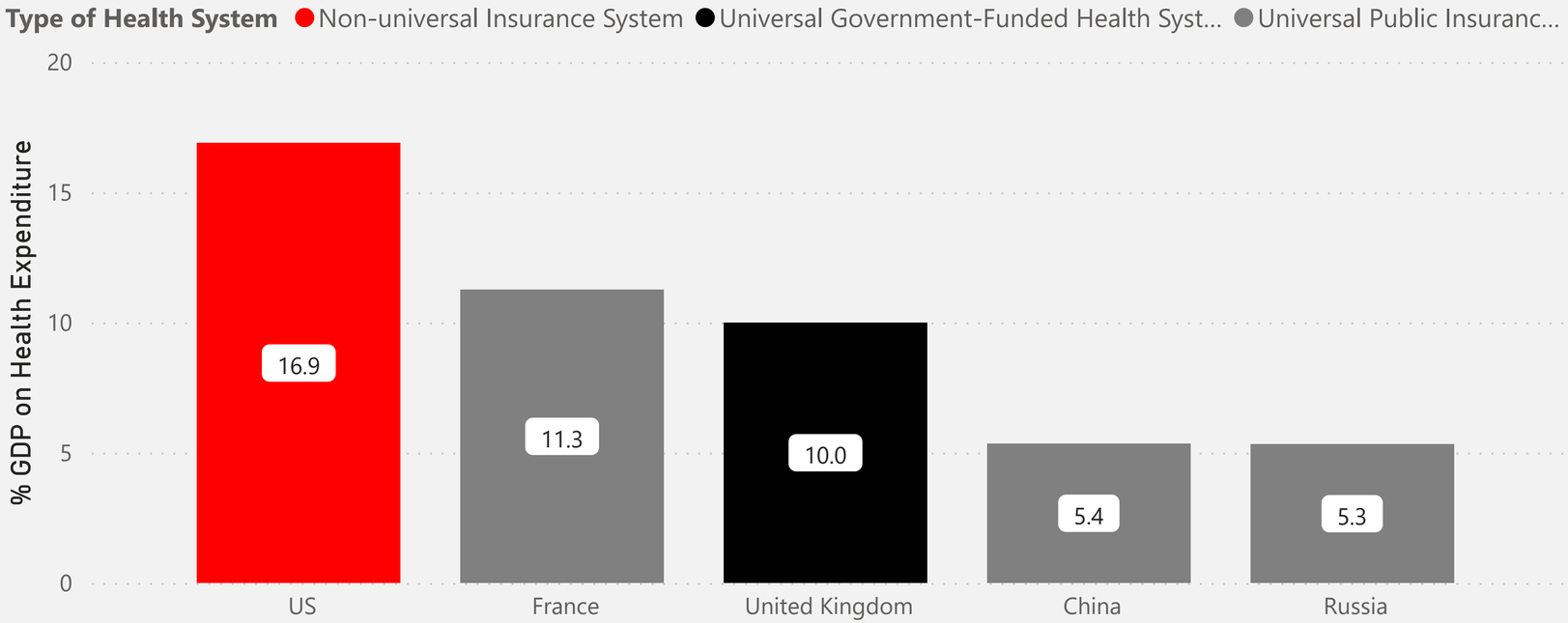
A BIG FIVE PANDEMIC

COVID-19 has redistributed the economical and geopolitical cards. In the aftermath of World War II, five nations emerged as the new world leaders: The United States, The United Kingdom, Russia, France and China. These Big 5 are until today the only permanent members of the United Nations Security Council. They are the keepers of international peace and stability as they are the only members who can alone veto a resolution. As linked by their position in the world, these countries are very different in terms of geography, temperature, population, political systems as well as sanitary crisis response... In January 2020, COVID-19 started spreading around the world and was declared a pandemic on March 11th by the World Health Organization. The first wave of COVID-19 was full of uncertainties and surprises and we will compare its evolution for these 5 nations...

- How Prepared Were They?
- How Fast Was The Disease Spreading?
- How Many People Were Infected?
- How Infectious Was The Virus During The First Wave?
- How Deadly Was The First Wave?
- Who Was More Successful At Flattening The Curve?

HOW PREPARED WERE THEY?

How Much Are They Spending on Healthcare?



