2009-2010 HINI Vaccination Program After-Action Review
A Report to the Broome County Health Department

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Table of Contents

Executive Summary ........................................................................................................... i
List of Figures ....................................................................................................................... ii
List of Tables ....................................................................................................................... ii
After-Action Review Overview .......................................................................................... 1
Medical Community Overview ........................................................................................... 2
  Information Distribution ...................................................................................................... 3
  Vaccine Distribution ............................................................................................................. 7
  Opinions of Health Care Staff ............................................................................................ 10
  Summary and Recommendations to HD ............................................................................. 11
Individual Interviews: Overview .......................................................................................... 13
  Vaccines in General ............................................................................................................. 14
  Flu vaccine .......................................................................................................................... 16
  Prevention ............................................................................................................................. 18
  H1N1 Vaccine ..................................................................................................................... 20
  What influenced decision? ................................................................................................... 23
  What would convince you to get the H1N1 vaccine? ........................................................ 25
  Nasal Vaccine ..................................................................................................................... 26
  Information Sources ........................................................................................................... 28
  Pandemic Definition .......................................................................................................... 30
  Pandemic Likelihood .......................................................................................................... 31
  Was H1N1 a pandemic? ...................................................................................................... 32
  Clinics and Alternative Strategies ..................................................................................... 33
  Elderly ................................................................................................................................. 34
  Parents with children < 18 ............................................................................................... 35
  College students ................................................................................................................ 36
  Racial Minorities ................................................................................................................ 38
  Non-English Speakers ........................................................................................................ 39
  Conclusions ........................................................................................................................ 40
  Recommendations .............................................................................................................. Error! Bookmark not defined.
Internet Survey Overview ................................................................................................. 41
Internet Survey Demographics ........................................................................................... 43
Internet Survey Comments ................................................................................................. 45
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Survey Findings</td>
<td>47</td>
</tr>
<tr>
<td>Opinions of the BCHD: An Overview</td>
<td>47</td>
</tr>
<tr>
<td>Vaccine Recipients</td>
<td>48</td>
</tr>
<tr>
<td>Reasons People Did Not Get the H1N1 Vaccine</td>
<td>49</td>
</tr>
<tr>
<td>Virus/Vaccine Sources of Information</td>
<td>50</td>
</tr>
<tr>
<td>H1N1 Vaccine Clinics and Opinion of BCHD</td>
<td>51</td>
</tr>
<tr>
<td>Appendix A:</td>
<td>54</td>
</tr>
<tr>
<td>Survey Monkey Internet Survey Design</td>
<td>54</td>
</tr>
<tr>
<td>Appendix B:</td>
<td>59</td>
</tr>
<tr>
<td>Survey Monkey Online Survey Results</td>
<td>59</td>
</tr>
<tr>
<td>Appendix C:</td>
<td>77</td>
</tr>
<tr>
<td>Survey Monkey Tests for Statistical Significance</td>
<td>77</td>
</tr>
<tr>
<td>Methodology</td>
<td>78</td>
</tr>
<tr>
<td>Data</td>
<td>79</td>
</tr>
</tbody>
</table>
Executive Summary
List of Figures

Figure 1: Role of media in information distribution ................................................................. 4
Figure 2: Information to patients ............................................................................................... 4
Figure 3: The role of BCHD information .................................................................................... 5
Figure 4: Vaccine distribution over time ..................................................................................... 7
Figure 5: Prevention beliefs ......................................................................................................... 19
Figure 6: Reliance on research versus personal experience in decision making ...................... 24
Figure 7: How bad was this past year’s flu season? ................................................................... 32
Figure 8: Was the swine flu a pandemic? .................................................................................. 32
Figure 9: Elderly vaccine opinions ............................................................................................. 34
Figure 10: Vaccine opinions of parents with children under 18 years of age............................. 35
Figure 11: Vaccine opinions of college students ......................................................................... 37
Figure 12: Vaccine opinions of racial minorities ....................................................................... 38
Figure 13: Survey respondents and Broome County population by age group .......................... 43
Figure 14: Please indicate whether you Agree or Disagree with the following general statements regarding Broome County’s response to the H1N1 Pandemic........................................ 47
Figure 15: Did you get the H1N1 Vaccine this year? .................................................................. 48
Figure 16: H1N1 vaccine by receipt of seasonal vaccine ............................................................ 48
Figure 17: Reasons for not getting H1N1 vaccine ...................................................................... 49
Figure 18: How did you learn about and/or follow Broome County’s Health Department H1N1 activities? (select all that apply) ................................................................................. 50
Figure 19: Ratings for BCHD clinics .......................................................................................... 51
Figure 20: Ratings for non-BCHD clinics .................................................................................... 52
Figure 21: After observing the response to the 2009 Influenza Pandemic my perception of the following organizations’ ability to respond to an emergency is. ........................................................................ 53
Figure 22: After observing the response to the 2009 Influenza Pandemic how confident are you in the following organizations’ ability to respond to an emergency ................................................. 53

List of Tables

Table 1: Have you had the flu? Did it influence your decision? Did you get vaccinated? .............. 23
Table 2: Income of survey respondents ....................................................................................... 44
Table 3: Education level of survey respondents ......................................................................... 44
Table 4: Survey respondents who work in health care field ....................................................... 44
After-Action Review Overview

In May 2010, the Broome County Health Department (BCHD) contracted the Center for Applied Community Research and Development (CACRD) to conduct an after-action review of their 2009 – 2010 H1N1 vaccination efforts. This evaluation was comprised of three elements: a vaccine and information flow analysis of the Broome County medical community; resident interviews with selected cohorts of individuals; and analysis of an online survey conducted by the Broome County Health Department.

