A detailed 3D rendering of a COVID-19 virus particle, also known as a SARS-CoV-2 virus. The particle is spherical with a spiky outer layer. The spikes are colored in a gradient from red at the tips to blue and green at the base, representing different types of surface proteins. The main body of the virus is a darker shade of blue or black. The background is a dark, textured blue.

# COVID-19 ANALYSIS PROJECT

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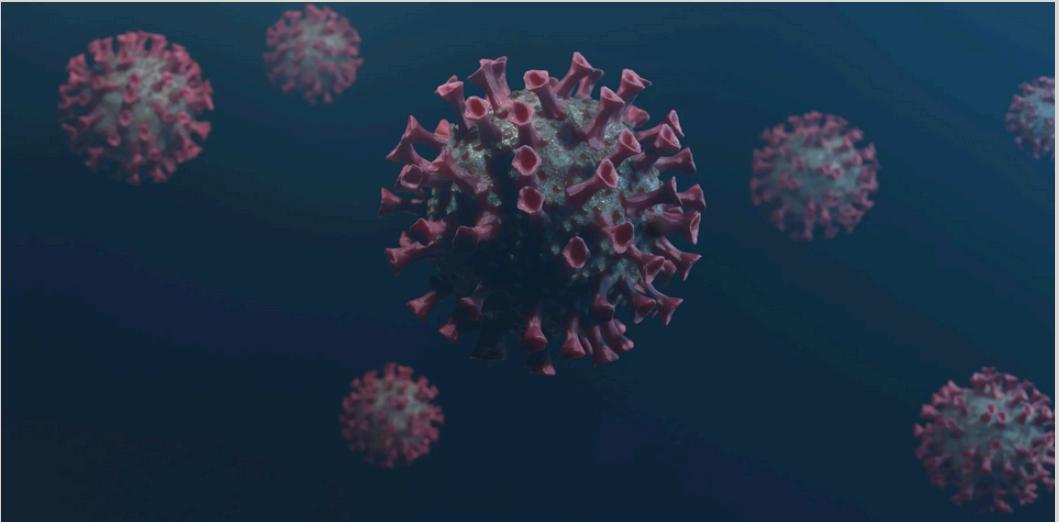
# PART 1: OVERVIEW

1.1. PROJECT OBJECTIVE

1.2. DATA MODEL

1.3. REPORT OVERVIEW

## 1.1. PROJECT OBJECTIVE

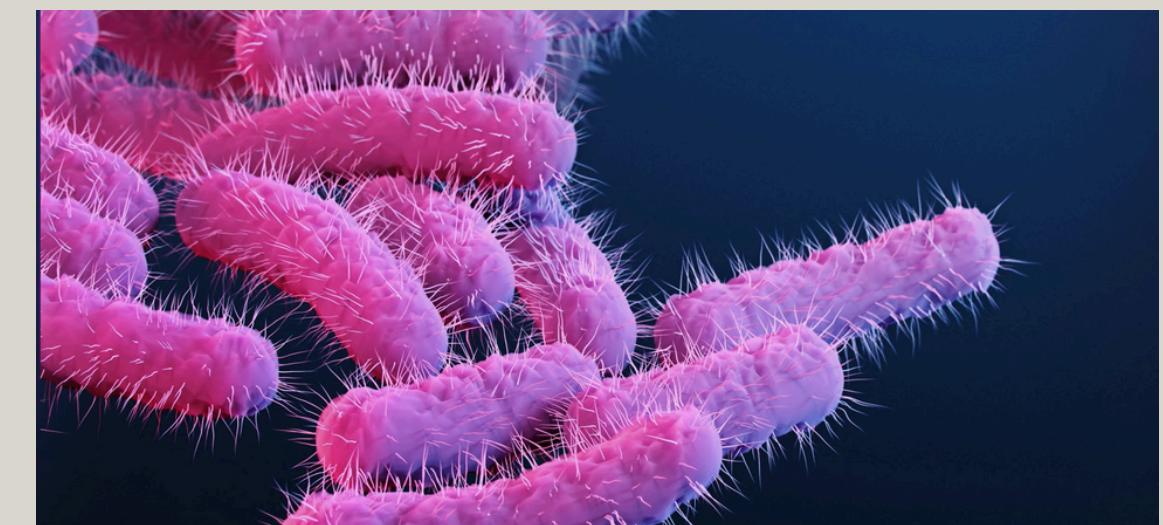


Provide a thorough analysis of the global impact of Covid-19, focusing on three aspects:

