Predicting H1N1 Vaccination Status:

Improving Public Health Campaigns

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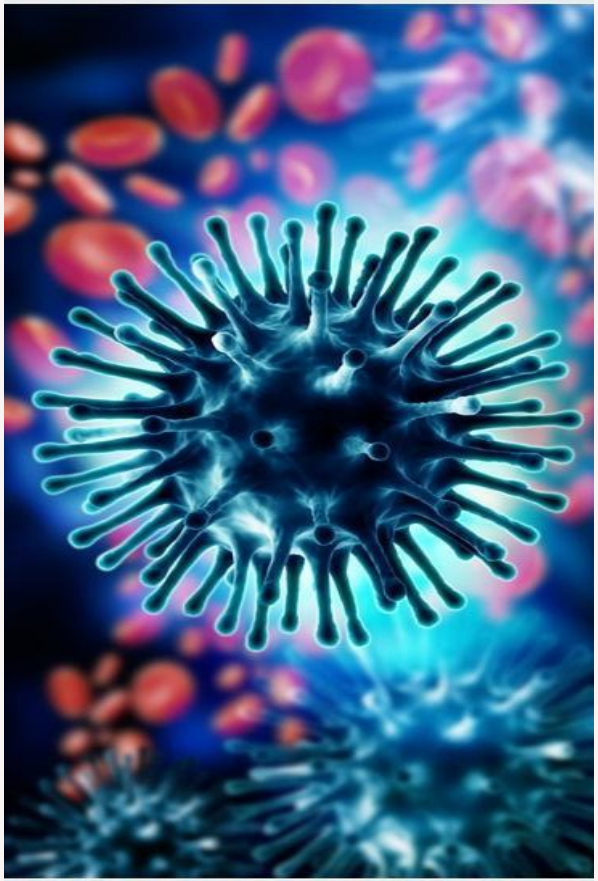
Outline

- Public Health Perspective
- Goals
- Data
- Methods
- Results
- Recommendations
- Next Steps

Public Health Perspective

- The personal factors that affect vaccination behaviour
- Understanding vaccination patterns from past pandemics can improve future vaccination
- Decrease outbreaks



GOALS

- Build an accurate H1N1 vaccination prediction model

- Find the most important demographic, behavioral, and health features affecting vaccination status

The Data

The National Flu Survey (NHFS, 2009)