The purpose of this review is to develop a series of recommendations for BCHD that will allow them to increase vaccination rates in Broome County in the event of another pandemic. In terms of the medical community, we focused on the role that Broome County played as distributor of the H1N1 vaccine and the distributor of information about the H1N1 vaccine. The resident interviews were conducted to determine why individuals within four specific cohorts did or did not receive the H1N1 vaccine. These cohorts were the elderly, parents with children under the age of 18, college students, and racial minorities. We also conducted some interviews to gain insights into the non-English speaking population of Broome County. Finally, the online survey was conducted to assess utilization of and satisfaction with BCHD clinics, clinics operated by entities other than BCHD, and the overall opinion of the public with respect to the BCHD response to the H1N1 pandemic.

This report will present results for each of the three elements of the after-action review plus recommendations suggested by these results. The results are largely qualitative in nature. Therefore, readers should use caution when applying the frequency of responses in the samples to the larger population. The value of qualitative research is to gain understanding of phenomena rather than to quantify or enumerate frequency. Additionally, qualitative research typically endeavors to understand the world from the subject’s perspective rather than that of the “objective other.” However, because we attempted to assess concepts such as health literacy, there are times that the researchers’ voices must break through the perceptions of the subjects. In these cases, we try to compare the subject’s perception of the world with the perception of those in public health.
Medical Community Overview

In order to assess the role that the Broome County Health Department played in the distribution of the H1N1 vaccine and information about the H1N1 vaccine, we interviewed 22 individuals from 11 organizations. These individuals were administrators, pharmacists, doctors, nurses, and office managers from the Broome County Health Department, both of the hospital systems and their affiliated physician offices, physician offices not affiliated with one of the two hospital systems, and other partners in the H1N1 vaccine distribution effort. Because they treated the highest priority groups, we focused on family practice, obstetric and pediatric offices when we interviewed in physician offices.

We used the following semi-structured interview protocol:

- Please describe, from your vantage point, the H1N1 vaccine distribution process.
- Did you feel that you got timely information about how and when you would receive shipments?
- What type of information were you able to give your patients about vaccine availability?
- What types of information did you receive about the H1N1 vaccine?
- From which entities did you receive this information?
- Tell me about the quality of the information that you received.
- Were you able to keep up with the flow of information about the H1N1 vaccine?
- Did you feel that the H1N1 vaccine was safe and effective? In its injectable form? In nasal form?
- What information did you give to patients about the H1N1 vaccine?
- Did you recommend the vaccine to all patients? Why or why not?
- How could vaccine and information distribution be improved in Broome County?

This section will focus on information distribution, vaccine distribution, and opinions of the healthcare community about the H1N1 vaccine and make recommendations regarding the vaccine and information distribution processes.
Information Distribution

One of the roles that the Broome County Health Department (BCHD) played during the 2009 – 2010 influenza season was that of information broker. [From the perspective of the Health Department]

We asked members of the medical community about their sources of information about the H1N1 vaccine and the role that BCHD played in the information distribution process. Overall, participants found the quality to be OK and the amount of information sufficient. Within the hospital systems there were “information filters.” Throughout the hierarchy of these large organizations, providers often relied on someone one level above them to distribute information or respond to questions. Information was received from a variety of sources and not seen as conflicting, although many participants noted that information changed over time. Some providers thought these changes were confusing: “We got everything from New York State Health Department. We would get memos every single day. And then... first it was mandatory to get the vaccine. And then it wasn’t mandatory to get the vaccine. Then people 65 or older could not get the vaccine, and then they could. Then the internasal was only meant for people without asthma or that kind of thing... Oh, and another thing was that if you were young and healthy, you weren’t required to have ... tamiflu. If you had a co-morbidity like asthma, diabetes, or something like that, then we would treat you with tamiflu... if they got the flu.” However, most respondents felt that they were able to keep up with the changes in requirements.

The media played an important role in the distribution of information to the medical community (see Figure 1). Many providers mentioned that the frequent reports on the swine flu and the H1N1 vaccine were “scary” or resulted in “panic” among the general population. While these media reports influenced public perceptions of the pandemic and the safety of the H1N1 vaccine, their circle of influence also included medical providers, particularly front line staff. Another theme that played out in the media

Health Care Workers’ Perceptions of Media Coverage

“The doctors were all up in arms, because they were hearing there were going to be million-bazillion doses ready, and then [the hospital] gets like 20.”

“Katie Couric would say that the CDC was going to release a lot of vaccine. Then CDC was saying [to the public] that there’s no shortage.”

“I actually thought it was made into this humungous deal that it really didn’t have to be. It put patients more into a panic that anything; I think it could have been handled a little calmer. At first when it came out it was like “everybody has to be vaccinated”. Everybody did not have to be vaccinated and people were scared. We ended up telling them that it was the same type of thing, you could have the same reactions as the regular flu shot, you weren’t going to die from it. The chances that you were going to have a reaction was the same as the regular flu vaccine. I think there was more panic in the beginning and as time went on, as with anything new, people really knew how to deal with it and it settled down and got more organized.”

“I think they just overwhelm people and scare people. And I think it’s just... that’s what caused a lot of people—in the beginning—got nasty, because we didn’t have it here... and I think that’s why we felt the media had everyone scared to death.”
that had an impact on the medical establishment were reports that there was a lot of vaccine available and that there wasn't a shortage. These reports conflicted with the experience of providers who knew first hand that the vaccine was in short supply early in the pandemic (see text box on previous page).

In terms of information that was given to patients (see Figure 2), the primary source of information was the Vaccine Information Sheet created by the Centers for Disease Control (CDC). This piece of paper was handed out to all patients, or in the case of one practice, laminated and read while waiting for the vaccination with a hard copy given upon request. Occasionally, other information produced by the CDC was distributed to patients. Binghamton University sent emails to all students containing information provided by the CDC. Some practices utilized CDC posters or changed the recording that patients hear while on hold to convey CDC information to patients.
When it came to the role that the BCHD played in disseminating information about the H1N1 vaccine (Figure 3), respondents frequently used the term “redundant” to describe the quality of the information, “faxes” to describe how the information was received, and “daily” to represent the frequency with which data was received. Only one administrator mentioned the 2-Minute Flu summaries created by the BCHD’s medical director, Dr. Ryan; no front line staff mentioned these documents. Two of the respondents mentioned that the information received from the BCHD was helpful—one relied on the information and the other also received information from the hospital system with which he/she was affiliated.

