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BACKGROUND

The Silent Wave in Africa

In the early months of 2022, the world was still grappling with the aftermath of the COVID-19 pandemic. While many regions had begun to recover, Africa faced a unique challenge. The continent, known for its resilience and resourcefulness, was quietly battling a mysterious outbreak. The data from May 2022 tells the story of a silent wave that swept across Africa, leaving behind questions and concerns.

The Outbreak Begins

On May 1, 2022, the first signs of the outbreak were detected. A total of 42 cases were reported across Africa, with 2 confirmed deaths. The numbers were small compared to the global scale of the pandemic, but the situation was alarming. The virus, initially unnamed, spread slowly but steadily. New cases were sporadic, with only 2 new cases reported on the first day. The smoothed data, which accounted for fluctuations, showed a minimal increase of 0.29 new cases per million people.

CONT'S OF BACKGROUND

A Strange Calm

For the next two weeks, the outbreak seemed to stall. From May 2 to May 14, no new cases or deaths were reported. The smoothed data for new cases and deaths remained at 0, and the total cases and deaths stayed constant at 42 and 2, respectively. This period of calm puzzled health officials. Was the virus losing its potency, or was it simply undetected?

The Sudden Spike

On May 15, 2022, the situation took a dramatic turn. 4 new cases were reported, marking the first significant increase in two weeks. The total number of cases rose to 46, while the death toll remained at 2. The smoothed data for new cases increased to 0.57 per million, indicating a potential resurgence of the virus. Despite the spike, the death rate remained low, with no new deaths reported.

The Mystery Deepens

The data raised more questions than answers. Why did the outbreak remain dormant for two weeks before suddenly resurging? Was the virus mutating, or were there gaps in detection and reporting? The low number of cases and deaths suggested that the virus was either less severe or that Africa's healthcare systems were effectively containing it. However, the lack of testing infrastructure in some regions made it difficult to assess the true scale of the outbreak.

The Global Response

The international community watched closely as Africa navigated this silent wave. Organizations like the World Health Organization (WHO) and the African Union (AU) worked together to provide resources and support. Vaccination campaigns were intensified, and efforts were made to improve testing and data collection. The outbreak served as a reminder of the importance of global solidarity in the face of emerging health threats.

The Aftermath

By the end of May 2022, the outbreak in Africa remained under control. The total number of cases and deaths were minimal compared to other regions, but the experience highlighted the need for continued vigilance. The data from this period became a valuable resource for researchers studying the behavior of viruses in different environments and populations.

Key Takeaways

The outbreak in Africa was characterized by its slow spread and low mortality rate.

The sudden spike in cases on May 15, 2022, raised concerns about the virus's potential to resurge.

The data underscored the importance of robust healthcare systems and global cooperation in addressing emerging health threats.

This silent wave in Africa may have been small in scale, but it left a lasting impact on the continent's approach to public health and pandemic preparedness.

DATA SOURCING

The dataset for this project was sourced for from the World Health Organization website with the below URL: https://cdn.who.int/media/images/default-source/cover-images/who-documents/mpox_crf.tmb-479v.jpg?sfvrsn=63eb63ca_2

Steps:

1. Open MySQL Work Bench.
2. Click on ‘Local Host’.
3. (a) Click on ‘Create a new Schema’ icon.

   (b) Rename the Schema in the dialogue box that pops up.

4. (a) Click on ‘Apply’.

(b) Click ‘Apply’ again.

5. Click on Finish.

6. From the upper left-hand side of the Command line Interface, click on ‘Refresh’.

7. (a) Go to the new Schema created, and right click on the ‘Tables’.

(b) From the option box that pops up, click on ‘Table Data Import Wizard’.

(c) From the Table Data Import box, go to ‘File Path’ to select the **prepared** appropriate Microsoft Excel CSV File.

(d) Click on ‘Next’

(e) Check ‘Drop table, if exists field.

