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Christian M. Martinez  
*Georgia Southern University*

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# **Perceptions and Knowledge of Influenza Vaccination Amongst University Students**

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in the School of Nursing.

By  
Christian Martinez

Under the mentorship of Dr. Margaret Mossholder

## **ABSTRACT**

Commonly known as “the flu”, influenza is a contagious respiratory infection that causes mild to severe illness. The CDC recommends annual influenza vaccination as the best method for prevention of the illness. This study was conducted to analyze university students’ perceptions and knowledge of influenza as well as influenza vaccination. A survey was completed by 284 Georgia Southern University students. This research found university students to possess basic knowledge of influenza and its implications for one’s health. However, the study found that university students lack some knowledge of influenza vaccination, and many university students did not seem to perceive influenza vaccination as highly valuable. The study also found cost; gender; ethnicity; personal or family history of influenza infection; and health status to be factors influencing university students’ perceptions of, knowledge of, and experiences with influenza and influenza vaccination.

Thesis Mentor: \_\_\_\_\_

Dr. Margaret Mossholder

Honors Director: \_\_\_\_\_

Dr. Steven Engel

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University Honors Program  
**Georgia Southern University**

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Perceptions and Knowledge of Influenza Vaccination  
Amongst University Students

The Centers for Disease Control and Prevention (CDC) defines influenza (the flu) as “a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. It can cause mild to severe illness, and at times can lead to death” (Centers for Disease Control and Prevention [CDC], 2015a, p. 1). The illness can cause a range of symptoms including fever; chills; cough; sore throat; runny or stuffy nose; muscle or body aches; headaches; and fatigue (CDC, 2015a, p. 1). Influenza is contagious, and “most experts believe that flu viruses spread mainly by droplets made when people with flu cough, sneeze or talk” (CDC, 2015a, p. 1). The infection is most often contagious during the period between one day before the onset of symptoms and five or seven days after the individual becomes sick (CDC, 2015a, p. 1). Therefore, a person may infect another with the flu before they even realize that they are infected. The influenza illness circulates heavily each year during “flu season” in the United States, during which the number of infections is much greater than during the rest of the year. “‘Flu season’ in the United States can begin as early as October and last as late as May” (CDC, 2015a, p. 1).

“Complications of flu can include bacterial pneumonia, ear infections, sinus infections, dehydration, and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes” (CDC, 2015a, p. 1). These complications have caused high rates of mortality, specifically during influenza pandemics such as the Spanish flu (1918-1919), the Asian flu (1957), and the 2009 flu pandemic in North America. These pandemics and annual flu seasons have led to thousands and even millions of deaths

(CDC, 2016; Taubenberger & Morens, 2006).

The CDC (2015a) cites the flu vaccine as the best way to prevent the illness. The CDC encourages everyone six months and older to receive the influenza vaccine every season once the vaccine is released (CDC, 2015a, p. 2). Although it is ideal that the vaccine be received by October, receiving the vaccine may prove effective as long as the illness is still spreading around the population (CDC, 2015a, p. 2). Health departments, doctor's offices, and pharmacies are a few of the locations where the influenza vaccine may be received (CDC, 2015b, p. 2).

The influenza vaccine is encouraged every season because "the body's immune response from vaccination declines over time" and the influenza virus is constantly evolving in order to survive through continued replication and infection (CDC, 2015b, p. 2). Although the individual may still be infected with influenza after receiving the vaccination, the vaccine "reduces the severity of the infection in cases in which it does not provide total prevention" (VanMeter & Hubert, 2014, p. 109).

Several studies conducted during previous flu seasons have found the influenza vaccine to be moderately to significantly effective against strains of the virus in the United States (Caspard et al., 2016; McLean et al., 2015; Treanor et al., 2012). Despite numerous studies finding evidence of the effectiveness and safety of vaccines, vaccine refusal has significantly increased in the United States in the last decade and is linked to outbreaks of illnesses such as pertussis and measles (Dunn, Leask, Zhou, Mandl, & Coiera, 2015). With epidemiologists predicting "that serious [influenza] pandemics will occur in the future," it is very important that the influenza virus be continuously opposed with preventive measures such as vaccines (VanMeter & Hubert, 2014, p. 108).