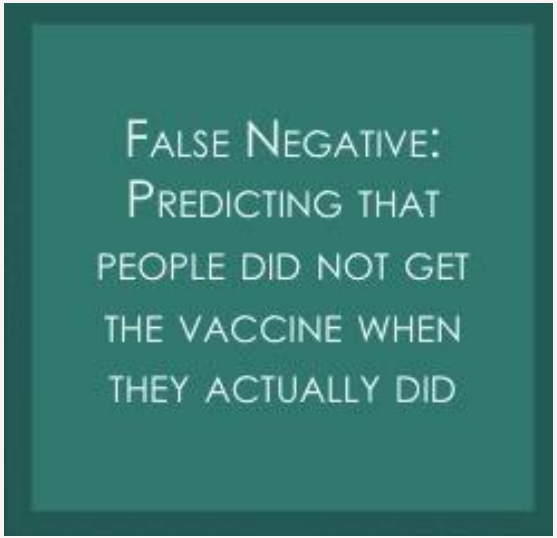
26,000 Respondents

79% Did not Get the Vaccine

35 Unique Factors

Modeling Context

Big Problem

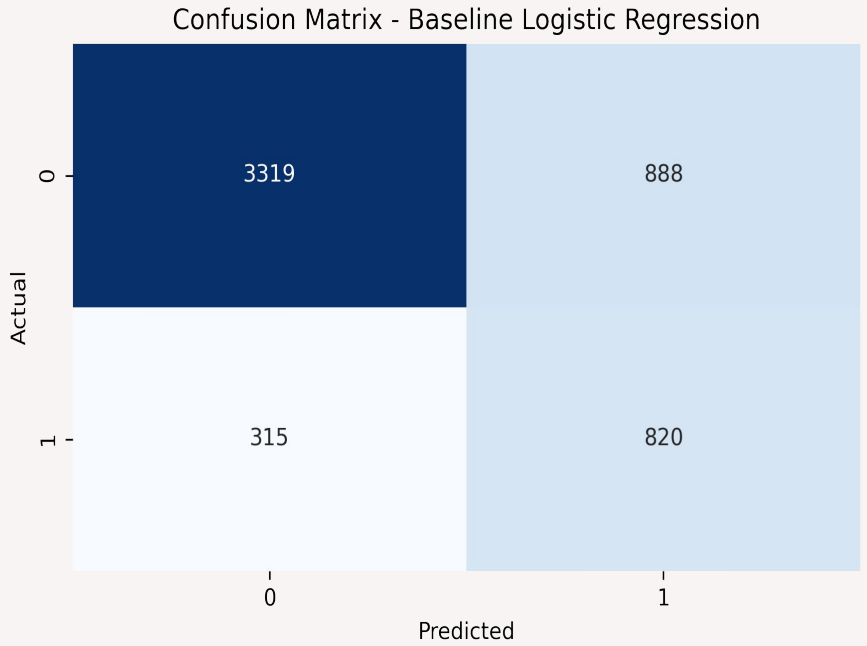


Not a Big Problem

Model & Results

Logistic Regression

77% Accuracy



Top 4 Important Features

