

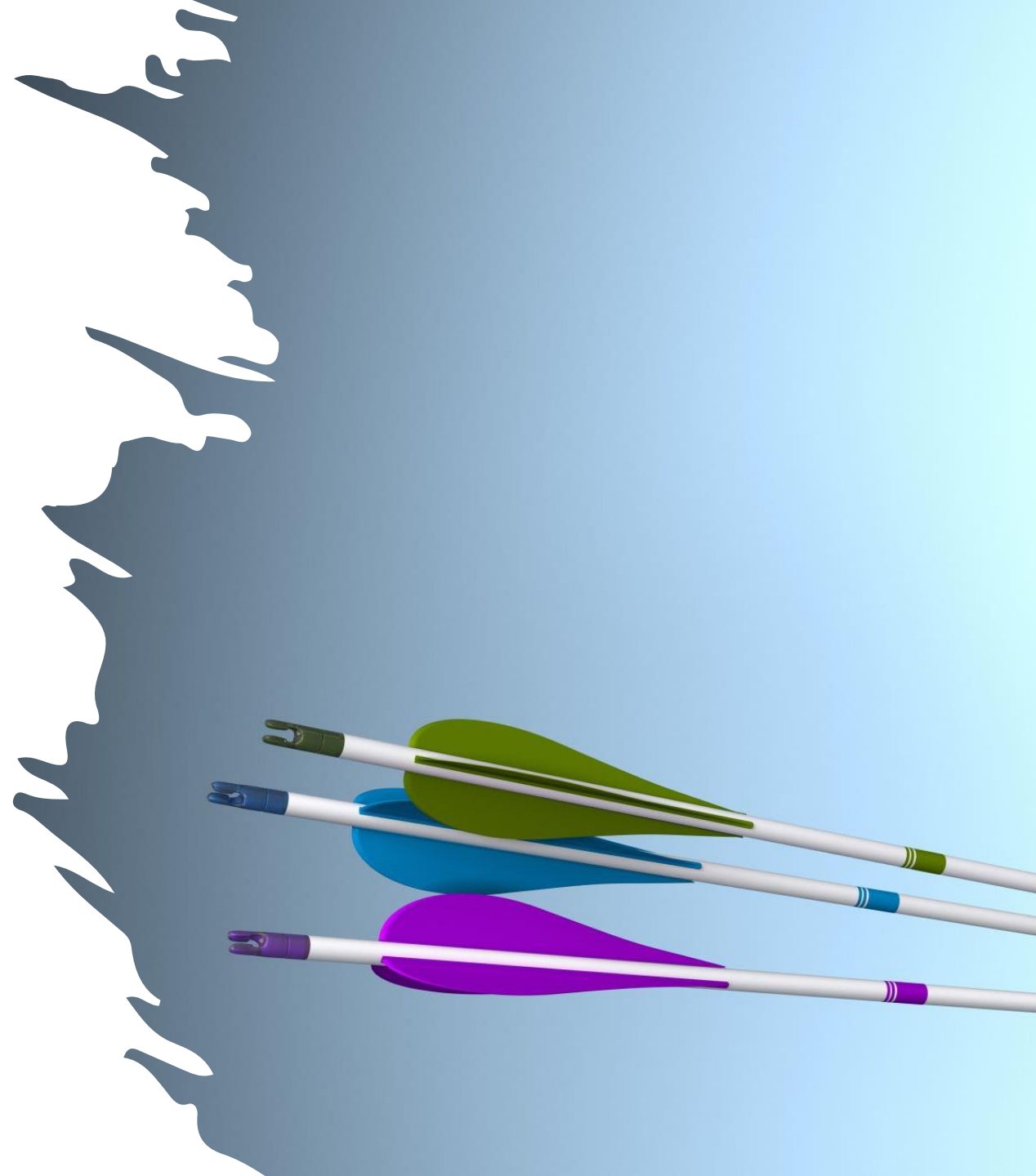
Tableau Project

Topic : **Tuberculosis Burden by country**

Ikenna Odinye

Project Outlines

- **Project goals/objectives**
- **Processes**
- **Results**
- **Challenges**
- **Future goals**



Project goals

- **To enhance capacity on visualizing with Tableau**
- **To identify the most significant and impactful findings in the TB burden dataset**



Project objectives

1

Look for pattern that are consistent across multiple visualization, forecast, and cluster results

2

Identify regions/countries or time periods with high TB prevalence, mortality, or case detection rates.

3

Identify regions with notable improvements or success stories in fight against TB.

Processes/steps

Step 1

Step 1

- Connect to TB burden dataset, identify data types and create 5 different visualization to understand the data better

Step 4

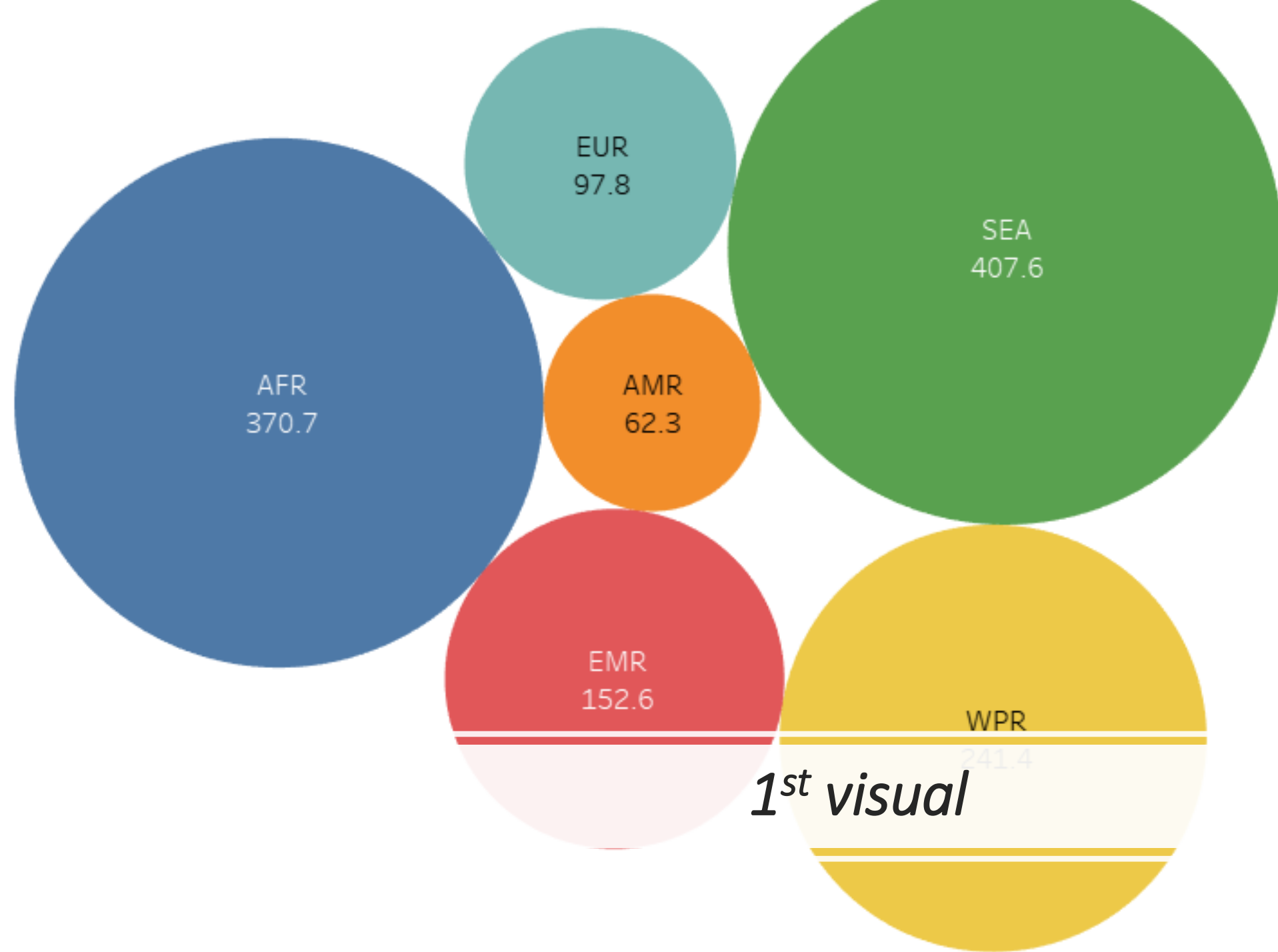
Step 4

- Identify important features out of the 47 in the dataset, state why they are important and define a question.