How Are They Positioned Globally? Global Health Index Score

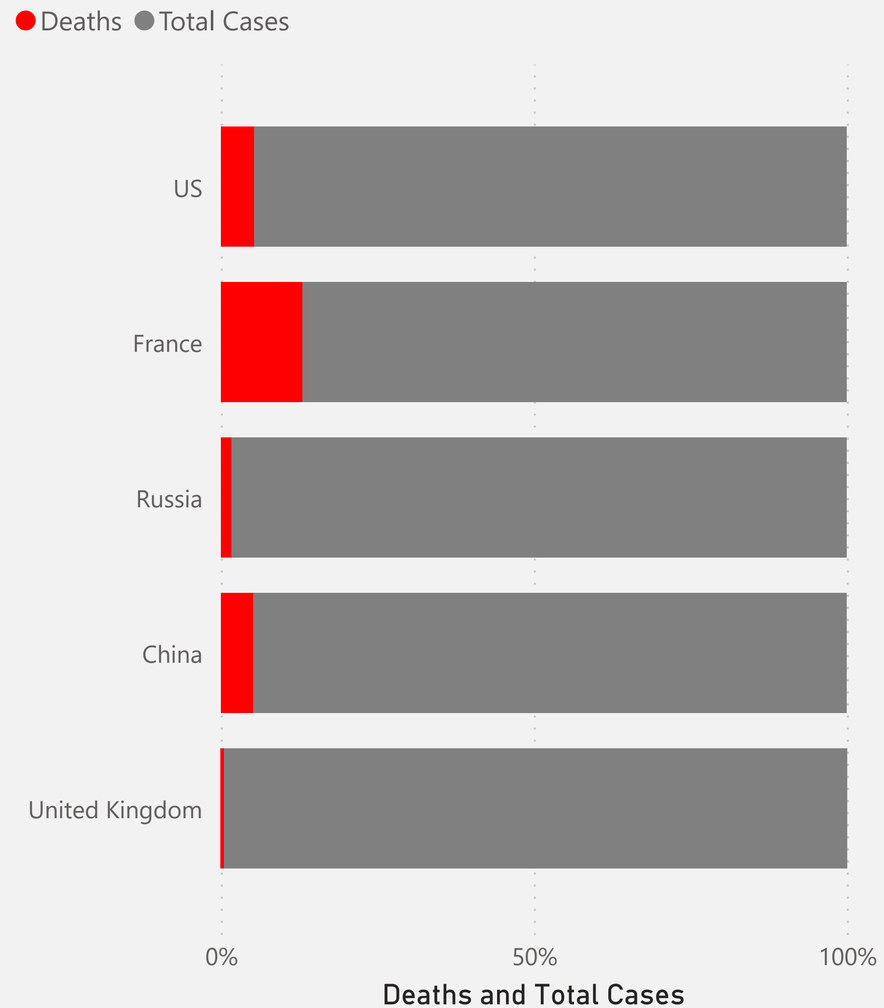
Healthcare Quality Ranking of 195 Countries