Those involved in the weekly phone conferences found this form of communication invaluable. One participant stated, “The Health Department was really, really good at keeping us in the loop.”

Figure 3: The role of BCHD information

Health Care Workers’ Perception of BCHD Information

“We have a communication book for the staff and I put memos in there and it seemed like daily things would just appear on the fax. There were things from the Department of Health, just updates, they kept coming and coming. I think I finally just purged it.”

“. . . we were flooded with information.”

“Interviewer: . . . did you feel that you were able to keep up with the information that was coming in?

Subject: {Deep laugh.} It was barely information. A lot of it was redundant, I felt, so I did screen what went out and what didn’t go out. There was a lot of redundancy in the beginning...”

“I don’t feel there was an awful lot of help from the Health Department. They were always faxing something, sometimes two, three times a day.”
Overall, information from the CDC was seen as the gold standard. However, not all providers mentioned getting information from the CDC while all mentioned the New York Department of Health (NYDOH) and/or BCHD. Those that did mention the CDC had to actively seek the information by going to the CDC website. Those that took this step believed that the CDC had the most up-to-date information and a couple of people noted that NYDOH was lagging behind the CDC.

Health Care Workers’ Use of CDC Information

“Our feeling was that if this is what the CDC is saying, we pretty much go by their guidelines.”

“Interviewer: Where did you get information about the flu and the vaccine?

Subject: The CDC website. We really wanted to be right on the mark with what we were giving to patients. We printed posted off the CDC website. We changed our phone message so that when people were on hold they would hear, “Please bring your own reading material with you.””
Vaccine Distribution

Every medical provider interviewed was asked to describe the vaccine distribution process from his/her perspective. Figure 4 summarizes these responses. Early in the distribution process, medical providers from administrators to front line staff describes the process as confusing. There were perceived shortages of vaccines and numerous “problems” noted in the vaccine distribution process. For some, “… it was just a confusing time…”, others direct blame for the confusion to NYDOH.

Many “mistakes” by NYSDOH are mentioned by medical providers, including unexpected shipments of vaccine as well as shipments that were never received. One provider told of a problem with wrong needles. Others noted that nasal vaccine was sent to an obstetric office where it could not be used. One provider stated, “The State needs to learn how to be a wholesaler.” Others found the online ordering and reporting processes confusing. When asked how it worked having the State act as the distributor, there were varying replies. One participant indicated that it worked fine because it “came directly to us. Once the system got up and running, it worked well. They were probably just as overwhelmed as all of us were.” One of the independent providers, however, complained, “The State doesn’t understand our demographics.” They felt that they received their vaccine late because the State didn’t recognize the number of patients that they served.

Figure 4: Vaccine distribution over time
After the initial shipments were made to the largest providers in the County, BCHD reserved 50 percent of the shipments for its own clinics, not knowing how many doses would be in each shipment. It appeared to at least one of the large providers that the County “took over” the vaccine distribution process because the large providers stopped receiving vaccine shipments from the State because the State had started shipping to smaller providers that had not received any vaccine. At that time, the large providers were only receiving redistributed vaccine from the County once BCHD was able to determine how much it needed for its own clinics. Several participants mentioned that BCHD helped them out by redistributing vaccine to them. According to one, they did a “tremendous job” redistributing. For the redistributed vaccine, BCHD expected providers to pick up the vaccine from the Broome County Correctional Facility where it was being stored. Some people were happy to pick up the vaccine from the BCHD. However, one wanted to have it delivered because they didn’t have time to go “chasing down the vaccine”.

Once the vaccine entered the hospital systems, distribution within the hospital systems worked well. Pharmacies prioritized and distributed first to their obstetric, pediatric and family practice offices. Although distribution went smoothly, the lack of information about when vaccine would arrive and how much providers would get made it difficult for some providers to set up vaccination clinics. Others
created waiting lists or asked patients to call on a certain day of the week to find out if vaccine was available.

Information about flu vaccine distribution seems to be an annual problem, as described by one provider when asked what BCHD could do to improve information distribution. “Really, just contacting the offices, the go-to person for the system and then say this is what’s coming, this is what you can expect and I know that they can’t always predict but if the information can flow and not be so secretive. I really feel like it’s a big secret and you’re on a need-to-know basis. I think those responsible for contacting patients need to be kept abreast. I think of a projected plan so we have a way of dealing with it so we can tell patients, yes it will be here. But I don’t know when we’re supposed to have it—October 15?—but we really won’t get it until November.”
Opinions of Health Care Staff

As mentioned in the section on information distribution, health care staff as well as the general public were affected by media portrayals of the H1N1 vaccine. Both hospital systems made efforts to vaccinate staff. Two cultures emerged within the medical community. One demonstrated concern about the vaccine and resulted in a low rate of vaccination. There were concerns that the vaccine was being tested on healthcare workers and frequent mentions of the nasal vaccine being a live attenuated vaccine. The second culture was accepting of the H1N1 vaccine and had a very high rate of vaccination. We refer to these groups as “cultures” because they were not randomly distributed throughout the medical community. Those with concerns about the vaccine generally worked for organizations that were affiliated with each other. Likewise, those organizations were high vaccination rates and acceptance of the H1N1 vaccine were also affiliated with one another.

Culture 1: Low acceptance

“About 50% of the staff got [the] H1N1 [vaccine], and all got seasonal."

“Many employees felt that it hadn’t been tested enough.”

“Interviewer: How do you feel the staff responded to being injected before treating patients?

Subject: It was mixed. There was a lot of questions about Guillain-Barre disease with H1N1.”

