

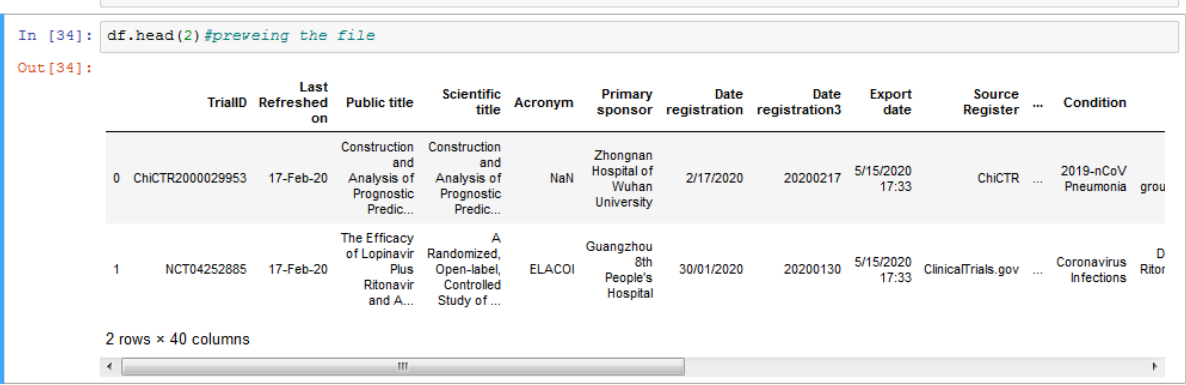
Background:

The Covid-19 virus is a potent virus with high transmission rate. Its spread across individuals has caused the current pandemic. Many measures have been taking by governments to curve the spread of this virus. Among these measures are full to partial lockdown, face and mouth covering with masks and in some instances the so-called: “herd immunity” has also been employed. These measures appeared to be temporary given that a second wave of the pandemic is looming. Given the current circumstances, the search for vaccines or cures for the corona disease is an endeavor taken by many institutions, privates and governmental included. In this project, clinical trials data obtained from the World Health Organization (WHO) database were analyzed to quantify and extract the geolocalization of these trials.

Stakeholders interested in the global location of Covid-19 trials are patients in needs of urgent care and willing to trial unproven indications, companies working on drugs or vaccines searching collaborators or in need of recruiting a diverse population for their trials. Not to exclude stakeholders that would like to know about their competitor’s location.

Method:

Data extracted from the WHO clinical trial database (https://clinicaltrials.gov/ct2/who_table) was explored using python. The data were cleansed by removing empty fields or fields in which cities rather than countries were reported. In addition, correction on names of countries was made by implementing common standards. Subsequently, clinical trials with multiple sites were separated into individual fields and were given their own entry [Fig.1]. In all, a total of 4045 entry were created.



```
In [34]: df.head(2) #preveing the file
```

Out[34]:

	TrialID	Last Refreshed on	Public title	Scientific title	Acronym	Primary sponsor	Date registration	Date registration3	Export date	Source Register	...	Condition
0	ChiCTR2000029953	17-Feb-20	Construction and Analysis of Prognostic Predic...	Construction and Analysis of Prognostic Predic...	NaN	Zhongnan Hospital of Wuhan University	2/17/2020	20200217	5/15/2020 17:33	ChiCTR	...	2019-nCoV Pneumonia grou
1	NCT04252885	17-Feb-20	The Efficacy of Lopinavir Plus Ritonavir and A...	A Randomized, Open-label, Controlled Study of ...	ELACOI	Guangzhou 8th People's Hospital	30/01/2020	20200130	5/15/2020 17:33	ClinicalTrials.gov	...	Coronavirus Infections D Ritor

2 rows x 40 columns

Figure 1. DataSet extracted from the WHO Covid-19 Clinical Trial Website

Multiple steps were taken before these entries were plotted on a map.

- 1- The entries were grouped by country and quantified.
- 2- The latitude and longitude of each country was attributed respectively. However, this was not done using FourSquare because the computational speed was much faster with the alternative ways of extracting these information in an already pre-downloaded file.

Out [49]:

	counts	ISO 3166 Country Code	Latitude	Longitude
Afghanistan	1.0	AF	33.00	65.0
Albania	5.0	AL	41.00	20.0
Algeria	1.0	DZ	28.00	3.0
American Samoa	1.0	AS	-14.33	-170.0
Andorra	1.0	AD	42.50	1.5
...
Yemen	1.0	YE	15.00	48.0
Zambia	5.0	ZM	-15.00	30.0
Zimbabwe	1.0	ZW	-20.00	30.0
china	1.0	NaN	NaN	NaN
spain	1.0	NaN	NaN	NaN

281 rows x 4 columns

Figure 2. Clinical trials grouped and addition of latitude and longitude fields.

3. Plotting the data: The folium library was used to plot the countries and the number of clinical trials taking places in each country. These numbers ranged from 1 to 796. The latter being the number of trials taking place in China.

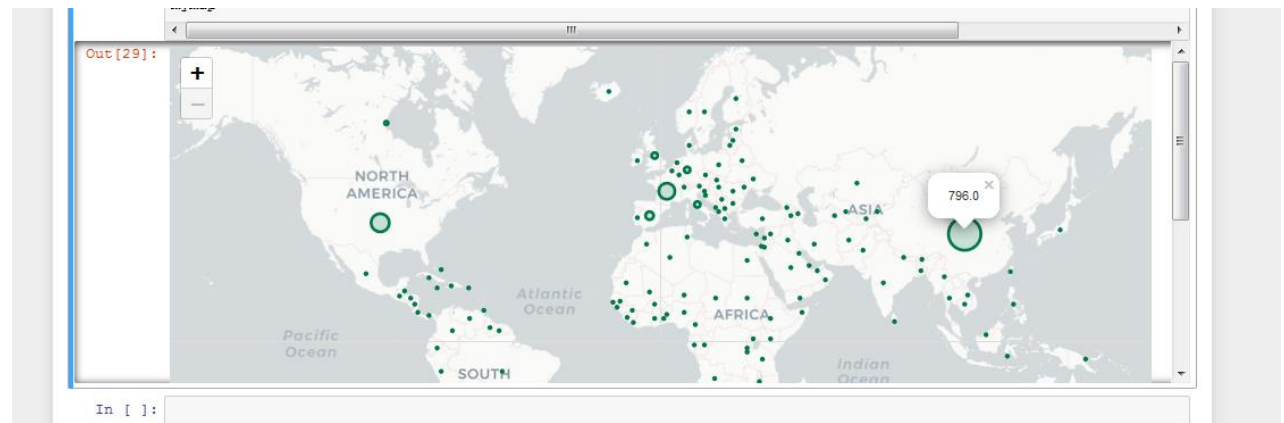


Figure 3. Clinical Trials around the world

CONCLUSION: From the above analysis, it is evident that many nations are actively taking part into finding a potential solution for the Corona pandemic. The biggest effort in this search is being led by China, USA and European countries. Nevertheless, African countries, as well as other small countries are also participating in this search. Overall, this common effort may soon resolve in a permanent solution against the Covid-19 virus.