- Infection trends
- Fatality rates
- Vaccination efforts

Highlight trends and variations in the number of cases and deaths

While examine the effectiveness of vaccination programs



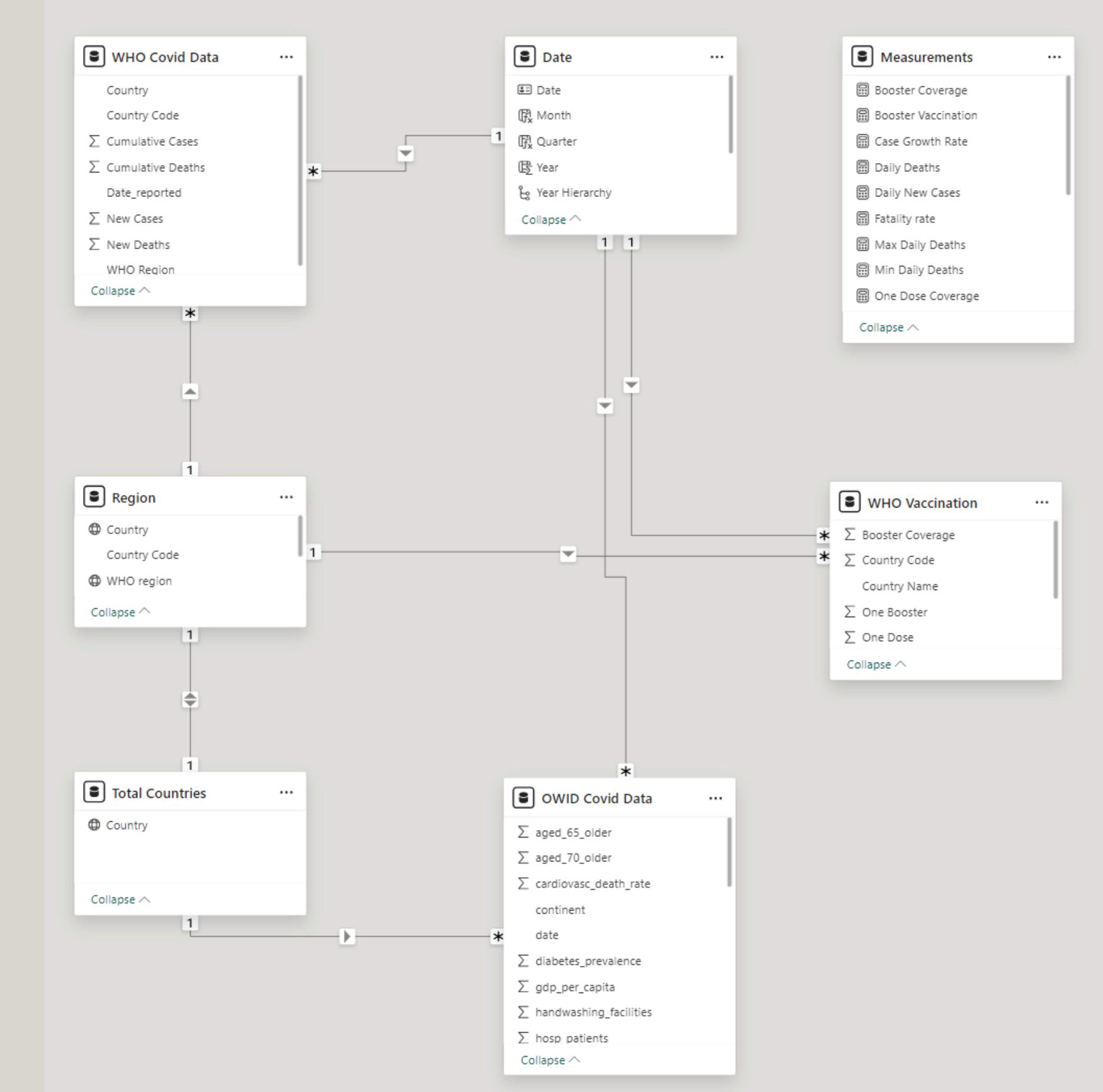
## 1.2. DATA MODEL

### 3 Fact Tables:

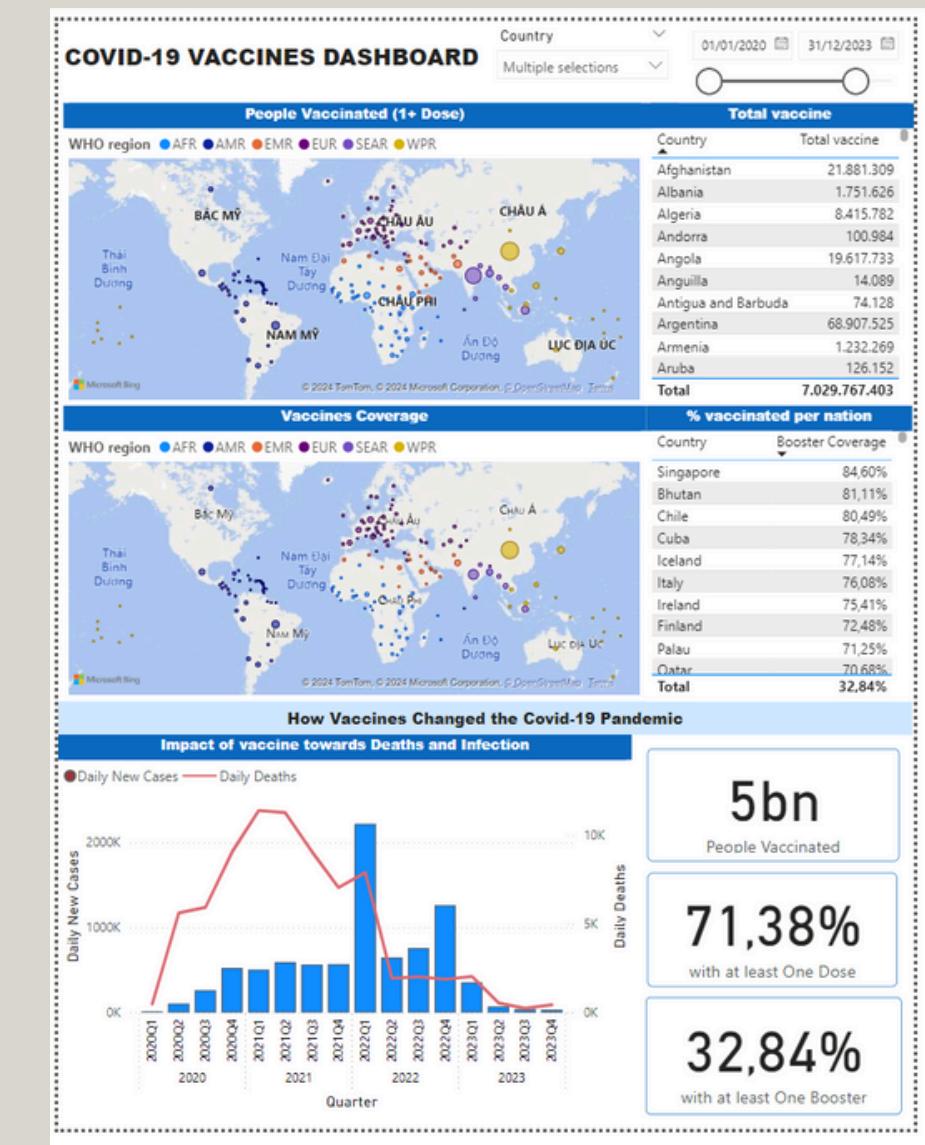