“Annual influenza vaccine coverage for young adults (including college students) remains low,” even though “college students are at high risk for influenza morbidity given close living and social spaces and extended travel during semester breaks when influenza circulation typically increases” (Bednarczyk et al., 2015). It is arguable that it is important to encourage university students, the future world leaders and professionals, to support vaccination and receive available vaccines. To support increased uptake of influenza vaccination by university students, it is first necessary to know university students’ perceptions and knowledge of influenza and its vaccine.

### **Purpose**

Limited research exists on university students’ perceptions and knowledge of influenza and its vaccine. The purpose of this study is to identify university students’ perceptions and knowledge of influenza as well as influenza vaccination. What factors may influence a student’s perceptions and knowledge of influenza and influenza vaccination? How many students have received the vaccine, and what influenced them to receive it? Would cost influence students’ willingness to receive the vaccine? This study aims to also address these questions and others.

### **Theoretical Framework**

This study is inspired by the theoretical work of Neuman, whose “Systems Model emphasizes the importance of accuracy in assessment and interventions that promote optimal wellness using primary, secondary, and tertiary prevention strategies” (Potter, Perry, Stockert & Hall, 2013, p. 734). Primary prevention involves interventions, such as “health education programs, immunizations, and physical and nutritional fitness activities,” that reduce the risk of a disease occurring (Potter et al., 2013, p. 71). This

study specifically explores the primary prevention method of influenza vaccination. This study is conducted to gather information that may help to promote this primary prevention strategy.

## **Methods**

### **Design**

This study was approved by the institutional review board (IRB) of Georgia Southern University. A survey was completed voluntarily by Georgia Southern University students, aged 18 and above (see Appendix to view the survey questions). Access to these students was gained through the permission of several university faculty members. Data was collected in several classrooms during the month of February 2017.

The students were requested to provide factual and honest information. Students were also asked to complete the survey in its entirety if they chose to participate. The questions were carefully worded to make them easily understandable. The students were also encouraged to ask any questions at any point throughout the data collection process.

### **Ethical Considerations**

The students were provided instructions explaining that the survey was entirely voluntary with no penalty for not participating. The students were instructed that completing and returning the survey indicated passive informed consent. The students were given the option to deny participation by not returning the survey or by returning an incomplete survey. The students were instructed to refrain from placing their names or any other personally identifiable information on the survey. The participants' anonymity and confidentiality was maintained by having the students return the survey to a box placed in the front of the classroom. A convenience sample of nearly 300 students was

collected. A goal of this study was to identify potential factors that may influence a student's perceptions and knowledge of influenza and influenza vaccination. Therefore, information regarding the students' gender, age, ethnicity, major, hometown, family medical history, personal medical status, knowledge, and influenza vaccination status was obtained.

### **Operational Definition of Concepts**

While the students were given the option to identify themselves as an "Other" gender, all participants indicated either "Male" or "Female" to be their gender. Students were also given the option to "Prefer not to respond" to the gender question. For the purposes of data analysis, individuals who indicated their ethnicity as solely "White/Caucasian" were referred to as non-minority, and those who indicated their ethnicity as "Black/African American", "Hispanic/Latino", "Asian", "Pacific Islander", or "Native American" were included in the minority category. Additionally, those who indicated multiple ethnicity options were included in the minority category. Knowledge of influenza and influenza vaccination was assessed through a series of "Yes" or "No" and "Agree" or "Disagree" questions (refer to Appendix to view a complete list of the survey questions).

### **Results**

This data was analyzed with use of the program IBM SPSS Statistics 23. Descriptive statistics were used to report demographic data as well as the frequencies of responses to the surveys questions. Cross tabulation and the chi-square test were used to identify any significant relationships in the data. Several students did not provide answers for some questions. When a student did not respond to a question, that student was not



included in the statistical analysis of the responses to that question. Additionally, there were several questions that did not apply to all the participants. When a question did not apply to a participant, that student was not included in the statistical analysis of that question.

A total of 284 students participated in the survey. The sample included 56 individuals who identified as males and 228 who identified as females. With a minimum age of 18 years old and maximum age of 45 years old, the mean reported age of the students was 20.0214 years old with a standard deviation of 2.30672 years. The sample included 179 non-minority students and 105 minority students.

Two hundred sixty-three students reported that their major fell under the healthcare field, and 21 students reported that their major did not fall under the healthcare field. One hundred fifty-eight students reported that their hometown was rural, and 124 students reported that their hometown was urban. Two hundred fifty-four students reported that they were medically insured, and 29 students reported that they were not medically insured. Two hundred eighteen students reported that themselves or someone in their family were infected with influenza at least once, and 63 students reported that neither themselves or anyone in their family had ever become infected with influenza. Nine students reported that they were immunocompromised, and 275 students reported that they were not immunocompromised.

