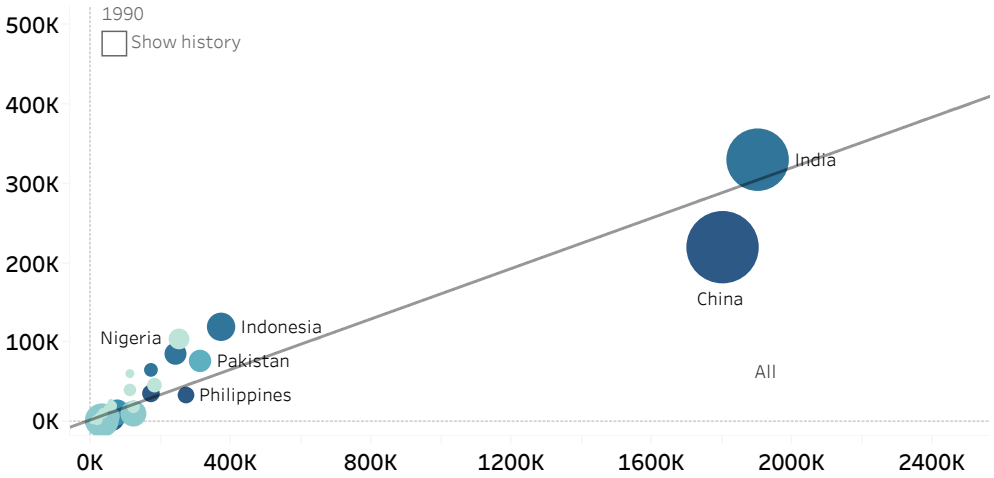
- Evidence of progress being made in fight against TB
- Prevalence rates are trending downward
- Mortality rates trending downward
- HIV co-infection rates are trending downward since height of HIV epidemic

Co-infection Deaths since 2001

Prevalence



Total Incidences vs Total Deaths



Conclusion

- Data must be normalized when determining the relative burden on a country
- Data shows that prevalence is greatest in SE Asia and Africa
- Mortality rates are strongly linked to TB-HIV co-infection
- Positive trends can be seen in all regions for the time period
- Progress has accelerated since the height of the HIV pandemic