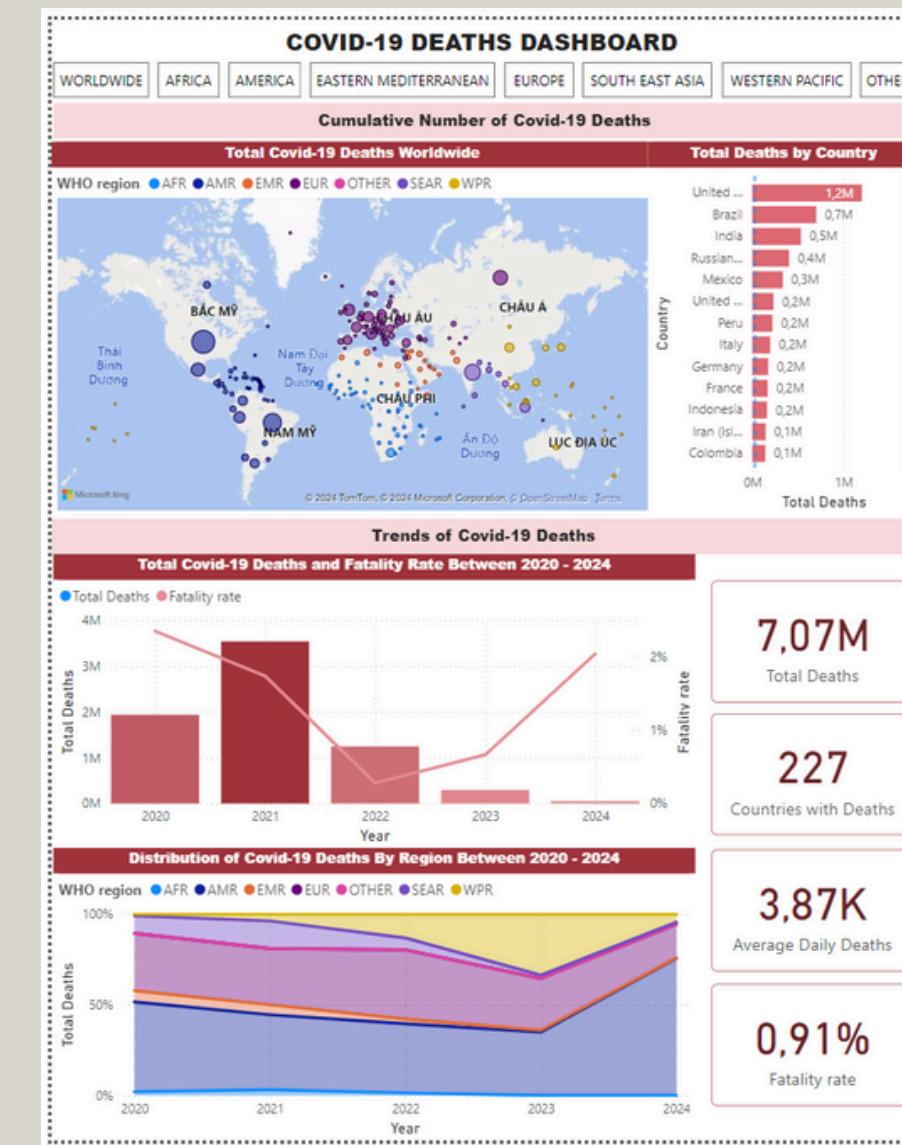
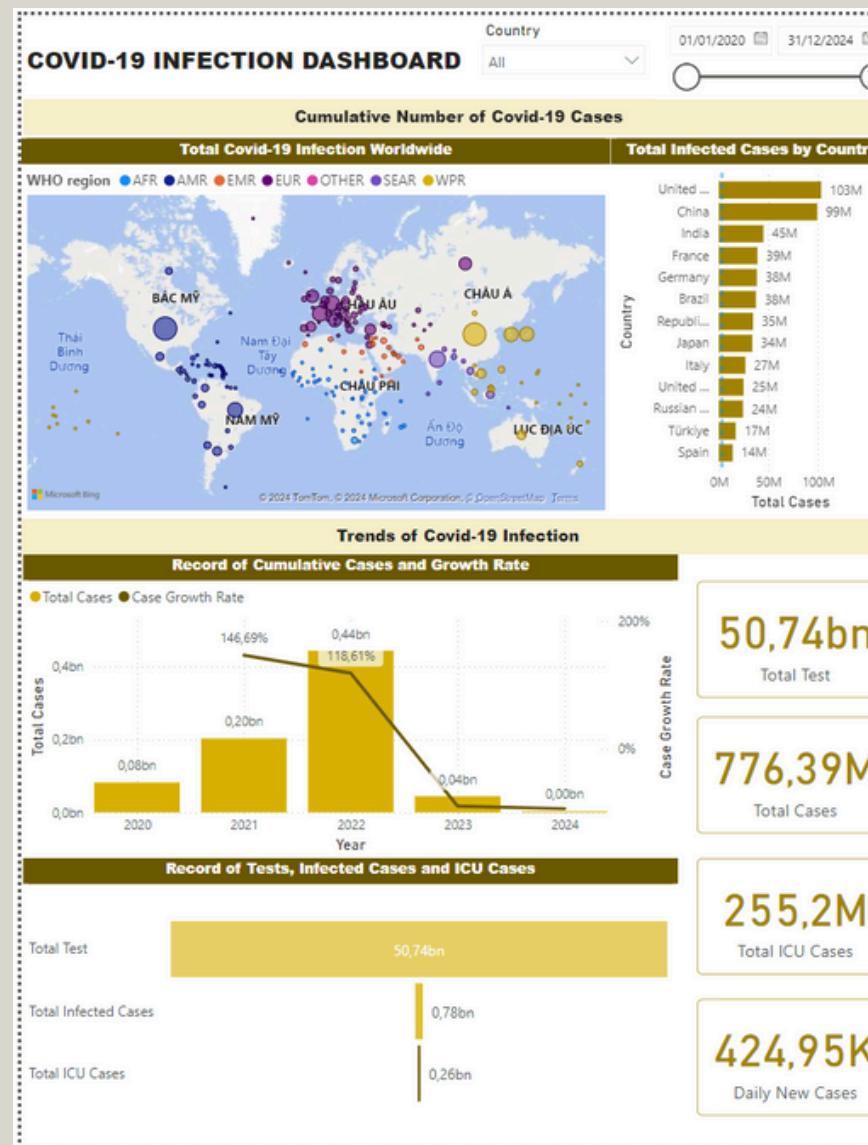
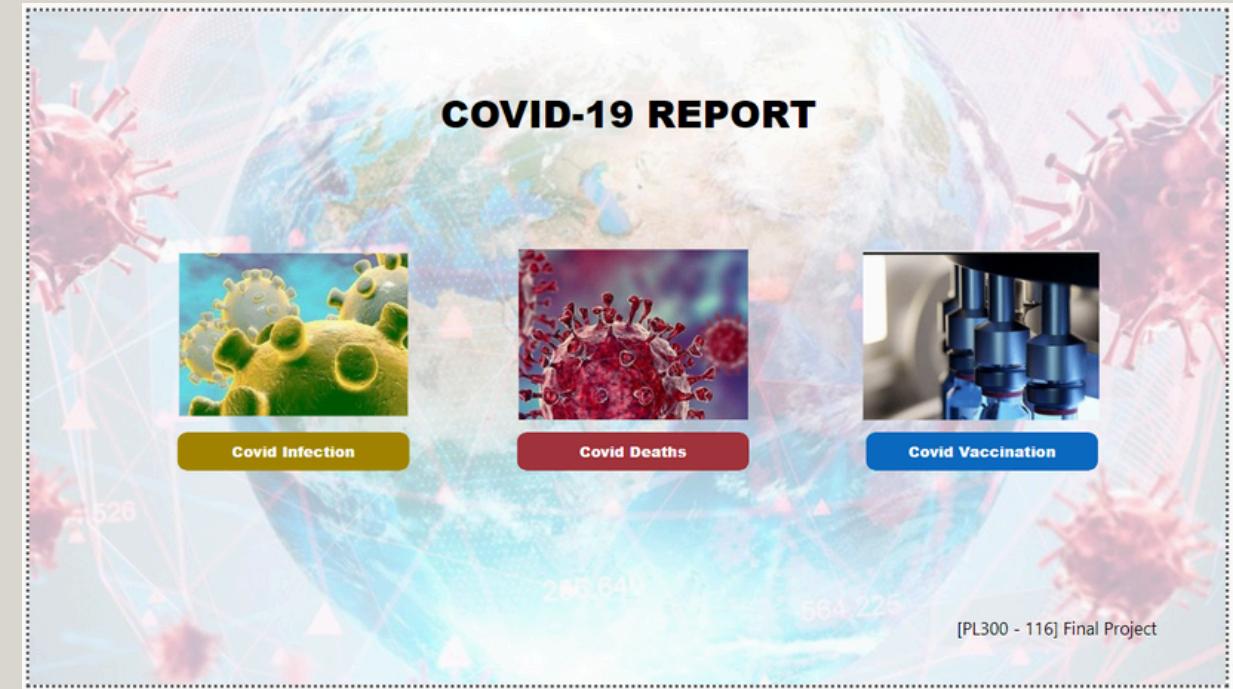
- WHO Covid Data: downloaded from WHO website
- WHO Covid Vaccination: crawled from WHO website
- OWID Covid Data: provided by Datapot

