AC209b - Data Science 2 Hwk 2

Exploratory Data Analysis

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Nikhila Ravi
nikhila_ravi@g.harvard.edu

Global Malaria Funding

Trends in the contribution of different funding sources to the global malaria effort was explored as well as the overall funding for Malaria eradication over the past decade.

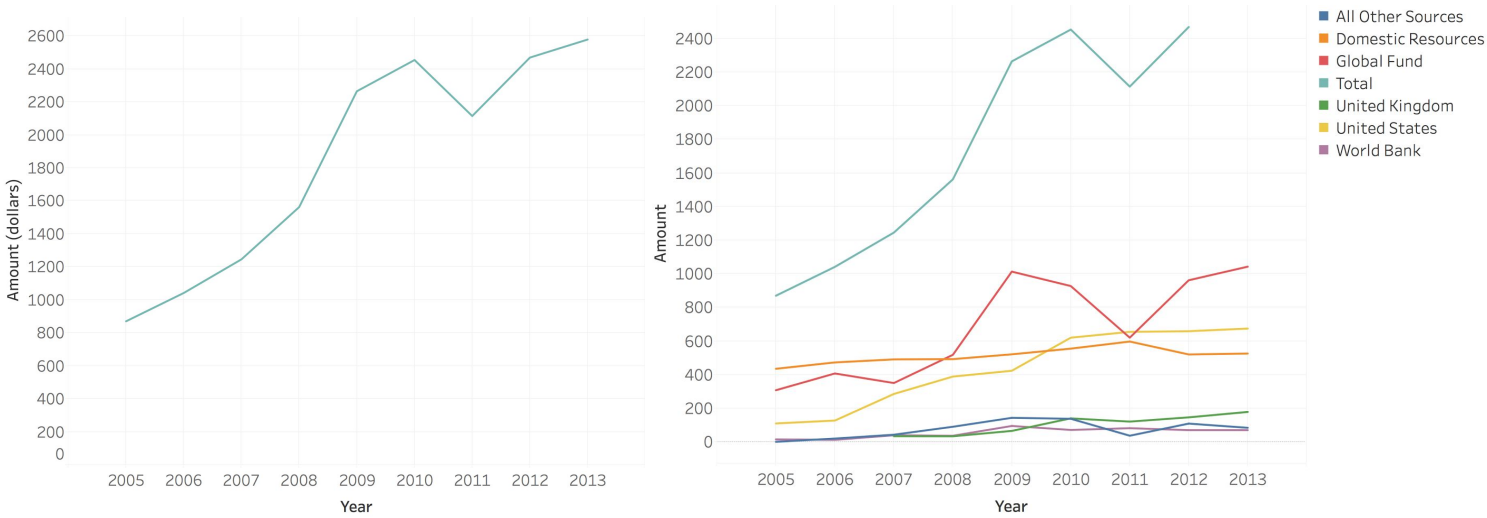

Fig 1. (a) Trends in Total funding for Malaria from 2005 - 2013 (b) Funding by source

The data was replotted as a stacked bar chart as in this format the individual contributions and the total can be visualised together.

