



**Cumberland Plateau Health District
2009-2010 Flu Season Vaccine Study*
Final Report---August 31, 2011**

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Virginia Tech

Cumberland Plateau Health District

2009-2010 Flu Season Vaccine Study

Final Report -- August 31, 2011

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Executive Summary

The Cumberland Plateau Health District of the Virginia Department of Health commissioned a team of faculty at Virginia Tech in 2011 to conduct a small pilot study of seasonal flu and H1N1 vaccination practices in Far Southwest Virginia. The study was conducted between February and July 2011. The purpose of the study was two-fold:

- Understand the reasons why two specific populations (parents of elementary school-aged children and 18-25 year olds) chose to vaccinate or not vaccinate for H1N1 and seasonal flu in 2009-10, and
- Identify the contributing factors (e.g. logistical barriers, intentional reasons, or parental disengagement) that led to a decision to either vaccinate or not vaccinate.

The study was conducted in a small rural county with a significant portion of the population living below the poverty line. The area ranks low in Virginia for health outcomes with more than one quarter of residents reporting to be in poor or fair health in nationally tracked county health statistics.

The study had three components: a survey of 86 family units in two elementary schools, in-depth in-person follow-up interviews with nine families, and a survey of 158 18-25 year-olds in two educational institutions in the region. The key findings are as follows:

1. **Intentional Decisions Were Salient.** Overwhelmingly, each component of the study revealed that participants reported making intentional decisions when choosing or not choosing H1N1 and seasonal flu vaccinations for themselves or their children.
2. **Minimal Logistical Barriers—Participants Were Informed.** Participants reported being informed about the H1N1 and seasonal flu vaccinations. The study did not find logistical barriers in communication about the H1N1 and seasonal flu vaccination efforts for either study population.
3. **High Level of Parental Engagement.** Parents reported being actively involved in the lives of their children, which included reviewing paperwork from school.
4. **Differences Exist Between Two Communities As Demonstrated by the Schools.** The school with the high vaccination rate was found to respond to outsiders better than the school with lower vaccination rates. Social and cultural identity, and the role of trusted informants, was shown to contribute to parental choices about vaccination. This indicates that a “one-size fits all” approach may not work as effectively as a culturally tailored approach for each community.
5. **Employment Status Correlates with Vaccination Choices.** Employed individuals were less likely to have their children vaccinated against influenza. Further study is needed to

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determine if employment status is an indicator of socioeconomic status, if socioeconomic status predicts lower vaccination rates, or if employment by itself is a predictor.

These results, while limited, suggest some interesting explanations for the rates of H1N1 and seasonal flu vaccination during the 2009-10 flu season and offer some strategic recommendations for future, expanded studies of flu vaccination practices among this population in Southwest Virginia. The study may have possible implications for the national discussion on flu and flu vaccination approaches.

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Key Findings

1. **Intentional Decisions Were Salient.** Overwhelmingly, each component of the study revealed that participants reported making intentional decisions when choosing or not choosing H1N1 and seasonal flu vaccinations for themselves or their children. The following factors emerged as the most salient reasons for an intentional decision:
 - Heightened concerns about the safety of the H1N1 vaccination, in particular, in comparison to seasonal flu;
 - Active theories about immunity and illness, including the view that getting the flu strengthens one’s immune system “better” than vaccination, as well as the view that vaccination may harm the immune system;
 - Perceptions of flu severity that do not always lead those who see flu as severe to vaccinate, as some think that severe illness is adequately taken care of by medical care, and others feel that immune response to illness is better than response to vaccination;
 - Ability to be present when the child received his/her vaccination, thereby leading them to be vaccinated at the doctor’s office or not at all;
 - Culturally embedded literacies, such as social identity, folk medicine, Appalachia-specific factors, views of outsiders, pride, and family beliefs and values regarding health and illness;
 - Participant perceptions of health may not cohere with health department perceptions or measures. Some participants demonstrated a perception of good health in their families even though, from an external perspective, health status might appear poor. In other words, interviewed participants did not perceive that they had illness in their families while at the same time reporting significant poor health conditions faced by family members in recent months.
2. **Minimal Logistical Barriers—Participants Were Informed.** Participants reported being informed about the H1N1 and seasonal flu vaccinations. The study did not find logistical barriers in communication about the H1N1 and seasonal flu vaccination efforts for either study population.
3. **High Level of Parental Engagement.** Parents reported being actively involved in the lives of their children, which included reviewing paperwork from school.
4. **Differences Exist Between the Communities Represented by the Schools.** The school with the high vaccination rate was found to respond to outsiders and an outside approach better than the school with lower vaccination rates. Social and cultural identity, and the role of trusted informants, was shown to contribute to parental choices about vaccination. This indicates that a “one-size fits all” approach may not work as effectively as a culturally tailored approach for each community.

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Survey results indicated specific findings:

- A higher proportion of Belfast parents reported having their child vaccinated against H1N1 in 2009-2010 (68 percent compared with 48 percent among Cleveland parents).
- Although high numbers of Belfast and Cleveland parents indicated having learned about H1N1 through the school information form and a physician, Cleveland parents were more likely to report learning from the school form, and Belfast parents were more likely to report learning from a doctor.
- More Cleveland parents heard about H1N1 through a friend, neighbor, or another parent.

Interviews revealed that:

- The communities of Cleveland and Belfast have disparate community networks, despite a sense of Appalachian identity at the macro level.
- At the micro level, these communities function differently with respect to information about flu prevention, receptiveness towards the flu vaccine itself, and towards the school as the locale of delivery.
- Overall, the rhetorical and linguistic evidence suggests that a blanket approach to flu immunization for this area will not increase the vaccination rate.

5. **Employment Status Correlates with Vaccination Choices.** Employed individuals were less likely to have their children vaccinated. Further study is needed to determine if employment status is an indicator of socioeconomic status, if socioeconomic status predicts lower vaccination rates, or if employment by itself is a predictor.
6. **Implications for National Dialogue on Flu.** The study may lead to possible implications for the national discussion on flu and flu vaccination approaches. Implications include:

View of Flu Seriousness and Health

- In the 18-25-year-old study, those who thought the flu was serious were more likely to be vaccinated, yet a significant number of respondents reported that the flu was serious but still did not choose to be vaccinated. Given that some respondents in both studies also reported that it was “better” to gain immunity by contracting disease rather than vaccinating against it, lay ideas about the role of illness and how the immune system is “built up” may conflict with national public health initiatives that emphasize the seriousness of flu in order to improve rates of vaccination.

Vaccine Safety

- The public may have a higher concern for vaccine safety with flu vaccine given the possibility of developing flu-like symptoms from the vaccine, and the sense of haste surrounding the development of the H1N1 flu vaccine.

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Multiple Views of Flu—The public has differing views of flu:

- Perceptions of flu symptoms and frequency vary greatly. While some individuals do not believe that they have ever had the flu, others think that every time they have “flu-like” symptoms they have the flu.
- Flu is often not formally diagnosed, thereby leading individuals to “self-diagnose” flu or never diagnose flu. By contrast, some in-depth interviews indicated that even formal flu diagnoses by doctors or at hospitals were disregarded, discounted, or replaced with personal theories or opinions about the illness.
- The differing views challenge the public health community to create a more consistent diagnosis and understanding of flu.

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Study Overview

Purpose

- Understand the reasons why two specific populations (parents of school-aged children and 18-25 year olds) chose to vaccinate or not vaccinate for H1N1 and seasonal flu in 2009-10.
- Identify the contributing factors (e.g. logistical barriers, intentional reasons, or unintentional, but culturally influenced, reasons) that led to the decision to either vaccinate or not vaccinate.

Study Goals

- Based on available data, define population parameters of the vaccination rates for H1N1 and seasonal flu in 2009-10 in the two target populations in the Cumberland Plateau Health District;
- Identify the factors that contributed to the decision by parents of school-aged children in Cumberland Plateau Health District to have their children vaccinated or not vaccinated for H1N1 and seasonal flu in 2009-10;
- Identify the factors that contributed to the decision by 18-25 year olds in Cumberland Plateau Health District to be vaccinated or not vaccinated for H1N1 and seasonal flu in 2009-10;
- Develop a hypothesis, or set of hypotheses, that might guide a future larger study to take place in the region, or beyond, on vaccination choices.

Description of Study Population

General Demographic Information

Russell County is a part of the Cumberland Plateau Health District and is nestled between Tazewell, Washington, Scott, Dickenson, and Buchanan counties, encompassing approximately 477 square miles. Approximately 30,000 people reside in the county. The median household income is \$31,770 (\$20,000 less than the national average). The vast majority of the population (98 percent) is Caucasian, and the median age is 43 years. Approximately 70 percent of its residents over the age of 25 have graduated from high school, but only 9.5 percent have a bachelor's degree or higher. About 24 percent of the households in the county are single-parent households, and one-fourth of the children in the county live below the poverty level. The unemployment rate in Russell is 11 percent. Most of its residents who are employed work in educational, healthcare, and social assistance services (20 percent), retail (16 percent), followed by construction (12 percent) and manufacturing (11 percent).

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Health Information

Russell County ranks 123 out of the 132 counties in Virginia for health outcomes with 26 percent of its residents reporting to be in poor or fair health. In health factors, the county ranks 102 in the state, having 22 percent of its adults who smoke and 27 percent who are obese. The teen birth rate is 41 (per 1000 females), compared to 36 as the average for the state. Fifteen percent of Russell County's adults do not have health insurance and the ratio of the number of primary care providers to patients is 1:2231 while the state average is 1:806.

Prior Studies and Findings: Review of Literature

Influenza and Parental Beliefs and Practices

Influenza has been a significant topic of research over the last decade, as new strains and transmission pathways have heightened attention on this infectious disease. Recent studies examining influenza typically investigate one of the following three categories: the epidemiology of 2009 pandemic influenza A (H1N1), the impact of school-based influenza vaccination programs, or parental attitudes toward vaccinating children for influenza and/or H1N1. Although larger influenza research initiatives have examined national parental decision-making regarding influenza vaccinations, only a few limited American investigations have studied how parents' attitudes and beliefs influenced their decision to vaccinate or not vaccinate their children for H1N1 during the 2009-10 season.

From an epidemiological lens, one study of H1N1 in United States schools conducted by Iuliano et al. (2011) found that elementary through university students experienced higher attack rates of H1N1 than both adults and children younger than four years of age. Jhung et al. (2011) also characterized cases of H1N1 in the U.S. during the 2009-10 season, identifying the overall health impact of H1N1 virus infection in children and young adults as significant. These findings suggest that H1N1 posed a greater risk to student populations within the U.S. than other identified populations.

Research on school-based influenza vaccination offerings demonstrates the importance of vaccinating primary and secondary student populations. Hull and Ambrose (2011) investigated how school-located influenza vaccination programs impact student absenteeism. This study found that in-school vaccine programs in elementary schools not only protect against influenza and reduce absenteeism within those schools but also within nearby secondary schools. Another investigation (Painter et al., 2002) determined that school-located influenza vaccinations can be effective in hard-to-reach rural populations when paired with culturally relevant interventions.

In recent years several studies have examined parental views toward vaccinations, including those which protect against influenza. Two national investigations, one conducted in Australia (Cooper Robbins et al., 2011) and one conducted in the United States by the Centers for Disease Control and Prevention (CDC) (Flood et al., 2010), utilized surveys to elicit beliefs and attitudes toward influenza vaccinations. Among its findings, the Cooper Robbins et al. study (2011) revealed that parents with stronger support for their children receiving the flu vaccine are more

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likely to view it as safe and are more likely to know about how to prevent influenza than parents who do not view the vaccine as favorably. The CDC investigation took a different approach, as it extended its research further to identify the most common drivers and barriers involved in parents' decision-making regarding vaccinating their children against influenza. Survey participants reported the following major drivers behind their decision to vaccinate their children for influenza: prevention of influenza, a doctor's recommendation, and the desire to reduce influenza symptoms. Alternatively, the most common barriers for parents who decided against vaccinating their children for influenza were low perceived risk of influenza, the perception that the vaccine causes influenza, and side effects caused by the vaccine. Additional studies (Mirza et al., 2008) strengthen the CDC study's final recommendations, which highlight the importance of physician and health care provider recommendations as well as parental education in parents' decision to vaccinate or not vaccinate their children for influenza. One investigation, conducted by Torun et al. (2010), found that among parents who are healthcare workers, overcoming parental barriers that prevent children from receiving pandemic vaccines like H1N1 involves determining sources of misinformation.

College Students' Perceptions of the Flu

While the beliefs and practices of college students surrounding vaccinations have been studied in previous medical and public health research, practices and beliefs surrounding seasonal flu and H1N1 vaccines have been relatively limited. The majority of recent research on college students and vaccination in particular focuses chiefly on the human papilloma virus (HPV) vaccine. Daley et al. (2010) examines the roles that healthcare providers play in whether or not female undergraduates chose to be vaccinated against HPV. Cirilo et al. (2010) conducted a similar study, focusing on the knowledge about HPV and vaccination among nursing students specifically. Additional studies focus on the roles that mother-daughter communication (Roberts et al. 2010), ethnicity (Green et al. 2009; Wong et al. 2010), and gender (Liddon et al. 2010) play in college-aged students' HPV vaccination practices.

Studies of college students and H1N1 and seasonal flu vaccines are more limited, focusing on school-specific student body populations (such as Merrill et al.'s 2010 study of factors and barriers to influenza vaccination among students at Brigham Young University) or on specific segments of student body populations (such as Uddin et al.'s 2010 study of college dormitory students and demographic determinants of vaccination, such as parental level of education and socioeconomic status).

During the semester of fall 2010, the Vaccination Research Group at Virginia Tech conducted an online survey of Virginia Tech undergraduates, Radford nursing students, and Virginia Tech School of Medicine students concerning H1N1 and seasonal flu vaccination practices and beliefs (IRB # 10-732). The survey collected demographic information from respondents and also asked for narrative responses regarding vaccination beliefs and reasons for their practices. There were almost 540 respondents from the population. This study revealed that the majority of respondents had received the flu vaccine in the past two years (53 percent), the number of students who were vaccinated against H1N1 were substantially lower, with only 36 percent of respondents reporting that they had received the separate H1N1 vaccine. For each vaccine, respondents cited

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“inconvenience” and “afraid of side effects” along with “other” as the most influencing reasons for not getting the flu shot. This survey also elicited narrative responses from participants, which revealed a range of rationale and influences for students’ beliefs surrounding the flu. For example, although the majority of respondents said that their opinions about flu vaccination were most influenced by physicians (28 percent) and family members (28 percent), many of the narrative responses cited news reports, “viral” videos, and offered links to independent (i.e. non-governmental) internet websites about the adverse effects of vaccines as rationale for their negative attitudes toward flu vaccine. The preliminary results of this study suggest that, for these participants, media stories and internet rumor are significant sources of information about flu vaccine and attitudes toward vaccination driving decision making and behavior.

Therefore, while opinions, values, and practices of undergraduate college students regarding vaccination have received prior study, a review of the literature reveals some areas and aspects of vaccination knowledge and belief systems warrants further examination—chiefly, the popular sources of knowledge (i.e. news, media, and interpersonal outlets through which students gain knowledge about vaccination) that students seek and find persuasive regarding vaccination and students’ practices and beliefs surrounding the seasonal flu and H1N1 vaccines specifically as well as the outside influences on their time, schedules, and priorities that shape decision making.

For the Cumberland Plateau Health District, this study offers some data regarding the opinions and beliefs surrounding flu vaccines held by college students, both those living in on- and off-campus residences, in the community. Given that improvement of the rates of participation among 18-25 year olds is desired, this study offers some important lessons learned in terms of survey structure and designed if the District desires to study this population in more depth in the future.

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18-25 Year Old Study

Introduction

The study described below surveyed undergraduate students at Bluefield College and Southwest Virginia Community College conducted in May 2011. The study aimed to examine the beliefs and practices of college students regarding seasonal flu and H1N1 vaccination. Overall, this study found that while students feel that the flu is a relatively serious disease, a number of factors influenced whether they would or would not participate in vaccination. Among students who chose vaccination, the biggest influences on their behavior were the low cost of flu vaccine or their desire to avoid or reduce symptoms of flu if contracted. Among those who did not vaccinate, concern about the side effects of the flu vaccine were the dominant reasons students chose not to vaccinate. Some limited expressions concerning the immune system correlate with published anthropological research, suggesting that perceptions of immunity affect decisions concerning flu vaccination.

Methodology: Survey Logistics and Targeted Population

The “Flu Survey” was sent by electronic email solicitation to students at Southwest Virginia Community College (SWCC) and to students at Bluefield College, a four-year residential Christian college in May 2011.

The survey was conducted online and students at each school received the solicitation twice. The survey opened in late April, with students receiving the first email solicitation in the first week of May and the second solicitation in mid-May. The survey closed on May 31, 2011.

An SWCC administrator sent the email solicitation to a listserv of 4261 students, faculty, and staff, indicating that students could not be separated out on a separate listserv. During spring semester 2011, there were 1863 female students and 1442 male students enrolled at SWCC.