### 3 Dim Tables: extracted from Fact Tables

### 1 Measurement Table



# 1.3. REPORT OVERVIEW





## PART 2: ANALYSIS

2.1. COVID INFECTION

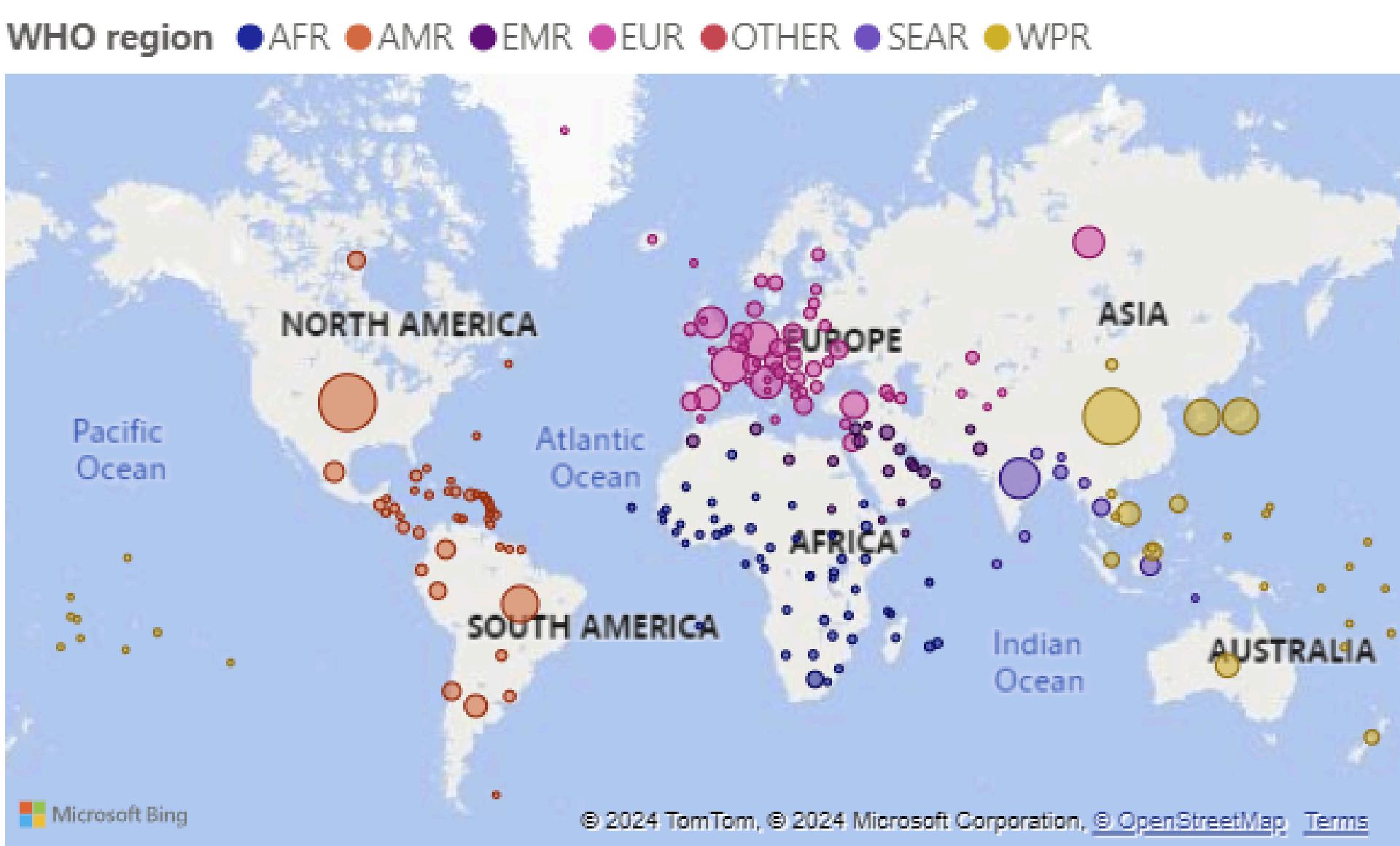
2.2. COVID FATALITY

2.3. COVID VACCINATION



## 2.1. COVID INFECTION

# Covid - 19: the infectious disease



- COVID-19 is an infectious disease caused by the SARS-CoV-2 virus
- First detected in late 2019 in Wuhan city, China

## Infection numbers of a global pandemic

**776.39M**

Total Cases

**1.88K**

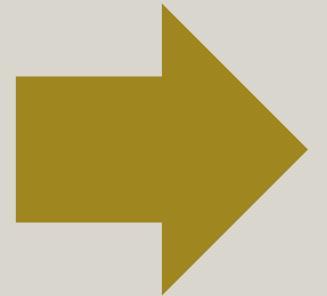
Daily New Cases

Worldwide, there are **776.39 million** reported cases of people infected with Covid

Each day passed, over **1800** new cases were reported

**255.2M**

Total ICU Cases



Unfortunately, the number of serious cases are fairly high since Total ICU Cases are **255.2 million** cases  
→ Account for about **32.8%** of total infection

## Regions with significant cases (Africa, Europe)

### Europe



Europe is one of the regions with most infected Covid cases

▶ Europe is an area with a lot of **international movement** and easy transition within many countries in the continent, making it easier for the disease to spread

▶ Many countries like the UK, Italy, France and Germany have **struggled to vaccinate** against COVID-19.

### Africa

Africa also experienced difficulty in fighting Covid infection

▶ **Slow development** in medicine and technology

▶ **Lack of healthcare infrastructure** and utilities



## Countries with significant cases

Most Covid infection by country: **United States** and **China** - 2 biggest economies with large population  
~Approximately **100 million** cases/country)

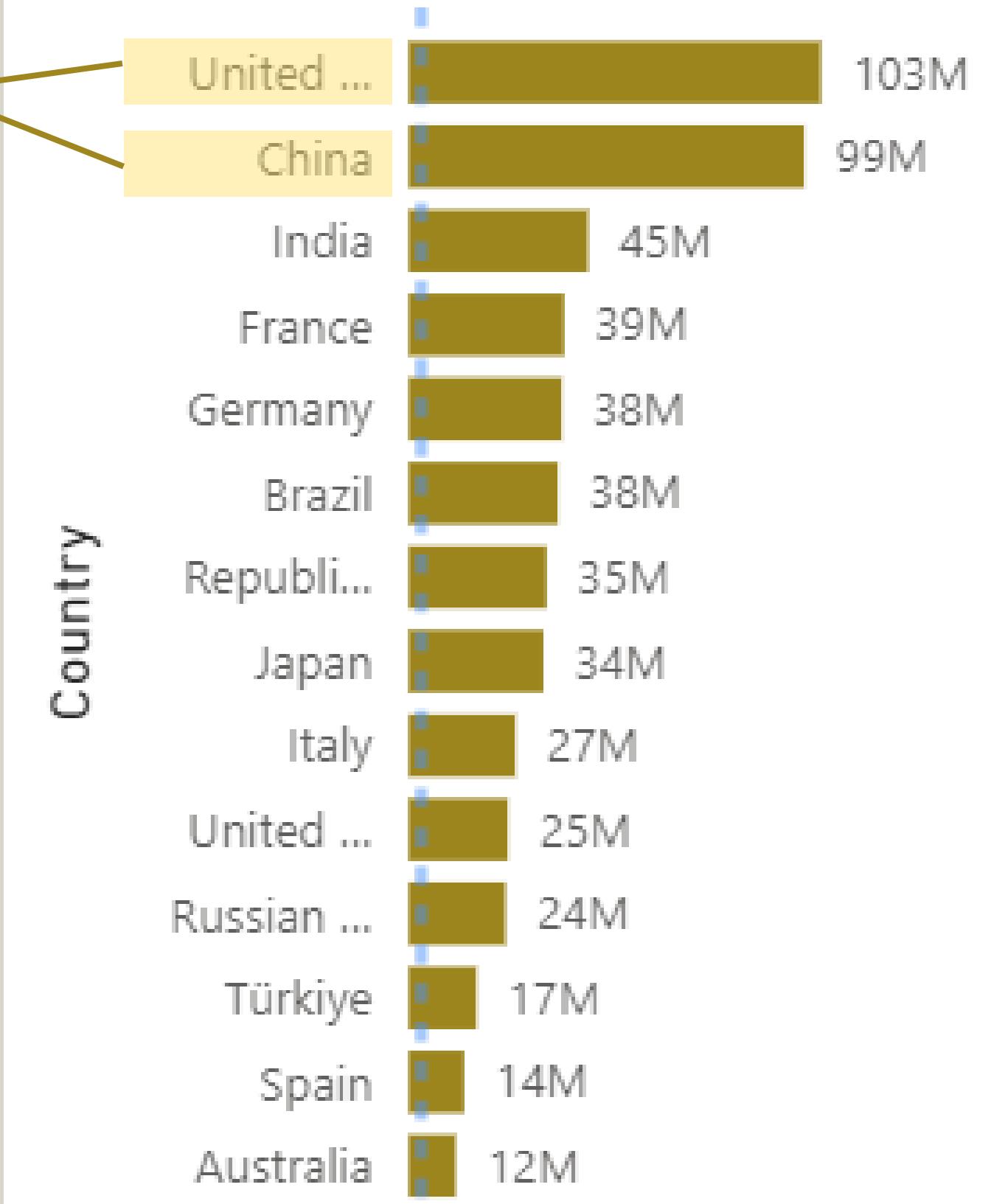
► **US:** high rate of people with underlying conditions, anti-vaccine groups and complicated healthcare system

