

## Tuberculosis Trends

Andrew Elliott

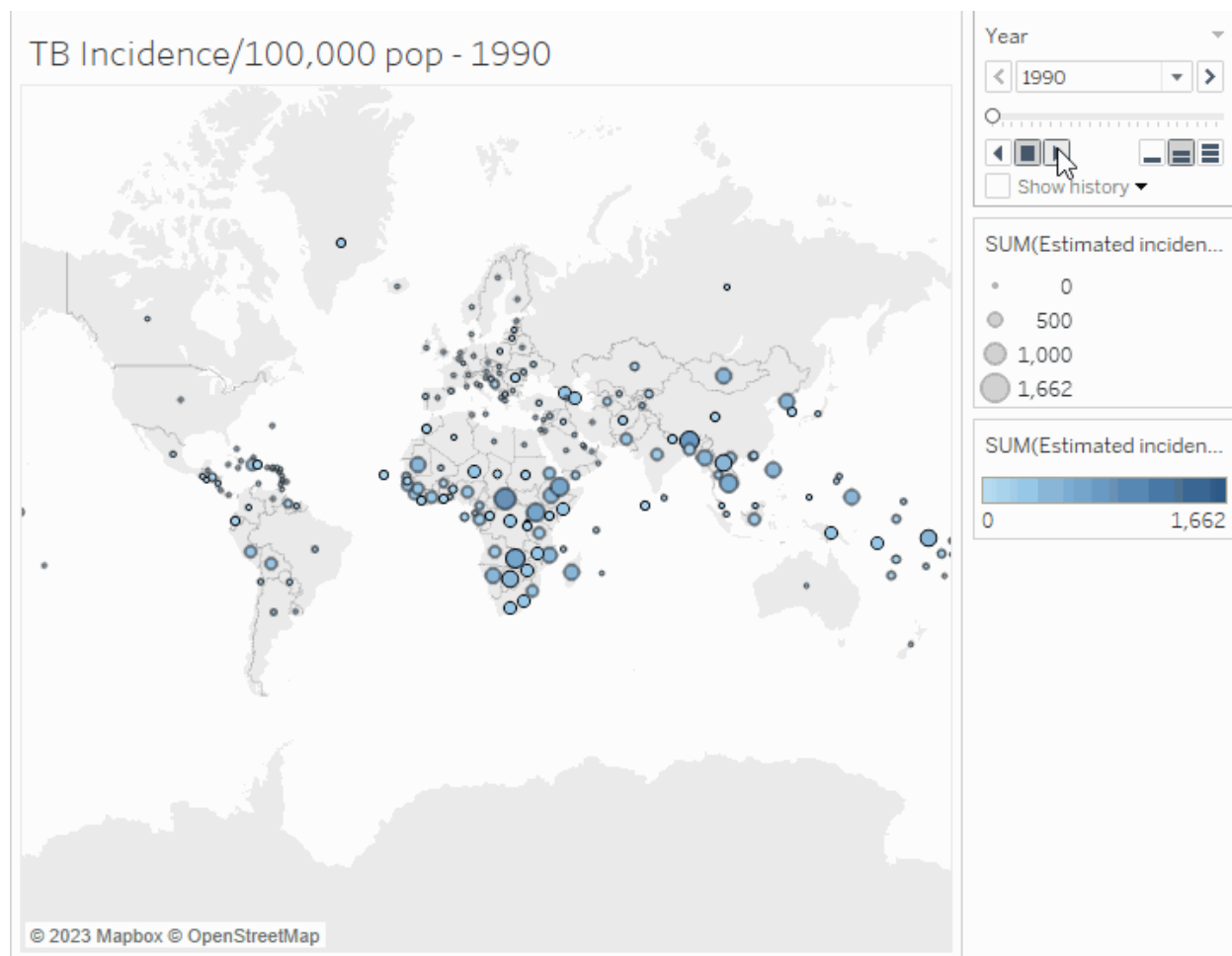
In preparing this presentation, I set out with a starting hypothesis:

As initiatives toward fighting tuberculosis (TB) increase, the prevalence and incidence rates of TB will diminish over time.