1 | 11 | 2 | 51 | 63

Health Crisis Management Score World Average = 38.4

79.7 | 62.9 | 91.4 | 48.6 | 34.1

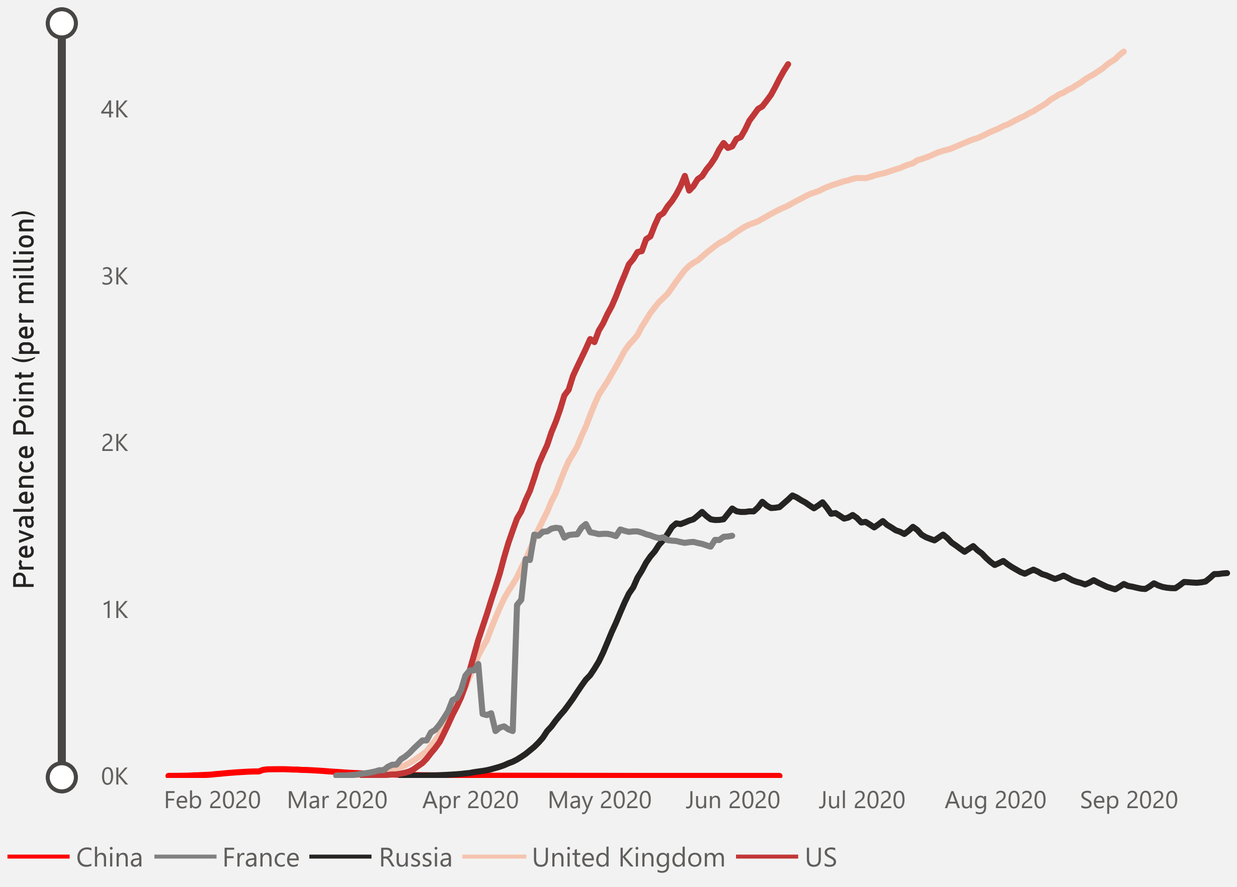
However, They Were Hit Hard By the Pandemic...



HOW MANY PEOPLE WERE INFECTED?

Growing Active Cases

Prevalence rate is the number of people infected by COVID-19 in the first wave per million. Prevalence vary drastically from one country to another. The period at which they peak also varies depending on the region that we are interested in.



Proportion of at-risk Population that Were Cases in the Middle of the First Wave

US
3,501.92
(Cases per Million)

United Kingdom
2,717.57
(Cases per Million)

Russia
1,056.77
(Cases per Million)

France
2,018.00
(Cases per Million)