“My concern with the nasal vaccine is because it is a love attenuated virus, it is shed, and there’s no studies on what happens or if anything could happen to nurses giving 100, 200 doses in a day.”

Culture 2: High acceptance

“Eventually we did not all have to have the injection, but for the most part, it was well-received by the staff.”

“I think 98% took advantage of it.”

“… had the highest employee vaccination rate we ever had…”
Summary and Recommendations to HD

In hindsight, the vaccine distribution method that evolved during the 2009 – 2010 influenza season may have met the needs of Broome County better than either of the planned or practiced models. In 2009, the BCHD practiced being the sole distributor of vaccine in the event of a pandemic. At the beginning of the actual H1N1 pandemic, the State planned on being the primary distributor of vaccine. The reality that emerged from these alternative approaches was that the State distributed initial doses of the vaccine to the largest vendors. BCHD reserved 50 percent of subsequent shipments for its own use (not knowing how many doses of vaccine would be delivered per shipment). Once the shipment arrived, BCHD determined how many doses it needed to run its clinics and redistributed the leftover vaccine to other providers in the County. While BCHD was receiving 50 percent of the shipments, the State was directing shipments to some of the smaller providers in the County that had registered for direct shipments. This combined approach of State and County distribution benefited from the efficiency of State distribution and the local knowledge of County re-distribution.

Recommendation 1: For this system to work better, BCHD should conduct a census of providers in Broome County to determine the approximate number and type of cases each provider serves. This local knowledge will improve the re-distribution process in the event of another pandemic.

Recommendation 2: Some of the larger providers may not be aware that the reason that they stopped receiving vaccine shipments from the State after the initial shipments was not that the County “took over” the distribution process, but that the State began shipping to the smaller providers. A de-briefing to the [core planning group?] will help clear up any misunderstandings.

Recommendation 3: Provide feedback to the State regarding problems that local providers had with State shipments.

As an information provider, BCHD overwhelmed local providers with information that they already had. As a result, the most beneficial piece of information, the “Two-Minute Flu” summaries created by Dr. Ryan, may have been lost in the shuffle. It was clear from the interviews we conducted that the vast majority of providers are registered with the health information distribution network and receive updates from the State as they become available.

Recommendation 3: Ensure that all providers in the County are registered to receive information from the State.

Recommendation 4: Let providers know that in any future pandemics, BCHD will send out the equivalent of the “Two-Minute Flu” documents that will summarize the State documents.

Finally, all of those who were a part of the weekly conference calls spoke highly of their value. These partners in pandemic control were more informed about the overall strategy and had positive things to say about the BCHD response.
Recommendation 5: Based on the census in Recommendation 1, invite more providers (such as the larger providers not associated with one of the hospital systems and a smaller provider who can provide the perspective of that type of office) to be a part of the weekly conference calls.
Individual Interviews: Overview

Nationally, the H1N1 vaccination rate was approximately 24 percent. This is well below the percentage needed to confer herd immunity. In order to increase vaccination rates in the future, BCHD must understand why individuals chose to or not to get vaccinated for H1N1. We used a semi-structured interview protocol that asked the following questions:

[insert questions]

Participants were given a $5.00 gift card to a local grocery store or the local shopping mall for their participation. Interviews were conducted at the Oakdale Mall, Otsiningo Park (a County park), Binghamton University, two senior centers run by Broome County, and in the homes of Meals on Wheels participants. We interviewed 132 individuals from four cohorts: 45 elderly individuals (age 65 and up), 44 parents with children under the age of 18, 42 college students, and four other adults from racial minority groups. The sum of these numbers exceeds 132 because many individuals fell into more than one category. In addition to these interviews, we conducted nine interviews with non-English speaking individuals. These interviews did not cover the range of topics covered in the interviews of the four primary cohorts. Therefore, the conclusions drawn for this group are more limited.

It is important to note that these interviews together do not constitute a representative sample of Broome County because of the emphasis on the four target cohorts. Additionally, the elderly cohort is not representative because it is comprised entirely of Caucasian individuals. The college student cohort has a larger non-white proportion than the actual enrollment of college students in Broome County. The minority cohort is skewed to the younger age brackets because of the number of individuals who are also college students. The parents with children under 18 cohort is the most representative of the cohorts. Although the lack of representativeness precludes us from enumerating frequencies for the County as a whole or for the cohorts in particular, it does not prevent us from using the data to gain an understanding of the rationale to vaccinate or not to vaccinate utilized by those represented by the sample.

Quotes are used extensively in the following sections and are cited with the cohort to which the speaker belongs. Unless otherwise noted, the perceptions presented apply to all cohorts. Differences in opinions for each cohort are summarized on pages 33 – 38.
Vaccines in General

Overall, those interviewed believed that vaccines prevent diseases and are good, helpful, and necessary. The box on the right presents some selected quotes from those who had a positive reaction to vaccines in general.

Despite the typically positive reaction to vaccines, these responses are not unequivocal. A minority of those interviewed believed that vaccines are “dangerous” and/or need to be studied more before they are given to people. Several people thought that vaccines are particularly necessary for select groups of people, including children and the elderly, and less necessary for people in other age groups. Some people felt there is a lack of information about vaccines, which made them less “comfortable” with the idea of vaccines. Other people felt uneasy about the information they had received, especially information from the media. Some said they had heard that vaccines are harmful to children; they had heard that vaccines may have side effects, including autism. The box below presents some selected quotes from those who are generally positive about vaccines but expressed some concerns.

