

Vaccination Analysis

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Summary

The government wants to raise the h1n1 vaccination rate by reaching out to people without vaccination.

- Type of people with less vaccination
- Interpretation of findings

Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions

Business Problem

- A survey to study and to increase h1n1 vaccination rate
- To understand people without vaccination
- Features impacting a low vaccination rate

Data

- National 2009 H1N1 Flu Survey
- More than 26,000 responses
- Over 30 questions / features
 - Vaccination status
 - Demographics
 - Age
 - Gender
 - Race
 - Region
 - Knowledge level and opinion of h1n1 vaccine
- Multiple-Choice

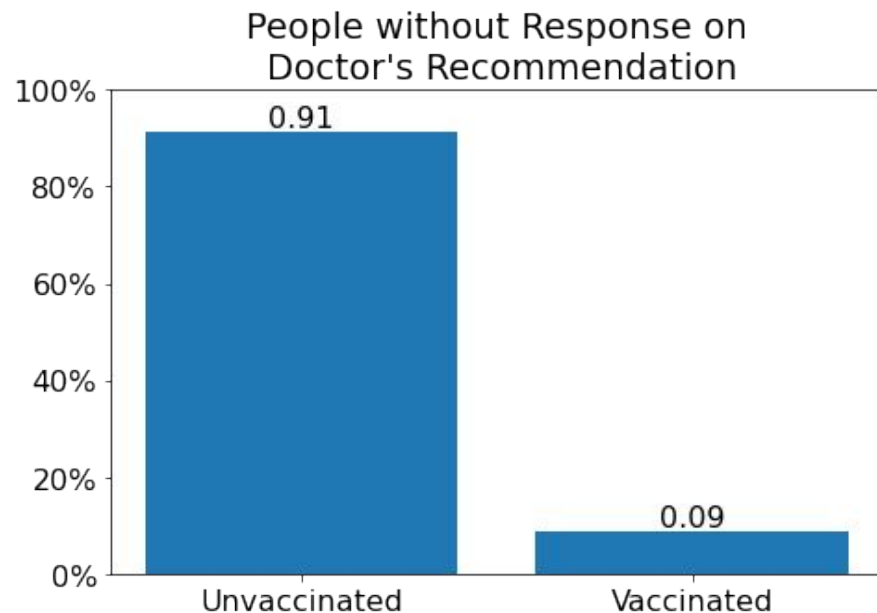
Methods

Classification

- True or false
 - True - vaccinated
 - False - not vaccinated
- Research on each feature of respondents
 - True and false ratio by gender
 - True and false ratio by knowledge level of vaccine
- Combine all information to pick the most important features

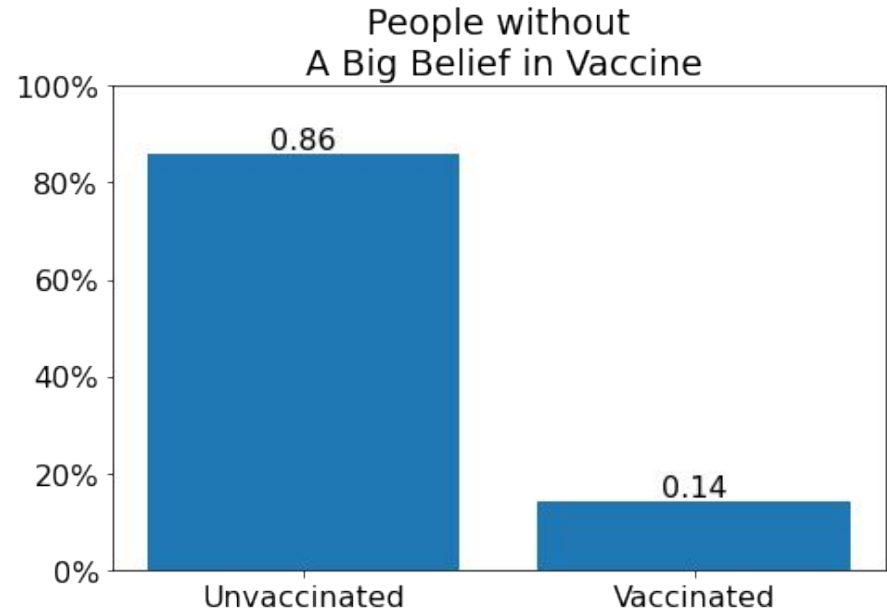
Results

- People who did not respond if they had a doctor's recommendation on h1n1 vaccine
- 91% without vaccination



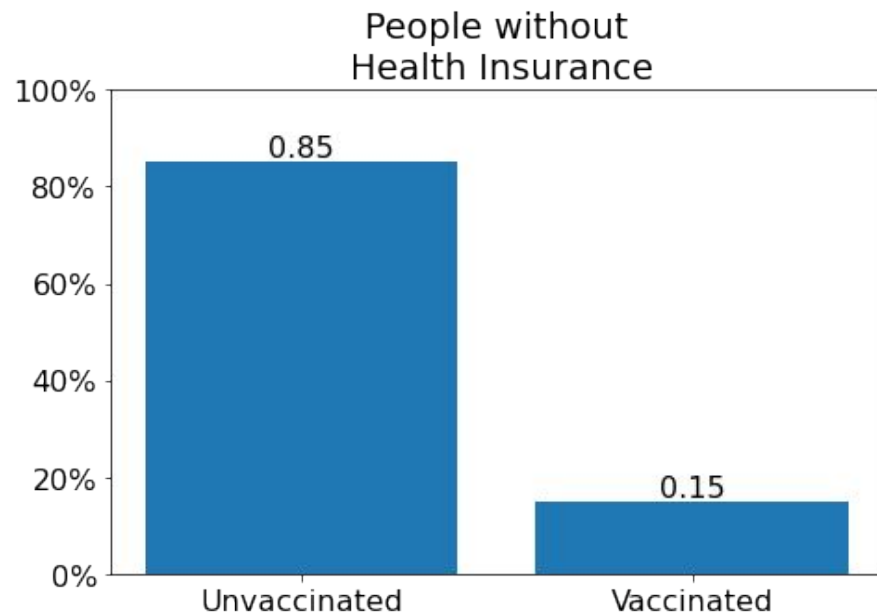
Results

- People who do not think h1n1 vaccine is very effective
- 86% without vaccination



Results

- People without health insurance
- 86% without vaccination



Conclusions

- **People without a response to a doctor's recommendation question have the lowest vaccination rate.**
- **People without health insurance tend not to get vaccinated.**
- Using the above two statements, we can see that people who do not pay much attention to their medical status tend not to get vaccinated.
- **People who do not strongly believe in the H1N1 vaccine tend not to get vaccinated.** It is important to find a way to let people know that the H1N1 vaccine is safe and effective.
- It seems demographics (gender, race, region, etc) have a lower impact on the analysis

Nest Steps

Further analysis could help the government gain more insight into understanding people without vaccination.

- **Pruning some features.** The survey already has more than 30 questions. We can try to narrow it down to around 10 or more specific features the government is interested in.
- **More research on missing values.** Most of the missing values are marked as "unknown" or "N/A". If needed, the missing values can be assigned with one of the available options in each question.
- **Investigation on the correlation between questions.** It seems people with more medical activities have a higher vaccination rate. For example, one who visits a doctor regularly and knows health insurance status tends to get vaccinated. Understanding of correlation might help go further in the analysis.

Thank You!

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