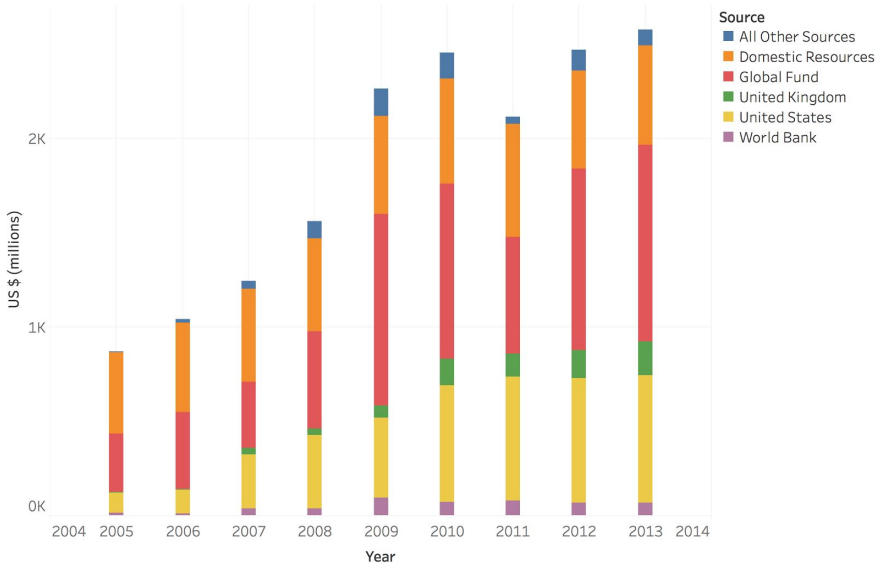

Fig 2. Investments in Malaria control by source (2005-2013)

Global Malaria Incidences

The countries which reported malaria cases were visualised on a map:

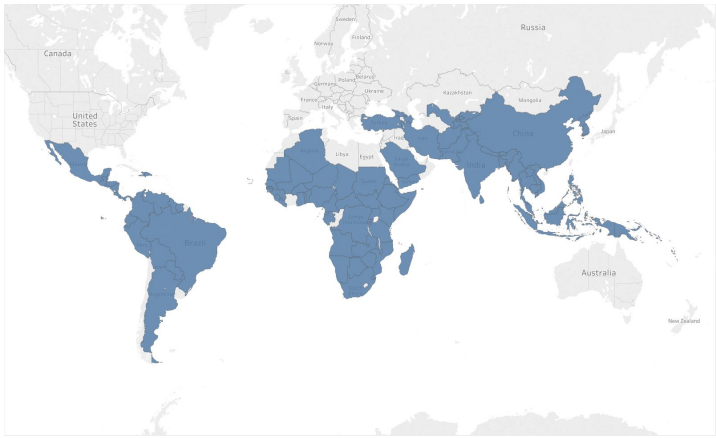

Fig 3. Locations of Malaria cases over the period 2000-2015

A heatmap of the malaria counts for 2000 and 2015 were also explored to see how the countries affected have changed due to the efforts of the Global Malaria Program.

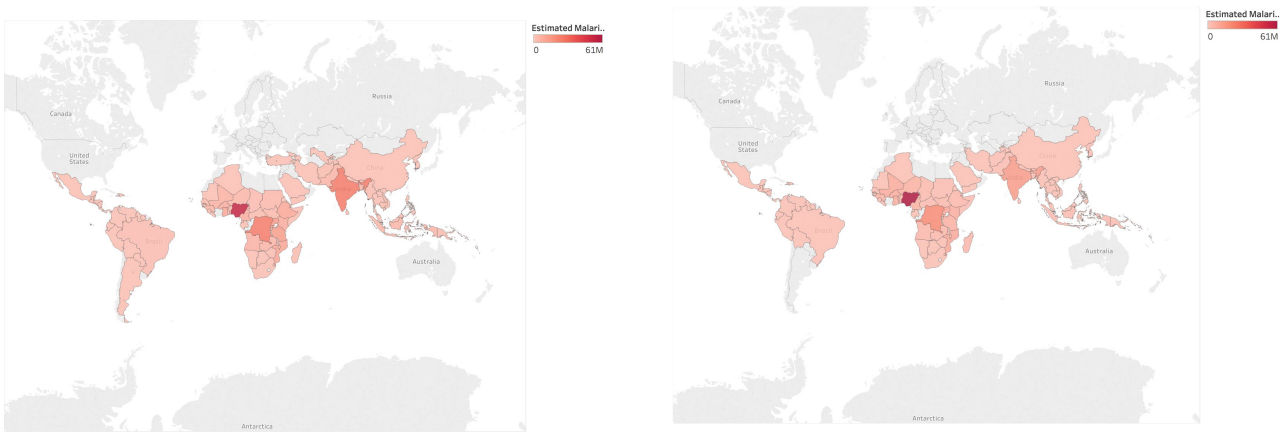

Fig 4. Counts of suspected malaria cases in different countries (a) in 2000 (b) in 2015

The heatmap colour scale is the same in both images to allow effective comparison. The intensity of colour on the world map shows that Africa (and primarily Nigeria) continues to be a high burden area for malaria cases. Between the year 2000 and 2015, the incidence rate in India has decreased. In addition, Chile and a few other parts of South America and the Eastern mediterranean are no longer high incidence areas.