Step 5

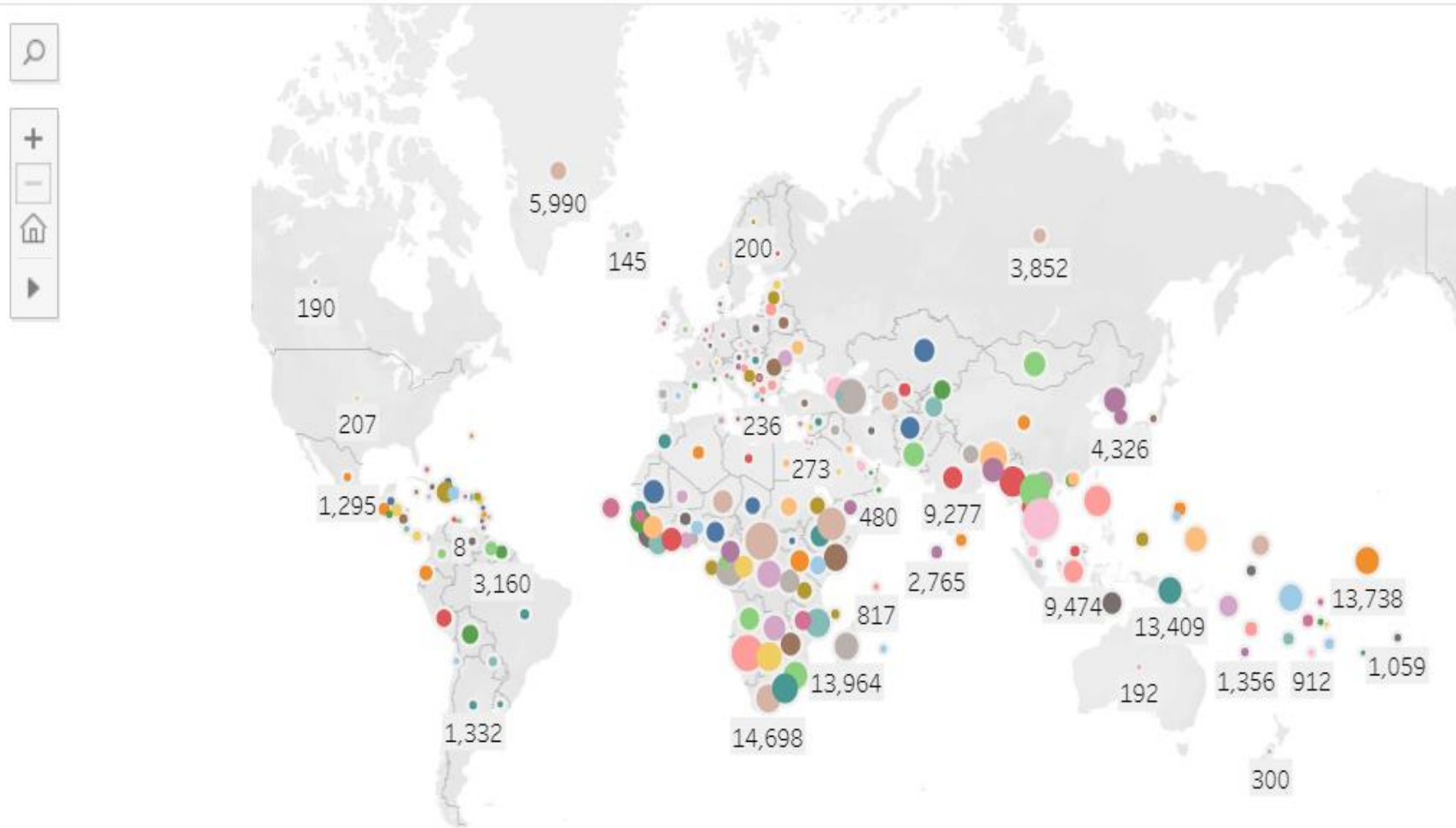
Step 5

- Show maps, date time visuals, and analytical visuals(forecasting & clustering). Find patterns and create dashboard.

