

Vaccine Prediction

H1N1

Vanessa Hu / Project 3

Healthcare Committees

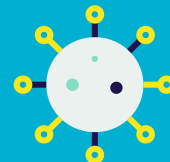
promote the awareness of upcoming Covid-19 vaccines

Who takes H₁N₁ vaccine ?

... and what are their reasons?

Data

- Data Source: [DrivenData.org](https://drivendata.org)
- 2009 National H1N1 Flu Survey
- 26000+ people, 38 questions



	Score	Roc Auc
Logistic Regression	85%	81%
Naive Bayes	58%	67%
KNN	81%	76%
SVC	85%	80%
Random Forest	85%	79%
Ada Boost	85%	81%
Cat Boost	38%	86%

product

product

Shorter Survey

product

Shorter Survey

Interpretation

product

Shorter Survey

Interpretation

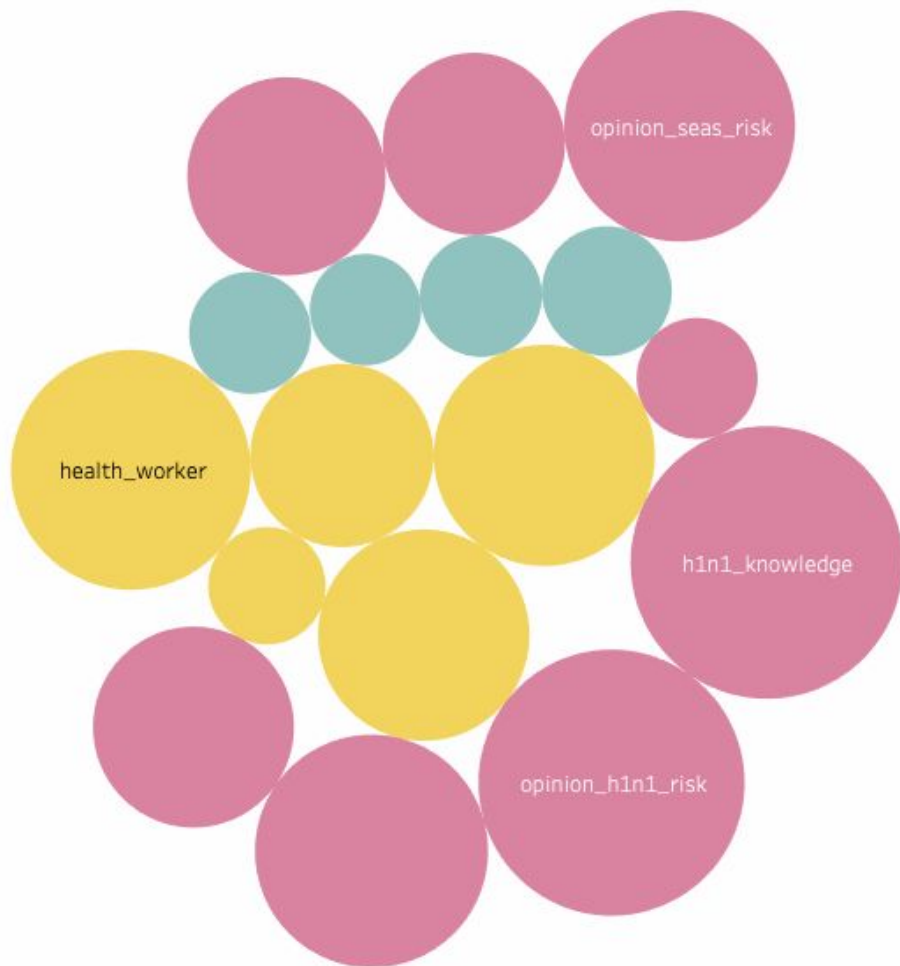
Fast Response



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Features

- doctor_recc_h1n1
- doctor_recc_seasonal
- seasonal_vaccine_0
- seasonal_vaccine_1
- health_worker
- age_group_55 - 64 Years
- education_College Graduate
- employment_industry_fcxhlnwr
- income_poverty_> \$75,000
- h1n1_concern
- h1n1_knowledge
- opinion_h1n1_risk
- opinion_h1n1_sick_from_vacc
- opinion_h1n1_vacc_effective
- opinion_seas_risk
- opinion_seas_sick_from_vacc
- opinion_seas_vacc_effective

Demographics

Age: 55 - 64 yrs old

Income: > \$75K

Education: College +

Healthcare

Doctor Recommendation
Took Seasonal Flu Vaccine or not
Whether a Health Worker or not

Opinions

Knowledge and Concern
Virus and Vaccine Risk
Vaccine Effectiveness
Sick from Vaccine

Demographics

Healthcare

Opinions



38 → 12

Logistic Regression

	precision	recall	f1-score	support
0	0.87	0.94	0.90	1561
1	0.81	0.66	0.72	641
accuracy			0.85	2202

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1	0.81	0.66	0.72	641
accuracy			0.85	2202
roc auc score:	88.11			
Train Score:	84.43%	Test Score:	85.25%	

Browse Files

Tool Input Parameters

- ☒ H1N1 Vaccine Recommended by Doctor?
- ☐ Seasonal Flu Vaccine Recommended by Doctor?
- ☐ Received Seasonal Flu Vaccine?
- ☐ Working in Healthcare Delivery?

