21082022_Question 1

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Abstract

Abstract to be written here.

1. Introduction

I have been tasked to examine the evolution of the Covid-19 outbreak

Data

My data looks at Covid-19 globally.

First I want to provide insights using the dataset into how African countries experienced COVID compared to other regions.

First, the average total cases for Africa is plotted over time. They steeply rose over time. The next figure compares Africa across continents. It had the lowest increase (flattest slope) in covid cases over time. Europe, on the other hand faced rapid increases in COVID-19.

Africa also has the least fully vaccinated people per hundred people. This is possibly due to being underresourced.

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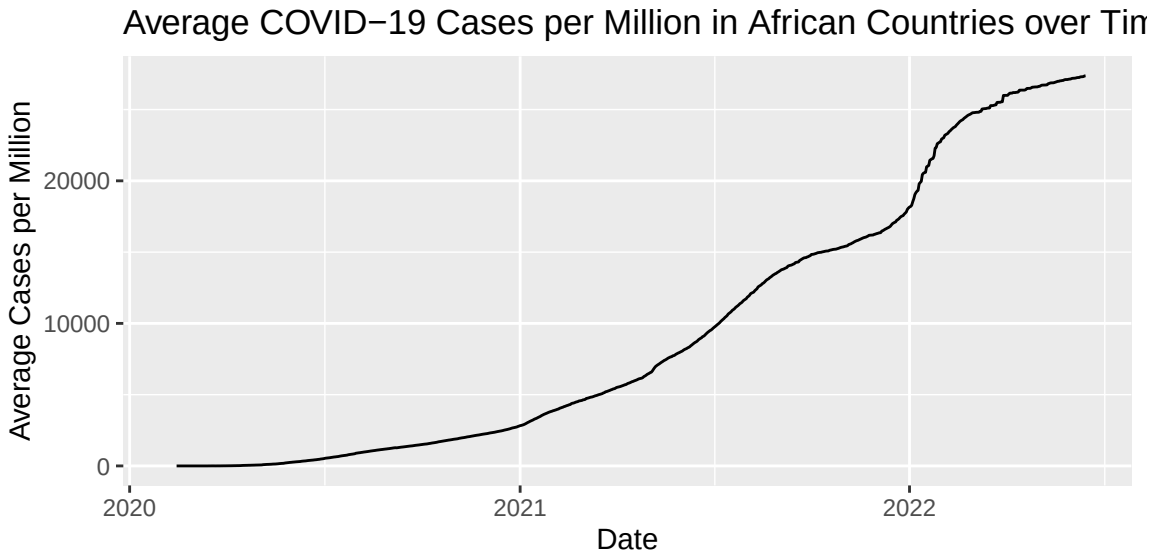