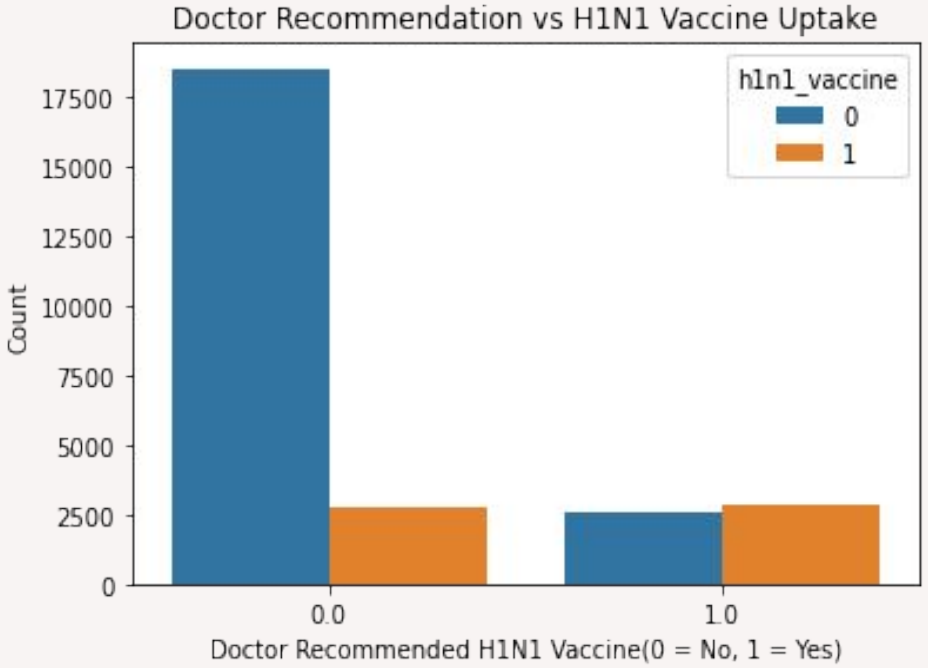
Doctor Recommendation of H1N1 Vaccine

Health Insurance Access

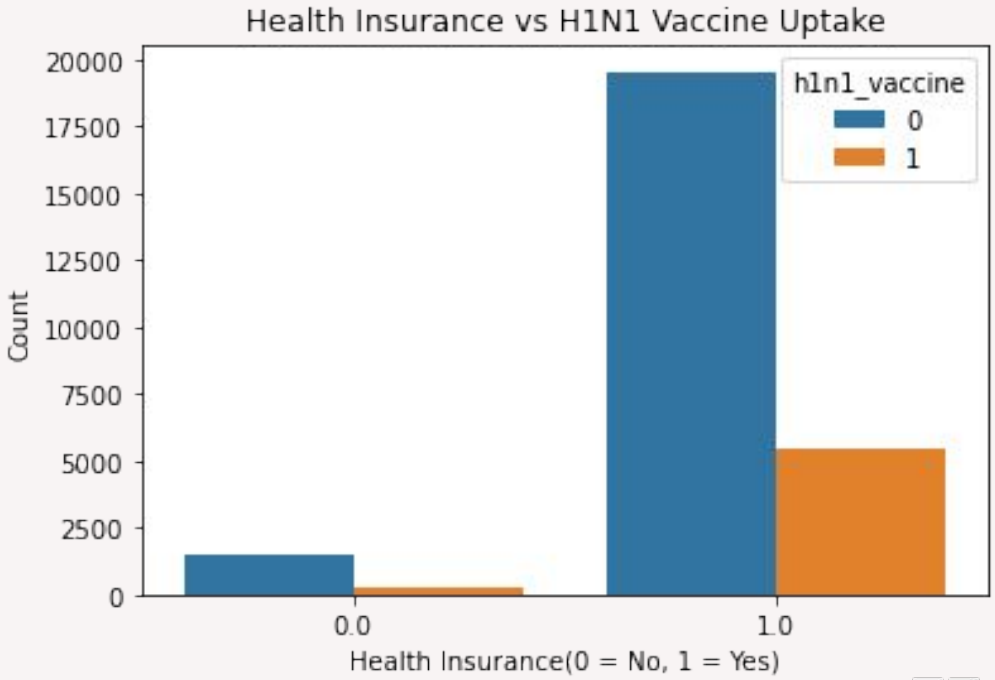
Opinion on H1N1 Vaccine Effectiveness

Opinion on H1N1 Risk

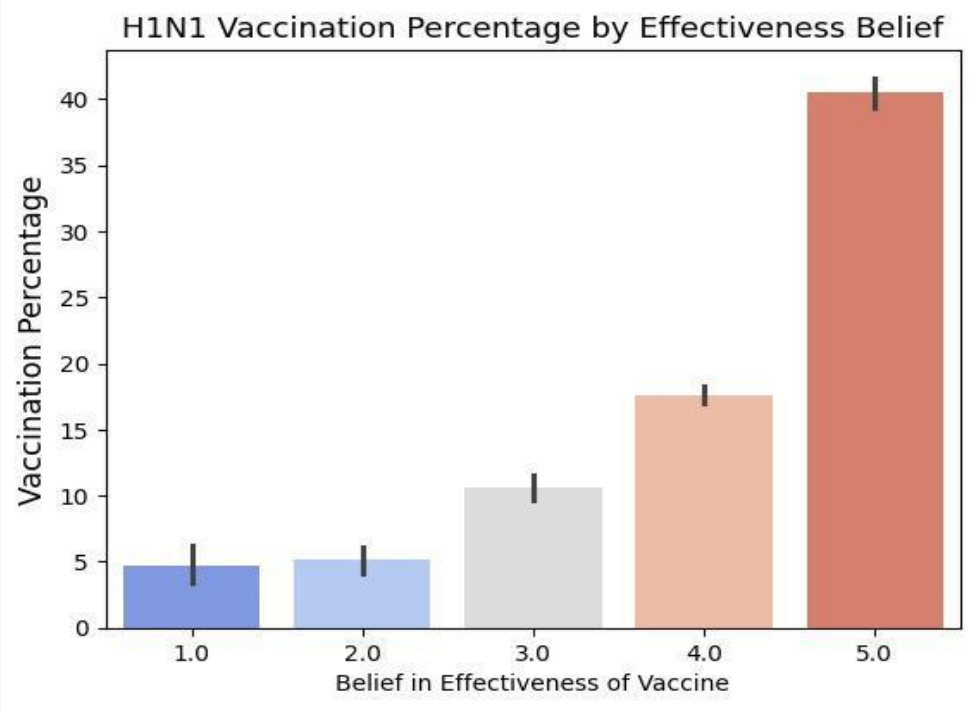
Data Visualizations: Doctor Recommendation