The survey was also sent to Bluefield College undergraduates. Bluefield College has a total enrollment of 738 students, which are separated into “traditional,” InSpire, and E-Spire programs. The traditional program is aimed toward students in the traditional college-aged group with in-person, on-campus classes, whereas the InSpire and E-Spire programs consist of career training and accelerated degree programs geared toward working adults that offer courses online. There are about 440 total “traditional” undergraduates at Bluefield, with 280 of its traditional students living in on-campus residence halls.

Results: Quantitative Analysis

There were 158 respondents to the survey. With a targeted population of approximately 3300 SWCC students and 738 Bluefield College students, responses indicate a nearly 4 percent response rate. Sixty-four respondents (41 percent) are over the age of 25, and one respondent did not provide an age, leaving a total of 93 responses from the targeted population. The discussions

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below analyze demographics and responses of all respondents. However, since the purpose of this survey was to target the 18-25 year-old population specifically, we offer a separate analysis in the next section that examines just the 18-25 year old respondents.

General Survey: Demographics

Seventy-two percent of respondents are female, which correlates exactly with a previous survey sent out to Virginia Tech undergraduates, Radford University nursing students, and VTCSOM students in fall 2010. Eighty-four percent of respondents are full-time students, with 35 percent of all respondents indicating that they majoring in a health care field. Twenty-five percent of respondents are employed full time, with 31 percent employed part time and 33 percent unemployed. The field with the highest rate of employment was health care at 13 percent, although retail, secretarial, and service jobs are all at 8 percent or 9 percent of the population that responded to the survey. Fifty-five percent of the population had some college, while 19 percent were college graduates. Presumably this last group consists of faculty and staff at SWCC who responded to the survey since post-graduate degrees were concentrated in the respondents over 25. Sixteen percent of respondents have mothers who graduated from college, and 15 percent have fathers who are college graduates. Half of all respondents are single, with 34 percent married, 8 percent divorced, and 6 percent partnered and cohabiting. Thirty-six percent of respondents are parents, with 30 percent of those respondents living with their children, 30 percent not living with their children, and 61 percent not answering that question.

General Survey: Flu-specific Questions (Seasonal and H1N1)

Seventy-five percent of respondents answered that someone in their household previously had the flu, with 13 percent responding no and 9 percent responding that they did not know. Forty-five percent responded that they thought that the flu is serious, with 23 percent responding “very serious” and 27 percent responding “somewhat serious.” Only 5 percent responded that they thought the flu “not serious.” Forty-nine percent think it takes “one week or more” to recover from the flu (which is correct, according to the CDC website), while 4 percent think that it takes 1-2 days, 22 percent 3-4 days, and 24 percent 5-6 days. Thus, about half of all respondents are correct in their understanding of how long illness from influenza lasts.

Fifty-nine percent of respondents report getting a seasonal flu shot in the past two years, with 41 percent report not getting a seasonal flu shot in this period. Forty percent report receiving a separate H1N1 vaccine in 2009, with 59 percent reporting that they did not receive the H1N1 vaccination. These figures correlate well with the percentages of respondents to the VT/Radford nursing/VTCSOM survey conducted in fall 2010 (53 percent receiving a flu shot in the past two years, with 46 percent not receiving one; 36 percent receiving an H1N1 shot in 2009, with 64 percent not receiving one).

The main reasons for not receiving a flu shot in the past two years include inconvenience (13 percent) or fear of side effects (25 percent), with 8 percent reporting that they did not have health insurance or that the shot was not covered by health insurance. The most influencing reasons to receive the H1N1 vaccination were free or minimal cost of the shot (21 percent) and the desire to

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prevent the flu or to have lessened symptoms (23 percent). Other significant responses include a healthcare provider's recommendation (14 percent), media coverage (13 percent), a school providing the vaccination (10 percent), always getting the flu vaccine (11 percent), avoiding spreading the virus to others (12 percent), and avoiding missing work (8 percent). Those respondents who did not receive the separate H1N1 vaccination in 2009 indicated varied reasons for their decision, with the top responses demonstrating concern about the vaccine itself: "I was afraid of side effects from the vaccine" was the top response in this category at 18 percent, with "the vaccine was developed too quickly" coming in at 16 percent and "I was afraid I would get the flu from the vaccine" garnering 15 percent. The only other response to come in at double digits was "negative media attention," at 11 percent. Significantly, answers corresponding to "inconvenience" did not have a high response rate: 4 percent indicated that it was "difficult to get vaccine," and 1 percent responded that "school did not provide it." "Too expensive," "healthcare provider did not recommend," "friend/family member/pastor recommendation NOT to get the vaccine," and "do not think the vaccine works" all had 8 percent or 9 percent responses to this question. Hearing that a TV or movie personality suggested not getting the H1N1 vaccine does not seem to have had a significant effect, as only 2 percent of respondents report this as a reason not to receive that vaccination.

This last point is interesting given that 30 percent of respondents indicated that they received information about the vaccine from television or public service announcements, with 22 percent reporting that their source of information was their doctor's office. Over half of the respondents to the survey did not answer where they were vaccinated (which was the final multiple choice question on the survey). Fifteen percent indicate that they were vaccinated at school, with 14 percent being vaccinated at a doctor's office and 8 percent at their workplace. Only 4 percent were vaccinated at a health district office, 3 percent at a pharmacy chain, 2 percent at a superstore pharmacy like Wal-Mart, and 3 percent at an "other" location.

18-25 Year Olds: Demographics

After removing the responses from those over 25, there were 93 responses remaining. Among these responses, the majority reported being full-time students (91 percent) and the largest major represented was health care, with 29 percent of respondents citing health care as their major area of study. Again, the majority of respondents were female and were roughly similar to the Virginia Tech study, with a total of 72 percent of responses coming from female students. Many respondents (30 percent) left the employment question blank, which matches roughly with the 33 percent of respondents who reported being unemployed in a separate question. Those who did respond reported a disparate range of employment that did not reflect a concentration of employment in one area, and many students opted to write-in their own occupations using the "other" option to include things such as internships and work study. Overall, 43 percent of respondents reported being employed part time and 14 percent reported being employed full time, with the remainder reporting "other" jobs, such as work study, or other arrangements, such as part-time during the school year and full-time during breaks. The majority of respondents (58 percent) reported having some college, and 18 percent reported that they were college graduates; one respondent chose "other" and clarified that "Will graduate next Thursday, May 12, 2011." The proximity of the survey to graduation may explain why many people reported already being

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college graduates, in addition to those who had perhaps already achieved Associate's degrees. The highest levels of education attained by respondents' parents were similar. For both mothers and fathers, the highest levels of education were high school and college, with high school at 33 percent and 35 percent respectively and college 20 percent and 19 percent respectively.

To match the accompanying survey sent to parents in the Cumberland Plateau Health District, this survey incorporated questions about family life and parenthood. Fourteen percent of respondents reported being married and 7 percent were cohabiting but unmarried, while the remainder (77 percent) were unmarried. Ten percent of respondents reported having children, and in each case, the respondents' children were living with them.

18-25 Year Olds: Flu-specific Questions (Seasonal and H1N1)

Within the 18-25 year-old population, a slight majority (55 percent) of the respondents had received a seasonal flu shot in the past two years, while only 39 percent received a separate H1N1 vaccine. When these questions are examined in conjunction, 35 percent of all respondents reported receiving both the seasonal flu and H1N1 vaccines in the past two years.

In terms of motivators for not receiving the vaccine among the 18-25 year-old population, "afraid of side effects" was the most common response, with 28 percent of respondents indicating that this was one of their most influencing reasons for not getting the flu vaccine, with "inconvenient" the next highest, at 18 percent. Interestingly, the third-largest response was "other," with 14 percent of respondents choosing "other" with an accompanying short narrative response. Respondents' reasons ranged from practical responses, such as "always sick when available," to expressions of other beliefs and concerns about the flu vaccine, such as:

- "Always get the flu after receiving the shot as well"
- "Not convinced that it works"
- "Unnecessary risk"
- "Never gotten the flu shot and have only had the flu once. Many people get it even when they have are (sic) vaccinated."

Motivators for receiving the vaccine were either reported as health- or cost-related. The two highest responses to the question, "If you got the separate H1N1 (Swine Flu) vaccine in 2009, what factors influenced your decision to get a vaccination?" were "I wanted to prevent myself from getting the flu or have lessened symptoms if I got the flu" and "Cost," which received 22 percent and 20 percent of responses, respectively.

Results: Narrative Responses

General Comments

The survey allowed respondents to provide "any other thoughts you would like to share regarding the H1N1 or seasonal flu vaccines." Twenty-two individuals chose to provide narrative responses to this question. This small number does not allow us to generalize, but some of the

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themes emerging in these responses mirror those in the Virginia Tech/Radford nursing/VTCSOM online survey conducted in fall 2010. These responses may indicate concerns prevalent in the larger population of respondents, as well as the larger population from which the respondents selected themselves. Follow-up studies should seek to ascertain the extent to which these concerns preoccupy these populations.

Narrative responses demonstrate some concern with possible side effects of vaccination:

- “Does the H1N1 have any harmful side effects that may occur in the future?”
- “It [seasonal flu shot] weakens your immune system. I have always had a strong immune system and had never had the flu before I took the shot!!!!!!!!!!”
- “I took the pneumonia vaccine but was afraid to take the H1N1 because of the negative publicity. Just scared of the unknown. Besides people still ended up with the flu anyways.”
- “I feel like the vaccines should not be given in the same shot I feel like it is too strong together everyone I know that has taken a vaccine this year has gotten the flu after taking the vaccine.”
- “Knowledge of the side effects caused by vaccinations is seeminly (sic) growing larger and larger every year. I personally do not think that I will allow myself to receive any vaccinations in the years to come. My wife has already made that decision for both herself and our child.”
- “I think it is bad for you and I strongly discourage people from getting it.”
- “The only reason why I got the flu shot is because I had too (sic) because of school and I got sick because of the shot. If I hadn’t been required to have the vaccine I would I never got it. I think it is a bunch of hype and it really doesn’t help. I[n] flu seasons in the past I was never sick and this seasons with the shot I stayed sick all seasons and still havent (sic) completely recovered to myself.”
- “I am enrolled now in the LPN program. I chose not to take the H1N1 vaccine because of all the negative feedback.”
- “I was skeptical because there were comments concerning Autism and we have an Autistic child, therefore we choose (sic) not to take the H1N1.”

There were some very positive responses to flu and H1N1 flu vaccination, such as a “thank you” for offering it free at the college level, an older (62 year old) respondent commenting on the negative effect of conspiracy theories against vaccination, someone writing about the necessity for all to be vaccinated to protect the community, an RN commenting on the effects of media on people’s decisions about the vaccine, and someone wishing that he or she had had the H1N1 vaccine because the illness caused him or her to take three days off of work.

Unlike the more extensive online survey given to Virginia Tech undergrads, Radford nursing students, and VTCSOM students, we did not have many respondent to this survey referring to “viral” stories emanating from social media or sources like YouTube. That survey was meant to

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elicit specific fears of flu and/or H1N1 vaccination, and respondents had more opportunities to elaborate narrative responses; as a result, there was more narrative to interpret. Here, even the limited number of responses are largely negative and express skepticism about vaccination in general or flu/H1N1 vaccination in particular.

One recurring concern addressed by respondents to both the Cumberland Plateau and Virginia Tech 18-25 year old studies concerned issues and understanding of immunity and the immune system as a rationale for not getting the vaccine. We continue to see that *people are concerned about getting the flu even if they are vaccinated, or that the vaccination itself will cause the disease*. Oftentimes the bases for these concerns surround a lay understanding of and belief in certain operations of the immune system. The discussion below explicates some possible social and cultural reasons for this phenomenon as previously addressed in the field of medical anthropology, indicating that, while our sample is relatively small, it reflects similar observations and conclusions made in studies of greater depth and breadth.

Discussion/Analysis

Initial examination of the 18-25 year old survey responses indicated that two notions, lay concepts of immunity and perceptions of seriousness of flu, repeatedly influenced, or were expressed as influential, in respondents' opinions about vaccination and likelihood to vaccinate. The discussion that follows examines the conceptions of immunity and perceptions of seriousness as two areas that illuminate vaccination rates and offer some alternative opportunities for future public health messages that address these concerns.

Concepts of Immunity

The following comments were made by respondents to the Cumberland Plateau 18-25 year old study.

- "I took the shot in 2010 but I still ended up with the flu. It weakens your immune system. I have always had a strong immune system and had never had the flu before until I took the shot!!!!!!!!!"
- "I feel like flu vaccines are more for children, senior citizens, or people with weak immune systems."
- "I think that people who are basically healthy do not need to be vaccinated, our bodies need to be able to build some of its own immunities."

A similar sentiment is also expressed in the following statement, which doesn't specifically use the word "immunity" but refers to the responsiveness of the immune system to vaccines:

- "I feel like the vaccines should not be given in the same shot I feel like it is too strong together everyone I know that has taken a vaccine this year has gotten the flu after taking the vaccine."

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This comment also connects the perceived problem of the body's responsiveness to the vaccine to the likelihood of still contracting the flu after vaccination and general ineffectiveness of the vaccine, which was also expressed in the survey responses.

These are somewhat similar to comments made in the Virginia Tech undergraduate/Radford nursing/VTCSOM student study. The following explanations were provided by respondents who had answered "yes" to the question "Do you think the H1N1 (Swine Flu) vaccine could be dangerous to your health?"

- "It weakens the ability of your own immune system to fight disease."
- "Because it weakens my immune system."
- "I haven't had the flu in 3 or 4 plus years and I feel that if you have a high immune system and take care of yourself there is no need for a flu vaccine."

Respondents also provided responses to a question concerning side effects to the H1N1 vaccine that mention the immune system:

- "A weakening of the immune system and possibly developing the flu as a result of the vaccine."
- "Same as the regular flu vaccine. Feeling pretty bad for a day or two, but walking away fine and immune to swine flu."

Finally, respondents offered the following comments concerning reasons for not getting an H1N1 vaccination:

- "I got the swine flu before there was an available vaccine, so I got immunity that way."
- "Afraid of side effects, other: Don't want to lower my immune system."
- "I got H1N1 in the summer before the big outbreak, so my doctor said I should be immune."
- "good immune system"
- "unnecessary since H1N1 is equal in severity to a cold + my immune system could use the workout."

A few of the responses identified above articulate a conventional public health understanding of how vaccination and viral illness contribute to immunity. This understanding is conveyed in statements about immunity as a result of vaccination or illness—"I got immunity" from having the flu—and also in statements that suggest that illness is better than vaccination in challenging the human immune system—giving it a "workout."

But other responses clearly suggest that vaccination can weaken the immune system. This notion is articulated in statements about how a good or strong immune system doesn't need a vaccination (implying that such an immune system can handle a routine illness like flu) as well as in statements that directly say that vaccines can weaken the immune system: "don't want to

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lower my immune system,” [I have a] “good immune system” [already], “a weakening immune system” as a side effect of vaccination, “it weakens the ability of your own immune system to fight disease,” as examples. Taken together, these statements suggest a particular understanding of the immune system that challenges public health agreement concerning the necessity of flu vaccination for almost all citizens. Even statements that convey the understanding that illness and vaccination both confer immunity can contradict the public health understanding that vaccination is necessary by suggesting that the “workout” provided by actual illness is better at conferring immunity than vaccination.

Emily Martin, in her 1996 book *Flexible Bodies: The Role of Immunity in American Culture from the Days of Polio to the Age of AIDS* (Beacon Press, 1995), outlines the history of 20th-century ideas about immunity in popular culture, science, and ordinary people’s experience. Lay perspectives on immunity thus are related to and follow from those produced by immunologists but do not always reach the same conclusions. Current concepts of the immune system convey a model of embodiment that Martin calls “flexible bodies”: “What we see emerging through the immunologists’ eyes by the late twentieth century, then, is a body that actively relates to the world, that actively selects from a cornucopia of continually produced new antibodies that keep the body healthy and enable it to meet every new challenge. Possessed of agile responses, and flexible specificity, our adroit, innovative bodies are poised to anticipate any conceivable challenge” (37). Such a model of the body, when conveyed through laypeople’s perspectives, can articulate ideas about immunity that conflict with public health views on the value of vaccination. The “flexible body” is one that by itself responds to a changing disease environment and the antigens that threaten health. In this view, vaccination could be perceived to damage the immune system by making it respond to antigens in the vaccine when no actual disease threat exists in the person’s environment, thereby weakening the immune system or altering its adaptability. Bodies thus lose their “flexible” advantage by being overburdened by vaccination risk, being forced to respond to manufactured, medicalized vaccinations rather than the more “natural” diseases themselves.