Figure 1.1: Caption Here

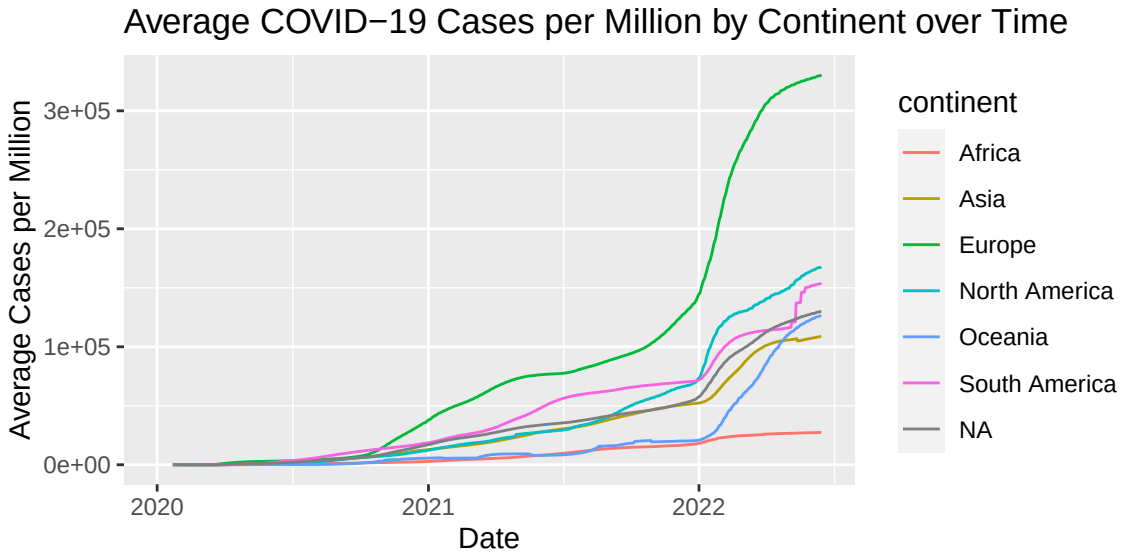


Figure 1.2: Caption Here

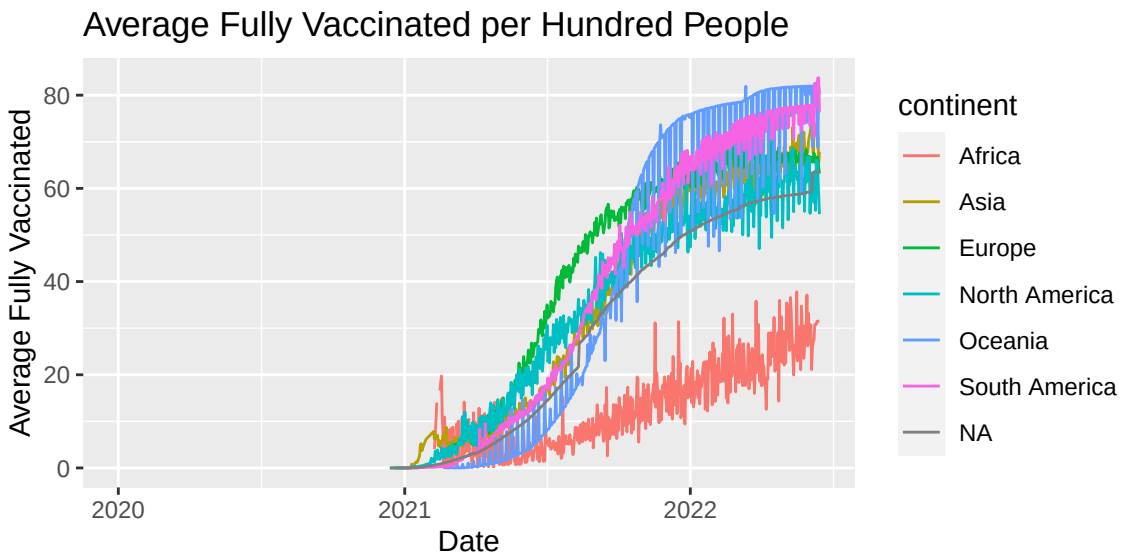


Figure 1.3: Caption Here

Next I want to examine whether countries with specific concentrated groupings (e.g. more poverty, higher prevalence of smokers, higher general life expectancy and elderly populations) displayed distinct patterns in the severity of their Covid experience.

From the below tables, we can see that Africa has the lowest Life Expectancy and Europe has the highest.

Among countries with the lowest life expectancy, total deaths remained relatively low except for the Central African Republic, where deaths roses rapidly from the beginning of 2020 to the end of 2022. Lesotho experienced the next highest number of deaths.

Among countries with the highest life expectancy, Japan had the highest number of deaths, reaching over 30 000 around quarter 3 of 2022. Deaths were very low in the locations of Monaco, San Marino, and Macao.

Total cases per million where the highest in Lesotho, probably owing to its small population. For areas with high life expectancy, San Marino experienced the highest number of cases per million people, followed by Macao.

```
## [1] "Variable 'female_smokers' exists in the dataset."
```

```
## # A tibble: 5 x 2
```

```
##   location   average_life_expectancy
##   <chr>                        <dbl>
## 1 Hong Kong                     84.9
## 2 Japan                        84.6
## 3 Macao                        84.2
## 4 Monaco                       86.8
## 5 San Marino                   85.0
```

```
## # A tibble: 5 x 2
##   location                 average_life_expectancy
##   <chr>                                      <dbl>
## 1 Central African Republic                    53.3
## 2 Chad                                        54.2
## 3 Lesotho                                     54.3
## 4 Nigeria                                     54.7
## 5 Sierra Leone                                54.7
```