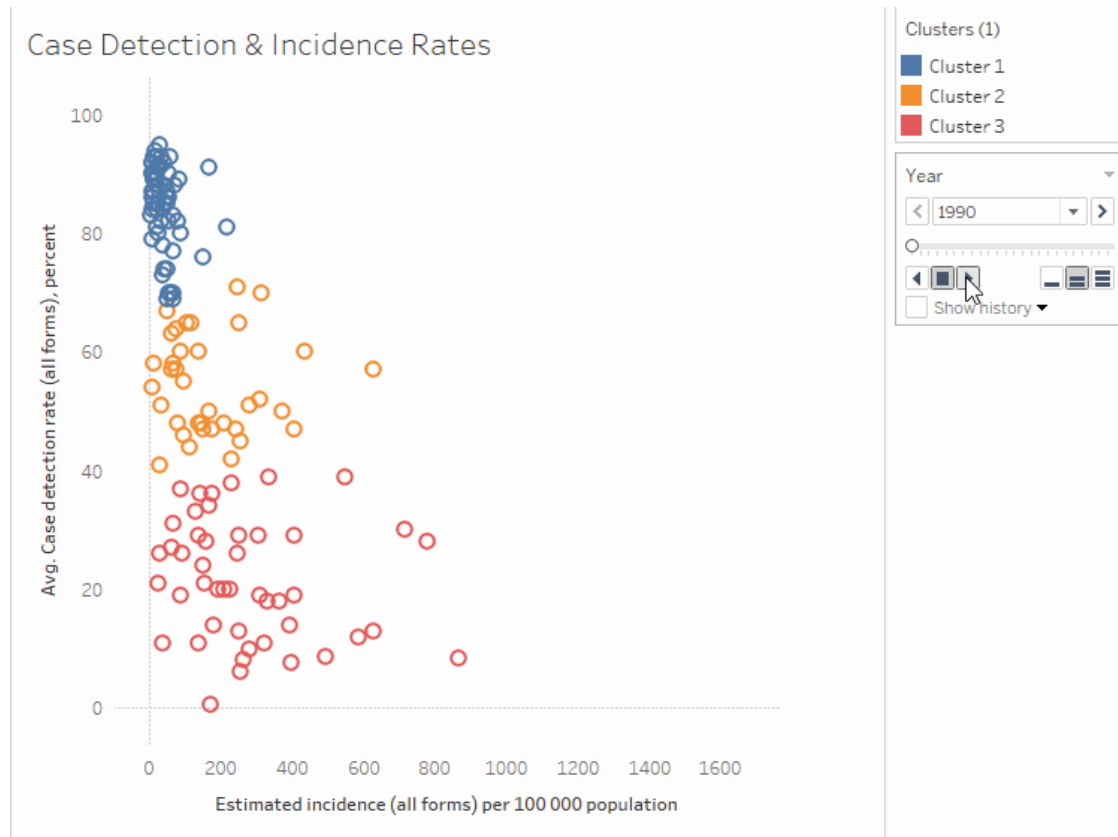
I found that this hypothesis can be supported by the data trends; there is a relationship between increased detection rates (often through testing) and lower incidence and mortality rates. Countries that do not have adequate means of detecting TB cases tend to have a higher prevalence of TB, while countries with sufficient testing capabilities tend to have a lower prevalence of TB.

I came to this conclusion by answering the following questions:

1. My main data question was that I wanted to see what the trends were in terms of TB incidence and deaths in different parts of the world (tying into my hypothesis). Is the prevalence of TB, plus the corresponding mortality rate, going down?