The comments regarding the immune system that we received in the two surveys are scant and only suggestive. Martin’s analysis is more involved because her interviews actively sought descriptions of the immune system. The current survey (Cumberland Plateau Health District survey of students at Bluefield College and Southwest Virginia Community College) offers contradictory representations of the immune system—the ideas that vaccines can weaken the immune system, that only those with weakened immune systems should be vaccinated, and that “natural immunity” is better than that developed through vaccination. Each brief response, however, suggests a rather complex understanding of how immunity works. And each, we might add, entails a “grain of truth,” even if each is also incorrect on the whole. Vaccination can make one feel ill with symptoms that mirror the disease itself; those with weakened immune systems are more vulnerable to actual disease; and immunity through illness, especially in terms of flu, is a more effective way of developing immunity to that year’s strains, as the vaccines sometimes “miss” the actual kinds of flu going around.

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Comments about the immune system suggest the topic as a possible focus for future investigation. While responses suggest some compliance with typical public health perspectives on vaccination, they also reflect also significant objection to public health views on the immune system and its operation. While the comments are not widespread or dominant in either survey, they are relatively consistent, falling into a few categories:

- Some respondents clearly believe that the whole point of the immune system is to be challenged by ordinary disease rather than through vaccination, which is perceived as artificial, ineffective protection.
- There is a strain of belief concerning the potential of vaccination to weaken the immune system. This belief is reminiscent of vaccine resisters' concerns about the number of vaccinations that infants and young children can receive at one doctor's appointment, in which fear of "overwhelming" the infant's immune system is the main issue.
- There is a similar belief that those with "good immune systems" should not need vaccines for H1N1 or seasonal flu. In that belief, immune systems that are "strong" don't need extra help.

The beliefs about immunity expressed in both surveys, although limited, deserve further examination. There is some sense in which people are defending their bodies in the description of their practices. To admit to needing a flu vaccination may appear to be admitting to a weak body, or a body that is often ill. Further, representations of the immune system vary according to whether the immune system is perceived as something that is naturally strong unless weakened by external forces (like vaccinations) or something that needs bolstering (through vaccination) or something that is either weak or strong depending on the person's overall constitution (and thus very individual and not subject to blanket state requirements concerning vaccination of all citizens). In all of these understandings, the immune system is a bodily entity that interacts with the world around it and is integrated into other systems. The three responses to this survey that use the terminology of the immune system do not express the idea that vaccines help the immune system, unless it is already weakened (by age or infirmity). Instead, the responses convey the notion that the immune system is strong enough on its own to deal with challenges like flu, or that the flu is a necessary challenge to make the immune system strong as it should be. In either case, respondents are using a particular logic in representing the immune system.

Seriousness, Immunity, and the Evaluation of Risk

"Serious" is a word that was explicitly incorporated into this study through the survey questions. The primacy of perceived seriousness of disease is a key tenet of the health belief model, which maintains that the more serious an individual believes a disease to be, the more likely he or she will take steps to reduce the risk of contracting that disease. The responses that the 18-25 year old students gave in the online survey offer some alternative perspectives on the role that seriousness plays in perceptions of the body, immunity, flu, and vaccination that complicate the connection between perceived severity and likelihood to vaccinate against influenza. While our respondents reported that they thought that the flu was serious, perception of seriousness did not always equal a decision to vaccinate; conversely, lower perceptions of severity did not always

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result in a decision not to vaccinate. There also is some indication that perceptions of H1N1 are different from seasonal flu.

Seriousness and Seasonal Flu Vaccination. To study the relationship between seriousness and likelihood to vaccinate, three questions were used to test the respondent’s perception of flu seriousness: “How serious do you find the flu to be?”; “Has anyone in your household ever had the flu?”; and “How long do you think it usually takes to recover from the flu?”. These questions allow us to compare both the respondent’s direct answer to the question regarding seriousness as well as surrounding factors, such as knowledge of length of disease and personal connection, in determining perceptions of seriousness. This comparison revealed that although perceptions of severity coincided with increased likelihood to vaccinate overall, rates of nonvaccination among those who reported that they perceived the flu to be serious were still relatively high (38 percent, 43 percent, and 47 percent, respectively).

Reported seriousness also resulted in an overall increased vaccination rate, as the chart below demonstrates.

Table 1. Seriousness and seasonal flu vaccination.

How serious do you find the flu to be?	Have you gotten a seasonal flu shot in the past two years?	Total
Not Serious	No	4
Somewhat Serious	No	14
	Yes	12
Serious	No	18
	Yes	29
Very Serious	No	6
	Yes	10
Grand Total		93

Unsurprisingly, all of the respondents who said that flu is not serious also did not report getting a flu shot. However, the “somewhat serious” category is nearly evenly divided, and while the majority of respondents reported who flu is “serious” were vaccinated, a considerable number of respondents (18) who reported that flu is serious still chose not to be vaccinated. So, while increased reported seriousness resulted in an increased vaccination rate overall, 38 percent of respondents who reported flu is “serious” or “very serious” still chose not to vaccinate, demonstrating that seriousness is not the only factor in likelihood of vaccination.

The other factors that demonstrate seriousness, flu in a household and reported duration, demonstrated similar results. For example, although the majority of respondents (68) reported that someone in his/her household had contracted flu, and those who had a member of his/her household contract flu were more likely to be vaccinated against seasonal flu, as the chart below illustrates, 43 percent of respondents who reported having a member of his/her household with the flu still chose not to vaccinate.

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Table 2. Experience with flu and seasonal flu vaccination.

Have you gotten a seasonal flu shot in the past two years?	Has anyone in your household ever had the flu?	Total
No	Don't know	6
	No	7
	Yes	29
No Total		42
Yes	Don't know	3
	No	7
	Yes	39
	(blank)	2
Yes Total		51
Grand Total		93

Length of duration offers a slightly different picture regarding perception of severity. As the chart below describes, those who report that the flu lasts longer than 5 days are only slightly more likely (53 percent) to vaccinate, and a majority of people who think the flu lasts 4 or fewer days chose to vaccinate (59 percent). So, in this case, the increased length of perceived duration of flu did not necessarily determine the decision to vaccinate.

Table 3. Flu recovery time and seasonal flu vaccination.

How long do you think it usually takes to recover from the flu?	Have you gotten a seasonal flu shot in the past two years?	Total
<24 hours	No	1
1-2 days	No	1
	Yes	4
3-4 days	No	9
	Yes	12
5-6 days	No	13
	Yes	7
one week or more	No	18
	Yes	28
Grand Total		93

Seriousness and H1N1 Vaccination. Notions of severity of flu and vaccination become even more complicated when it comes to H1N1 vaccination. In the case of the 18-25 year-old respondents, increased perception of seriousness was not consistently associated with H1N1 vaccination. While the majority (71 percent) of respondents answered that the flu took 5 days or more to recover from (answering either “5-6 days” or “one week or more”), the responses did not indicate that the increased perceived seriousness consistently coincided with increased H1N1 vaccination, as the Table 4 illustrates.

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Table 4. Seriousness, flu recovery time, and H1N1 vaccination.

How long do you think it usually takes to recover from the flu?	How serious do you find the flu to be?	Did you get the separate H1N1 (Swine Flu) vaccine in 2009?	Total
<24 hours	Not Serious	No	1
1-2 days	Somewhat Serious	No	2
		Yes	1
	Serious	No	1
		Yes	1
3-4 days	Not Serious	Yes	1
	Somewhat Serious	No	5
		Yes	3
	Serious	No	5
		Yes	4
	Very Serious	No	1
		Yes	2
	5-6 days	Not Serious	No
Somewhat Serious		No	5
		Yes	1
Serious		No	8
		Yes	4
		(blank)	1
one week or more	Not Serious	No	1
	Somewhat Serious	No	6
		Yes	3
	Serious	No	15
		Yes	8
	Very Serious	No	5
		Yes	8
	Grand Total		

Thirty-six respondents reported that they thought that the flu took one week or more to recover from and that they thought the flu was either “very serious” or “serious.” Out of those respondents, 20 did not get the separate H1N1 flu vaccine in 2009 and only 15 did (one respondent did not answer). Expanding the timeframe to include the 5-6 day range as well, yields 12 total respondents who answered that they thought the flu was “serious,” yet only 4 reported getting the separate H1N1 vaccine. Overall, of people who reported increased perceptions of severity regarding flu, 58 percent chose not to get the H1N1 vaccination as opposed to 42 percent who did. This result indicates that, among the respondents to this survey, increased perceived seriousness of flu did not result in an increased likelihood of H1N1 vaccination.

Rationale and Vaccination. We also asked respondents to choose the most influencing factors on their decisions to vaccinate. Looking at those reported rationale among those who have increased

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perceptions of severity also showed some interesting trends that offer some explanations for why, when flu is perceived to be a serious disease, people chose to vaccinate or not vaccinate. These results and analyses are more fully discussed below.

There was a structural difference in the ways these two questions were asked that produced slightly different results between the two questions. Participants were instructed to “check all that apply” if they did get the vaccine, whereas they were asked to “check the two most influencing reasons” if they did not get the vaccine. As a result, many of those who did get the vaccine checked more than three influencing reasons, therefore creating more total responses across the available options even though there were fewer total vaccinated respondents. Given the differences in the numbers, responses have been categorized according to overall theme or sentiment to make the categories and types of responses from vaccinators and non-vaccinators easier to compare across the categories.

Among respondents with increased perceptions of severity who did get the H1N1 vaccine (N=15), the most common influencing factors they reported coalesced around four main responses: access, concern about illness, convenience or routine, and outside influences. Overall, other influences, such as a doctor’s recommendation or information from the media, garnered the most responses, with concern about contracting or spreading illness among the second most-common type of response. Only one response, “Know someone who became really sick with the flu,” yielded zero responses.

Table 5. Factors influencing vaccinators to get H1N1 vaccination.

If you got the separate H1N1 (Swine Flu) vaccine in 2009, what factors influenced your decision to get a vaccination? (Please check all that apply)	Total
Access: Cost (it was free or of minimal cost); School provided it	16
Concern regarding illness: I wanted to prevent myself from getting the flu or have lessened symptoms if I got the flu; To avoid spreading the H1N1 virus to others; I have chronic health problems and am at risk of getting really sick with the flu	20
Other influences: Doctor’s (or other healthcare provider’s) recommendation; It was in the news, on the internet, or other media; Friend/family member/pastor recommendation	24
Convenience/Routine: It’s routine—I always get the flu vaccine, so why not H1N1?; To avoid missing work	9

This distribution of rationale indicates that although the desire to prevent disease is clearly among the top reasons that people chose to vaccinate, respondents reported that positive messages about vaccines from physicians, family, and media as influential more often than concern of the disease. Therefore, this indicates that, for these respondents, while the reducing the risk of contracting H1N1 was an important factor in their decision making, more people responded to the recommendations that were directly communicated to them through people or materials. We could say that they were persuaded by people more than by risk.

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Among respondents with increased perceptions of severity who did not get the H1N1 vaccine (N=20), the most common reason provided by respondents had to do with concern regarding the vaccine, its side effects, and its efficacy.

Table 6. Factors influencing non-vaccinators to get H1N1 vaccination.

If you did not get the separate H1N1 (Swine Flu) vaccine in 2009, please check the two most influencing reasons:	Total
Access: Cost (it was too expensive); Difficult to get the vaccine	5
Concern regarding vaccine: I was afraid I would get the flu from the vaccine; I was afraid of side effects from the vaccine; Do not think the vaccine works; The vaccine was developed too quickly	22
Other influences: Doctor's (or other healthcare provider) did not recommend; Negative media attention; Friend/family member/pastor recommendation NOT to get the vaccine	11
Personal experiences/beliefs: I have little chance of getting the flu; Know someone who became really sick from the vaccine	5

Among non-vaccinators, nearly the opposite case is true. While concern about the risks of the vaccine and information from physicians, family, and media were still the top two influencing reasons reported, the difference between the two top reasons is much greater among non-vaccinators. This seems to indicate that, even among those who perceive the flu to be a serious disease, the severity of side effects is still a more potent perception among these respondents.

Interestingly, “know someone who became really sick from the vaccine” garnered three responses. Considering that respondents could only make two choices among the available influences, this indicates that, for those individuals, the personal connection to someone who thought he/she became sick from the vaccine figured relatively highly in the decision making process. For one of the three who provided this answer as an influencing reason, this was the only reason selected. For the other two, “Friend/family member/pastor recommendation NOT to get the vaccine” and “I was afraid I would get the flu from the vaccine” were the other accompanying influences, which demonstrate fears related to the knowledge that someone became really sick from the vaccine. While three responses is obviously quite low, this does indicate that the perception that vaccines cause disease is a factor in some respondents’ decision making processes—even among those who consider the flu to be a serious disease.

Study Limitations

The 18-25 year old study is limited by the survey method (online) and the specific populations that had access to the survey (college students, staff, and administrators at the community college and college students at Bluefield college). The response rate for the survey was low and those who responded cannot in any way be perceived as representative of the entire 18-25 year old population in the Cumberland Plateau Health District. We were hampered by our inability to access other populations online (for example, employees at the ATT call center).

The survey utilized for the study was designed to incorporate elements that were similar to both the previous online survey given to Virginia Tech undergraduates, Radford nursing students, and

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VTCSOM students (Appendix F). As a result, we were unable to fully compare it to either other study. We had fewer narrative options on the CPHD 18-25 year old survey than the previous survey, which limited the kind of information available to us; when we compared the responses, we realized that the narrative options gave us much richer material to analyze with respect to respondents' beliefs about infectious disease, influenza, and H1N1 flu. The CPHD 18-25 year old survey was also hampered by being made available in the spring rather than during the flu season; our previous survey was conducted late fall and early winter. While students taking final exams do seem to be willing to engage in online surveys (perhaps as a way of procrastinating), we think that a flu survey taken during the flu season is likely to have more accurate responses and perhaps a higher uptake because respondents are thinking about the flu and making active decisions about getting a flu shot at that time.

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Parents Study—Survey

Introduction

The aim of the parents of school-age children survey was to identify factors that influenced parental decisions to vaccinate or not to vaccinate children against 2009-10 H1N1 influenza virus infection and seasonal flu in the 2009-10 and 2010-11 seasons.

This section of the report is organized around the following five questions where the study resulted in statistically significant findings:

- Of the following three factors, logistical concerns, intentional motives, and/or parental disengagement, which one(s) most account(s) for parental decisions to vaccinate or not vaccinate children for H1N1?
- Are there different vaccination rates and parental choices between the three vaccines in question, namely seasonal flu in 2009-10, seasonal flu in 2010-11, and the H1N1 influenza virus in 2009-10, and what might account for these differences?
- Is there an association between socioeconomic status and parental choices?
- What might explain the differences in the vaccination rates of the two schools?
- What are the most salient beliefs about the flu in the study population?

Survey Methodology

The research team consulted Cumberland Plateau Health District in-school vaccination clinic records to identify one elementary school with a high proportion of children vaccinated against H1N1 in the 2009-10 vaccination campaign (Belfast Elementary) and one elementary school with a low proportion of vaccinated children (Cleveland Elementary). Take-home information packets were given to 119 children in the Belfast and Cleveland elementary schools. Each packet included a cover letter describing the project and a request to complete the attached parent survey. Every attempt was made to avoid duplicate surveys so that each family only filled out one survey. Investigators coded every parent survey with an individual identification number. A parent in each household was asked to submit the completed survey back to school with one of their children within one week. Respondents received a small incentive for their participation in the study.

Administrators at Belfast and Cleveland elementary schools collected 97 returned surveys and sent them via United States Postal Service to Virginia Tech for data entry and analysis. Eleven households submitted two or more surveys for multiple children, in which case investigators randomly selected one of the completed surveys for inclusion in the analysis.

Data from 86 households with children who attended Belfast or Cleveland elementary schools was included in analyses. Forty (46.5 percent) surveys were returned by Belfast elementary parents, and 46 (53.5 percent) of the surveys were completed by Cleveland elementary parents.

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With a study population of approximately 119 households, the surveys indicate an 81.5 percent response rate.

