

A composite image featuring two photographs of a woman from the waist up. In the left photograph, she is seen from behind, carrying a white bucket balanced on her head. She is wearing a light blue shirt and a patterned skirt. In the right photograph, she is facing slightly to the side, holding a small child in a colorful wrap. She is wearing a blue top and a yellow and red patterned skirt. Both images are set against a background of green trees and a clear sky.

UNVEILING THE IMPACT OF NEGLECTED TROPICAL DISEASES

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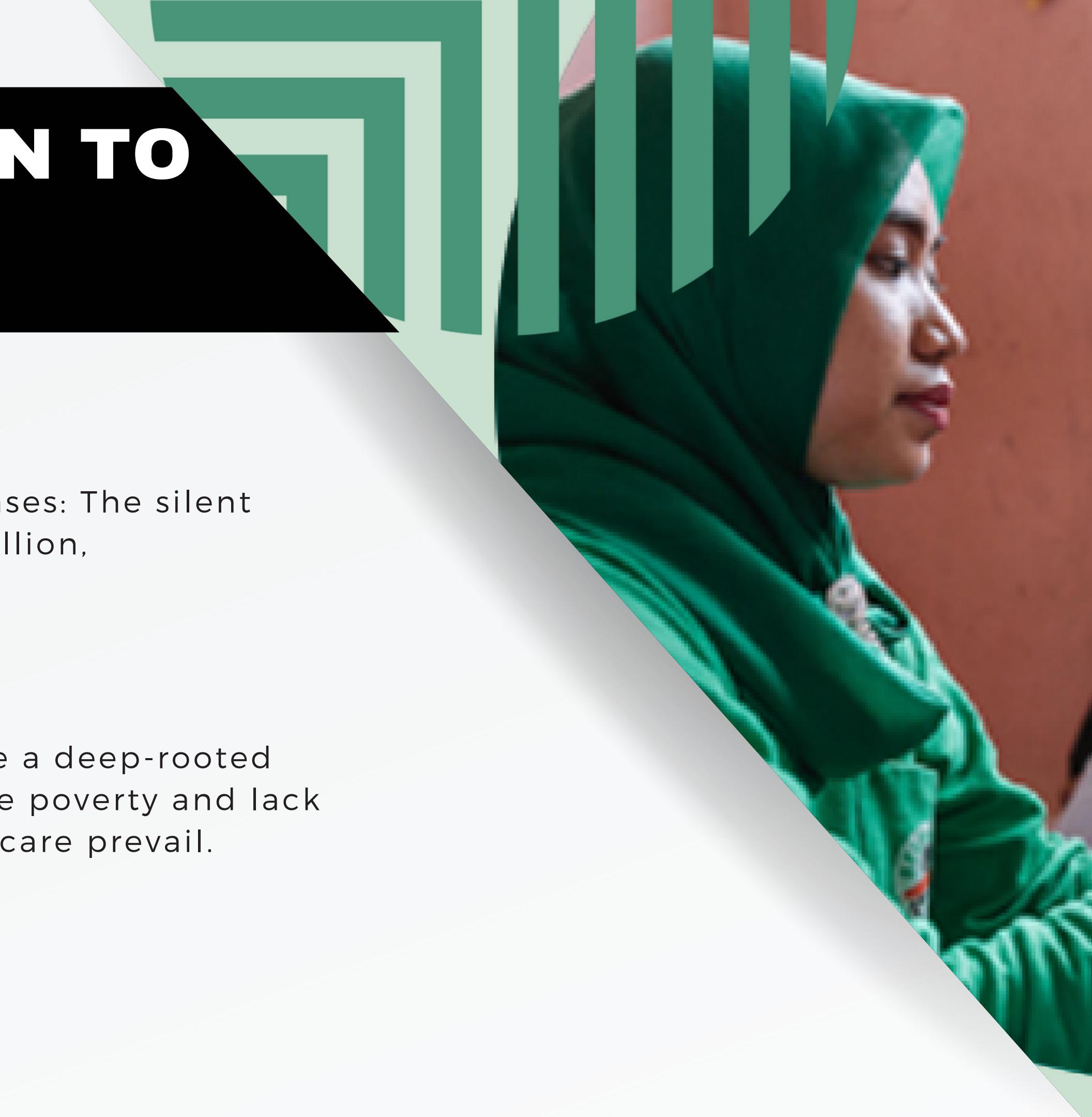
01. INTRODUCTION TO NTDS



Neglected Tropical Diseases: The silent killers affecting over a billion, predominantly in Africa.