This data was also plotted as a time series to visualise the trends in malaria cases in the 2000-2015 period.

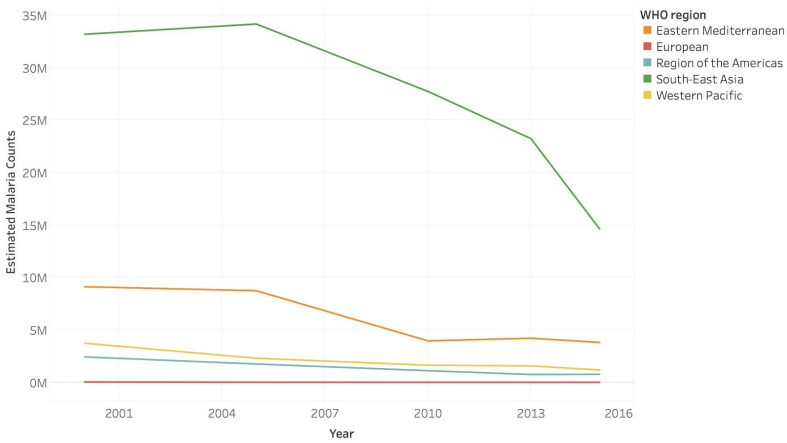

Fig 5. Trends in the estimated malaria counts from 2000-2016 for different WHO regions (excluding Africa)

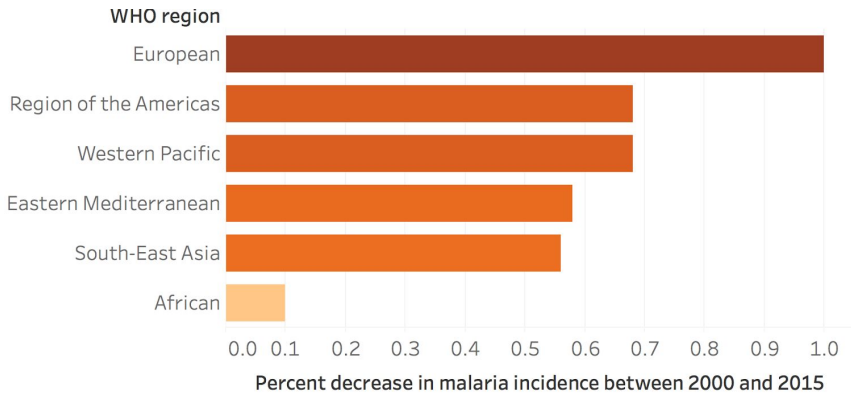

Fig 6. Percentage decrease in estimated malaria counts from 2000-2015 for each WHO regions.

The time series of the estimated malaria counts by region show that the regions which have experienced greatest decrease in malaria incidence as a result of the WHO's campaign are South America and Africa. There are also steady declines in Western Pacific and SE Asia and sharp decline in Eastern mediterranean (but now the incidence rate has reached a plateau).

The overall decline in malaria incidence was plotted alongside the total global funding for malaria to investigate how financial contributions to Malaria eradication programs has impacted the rate of incidence.