Positive Attitude about Vaccines in General

“They’re very beneficial to society.” [College Student]

“… the diseases that were out there were devastating and they are very rare now.” [Parent]

(Of course, vaccines are useful and helpful, otherwise they wouldn’t be there.” [Elderly]

“I think that most of them are very effective in eradicating most, like preventing you from getting most of the diseases we have in our world right now.” [Minority]

Positive Attitude, but with Concerns

“In general, from my knowledge, I guess, I don’t know. They’re very, I mean, useful. I’ve been healthy for most of my life without them, and I’ve heard from a lot of people that, you know, I guess, after they get vaccinated, sometimes they might end up getting sick, and—I don’t know. Since I’ve never had any… I guess…” [Minority, College Student]

“I think in general they are good… but sometimes I don’t always get vaccinated depending if I don’t think it’s necessary… but definitely there have been a lot of vaccines that have been very good at promoting public health.” [College Student]

“I personally don’t really get them now. I’m kind of out of the demographic. I would really recommend getting it for children or the elderly. I say, if you don’t really need it, why take it and risk getting sick from it?” [College Student]

“Historically they have definitely been valuable, medically, for things like polio. But often times vaccine industries push them for their own profit.” [College Student]

“They are effective to a certain extent.” [Parent]

“Well, we take them. Think they will help. But in fact, we have a lack of information about that. I don’t feel comfortable at all.” [Minority, Parent]
What the ‘positive with concerns’ quotes reveal is a general lack of understanding about vaccines. As expressed by one parent, “It's confusing what to think about them because there are so many different opinions… and to make a judgment I think you almost have to be a scientist… and to gather all that data is a normal everyday battle because you don’t know who to trust anymore… because politicians lied so much and big corporations are seen as greedy. It’s hard to trust their opinions. You don’t know who to trust.”

Finally, there are those with negative opinions about vaccines in general. The box on the left contains selected quotes from this group.

Several themes emerge in these quotes that can be found interspersed amongst answers for several questions. The first is mistrust or not knowing who to trust. For the parent quoted above, the issue of needing to be able to trust someone for information about vaccines in rooted in a lack of scientific knowledge. A second theme is the lack of information. Despite living in an “information society” facilitated by the internet, many people feel uninformed about vaccines. A third theme is that vaccines = medicine. Several interviewees indicated that they did not like to take too many medicines, and therefore do not want to “take” vaccinations. Fourth, many non-elderly individuals feel that vaccines are not necessary for them as they are not at risk for disease. Finally, from vaccine production to the declaration of the H1N1 pandemic, several people believed that financial gain rather than public health is at the root of recommendations.

Negative Attitude toward Vaccines in General

“Well, obviously the ones that are mandatory I don’t have a say in, so I get them because they’re mandatory and not because I want them for my kids or I’m comfortable with it. There’s, just like anything, risk. I’m not one for medication unless it’s absolutely necessary… it’s kind of like that with vaccines. If they make it so my kids can’t go to school without it, I really don’t have a choice, so.” [Parent]

“Well my, I – I’m kind of leery of them, because I’m not a person who even takes a lot of medicine, so I kind of think sometimes vaccines kind of make the problem worse.” [Minority]
Flu vaccine

Like vaccines in general, most people believe that flu vaccines are good, helpful, effective, and necessary. This view is expressed most strongly among the elderly. As stated by one elderly interviewee, “I got [it]... I think it’s a good idea and people are crazy not to get them.” Some have learned from experience that the flu shot is better than having the flu: “I think it’s really great... because I was sick once with the flu... and I learned to take the shot.” [Elderly]

While the majority of people felt that flu vaccines prevent people from getting sick or sicker, some people thought that flu vaccines are mainly intended for children and the elderly. The box on the right provides some selected quotations from this group of individuals. There are a number of people who felt that flu vaccines are not necessary, especially for healthy individuals with good immune systems (see box below).

A few people believed that flu vaccines are bad, dangerous, and hyped. In some cases, these beliefs stem from inaccurate information about vaccines, as reflected in the first quote on the following page. Others were concerned about side effects. Particularly damaging to the reputation of the flu vaccine was the news story of the cheerleader who developed dystonia after receiving a flu vaccine. This story, which became a “viral video”, was well-known to many college students. The video shows a

Flu Vaccines are Good for Certain People

“I think it’s very essential especially for older adults that have compromised immune systems.” [Minority, Parent]

“I didn’t get one this year. I had one a couple of years ago and it seemed to keep me from getting sick. Last October I got very ill when I couldn’t get my hands on a vaccine. Again, as you get older, you should make sure you get your flu shots and everything.” [College Student]

“I believe it’s absolutely necessary for some people, but not for all. I tend not to get it every year, but if I’m pregnant or something I would get it.” [Parent]

Immune System More Important than Flu Vaccine

“...I’ll take my chances with the flu, and I’m young enough and healthy enough that I feel like I could fight it on my own...” [Parent]

“I just thought it was unnecessary...I mean your immune system can take care of itself if you’re living correctly.” [Minority, Parent]

“Well, I personally, I have never gotten the regular flu vaccine and I’ve never gotten the flu, so I don’t think that it’s absolutely necessary because people have their immune systems, so I personally never for the flu and I never had the flu vaccine.” [College Student]
young woman who cannot walk forward normally, but is apparently able to walk backwards or run forwards fine. Follow-up stories indicate that the woman’s dystonia was psychogenic, however, the follow-up stories do not appear as “more videos like this one” when one is viewing them on You Tube, leaving viewers with only one side of the story.

Negative Beliefs about the Flu Vaccine

“Well, I don’t think about the flu vaccine too much because it’s the flu that’s being pumped into you… so I think you become a carrier instead of one that gets the flu.” [Minority, Parent]

“The flu vaccine is something I don’t agree with. I had the flu once when I was little, but I never got the vaccine because I know people get sick from it. I’m not down with that.” [College Student]

“Interviewer: And what did you think about the flu vaccine?

Subject: It was all hype.” [College Student]

“I haven’t taken it. I know it’s really terrible, but… I saw this thing online of this woman who took it and then she walked backwards. So, then, I didn’t get it done.” [College Student]
Prevention

What some of the responses to the previous question about the flu vaccine reveal is that many people believe that being young and healthy in combination with having a healthy immune system is adequate flu prevention. As summarized by one college student, “I think that the best thing that I do to prevent myself from getting [H1N1] is to eat healthy... and to exercise... and live a healthy lifestyle...”