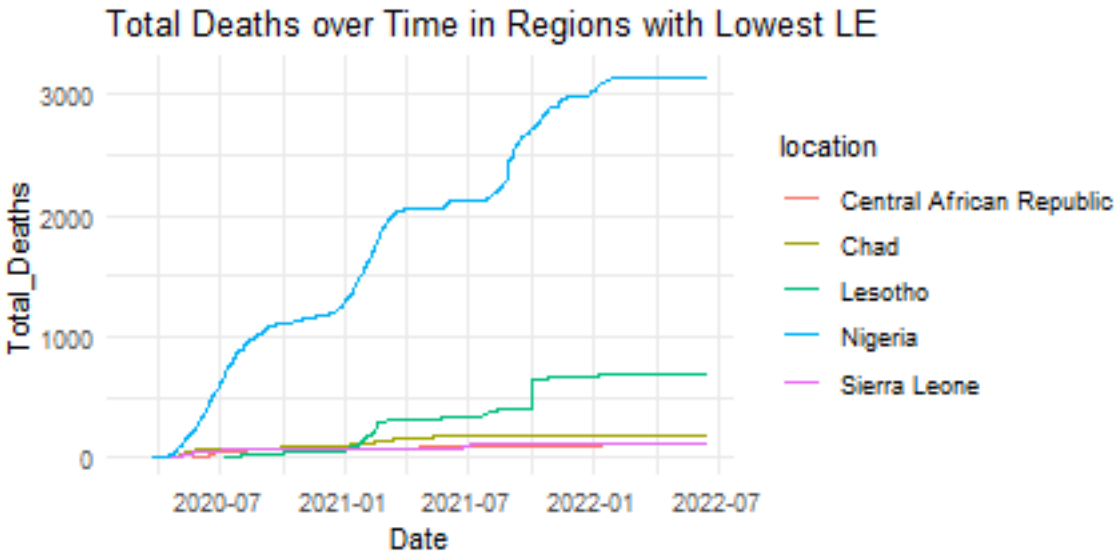


Figure 1.4: Caption Here

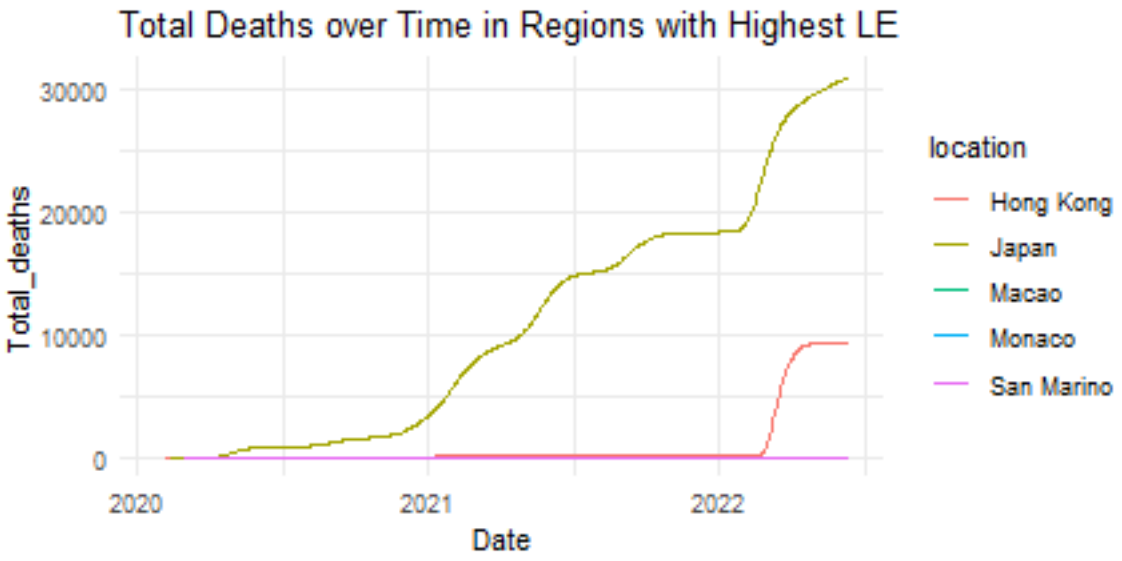


Figure 1.5: Caption Here

```
## # A tibble: 5 x 2
##   location                  average_life_expectancy
##   <chr>                                       <dbl>
## 1 Central African Republic                     53.3
## 2 Chad                                         54.2
## 3 Lesotho                                      54.3
## 4 Nigeria                                      54.7
## 5 Sierra Leone                                 54.7
```