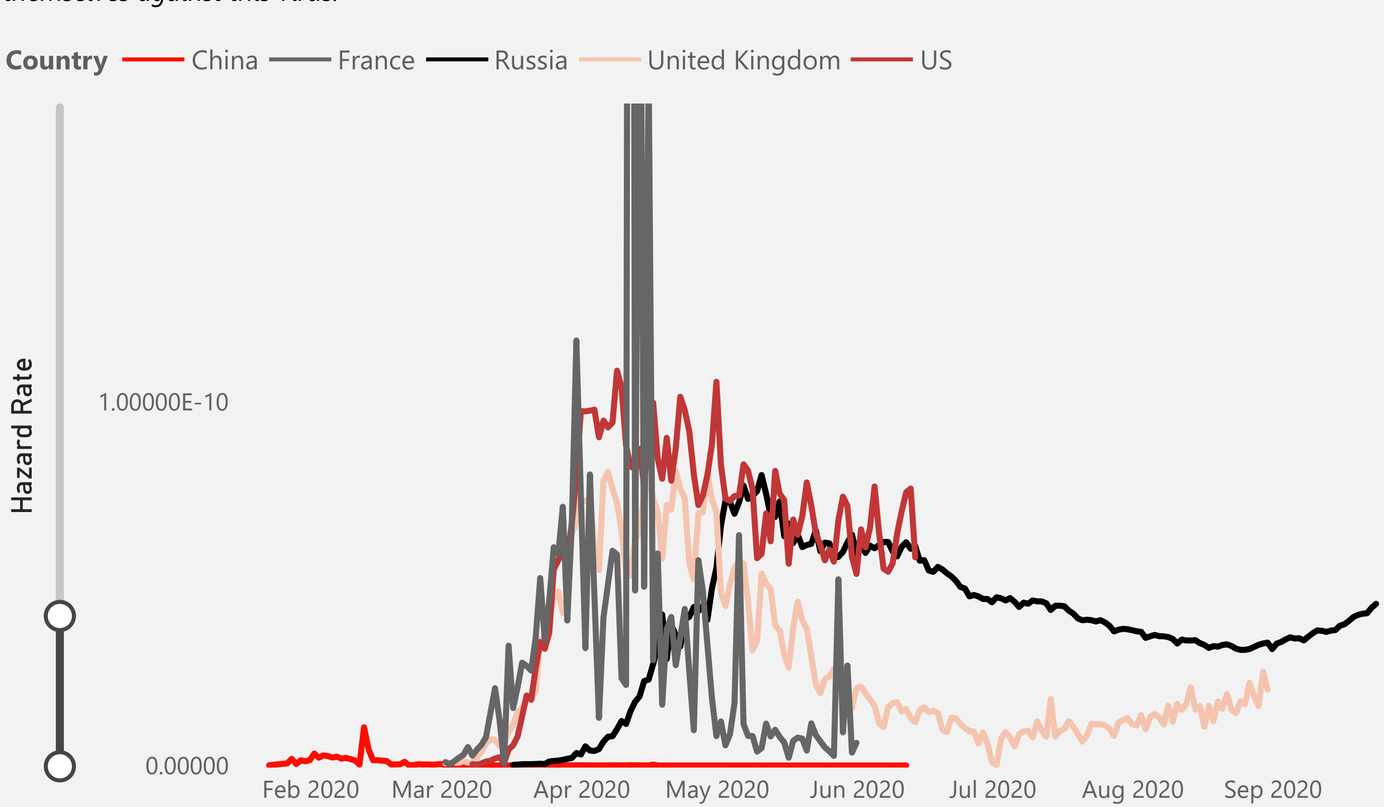
China
1.91
(Cases per Million)

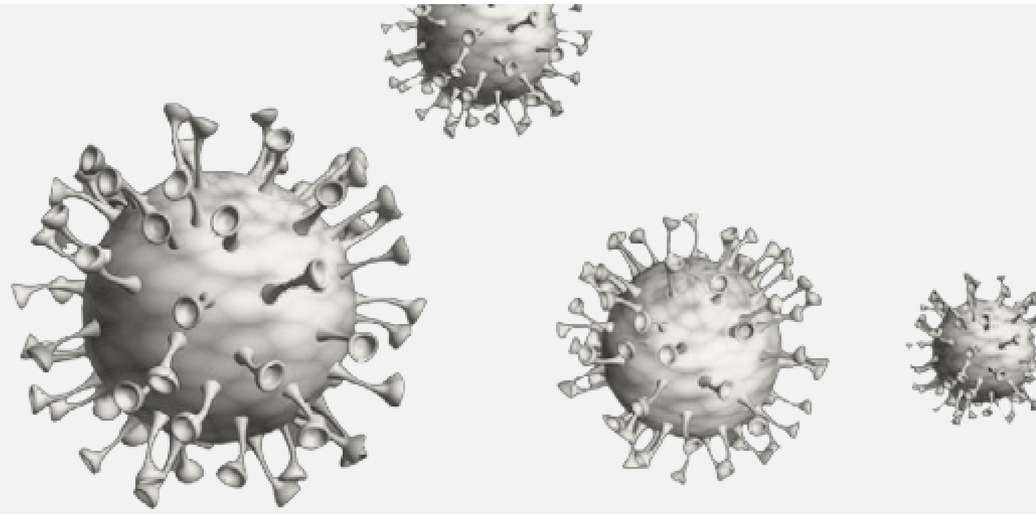
*Calculated on a period of 25 days (April 11, 2020 to May 5, 2020).