Most respondents did recognize that flu prevention was related to preventing the spread of germs (Figure 5). In the “prevent spread of germs” group, the most common response to the question of how to prevent H1N1 was “wash hands”. One elderly individual summed up the prevention strategy nicely: “Probably the number one thing is to wash your hands. Probably the number two thing is to cover your mouth or your different organs up when you sneeze or whatever. And number three would be if you do have a problem or are not feeling well, stay at some and don’t go to work or school or public places like grocery stores.”

Some respondents combined the “stay healthy” and “prevent the spread of germs” approaches in their prevention strategies (see box to the right).

In addition to the “stay healthy” and the “prevent the spread of germs” groups, there were a number of miscellaneous responses that indicate that not all people understand how to prevent flu (see box below).

Combined Prevention Strategies

“I think that you do everything that you just do every season. You try to get enough rest, you try to eat right, try to exercise, participate in stress reducing activities. You try not to be around people who are coughing and sneezing all the time. I think it’s mainly airborne, so it’s difficult because you can kind of get it anywhere there are a lot of people.” [College Student]

“I don’t know what causes the swine flu, but like the regular flu, just proper health practices, washing hands, vitamins, keeping the body healthy, regular proper health practices will naturally give you a stronger immune system.” [Minority, College Student]

Miscellaneous Prevention Strategies

“I guess. I mean, on the one hand, I think the only thing they really told you is to stay away from other people if you’ve been sick. That’s not really... what they should be doing is educating people how to be healthy considering that we are the most obese nation in the world...” [College Student]

“Vitamin C... and drinking a lot of good, pure water. Avoiding, avoiding sugar like the plague and salt because that is very bad for you.” [Elderly]
Figure 5: Prevention beliefs

In general, people believed that they had adequate information as how to prevent H1N1. There were a number of people who thought that they did not have adequate information. A few of the people who believed that they had inadequate information mentioned that they need more information on prevention. Most mentioned that they needed more information on the side effects of H1N1 vaccine, the H1N1 itself, symptoms of H1N1, and what to do if sick with H1N1.
**H1N1 Vaccine**

In this sample of individuals, more people were not vaccinated for H1N1 than were vaccinated. Although those not vaccinated against H1N1 were generally negative about the vaccine and those who were vaccinated were generally positive about the vaccine, there were individuals in each group who had suspicions or hesitations about getting the H1N1 vaccine based on the media attention that swine flu and/or the vaccine had received (see box to the right). Additionally, some individuals in both groups thought that the H1N1 vaccine was a useful preventative measure, and/or that people should get vaccinated. For instance, a college student said, “I didn’t get [the H1N1 vaccine]. It slipped my mind. It’s not big in the news anymore, but you should get it.”

Many people who were not vaccinated said that there was not enough research conducted on the vaccine; the vaccine was new and/or rushed; and they were concerned about potential side effects. Some people mentioned that it was scary or they were scared of the vaccine. An elderly individual summarized the situation saying, “They got people scared about [the H1N1 vaccine], and the people were either afraid to get one, afraid that they weren’t tested enough, so people shied away from it, and then they had the clinics and you could get in if you had certain criteria, and that… I think they shot themselves in the foot, you know?”

<table>
<thead>
<tr>
<th>Vaccinated, but with Concerns</th>
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</thead>
<tbody>
<tr>
<td>“Interviewer: And what do you think about the swine flu vaccine, the H1N1?</td>
</tr>
<tr>
<td>Respondent: That one, I was a little bit leery at first, but then I did get all of my shots for that, too.” [Elderly, vaccinated]</td>
</tr>
<tr>
<td>“There is some controversy, but overall I think [the H1N1 vaccine is] a good benefit.” [Parent, vaccinated]</td>
</tr>
<tr>
<td>“I did hear something on TV about mercury in the shot. I myself didn’t get it.” [Parent, vaccinated children]</td>
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<table>
<thead>
<tr>
<th>Vaccine New, Rushed, Not Safe</th>
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<tbody>
<tr>
<td>“I just you know… I don’t feel like… because this is a new vaccine… I don’t feel like it’s safe for my kids.” [Minority, Parent, not vaccinated]</td>
</tr>
<tr>
<td>“…I personally didn’t feel safe getting it done. I felt like it was rushed. They had the vaccine so fast. I heard the vaccine was like a test. All the people I know that got it, nothing bad happened to them.” [Minority, College Student, not vaccinated]</td>
</tr>
<tr>
<td>“Because they made the vaccine too quick. And every time you make something too quick, there’s always a chance for mistakes.” [Elderly, not vaccinated]</td>
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Some people that were interviewed thought that the swine flu was not directly affecting them and therefore did not need the vaccine. Either they did not perceive the swine flu as a threat to this area, or they felt that they were sufficiently healthy to avoid/combat the swine flu and thus felt that the vaccine was not necessary for them. Some mentioned that the H1N1 vaccine was a good idea in areas where swine flu was more prevalent. For example, a college student said, “We didn’t have too many outbreaks so I wasn’t too concerned about it.”

In addition to the “controversy” surrounding the H1N1 vaccine, some people felt that they were being pressured to get it through the use of scare tactics (see box at right).

Finally, as with those who have negative beliefs about the flu vaccine, these beliefs sometimes originate from erroneous information: “I don’t think it’s appropriate. I just think—I don’t think it’s necessary. I think that, you know, it’s one thing to do a flu vaccination, but I just fear that, you know, one vaccination, like the H1N1, is only going to cause like a super—super flu, maybe, like a mutation flu, so I didn’t.” [Parent, not vaccinated]

Many people who were vaccinated said that the H1N1 vaccine was important, necessary, and/or essential, echoing their feelings about vaccines in general. As one college student stated, “Yeah, that’s the things that is going around the world right now… the H1N1… so I think it’s a good thing to get vaccinated.” A minority parent justified her choice to get vaccinated by saying, “… it was the right thing to do.”