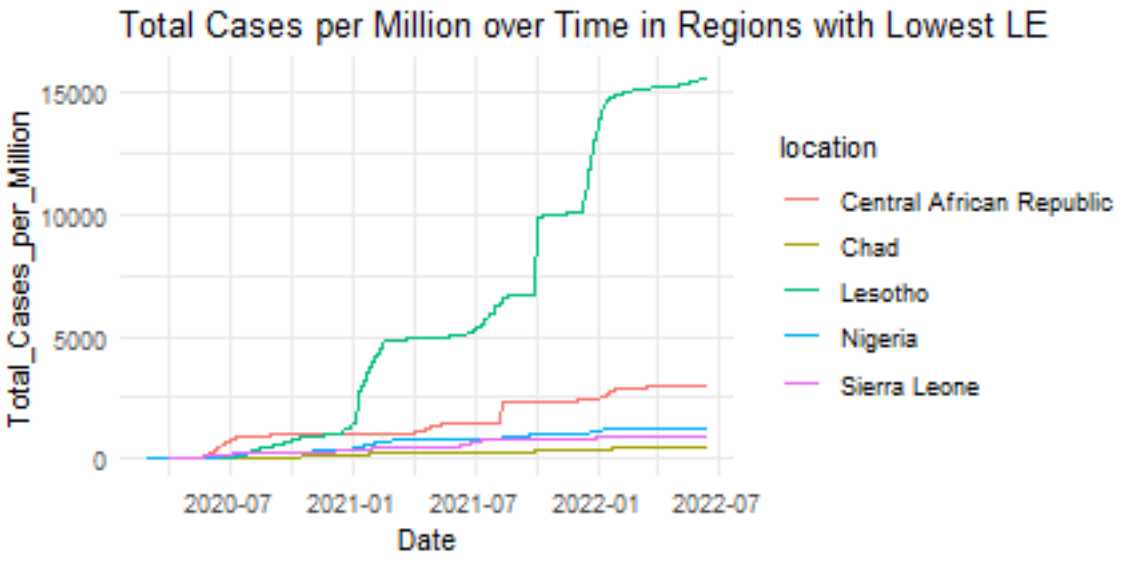


Figure 1.6: Caption Here

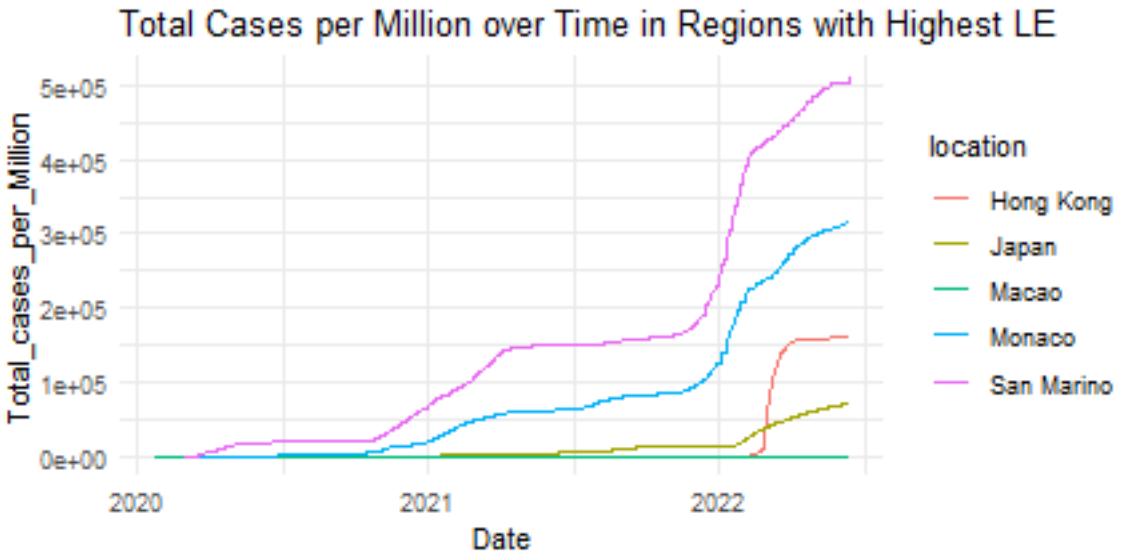


Figure 1.7: Caption Here

Show how quickly different regions increased their hospitalization facilities, and whether this led or lagged ICU admissions.

