**Healthcare Summary Report**

**Problem Statement:** This project aims to analyze healthcare patient data to explore the relationship between diabetes, age, BMI, and blood pressure levels. Using Tableau, a summary dashboard is built to visually represent the distribution of diabetic vs non-diabetic patients, BMI trends by age group, and the prevalence of blood pressure categories. The goal is to identify at-risk groups and support data-driven healthcare planning for better patient outcomes.

**Introduction:**

The rising incidence of chronic conditions like diabetes and hypertension has placed a significant burden on healthcare systems worldwide. Understanding the demographic and physiological factors associated with these conditions is crucial for early intervention and effective management. This project leverages a real-world healthcare dataset containing patient metrics such as age, BMI, glucose levels, blood pressure, and diabetes outcomes. Using Tableau, an interactive summary dashboard was developed to uncover patterns across various patient segments. The visual analysis focuses on identifying trends related to diabetes prevalence, BMI distribution by age, and the correlation between blood pressure and diabetic classification.

**Summary**

The healthcare summary dashboard provides a comprehensive view of patient health metrics and highlights correlations between chronic health conditions and demographic variables. The key findings include:

1. **Diabetes Distribution:**
   * Out of 768 patients, 268 are diabetic and 500 are non-diabetic.
   * Diabetic cases are strongly associated with elevated or high blood pressure categories, emphasizing the need for blood pressure monitoring in diabetic care.
2. **BMI Analysis:**
   * Over 61% of patients fall into the obese category, followed by 23% overweight and 13% with a healthy weight.
   * The age group 40–44 shows the highest average BMI (35.06), indicating mid-life as a critical window for weight-related intervention.
   * BMI steadily declines after age 50, potentially reflecting changes in lifestyle, diet, or health conditions in older age.
3. **Blood Pressure Insights:**
   * Most diabetic patients fall into the “Elevated” or “High” blood pressure categories, whereas non-diabetic patients are more likely to have normal readings.
   * This supports a strong correlation between diabetes and hypertension, which can guide preventive screening strategies.
4. **Age-Based Health Metrics:**
   * Averages for glucose, insulin, and skin thickness vary widely across age bins.
   * Younger groups (20–34) show higher insulin and skin thickness levels, while older age bins exhibit a decline.
   * The 55–59 group shows a spike in average insulin (93.8), suggesting this as another risk-prone segment worth closer examination.
5. **Overall Health Risk Patterns:**
   * The visualizations collectively reveal that middle-aged adults (35–54) are at the highest risk for obesity, elevated blood pressure, and diabetes.
   * Younger patients tend to have higher glucose and insulin variability, while older adults show lower values but are not exempt from chronic risks.

**Conclusion**

This healthcare data analysis highlights significant correlations between BMI, blood pressure, age, and diabetes prevalence. The dashboard provides clear evidence that middle-aged individuals, particularly those with elevated BMI and blood pressure, are at higher risk of developing diabetes. These insights can guide early screening, targeted lifestyle interventions, and resource prioritization to improve patient outcomes. By visualizing complex data in a clear and interactive format, this project supports informed, data-driven decision-making in healthcare management.