Survey Results—Descriptive Data

Personal Information

- Relationship to child/children:
 - Parent 82 (96.5 percent)
 - Grandparent 3 (3.5 percent)
- Number of children (0-18 years) in household:
 - One 12 (16 percent)
 - Two 35 (46.7 percent)
 - Three 22 (29.3 percent)
 - Four 6 (8 percent)
- Primary caregiver to the child/children:
 - Parent 73 (84.9 percent)
 - Grandparent 3 (3.5 percent)
 - Other 10 (11.6 percent)
- Description of household:
 - Single-parent 19 (22.1 percent)
 - Two-parent 62 (72.1 percent)
 - Other 5 (5.8 percent)

Demographic Characteristics

- Highest year of school completed:
 - Some high school 5 (6.2 percent)
 - High school graduate or GED completed 33 (40.7 percent)
 - Vocational, trade, or business certification or associate's degree 10 (12.3 percent)
 - Some college but no degree 16 (19.8 percent)
 - College or graduate degree 17 (21 percent)
- Current employment status:
 - Employed full-time 45 (54.2 percent)
 - Employed part-time 8 (9.6 percent)
 - Disability, temporarily laid off, unemployed, retired 22 (26.5 percent)
 - Other 8 (9.6 percent)

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- Insurance status of child/children:
 - Private 39 (47 percent)
 - Medicaid 32 (38.6 percent)
 - FAMIS 10 (12 percent)
 - No insurance 2 (2.4 percent)
- Annual household income (including all sources):
 - Less than \$15,000 19 (23.1 percent)
 - \$15,000 - \$24,000 19 (23.1 percent)
 - \$25,000 - \$34,000 11 (13.4 percent)
 - \$35,000 - \$50,000 13 (15.9 percent)
 - More than \$50,000 20 (24.4 percent)

Influenza Beliefs and Knowledge

- Has anyone in household had the flu:
 - Yes 69 (82.1 percent)
 - No 15 (17.9 percent)
- Seriousness of the flu:
 - Very serious 34 (40 percent)
 - Serious 37 (43.5 percent)
 - Somewhat serious 10 (11.8 percent)
 - Not serious 4 (4.7 percent)
- Length of time it takes to recover from the flu:
 - 3-4 days 15 (17.6 percent)
 - 5-6 days 20 (23.5 percent)
 - One week or longer 50 (58.8 percent)
- Knowledge of two different flu vaccines during the 2009-2010 flu season:
 - Yes 81 (95.3 percent)
 - No 4 (4.7 percent)

Survey Results—Quantitative Analysis

Analyses were performed on data divided into the following six categories: (1) differences between influenza vaccinations; (2) socioeconomic characteristics; (3) caregiver characteristics; (4) comparison of Belfast and Cleveland; (5) hypothesized factors influencing flu vaccination decision; and (6) influenza beliefs and vaccine knowledge.

Data were organized in 2x2 contingency tables and analyzed by Bowker’s (paired data) or Fisher’s Exact (unpaired data) tests.

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Differences between Influenza Vaccinations

- Survey-reported vaccination rates for Belfast and Cleveland children:
 - Seasonal flu 2010-11: 52 (60.5 percent)
 - Seasonal flu 2009-10: 58 (67.4 percent)
 - H1N1 2009-10: 49 (57 percent)

The proportion of children vaccinated with seasonal flu vaccine in 2009-10 and 2010-11 did not differ (p=0.08).

The proportion of children vaccinated against seasonal flu 2009-10 and the proportion of children vaccinated against H1N1 2009-10 infection (p=.0389) (TABLE 7)

Table 7. Analysis of seasonal flu 2009-10 and H1N1 2009-10 vaccination rates.

Seasonal Flu 2009-10	Yes to H1N1 Vaccine	No to H1N1 Vaccine	Total
Yes	46 (94 percent)	3 (6 percent)	49 (100 percent)
No	12 (32 percent)	25 (68 percent)	37 (100 percent)
Total	58 (67 percent)	28 (33 percent)	86 (100 percent)

*Bowker's Test: p=0.0389

Socioeconomic Characteristics

Analyses of responses for each socioeconomic characteristic (education level, employment status, child insurance status, and annual household income) and the proportions of vaccinated children for the three vaccines were conducted.

Employment Status

Employment status was the only socioeconomic characteristic that appears to influence the parental decision to have a child vaccinated or not vaccinated against seasonal flu 2009-10 and H1N1 2009-10 (TABLES 9 & 10), but not seasonal flu 2010-11. The first analysis (TABLE 8) examined the overall population.

There is a significant difference in the proportion of children vaccinated against H1N1 2009-10 among parents with different employment statuses (p=.0235*). Parents who are employed were less likely to have their children vaccinated against H1N1 2009-10 than parents not employed.

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Table 8. Analysis of H1N1 2009-10 vaccination rates and employment status.

Employment Status	Yes to H1N1 2009-10	No to H1N1 2009-10	Total
Employed	25 (47 percent)	28 (53 percent)	53 (100 percent)
Not employed	22 (73 percent)	8 (27 percent)	30 (100 percent)
Total	47 (57 percent)	36 (43 percent)	83 (100 percent)

*Fisher's Exact Test: $p=0.0235$

This finding is also consistent in the analysis of the Cleveland H1N1 2009-10 vaccination rates and the employment statuses reported (TABLE 9). There is a significant difference in the proportion of Cleveland children vaccinated against H1N1 2009-10 among parents with different employment statuses ($p=.01^*$). Cleveland parents who are employed were less likely to have their child vaccinated against H1N1 in 2009-10.

Table 9. Analysis of H1N1 2009-10 vaccination rates and employment status (Cleveland).

Employment Status	Yes to H1N1 2009-10	No to H1N1 2009-10	Total
Employed	8 (31 percent)	18 (69 percent)	26 (100 percent)
Not Employed	12 (71 percent)	5 (29 percent)	17 (100 percent)
Total	20 (47 percent)	23 (53 percent)	43 (100 percent)

*Fisher's Exact Test: $p=0.0261$

In addition, this finding is evident in the analysis of the Cleveland seasonal flu 2009-2010 rates and identified employment status (TABLE 10). There is a significant difference in the proportion of Cleveland children vaccinated against seasonal flu 2009-2010 among parents with different employment statuses ($p=0.0261^*$). Cleveland parents who are employed were less likely to have their child vaccinated against seasonal flu 2009-2010 than parents who are not employed.

Table 10. Analysis of seasonal flu 2009-10 vaccination rates and employment status (Cleveland).

Employment Status	Yes to Seasonal Flu Vaccine 2009-10	No to Seasonal Flu Vaccine 2009-10	Total
Employed	12 (46 percent)	14 (54 percent)	26 (100 percent)
Not employed	14 (82 percent)	3 (18 percent)	17 (100 percent)
Total	26 (60 percent)	17 (40 percent)	43 (100 percent)

*Fisher's Exact Test: $p=0.0143$

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Other Socioeconomic Characteristics

This survey did not indicate that education level, child insurance status, and annual household income affected seasonal flu and H1N1 vaccination decisions in the survey sample.

Caregiver Characteristics

TABLE 11 revealed a significant difference in the decision to have children vaccinated against seasonal flu 2009-10 among individuals with different household roles (p=.03*). Households were less likely to consent to have children vaccinated for seasonal flu in 2009-10 if the responding parent was the primary caregiver (p=0.05).

Table 11. Analysis of seasonal flu 2009-10 vaccination rates and primary caregiver.

Caregiver	Yes to Seasonal Flu Vaccine 2009-10	No to Seasonal Flu Vaccine 2009-10	Total
Parent	46 (63 percent)	27 (37 percent)	73 (100 percent)
Other	12 (92 percent)	1 (8 percent)	13 (100 percent)
Total	58 (67 percent)	28 (33 percent)	86 (100 percent)

*Fisher's Exact Test: p=0.0526

Comparison of Belfast and Cleveland: H1N1

Survey data revealed important differences between Belfast and Cleveland schools.

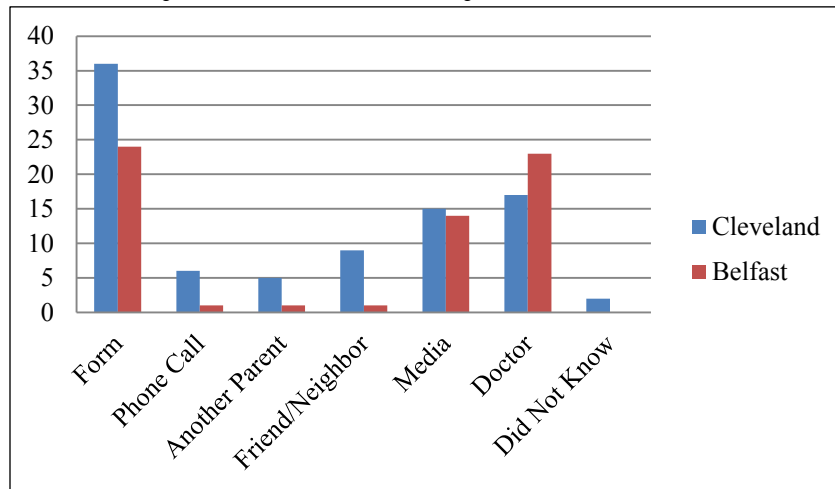
- H1N1 2009-10 Vaccination Rates:
 - Belfast parents: 27 (67.5 percent)
 - Cleveland parents: 22 (47.8 percent)

*Fisher's Exact Test: p=0.0825

- Similarities Between Belfast and Cleveland in Learning about H1N1 (FIGURE 1):
 - High numbers (60 respondents) reported having learned about H1N1 through the school information form.
 - Both groups indicated learning about H1N1 through a doctor (40 respondents).
- Belfast and Cleveland Differences in Learning about H1N1 (FIGURE 1):
 - More Cleveland parents reported learning about H1N1 through the information form (36 respondents compared with 24 Belfast respondents). (p=0.099)
 - More Belfast parents indicated they were educated about H1N1 by a doctor (23 respondents compared with 17 Cleveland respondents). (p=0.0827)
 - More Cleveland parents heard about H1N1 through a friend, neighbor, or another parent (14 respondents compared with 2 Belfast respondents). (p=0.004)

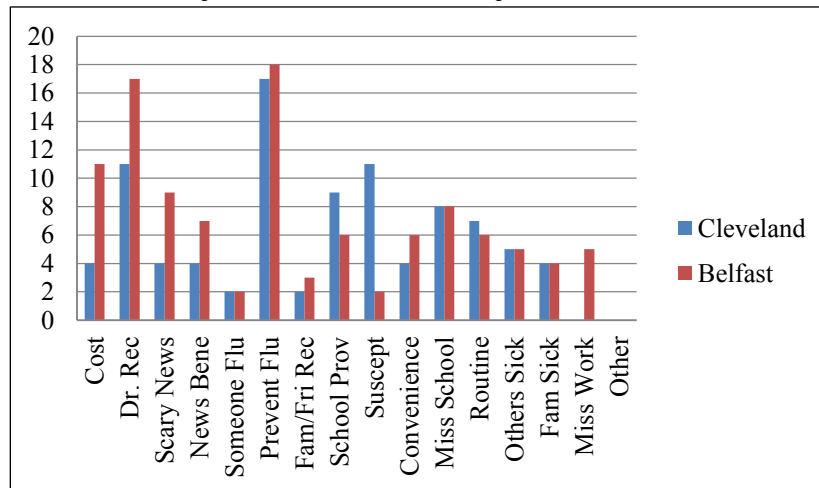
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Figure 1. Sources of Learning about H1N1 2009-10



- Individuals who chose to have their child vaccinated against H1N1 during the 2009-10 season reported the following three factors as the most influential in shaping their decision (FIGURE 2):
 - Prevention of the flu (35 respondents)
 - Doctor’s recommendation (28 respondents)
 - To avoid child missing school (16 respondents)

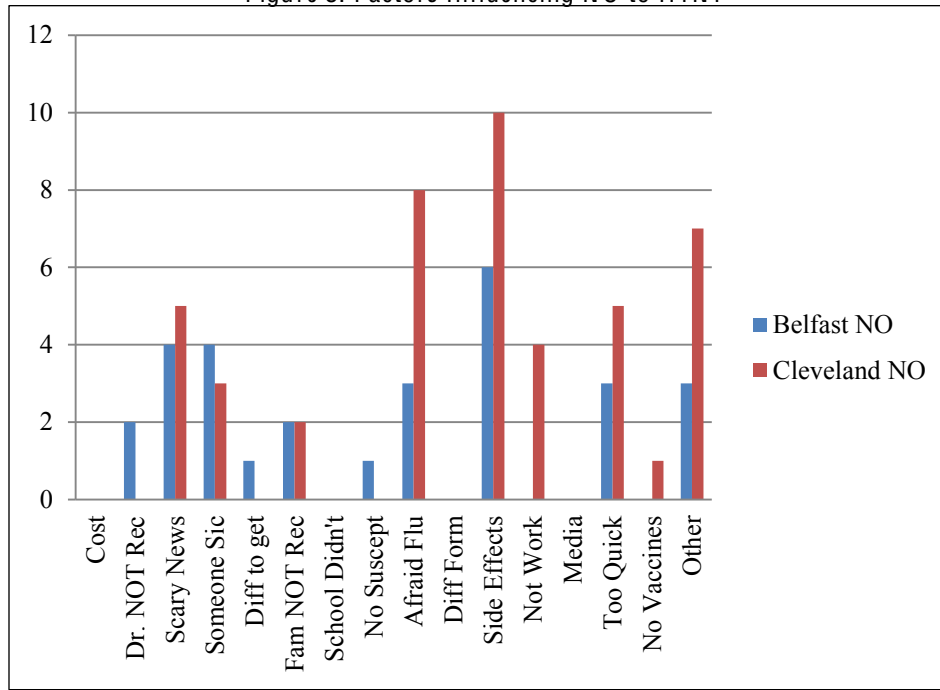
Figure 2. Factors Influencing YES to H1N1



- Individuals who did not chose to have their child vaccinated against H1N1 during the 2009-10 season reported the following three factors as the most influential in shaping their decision (FIGURE 3):
 - Side effects from the vaccine (16 respondents)
 - Fear of child getting the flu from the vaccine (11 respondents)
 - Other personal reasons (10 respondents)

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Figure 3. Factors Influencing NO to H1N1



Hypothesized Factors Influencing Flu Vaccination Decision

Logistics and Intentional Decisions

Two check-all-that-apply questions concerning the hypothesized influencing factors of logistics (primarily vaccine cost and accessibility) and intentional motives were analyzed to examine their impact upon parental decision-making concerning the H1N1 2009-2010 vaccination for their children (TABLES 11 & 12, FIGURE 4).

Table 12. Logistical factors influencing vaccination.

	Logistics Questions	Respondent Total
YES to Vaccinating Child Against H1N1	Cost (it was free or of minimal cost)	15
	School provided it	15
	Convenience—it was readily available and easy to get	10
YES to H1N1 Logistics TOTAL		40
NO to Vaccinating Child Against H1N1	Cost (it was too expensive)	0
	Difficult to get vaccine	1
	School did not provide it	0
	School vaccination form was difficult to understand	0
<i>NO to H1N1 Logistics TOTAL</i>		<i>1</i>
LOGISTICS QUESTIONS RESPONDENT TOTAL		41

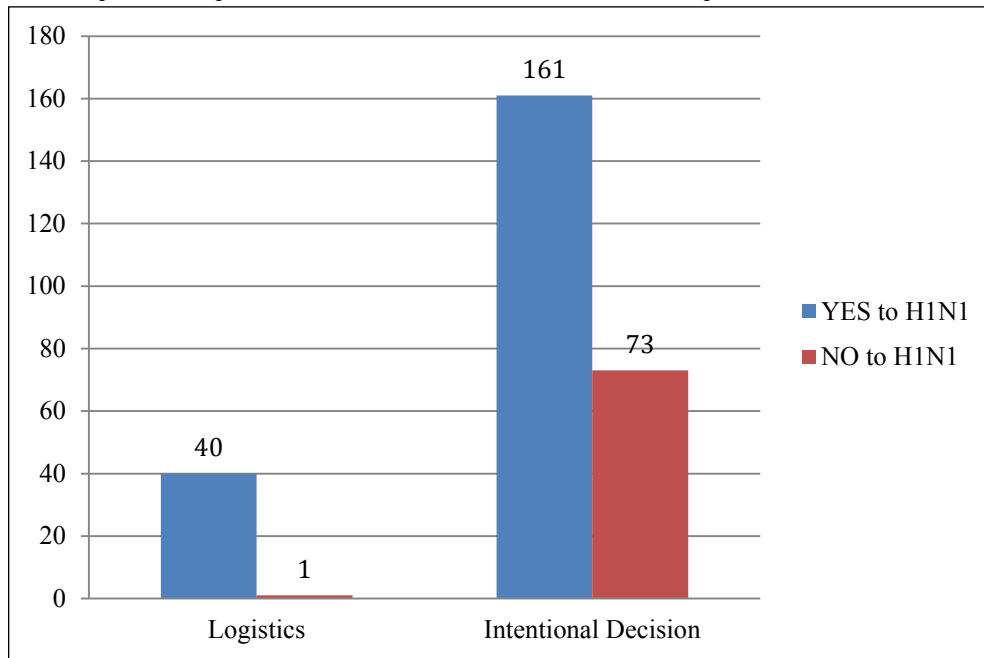
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Table 13. Intentional factors influencing vaccination.