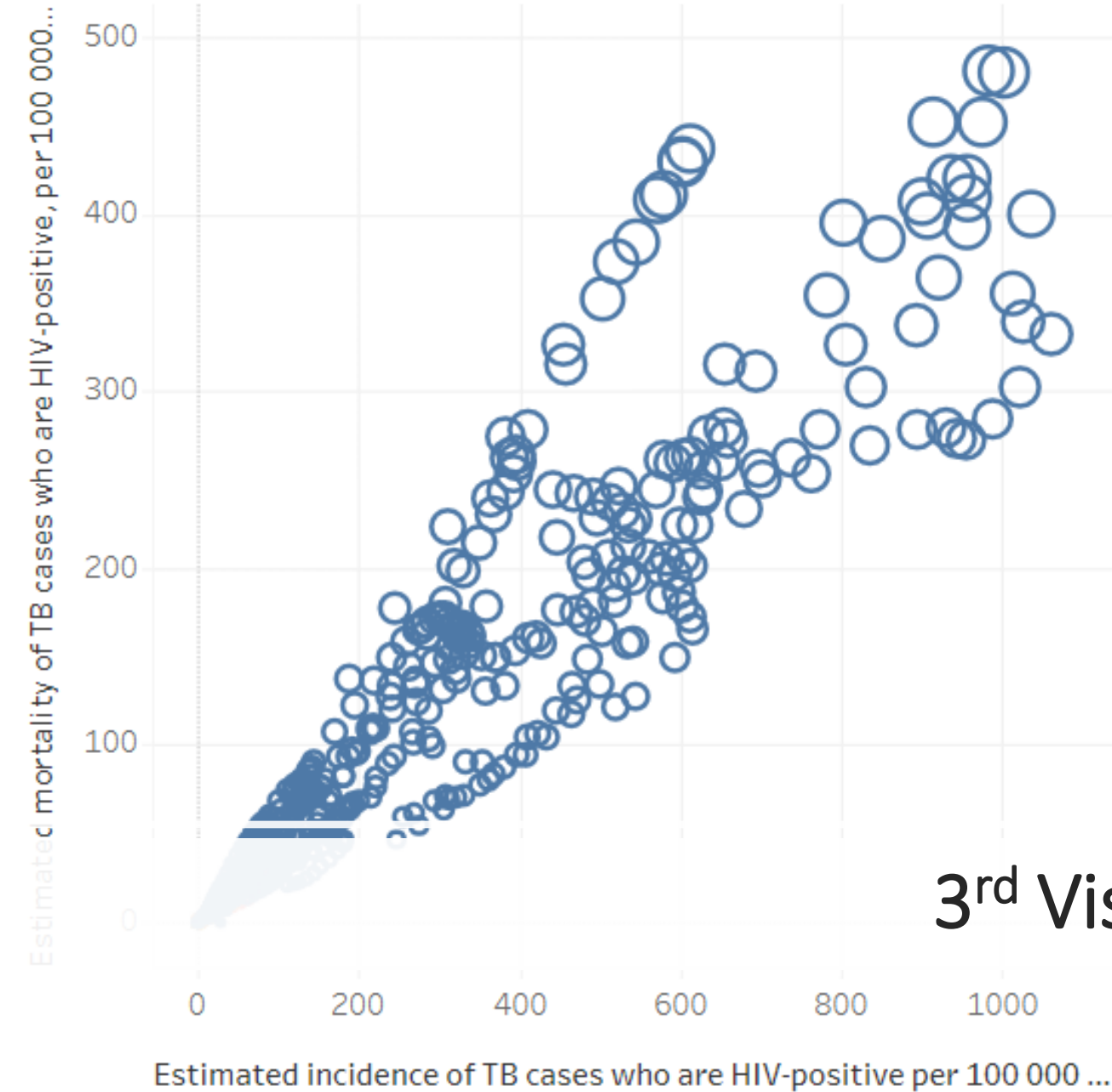


2nd Visual

Prevalence by Country

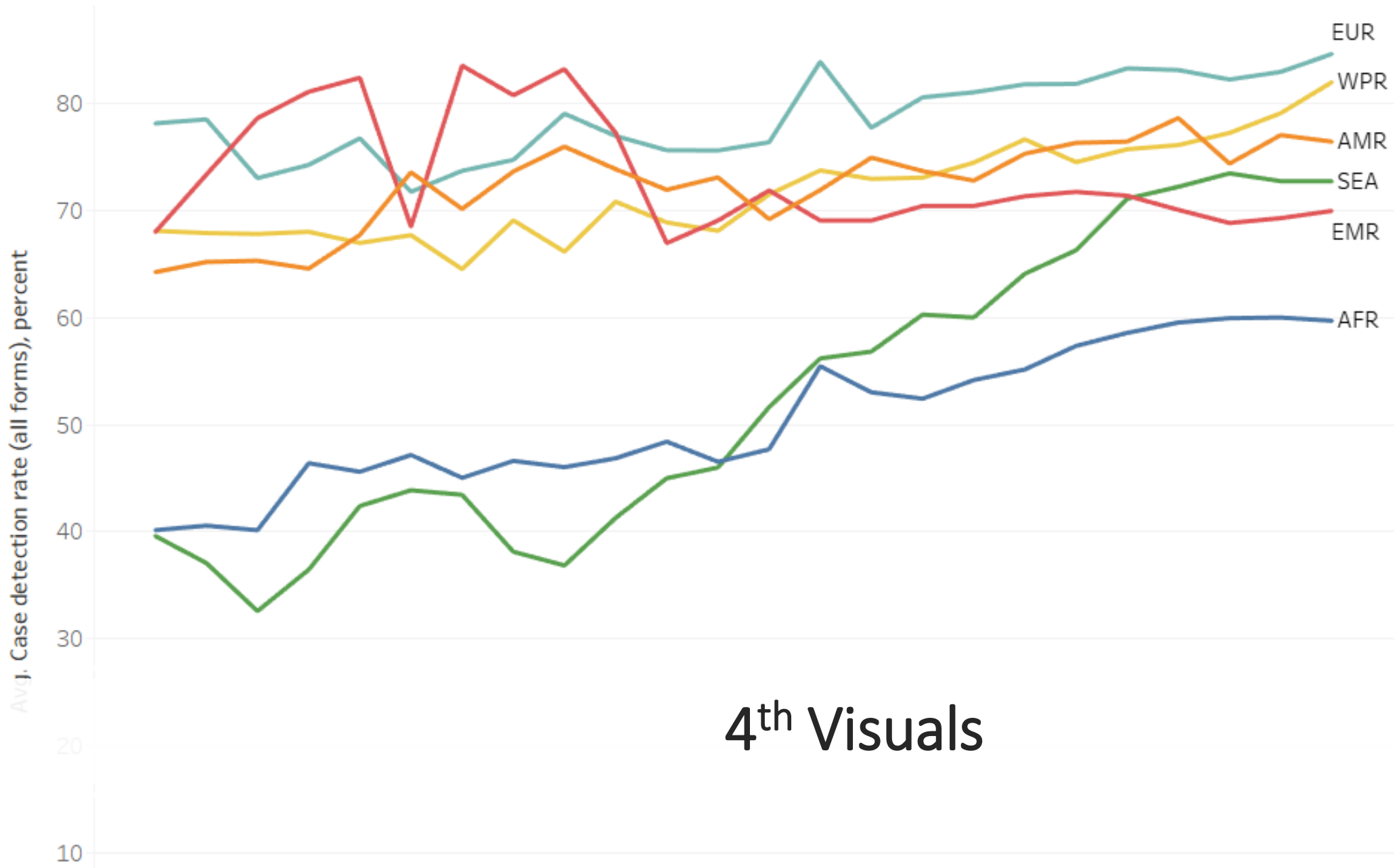


Mortality by Incidence



3rd Visuals

Case detection rate



4th Visuals

Region

- ☒ (All)
- ☒ AFR
- ☒ AMR
- ☒ EMR
- ☒ EUR
- ☒ SEA
- ☒ WPR

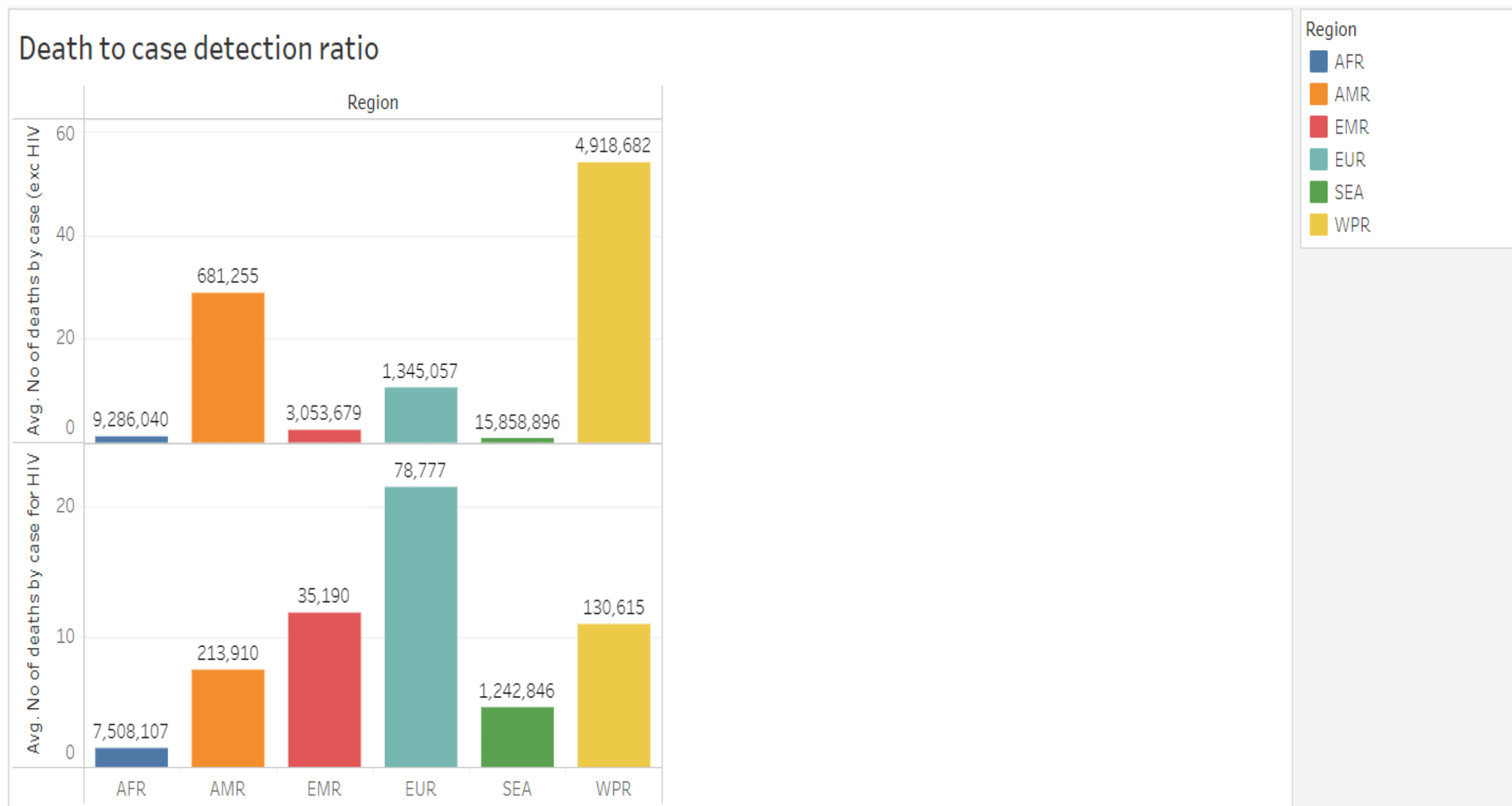
Country or territory name

- ☒ (All)
- ☒ Afghanistan
- ☒ Albania
- ☒ Algeria
- ☒ American Samoa
- ☒ Andorra
- ☒ Angola
- ☒ Anguilla
- ☒ Antigua and Barb...
- ☒ Argentina
- ☒ Armenia
- ☐ Aruba
- ☐ Australia
- ☐ Austria
- ☐ Azerbaijan

Region

- ☒ AFR

5th visual



Step 4 results

- The important features identified and why :

Estimated prevalence of TB (all forms) per 100,000 people: ***To ascertain how TB prevalence varies across countries overtime***