HOW FAST WAS THE DISEASE SPREADING?

Hazard rate measures how likely is to get infected by a disease in a span of time. During the first wave hazard rate was one of the most important metrics followed by government to limit the spread of COVID-19.

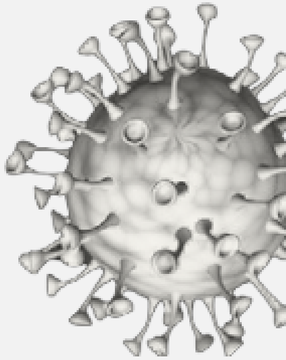
China is by far the country that performed the best in terms of hazard rate as it stayed close to 0 for most of their first wave. In case of France the most hazardous country especially in the month of April, can be explained by an overnight spike in the number of cases, where the number of new cases doubled from April 10th 2020 to April 11th 2020. Besides that one hiccup and the implementation of measures as we mentioned earlier, France was able to lower that hazard rate a couple weeks later to go back to "normal".
The hazardous rate does seem to be highly related to measures that were taken or not by a given country to protect themselves against this virus.





Proportion of at-risk Population that become New Infected Cases in the Middle of the First Wave

China Country	0.66 Cases per Million
France Country	1749.18 Cases per Million
Russia Country	971.58 Cases per Million
United Kingdom Country	1568.91 Cases per Million
US Country	2030.29 Cases per Million



*Calculated on a period of 25 days (April 11, 2020 to May 5, 2020).

HOW DEADLY WAS THE FIRST WAVE?

How Prepared Were The Big 5?

