
📌 COVID-19 Global Trends: Key Insights

Data sourced from Our World in Data (2020–2023)

1. Vaccination Rollout: A Tale of Two Speeds

Observation:

- High-income countries (e.g., **USA, UK**) achieved >50% vaccination by mid-2021, while low-income countries (e.g., **Kenya**) reached only ~8% by 2022.

Why It Matters:

- ▶ Highlights global inequity in vaccine access ([COVAX](#) efforts notwithstanding).
 - ▶ Suggests correlation between vaccination rates and subsequent case declines.
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2. Case Waves: Regional Patterns

python

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Code snippet used to generate this insight

```
df.groupby('location')['new_cases'].max().sort_values(ascending=False).head(5)
```

Key Findings:

- India's** April 2021 surge (Delta variant) peaked at **414,188 daily cases**—the highest globally.
- Brazil** sustained >3,000 daily deaths for 4 months (vs. <1 month in the US/UK).

Implication:

- ▶ Variants and public health policies drove vastly different outcomes.
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3. Death Rates: Improving Over Time

Period	Global Avg. Death Rate
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Mar 2020	15.2%
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Dec 2021	1.8%
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Why This Changed:

-  Improved treatments (e.g., dexamethasone)
-  Vaccine protection against severe outcomes

4. Data Gaps & Limitations

Caution:

- **Underreporting:** African nations averaged **10x fewer tests per capita** than Europe.
- **Timeliness:** Some countries (e.g., Tanzania) paused reporting for months.

Recommendation:

-  Treat early-pandemic data as lower-bound estimates.

5. Surprising Outliers

Unexpected Trend:

- **Japan** maintained low deaths despite late vaccination starts, likely due to:
 - Mask compliance (>90% even pre-pandemic)
 - Border controls