Case detection rate (all forms) percent: ***Establish relationship between case delectation and TB death burden***

Estimated number of deaths from TB exclusive and inclusive of HIV: ***Impact of HIV/AIDS as co-morbidity***

Estimated mortality of TB cases (all forms) exclusive and inclusive of HIV per 100,000 people: ***Still on TB HIV/AIDS impact***

Estimated incidence all forms per 100,000: ***Emergence of new cases across regions/countries***

Methods to derive prevalence & mortality: ***Data validity***

Questions: (1) **What are the factors influencing high prevalence in certain countries and regions.**

(2) **What are the effectiveness of different detection methods**

(3) **What is the impact of TB/HIV as co-morbidity on mortality rate**

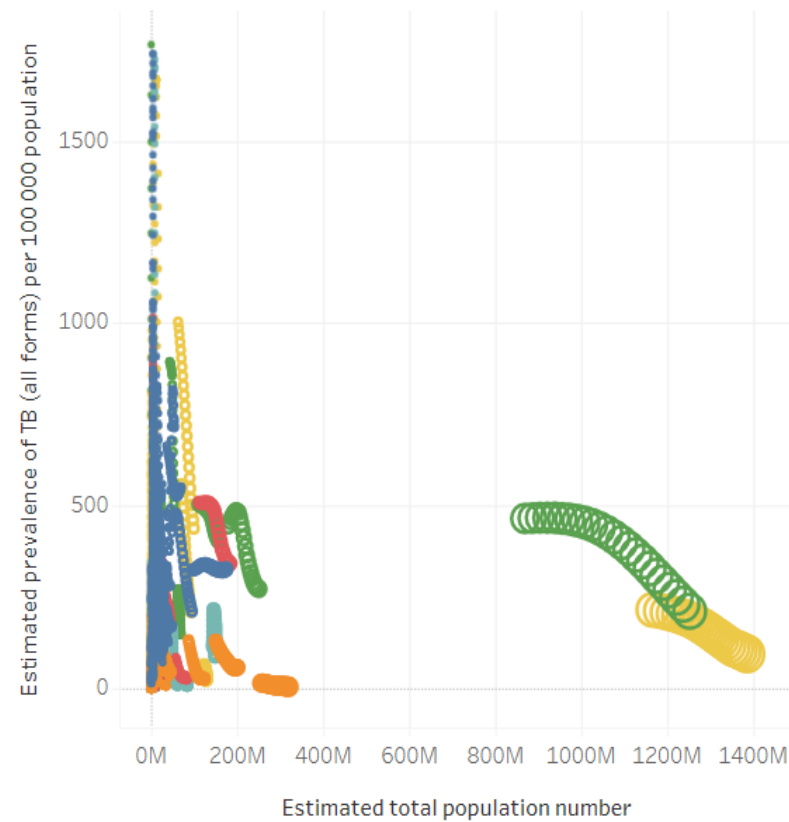
(4) **What is the effect of population on TB prevalence in countries/region**

