

HISTORY OF COVID-19

Arushi Garud, Nethra Pai, The GTF Group

ABSTRACT

COVID-19 is a worldwide pandemic with over 674 million cases and 6.7 million deaths. Studies have shown that COVID-19 is closely linked with several thromboembolic conditions. It is very important to find what caused the pandemic, and where did this get started. We have researched the history of COVID-19.

INTRODUCTION

Coronavirus, or COVID-19, has created a worldwide pandemic caused by an airborne virus, causing several deaths in various parts of the World, the effects of which can still be seen in our society. It was first reported on Dec 1, 2019. While it was first thought that SARS-CoV-2 infected humans at one of Wuhan, China's open-air "wet markets", later theories show that it may have originated as a biological weapon in a lab in China. Speculation still remains as to where this virus originated. As COVID-19 spread both inside and outside China, it infected people who have had no direct contact with animals. Symptoms of COVID-19 can range from mild to severe with multiple risks to life. Worldwide COVID-19 has created deaths in significant people across the world in all 5 continents. The purpose of our research was to go deep in the history of COVID-19 and to indicate where we stand as of today.

EFFECT OF COVID-19 IN DIFFERENT CONTINENTS

Figure 1 below shows the population vs COVID-19 cases vs deaths in different continents of the World

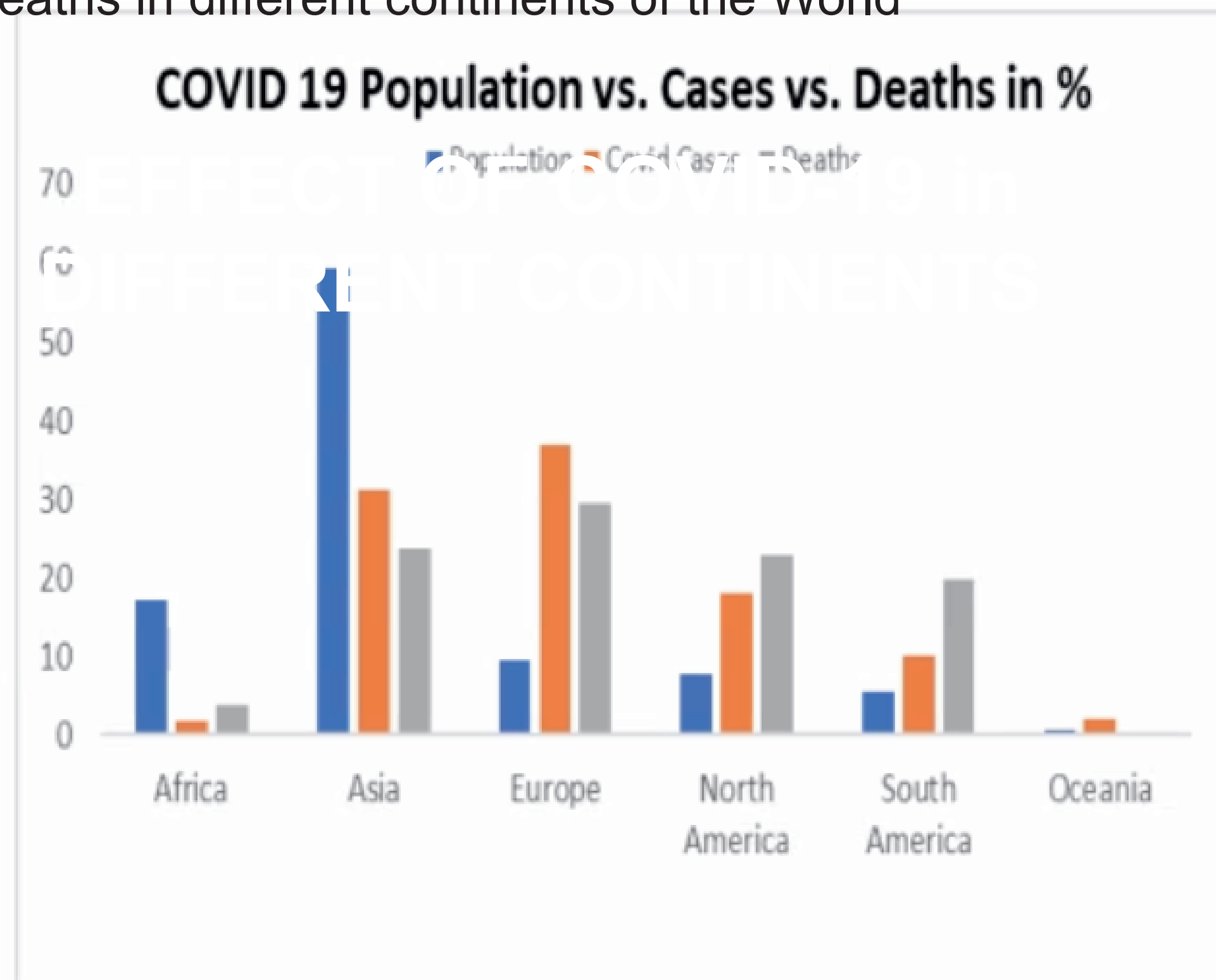
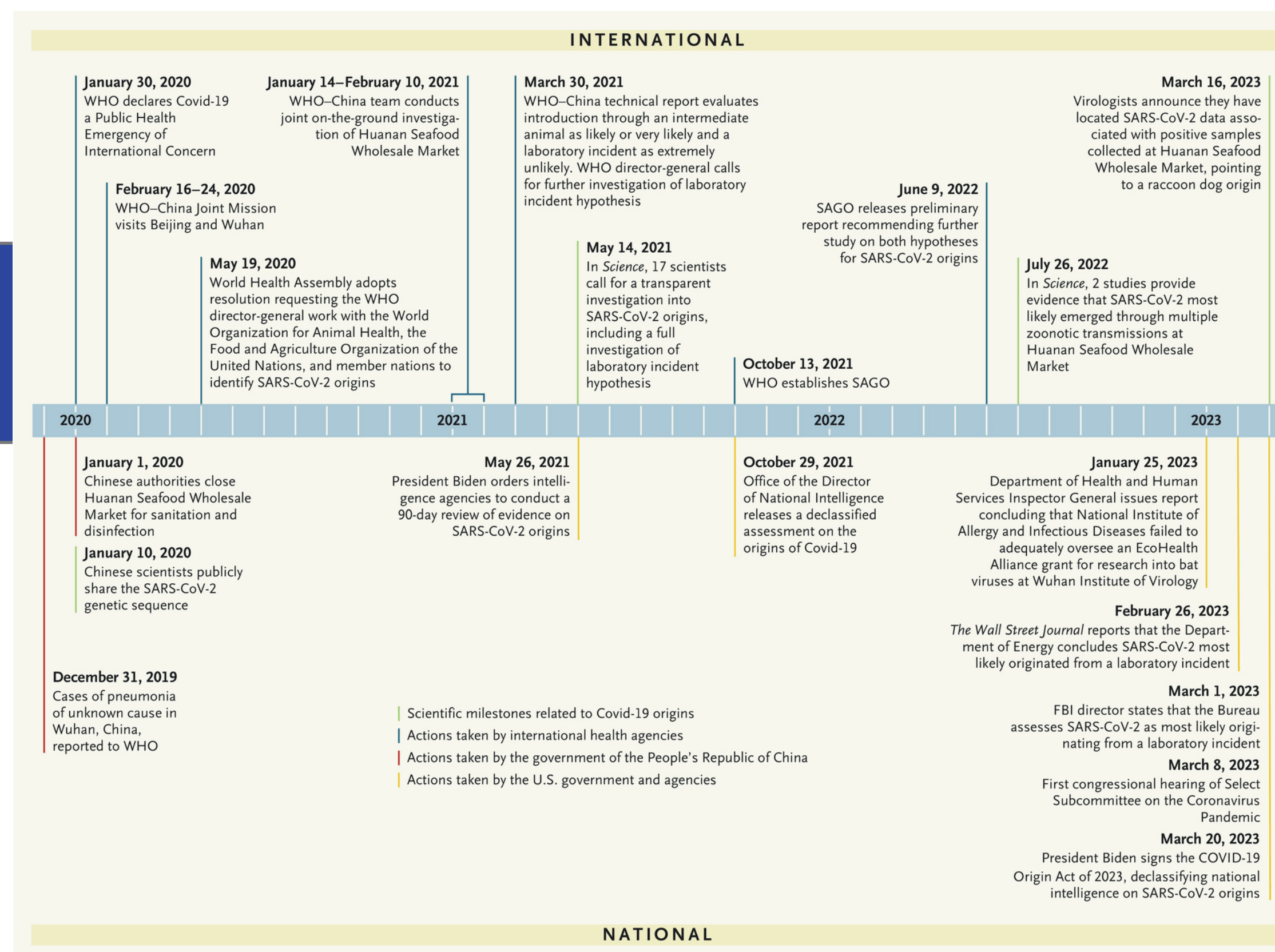


Figure 1: COVID-19 data from different continents

- The two major hypotheses have been proposed for the COVID-19 pandemic:
 1. A natural zoonotic spillover, most likely occurring at the Huanan Seafood Wholesale Market
 2. A laboratory leak from the Wuhan Institute of Virology (WIV).