	Intentional Decision Questions	Respondent Total
Yes to Vaccinating Child Against H1N1	Doctor's (or other health care provider's) recommendation	28
	Scary news stories	13
	News stories about vaccine benefit	11
	Knew someone who became really sick with the flu	4
	To prevent my child/children from getting the flu or have lessened symptoms if he/she/they got the flu	35
	Family member, friend, or pastor recommendation	5
	My child/children have chronic health problems and are at risk of getting really sick with the flu	13
	To avoid my child missing school if he/she/they got sick with the flu	16
	It's routine—my child/children always get the flu vaccine, so why not H1N1?	13
	To avoid getting others sick with the H1N1 flu virus	10
	One of my other family members could get sick	8
	To avoid missing work if my child/children was home sick with H1N1 flu	5
	Other	0
	<i>YES to H1N1 Intentional Decision TOTAL</i>	
NO to Vaccinating Child Against H1N1	Doctor (or other health care provider) did not recommend it	2
	Scary news stories	9
	Knew someone who became really sick from the vaccine	7
	Family member, friend, or pastor recommendation NOT to get the vaccine	4
	My child/children have little chance of getting the flu	1
	Was afraid my child/children would get the flu from the vaccine	11
	Was afraid of side effects from the vaccine	16
	Do not think the flu vaccine works	4
	I heard a TV/movie personality urge people not to get the H1N1 flu vaccine	0
	The vaccine was developed too quickly	8
	I don't believe in my child/children receiving any vaccines	1
	Other	10
<i>NO to H1N1 Intentional Decision TOTAL</i>		<i>73</i>
INTENTIONAL DECISION QUESTIONS RESPONDENT TOTAL		234

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Figure 4. Logistics and Intentional Decisions Influencing H1N1 Vaccination



- A comparison of self-reported influences on the decision to have children vaccinated or not vaccinated against H1N1 (FIGURE 4) revealed the following:
 - Parents who did have their child vaccinated against H1N1 appear to have been influenced by both logistical factors and intentional motives.
 - Parents who did not have their child vaccinated against H1N1 do not appear to have been influenced by logistical concerns.

The findings suggest that intentional motives played a strong role in influencing respondents' decisions to vaccinate or not vaccinate their children for H1N1.

Parental Disengagement

Parental disengagement (TABLE 14) was measured by examining two questions within the survey: one related to how parents learned about H1N1 and another concerned how often they check their child's paperwork.

Table 14. Parental disengagement and H1N1 vaccination.

	Parental Engagement Question: How did you learn about H1N1?	Respondent Total
YES to Vaccinating Child Against H1N1	School form sent home with my child/children	31
NO to Vaccinating Against H1N1	School form sent home with my child/children	29

A comparison of the respondent totals for parents who chose to vaccinate at least one child against H1N1 and for parents who chose not to vaccinate their child against H1N1 demonstrates

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that both groups were similarly aware of their child’s school paperwork, including vaccination documents.

Belfast and Cleveland parents also responded similarly to the specific paperwork question.

- How often is child’s paperwork checked:
 - Every day 81 (95.3 percent)
 - Several days/week 4 (4.7 percent)

Parental disengagement, as the survey was able to measure it, does not appear to be a significant influence on the decision to vaccinate or not vaccinate children against H1N1 because high numbers of participants, regardless of their decision, reported parental engagement.

Influenza Beliefs and Vaccine Knowledge

Finally, influenza beliefs and influenza vaccine knowledge among participants were also analyzed for the survey sample population. It should be noted that beliefs about flu severity were the only beliefs about influenza that resulted in significance. The data (TABLE 15) indicates that there is a significant difference in the probability of child vaccination against seasonal flu 2010-11 among parents with different attitudes toward flu severity (p=.009*).

Table 15. Analysis of seasonal flu 2010-11 vaccination rates and influenza severity.

Flu Severity	Yes to Seasonal Flu Vaccine 2010-2011	No to Seasonal Flu Vaccine 2010-2011	Total
Very Serious	27 (79 percent)	7 (21 percent)	34 (100 percent)
Serious	17 (46 percent)	20 (54 percent)	37 (100 percent)
Not Very Serious	7 (50 percent)	7 (50 percent)	14 (100 percent)
Total	51 (60 percent)	34 (40 percent)	85 (100 percent)

*Likelihood Ratio Chi-square: p=0.0092

The three analyses (TABLES 16, 17, & 18) comparing the vaccination rates (seasonal flu 2010-11, seasonal flu 2009-10, and H1N1 flu in 2009-10) and the reported knowledge of two different influenza vaccines during the 2009-10 season resulted in statistical significance.

There is a significant difference in the probability of child vaccination for seasonal flu in 2009-10 among parents with different knowledge of two separate influenza vaccines during the 2009-10 season (p=.01*) (TABLE 16). Parents were more likely to have their children vaccinated for seasonal flu in 2009-10 if they understood that two different flu vaccines existed during the 2009-10 flu season.

Table 16. Analysis of seasonal flu 2009-10 vaccination rates and knowledge of two influenza vaccines.

Knowledge of Two Vaccines in 2009-10	Yes to Seasonal Flu Vaccine 2009-10	No to Seasonal Flu Vaccine 2009-10	Total
Yes	57 (70 percent)	24 (30 percent)	81 (100 percent)
No	0	4 (100 percent)	4 (100 percent)
Total	57 (67 percent)	28 (33 percent)	85 (100 percent)

*Fisher’s Exact Test: p=0.0101

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There is a significant difference in the probability of child vaccination for seasonal flu 2010-11 among parents with different knowledge of two separate influenza vaccines during the 2009-10 season ($p=.02^*$) (TABLE 17). Parents were more likely to have their children vaccinated for seasonal flu 2010-11 if they knew that two different flu vaccines existed during the 2009-10 flu season.

Table 17. Analysis of seasonal flu 2010-11 vaccination rates and knowledge of two influenza vaccines.

Knowledge of Two Vaccines in 2009-10	Yes to Seasonal Flu Vaccine 2010-11	No to Seasonal Flu Vaccine 2010-11	Total
Yes	52 (64 percent)	29 (36 percent)	81 (100 percent)
No	0	4 (100 percent)	4 (100 percent)
Total	52 (61 percent)	33 (39 percent)	85 (100 percent)

*Fisher's Exact Test: $p=0.0202$

Finally, there is a significant difference in the probability of child vaccination for H1N1 2009-10 among parents with different knowledge of two separate influenza vaccines during the 2009-10 season ($p=.02^*$) (TABLE 18). Parents were more likely to vaccinate their children for H1N1 in 2009-10 if they understood that two different flu vaccines existed during the 2009-10 flu season.

Table 18: Analysis of H1N1 2009-10 vaccination rates and knowledge of two influenza vaccines.

Knowledge of Two Vaccines in 2009-10	Yes to H1N1 Vaccine 2009-10	No to H1N1 Vaccine 2009-10	Total
Yes	49 (61 percent)	32 (39 percent)	81 (100 percent)
No	0	4 (100 percent)	4 (100 percent)
Total	57 (67 percent)	28 (33 percent)	85 (100 percent)

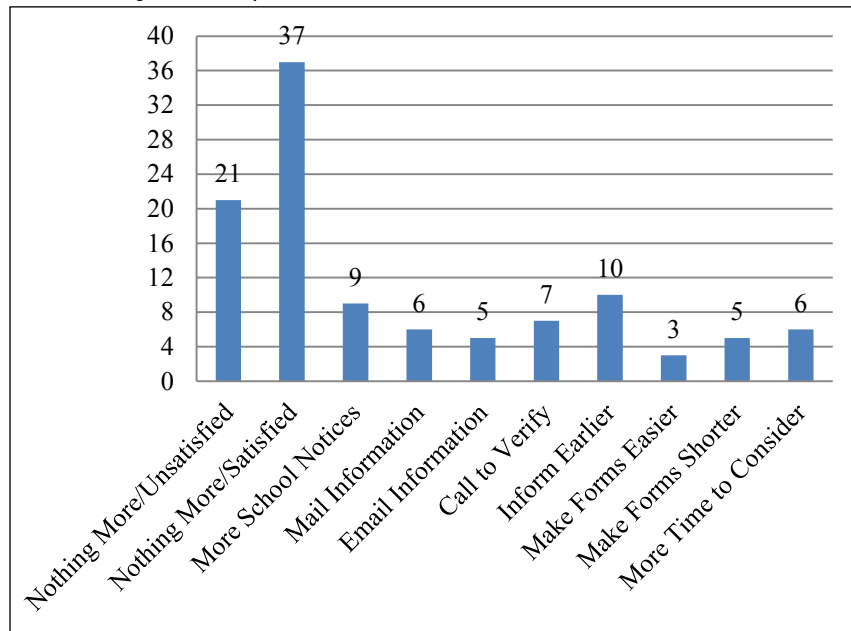
*Fisher's Exact Test: $p=0.0291$

Future Application

The final section of the flu survey asked participants to select additional steps that can be taken by the school system and/or the local health department in the future to improve in-school flu vaccine clinics (FIGURE 5).

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Figure 5. Improvements to In-School Flu Vaccine Clinics



Study Discussion/Key Findings

Several significant findings were obtained in the qualitative and quantitative analyses of this study.

- Differences between Influenza Vaccinations
 - There is a statistically significant difference between the uptake of seasonal flu 2009-10 and the H1N1 2009-10 vaccination rate. Although no inferences can be drawn, it is clear that parents responded differently to the two flu vaccines for their children in 2009-10.
- Socioeconomic Characteristics
 - Employment status proved to be the only significant socioeconomic characteristic that appeared to influence the decision to vaccinate or not vaccinate for H1N1 and seasonal flu in 2009-10. In particular, Cleveland community parents who were employed were less likely to have their children vaccinated against H1N1 2009-10.
- Caregiver Characteristics
 - Primary caregivers who are parents were less likely to vaccinate their children against seasonal flu in 2009-10 than other primary caregivers.
- Comparison of Belfast and Cleveland
 - A higher number of Belfast parents reported having vaccinated their child against H1N1 in 2009-10 than Cleveland parents.
 - High numbers of Belfast and Cleveland parents indicated having learned about H1N1 through the school information form and a physician.

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- More Cleveland parents heard about H1N1 through a friend, neighbor, or another parent.
- Hypothesized Factors Influencing Flu Vaccination Decisions
 - Parents made intentional decisions either to have their child vaccinated or to not have their child vaccinated against H1N1 flu.
 - Logistics concerns did not appear to influence parental decisions not to vaccinate children against H1N1.
 - Parental disengagement does not appear to influence the parental decision to vaccinate or not vaccinate children against H1N1.
 - It appears that not sending back the vaccination form for the H1N1 flu shot represents the intentional decision of parents to not have their child vaccinated for H1N1 at the school clinic.
- Influenza Beliefs and Vaccine Knowledge
 - There is a significant difference in the proportion of children who received the seasonal flu 2010-11 vaccination among parents with different beliefs about flu severity.
 - Parents were more likely to vaccinate their children for seasonal flu 2010-11, seasonal flu 2009-10, and H1N1 2009-10 if they understand that two different influenza vaccinations existed during the 2009-10 flu season.

Study Limitations

- Small sample size limited the power of this study and the ability to do more in-depth comparison between the two schools.
- Ambiguous formulation of demographic questions did not allow for correct assessment of age and gender of respondents.
- Respondents' attitudes toward particular vaccine influences were not evaluated on a continuum. As a result, certain analyses could not be performed on some of the influencing factors data.
- Only a small number of questions about logistical impediments and parental engagement were asked compared to the abundance of intentional decision-making sections within the flu survey. Although responses revealed strong intentional decision-making behind the decision to vaccinate or not vaccinate children for H1N1 2009-10, the roles that logistics and parental engagement played in shaping decisions about flu vaccines are not as well understood due to the limited number of categories relating to these influences. Correspondence with participants to obtain responses for incomplete survey questions was limited due to incorrect contact information.
- Survey distribution late in the school year may have prevented some children from delivering the survey to their parents, and it may have prevented some parents from completing the survey.

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Parent Study—In-depth Interviews

Introduction

The in-depth interviews were designed to supplement the questionnaires in order to evaluate the discursive responses of participants concerning the flu, immunity, and attitudes toward the Health Department. These discursive responses were assessed by both rhetorical and linguistic methods. Rhetorical patterns from the interviews revealed that some participants felt that while influenza can be a serious illness, it is treatable with medical intervention. This belief pattern coincided with reluctance to vaccinate. Some participants also believe that the flu shot causes illness. Related to that belief are the ideas that the flu shot weakens the immune system or that those with strong immune systems do not need to vaccinate. Patterns among vaccinating parents indicate that existing chronic illness can motivate vaccination for children. Linguistic analysis of the interviews reveals that the communities of Cleveland and Belfast have disparate community networks, despite a sense of Appalachian identity at the macro level. At the micro level, these communities function differently with respect to information about flu prevention, receptiveness towards the flu vaccine itself, and towards the school as the locale of delivery. Overall, the rhetorical and linguistic evidence suggests that a blanket approach to flu immunization for this area will not increase overall uptake of the vaccine. In addition, the interviews demonstrate that parents are making intentional and deliberate decisions about vaccinating or not vaccinating their children against seasonal influenza and H1N1 influenza.

Interview Methodology (collection and analysis of transcripts)

Following the return of the completed questionnaires, contact information was shared with the research team, and participants were initially contacted for interviews following a purposeful random selection protocol. To ensure that vaccinators, non-vaccinators, Belfast, and Cleveland were all fairly represented, the initial selection process for the interviews was to call every third vaccinator and every third non-vaccinator in both Belfast and Cleveland schools who had returned their questionnaires. This methodological selection process, however, was simply not effective for a number of reasons. First, the contact information was not up-to-date. Many of the phone numbers that were listed were not working numbers. Second, the interviewers did not have a clear community tie, independent of the Health Department, to draw participants into interviews. And, related, those that were contacted initially were not receptive to speaking to what they interpreted as representatives of the Health Department. When interviewers were interpreted as linked with the Health Department, there was a non-trivial power differential that effectively worked against open communication about vaccination practices—this is discussed in greater detail below. Thus, the original selection method was abandoned in favor of obtaining any interviews, and potential participants were called at will.

A total of 9 interviews were conducted overall comprised of 5 participants from Cleveland and 4 from Belfast. Of the Cleveland 5, 2 were vaccinators and from Belfast, 3 were vaccinators. All interviews took place in the participants' places of residence and were recorded using a marantz PMD 201 digital recorder with PZM soundgrabber microphone.

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The interviews themselves lasted approximately one hour in length and consist of two parts. The first consisted of an informal period of about ten to fifteen minutes of introductory “break the ice” kinds of questions designed to get the interviewee comfortable in the interview situation. The questions were not designed to illicit information that is necessarily pertinent to the current investigation, but rather were spontaneously offered to make the participants as much at ease as possible. The more at ease the participants, the more potentially reliable the information shared in the interview. The second, longer stage of the interview consisted of open-ended discussion on the topic of vaccination and the flu. These questions were designed to elicit detailed responses from participants. The division between initial and second interview stages was crucially not disparate and discrete, but rather followed a more spiral design. That is, when pointed questions regarding the flu were posed and discussed, the interviewer often followed those questions with less direct and open conversation that would, then, flow back into specific flu-related topic. For reference, the guiding questions are offered in Appendix H.

The interviews were transcribed by a trained transcriptionist and checked for reliability by the principal interviewer. The transcription followed basic discourse techniques (cf., Jefferson 1985, 2004), with the strong caveat that discourse transcription is laden with underlying sociopolitical issues (Bucholtz 2007). (See Appendix D for sociolinguistic discourse transcription conventions.) The interviews were not transcribed for extralinguistic features, such as body language and eye contact; handling of linguistic textual analysis was the focus of the study at hand. The interviews then were coded and analyzed for both linguistic and rhetorical properties.

Rhetorical coding of interview data follows from the social science practice of *grounded theory*, which is “a method for generating theory inductively from data systematically gathered through empirical observations of social phenomena within naturalistic settings” (Grubbs and Piantanida, 2010). Transcripts were coded for content themes identified in the surveys and prior research in the field, such as distrust of allopathic medicine, distrust of public health authorities, ideas about “natural” living, lay models of the immune system and health, and connections between vaccination and developmental disorders like autism. The process of working with the interview data adds new codes, enriching the overall picture of the *community of practice* that is using, transforming, and responding to information from various sources.

Systematic coding aims to be exhaustive with respect to the topic under study. Researchers achieve this goal when newly identified materials repeat existing coded categories and offer no new categories for coding (Grubbs and Piantanida, 2010). Cross-coding of all data will be conducted by at least two investigators to ensure inter-rater reliability.

Interview Results

Qualitative Analysis

Those who did not get their children vaccinated for the flu make some of the following claims:

- Flu is not serious or, if serious, can be dealt with through emergency room or doctor visits.

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- Flu shot (especially the H1N1 vaccine) is untested or developed too quickly.
- Flu vaccine makes people sick.
- Flu mist could transmit flu to another child.
- Flu shot weakens one's immune system.

Most participants claim good health and strong immune systems, and yet, in some of the same interviews, stories of serious illness emerge. Families with histories of asthma and serious nasal allergies tend to have more positive attitudes toward flu vaccination and to have their children vaccinated for flu. Families that do not vaccinate children for flu claim that they do not get the flu and that those who do tend to become infected with flu during that same season.

