



Bharatiya Vidya Bhavan's

# Sardar Patel Institute of Technology

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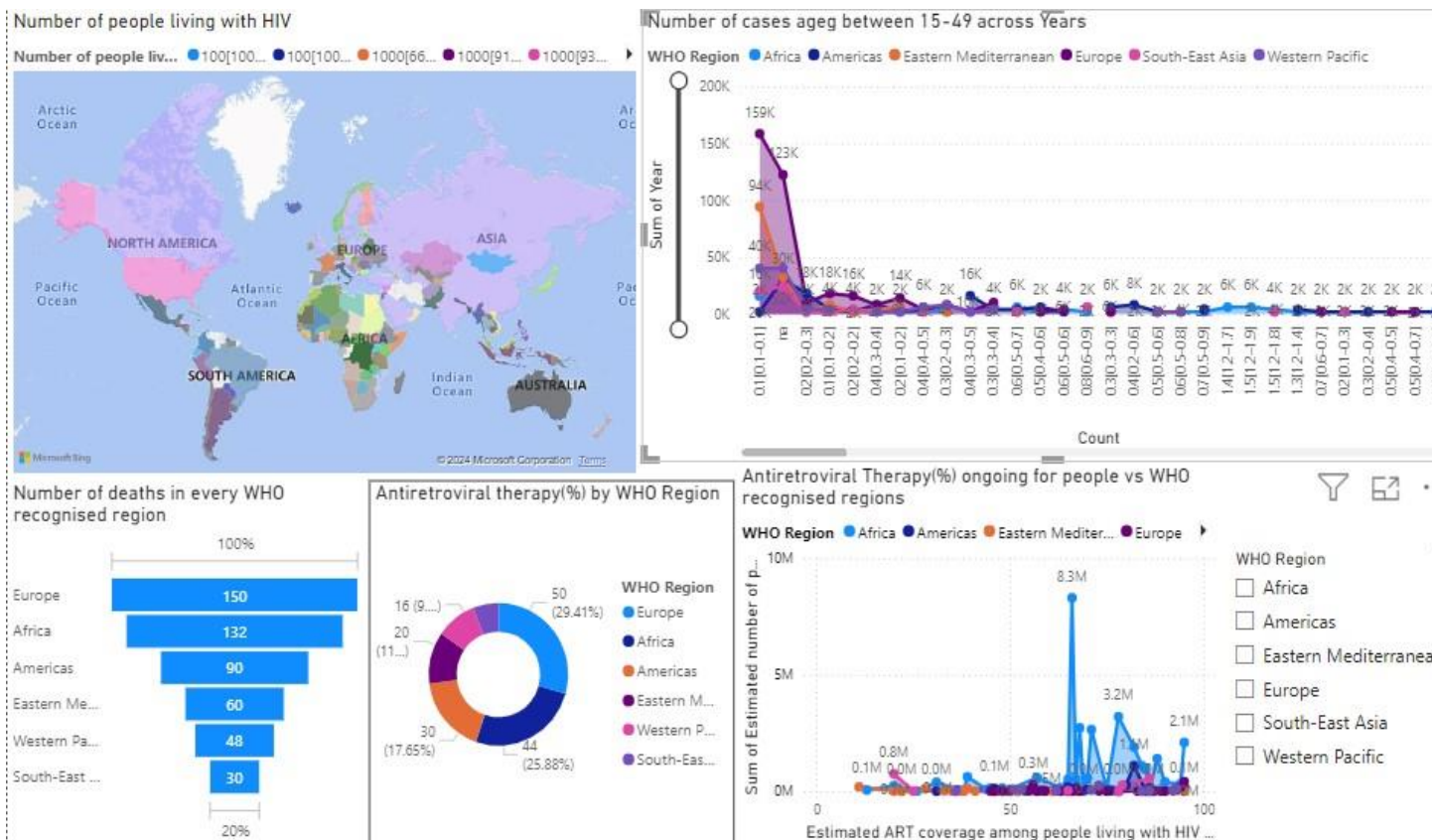
**AIM:**Design Interactive Dashboards and Storytelling using Tableau / Power BI / R (Shiny) / Python (Streamlit/Flask) / D3.js to be performed on the dataset - Disease spread / Healthcare