Hospitalisation and ICU admission are plotted.

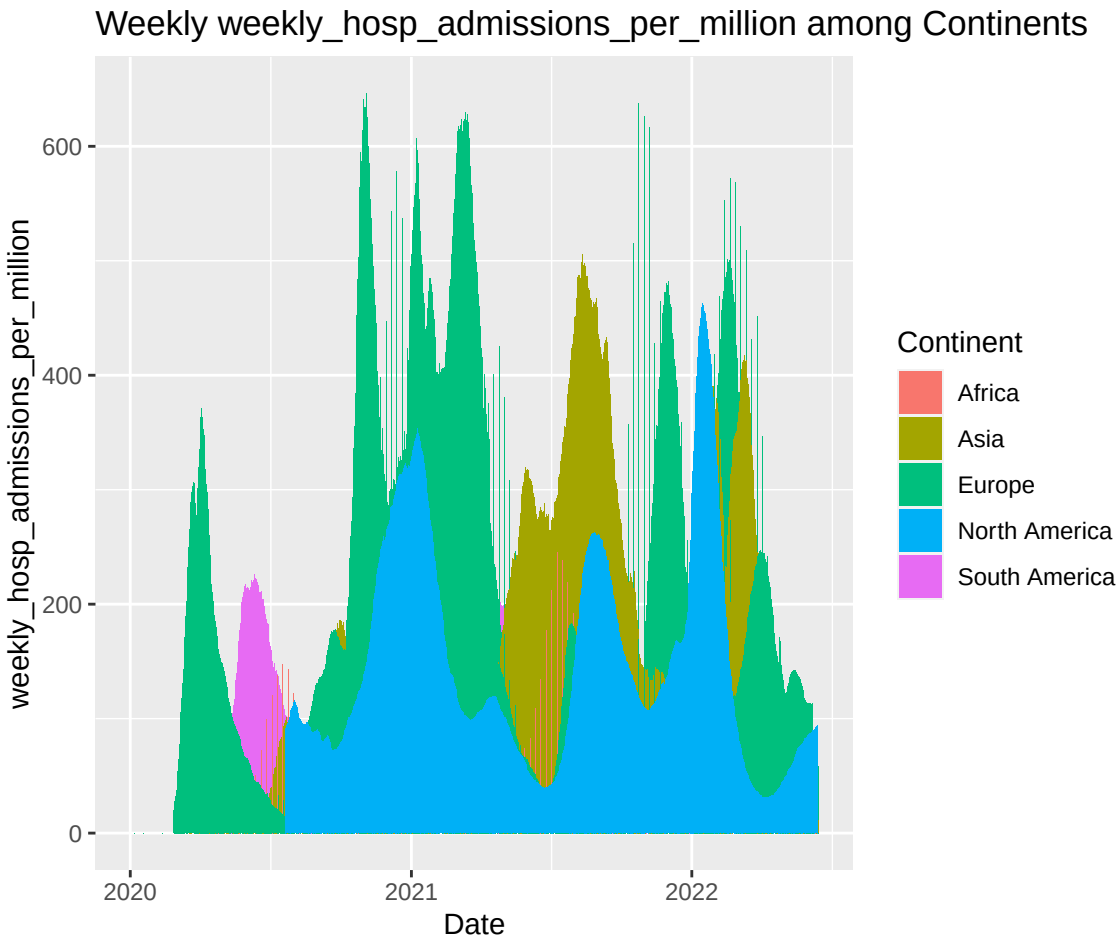
Plotting across continent, we can see that each continent experienced waves of hospitalisation at different times. Europe, North America and Asia experienced the highest shocks in hospitalisations.