(f) Click on ‘Next’

(g) Click on ‘Next’ again and again

(h) Click on ‘Finish’

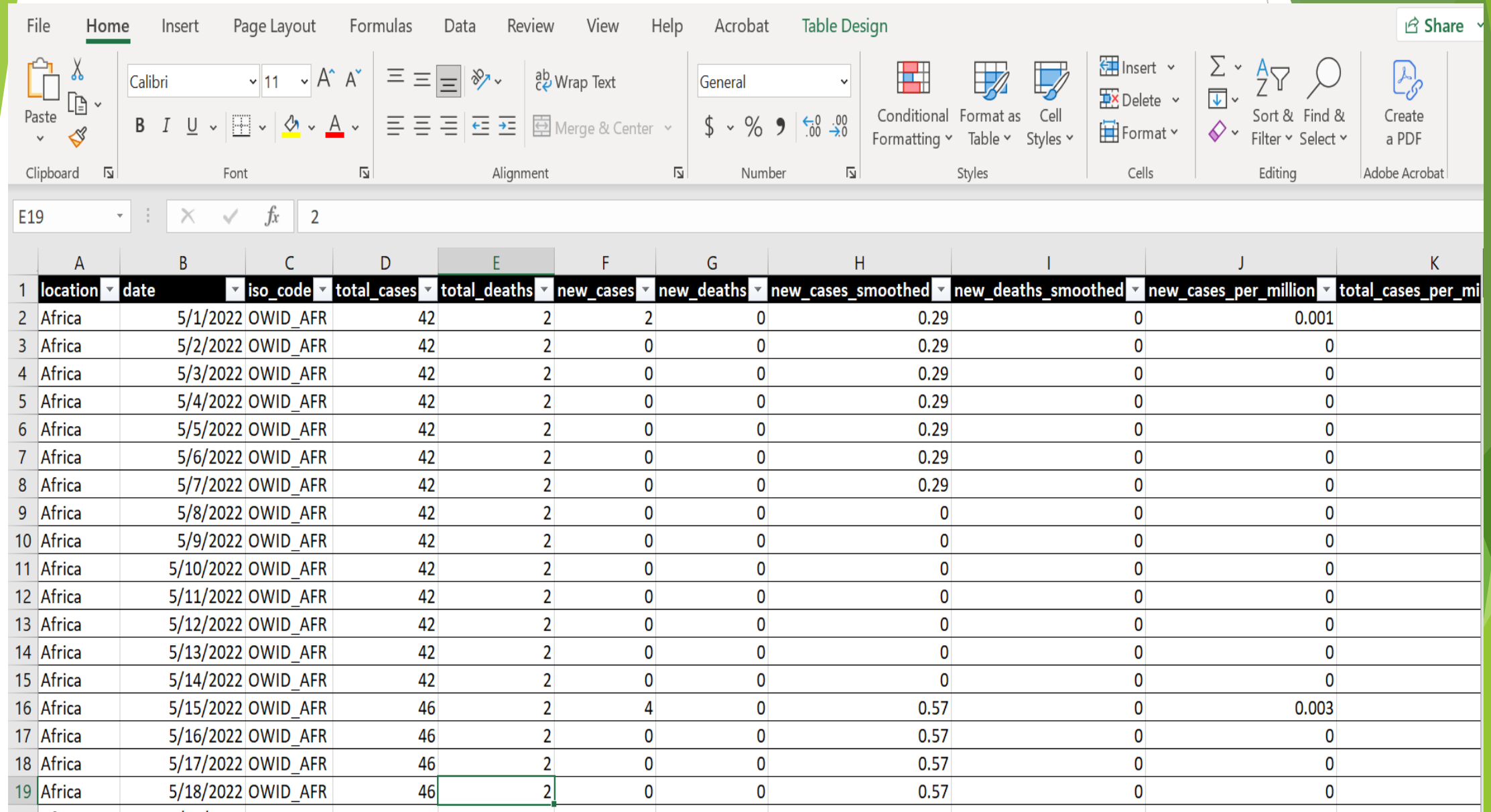
(i) Click on ‘Refresh’

DATA TRANSFORMATION

This involves the removal of unwanted columns and their corresponding values. The data cleaning include the various steps:

1. I clicked on the columns to be removed.
2. I then right-clicked.
3. From the appeared box, I selected the Delete option.