● Create interactive dashboard - Write observations from each chart given below ● (Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter, Line, Area, Waterfall, Donut, Treemap, Funnel ● Basic - Bar chart, Pie chart, Histogram, Timeline chart, Scatter plot, Bubble plot)

## Description of Dataset:

1. No. of people living with HIV AIDS
2. No. of deaths due to HIV AIDS
3. No. of cases among adults (19-45)
4. Prevention of mother-to-child transmission estimates
5. ART (Anti Retro-viral Therapy) coverage among people living with HIV estimates
6. ART (Anti Retro-viral Therapy) coverage among children estimates

Dashboard:



## Insights, Observations, and Questions from the Dashboard

### Overall Observations

- **HIV/AIDS Global Landscape:** The dashboard offers a holistic view of the worldwide HIV/AIDS situation, emphasizing crucial indicators such as HIV prevalence, infection rates, mortality, and access to antiretroviral therapy (ART).
- **Geographic Variations:** The data reveals marked differences in HIV/AIDS impact across various regions. The African continent, in particular, is shown to carry an outsized share of the global disease burden.
- **Treatment Advancements:** While the dashboard indicates a positive trend in ART coverage across numerous areas, suggesting improvements in care and treatment, it also highlights regions where coverage remains insufficient. This underscores the ongoing need for initiatives to broaden access to these vital healthcare services.

### Specific Insights and Questions

- **Geographic Patterns in HIV/AIDS Distribution:**
  - **African Epicentre:** What underlying factors perpetuate Africa's high HIV prevalence and infection rates? How do socioeconomic conditions, cultural norms, and healthcare infrastructure contribute to this trend?

- **European and American Success:** What strategies have led to lower HIV/AIDS rates in Europe and the Americas? Can these approaches be adapted for use in more heavily impacted regions?
- **Age-Related HIV/AIDS Trends:**
  - **Vulnerability of Young Adults:** Why is the 15-49 age group disproportionately affected by new HIV infections? How can prevention strategies be tailored to address the specific needs and behaviors of this demographic?
- **Antiretroviral Therapy (ART) Accessibility:**
  - **Uneven ART Coverage:** What obstacles hinder ART access in regions with low coverage rates? What strategies could improve treatment availability and uptake in these areas?
  - **ART's Impact on Survival:** Is there a clear link between increased ART coverage and reduced HIV-related mortality? What regional factors might influence ART effectiveness?
- **Data Considerations and Emerging Challenges:**
  - **Data Integrity:** Are there concerns about the reliability and comprehensiveness of the dashboard's data sources? What potential biases or limitations might affect the interpretation of the findings?
  - **HIV Variant Tracking:** How does the dashboard account for new HIV strains and their potential effects on treatment efficacy? Is there regional data available on the prevalence of these emerging variants?

Conclusion:

**The global HIV/AIDS epidemic continues to be a significant public health challenge, particularly in certain regions.** Despite progress in antiretroviral therapy and prevention efforts, disparities in prevalence and access to treatment persist.

**Africa remains the region most heavily affected by HIV/AIDS,** with a disproportionate number of people living with the virus and new infections.

**Youth are at particular risk,** with a significant portion of new infections occurring among individuals aged 15-49.

**Antiretroviral therapy (ART) coverage has increased in many regions,** leading to improved outcomes for people living with HIV. However, there are still significant gaps in access to treatment, particularly in lower-income countries.

**Addressing the global HIV/AIDS epidemic requires a multifaceted approach** that includes prevention strategies, expanded access to treatment, and addressing underlying social and economic factors.