These diseases symbolize a deep-rooted inequality, thriving where poverty and lack of access to basic healthcare prevail.



02. METHODOLOGICAL APPROACH

Our journey through data began with WHO's detailed records from 2010-2021, employing rigorous statistical methods to decipher trends, disparities, and actionable insights in the battle against NTDs.

```
36
37     data = load_data('/Users/adelieplumasseau/Desktop/Python Final Project/data.csv')
38
39     if data is not None and 'FactValueNumeric' in data.columns:
40         # Data Cleaning Steps
41         data = data.drop_duplicates() # Remove duplicate rows
42         data.dropna(subset=['FactValueNumeric'], inplace=True) # Remove rows with missing 'FactValueNumeric' values
43         data['FactValueNumeric'] = pd.to_numeric(data['FactValueNumeric'], errors='coerce')
44         data.dropna(subset=['FactValueNumeric'], inplace=True) # Remove rows where conversion failed
45
46         # Assuming 'FactValueNumeric' column should not have missing values
47         # Remove rows with missing values in this column
48         data = data.dropna(subset=['FactValueNumeric'])
49
```

Our analytical journey starts with robust data cleaning—transforming string-represented numbers into numerical data, essential for accurate analysis. This meticulous preparation ensures our findings rest on a solid foundation of reliability.

03. OVERVIEW OF FINDINGS

0
Minimum

147 555 654
Maximum

13 030 104.9
Mean

564
Count

6 251 809.0
Median

```
# Perform statistical analysis
column_to_analyze = 'FactValueNumeric'
print(f"\nPerforming statistical analysis on: {column_to_analyze}")
basic_stats = {
    'Minimum': data[column_to_analyze].min(),
    'Maximum': data[column_to_analyze].max(),
    'Average (Mean)': data[column_to_analyze].mean(),
    'Sum': data[column_to_analyze].sum(),
    'Count': data[column_to_analyze].count(),
    'Median': data[column_to_analyze].median(),
    'Mode': data[column_to_analyze].mode()[0],
    'Standard Deviation': data[column_to_analyze].std(),
    'Range': data[column_to_analyze].max() - data[column_to_analyze].min()
}
```

- **Range of Data:** The NTD case counts range from **0 to 147,555,654**, indicating extreme variability in NTD prevalence across different locations.
- **Average (Mean):** The mean NTD case count is approximately **13,030,105**, suggesting that while some locations have high numbers of NTD cases, the average is significantly lower, reflecting the disparity in NTD distribution.
- **Median:** The median value of **6,258,109** further highlights the skew in the data, with half of the locations reporting cases below this value, underscoring the concentration of high case counts in fewer locations.
- **Mode:** The mode of **0** indicates that the most common NTD case count across locations and/or years is zero, reflecting areas with successful eradication or very low transmission rates.

Limitations and Considerations:

- **Data Completeness:** The analysis assumes complete case reporting across locations and years, which might not account for underreporting or differences in surveillance quality.
- **Socio-Economic Factors:** The dataset, as described, focuses on NTD case counts without integrating socio-economic indicators that could enrich the analysis by highlighting underlying causes of disparities.
- **Intervention Impact:** Without explicit data on health interventions, attributing changes in NTD prevalence to specific programs or actions remains speculative.

