COVID-19 Data Analysis Report

Dataset Overview

- Source: Our World in Data - COVID-19 dataset
- Timeframe: Jan 2020 – Latest available data
- Coverage: Global (by country and continent)
- Metrics: 67+ columns including cases, deaths, testing, vaccinations, hospitalizations, demographics

Key Metrics Analyzed

- Total cases and deaths
- New cases and deaths
- Vaccination data
- Hospital and ICU capacity
- Testing and positivity rates
- Demographics and government response

Insights

Total Cases and Deaths Over Time

- Major spikes in 2020, 2021, and early 2022
- Decrease in death rates after vaccine rollout

Vaccination Progress

- High-income countries vaccinated early and widely
- Low-income regions had slower and limited access
- Booster campaigns began mid-2021

Global Distribution (Choropleth Map)

- Most affected: USA, India, Brazil
- Least affected: Small nations or those with limited data

Healthcare Indicators

- Hospitalization trends mirrored infection waves
- Countries with more hospital beds responded better

Testing & Positivity Rates

- Increased testing over time
- High positivity during waves indicates testing gaps

👥 Demographic Impact
- Older populations more vulnerable
- High population density = faster virus spread

📊 Visualizations Created
- Line plot of total cases by continent
- Bar chart of death rate comparison
- Interactive choropleth map (total cases by country)
- Scatter plot of vaccination vs. death rate

📋 Recommendations
- Expand vaccine access to underserved regions
- Strengthen healthcare infrastructure
- Promote transparent and timely data reporting
- Prepare for future outbreaks with equitable strategies

⚠ Limitations
- Incomplete or inconsistent country data
- Under-reporting in low-testing regions
- Variations in data collection methods

✅ Conclusion
- Vaccinations and health infrastructure play a critical role in reducing death rates.
- Government interventions helped slow spread, but global disparities highlight the need for more equitable health strategies worldwide.

End of Report