Step 5 – 8 results



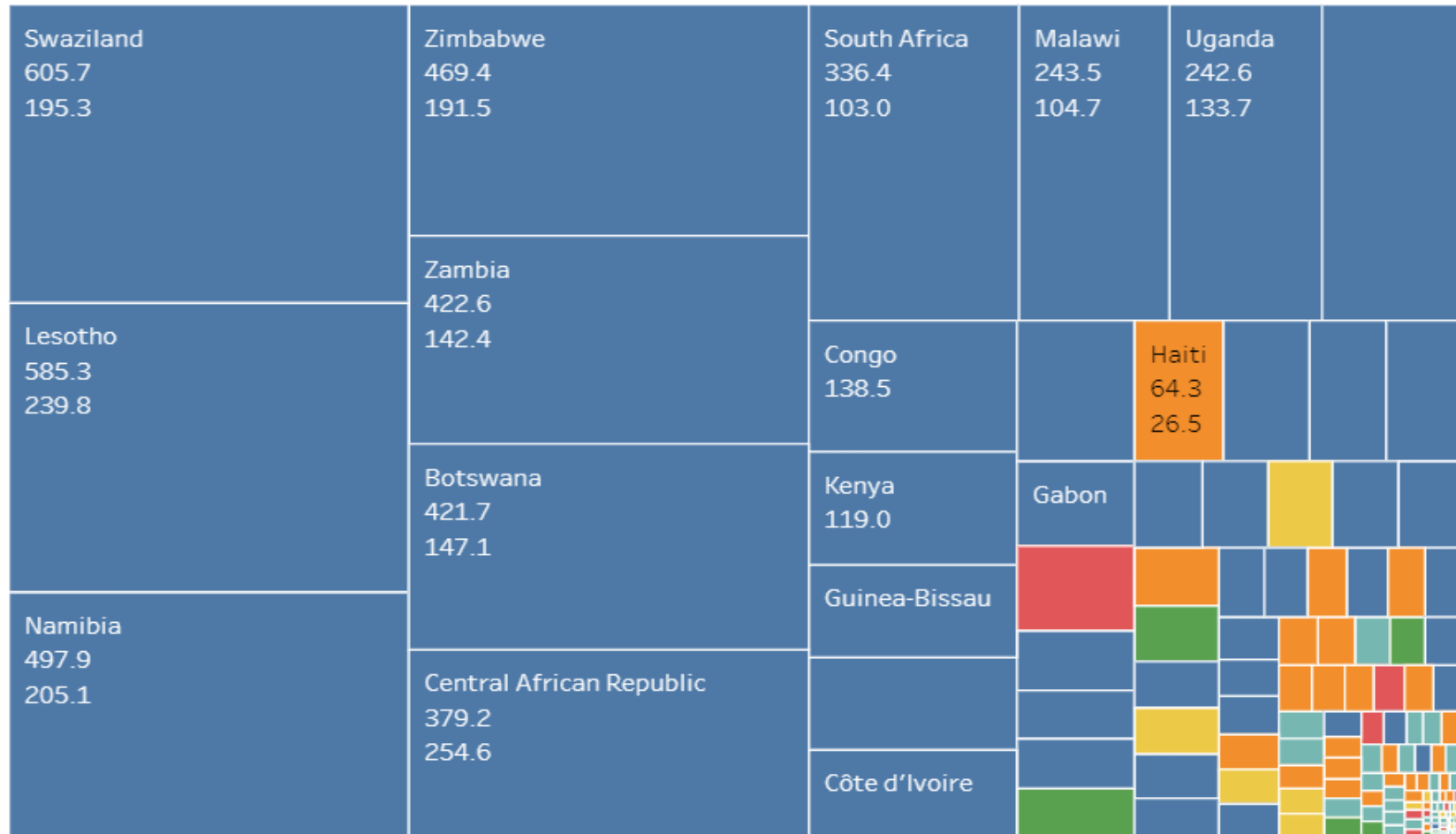
Population by prevalence

Pop. By prevalence

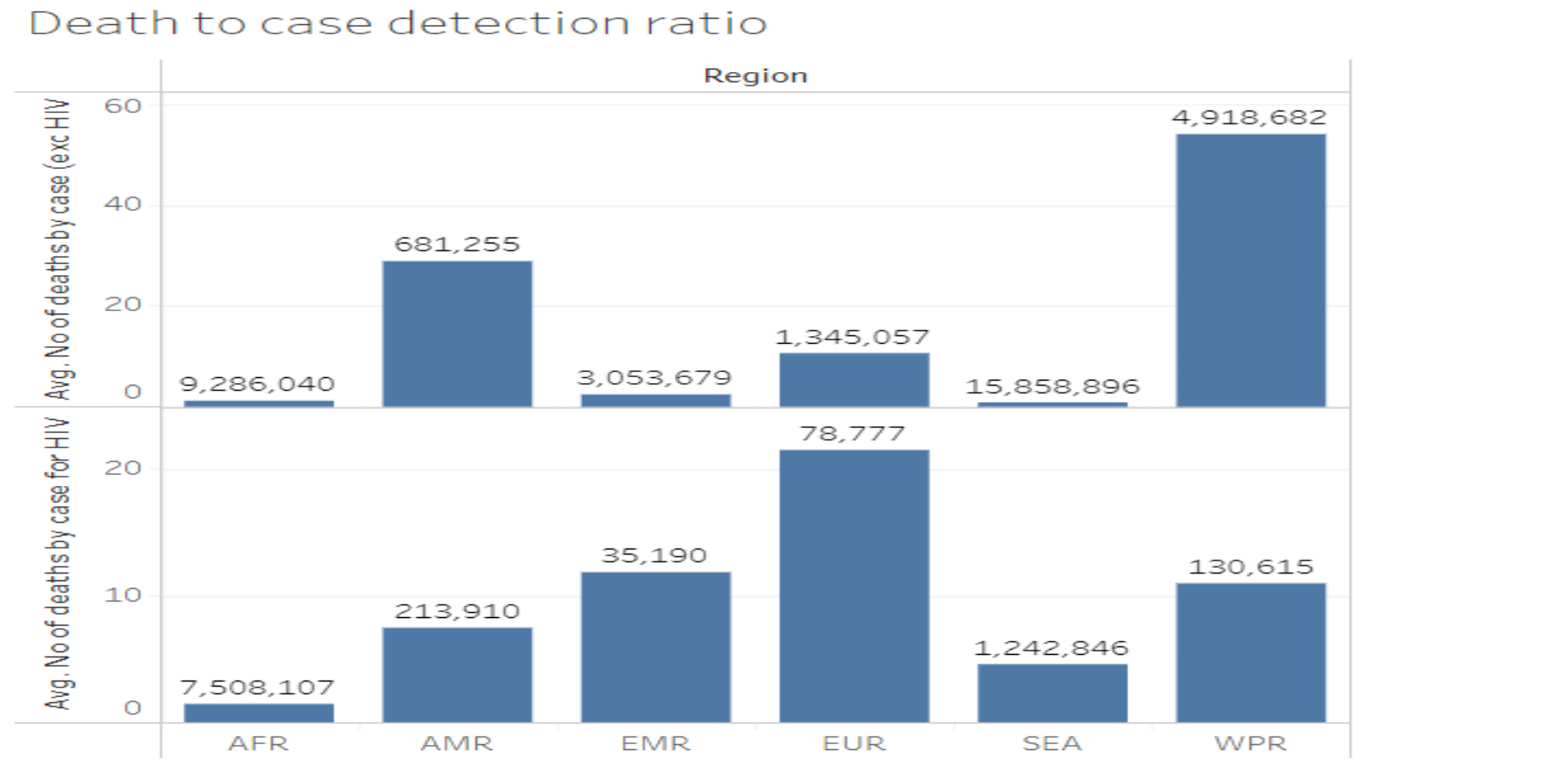


TB HIV/AIDS burden

HIV/TB country

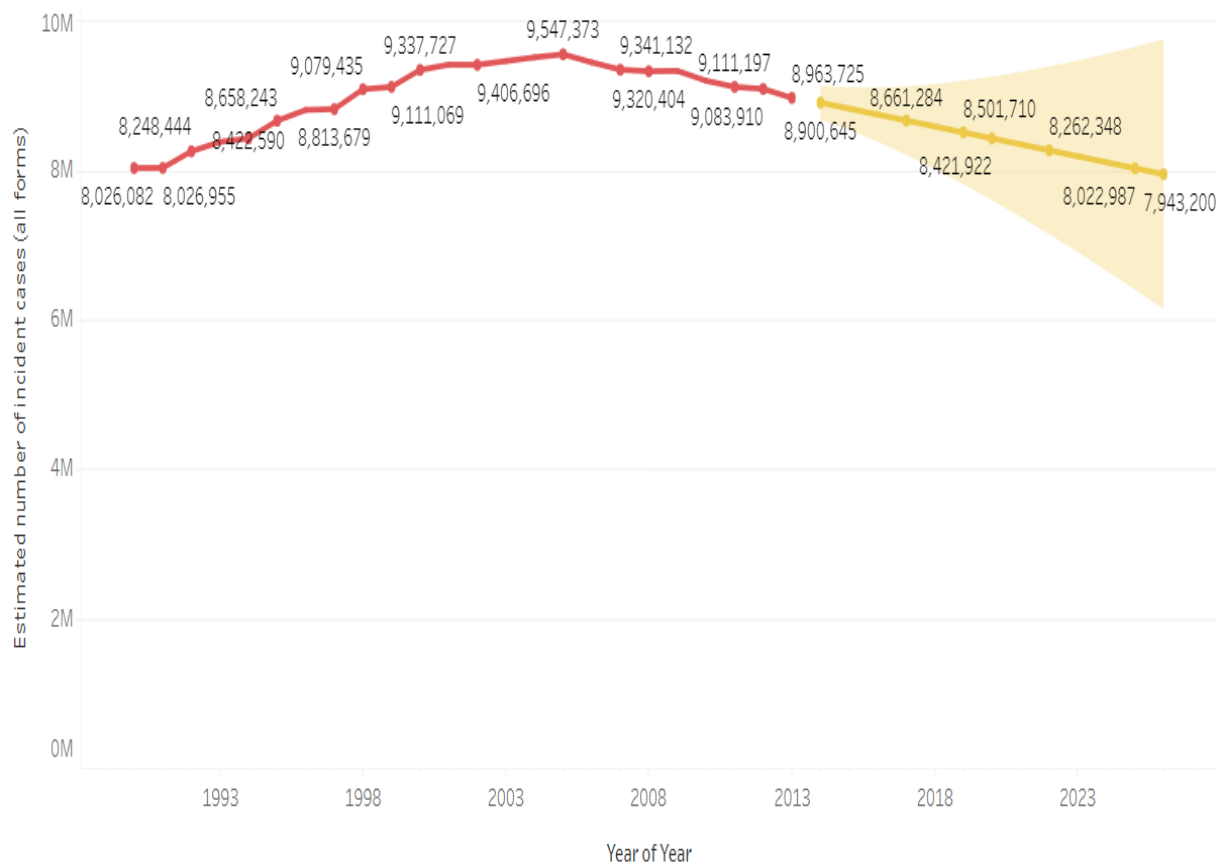


Death to case detection ratio

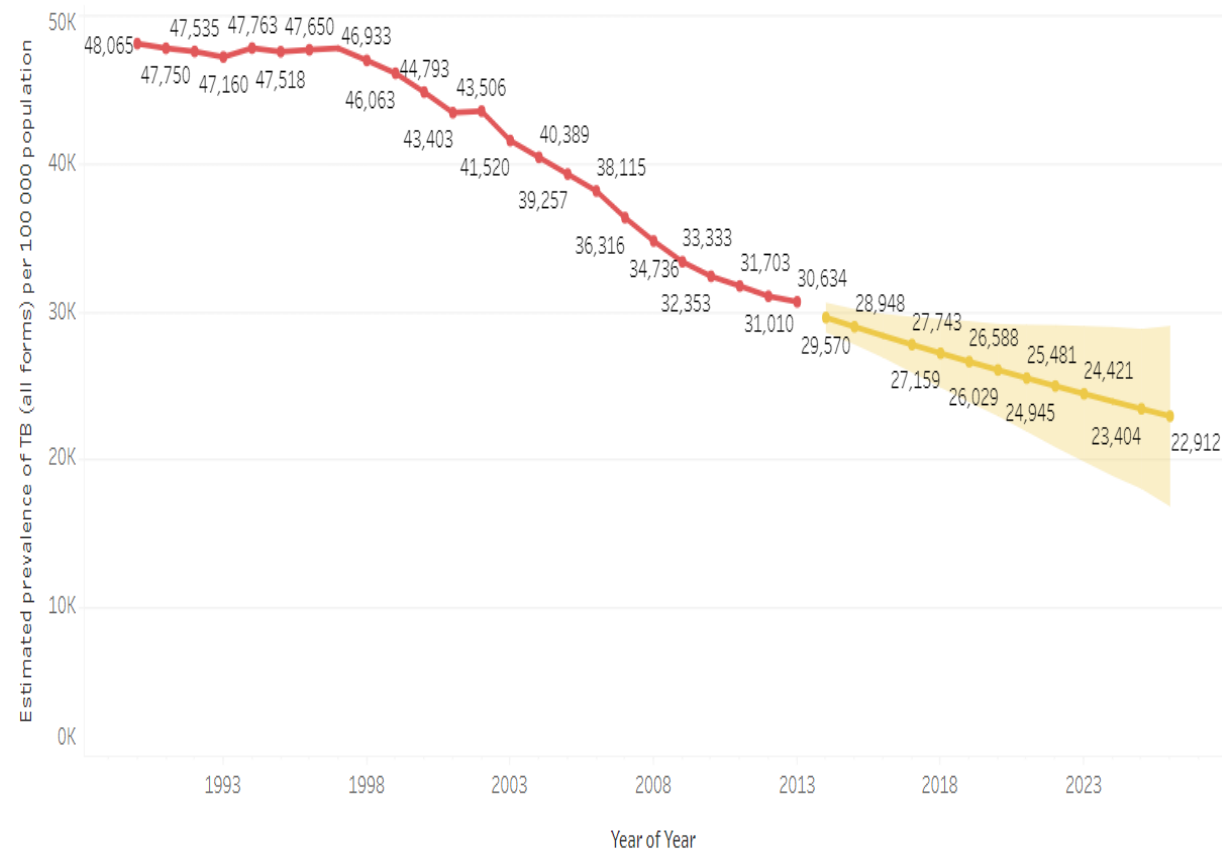


Prevalence & Incidence forecast

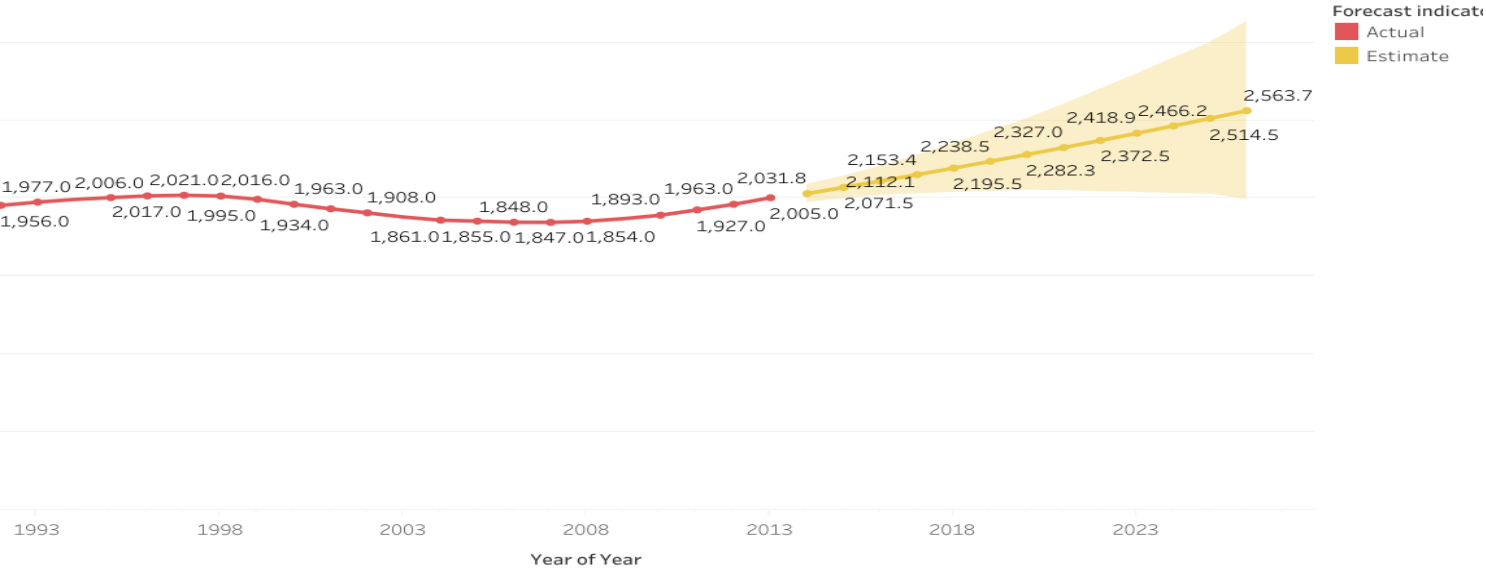
Incidence forecast



Prevalence forecast



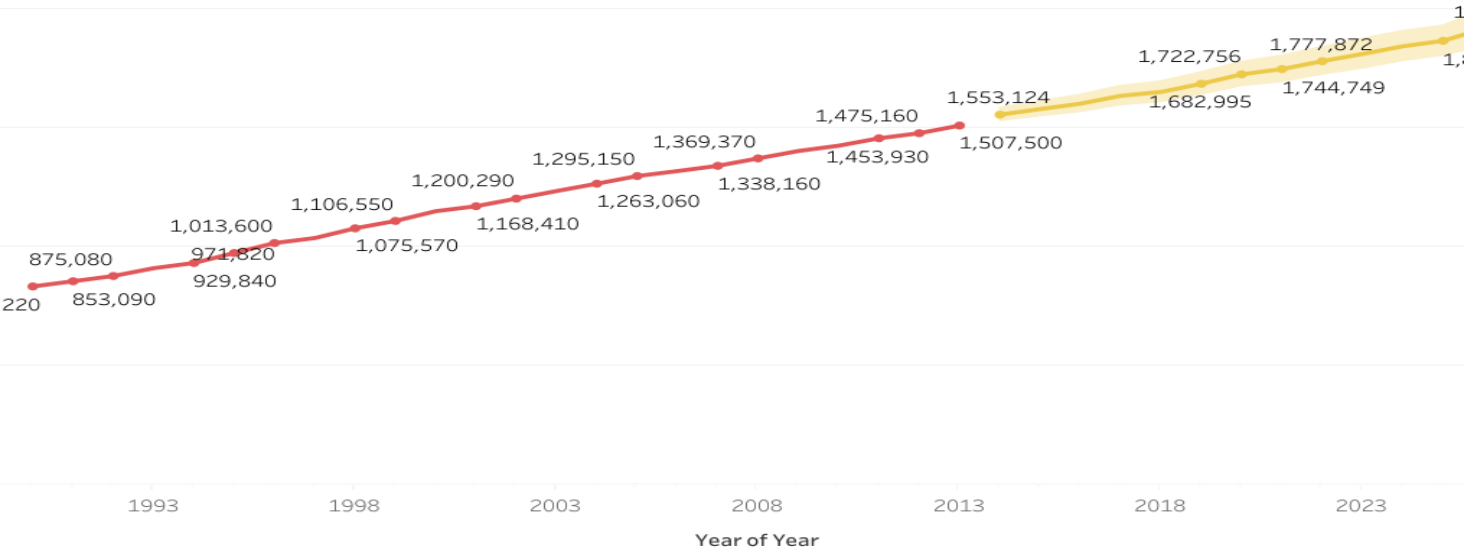
cast



Countries with high prevalence

Region	Country
AFR	Nigeria
AMR	Venezuela
SEA	Sri Lanka
EMR	Afghanistan

forecast



Variables:

Sum of Estimated prevalence of TB (all forms) per 100 000 population

Sum of Case detection rate (all forms), percent

Sum of Estimated mortality of TB cases (all forms, excluding HIV) per 100 000 population

Level of Detail:

Not Aggregated

Scaling:

Normalized

Summary Diagnostics

Number of Clusters:	2
Number of Points:	4671
Between-group Sum of Squares:	116.42
Within-group Sum of Squares:	79.967
Total Sum of Squares:	196.38

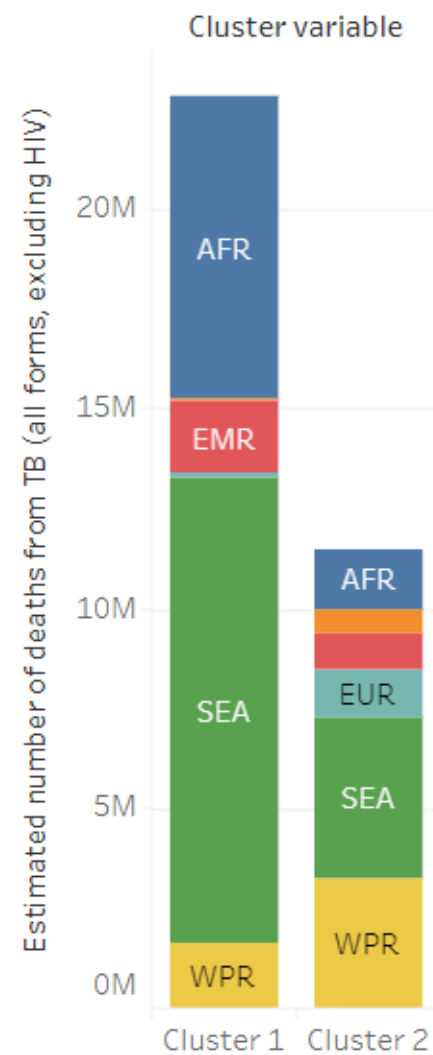
Inputs for Clustering

Centers						
Clusters		Number of Items		Sum of Estimated prevalence of TB (all forms) per 100 000 population	Sum of Case detection rate (all forms), percent	Sum of Estimated mortality of TB cases (all forms, excluding HIV) per 100 000 population
Cluster 1		915		626.73	40.825	73.28
Cluster 2		3756		96.504	74.891	7.5898

Analysis of Variance:

						Model			Error	
Variable		F-statistic		p-value		Sum of Squares	DF		Sum of Squares	DF
Sum of Estimated prevalence of TB (all forms) per 100 000 population		3039		0		66.7	1		102.5	4669
Sum of Estimated mortality of TB cases (all forms, excluding HIV) per 100 000 population		3003		0		41.38	1		64.34	4669
Sum of Case detection rate (all forms), percent		1316		0		8.338	1		29.57	4669