OVERVIEW OF FINDINGS PT.2

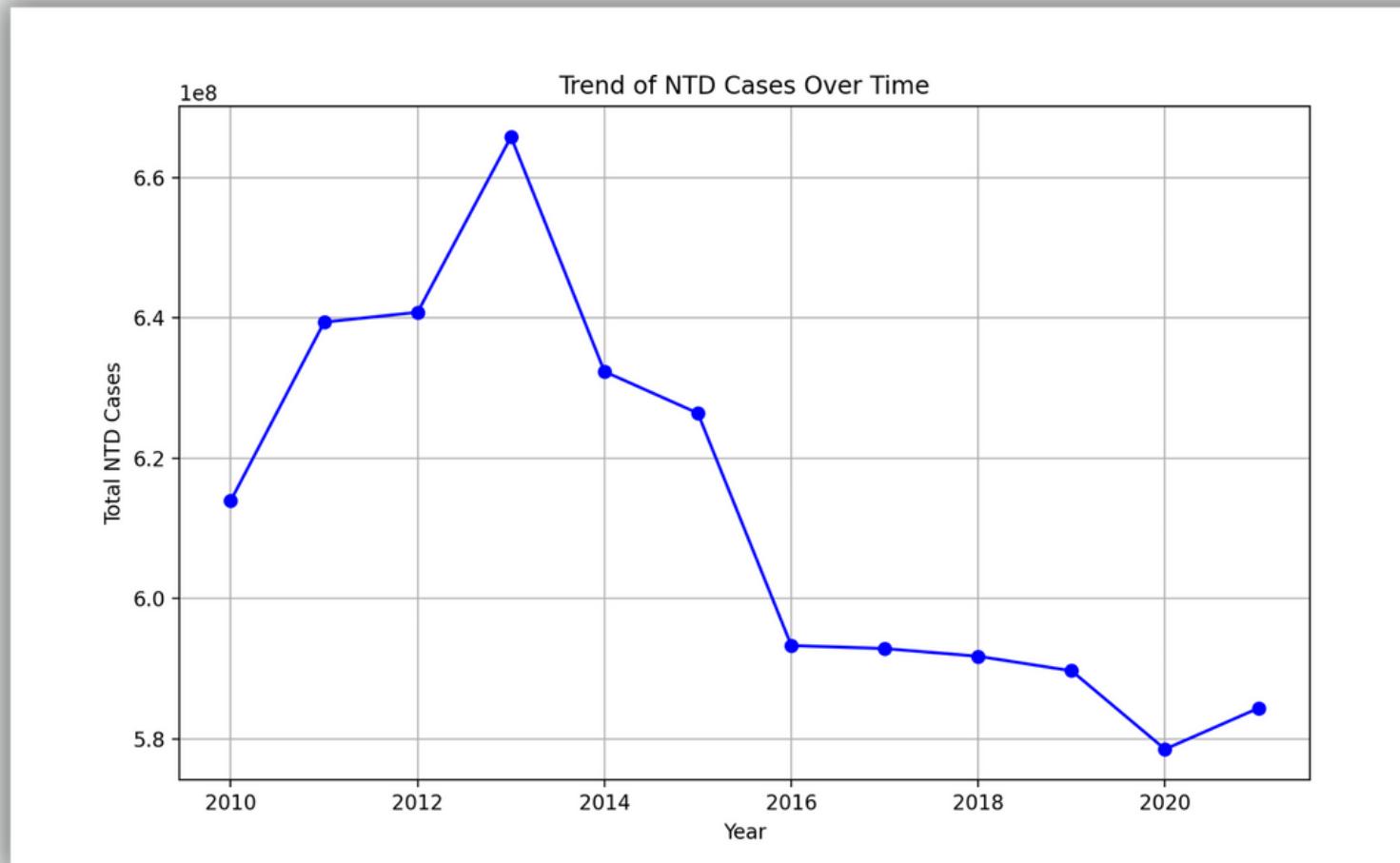
The preliminary analysis revealed staggering disparities.

The range from 0 to over 147 million cases underlines the uneven battle against NTDs.