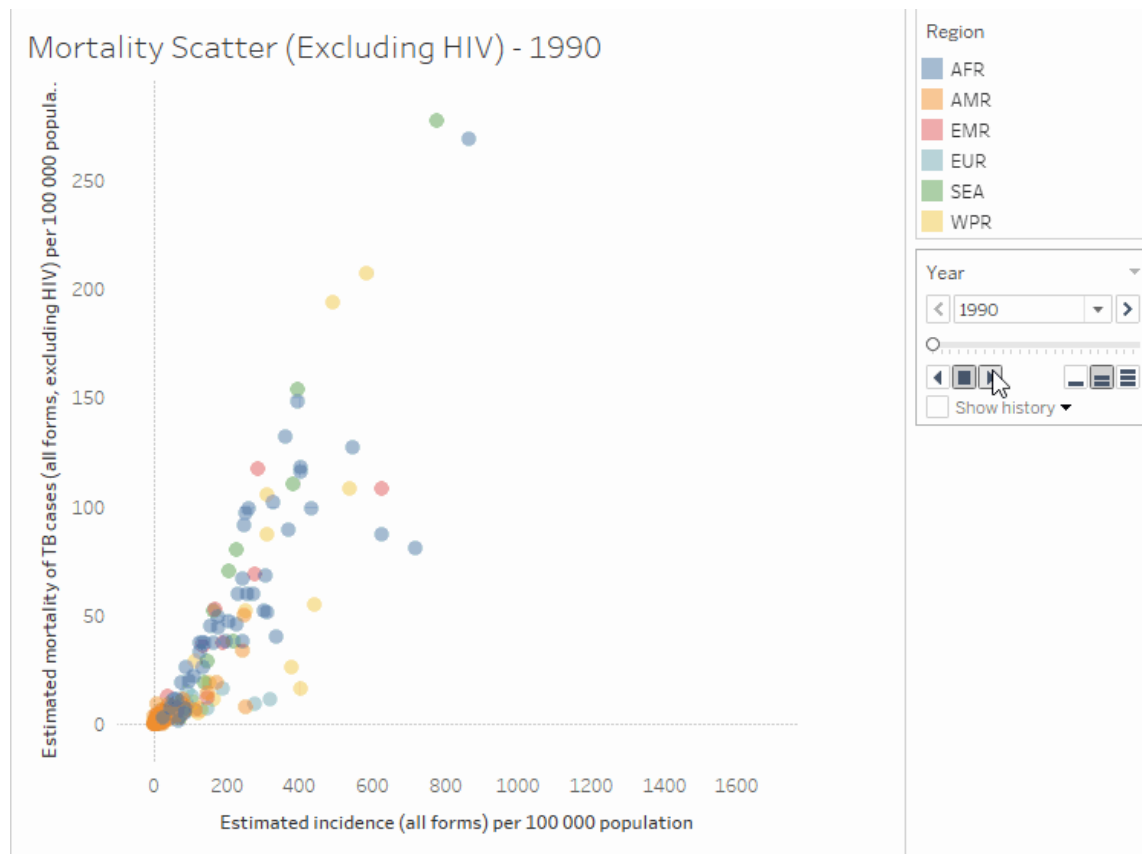


Answer: TB has been declining in most of the world, with a few notable exceptions (described in question 2).



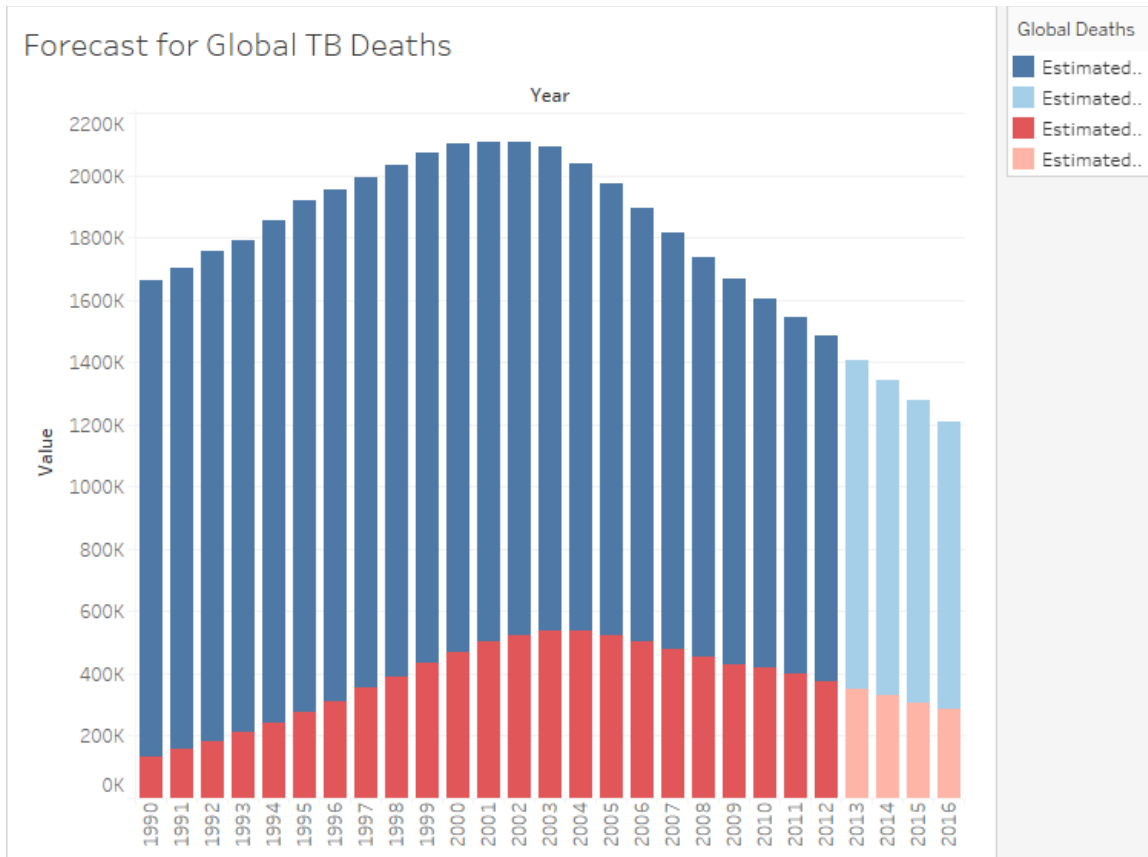
Here, we can see the relationship between case detection rates and incidence, which also helps highlight the global trend that TB incidence rates are declining.