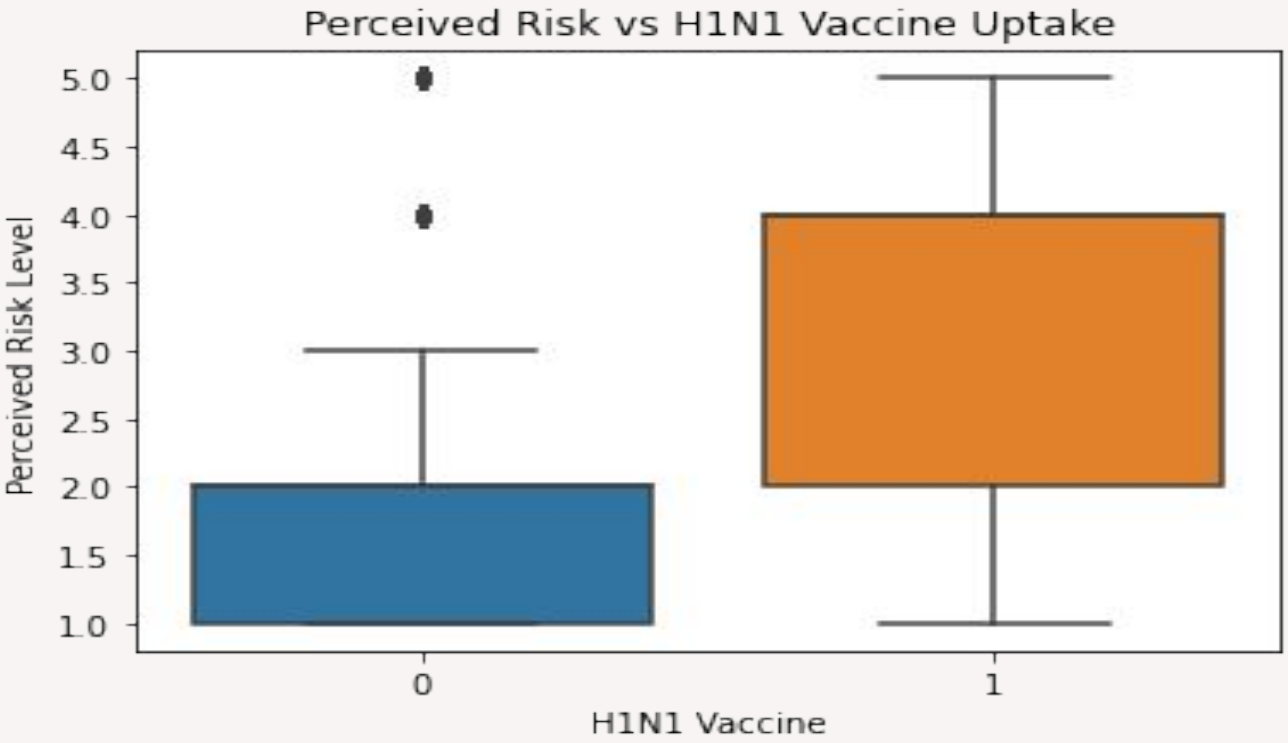
Data Visualizations: Health Insurance

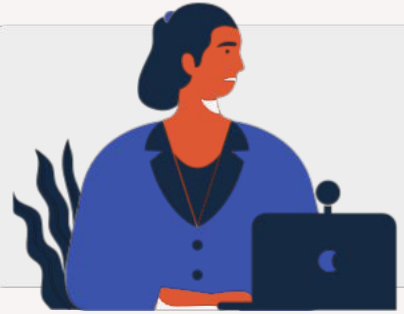


Data Visualizations: Belief in H1N1 Vaccine Effectiveness



Data Visualizations: H1N1 Risk Perception





Recommendations

Doctor Recommendations

Reduce Perceived Barriers & Risks

Educational Outreach to Address Misconceptions

Connecting with Stakeholder Needs:

- Supports data-driven vaccination strategies
- Identifies groups less likely to vaccinate
- Helps target outreach and reduce vaccine hesitancy
- Informs efficient use of public health resources

Next Steps

What to do

Recent Survey Data

Diverse and recent data

More Feature Engineering

Improve Accuracy

Seasonal Vaccine Prediction

Enhance and Generalize Model

THANK YOU