While 97.2% of the participants, or 275 students, indicated that they believed that influenza is contagious, 2.8% of the students, or eight students, indicated that they did not believe that influenza is contagious. While 98.9% of the participants, or 281 students, indicated that they believed that influenza can lead to serious complications, 1.1% of the

participants, or three students, indicated that they did not believe that influenza can lead to serious complications. While 66% of the participants, or 186 students, indicated that they believed that one can become infected with influenza from the influenza vaccine, 34% of the participants, or 96 students, indicated that they did not believe that one can become infected with influenza from the influenza vaccine. While 89.8% of the participants, or 255 students, indicated that they believed that one can become contagious before symptoms appear, 10.2% of the participants, or 29 students, indicated that they did not believe that one can become contagious before symptoms appear.

While 70.4% of the participants, or 200 students, agreed that influenza outbreaks have historically led to millions of deaths, 29.6% of the participants, or 84 students, disagreed that influenza outbreaks have historically led to millions of deaths. While 56% of the participants, or 159 students, agreed that the influenza vaccine is the best way to prevent influenza, 44% of the participants, or 125 students, disagreed with the statement that the influenza vaccine is the best way to prevent influenza. While 53.5% of the participants, or 152 students, agreed that in order to receive the best protection, the flu vaccine must be received every year, 46.5% of the participants, or 132 students, disagreed with the statement that in order to receive the best protection, the flu vaccine must be received every year. While 93.3% of the participants, or 265 students, agreed that the elderly and very young are more likely to develop flu-related complications, 6.7% of the participants, or 19 students, disagreed with the statement that the elderly and very young are more likely to develop flu-related complications.

While 73.2% of the participants, or 208 students, indicated that they had received the influenza vaccine at least once, 26.8% of the participants, or 76 students, indicated

that they had never received the influenza vaccine. Table 1 provides a list of the places at which participants reported receiving the influenza vaccine. Table 2 provides information regarding how often the participants received the vaccination. Of the 208 students who reported that they had received the flu vaccine at least once, 71 students reported that they had received the most recent dose of the vaccine, which was defined as any dose given in the fall of 2016 or later.

**Table 1**

**If you answered yes to question #17, where have you received the flu shot?**

|         |                    | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------------------|-----------|---------|---------------|--------------------|
| Valid   | Doctor's office    | 90        | 31.7    | 43.7          | 43.7               |
|         | Pharmacy           | 10        | 3.5     | 4.9           | 48.5               |
|         | Flu Shot Clinic    | 3         | 1.1     | 1.5           | 50.0               |
|         | Hospital           | 6         | 2.1     | 2.9           | 52.9               |
|         | Health Department  | 8         | 2.8     | 3.9           | 56.8               |
|         | Other              | 8         | 2.8     | 3.9           | 60.7               |
|         | Multiple Locations | 81        | 28.5    | 39.3          | 100.0              |
|         | Total              | 206       | 72.5    | 100.0         |                    |
| Missing |                    | 78        | 27.5    |               |                    |
| Total   |                    | 284       | 100.0   |               |                    |

**Table 2**

**If you answered yes to question #17, how often have you received the flu vaccine?**

|         |                   | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-------------------|-----------|---------|---------------|--------------------|
| Valid   | A few times       | 83        | 29.2    | 40.5          | 40.5               |
|         | Every few years   | 44        | 15.5    | 21.5          | 62.0               |
|         | Almost every year | 52        | 18.3    | 25.4          | 87.3               |
|         | Every year        | 26        | 9.2     | 12.7          | 100.0              |
|         | Total             | 205       | 72.2    | 100.0         |                    |
| Missing |                   | 79        | 27.8    |               |                    |
| Total   |                   | 284       | 100.0   |               |                    |

When asked if they would pay about ten to thirty dollars for the influenza vaccine, 38% of the participants, or 108 students, reported that they would pay this amount to receive the vaccine. Ninety-six students, or 33.8% of the participants, reported that they would not pay this amount to receive the vaccine. Eighty students, or 28.2% of the participants, were undecided. When asked if they would receive the influenza vaccine if it were offered for free or completely paid for by insurance, 59.2% of the participants, or 168 students, reported that they would receive the vaccine. Seventy-one students, or 25% of the participants, indicated that they would not receive the vaccine. Forty-five students, or 15.8% of the participants, were undecided. Table 3 presents information regarding how participants responded to a question asking for their opinion of the influenza vaccination’s effectiveness.