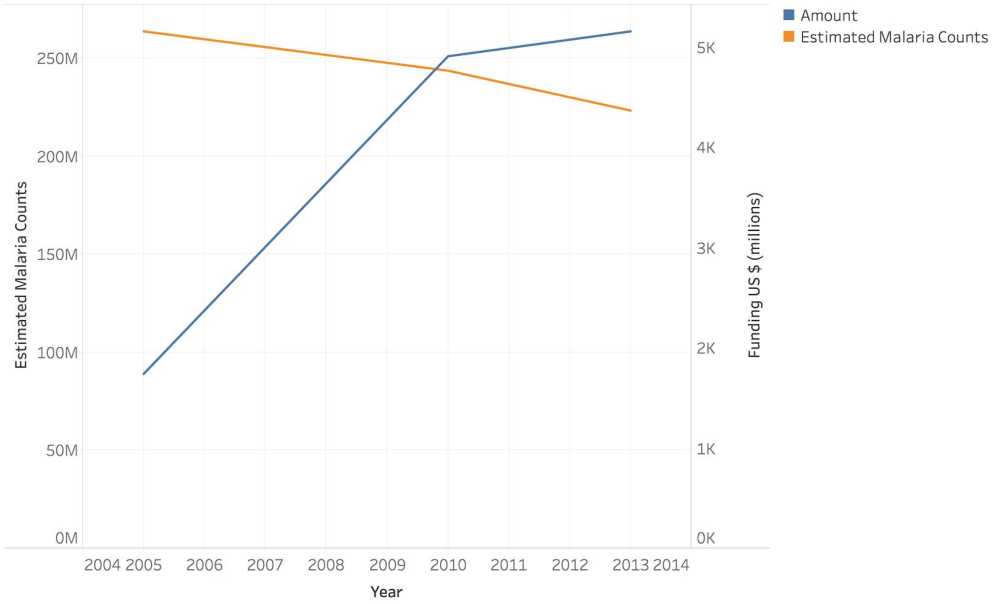

Fig 7. Trends in the increase in funding and the decrease in malaria counts in the period 2005-2015.

The rapid increase in funds aligns with the decrease in incidence rates.

The percentage of the population at high risk in 2015 as well as the total number of people at high risk (calculated by multiplying the % at high risk by the population) were visualised on a map.

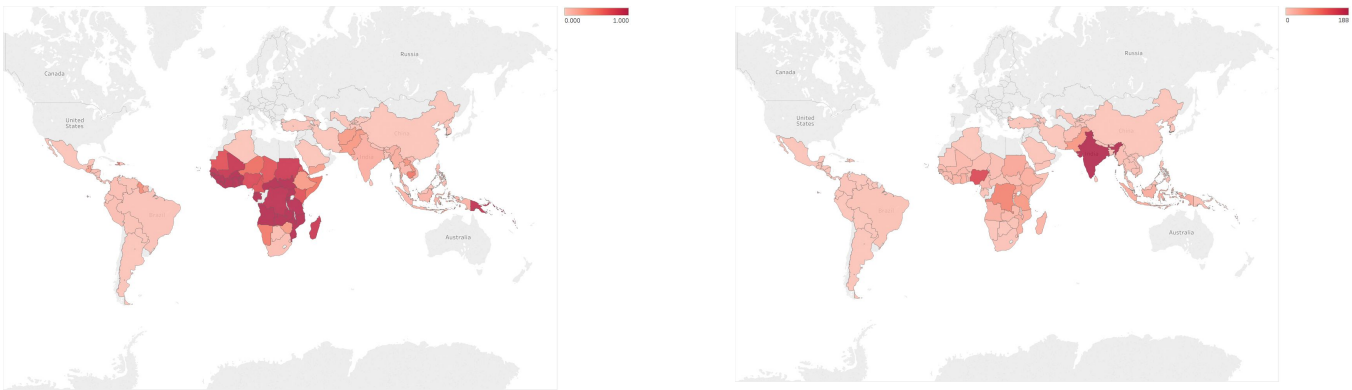

Fig 8 (a) Percentage of the population at high risk by country (b) the total number of people at high risk by country.

Despite India having a relatively low risk percentage (high risk percentage of 14% of the population), due to its large population (1.2bn), it has a higher overall risk status compared to either Nigeria or the Democratic Republic of Congo (which both have lower populations but nearly 100% high risk status).