Such variability demands targeted, informed intervention strategies



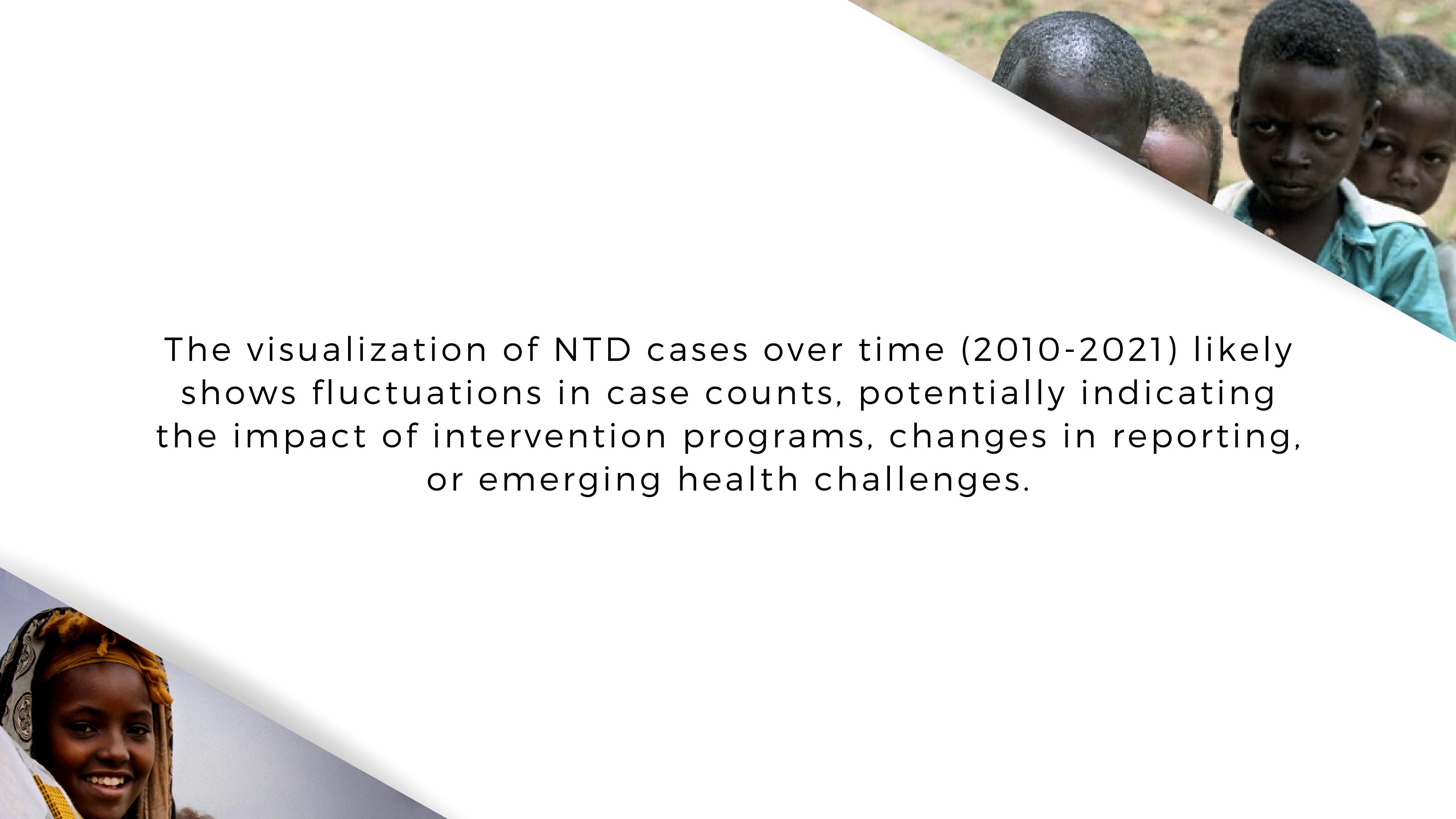
04. TRENDS OVER TIME



Code Snippet: Showcase the part of the code that calculates yearly data and year-on-year changes.

```
# Group data by year and calculate total cases
yearly_data = data.groupby('Period')[column_to_analyze].sum()
print("Total cases per year:\n", yearly_data)
```

Our time trend analysis, powered by pandas' groupby and sum functionalities, uncovers a hopeful decline in recent years, likely reflecting the fruits of increased healthcare efforts and international aid.