HISTORY OF COVID-19, BY DATE

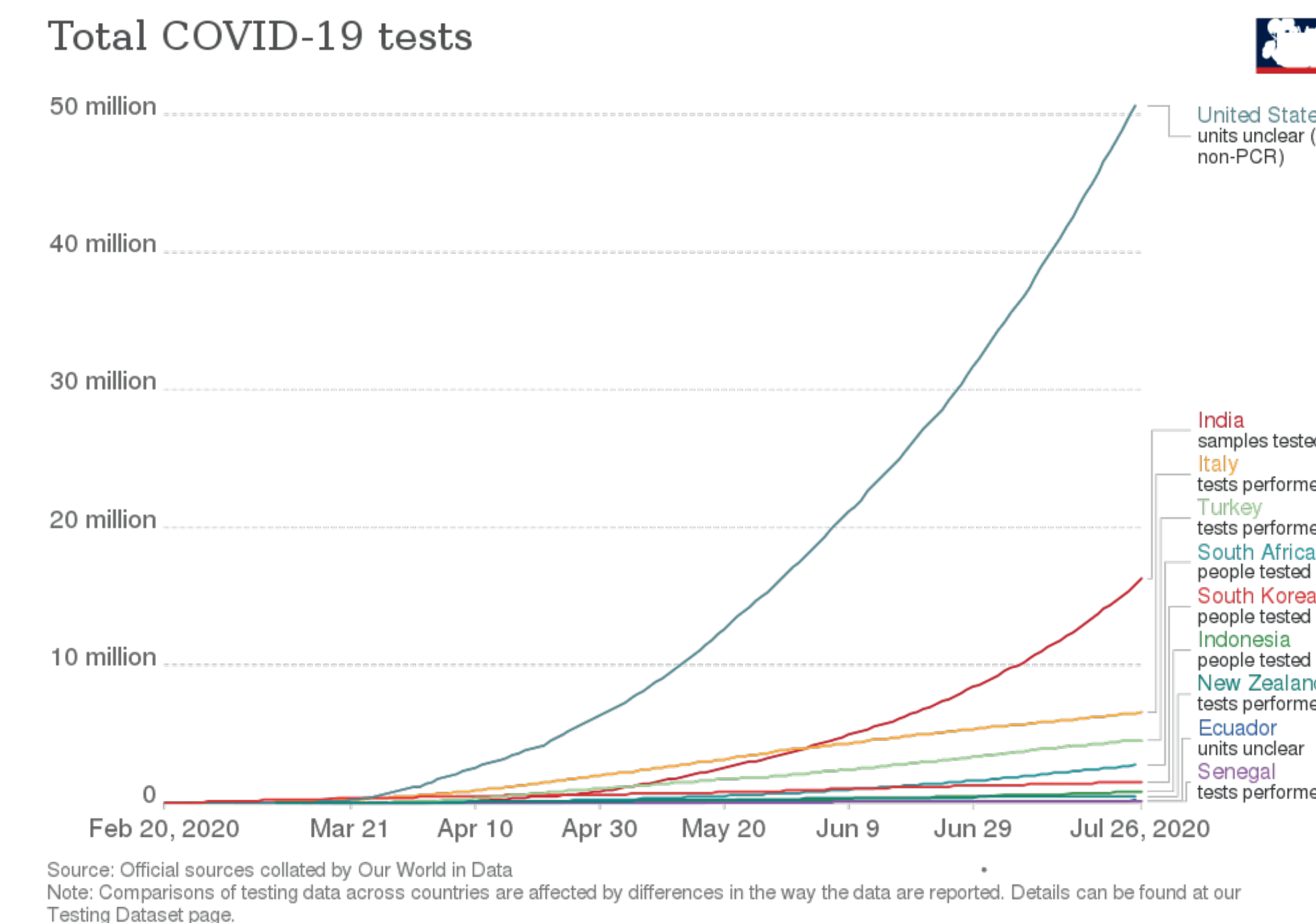
Figure 2 indicates the important timelines in the history of COVID-19