Interview participants whose children were vaccinated mentioned the importance of a previous experience with serious influenza infection in the family (interviews 1009 and 1008) or indicated that other chronic conditions (like asthma or allergy) recommended vaccination for their child or children (interviews 1007 and 1009). Vaccinating parents also mentioned the immune system as a rationale for vaccination, saying that people think that they have strong immune systems and thus don't need flu shots (1008), that one can build immunity through exposure to germs (1008), and that people get sick when they have weak immune systems (1010). At least one interviewee expressed concerns about Flu Mist (1009) and another mentioned bad reactions to the H1N1 vaccination (1010).

Nonvaccinating parents had more to say to the interviewers about vaccination. They were likely to state that their children did not need the flu shot because they did not get the flu (1002, 1003, 1006) or that someone they knew got the flu (seasonal or H1N1) from a vaccination shot (1002, 1004, 1006). These parents mentioned that getting sick meant that one would "fight out" the illness and that they would rather "take their chances" with the flu than get a vaccination for it (1002, 1004, 1006). Indeed, interviewees would rather not take the perceived risks of taking the vaccine, which were perceived as unnecessary risks (1002, 1003, 1006). They made claims about having good ("strong" or "high") immune systems (1006) and suggested that people with weak or low immune systems are the ones who get sick and thus the ones who need the vaccination (1002, 1003). Healthy people, in their eyes, can get over the flu and thus don't need the vaccine (1003, 1006).

There was a strong suggestion that nonvaccinating families felt comfortable using health care services, including the emergency room at the local hospital, when family members did get sick (1002, 1004). Discourses about immunity also included suggestions about how to build up one's immune system—getting sick serves its purpose, as does going out in the cold air (1002, 1004). At least one interviewee indicated that her pediatrician did not recommend the flu shot and suggested she did not feel that they were 100 percent effective (1003). Another interviewee expressed concerns about how quickly the H1N1 vaccine was developed and suggested that vaccines that have been around longer are safer (1002). The interviewed population of nonvaccinating parents were not against vaccination overall, as the children were reported to be up to date on their other mandatory school entry immunizations. Interviewees expressed explicit

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distrust of the flu vaccinations (1002, 1003, 1006). Significantly, none of the interviewed population linked the problems with flu vaccination to prevalent fears associated with other vaccines, such as the spurious link between autism and the MMR vaccine. Interviewees did suggest that their main motivation to vaccinate their children with the mandatory vaccinations was school entry (1003, 1006). At least one interviewee mentioned concerns about the Flu Mist vaccine (1003). Nonvaccinating parents also reported good health with little illness in the family (1004, 1006) even though in at least one of the families the parent being interviewed was contradicted by a child who reminded her mother that both she and her sister had had the Swine Flu the previous winter.

Quantitative Analysis: Linguistic Profile of the Belfast and the Cleveland Communities

The linguistic analysis compared the two communities as compared with each other and with surrounding, contact communities. On two levels the linguistic evidence is significant: (1) Cleveland and Belfast share linguistic features that are not found in immediately surrounding contact language varieties; and, (2) Cleveland and Belfast do not have linguistic inventories of features that are identical to each other. What the linguistic evidence implies, then, is that these communities not only represent themselves as different from each other, but also are functionally different from current varieties of Appalachian English, of which the Cumberland Plateau Health District is a part. The linguistic analysis provides evidence to caution a unilateral approach to health care messages in the Cumberland Plateau Health District. Rather, layered, multimodal methods of both reaching out to and persuading parents may work to increase the uptake of promoted healthcare practices.

Looking specifically at the linguistic features of both regions, Tables 19 and 20 below map the linguistic feature uses in the context of each other and general southern English varieties.

Table 19 illustrates phonological (sound) variation. A check in the box signals that the feature was heard in the interviews and was used more than once. A check in parentheses illustrates that the feature was used sparingly, and a check minus indicates that the feature was not observed in the interviews. It is important to note, however, that there is not an isomorphic correlation between nonobservance of a feature and the overall absence of that feature in the dialects of the region. We are not implying that the feature is absent overall.

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Table 19. Sound features observed in Cleveland and Belfast.

Phonological Feature	Cleveland	Belfast	General Southern
Consonant cluster reduction\ <i>wes</i> ' for <i>west</i>	(✓)	(✓)	(✓)
[Iz] plural following consonant clusters <i>deskes, roastes</i>	(✓)	✓-	✓
Intrusive <i>t</i> <i>oncet</i>	(✓)	(✓)	✓
Copula (Is/Are) Absence <i>You ___ crazy</i>	✓-	✓-	✓
<i>R</i> -lessness <i>mothuh</i> for <i>mother</i>	(✓)	✓-	(✓)
Unstressed syllable deletion <i>'mater</i> for <i>tomato</i>	✓	✓	✓
Initial <i>w</i> loss <i>Young 'uns</i> for <i>young ones</i>	✓	✓	✓
<i>H</i> -retention <i>Hit</i> for <i>it</i>	✓	✓	✓-
[<i>n</i>] for [<i>ŋ</i>] <i>somethin'</i>	✓	✓	✓
+/- voiced velar for [<i>n</i>] or [<i>ŋ</i>] <i>something-gelse</i> <i>Somethink</i>	✓	✓	(✓)
Glide reduction <i>taam</i> for <i>time</i>	✓	✓	✓
[oi] for [ay] <i>toim</i> for <i>time</i>	✓-	✓-	✓-
Fronted /o/ <i>baoot</i> for <i>boat</i>	✓-	✓-	✓
/r/ intrusion <i>worsh</i> for <i>wash</i>	✓-	✓-	✓-
<i>re</i> metathesis <i>hunderd</i> for <i>hundred</i>	(✓)	(✓)	(✓)
[æ] for [ow] <i>feller</i> for <i>fellow</i>	(✓)	(✓)	(✓)
[i] for [ə] <i>Californee</i> for <i>California</i>	✓-	✓-	(✓)
Final stop devoicing <i>helt</i> for <i>held</i>	(✓)	(✓)	✓-
Initial /ð/ loss <i>Put 'em a dog up 'er</i>	✓	✓	✓
[d] for initial [ð] <i>dere</i> for <i>there</i>	(✓)	(✓)	(✓)
Lowered <i>ire</i> sequences <i>tar</i> for <i>tire</i>	✓	✓	✓

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Table 20 maps morphosyntactic (grammar) variation. As with Table 19, a check in the box signals that the feature was heard in the interviews and was used more than once. A check in parentheses illustrates that the feature was used sparingly, and a check minus indicates that the feature was not observed in the interviews.

Table 20. Grammar features of Cleveland and Belfast communities.

Grammatical Feature	Cleveland	Belfast	General Southern
A-prefixing <i>a-hunting</i>	✓	(✓)	✓-
Subject/Verb Concord <i>Some people likes 'maters</i>	✓	✓	✓
Irregular Verbs <i>We throwed them a birthday party</i>	✓	✓	✓
Perfective Done <i>I done forgot</i>	✓	✓	✓
Double Modals <i>I might could do it.</i>	✓	✓	(✓)
Intensifiers <i>You're right smart</i>	✓	✓	✓
-ly absence <i>I come from Virginia original</i>	✓	✓-	✓-
Positive <i>anymore</i> <i>Anymore, I like to watch movies</i>	✓-	✓-	✓-
Multiple negation <i>Nobody seen nothing</i>	✓	✓	✓
Auxiliary contraction and negator <i>I've not for I haven't</i>	(✓)	(✓)	(✓)
Plural Count Noun -s absence <i>ten mile</i>	✓	✓	(✓)
Fixin' to <i>I'm fixin' to do it directly.</i>	✓	✓	(✓)
Article deletion <i>I work at hospital</i>	✓-	✓-	✓-
Article insertion <i>I'm heading to the Walmart</i>	✓	✓	✓
Object for subject pronouns <i>Me and him went to the store</i>	✓	✓	✓
Object pronouns as demonstrative <i>Them movies is scary</i>	✓	✓	✓
Personal datives <i>He got him a scar</i>	✓-	✓-	✓
Irregular Prepositions <i>He wakes up of the morning</i>	✓	(✓)	✓-

Looking closely at the charts, Cleveland and Belfast varieties of English are strikingly similar; there is an overarching tie to each other in relation to regions from outside. Both communities, for example, have no fronted /o/, which indicates that their macro-community is isolated from general Southern varieties where there is a widespread adoption of this feature. Both

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communities also retain a feature called *a*-prefixing, which is a moribund feature in other areas of Appalachia and in general Southern varieties of English. Another commonality between Cleveland and Belfast is their use of +/- voiced velar—that is, pronouncing a word such as *sing* as *sink*. This production of the *-ing* sound is normally associated with stylistic hypercorrection but in these communities this feature appears instead to be an emerging variant (see more discussion below). So, although Cleveland and Belfast share a number of features with each other, Cleveland does vary subtly in its frequency of use from Belfast with respect to *a*-prefixing. Other features, such as irregular uses of pronouns, for example, illustrate a similar pattern of this subtle variation, which is indication of the layers of isolation and networks within these communities.

Thus, while they are very similar to each other from the perspective of outside communities, Cleveland and Belfast are not identical and are therefore unlikely to have the same values and beliefs regarding health care—as well as the same responses to health promotion messaging. The multiple layers of linguistic differentiation is a symbolic representation of the complexity of these communities. Each community represents itself as individual and distinct while at the same time negotiating its identity in relation to surrounding contact language varieties. If these communities are so complex and rich in diversity, then it is possible that other communities within the Cumberland Plateau Health District also cultivate unique linguistic identities, meaning that health messaging that more directly targets the local identities of residents in each community within the Cumberland Plateau Health District could increase uptake of health department community initiatives.

Interview Discussion

Rhetorical Analysis

Parents are making intentional decisions to vaccinate their children for seasonal flu, and made very specific decisions concerning the H1N1 flu vaccinations in 2009-2010. These decisions seem to be based on perceptions of vaccine efficacy, of the seriousness of influenza as an illness, of the potential of the vaccine itself to cause disease, and of immune system response to vaccination. It is clear that concerns about illness resulting from vaccination deter some parents from having their children vaccinated.

Perceptions of illness resulting from vaccination may develop as a result of improper identification of illness versus a robust immune response to vaccination. Public health materials attending to these differences and the possible effects of vaccination might address these concerns. In addition, messaging about flu and flu vaccination needs to address ideas about the immune system, potentially using lay perceptions of immunity and health as starting points for community dialogue. Myths about susceptibility to illness or relative strength of the immune system operate as logical backgrounds for decision making for many if not most participants in the interviews. The live virus in Flu Mist is a concern in the respondent population, as is the nasal mechanism of vaccination, and must be addressed for better uptake in this population.

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The interviews indicate that the schools and health department may not be viewed as the best source of information for all parents. Churches or other community centers or groups may be effective avenues for flu messages or information about vaccines. Yet the survey may indicate that schools, physicians or health care providers, and media are important sources of information relating to vaccines for parents of school-aged children in the Belfast and Cleveland communities.

Perceptions of seriousness, according to the Health Belief Model, should be an indicator of health decisions, but we find that with respect to flu this is not always the case. The 18-25 year old survey indicates that perceptions of seriousness of flu do not always predict vaccination decisions; this finding also surfaces in the interviews with both vaccinating and nonvaccinating parents. Perceptions of the immune system may affect perceptions of disease seriousness. If people believe that getting sick with flu provides a better immune response than being vaccinated, then a serious bout with flu may not be a bad thing, as it gives one's immune system a "good work out." At the same time, people who believe that they get sick with the flu from being vaccinated against it may be misinterpreting their "flu-like symptoms" for the real thing. In that case they may perceive that getting sick with the "real" flu is no worse than getting sick after being vaccinated. Such a perception may lead people to forego the perceived risks of vaccination in favor of chancing the disease itself.

In the interviews, vaccinating parents were more likely to discuss existing disease or health conditions like asthma as a reason to vaccinate, while nonvaccinating parents seemed more likely to focus on good health as a reason not to vaccinate. Nonvaccinators who claimed good health, however, often also reported significant experience with disease during flu season, even if it was not identified as flu. Underlying varying attitudes about flu vaccination may be confusion concerning recently changing recommendations concerning who should get a yearly flu shot. In addition, if families feel that their health care needs can be met adequately with local doctors and the emergency room, they may feel it unnecessary to undergo the perceived risks of vaccination. Also, declaring oneself and one family to be in good health and to have strong immune systems may have moral overtones, so that the suggestion that one needs to be vaccinated when being vaccinated indicates a weak immune system sends a moral message.

There seem to be differing attitudes about H1N1 flu vaccine and seasonal flu vaccine, although such distinctions may be moot as the H1N1 strain is now included in seasonal shots. Some people we interviewed expressed concerns about how "new" the H1N1 vaccine was in 2009-2010, and at least one interviewee suggested that once the vaccine was around for a year, she was comfortable having her child vaccinated with it. We did not see any concerns expressed linking vaccination to developmental delay conditions like autism, even though at least one family interviewed had a special needs child. Instead, concerns about flu vaccination expressed in this survey seem to be specific to flu vaccine, especially concerns about efficacy and concerns about getting flu from being vaccinated.

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Linguistic

The discussion of linguistic findings here relies on a theoretical framework of locality. An extended discussion of this theoretical framework can be found in Appendix C.

The emerging findings of the Cumberland Plateau Flu Study suggest that with respect to vaccination practices, the two communities of Belfast and Cleveland have different concepts of local orientation that vary in degrees of physical, psychological, and sociological isolation. Each community fosters varying densities of community networks and dynamic community practice.

Based on our initial interviews and mirroring its geographic dispersion, Belfast is comprised of a loosely knit, unilateral social network. That is, residents of Belfast do not see each other in a number of different social environments, such as church, work, and the grocery store. Residents of Belfast seem not associate with each other as a whole community, but rather as smaller disassociated groups. Moreover, there appear to be more residents in Belfast who have relocated there from other areas in Southwest Virginia. In sharp contrast to Belfast, Cleveland is a dense, multiplex network where the same groups of residents appear to see each other in an array of different social contexts. Cleveland residents are more likely to have grown up in Cleveland. With respect to notions of locality and isolation, Belfast is much more receptive to outside contact than Cleveland, which is an endocentric community.

The linguistic data to date reinforce this complex, layered sense of micro- and macro-communities. These communities share a constellation of phonological and morphosyntactic features that marks them as distinct within the greater Appalachian region. The production of +/-voiced velar (*-ink* for *-ing*), for example, is unexpected with regard to the surrounding varieties. For decades, variation of the *-ing* forms in the South has been a stable fluctuation between *-ing* and *-in* mainly in linguistic environments where the *-ing* is unstressed. That is, we would find this “g-dropping” in forms like *swimmin’* but not a word such as *sing*. The +/- velar variant has slowly emerged in these Southern varieties as what is labeled a stylistic hypercorrection. In other words, +/- velar typically only appears when a speaker is paying very careful attention to their speech as foil for the absence of the *-g* in the *-ing* sequence. So, the speaker wants to make sure they are prescriptively correct and end up in effect, over-pronouncing the *-g*. In the Cleveland and Belfast communities, the use of the +/- velar variant does not appear to be a hypercorrected form, but rather one that is used as a systematic variant to the “g-dropping” variant. There not enough data to formulate a hypothesis as to the relationship between the two variables, but there is just enough data to point to the fact that Belfast and Cleveland are endocentric communities with respect to the use of this particular and diagnostic variable.

The linguistic evidence also supports the finding that the communities differ in degrees of insulation from each other. Although the overall profile of linguistic features appears to be patterned the same, the frequency of particular features varies subtly between these two communities. For example is the use of *a*-prefixing, which is more prevalent in the Cleveland community than in Belfast. Such difference in degree of feature use reinforces variant levels of network densities.

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To that end, the interpretation of outsiders by these communities varies according to the density of community networks. Belfast, being a less dense network, indicates that it may be more receptive to information introduced by outside organizations. Thus, advertisements, educational events, etc., presented by the Health Department or any other organization would theoretically go farther to encourage individuals to become vaccinators. Cleveland, however, being more dense, would be more likely to be influenced by “insiders” to the community. Thus, community leaders, such as preachers, principals, teachers, coaches, etc., would go farther to facilitate vaccination than officials of the Health Department itself. In fact, churches may be the better choice as a vaccination site than is the school, given that the school as an establishment is already imbued with other government assistance programs. The interviews indeed indicate that the symbolic power of the Health Department is akin to other government departments that regulate and legislate community behavior, at least for the Cleveland community.

Interview Limitations

While extremely informative, the findings here are based on a very small number of informants. Moreover, the informants were interviewed by outsiders to the community associated with two government entities, Virginia Tech and the Health Department. Of those two issues, however, the first is the more problematic. To substantiate these emerging findings, it is crucial to interview as many community participants as possible over a period of 6 months to a year (or more). In addition, it would be helpful for the original participants to be reinterviewed in order to cement the relationship between the participants and interviewers. Trust needs to be built between the interviewers and the community participants in order to yield the best results.

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Discussion and Development of Further Hypotheses and Questions

Recommendations: Future 18-25 Year Old Study

A number of factors regarding survey design could be changed to produce a more robust further study of the 18-25 year old population of the Cumberland Plateau Health District:

Narrative Responses.