**Table 3**

**In your opinion, how successful is the flu vaccine at preventing influenza infection?**

|         |                         | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-------------------------|-----------|---------|---------------|--------------------|
| Valid   | Completely unsuccessful | 5         | 1.8     | 1.8           | 1.8                |
|         | Not very successful     | 35        | 12.3    | 12.5          | 14.3               |
|         | Moderately successful   | 216       | 76.1    | 77.1          | 91.4               |
|         | Completely successful   | 24        | 8.5     | 8.6           | 100.0              |
|         | Total                   | 280       | 98.6    | 100.0         |                    |
| Missing |                         | 4         | 1.4     |               |                    |
| Total   |                         | 284       | 100.0   |               |                    |

A chi-square test of independence was calculated comparing whether male and female students had ever received the flu vaccine. A significant interaction was found ( $\chi^2(1) = 4.066, p = .044$ ). Males were more likely to have ever received a dose of the influenza vaccine (83.9%) than females (70.6%). Further chi-square tests of independence were performed comparing male and female students’ perceptions of,

knowledge of, and experiences with influenza and influenza vaccination. No other significant relationships were found.

A chi-square test of independence was calculated comparing whether non-minority and minority students believed that you can become contagious with influenza before symptoms appear ( $\chi^2(1) = 6.496, p = .011$ ). Non-minority students were more likely to indicate that they believed you can become contagious with influenza before symptoms appear (93.3%) than minority students (83.8%). A chi-square test of independence was calculated comparing whether non-minority students and minority students agreed that in order to receive the best protection, the flu vaccine must be received every year ( $\chi^2(1) = 5.138, p = .023$ ). Non-minority students were more likely to agree with this statement (58.7%) than minority students (44.8%). A chi-square test of independence was calculated comparing how often non-minority and minority students have received the influenza vaccine ( $\chi^2(1) = 9.255, p = .026$ ). Non-minority students were more likely to have received the vaccine more than a few times (66.7%) than minority students (46.6%). Further chi-square tests of independence were performed comparing non-minority and minority students' perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No other significant relationships were found.

Chi-square tests of independence were performed comparing students', with and without healthcare-related majors, perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No significant relationships were found.

Chi-square tests of independence were performed comparing students', with rural and urban hometowns, perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No significant relationships were found.

Chi-square tests of independence were performed comparing students', with and without medical insurance, perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No significant relationships were found.

A chi-square test of independence was calculated comparing whether students, who did or did not have a personal or family history of influenza infection, believed that influenza is contagious ( $\chi^2(1) = 10.116, p = .001$ ). Students who did have a personal or family history of influenza infection were more likely to believe that influenza is contagious (99.1%) than students who did not have a personal or family history of influenza infection (91.9%). A chi-square test of independence was calculated comparing whether students, who did or did not have a personal or family history of influenza infection, believed that one can become contagious before symptoms appear ( $\chi^2(1) = 5.086, p = .024$ ). Students who did have a personal or family history of influenza infection were more likely to believe that one can become contagious before symptoms appear (92.2%) than students who did not have a personal or family history of influenza infection (82.5%). A chi-square test of independence was calculated comparing whether students, who did or did not have a personal or family history of influenza infection, had ever received the influenza vaccination ( $\chi^2(1) = 10.288, p = .001$ ). Students who did have a personal or family history of influenza infection were more likely to have received the influenza vaccination at least once (77.5%) than students who did not have a personal or family history of influenza infection (57.1%).

Further chi-square tests of independence were performed comparing students', who did or did not have a personal or family history of influenza infection, perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No other significant relationships were found.

A chi-square test of independence was calculated comparing whether healthy and immunocompromised students had received the most recent dose of the influenza vaccine, which was defined as any dose given in the fall of 2016 or later ( $\chi^2(1) = 4.628$ ,  $p = .031$ ). Students who were immunocompromised were more likely to have received the most recent dose of the influenza vaccine (55.6%) than students who were not immunocompromised (24%). Further chi-square tests of independence were performed comparing healthy and immunocompromised students' perceptions of, knowledge of, and experiences with influenza and influenza vaccination. No other significant relationships were found.

