Vaccination Analysis

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Summary

Health organizations including CDC is interested in raising the h1n1 vaccination rate by reaching out to people without vaccination.

- Types/categories of people with less vaccination rate
- Interpretation of findings

Outline

- Business Problem
- Data
- Method
- Results
- Conclusions

Business Problem

- A federal survey to study and to increase h1n1 vaccination rate
- Expected vaccination rate - 21%
- To understand respondents without vaccination
- Features impacting a low vaccination rate
- Guide to help make decision

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

Method

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

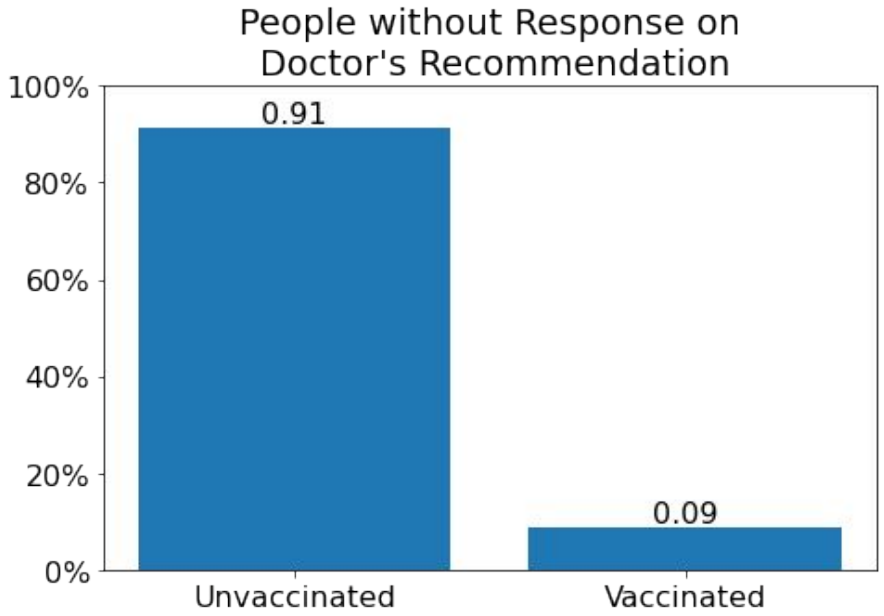
Method

- Expected percentage of respondents without vaccination - 79%
- Accuracy - 85%
- Focus on false rate
  - More people with no vaccination