Number of Beds Per 1,000 Persons

2.9 | 5.9 | 2.5 | 4.3 | 7.1

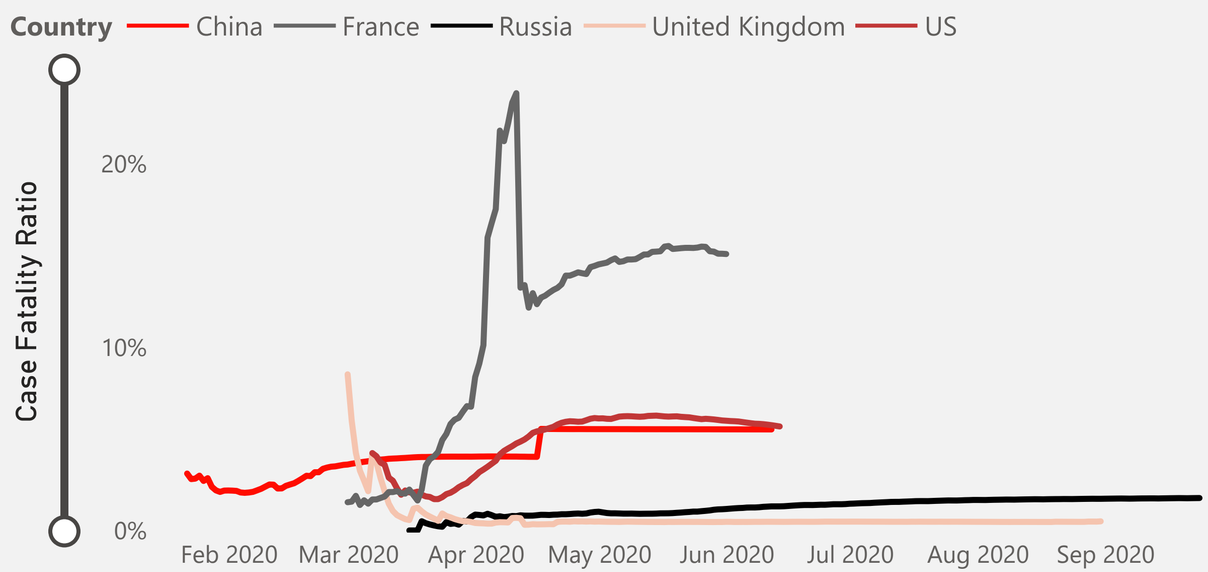
Number of Artificial Ventilators

160k | 5k | 5.7k | - | 42k

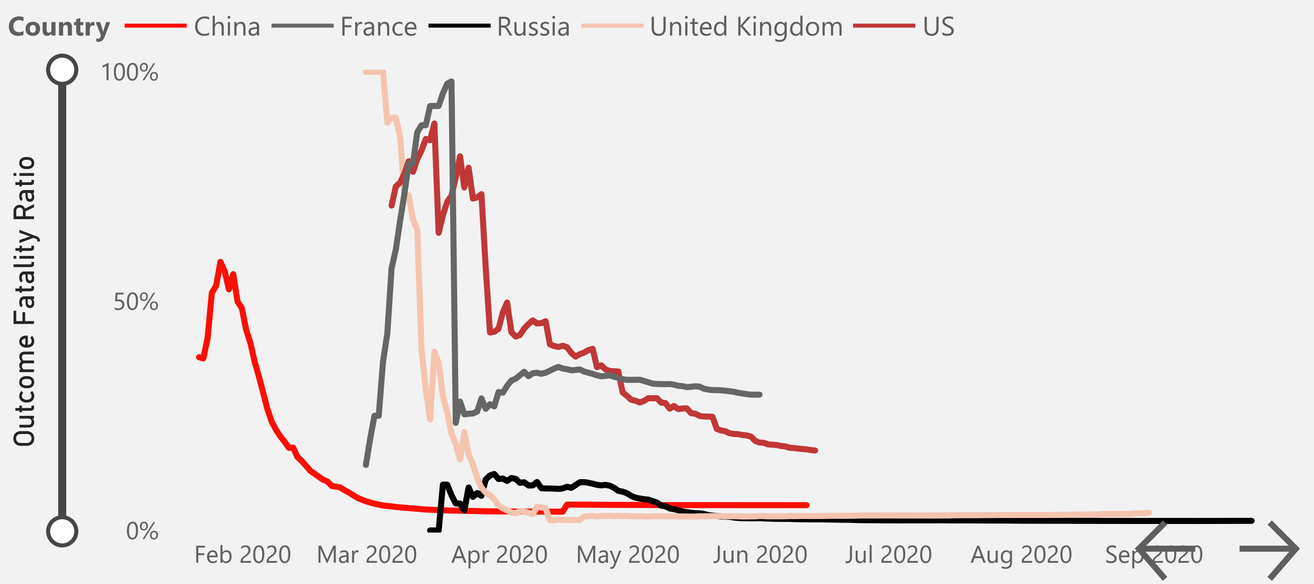
Average Outcome Fatality (%) During The First Wave

40.8% | 39.7% | 10.9% | 11.0% | 4.1%

Proportion of Deaths Among Confirmed Cases



Proportion of Deaths Among Finished Cases



HOW INFECTIOUS WAS THE VIRUS DURING THE FIRST WAVE?

R-Nought is the average number of people infected by an infected person. It is not a biological constant, indeed depends on how we interact with the environment and hygiene. It can be modified via proper measures such as social distancing. The earlier lockdowns and the harsher they were implemented in those regions, the lower their respective spikes in prevalence. The country who performed the best, China in our case, only took one month to implement complete measures in the city of Wuhan and the Province of Hubei where COVID-19 first appeared. The US, who performed the worst, never, even up to today, created any restrictions in terms of trying to flatten the curve.

How It Started	R-Nought	% Change	How It	R-Nought
	5.23	-80%		1.05
	4.05	-72%		1.12
	3.64	-73%		**0.99**
	3.52	-76%		**0.83**
	2.95	-63%		1.09