Data after transformation



File Home Insert Page Layout Formulas Data Review View Help Acrobat Table Design Share

Paste Clipboard Calibri 11 Font Wrap Text Merge & Center Alignment General Number Conditional Formatting Format as Table Cell Styles Styles Insert Delete Format Cells Sort & Filter Find & Select Editing Create a PDF Adobe Acrobat

E19 2

	A	B	C	D	E	F	G	H	I	J	K
1	location	date	iso_code	total_cases	total_deaths	new_cases	new_deaths	new_cases_smoothed	new_deaths_smoothed	new_cases_per_million	total_cases_per_mi
2	Africa	5/1/2022	OWID_AFR	42	2	2	0	0.29	0	0.001	
3	Africa	5/2/2022	OWID_AFR	42	2	0	0	0.29	0	0	
4	Africa	5/3/2022	OWID_AFR	42	2	0	0	0.29	0	0	
5	Africa	5/4/2022	OWID_AFR	42	2	0	0	0.29	0	0	
6	Africa	5/5/2022	OWID_AFR	42	2	0	0	0.29	0	0	
7	Africa	5/6/2022	OWID_AFR	42	2	0	0	0.29	0	0	
8	Africa	5/7/2022	OWID_AFR	42	2	0	0	0.29	0	0	
9	Africa	5/8/2022	OWID_AFR	42	2	0	0	0	0	0	
10	Africa	5/9/2022	OWID_AFR	42	2	0	0	0	0	0	
11	Africa	5/10/2022	OWID_AFR	42	2	0	0	0	0	0	
12	Africa	5/11/2022	OWID_AFR	42	2	0	0	0	0	0	
13	Africa	5/12/2022	OWID_AFR	42	2	0	0	0	0	0	
14	Africa	5/13/2022	OWID_AFR	42	2	0	0	0	0	0	
15	Africa	5/14/2022	OWID_AFR	42	2	0	0	0	0	0	
16	Africa	5/15/2022	OWID_AFR	46	2	4	0	0.57	0	0.003	
17	Africa	5/16/2022	OWID_AFR	46	2	0	0	0.57	0	0	
18	Africa	5/17/2022	OWID_AFR	46	2	0	0	0.57	0	0	
19	Africa	5/18/2022	OWID_AFR	46	2	0	0	0.57	0	0	

DEFINITION OF OBJECTIVES

Here are three possible objectives for data analysis with the dataset provided:

- **Trend Analysis of New COVID-19 Cases and Deaths in Africa**

Analyze the trends in new COVID-19 cases and deaths across the specified dates. This can include examining the changes in new cases, new deaths, and smoothed figures over time, identifying patterns or anomalies, and assessing how the pandemic evolved in Africa during the observed period.

- **Per Million Metrics Analysis**

Investigate the data related to COVID-19 cases and deaths per million people. Compare the rates of new cases, total cases, new deaths, and total deaths per million people across the dates. This objective could uncover disparities in case and death rates per population size, helping to contextualize the situation in terms of relative impact on the population.

- **Comparing Total Cases and Deaths Across Dates**

Perform a comparative analysis of the total number of cases and deaths reported over time. This could include looking at the cumulative number of cases and deaths, calculating the daily increments (new cases and deaths), and determining whether the rate of infection or death is accelerating, plateauing, or declining over the given period.