Many people justified their choice to get vaccinated simply by stating that they did not want themselves (or their children, in some cases) to become infected with the swine flu. This response was sometimes based on subjects’ past experiences with the flu or their more general belief that vaccines were effective and that the benefits of vaccination outweigh risks.

Some people who were vaccinated couched their responses in terms of personal experience saying that the H1N1 vaccine was “fine” or “okay” because they did not suffer any negative reactions/side effects. A few people who were vaccinated said that they had a pre-existing condition, worked in the medical field, and/or were exposed to many people/children, so they were required or felt that they should be vaccinated.

Regardless of their choice to get vaccinated or to not get vaccinated, many people seemed to agonize over the decision. The “Interview with College Student” in the following box quotes at length
Interview with College Student

Interviewer: Do you think the benefits of getting vaccinated outweigh the risks?

Subject: …Yeah, I would say so. I mean, of course, it’s also…it’s still dependent on the disease, but for the most part, yeah, I would say that it’s, it’s a good thing.

I: …Is there like a particular reason why you think so?

S: …Not…not a particular reason. Just…there are different diseases…that I know I’ve been vaccinated for that, I don’t know, years ago probably when they were coming out, I would be hesitant to go get that vaccine. But there’s that trial and test period, and if – if you get through that period… and everything looks fine, then there’s…

I: …Do you think that the H1N1 vaccine went through that trial and test period, that –

S: No.

I: But you…decided to get it anyway?

S: Yeah.

I: Is there any particular reason?

S: It was more of a crapshoot, because…it being so prevalent, but at the same time, they had tested it on enough people and subjects before I took it. Because I took it late in the season, that I was OK with taking it.

I: You were OK with –

S: I thought it was fine, but then, I mean, no one – I didn’t hear any like horror stories, other than one stupid news article where some woman was walking backwards because she took it, but that was probably a previous disease that was just lingering in her body. I would say that I was…I was hesitant to take it, but I come from a family of physicians, and they’re all like no, too bad, you don’t have a choice in this matter, so.

I: So that’s why you took it, because –

S: It was – it was peer pressure, and my peers were my family.

this struggle. Like most people in this sample, the student believes that the benefits of vaccination outweigh risks. He trusts the “trial and test period” that vaccines go through. However, he didn’t feel that the H1N1 vaccine went through that trial and test period. In the end, he received the vaccine “late in the season” once he was more comfortable with it because swine flu was “so prevalent”. Yet, he describes the decision as “a crapshoot.” Additionally, he was pressured into getting the vaccine by his physician parents.
What influenced decision?

One of the things that influenced many individuals to get the H1N1 vaccine was that they had the flu at one point in their lives. In this section we will explore in greater detail the relationship between “having the flu” and getting vaccinated, individual’s health literacy regarding influenza, and factors influencing decision making.

We asked interviewees whether or not they have ever had the flu. Approximately two-thirds of those we sampled responded that they had the flu at one point in their lives. Of the 82 individuals who said that they have had the flu, 38 percent of them self-diagnosed, 46 percent (n=38) were doctor diagnosed, and 16% were not sure or did not remember how they were diagnosed. Of those diagnosed by a doctor, 10 were diagnosed based on symptoms, 5 responded that they had been “cultured” (a couple specifically mention a throat culture), 4 indicated that they had a blood test, 4 had had a nasal swab and 13 didn’t know or remember (many in this group were elderly individuals who haven’t had the flu since childhood). Additionally, of those who responded that they have had the flu several stated that they get it every year, or get it frequently, or “get a summer flu every year.” Only a few of those interviewed mentioned anything about the severity of influenza. These responses indicate that it is likely that many who say that they have had the flu may be mistaking a cold or other illness such as strep throat for influenza.

Despite any misinformation regarding actually having the flu, do individuals perceptions about having the flu influence their decision to getting vaccinated? From the interviews for which we could answer the following three questions—Have you ever had the flu? Did having/not having the flu influence your decision to get vaccinated? Did you get an H1N1 vaccine?—we tabulated the results presented in Table 1. There are eight possible responses to the three questions. Of the 29 individuals who have had the flu, 20 (71 percent) received an H1N1 vaccine although only 12 believe that having the flu influenced their decision. Of the 19 individuals who have not had the flu, 13 (68 percent) were not vaccinated for H1N1 and only one of these individuals believes that never having the flu influenced the decision. What these results tell us is that having the flu does indeed influence the decision to get vaccinated, even if individuals are not aware of the influence.

Table 1: Have you had the flu? Did it influence your decision? Did you get vaccinated?

<table>
<thead>
<tr>
<th>Answers to three questions</th>
<th># of people</th>
</tr>
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<tbody>
<tr>
<td>Yes, Yes, Yes</td>
<td>12</td>
</tr>
<tr>
<td>Yes, No, Yes</td>
<td>8</td>
</tr>
<tr>
<td>Yes, No, No</td>
<td>8</td>
</tr>
<tr>
<td>Yes, Yes, No</td>
<td>1</td>
</tr>
<tr>
<td>No, No, No</td>
<td>12</td>
</tr>
<tr>
<td>No, Yes, No</td>
<td>1</td>
</tr>
<tr>
<td>No, Yes, Yes</td>
<td>2</td>
</tr>
<tr>
<td>No, No, Yes</td>
<td>4</td>
</tr>
</tbody>
</table>
Another factor that influenced individuals’ decision making regarding vaccination as well as deciding whom to trust for information about flu is reliance on research versus personal experience. As Figure 6 shows, more people rely either on research or personal experience in their decision making rather than a combination of both.

Figure 6: Reliance on research versus personal experience in decision making
What would convince you to get the H1N1 vaccine?

If an interviewee was not vaccinated for H1N1 the interviewer asked him/her what would convince him/her to get vaccinated. The most common response to this question was “nothing”. What is interesting about this group, which is made of members of all cohorts, is that they generally do not trust or are skeptical of government. This makes them atypical for the sample as most of those interviewed from all cohorts indicated trust for government regarding vaccine and flu information.

