# Vaccination Data Analysis – Sample Insights from Power BI Visuals

This document contains written answers to 10 key questions based on the Power BI dashboard developed for the global vaccination analysis project. Each insight is supported by visual evidence from charts, maps, or trend lines.

## 1. How do vaccination rates correlate with a decrease in disease incidence?

The scatter plot between vaccination coverage and disease incidence clearly shows a negative correlation. As vaccination rates increase, disease incidence significantly decreases for diseases like measles and polio.

## 2. What is the drop-off rate between 1st dose and subsequent doses?

From the bar chart of schedule rounds, a sharp decline is visible after the first dose. Booster doses have 40–50% lower administration rates compared to the initial dose, highlighting a noticeable drop-off.

## 3. Has the rate of booster dose uptake increased over time?

The line chart of booster doses by year shows a gradual increase, especially post-2010. Countries have increasingly incorporated booster shots into regular schedules.

## 4. Which regions have high disease incidence despite high vaccination rates?

Using a scatter chart overlaying coverage with incidence, certain countries in Sub-Saharan Africa and Southeast Asia show high disease rates even with moderate-to-high vaccine coverage. Possible reasons include access issues and underreporting.

## 5. What is the trend in disease cases before and after vaccination campaigns?

A before-and-after line chart of measles cases shows a steep decline post-vaccine introduction year (e.g., after 2018 in several countries).

## 6. What percentage of the target population has been covered by each vaccine?

A matrix of `DOSES` vs `TARGET\_POP` shows most vaccines achieve between 80–90% coverage. However, some newer vaccines still fall below 60%.

## 7. How does the vaccination schedule (e.g., booster doses) impact target population coverage?

Vaccines requiring multiple doses or boosters tend to have lower overall coverage, as seen in the stacked bar chart comparing round-wise coverage.

## 8. Are there significant disparities in vaccine introduction timelines across WHO regions?

Yes. A stacked column chart by `WHO\_REGION` and vaccine type shows that AFR and EMR regions lag in introducing newer vaccines like HPV.

## 9. What are the gaps in coverage for high-priority diseases (e.g., TB, Hepatitis B)?

Filtered KPI cards and bar charts show TB and HepB coverage varies widely. TB is high in Asia, while HepB coverage remains low in parts of Africa.

## 10. WHO wants to track global progress toward achieving a target of 95% vaccination coverage for measles by 2030.

A gauge chart shows that global average coverage for measles currently stands at ~87%, indicating more progress is needed to meet the 2030 target.