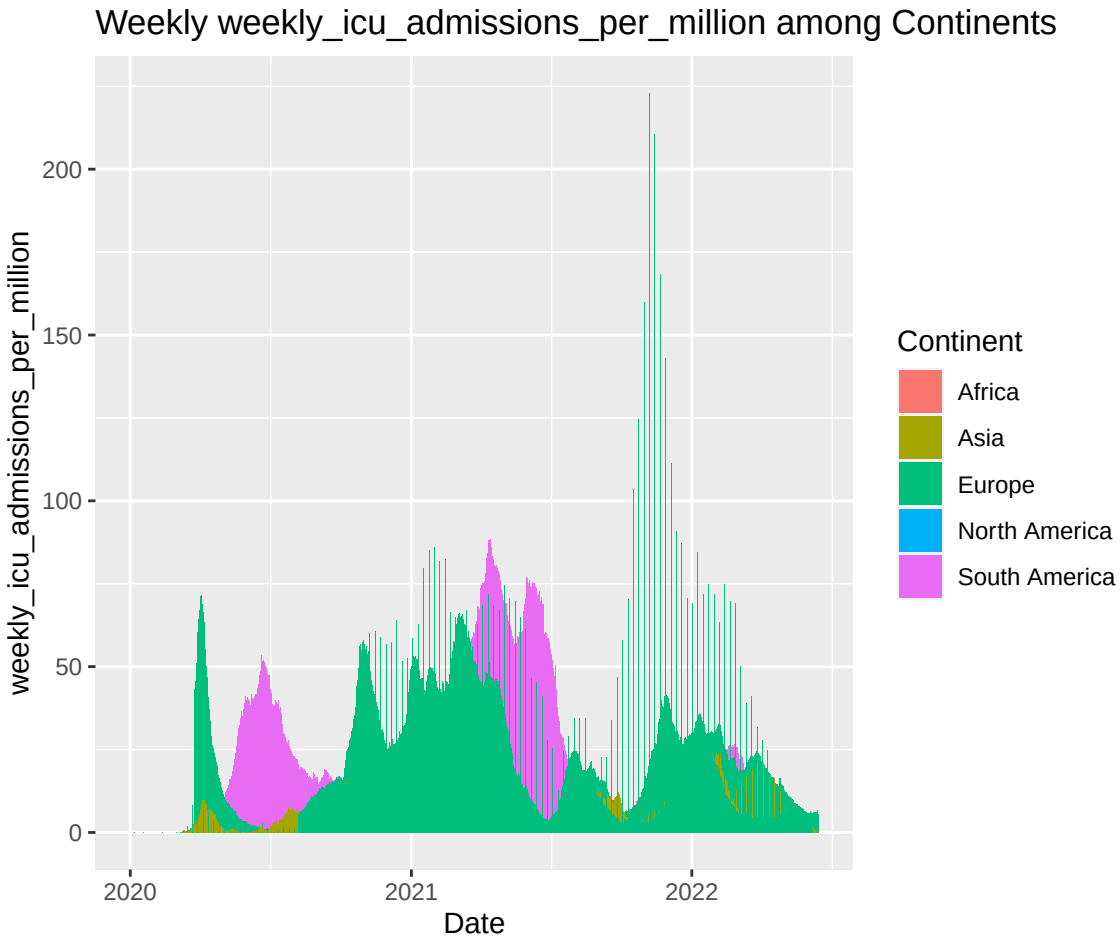
Hospitalisation in Africa were always low.

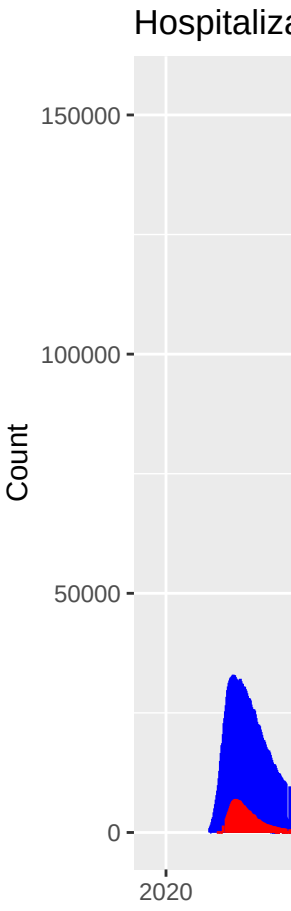
Europe and South America experienced the highest numbers of weekly ICU admission per million . This is interesting because South America did not have as sharp spikes in general hospitalisations compared to other continents.