Level of H1N1 Knowledge



Level of H1N1 Concern



Optimism to H1N1 Virus Being?



Will a Person get the H1N1 Vaccine?



Try the tool to predict whether a person will get the H1N1 vaccine using the information they shared about their healthcare background and opinions.

In Spring 2009, a pandemic caused by the H1N1 influenza virus ("Swine Flu"), swept across the world. A vaccine for the H1N1 flu virus became publicly available in October 2009. In late 2009 and early 2010, the United States conducted the National 2009 H1N1 Flu Survey. More details about this dataset and features are available at [OpenStax.org](https://openstax.org).

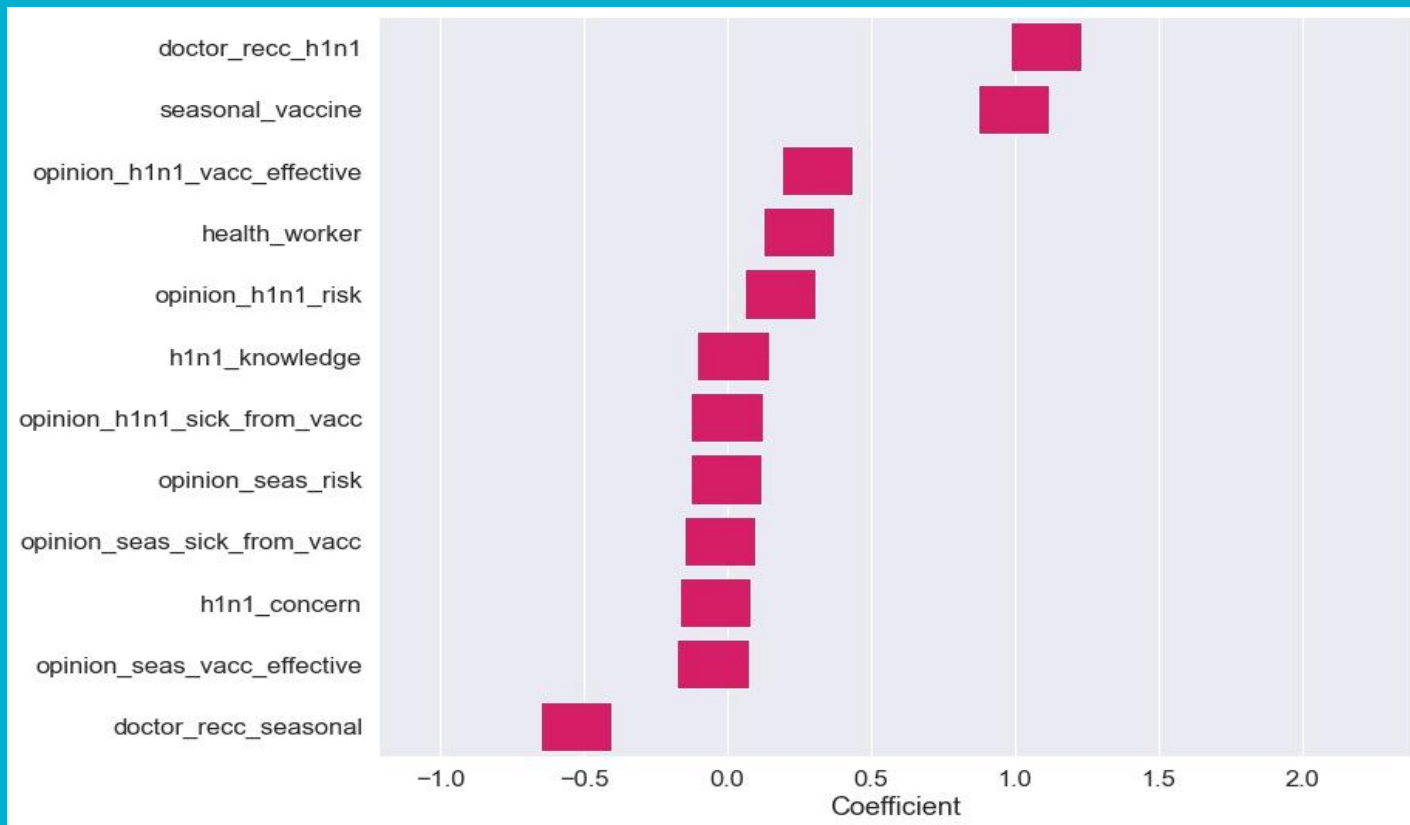
Based on the survey, the probability of getting the H1N1 Vaccine is:

49%

Future Work

- Predicting Season Flu Vaccine - could be an important proxy
- Geo data is encrypted - more demographics data to explore
- A/B Testing - Tool Design and Feedback Loop

Appendix



Appendix

