

Seasonal Flu Vaccine Analysis

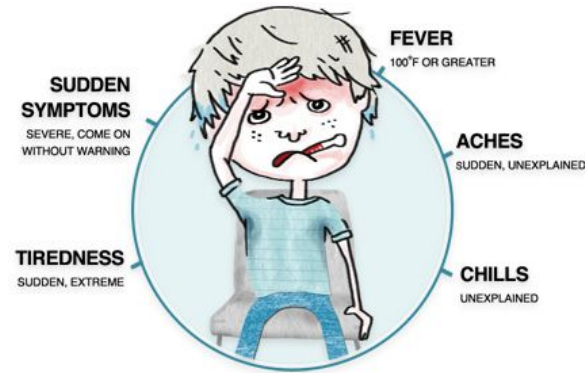
Completed for the CDC Public Outreach Team

By Rachel Fein

Summary

An analysis was performed on the 2009 National Flu Survey with the intent to give recommendations to the CDC on the features that were most impactful on predicting whether a person was vaccinated. Interpretation of the binary classification model led to the following findings:

- Doctors recommending the vaccine to their patients, was the clearest connection the model found.
- A person's opinion on the Season Flu Vaccine was the most influential feature, yet the connection between model performance and interpretation is unclear at this stage in the investigation.
- The final model had a precision of 78% and an accuracy of 79% when predicting individuals who were vaccinated.



Outline

- Business Problem
- Data
- Methods
- Results
- Conclusions

Business Problem

The CDC public outreach team has inquired about the common factors of people who choose to get the seasonal flu vaccine. Knowing these factors, the outreach team hopes to get a better idea on who & what to focus on when trying to promote the seasonal flu vaccine.

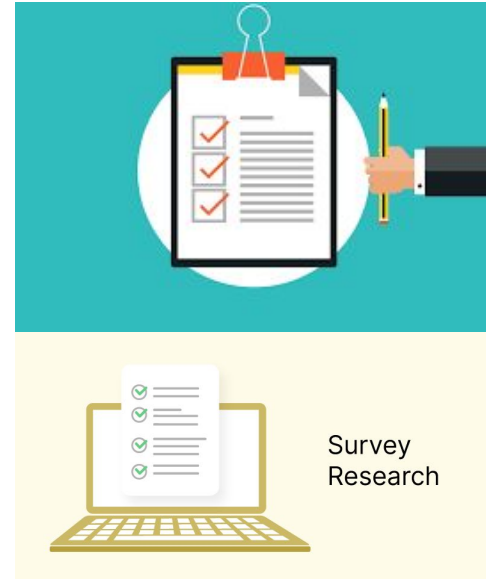
In response, this model uses the survey's data to find the most important features of those who choose to get vaccinated.

Data

The data used for this project was from the 2009 National Flu Survey.

The survey contained 30 questions pertaining to the Seasonal Flu.

The survey was taken by 26,707 people, all of which are used in this analysis.



Methods

This project used the national flu survey data to make a classification model. The model was used to find the features that the most impact on predicting if a individual was vaccinated for the seasonal flu or not.



A baseline model was made and then improved to raise the accuracy and precision of the model's predictions based on the survey responses.



High Accuracy
High Precision



Low Accuracy
High Precision



High Accuracy
Low Precision

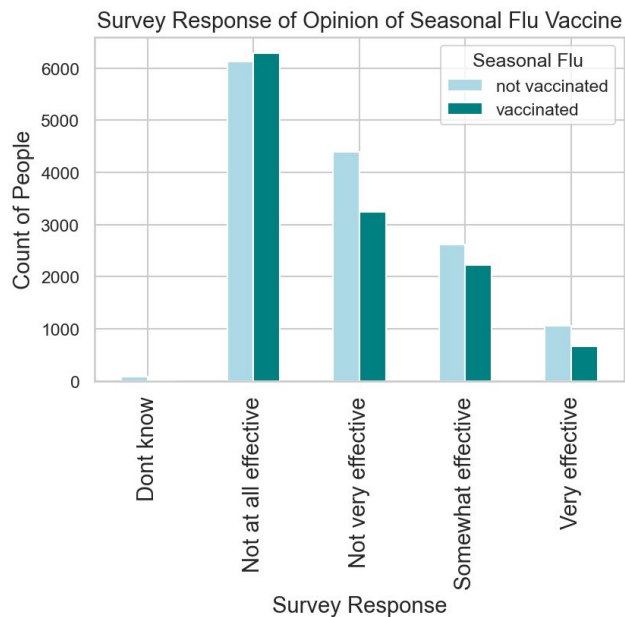
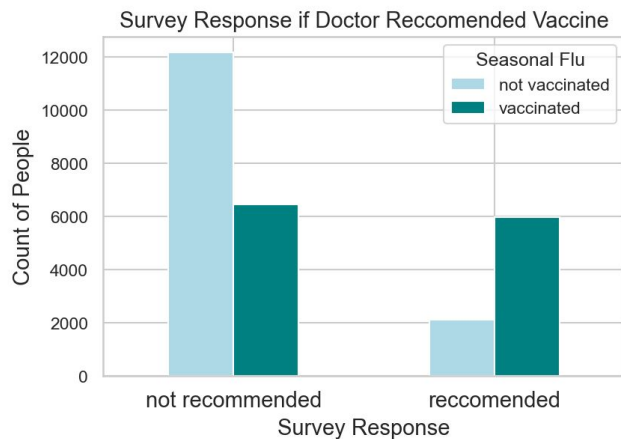


Low Accuracy
Low Precision

Results

The model found the survey responses that were most influential in predicting a vaccinated person:

- What is your opinion of the seasonal flu vaccine effectiveness? Response: Very Effective
- Were you recommended to get the seasonal flu vaccine by a doctor? Response: Yes.
- The model had a precision of 78% and was 79% accurate in predicting the vaccinated individuals



Conclusions

- I recommend the client consider ways they can gear their marketing efforts towards doctors recommending the vaccine, as that is the clearest connection the model found.
- At this stage in the investigation I do not advise the client to look for guidance in the survey responses for opinion on the seasonal flu vaccine.
- The final model had a precision of 78% and an accuracy of 79%. In response, this model should only be used a starting point in brainstorming what areas to further research when considering a marketing strategies.

Next steps:

- Consider analysing more data specific to doctors recommending the seasonal flu vaccine.
- Further tune the model using more modeling methods to raise the accuracy and precision.

Thank You!

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