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DISEASE TREND ANALYSIS (2020–2022)

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PROJECT OVERVIEW

This report analyzes disease trends from 2020 to 2022, with a focus on identifying key public health patterns. The study highlights the following key areas:

- Top 5 Diseases with the Highest Number of Cases Over Time
- Top 10 Diseases by Incidence Rate in 2022
- A Heatmap Visualization to Highlight Yearly Trends

The goal of this analysis is to uncover patterns, identify public health concerns, and provide data-driven insights to guide health interventions and policy decisions.

OBJECTIVE:

THE PRIMARY OBJECTIVE OF THIS REPORT IS TO USE DISEASE DATA FROM 2020 TO 2022 TO:

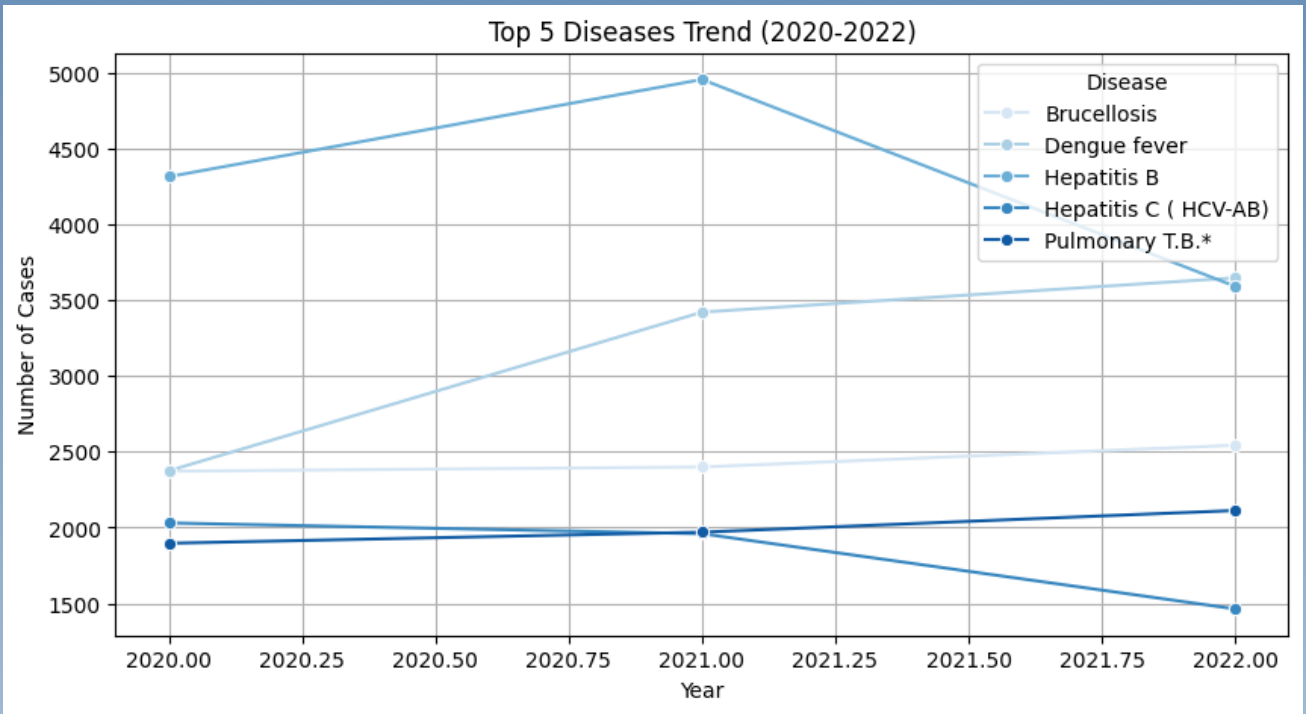
- UNCOVER DISEASE PATTERNS AND TRENDS
- IDENTIFY AREAS OF PUBLIC HEALTH CONCERN
- PROVIDE ACTIONABLE, DATA-DRIVEN INSIGHTS TO ASSIST WITH HEALTH INTERVENTIONS AND POLICY FORMULATION

KEY INSIGHTS

EXPLORATION OF TOP 5 DISEASES TREND (2020–2022)

A detailed trend analysis was conducted to understand how the five most prevalent diseases evolved over the three-year period. By analyzing the number of cases each year, the report identifies key patterns, including increases due to potential outbreaks and decreases influenced by public health measures.

The chart below visualizes the annual case counts for the top five diseases, providing a clear understanding of how each disease has progressed.