Plotting hospital patients and ICU patients, it can be seen that they follow the same trends and waves. ICU patient numbers always increase globally when global hospitalisations increase. Therefore, hospitalisation led ICU hospitalisation.

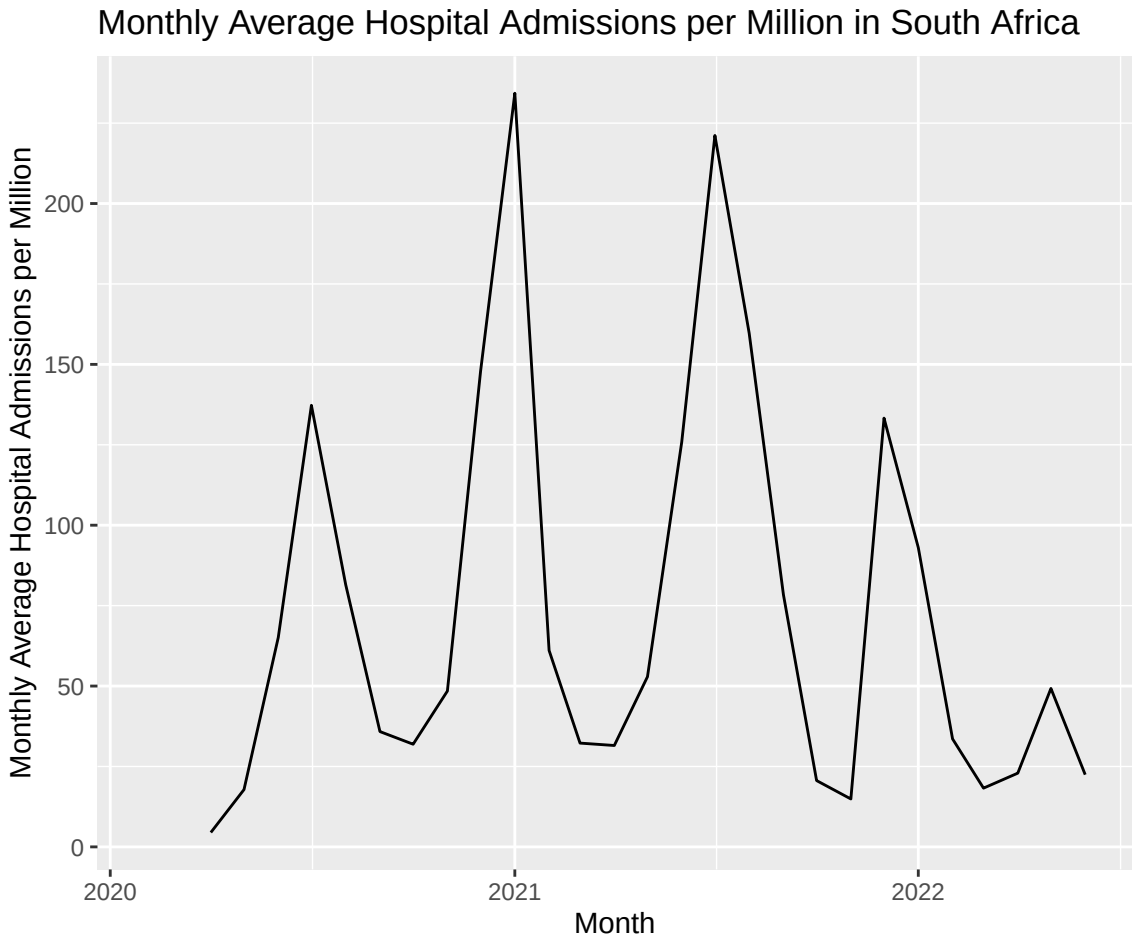
We can also see that there is a positive correlation (0.6) between the numberr of hospital patients and number of tests. Therefore, the number of tests conducted can act as a good indicator of hospitalisation.




Weekly weekly_icu_admissions_per_million among Continents
weekly_icu_admissions_per_million
200
150
100
50
0
2020
2021
2022
Date
Continent
Africa
Asia
Europe
North America
South America


Hospitaliza
Count
150000
100000
50000
0
2020

```
## [1] 0.6159445
```



2. Conclusion

In conclusion, Covid-19 wrecked havoc throughout the world, leading to increase deaths and hospitalisations.