► **China:** billion population, easy movement between provinces, the country where Covid first recorded

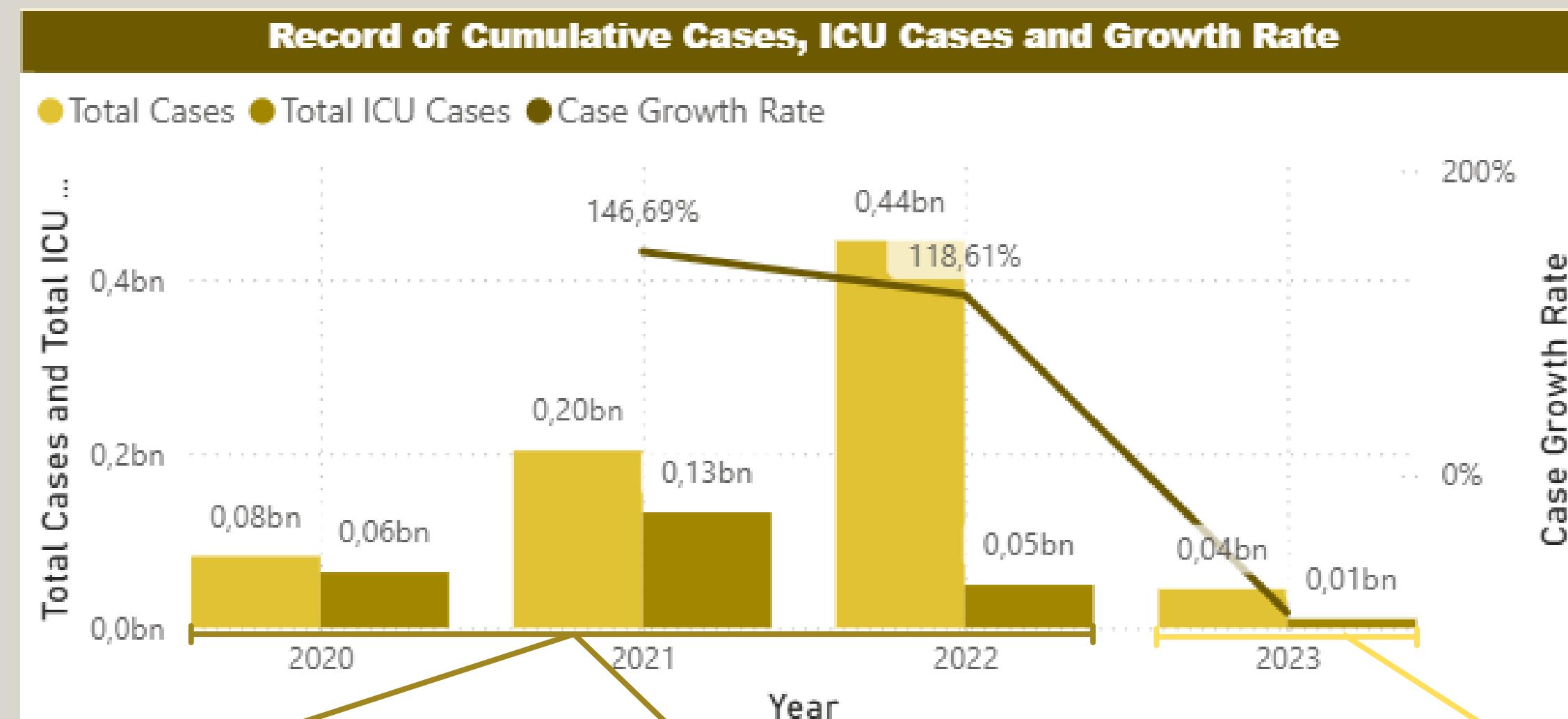
Many other countries with most recorded cases are **European countries** where infection rate is high.

Other countries within this group are of **large population** (India, Russia) or with dynamic **international movement** (Japan, Brazil)

Total Infected Cases by Country



## Severe Cases



2020-2022: infected cases rose significantly at over **100%** rate, reaching a peak of **0.44 billion** cases in 2022.

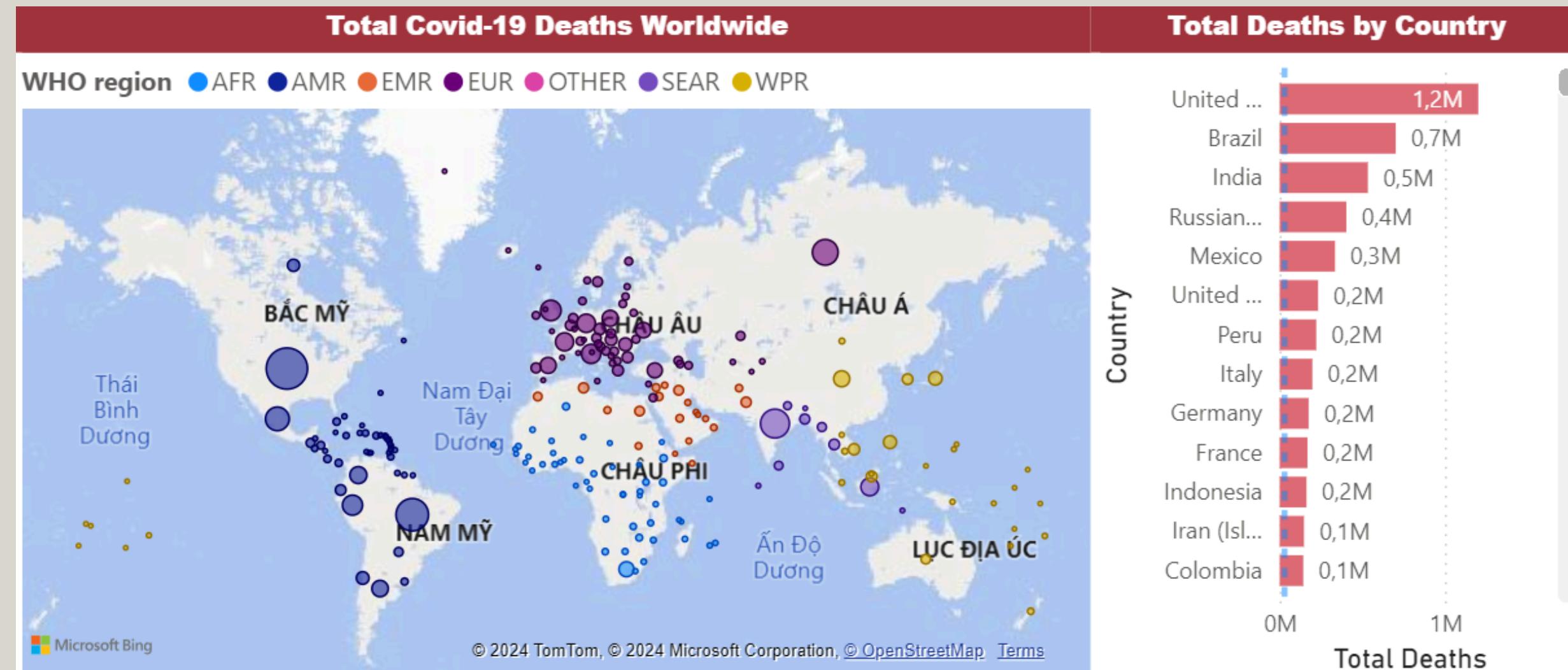
2020-2022: ICU cases peaked at **0.13 billion** in 2021 then gradually decreased.  
→ Thanks to vaccine

2023: both infected cases and severe cases declined sharply  
→ Covid is no longer a dangerous disease

A photograph of two petri dishes containing bacterial cultures. The dish on the left shows several distinct, white, circular bacterial colonies on a red agar medium. The dish on the right shows a dense, confluent growth of bacteria across the entire surface of the red agar medium.