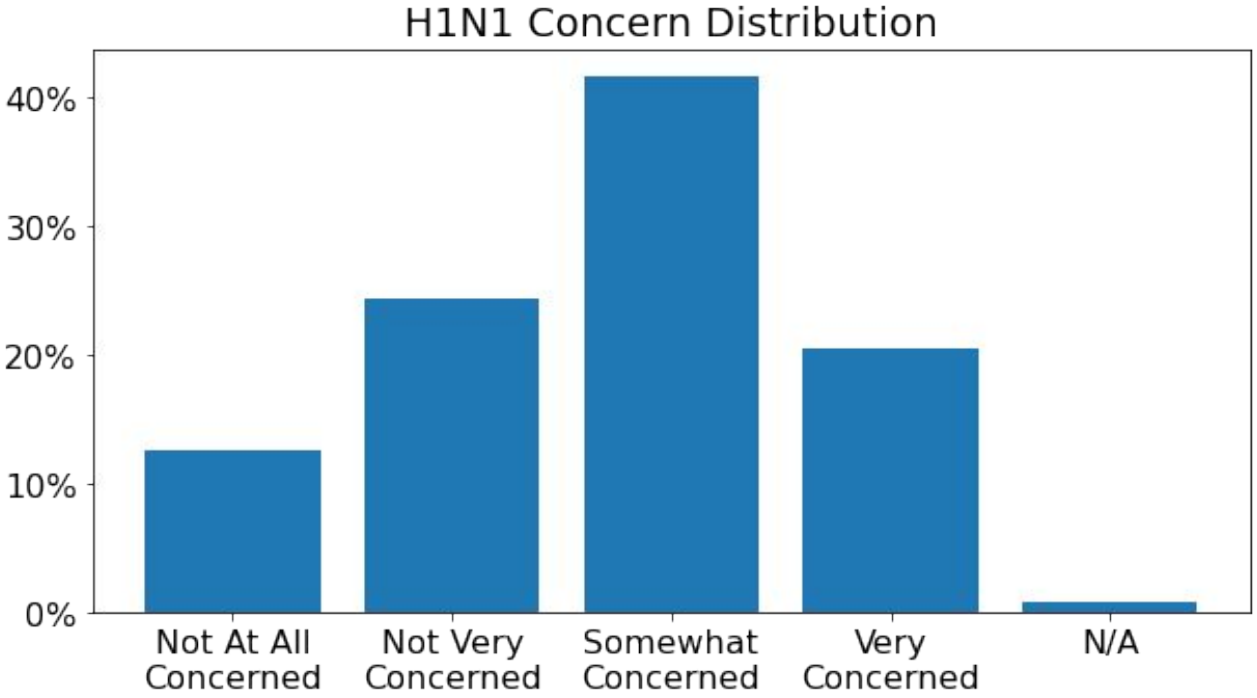
Results #1

- Respondents who did not respond if they had a doctor’s recommendation on h1n1 vaccine

