Using Data Science to Investigate the Relationship Between Political Party Leadership and Vaccination Coverage in the United States

In recent years, political identity has become one of the strongest predictors of how Americans view facts, assess risks, and trust public institutions. This shift has profound implications that extend far beyond election outcomes. For example, politics continues to deeply affect public health policy and sentiment. According to recent polling, 86% of Americans believe that political parties are more focused on defeating each other than on solving real problems. One alarming public health trend is the decline in vaccination rates in the United States across both childhood and adult immunization schedules, which has drawn serious concern from organizations like the CDC and the World Health Organization.

The convergence of these two trends raises an important question: Is political polarization influencing health behaviors? As misinformation spreads faster than ever and partisan divisions continue to widen, understanding the relationship between political climate and public health decisions is critical. If political leadership and context are shaping whether people choose to vaccinate, that has major implications for how we design health communication, craft policy, and prepare for future public health challenges.

This case study places you in the role of a data analyst tasked with exploring this exact question. Your job is to investigate whether shifts in political leadership, specifically, changes in the presidential party correspond with observable changes in national vaccination coverage of two common vaccines.

The Deliverable:

Using the GitHub repository materials, you will conduct an exploratory analysis of vaccination trends over time and evaluate how these trends align with changes in presidential party leadership. You should consider confounding variables, evaluate the strength of any relationships you find, and think critically about what these patterns might mean for public health strategy going forward. You'll produce a comprehensive, data-driven report with your audience as public health policymakers who need insights to inform their decisions, but who probably do not have a deep background in data science.

GitHub Repository: https://github.com/anikatrip/CS2-DS4002