### **Discussion**

With nearly all the participants having indicated their beliefs that influenza is contagious (97.2%) and can cause serious complications (98.9%), this study found that university students have basic knowledge of influenza. Their knowledge was further demonstrated through the high percentage of participants having indicated their belief that one can become contagious before symptoms appear (89.8%). However, it was concerning that only 66% of the participants indicated they believed one can become infected with influenza from the influenza vaccine. This highlights a need for greater education to be provided regarding the safety and efficacy of the influenza vaccine. This may be a symptom of a larger problem regarding the public's overall knowledge and

perceptions of all vaccinations; however, additional research is needed to investigate any potential trends.

Further inconsistency between university students' knowledge of influenza and perception of influenza vaccination was found. A respectable percentage of participants (70.4%) correctly agreed that influenza outbreaks have historically led to millions of deaths, and a high percentage of the students (93.3%) correctly agreed that the elderly and very young are more likely to develop flu-related complications. Conversely, only 56% of the participants agreed that the influenza vaccine is the best way to prevent influenza, and only 53.5% of the participants agreed that in order to receive the best protection, the flu vaccine must be received every year. This may indicate the need for more public education regarding the vaccine's importance and efficacy.

It is notable that 73.2% of the participants had received the flu vaccine at least once in their life, but only 34.1% of those students had received the most recent dose. A particularly small percentage of the participants (12.7%), who had ever received the vaccine, consistently received the vaccine every year. Education needs to be provided to the public regarding the importance of receiving the vaccine annually, which provides the best protection from influenza (CDC, 2015b). These findings are consistent with previous findings that "annual influenza vaccine coverage for young adults (including college students) remains low" (Bednarczyk et al., 2015).

Many of the participants received their influenza vaccination at a doctor's office. This correlated with the fact that many participants stated in an open response question that they received the vaccine because of a doctor's recommendation. These findings highlight the need for public health officials to provide continuing education to primary



care physicians regarding the importance and efficacy of influenza vaccination.

Many of the participants reported receiving the vaccine due to the recommendation or requirement of a parent or guardian, usually their mother. Many others reported that they received the vaccination as a requirement for employment, job shadowing, or a trip. This draws attention to the importance of providing parents and guardians with education regarding diseases and vaccines. It also highlights the value of having employers require certain preventative measures. Preventative medicine, such as influenza vaccination, may help employers increase productivity and reduce employees' requests for leave of absence due to illness. This may indicate another topic warranting further research.

A considerably higher percentage of the students indicated that they would receive the vaccine if it were free or covered by insurance compared to if they were required to pay for the vaccine. This highlights the importance of insurance companies covering the vaccination's cost. It may be argued that this could save the insurance companies money by reducing the occurrence of physician visits and hospitalizations of clients infected with influenza. Further research is needed to investigate this potential incentive for insurance companies to invest in this preventative medicine.

Most of the participants reported a belief that the influenza vaccine is moderately or completely successful in preventing influenza infection. Despite the participants' beliefs that the vaccine is effective, a small number of the participants had received the vaccine annually, and a small number of the participants had received the most recent dose. Further investigation of this phenomenon is needed. Future research could investigate students' reasons for not receiving the vaccine consistently or their reasons for

not receiving the vaccine at all, despite believing that the vaccine is effective.

Statistical analysis of the data found several factors that influence university students' perceptions of, knowledge of, and experiences with influenza and influenza vaccination. Ethnicity was notable in that it influenced several of the responses in the survey. Minority students were found to be significantly less knowledgeable and were significantly less likely to have received the vaccine more than just a few times when compared with non-minority students. These results correlate with health disparities effecting minorities in the United States, indicating the need for more health education and access to care for minority populations.

Students who had either a personal or family history of influenza infection, or both, were significantly more knowledgeable about influenza and influenza vaccination. Additionally, students who had either a personal or family history of influenza infection, or both, were also significantly more likely to have received the influenza vaccine at least once. These results may indicate that those who have been negatively affected by influenza take it more seriously or fear it more. Some of the participants indicated in their answer to the open response question that they once had become infected and now regularly receive the vaccine to avoid the adverse effects of influenza infection.

Students who were immunocompromised were more likely to have received the most recent dose of the influenza vaccine (55.6%) than students who were not immunocompromised (24%). This may be interpreted as an expected trend, as immunocompromised individuals are at greater risk of becoming infected and will have a harder time combating an infection. Therefore, it may be argued that it is particularly important for immunocompromised individuals to receive any protection that is available.