2. Which regions of the world have been impacted the hardest?



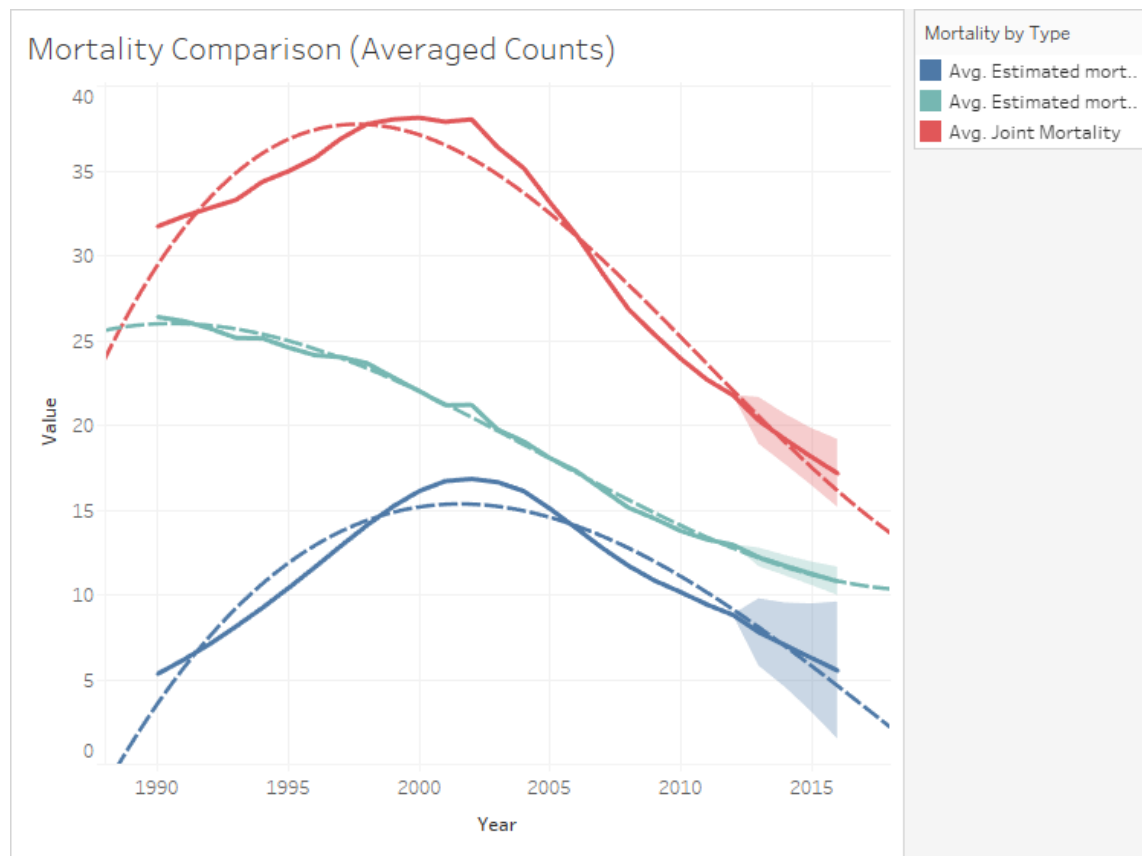
Answer: Southern Africa in recent years, although SE Asia and Central Africa were hit harder throughout the 1990s. If I were to hover over the dot with the highest incidence in 2013, we would see that Swaziland (now known as Eswatini) had the highest estimated incidence rate per 100,000 population.

- What can the immediate future (pretending that the current year is 2013 rather than 2023) be expected to look like if current trends continue?



Answer: Overall, TB will continue to decline if ongoing efforts to fight it remain in place.

Note that blue ranges indicate the number of deaths among people who are HIV-Negative, while red ranges indicate HIV-Positive deaths. HIV infection makes death from TB more likely, despite making up a minority of all TB cases.



As we can see here, HIV-Negative mortality rates are easier to forecast than HIV-Positive mortality rates; the HIV-Positive rate has far greater variability than the HIV-Negative rate, although overall it is likely to decline if current trends continue.