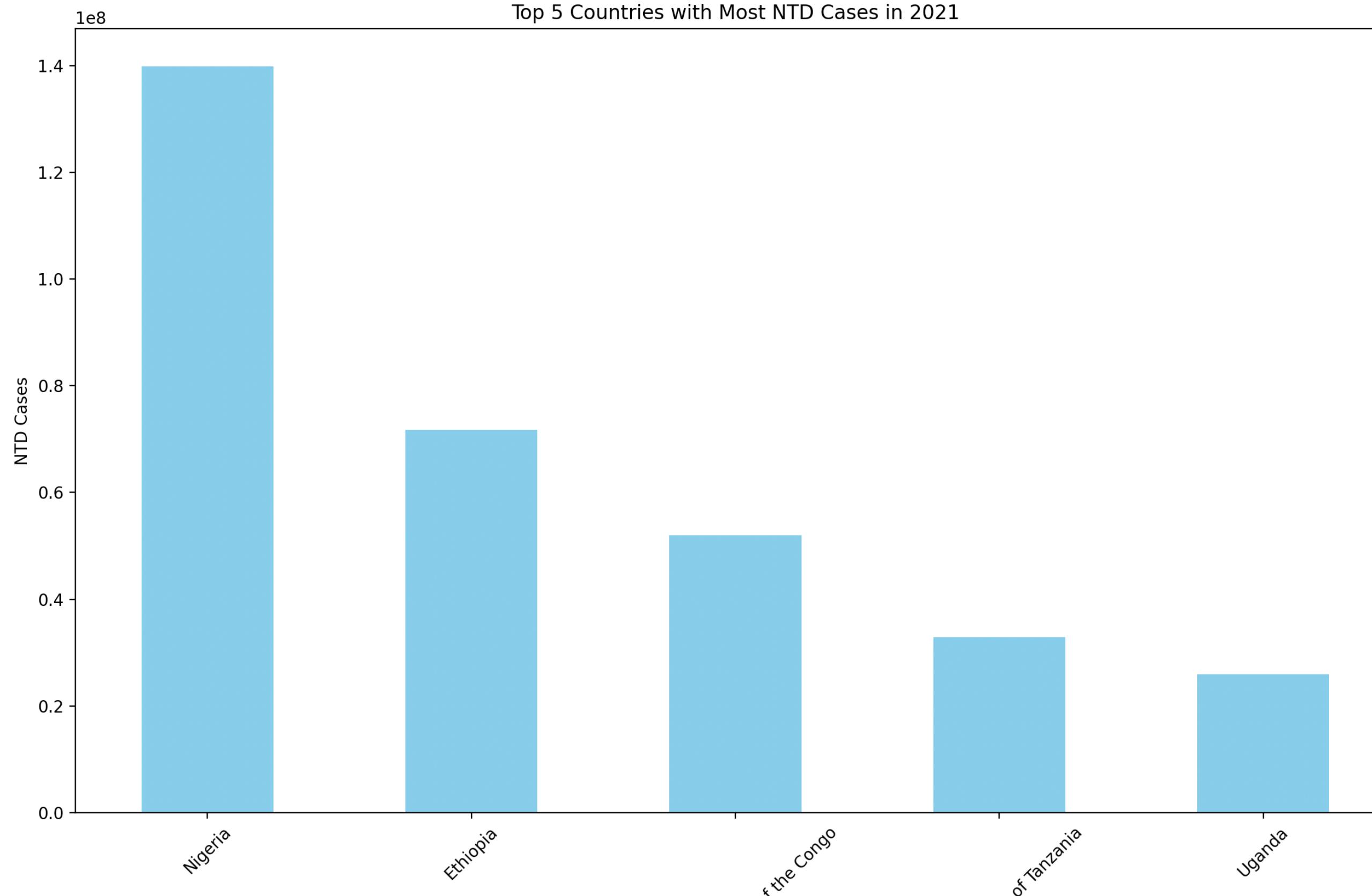
The visualization of NTD cases over time (2010-2021) likely shows fluctuations in case counts, potentially indicating the impact of intervention programs, changes in reporting, or emerging health challenges.