- December 12, 2019: A cluster of patients in China's Hubei Province, in the city of Wuhan, begin to experience the symptoms of an atypical pneumonia-like illness that does not respond well to standard treatments.
- December 31, 2019: The WHO learned of a cluster of cases of pneumonia of unknown cause in Wuhan. Wuhan authorities closed the Huanan market the next day, rendering live animals unavailable for testing.
- January 10, 2020: China publicly shared the SARS-CoV-2 genetic sequence.
- January 2020: Chinese officials cleared the market without testing live animals, but positive environmental samples, including those from an animal cage and a hair-and-feather-removal machine, indicated the presence of both SARS-CoV-2 and Covid-susceptible animals.
- February 16 to February 24, 2020: It was not until weeks after the WHO declared Covid-19 a Public Health Emergency of International Concern on January 30 that the WHO-China Joint Mission visited Beijing and Wuhan
- March 2021: The joint WHO-China technical report published, it rated a zoonotic spillover as a "likely to very likely" source of the virus, cold food-chain products as "possible," and a laboratory incident as "extremely unlikely."

October 13, 2021, the WHO director-general established the Scientific Advisory Group for the Origins of Novel Pathogens (SAGO). China officially rejected the WHO's plan for a second phase of investigation of origins. The SAGO's preliminary report warned that China was withholding key data.

HISTORY OF DEVELOPMENT OF COVID-19 TESTS



HISTORY OF DEVELOPMENT OF COVID-19 VARIANTS

- Late December 2020: Alpha (B.1.1.7): First variant of concern described in the UK
- December 2020: Beta (B.1.351): First reported in South Africa
- December 2020: Delta (B.1.617.2): First reported in India
- January 2021: Gamma(P.1): First reported in Brazil in early
- November 2021: Omicron (B.1.1.529): first reported in South Africa

HISTORY OF DEVELOPMENT OF COVID-19 VACCINES

- December 11, 2020: Pfizer-BioNTech was approved for use in humans by the FDA.
 - December 18, 2020: Moderna was approved for use in humans by the FDA.
 - February 27, 2021: J&J vaccine was approved for use in humans by the FDA.
- It should be noted that as of now, the AstraZeneca vaccine has not yet been approved for use in the U.S.

SUMMARY AND CONCLUSIONS

There are several theories that state different ways Covid-19 could have begun. Throughout the long journey of research, vaccines, and treatments for Covid-19, the US has now greatly improved since the beginning of the pandemic. While there are still variants of Covid-19 spreading, the impact of these is far lower than the original Sars-Cov-2 that was first seen in China.

HISTORY OF DEVELOPMENT OF MEDICATIONS FOR TREATMENT OF COVID-19

- December 2021: A combination of oral nirmatrelvir and ritonavir tablets, marketed as Paxlovid, received full approval by the FDA for managing mild to moderate COVID-19 infections in adults who are at high risk of developing severe disease.
- 2021: Monlupiravir (Lagervo) developed by Manohar Saidane, PhD and his team, an Atlanta resident, was licensed to Merck.
- April 2022: Remdesivir (VEKLURY), a broad-spectrum antiviral agent was approved for the management of hospitalized, or non-hospitalized patients with mild-to-moderate COVID-19, and those at high risk for progression to severe COVID-19, including hospitalization or death.
- May 25, 2023: The FDA approved the oral antiviral Paxlovid for the treatment of COVID-19 in hospitalized patients .
- Unproven therapies: Hydroxychloroquine, Chloroquine, Azithromycin, and Ivermectin were used empirically during the pandemic but were later on proven not to be effective therapies and the FDA therefore cautioned against their use.
- June 7, 2023: The FDA granted full approval to Paxlovid as a treatment for COVID-19.



ACKNOWLEDGEMENTS

The authors would like to thank Ms. Priya Lokasundaram and Dr. Atul Laddu for their mentorship throughout this process. .

REFERENCES

- https://www.who.int/health-topics/coronavirus#tab=tab_1
- <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus>
- [https://www.cdc.gov/ncbddd/dvt/facts.html#:~:text=Venous%20thromboembolism%20\(VTE\)%2C%20a,can%20cause%20disability%20and%20death.](https://www.cdc.gov/ncbddd/dvt/facts.html#:~:text=Venous%20thromboembolism%20(VTE)%2C%20a,can%20cause%20disability%20and%20death.)
- <https://www.baptisthealth.com/care-services/conditions-treatments/longterm-covid19>
- <https://health-desk.org>