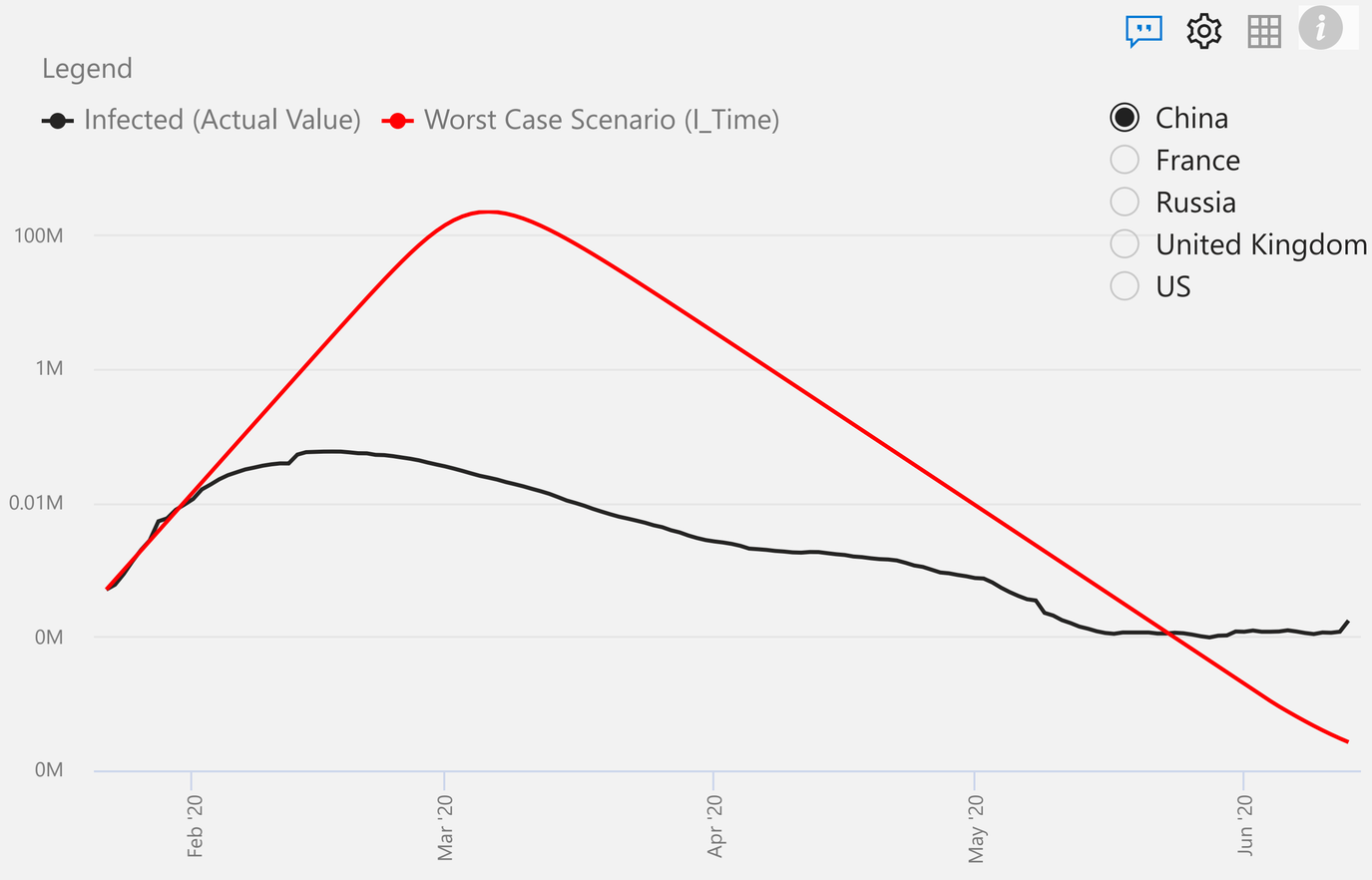
*Calculated on a period of 10 days around the beginning of the first wave for each country.

*Calculated on a period of 10 days around the peak for each country.

WHO WAS MORE SUCCESSFUL IN FLATTENING THE CURVE?

It comes to no surprise from our findings that China was the most successful at flattening its first wave curve and prevent COVID-19 from spreading within its borders. It is also clear that the United States was the worst out of the 5 security council members with the number of cases being so bad that the curve can't even be seen lowering in our graph.
In conclusion to prevent COVID-19 it is important for everyone to respect rules that are put into place by the government to prevent a rapid spread of COVID-19. Those measures are efficient and are meant to protect us despite what many people may think.

What If No Measure Had Been Taken?



- China
- France
- Russia
- United Kingdom
- US

China Was The Most Effective at Surfing Through The Wave

China
1.00
Peak Reduction Ratio

France
0.97
Peak Reduction Ratio

Russia
0.98
Peak Reduction Ratio

UK
0.95
Peak Reduction Ratio

US
0.96
Peak Reduction Ratio