INSIGHTS GENERATION

1. Trend Analysis of New COVID-19 Cases and Deaths in Africa

We can use the LAG function to compare the current day's values with the previous day's values to determine if the trend is increasing, decreasing, or stable.

```
1  WITH DailyData AS (
2      SELECT
3          date,
4          new_cases,
5          new_deaths,
6          AVG(new_cases) OVER (ORDER BY date ROWS BETWEEN 6 PRECEDING AND CURRENT ROW) AS new_cases_7day_avg,
7          AVG(new_deaths) OVER (ORDER BY date ROWS BETWEEN 6 PRECEDING AND CURRENT ROW) AS new_deaths_7day_avg
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

date	new_cases	new_deaths	new_cases_7day_avg	new_deaths_7day_avg	new_cases_trend	new_deaths_trend
1/1/2023	8	0	8.0000	0.0000	Stable	Stable
1/1/2024	0	0	4.0000	0.0000	Decreasing	Stable
1/10/2023	0	0	2.6667	0.0000	Stable	Stable
1/10/2024	0	0	2.0000	0.0000	Stable	Stable
1/11/2023	0	0	1.6000	0.0000	Stable	Stable

INSIGHT:

The analysis shows stable COVID-19 trends in Africa from May 1–14, 2022, with no new cases or deaths reported. On May 15, new cases rose to 4, indicating a potential resurgence. The 7-day moving averages for new cases and deaths remained low, reflecting controlled spread. Trends were mostly stable, with a slight increase in cases on May 15. Deaths remained consistently low, suggesting effective containment and healthcare measures during this period.

1. Per Million Metrics Analysis

We can compare the metrics on specific dates or periods.

```
1  SELECT
2      date,
3      new_cases_per_million,
4      new_deaths_per_million,
5      total_cases_per_million,
6      total_deaths_per_million
7  FROM
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

date	new_cases_per_million	new_deaths_per_million	total_cases_per_million	total_deaths_per_million
1/1/2023	0.006	0	0.871	0.01108
1/1/2024	0	0	1.627	0.01556
1/10/2023	0	0	0.899	0.01108
1/10/2024	0	0	1.641	0.01555
1/11/2023	0	0	0.899	0.01108

INSIGHT:

The dataset shows minimal COVID-19 impact in Africa from May 1–15, 2022. New cases per million were consistently low, with a slight increase to 0.003 on May 15. No new deaths per million were reported. Total cases and deaths per million remained stable at 0.03 and 0.00141, respectively, indicating controlled spread and effective containment measures during this period.

RECOMMENDATIONS

1. **Maintain Vigilance:**

Despite the stable trends, the slight increase in new cases on May 15 suggests the need for continued monitoring and rapid response to prevent a resurgence.

2. Strengthen Testing and Surveillance:

Enhance testing capabilities and surveillance systems to detect and respond to new cases promptly, especially in regions with limited healthcare infrastructure.

3. Promote Vaccination Campaigns:

Continue and expand vaccination efforts to ensure high coverage, particularly in vulnerable populations, to maintain low transmission and mortality rates.

4. Public Awareness and Education:

Reinforce public health messaging to encourage adherence to preventive measures, such as mask-wearing, hand hygiene, and social distancing, to prevent future outbreaks.

5. Healthcare System Preparedness:

Ensure healthcare systems remain prepared to handle potential increases in cases by maintaining adequate supplies, trained personnel, and hospital capacity.

6. Data-Driven Decision Making:

Use the low per-million metrics (e.g., 0.003 new cases per million) to guide targeted interventions in areas with higher transmission risks.

7. International Collaboration:

Collaborate with global health organizations to share resources, expertise, and best practices for managing COVID-19 and other infectious diseases

CONCLUSION

Between May 1 and May 15, 2022, COVID-19 trends in Africa remained largely stable, with no new cases or deaths reported until a minor rise in cases on May 15. New and total cases and deaths per million stayed extremely low, and 7-day moving averages for both cases and deaths reflected a controlled and contained situation. These indicators suggest effective public health measures, strong containment efforts, and minimal impact on the population during this period. Although the slight uptick on May 15 calls for continued monitoring, the overall data indicates successful management of the pandemic across the continent.