Cluster by death

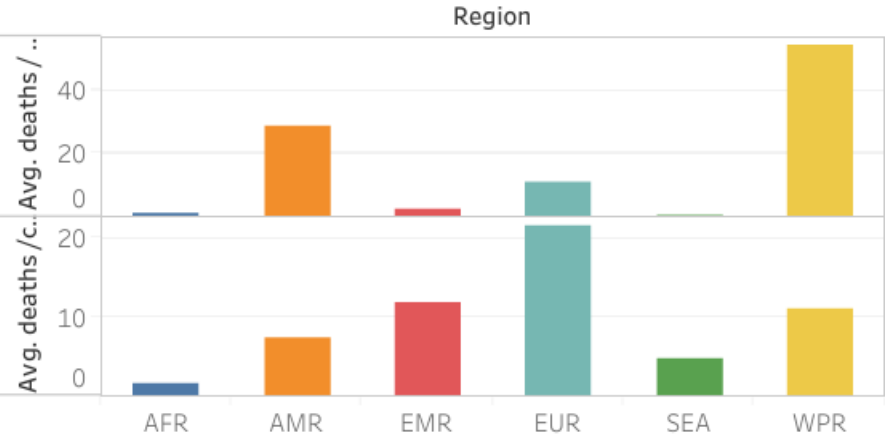


Cluster 1 Countries

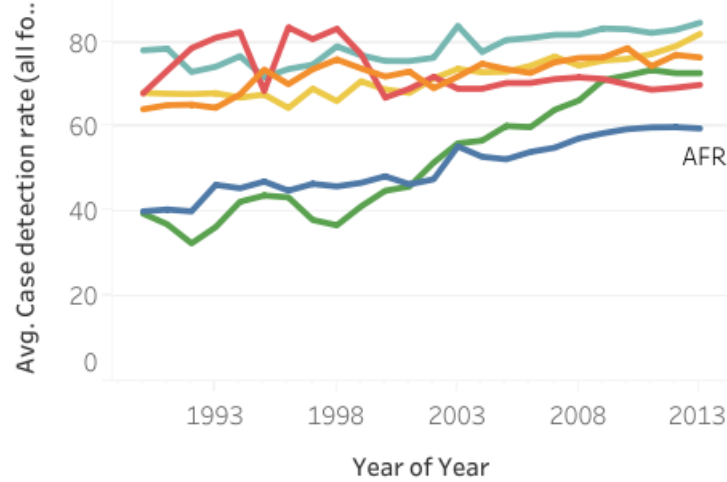
Cluster by country



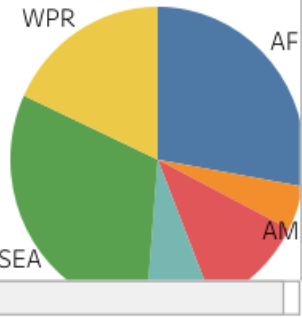
Death and case detection



Case detection by year

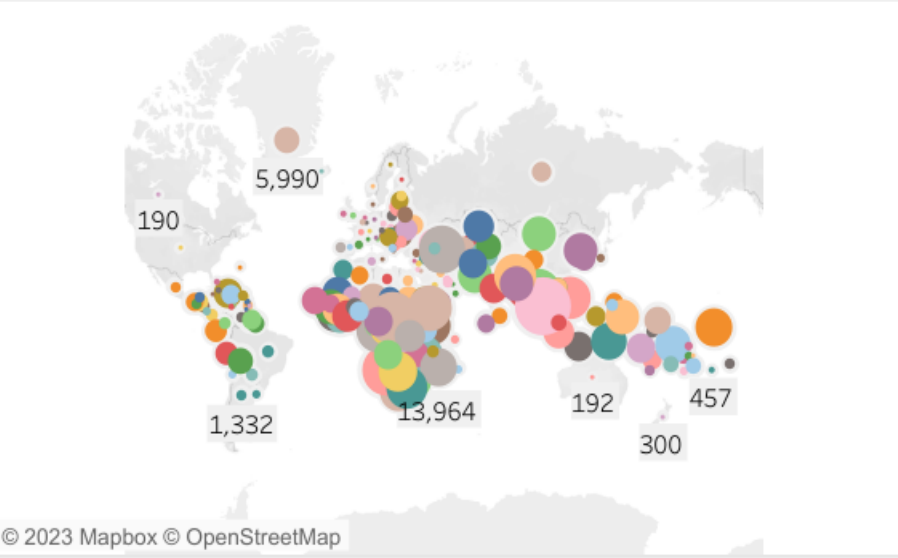


Avg. Prev by region

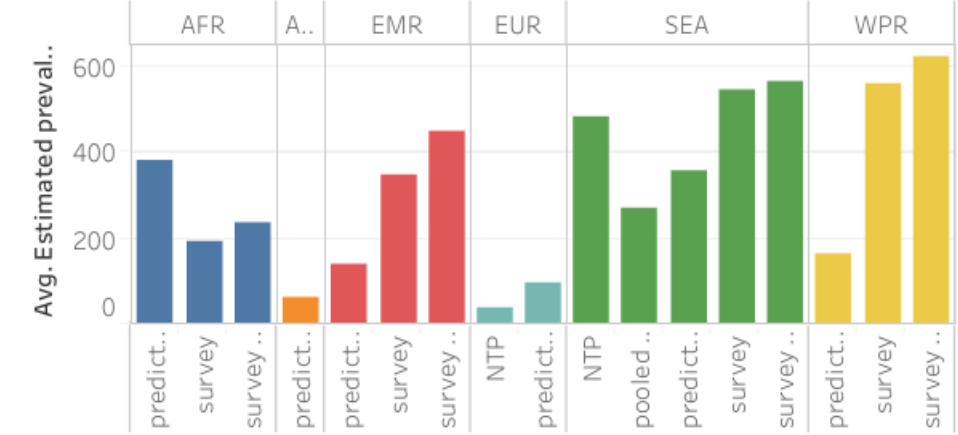


- Region
- AFR
 - AMR
 - EMR
 - EUR
 - SEA
 - WPR
- Country or t..
- ☒ Afghani..
 - ☒ Albania
 - ☒ Algeria
 - ☒ America..
 - ☒ Andorra
 - ☒ Anaola

Prevalence by Country



Mthd to deriv & avg prevalence

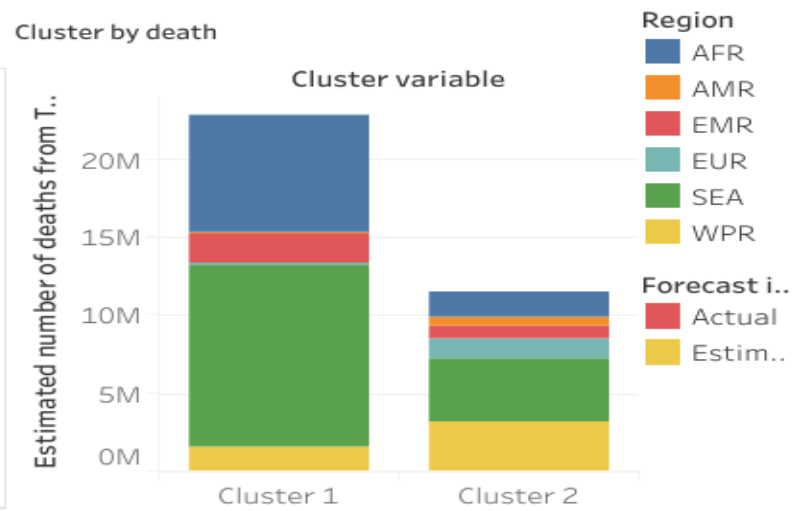


- Region
- ☒ AFR
 - ☒ AMR
 - ☒ EMR
 - ☒ EUR
 - ☒ SEA
 - ☒ WPR
- Country or t..
- ☒ Afghani..
 - ☒ Albania
 - ☒ Algeria
 - ☒ Americ..
 - ☒ Andorra
- Avg. Estima..
- 1,332.4

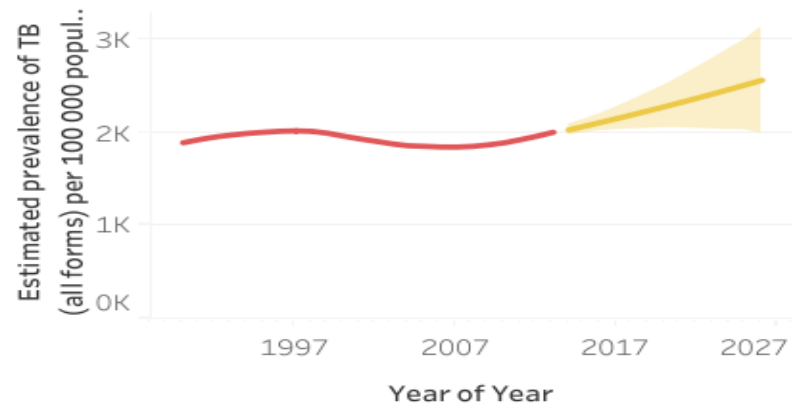
Cluster by country



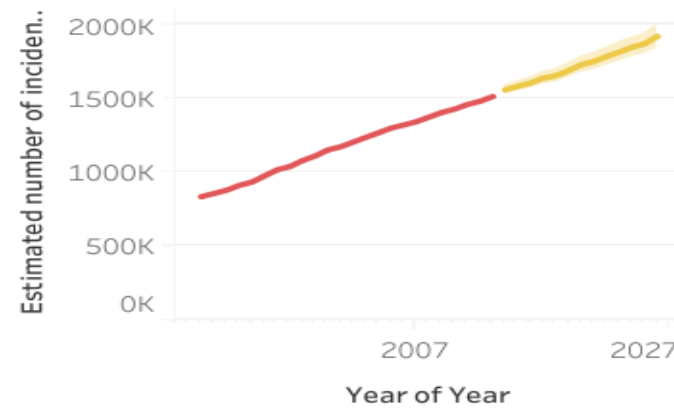
Cluster by death



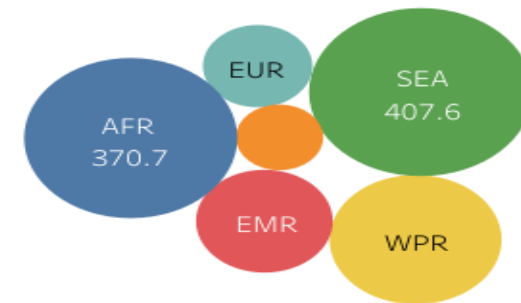
Prevalence forecast



Incidence forecast



Avg prevalence by region




Analysis of Variance:

						Model			Error	
Variable		F-statistic		p-value		Sum of Squares	DF		Sum of Squares	DF
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Findings

- By calculating the ratio of case detection to estimated number of deaths per 100,000 people from TB, I gained insights that effectiveness of TB early case finding has potential impact in reducing mortality. And this can be a KPI for how successful NTPs and Healthcare systems are, in fight against TB burden in respective countries.
 - For example, difference in case detection to death ratio between Africa (1.20) and America (28.98), despite higher deaths in Africa, suggests potential disparities in TB case detection and reporting between the two regions. Some factors that may be contributing to these are:
 - 1) Variations in healthcare systems e.g. accessibility and quality of service
 - 2) Diagnostic capacity
 - 3) Under reporting and data quality
- 



Challenges

Presenting my findings in clear concise manner.

Limited time to study dashboard creation.



Future Goal

- **Need to build my capacity on compelling story-telling in order to paint a good picture of my findings.**



• **Thank you!**