## 2.2. COVID FATALITY

# The distribution of Covid deaths closely aligns with that of infection

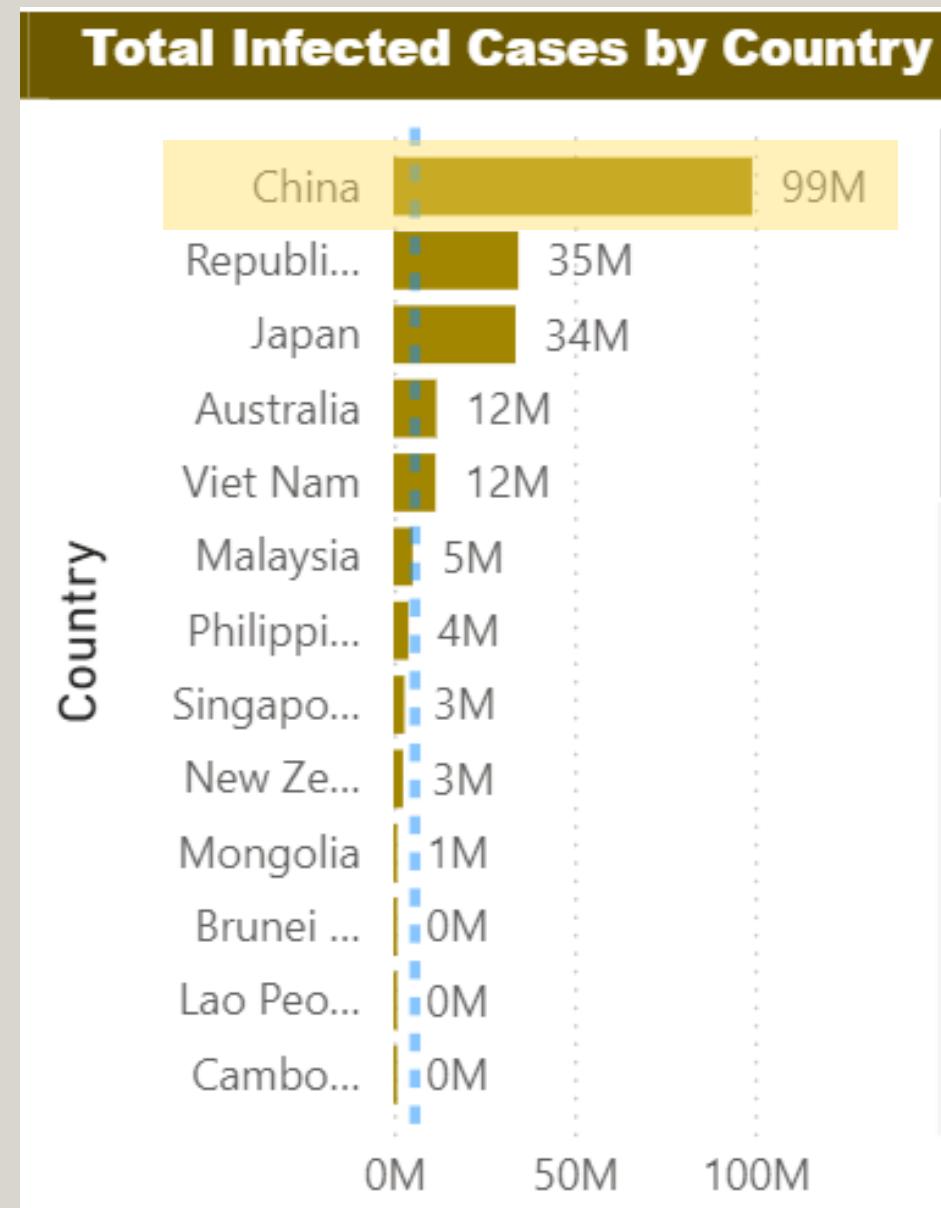


Most deaths happened in American and European countries that had more infected cases

The U.S. tops the list with over 1.2 million Covid-19 deaths, followed by Brazil, India, Russia, and others

**However, more cases doesn't necessarily mean more deaths**

## CHINA

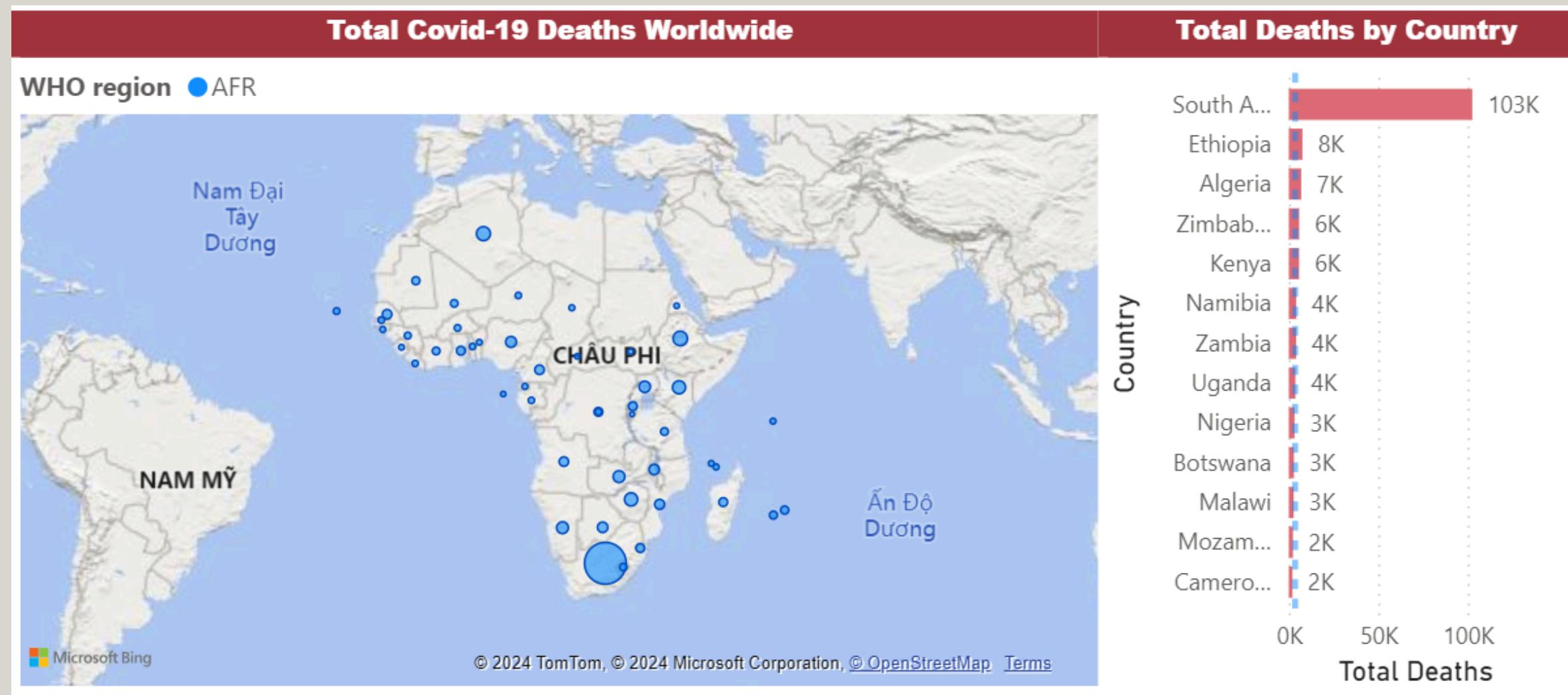


China ranked second worldwide in the number of cases with 99 million infected cases