Observations: The Virginia Tech survey previously conducted by this research group yielded some of its most interesting data from the narrative responses required by many of the questions. While these were omitted from this survey for ease of survey use and to create similar questions among the Flu Survey given to parents in the Cumberland Plateau Health District (conducted concurrently). However, by limiting participants' opportunities to provide narrative response, we may have missed crucial data regarding their beliefs and opinions surrounding flu and flu vaccine.

Recommendations:

- In future surveys, include more opportunities for narrative responses.
- Redesign survey so that narrative responses about the flu occur earlier in the survey (to create more attentive responses) and leave demographic questions to the end.
- Pursue further research into beliefs about the immune system through open-ended interviews in the context of a broader qualitative study of health beliefs. Such a study could reveal more comprehensively data about how lay concepts of the immune system influence vaccination practices and beliefs in this population.

Timing of Survey.

Observations: Our previous survey was conducted in late fall 2010, during the beginning of flu season. It is possible that, when answered during flu season, certain questions may be answered differently. For instance, there may be increased risk, and therefore a perception of seriousness, associated with the flu during the time of year the flu is typically contracted, so timing could influence those perceptions. Also, factors such as inconvenience associated with getting the flu shot could be more prevalent when answered in a more recent time period.

Recommendation:

- If possible, conduct an additional survey in the late fall or in closer proximity to flu season so that reasons for getting or not getting the flu vaccine are more temporally relevant in respondents' minds.

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Recommendations: Future Parent Study

Survey Recommendations

The data gathered in the parents of school-aged children study revealed the importance of large sample populations. In the future, parent/guardian vaccine surveys should explore distributing surveys to more schools and more school districts to ensure responses to questions are sufficient for a strong analysis, which has the ability to produce robust results. Also, it may prove more advantageous to sample other institutions (e.g. faith-based centers) for hard-to-reach populations, which were not accessible through the school. Additionally, investigators should explore the best methods to measure parental engagement, as a survey alone may be too weak in obtaining this important information.

In-depth Interview Recommendations

Intentional decisions suggest that an opt-out policy concerning seasonal flu vaccination may be an appropriate policy, in that parents would then be motivated to return forms indicating their yes or no decision, rather than the current situation in which mostly yes forms are returned with lack of return of forms reflecting the no decision. In addition, an opt-out policy would force the 19.5 percent of the target population that did not participate in the study to indicate a decision one way or the other with respect to flu vaccination for their children.

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Appendix B—Emily Martin’s *Flexible Bodies*

Summary and discussion.

Emily Martin, in her 1996 book *Flexible Bodies: The Role of Immunity in American Culture from the Days of Polio to the Age of AIDS* (Beacon Press, 1995), outlines the history of 20th-century ideas about immunity in popular culture, science, and ordinary people’s experience. Briefly, pre-1960s popular ideas about the immune system conceptualized the body as fortress with the skin as the most important protection: “In the 1940s and 1950s, seen through the lens of popular publications, the most important threats to health were considered to lie in the environment just outside the body. Enormous attention was devoted to hygiene, cleaning surfaces in the home, clothing, surfaces of the body and wounds with antiseptics” (24); “The most important defense was strictly preventing the entrance of any germs into the interior of the body” (25). Later in the century, another conceptualization materialized, what Martin calls “flexible bodies”: “What we see emerging through the immunologists’ eyes by the late twentieth century, then, is a body that actively relates to the world, that actively selects from a cornucopia of continually produced new antibodies that keep the body healthy and enable it to meet every new challenge. Possessed of agile responses, and flexible specificity, our adroit, innovative bodies are poised to anticipate any conceivable challenge” (37). As one consequence of this view, “the system exists to ward off continual threats. People focus their attention on the well-being of the system rather than on creating an environment that is free from threat” (67). Martin even suggests that many people are attracted to alternative medicine because its view of immunity as a complex immune system seems to “offer a place where the complex systems thinking that so commonly accompanies how people talk about the immune system can meet with an enthusiastic response, a response that is able to subordinate biomedicine by incorporating it” (90).

In her analysis of people’s responses to vaccination, Martin frames these responses in terms of training or education of the immune system: “some people explain how they understand vaccines as training or education for the immune system” (197), but “If vaccines are seen as a form of ‘education’ for the immune system, it does not follow that everyone will desire this ‘education.’ . . . It is as if people are saying to the state as purveyor of health education, and of education for the immune system (in the form of vaccination), Thanks anyway, but my immune system and I will learn to adjust to our environment ourselves” (198). Or “the ‘well-brought-up’ immune system already knows most of what it needs to know and that, even though it is being continually exposed to new pathogens, it is overkill to keep bombarding it with unneeded information” (202). Other interviewees articulated a “fear that vaccines will harm the immune system” (199). Martin comments that those who resist vaccination “may quite reasonably believe that they and their immune systems are already able to change and adapt flexibly, rapidly responding as needed to a continuously changing environment. In such a view, a vaccine, bludgeoning the delicate adjustment of the finely tuned immune system with antigens at a time when there is no actual threat, could easily be seen as something undermining health” (203).

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Appendix C—Sociolinguistic Approaches to Locality

Observations about the communities of Cleveland and Belfast are framed in the theoretical scope of sociolinguistic study of regional variation. *Locality*, in sociolinguistics, is a descriptively nebulous term that may shift focus in order to suit the purpose of any particular study. It has not been uncommon practice, for example, to treat *locality* as implicationally related to *vernacularity*; thus, the more “local” a community is, the more nonstandard and perhaps the more dialectally interesting (c.f. Labov 1963). The *local*, in this sense, is often bounded to physical, geographical space, and the nuances of locality itself—even what simply defines one locality in relation to another—are only pivotal to an analysis to the extent that they inform the particular production or absence of diagnostic features. Local is “other than” and distinctive in comparison to the wider norm (however that may be defined)—thus, insulated or isolated from outside contact (see the following section for the interconnectedness of locality and isolation). At the same time, however, the *local*, may or may *not* be exclusive vis-à-vis surrounding dialects, and often, dialects collocate features (some of which are widely dispersed) into a distinctive *pattern*, rather than as a derivation of restricted marked features (Kretzschmar 2004). In short, *local* is not a reliably discrete label—a community which may be categorized as local in one study is not necessarily defined as such in another (eg., the hazy configuration of what classifies as Appalachian vs. general Southern communities, c.f., Montgomery 2000).

Isolation as Related to Locality

The notion of *locality* dovetails with the construct of isolation. In fact, there is wide overlap between the two concepts. Sociolinguists use the term isolation to indicate relative degree of separation of a particular language community from surrounding contact varieties. Categories of separation may include:

- Physical (involving proximity to other communities, especially towns)
- Sociological (involving the frequency and variety of contact with other communities)
- Economic (involving the exchange of goods, services, and ideas with other communities)
- Psychological (involving the orientation and affinity of one community toward others, attachments to one’s own culture, and openness to change)
- Cultural (involving the maintenance of distinctive practices and beliefs)
- Technological

(Montgomery 2000: 44-5)

Crucially, these categories are not discrete, nor do they represent an exhaustive set. Relocation (Kerswill 1994), for example, may be another key factor in degree of isolation. In fact, each characteristic may be dependent on, connected with, or reinforced by another. For example, sociological isolation, where speakers are separated in their day-to-day contact from surrounding communities, may be directly predicated by the community’s physical remoteness (e.g., Smith

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Island, Maryland, Schilling-Estes (2002). Additionally, a particular community's isolation may be a compound of several factors, such as economic practices as well as access to the media/technology. Or, a group of speakers' psychological isolation might be dependent of the extent of its cultural isolation (e.g., the Lumbee Indians of North Carolina, Dannenberg (2003)).

Further, even though many isolated communities may have had significant out-migration and some in-migration over the course of their histories, the historical continuity of the communities tend to remain constant at their core. Most isolated communities have a central core of members who are able to trace back their family lineage to the local inception of the community. More than that, however, true "membership" of these isolated communities is often tied to such lineage (i.e., whether a speaker's parents, grandparents, and great grandparents were raised in the area).

The picture is even more complex. With respect to sociological isolation, for example, it is equally important to investigate the various types of contact that are involved as it is to identify the levels of contact facing an insular community (Schilling-Estes 2002). So, for example, is contact related to personal associations (e.g., friends, social clubs) or business or economic factors (i.e., work)? Is that contact passive or active (e.g., one-on-one communication or television); mandatory (e.g., one is required by commitment) or optional (e.g., because of personal choice)? Additionally, where does that contact take place? Is the contact within or outside of the particular community in question?

In addition to the classifications that are associated with isolated communities, there are also varying types of isolated communities. That is, open vs. closed and endocentric vs. exocentric communities. Andersen (1988) maintains that it is not unusual for open communities (e.g., those that allow in-migration) to be attitudinally closed, or for closed communities to be open in terms of a wider view of the world. Endocentric communities, however, tend to remain focused on their own internal norms whereas exocentric communities may be aware of norms outside of their own community reference. Increasing contact with isolated communities, then, may exacerbate or blur lines of distinction depending on psychological factors (Wolfram 2004b). As Andersen (1988:74-5) states, "It may be primarily an attitudinal shift from endocentric to exocentric which changes the course of development of a local dialect when it becomes part of a wider socio-spatial grouping [i.e., when it becomes more open] and not just the opening up of new avenues of interdialectal communication" (qtd. in Wolfram (forthcoming: 10-11).

Isolation, in whatever way it is categorized, is not a dichotomous classification. Coinciding with the notion of locality, communities are not simply either isolated or non-isolated. Rather, isolation is relative over time, geography and social space, even in the most extreme dialectical situations.

Theoretical Frame for the Notion of Locality in Sociolinguistics

The *local*, used simply as a descriptor "dresses the window" of community-based studies. In itself, *locality* carries no theoretical weight. However, theoretically pertinent research has developed through rigorous examination of the local vis-à-vis speaker ideology of community. Who speakers talk to, where they talk, and to what degree they interact are key components of

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social network theory (Milroy 1987), for example, which has been singularly instrumental in promoting a theoretically sound methodology by which to assess the rate and trajectory of language change. Social network theory is reliably reproducible across language communities. Network maps can be systematically extrapolated for every individual in every community, and the results of such community-based studies are dependably generalizable on this level. By focusing on speaker relationships within communities, the *local*, then, shifts from an arbitrary conception of geographic space to become the byproduct of speaker association. In this way, the correlation between vernacularity and locality is still assumed; however, their tie is attuned to the agency that the speakers have in creating the local—the more concentrated a speaker’s network is in their neighborhood communities, the more that speaker will adhere to vernacular norms. The *local* is where a speaker’s most tightly-weaved network is constructed.

Building on the idea of social networks, Eckert (1989, 2000, 2004) argues that to truly understand the nature of language variation and the impetus for change, sociolinguists need to explain not only the *local* by way of speaker connectedness, but also in the context of the dynamics of social group membership (i.e., *communities of practice*). Under this line of reasoning, it is crucial to investigate why speakers choose, are chosen, and/or are excluded from relationships. Addressing notions of speaker interactions in this way allows for social power constructs, such as gender, ethnicity, social class, for examples, to be packed into and enrich the concept of *locality*, effectively reshaping the one-to-one relationship between *locality* and *vernacularity* into a dynamic, multi-modal process.

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Appendix D—Sociolinguistic Transcription Conventions

Transcription Conventions	
A: [l B: 't]	Brackets indicate that the portions of enclosed speech are simultaneous. The left-hand bracket marks the beginning of the overlap, the right-hand bracket the end.
A: I was go-	A hyphen represents a syllable which was abruptly cut off.
B: Are you SURE?	Caps (or underlining) indicate heavier emphasis on the word marked.
A: I said that= B: =No you didn't.	Equal signs indicate that the next speaker started precisely at the end of last speaker's utterance.
(.) or ()	Parentheses indicate a short pause.
(.2)	Indicates a pause of 2/10 of a second
(xxxx)	X's mark a stretch of speech which was difficult to transcribe from tape.
Oh yeah?	Question mark marks rising intonation
Hhhhhhhhhhhhh	H's represent laughter.

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Appendix E—18-25 Year Old Survey

Flu Survey

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants in Research involving Human Subjects

Flu Vaccination Beliefs and Practices of 18-25 Year-Old Adults

This survey is part of a study on vaccination practices and beliefs. It is being conducted by Dr. Bernice Hausman through the Department of English at Virginia Tech in Blacksburg, Virginia. The purpose of this study is to assess attitudes about H1N1 and seasonal flu vaccination held by young adults. You will take one online survey that will take about 5 minutes to complete. No risks or discomforts are anticipated from taking part in this survey. If you feel uncomfortable with a question you can skip that question or withdraw from the study altogether. If you decide to quit at any time before you have finished the questionnaire, your answers will not be recorded. You must submit the questionnaire for it to be recorded as part of the study. Your results will be kept completely anonymous.

Your participation in the survey will contribute to further research on the attitudes about vaccination among young adults in southwestern Virginia.

To take this survey you must be at least 18 years old. By taking the survey and submitting it, you are admitting to being 18 years old or older. If you are not 18 years old, do not take the survey.

This survey has been approved by the Virginia Tech Institutional Review Board (IRB) for complying with guidelines concerning research involving human subjects. Any questions about IRB issues should be directed to Dr. David Moore, Chair, Virginia Tech Institutional Review Board for the protection of Human Subjects: telephone: (540)-231-4991; email: moored@vt.edu; address: Office of Research Compliance, 2000 Kraft Drive, Suite 2000 (0497), Virginia Tech, Blacksburg, VA 24061.

BY BEGINNING THE SURVEY, YOU ACKNOWLEDGE THAT YOU HAVE READ THE CONSENT FORM AND CONDITIONS OF THIS PROJECT AND AGREE TO PARTICIPATE IN THIS RESEARCH WITH THE KNOWLEDGE THAT YOU ARE FREE TO WITHDRAW YOUR PARTICIPATION AT ANYTIME WITHOUT PENALTY.

Gender:

Male

Female

Age:

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- 18-19 years
- 20-21 years
- 22-23 years
- 24-25 years
- Over 25

Are you a:

- Full-time student
- Part-time student

What is your major area of study?

- Health care (including nursing and pharmacy)
- Trade or vocational education
- Social Science
- Humanities
- Natural or physical science
- Engineering
- Law
- Creative arts
- Agriculture
- Business
- other:

What is your employment status?

- Employed full-time
- Employed part-time
- Unemployed
- other:

What best describes your current employment (if you have more than one job, check all that apply)?

- Retail (management)
- Retail (clerk)
- Secretarial

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- Trade (automotive, plumbing, electrical, etc.)
- Industrial work (factory)
- Construction
- Service (cosmetology, food service, etc.)
- Business/banking
- Agriculture/farming
- Health care
- Teaching
- Child care (in home)
- Child care (center)

other:

What is your current level of education attained?

- Some high school
- High school graduate
- GED
- Some college
- Trade/technical/vocational training
- College graduate
- Some postgraduate work
- Post graduate degree

other:

Highest level of education of your mother:

- Some high school
- High school graduate
- Some college
- Trade/technical/vocational training
- College graduate
- Some postgraduate work
- Post graduate degree

other:

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Highest level of education of your father:

- Some high school
- High school graduate
- Some college
- Trade/technical/vocational training
- College graduate
- Some postgraduate work
- Post graduate degree
- other:

What is your relationship status?

- Single, never married
- Single, divorced
- Partnered and cohabiting, but not legally married
- Married

Are you a parent?

- Yes
- No

If you are a parent, do your children live with you?

- Yes
- No

Has anyone in your household ever had the flu?

- Yes
- No
- Don't know

How serious do you find the flu to be?

- Very Serious
- Serious
- Somewhat Serious
- Not Serious

How long do you think it usually takes to recover from the flu?

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- <24 hours
- 1-2 days
- 3-4 days
- 5-6 days
- one week or more

Have you gotten a seasonal flu shot in the past two years?

- Yes
- No

If you answered no, please check the two most influencing reasons:

- Inconvenient
- Afraid of side effects
- It was not available
- Did not know there was a vaccination
- No health insurance/was not covered by health insurance

other:

Did you get the separate H1N1 (Swine Flu) vaccine in 2009?

- Yes
- No

If you got the separate H1N1 (Swine Flu) vaccine in 2009, what factors influenced your decision to get a vaccination? (Please check all that apply)

- Cost (it was free or of minimal cost)
- Doctor's (or other healthcare provider's) recommendation
- It was in the news, on the internet, or other media
- Know someone who became really sick with the flu
- I wanted to prevent myself from getting the flu or have lessened symptoms if I got the flu
- Friend/family member/pastor recommendation
- School provided it
- I have chronic health problems and am at risk of getting really sick with the flu
- It's routine—I always get the flu vaccine, so why not H1N1?
- To avoid spreading the H1N1 virus to others
- To avoid missing work

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If you did not get the separate H1N1 (Swine Flu) vaccine in 2009, please check the two most influencing reasons:

- Cost (it was too expensive)
- Doctor's (or other healthcare provider) did not recommend
- Negative media attention
- Know someone who became really sick from the vaccine
- Difficult to get the vaccine
- Friend/family member/pastor recommendation NOT to get the vaccine
- School did not provide it
- I have little chance of getting the flu
- I was afraid I would get the flu from the vaccine
- I was afraid of side effects from the vaccine
- Do not think the vaccine works
- I heard a TV/movie personality suggest not getting the vaccine
- The vaccine was developed too quickly


Where did you get information about the H1N1 (Swine Flu) vaccination?