- 91% without vaccination



Results #1 - Out of 91%



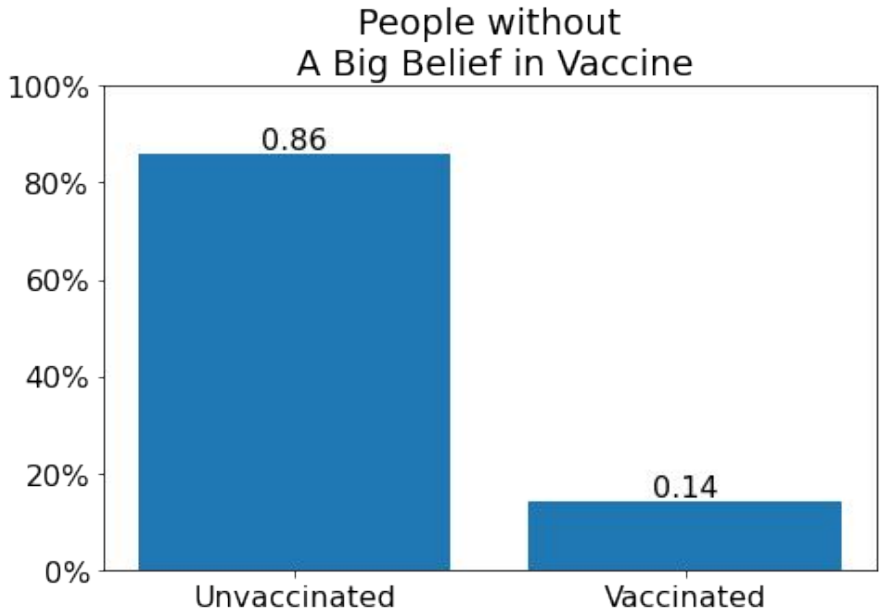
People with

1. No vaccination
2. No response to doctor's vaccine recommendation

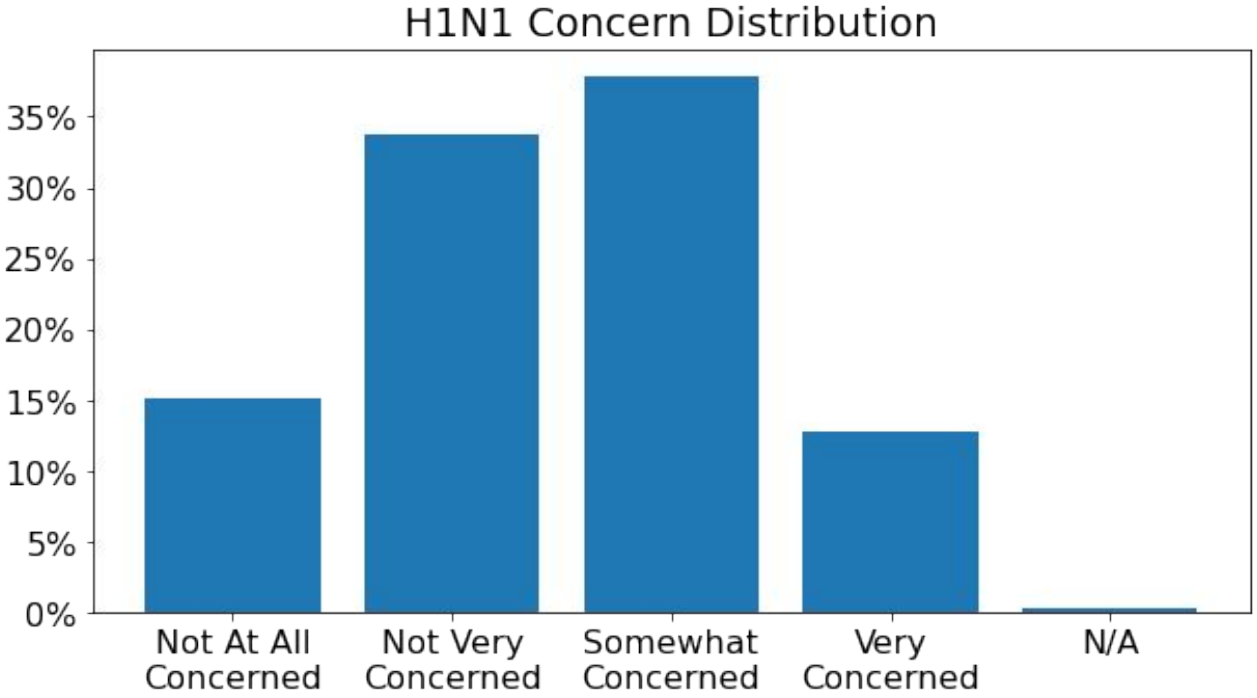
Results #2

- Respondents who do not think h1n1 vaccine is very effective

- 86% without vaccination



Results #2 - Out of 86%

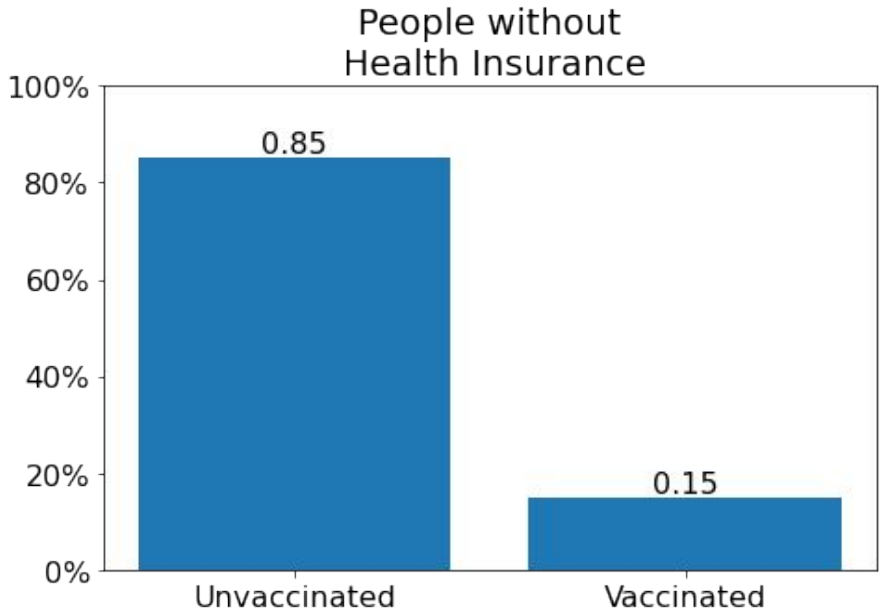


People with

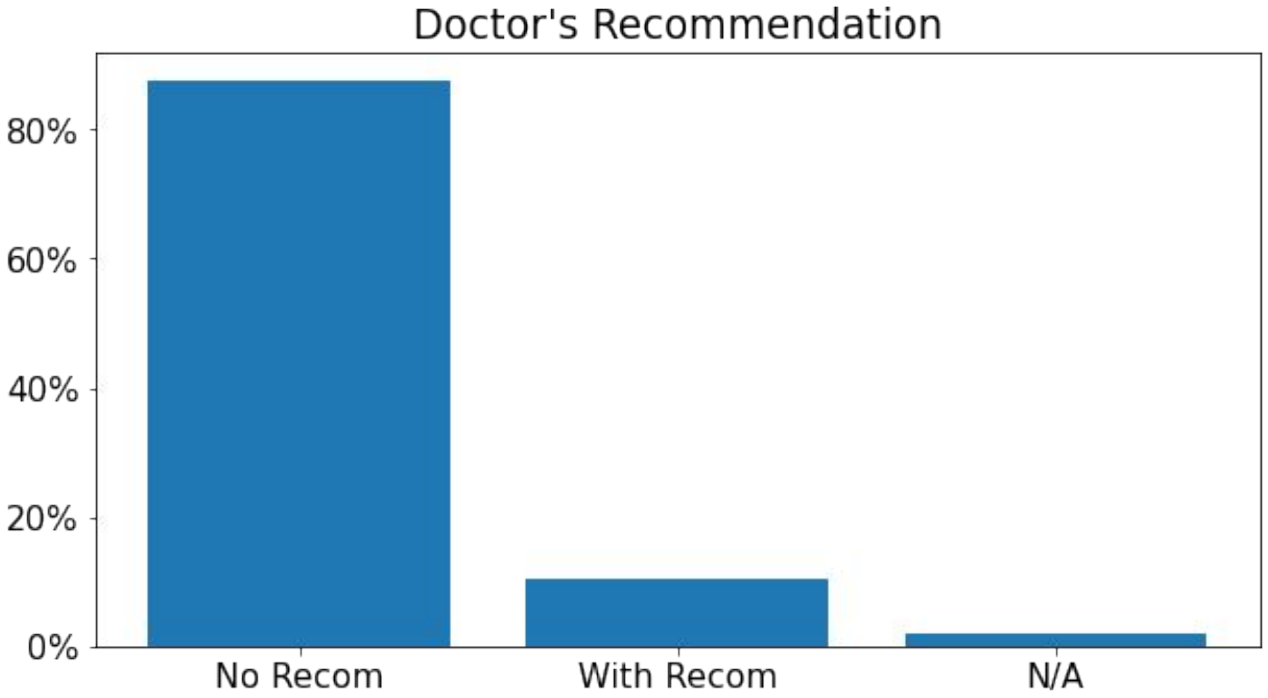
1. No vaccination
2. No strong belief on vaccine

Results #3

- Respondents without health insurance
- 85% without vaccination



Results #3 - Out of 85%



People with

1. No vaccination
2. No health insurance

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 assume 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.
- Based on two graphs on vaccination concern, people are generally concerned about getting the vaccination regardless of response to the questions.
- It seems demographics (gender, race, region, etc) have a lower impact on the analysis

Next 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 we are more interested in.
- **Select demographics for the analysis.** The results do not have much information on demographics. Run the analysis again using only demographics.
- **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.

Thank You!

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