But had only 0.1 million deaths due to strict quarantine policies

However, more cases doesn't necessarily mean more deaths

## AFRICA



**175,53K**  
Total Deaths

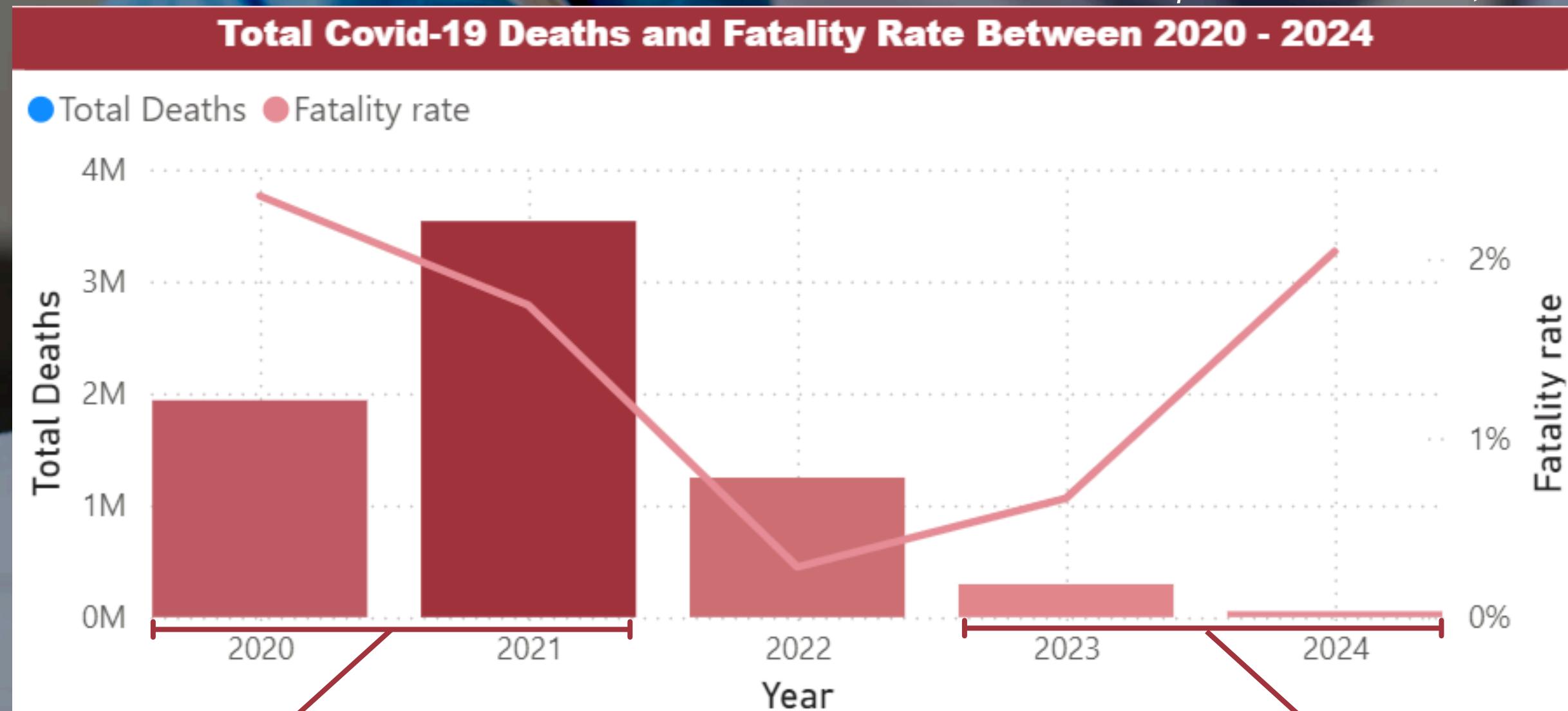
175k deaths all over Africa  
~2,5% of total world's  
deaths

Although Africa is among the regions with the highest number of cases, it has the lowest death rate due to:

- A young, healthy population
- Hot weather that is unfavorable for the Covid virus.

## Overall trend of Covid Deaths

Dataset updated to March, 2024



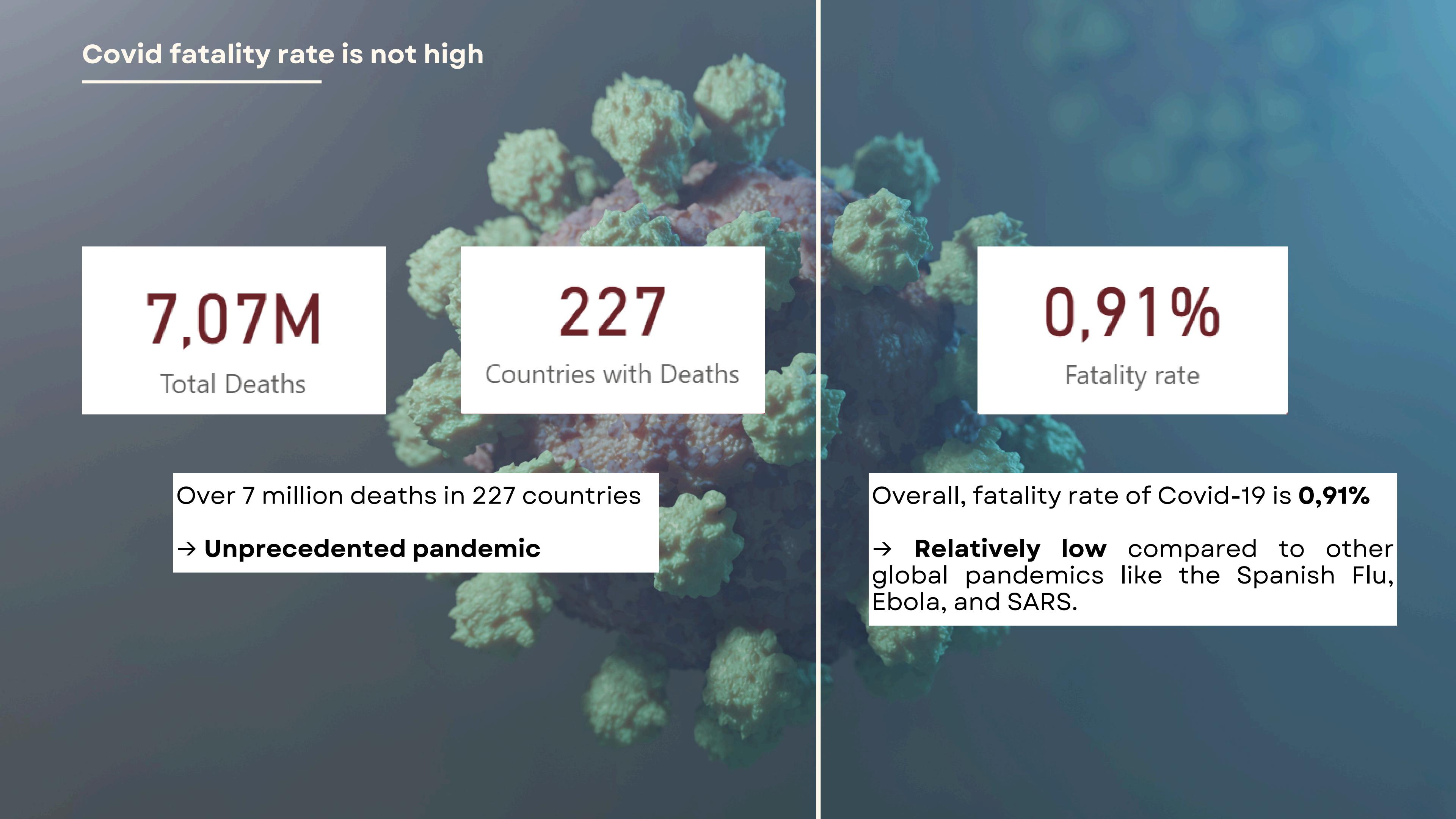
The highest records occurred in 2020 and 2021