- Doctor's office
- Television or radio public service announcement
- Local health district office
- College health center
- Newspaper advertisement
- Workplace information
- Pharmacy or drug store
- other:

If you were vaccinated, where were you vaccinated?

- Pharmacy chain (like CVS or Walgreens)
- Superstore pharmacy (like Wal-Mart)
- Workplace
- School
- Doctor's office
- Health district office

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 other:

Are there any other thoughts you would like to share regarding the H1N1 or seasonal flu vaccines?

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**Appendix F—Virginia Tech Undergraduate, Radford Nursing, and
VTCSOM Student Survey and Results**

Vaccination Practices Survey

This survey is part of a study on vaccination practices and beliefs. It is being conducted by Dr. Bernice Hausman through the Department of English at Virginia Tech in Blacksburg, Virginia. The purpose of this study is to assess the contemporary college and health professions student's attitude on vaccination. You will take one online survey that will take about 5 minutes to complete. No risks or discomforts are anticipated from taking part in this survey. If you feel uncomfortable with a question you can skip that question or withdraw from the study altogether. If you decide to quit at any time before you have finished the questionnaire, your answers will not be recorded. You must submit the questionnaire for it to be recorded as part of the study. Your results will be kept completely anonymous.

Your participation in the survey will contribute to further research on the attitudes about vaccination among college and university students.

To take this survey you must be at least 18 years old. By taking the survey and submitting it, you are admitting to being 18 years old or older. If you are not 18 years old, do not take the survey.

This survey has been approved by the Virginia Tech Institutional Review Board (IRB) for complying with guidelines concerning research involving human subjects. Any questions about IRB issues should be directed to Dr. David Moore, Chair, Virginia Tech Institutional Review Board for the protection of Human Subjects: telephone: (540)-231-4991; email: moored@vt.edu; address: Office of Research Compliance, 2000 Kraft Drive, Suite 2000 (0497), Virginia Tech, Blacksburg, VA 24061.

By beginning the survey, you acknowledge that you have read the consent form and conditions of this project and agree to participate in this research with the knowledge that you are free to withdraw your participation at anytime without penalty.

Sex:

- Male
- Female

Racial group identity:

- Caucasian
- American Indian or Alaska Native
- Asian
- African American

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- Native Hawaiian or Other Pacific Islander
- Hispanic
- Latino
- other:

Age:

- 18-23 years
- 24-29 years
- 30-35 years
- 36-41 years
- 42 years and up

Area in which your family home is located:

- Rural
- Urban
- Suburbs

What is your major or study?

- Medicine
- Nursing
- Health Science
- Undergraduate Natural Science
- Undergraduate Engineering
- Undergraduate Architecture/Planning
- Undergraduate Fine Performing Arts
- Undergraduate Social Science
- Undergraduate Humanities
- Undergraduate Natural Resource or Agriculture
- Undergraduate Business
- other:

Highest level of education of your father:

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- Some high school
- High school graduate
- Some college
- Trade/technical/vocational training
- College graduate
- Some postgraduate work
- Post graduate degree
- other:

Highest level of education of your mother:

- Some high school
- High school graduate
- Some college
- Trade/technical/vocational training
- College graduate
- Some postgraduate work
- Post graduate degree
- other:

Belief system you identify with:

- Roman Catholic
- Muslim
- Seventh-Day Adventist
- Mormon
- An Orthodox church such as the Greek or Russian Orthodox Church
- Christian Scientist
- Jewish
- Protestant
- Atheist
- Agnostic
- other:

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Seasonal Flu:

Have you gotten the flu shot in the past two years?

- Yes
- No

If you answered no, please check the two most influencing reasons:

- Inconvenient
- Afraid of side effects
- It was not available
- Did not know there was a vaccination
- No health insurance/was not covered by health insurance

other:

Do you believe the flu vaccine could be dangerous to your health?

- Yes
- No

If you chose yes, please explain why:

What do you believe are the side effects of the flu vaccine? Please explain all that you have heard:

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H1N1 (Swine Flu)

Have you chosen to get the H1N1 (Swine Flu) vaccine since it became available?

Yes

No

If you answered no, please check the two most influencing reasons:

Inconvenient

Afraid of side effects

It was not available

Did not know there was a vaccination

No

other:

Do you believe the H1N1 (Swine Flu) vaccine could be dangerous to your health?

Yes

No

What do you believe are the side effects of the H1N1 (Swine Flu) vaccine? Please explain

Did you receive enough information about the seasonal flu and H1N1 (Swine Flu) vaccinations from your physician or local health care center?

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- Yes
- No
- N/A

How would seasonal flu and H1N1 vaccination information best reach you? (Check up to two)

- TV commercials
- Radio commercials
- Flyers/Handouts
- Posters
- Online advertisements
- Newspaper advertisements
- Magazine advertisements
- Advertisements in pharmacies
- Physicians and Pharmacists

other:

Of the two you chose, which one is most influential?

- Physicians
- Family members
- Friends
- Health articles
- Magazines
- TV
- Public Health Flyers
- Online websites/Internet
- other:

Do you think the vaccinations for the seasonal flu and the H1N1 (Swine Flu) are important public health measure?

- Yes
- No

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If no, why not?

If you get most vaccination information from the Internet, what websites do you use?

Have any of your friends or family been sick with the seasonal flu or H1N1 (Swine Flu)?

- Yes
- No

Did the person's illness affect your decision to be vaccinated against the seasonal flu or H1N1 (swine flu)?

- Yes
- No

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Appendix G—Parent Survey

The full text of the survey sent to parents follows.

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6. What is your yearly household income (include child support, disability checks, etc.)?

- Less than \$15,000
- \$15,000 - \$24,000
- \$25,000 - \$34,000
- \$35,000 - \$50,000
- More than \$50,000

7. Have you or has anyone in your household ever had the flu?

- Yes
- No
- Do not know

8. How serious do you think the flu is?

- Very serious
- Serious
- Somewhat serious
- Not serious

9. How long do you think it usually takes to recover from the flu?

- Less than 24 hours
- 1-2 days
- 3-4 days
- 5-6 days
- One week or longer

10. Did your child/children get the seasonal flu vaccine this year (2010-2011)?

- Yes
- No
- Some but not all
- Do not know

11. Did your child/children get the seasonal flu vaccine last year (2009-2010)?

- Yes
- No
- Some but not all
- Do not know

12. Did your child/children get the H1N1 flu vaccine last year (2009-2010)?

- Yes
- No
- Some but not all
- Do not know

13. If your child/children did get the H1N1 flu vaccine last year, where did your child/children receive it? (Please check all that apply)

- Doctor's office
- School
- Health Department
- Pharmacy
- Hospital
- Other: _____

14. How did you learn about the H1N1 flu vaccine last year (2009-2010)? (Please check all that apply)

- Form sent home with my child/children
- Phone call from school
- Another parent
- Friend or neighbor
- Internet, TV, media source
- Physician or health care provider
- Did not hear about the H1N1 flu vaccine

Please continue to the next page.

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15. During last year's 2009-2010 flu season, did you know that there were two different vaccines (seasonal flu and H1N1 flu) available?

- Yes No Do not know

16. If any of your children RECEIVED the H1N1 flu vaccine in 2009-2010, what helped you decide to have them vaccinated? (Please check all that apply)

- Cost (it was free or of minimal cost)
- Doctor's (or other health care provider's) recommendation
- Scary news stories
- News stories about vaccine benefit
- Knew someone who became really sick with the flu
- To prevent my child/children from getting the flu or have lessened symptoms if he/she/they got the flu
- Family member, friend, or pastor recommendation
- School provided it
- My child/children have chronic health problems and are at risk of getting really sick with the flu
- Convenience—it was readily available and easy to get
- To avoid my child/children missing school if he/she/they got sick with the flu
- It's routine—my child/children always get the flu vaccine, so why not H1N1?
- To avoid getting others sick with the H1N1 flu virus
- One of my other family members could get sick
- To avoid missing work if my child/children was home sick with H1N1 flu
- Other (please describe): _____

17. If any of your children DID NOT RECEIVE the H1N1 flu vaccine in 2009-2010, what helped you decide to NOT have them vaccinated? (Please check all that apply)

- Cost (it was too expensive)
- Doctor (or other health care provider) did not recommend it
- Scary news stories
- Knew someone who became really sick from the vaccine
- Difficult to get the vaccine
- Family member, friend, or pastor recommendation NOT to get the vaccine
- School did not provide it
- My child/children have little chance of getting the flu
- Was afraid my child/children would get the flu from the vaccine
- School vaccination form was difficult to understand
- Was afraid of side effects from the vaccine
- Do not think the flu vaccine works
- I heard a TV/movie personality urge people not to get the H1N1 flu vaccine
- The vaccine was developed too quickly
- I don't believe in my child/children receiving any vaccines
- Other (please describe): _____

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18. Did you know that your child's/children's school (working with the health department) offers flu vaccinations each year?

- Yes No

19. How often do you check your child's/children's school paperwork? (Please check one)

- Every day Several days per week One day per week Once per month Never

20. What more could the school/health department do to make sure you know and feel comfortable about the in-school flu shot clinics? (Please check all that apply)

- There is nothing they can do—I do not want my child to receive the vaccine at school
 They do not need to change anything—I like the way the in-school flu shot clinics are done
 Send more notices home with my child
 Send the information to me by mail
 Send the information to me by e-mail
 Call me to verify I received the information
 Let me know earlier in the school year so that I do not get the shot somewhere else
 Make the forms easier to understand
 Make the forms shorter and less time consuming
 Give me more time to review the forms and send them in

21. Thank you for completing this survey. Please use the space below if there is anything more you would like to add.

***Please send your completed survey back
to receive your \$10 Wal-Mart gift card.***

Survey is complete.

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Appendix H—Interview Questions

Each in-depth parent interview was customized to the needs and situation specific to the interview, though questions about the flu, sickness, and parental engagement (through checking forms/paperwork sent home from school) were asked consistently across interviews. Below are the sample questions and interview design used in the conduct of in-depth interviews for this study.

PART ONE: SAMPLE DEMOGRAPHIC INTERVIEW QUESTIONS (Importantly, the interviewer will not ask the participant all of these questions, but will be able to choose questions to allow for easy, relaxed flow of conversation)

I. DEMOGRAPHY/HISTORY

1. And where were you born? And the community you live in now is _____.
2. How about your parents? Where was your mother born? Your father?
3. Where have you lived besides NAME OF TOWN? How long? How long did you live in _____?
4. Can you trace your family's history back a long way?
 - .1 What do you suppose NAME OF TOWN was like when your family first moved here?
5. Have you traveled much outside of NAME OF TOWN? Where? Where was your favorite place? How come?
6. Can you tell me what kinds of things you and your (husband/wife) have done for a living? (Be sensitive to folks (women?) who have not worked outside the home.)
7. Does it seem like NAME OF TOWN is changing a lot these days?
 - .1 How?
 - .2 What sorts of changes do people talk about?
 - .2.1. How do they feel about them?
 - .3 What changes do you notice? What changes bother you?
 - .4 Do you think the changes are good or bad? Why?

II. GAMES AND LEISURE

1. What games did you play as a child?
 - .1 Which ones did you play the most?
 - .2 Could you describe your favorite game to me?
2. Who did you play with?
 - .1 What kinds of games did you play together?
 - .2 Did you play sports?
 - .1 Which ones?
 - .2 How is (XX) played?
3. What do people here do for entertainment?

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.1 I hear they do a lot of hunting and fishing around here. (FOR MEN:) Do you hunt and fish? What do you hunt/fish? Do you eat XX? How do you fix XX? (if appropriate)
(FOR WOMEN:) Is it true that the men do a lot of hunting and fishing? What do you do when they're off hunting/fishing? Are there a lot of social activities at church? If so, what do the women do?

.2 Are there other outdoor activities you do a lot?

.3 Do people watch a lot of T.V.?

.1 Can you think of one of your favorite programs. What happened? Tell me about it?

.4 How about movies?

.1 Can you tell me about your favorite movie? What was it about?

.5 What about card games? Do you play any of those?

.1 How do you play (XX)?

III. MARRIAGE/DATING

1. How did you meet your husband (wife)?

.1 How did he ask you to marry him?/How did you ask her to marry you?

2. Do most (young) people marry from within the community?

3. What kind of advice can you give someone who's getting ready to get married?

4. What makes a marriage work/not work?

5. How about the way everybody seems to be getting divorced these days? What do you think of that?

6. How about the way people date now compared to the way they used to date?

.1 Do you think times have changed as far as dating?

IV. PREMONITIONS

1. In lots of families there's someone who gets a feeling that something is going to happen and it does happen.

.1 Is there anybody like that in your family?

.2 Do you remember anything like that that came true?

.3 Have you ever experienced deja vu? What was that like?

2. Some people have the same dream all the time. I always have this dream where (XX). Do you ever have the same dream over and over again?

3. What about nightmares? One time I had this nightmare where (XX). What about you? What are some of the really scary nightmares you've had?

4. Have you ever been in a situation where you thought, "This is it. I'm going to die"?

.1 What was that like? Tell me about it.

5. Have you heard of something called a token of death? What is that? Do you know of a situation where somebody actually saw (or heard) a token of death?

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6. Some people say they've seen ghosts? Have you ever known anyone who says they've seen a ghost?

V. COMMUNITY

1. Do people here get together a lot?
 - .1 What are some of the things they do with neighbors?
 - .2 Who are they friends with? What kinds of things do you do with them?
2. How about leaders in the community?
 - .1 Why is he/she a leader?
 - .2 What do you think makes a good leader?
3. Can you think of some ways that neighbors get together and help each other out around here
4. Do you think this is a good place to live? Why/why not?
5. How do the different communities around here get along?)
6. Do you consider yourself Appalachian?
7. Do you consider yourself more African American than Appalachian?

VII. FRIENDS

1. Who is your oldest friend?
 - .1 How did you meet?
 - .2 What makes him/her so special?
 - .3 What about some of your other friends? How would you describe the type of people you are friends with?

VIII. LIVING CONDITIONS

1. What sorts of jobs do people have around here?
 - .1 What do most people do?
 - .2 Are jobs hard to find around here? Has it always been this way?
 - .3 Are any new businesses moving into the area?
 - .4 Are any new people moving in? How do they seem to fit in with the older families? Are there some people who just can't fit in?
2. What sorts of things do people here like to eat?
3. Do people here plant gardens?
 - .1 Do you have any customs associated with planting, like planting according to the signs?

IX. CHURCH AND RELIGION

1. How many churches are there in NAME OF TOWN?
 - .1 Which one do you go to?
 - .2 Who else goes to your church?
 - .3 Who goes to the other churches?

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X. SCHOOL/EDUCATION

1. Did you go to school in NAME OF TOWN?
 - .1 How many grades did you get a chance to finish?
2. Do you think you got a good education here?
 - .1 What would you change?
3. Did you like going to a small school, with all the grades together?
 - .1 What was good about a school like this?
 - .2 What things weren't so good?
4. What were your teachers like?
 - .1 Do you remember a favorite teacher? What was he/she like?
 - .2 How about a teacher you didn't like? What was he/she like?
5. What are some of your best memories from in school?
 - .1 Did the kids used to play pranks? What are some of the pranks you remember?
6. Do you think XX School has changed since you went there? How?
7. What year are you? What's your major? What do you want to do when you get out of school? Etc. (Ask all the school-related stuff)
8. Do you plan to move back to NAME OF TOWN after you graduate?
 - .1 Why/why not?
 - .2 (IF YES:) What do you plan to do there?
 - .3 Are more young people moving away these days? What do you think of that?

PART TWO: QUESTIONS PERTAINING TO FLU AND FLU VACCINATIONS

(Importantly, these questions are samples intended to start conversation around the flu and sickness; questions may change depending on conversation direction).

1. Do you all get sick very often?
2. Do you tend to go to the doctor when you are sick?
3. Did you have the flu this year? If so, how did you know it was the flu?
4. What is healthcare like around here?
5. What do you think of everyone offering shots for the flu—like grocery stores or schools? Would you go to those places, or would you just as soon go to the doctor? Why?
6. Do you all get a lot of paperwork and stuff home from school?
7. Do you tend to check it often?
8. Did you happen to see the flu form that came home?
9. If you did, what did you think about it?
10. Do you think the flu is as serious illness as people say it is? Do the vaccinations help, you think?