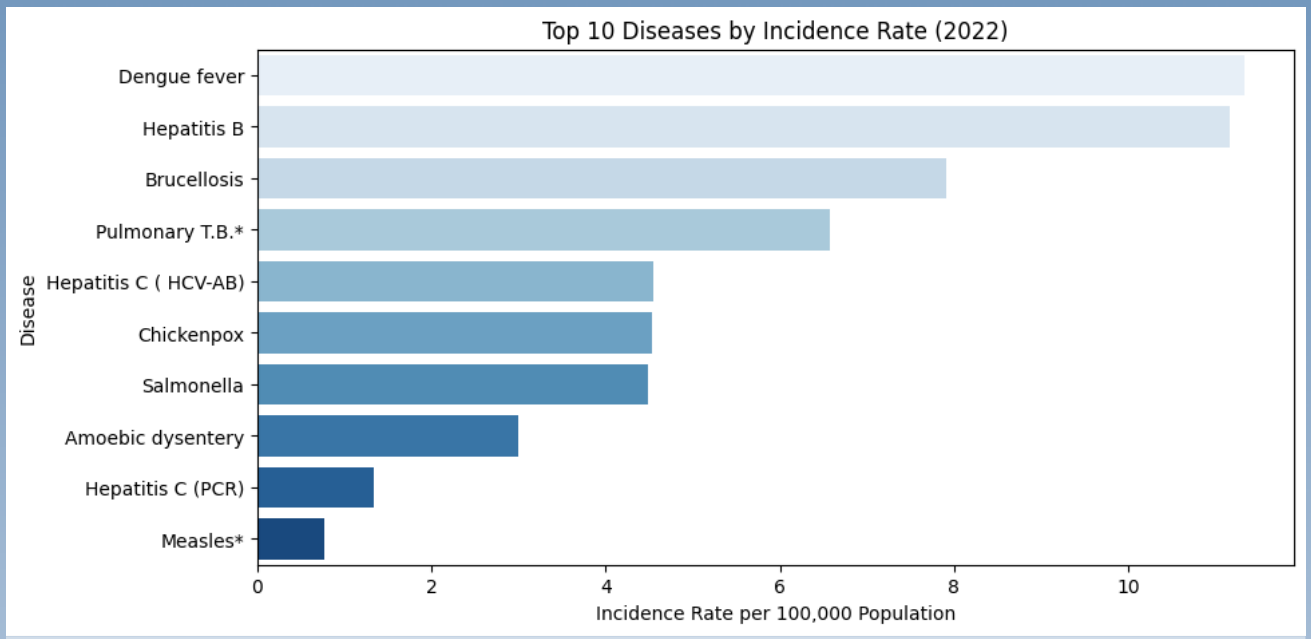
Key Observations:

- **Brucellosis** peaked in 2021 and declined in 2022, possibly due to targeted interventions.
- **Dengue fever** showed a consistent rise, highlighting the need for stronger vector control measures.

- **Hepatitis B** remained stable but showed slight fluctuations over the years, requiring sustained vaccination efforts.
- **Pulmonary Tuberculosis** saw a gradual rise, suggesting the need for enhanced TB control programs.

EXPLORATION OF TOP 10 DISEASES BY INCIDENCE RATE (2022)

The chart below highlights the top 10 diseases by incidence rate per 100,000 population for the year 2022. Understanding incidence rates allows public health officials to prioritize interventions and allocate resources efficiently.



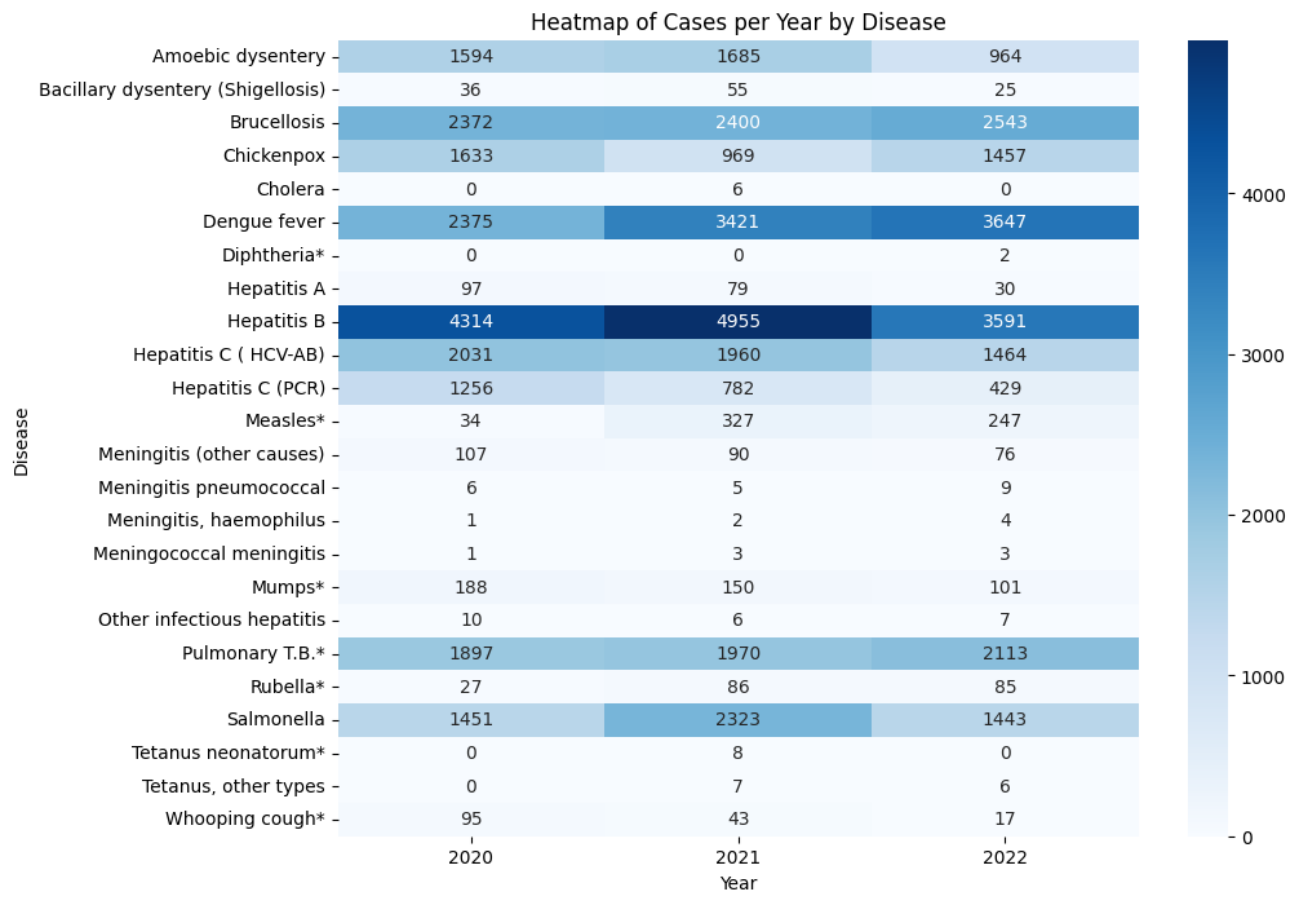
Key Observations:

- **Dengue fever** had the highest incidence rate, signaling the need for enhanced vector control initiatives and public health interventions aimed at reducing mosquito breeding grounds.

- **Hepatitis B** followed closely behind, emphasizing the need for continued vaccination campaigns and screening efforts to control its spread.
- **Brucellosis** and **Salmonella** were also significant, highlighting the need for interventions in zoonotic and foodborne diseases through enhanced surveillance and prevention.

EXPLORATION OF HEATMAP OF CASES PER TEAR BY DISEASE

The heatmap below provides a visual representation of how different diseases have fluctuated in terms of case numbers over the three-year period. Darker colors represent a higher number of cases, making it easy to observe trends and patterns across diseases.



Key Observations:

- **Hepatitis B** peaked in 2021 with over 4,900 cases, requiring continued prevention efforts.
- **Dengue fever** showed a sharp rise from 2020 to 2022, pointing to the need for enhanced vector control strategies.
- **Brucellosis** remained steady but slightly increased, suggesting gaps in veterinary health programs.
- **Salmonella** peaked in 2021 but declined in 2022, indicating successful food safety interventions.
- **Pulmonary Tuberculosis (T.B.)** cases rose gradually, highlighting the need for consistent TB control efforts.

DATA-DRIVEN RECOMMENDATIONS

Based on the analysis of disease trends, several public health challenges emerge. The following actionable recommendations are proposed to support effective health interventions and policymaking:

TARGETED HEALTH CAMPAIGNS FOR HIGH-INCIDENCE DISEASES

Dengue Fever: Strengthen vector control initiatives, including mosquito population control and public awareness campaigns on reducing breeding grounds. Prioritize at-risk areas for intervention to mitigate the spread.

Hepatitis B: Continue to increase vaccination efforts, particularly in regions with low coverage. Implement broader screening programs to ensure early detection and prevent the spread of the disease.

STRENGTHEN ZOONOTIC DISEASE SURVEILLANCE

Brucellosis: Collaborate with the agriculture sector to address livestock-related transmission risks. Implement veterinary health measures to reduce human transmission.

ENHANCE FOOD SAFETY MEASURES

Salmonella: Maintain stringent food safety regulations, educate the public on proper food handling, and monitor hygiene practices throughout food supply chains. Strengthen inspections and safety protocols in food production and retail.

IMPROVE TUBERCULOSIS CONTROL PROGRAMS

Pulmonary T.B.: Expand access to treatment, strengthen contact tracing, and improve adherence to treatment regimens through community outreach and digital tools. Focus efforts in regions with the highest transmission rates to reduce its spread.

OPTIMIZE RESOURCE ALLOCATION

Allocate resources toward diseases with rising trends, particularly **Dengue fever**, **Hepatitis B**, and **Pulmonary T.B.**. Utilize predictive modeling to forecast future disease trends and allocate resources proactively to the areas with the highest potential for outbreaks.

CONTINUOUS MONITORING AND POLICY ADAPTATION

Implement real-time surveillance systems to monitor disease trends and adapt strategies as new data emerges. Public health policies must evolve based on this emerging data to efficiently address changing health threats.

CONCLUSION

This report highlights key disease trends from 2020 to 2022, showcasing how data-driven analysis can inform public health strategies. Immediate public health priorities include addressing the rising incidence of **Dengue fever**, continuing efforts to control **Hepatitis B**, and mitigating the spread of **Pulmonary T.B.** By implementing the proposed interventions and optimizing resource allocation, public health authorities can effectively mitigate future outbreaks and improve population health.