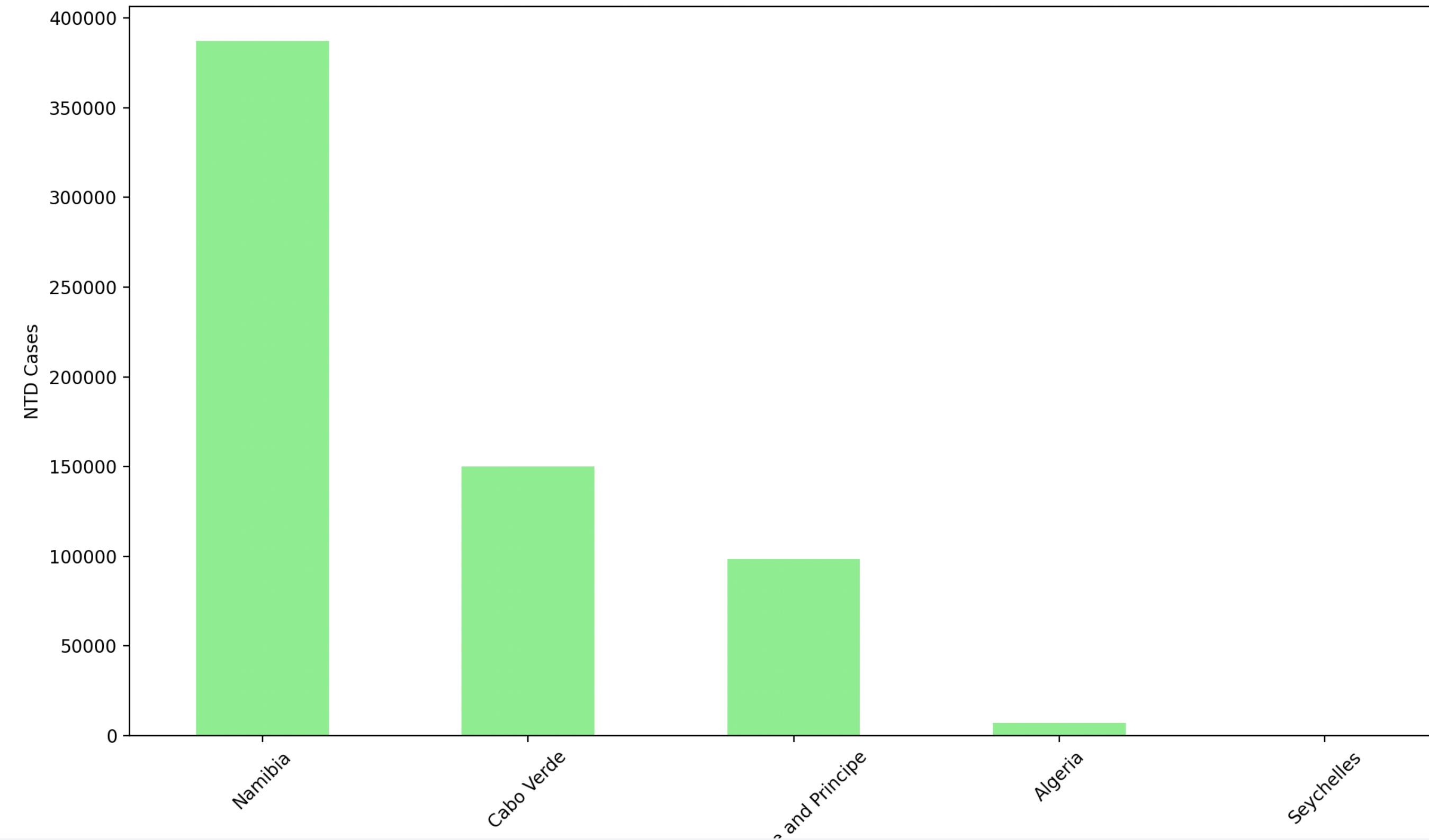
05. GEOGRAPHIC DISPARITIES

```
79
80     # Visualization of Top and Bottom Countries
81     plt.figure(figsize=(10, 6))
82     top_countries.plot(kind='bar', color='skyblue')
83     plt.title(f'Top Countries with Most NTD Cases in {latest_year}')
84     plt.ylabel('NTD Cases')
85     plt.xticks(rotation=45)
86     plt.show()
87
88     plt.figure(figsize=(10, 6))
89     bottom_countries.plot(kind='bar', color='lightgreen')
90     plt.title(f'Countries with Least NTD Cases in {latest_year}')
91     plt.ylabel('NTD Cases')
92     plt.xticks(rotation=45)
93     plt.show()
94 else:
95     print("Data loading failed.")
96
```

Top 5 Countries with Most NTD Cases in 2021



Countries with Least NTD Cases in 2021



05. GEOGRAPHIC DISPARITIES

- The stark geographic disparities in NTD prevalence, as revealed through our ranking analysis, highlight the critical need for localized health initiatives.
- The bar graphs for the top and bottom countries in terms of NTD cases for the latest year analyzed (2021) visually underscore the stark differences in NTD burdens, reinforcing the need for targeted health interventions.

06. SOCIO-ECONOMIC & ENVIRONMENTAL IMPACT



While our code focuses on case counts, it's imperative to consider the socio-economic and environmental fabric behind these numbers. The correlations—though not directly computed here—between NTD prevalence and factors such as poverty levels and access to clean water are well-documented.



07. STRATEGIC RECOMMENDATIONS

In light of the World Health Organization's (WHO) new NTD roadmap, which champions integrated approaches and prioritizes specific NTDs, it's clear that overcoming NTDs is within our grasp. Bold investments, concerted actions, and collaboration across countries and stakeholders are the keystones to victory.

The fact that 50 countries have eliminated at least one NTD by the end of 2023 signals a beacon of hope. It marks not just progress but a call to action towards reaching the 100-country target set for 2030. This milestone illustrates that with determined efforts, NTDs can be conquered, benefiting hundreds of millions of people at risk.