- **Pandemic was at its peak**
- Vaccines were not widely available

In 2023 and 2024, despite fewer cases, the **fatality rate increased**  
→ People infected often had weak immunity or underlying conditions

## Covid fatality rate is not high

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A microscopic image showing several yellow, spherical COVID-19 virus particles against a dark background.

7,07M

Total Deaths

227

Countries with Deaths

0,91%

Fatality rate

Over 7 million deaths in 227 countries

→ **Unprecedented pandemic**

Overall, fatality rate of Covid-19 is **0,91%**

→ **Relatively low** compared to other global pandemics like the Spanish Flu, Ebola, and SARS.

## 2.3. COVID VACCINATION



## Covid vaccination status

**5bn**

People Vaccinated

**71,38%**

with at least One Dose

**32,84%**

with at least One Booster

people were vaccinated worldwide

of the world population received at least one dose of vaccine

half of them received at least one additional dose

Try this background for online class.

Please delete this section before downloading.

## Covid vaccination status

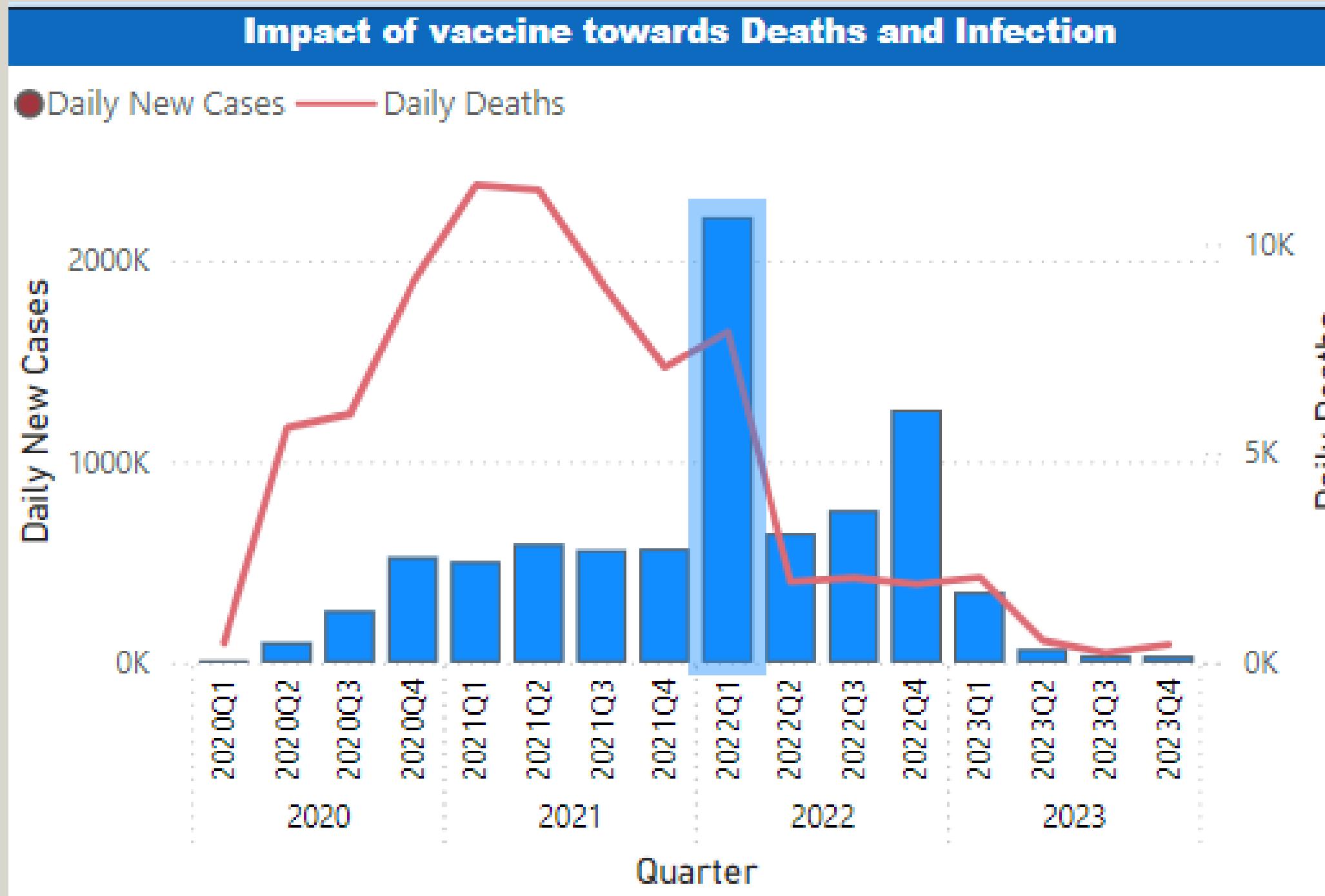
Total vaccine	
Country	Total vaccine
Afghanistan	21.881.309
Albania	1.751.626
Algeria	8.415.782
Andorra	100.984
Angola	19.617.733
Anguilla	14.089
Antigua and Barbuda	74.128
Argentina	68.907.525
Armenia	1.232.269
Aruba	126.152
<b>Total</b>	<b>7.029.767.403</b>

**China and India** are the countries with most vaccines administered, corresponding to their large populations.

% vaccinated per nation	
Country	Booster Coverage
Singapore	84,60%
Bhutan	81,11%
Chile	80,49%
Cuba	78,34%
Iceland	77,14%
Italy	76,08%
Ireland	75,41%
Finland	72,48%
Palau	71,25%
<u>Qatar</u>	<u>70,68%</u>
<b>Average</b>	<b>32,84%</b>

ASEAN and European countries are of highest vaccination typically reach **80% booster** coverage while the world's average is **32%**.

## Impact of vaccine



By the end of 2021, many vaccine doses have been distributed worldwide. In 2022, many people took 2+ doses.

The Covid-19 vaccine has proven to be **highly effective**

▶ Slowing down infection rate

▶ Reducing fatality rate by half, making the disease less severe

# THANK YOU

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For Your Attention