### **Limitations and Recommendations**

Limitations of this study included a small sample size when compared to the entire student body of the university and the entire student population of the United States. This research would benefit from being conducted across the United States in universities from multiple regions. Varying results may be found in regions with varying cultures. Additionally, the sample featured unequal representation of males and females, and most of the individuals surveyed reported having a major in the field of health care. This research would benefit from being conducted amongst a student population with much larger variation in majors. Socioeconomic status was not a considered variable in this study. Several of these limitations were encountered due to the limited access to large populations of students and diverse classrooms. This helped to create the limitation of convenience sampling.

### **Conclusion**

This research found university students to possess basic knowledge of influenza and its implications for one's health. However, the study found that university students lack some knowledge of influenza vaccination, and many university students did not seem to perceive influenza vaccination as highly valuable. This study confirmed prior research stating that "annual influenza vaccine coverage for young adults (including college students) remains low" (Bednarczyk et al., 2015). Universities would benefit from educational campaigns regarding influenza vaccination, and these campaigns should focus on the efficacy and importance of the vaccine. This study also found cost; gender; ethnicity; personal or family history of influenza infection; and health status to be factors influencing university students' perceptions of, knowledge of, and experiences with

influenza and influenza vaccination. Public and university health officials should consider these factors when addressing influenza vaccine uptake amongst university student populations.

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## Appendix

## Survey Questions

- 1) What is your gender?
  - Male
  - Female
  - Other: please specify \_\_\_\_\_
  - Prefer not to respond
  
- 2) How old are you? \_\_\_\_\_
  
- 3) What is your ethnicity? (Select all that apply)
  - White/Caucasian
  - Black/African American
  - Hispanic/Latino
  - Asian
  - Pacific Islander
  - Native American
  - Other: \_\_\_\_\_
  
- 4) Does your major fall under the healthcare field? (e.g. Nursing, Pre-Medical, etc.)
  - Yes
  - No
  
- 5) Is your hometown predominantly urban or rural?
  - Urban
  - Rural
  
- 6) Are you medically insured?
  - Yes
  - No
  
- 7) Have you or anyone in your immediate family ever had influenza (“the flu”)?
  - Yes
  - No
  
- 8) Are you immunocompromised (have a depressed immune system due to a chronic disease or condition)? (i.e. cancer undergoing chemotherapy, pregnancy, HIV, diabetes, etc.)
  - Yes
  - No
  
- 9) Do you believe that the flu is contagious (can be spread directly from person to person)?
  - Yes
  - No
  
- 10) Do you believe the flu can lead to serious complications such as bacterial pneumonia, ear infections, sinus infections, and dehydration?
  - Yes
  - No
  
- 11) Do you believe you can get the flu from the flu vaccine?
  - Yes
  - No
  
- 12) If you become infected with the flu, do you believe that you can become contagious before symptoms appear?
  - Yes
  - No

- 13) Do you agree with the following statement?: Historically, influenza outbreaks have led to millions of deaths.
- Agree  Disagree
- 14) Do you agree with the following statement?: The flu vaccine is the best way to prevent influenza.
- Agree  Disagree
- 15) Do you agree with the following statement?: In order to receive the best protection, the flu vaccine must be received every year.
- Agree  Disagree
- 16) Do you agree with the following statement?: The elderly and very young are more likely to develop flu-related complications.
- Agree  Disagree
- 17) Have you ever received the flu vaccine?
- Yes  No
- 18) If you answered yes to question #17, where have you received the flu shot? (Select all that apply)
- Doctor's office
  - Pharmacy
  - Flu Shot Clinic
  - Hospital
  - Health Department
  - Other: \_\_\_\_\_
- 19) If you answered yes to question #17, how often have you received the flu vaccine?
- A few times  Every few years  Almost every year  Every year
- 20) If you answered yes to question #17, why did you receive the flu vaccine?
- 
- 21) Did you receive the most recent dose of the flu vaccine (Fall 2016 and later)?
- Yes  No
- 22) The cost of the flu vaccine is typically \$10 to \$30. Would you get the flu vaccine if you had to pay this amount?
- Yes  No  Undecided
- 23) If you could get the flu vaccine for free or completely covered by insurance, would you get the flu vaccine?
- Yes  No  Undecided
- 24) In your opinion, how successful is the flu vaccine at preventing influenza infection?
- Completely unsuccessful
  - Not very successful
  - Moderately successful
  - Completely successful