(WORLD HEALTH ORGANIZATION, N.D.)

08. CONCLUSION & CALL TO ACTION

01

Strengthen Local Healthcare Systems

02

Enhance Access to Clean Water and Sanitation

03

Support Community Education and Engagement Programs

04

Foster Research and Innovation in NTD Treatment and Prevention

05

Promote Policies and Fund Allocation for NTD Eradication



08. CONCLUSION & CALL TO ACTION

The path to eradicating NTDs in Africa, illuminated by our data analysis, is both challenging and hopeful. The declines observed signal progress, yet the disparities remind us of the journey ahead. Our code has decoded the data, but it's our collective action that will turn these insights into impact.

Strengthen Local Healthcare Systems



Invest in and support the development of robust local healthcare infrastructures capable of delivering preventive measures, treatment, and education on NTDs.

Enhance Access to Clean Water and Sanitation



Advocate for and contribute to projects aimed at improving access to clean water and adequate sanitation facilities in regions most affected by NTDs.

Support Community Education and Engagement Programs



Launch and support community-based education programs to raise awareness about NTDs, their prevention, and the importance of seeking treatment.



08. CONCLUSION & CALL TO ACTION

Foster Research and Innovation in NTD Treatment and Prevention

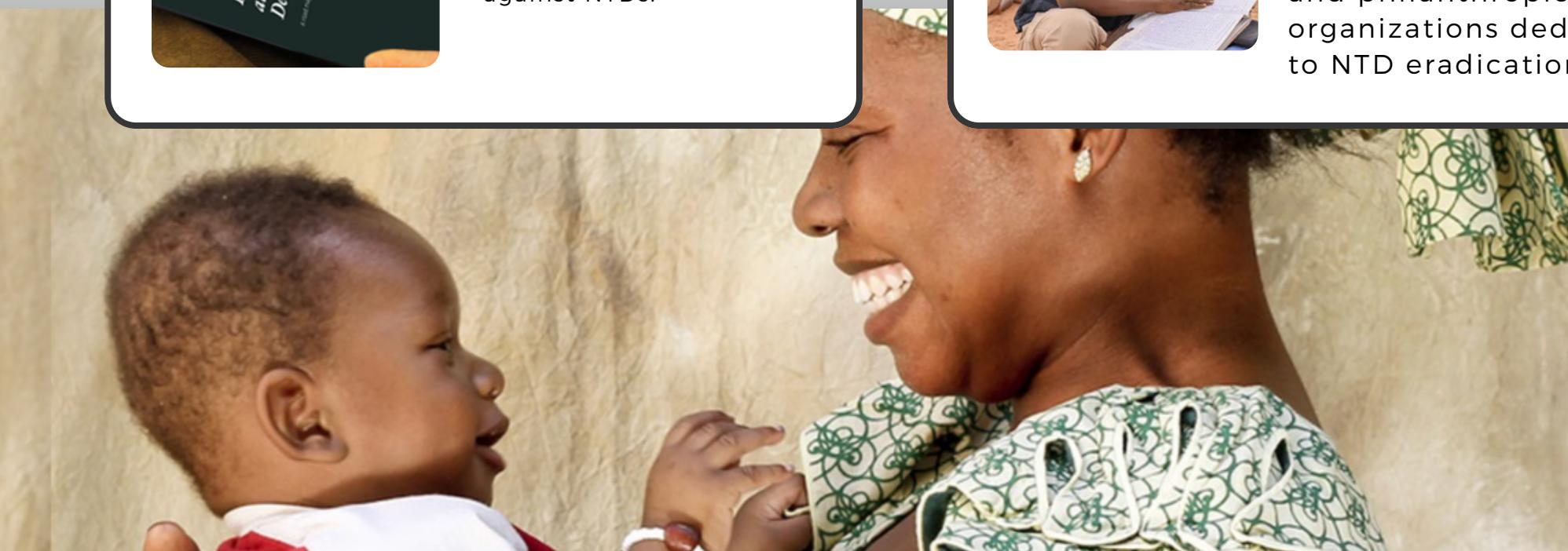


Encourage and fund research aimed at developing new treatments, vaccines, and preventive measures against NTDs.

Promote Policies and Fund Allocation for NTD Eradication



Advocate for increased attention, policies, and funding from international health bodies, governments, and philanthropic organizations dedicated to NTD eradication.



REFERENCES

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