The second most common response was one that drew on personal experience—typically, if someone “I knew” was sick with swine flu. College students (mostly from racial minority groups) are overrepresented in this group making it the most common response for that cohort. The third most common response was that an individual would have gotten an H1N1 vaccine if the situation was worse—either there were more deaths, or it was more severe, or there was more sickness locally. This group was made up of white college students and white parents. Fourth, there were several individuals, representing all cohorts, who would have received the vaccine if it was recommended by a doctor.

What is particularly interesting about the answers to this question are the responses that are not common. Only three individuals mentioned that they would have received the vaccine if more research had been conducted on it, one person needed more information about the vaccine, and one person cited lack of availability. This seems to indicate that, while there was a great deal of concern about the vaccine being “new”, “rushed”, and “not safe”, these perceptions of the H1N1 vaccine may have been trumped by underlying mistrust for authority and beliefs that the pandemic was not severe or wasn’t a threat to them personally.
The first vaccine made available in Broome County was the intra-nasal vaccine. Much was made in the media about this being a “live” vaccine. Likewise, interviews with healthcare workers also mentioned the fact that the nasal vaccine was a live vaccine. We asked interviewees what they thought of the H1N1 nasal vaccine.

Just over one-fourth of those interviewed had never heard of the nasal vaccine. Most of the members of this group were in the elderly cohort. About the same number of people interviewed thought that the nasal vaccine was a good alternative for kids or for those who don’t like needles (see text box at right).

Less than one-fourth of those interviewed said that they don’t like it or don’t want it (see text box next page). Some thought it not as effective as the injected vaccine; others just stated that they preferred the shot. Interestingly, only five individuals mentioned that the nasal vaccine was a live vaccine. A few thought that there hadn’t been enough research conducted on the nasal vaccine, but these individuals were generally the ones who thought that there hadn’t been enough research conducted on the injected H1N1 vaccine. Some expressed general discomfort with the idea of a nasal vaccine, others had heard of it but had no opinion, and a handful received it.

Nasal Vaccine a Good Alternative

“I think it’s a good way especially for younger children if they don’t want to get the shot.” [Parent]

“I think it was a good alternative. Some people are afraid of needles so the nasal vaccine was a good option.” [Minority, College Student]

“I think it’s a great thing. My five-year-old is terrified of shots, so giving kids an option that’s not so intimidating is a good idea.” [Parent]

“Yeah, well the reason I liked them is because not every place you could get a vaccine necessarily practices all the safety measures that they should be, and the nasal vaccine is a one-time use, you just spray it up your nose and it’s done. With the intravenous vaccine, you still have the ability to get, you know, stuff in there, like other bacteria either from the needle not being taken care of properly—I’d much prefer it having go through the nasal cavity where there’s already a lot of natural barriers, so it has a better chance to fight it just in case anything else gets though.” [Minority, College Student]
Negative Perceptions of H1N1 Nasal Vaccine

“I think I saw someplace where it might not be as good as an injection.” [Parent]

“I think it’s alright. I mean, in general, I don’t think it’s as potent as the injection.” [Elderly]

“I prefer the shot in the arm rather than the nasal.” [Elderly]

“I opted not to get the nasal even though she was old enough to get it due to the fact that it was a live virus. I opted for the shot just because it was more typical to the previous flu shots we’ve gotten before.” [Parent]

“Interviewer: And what did you think about the nasal vaccine option?

Subject: Was that where it was the live…?

I: Yeah, and it was through your nose.

S: That’s the one I did actually. Originally I didn’t want to do it, but that’s all they had.” [College Student]

“I’m not familiar with that one, but that did not turn me on. I rather have the shot. I don’t like anybody messing with my nose.” [Elderly]

“Isn’t that like a new…? Yeah, I can’t do anything like that. It kind of freaks me out.” [College Student]

“I seen it on television but I don’t know… I don’t know if it really works or… cuz no one has really explained what it is supposed to do or how it’s supposed to work. You know… just that… you get a vaccine you might get a slight version of whatever it is you getting the vaccine for.” [Elderly]
Information Sources

In general, parents and the elderly got their vaccine information from regularly scheduled doctor appointments, the local and national news, and the local newspaper. However, more elderly individuals got their vaccine information from the newspaper than parents. Other sources of information for parents include schools, the internet, and work. Some of the elderly individuals who were interviewed at senior centers mentioned the center as a source of information as well.

College students who were not vaccinated got the majority of their vaccine information through email from school and that included the students who went to colleges other than Binghamton University. These students also reported getting vaccine information from TV news such as CNN, Fox News and MSNBC. They also reported using sources such as YouTube, WebMD, Yahoo Main Page and AOL Main Page. They also reported using Google to do general searches on vaccines but did not report the results of those searches.

College students who were vaccinated got the majority of their vaccine information through email from school (this includes a student who attended a school other than BU). They reported a high level of trust in school information: “Because they send out a ton of emails. That’s all they talked about”. Unlike the students who were not vaccinated, the students who were vaccinated also reported getting vaccine information from their personal doctors and other medical professionals.

Very few people recognized the CDC as a source for information. When asked if they got information from the CDC, most people interpreted the question as “Did the CDC send you information?” Practically no one actively went to the CDC website for information or recognized that much of the media information they received originated with the CDC. A few people did get their vaccine information from the Health Department.

Overall trust in information sources is very high, no matter where people choose to get their information although there is some skepticism about the media and the internet. Overall, people trust the CDC, government and the Health Department. There are some who don’t trust “government” but do trust the CDC and/or the Health Department. Some who don’t trust government and/or CDC mention that these entities do things for economic reasons rather than health reasons.

The most trusted source of information is doctors. Any time a doctor was mentioned as an information source, he/she ranked above all other information sources in terms of trust. Binghamton University and information sent from schools to parents was also trusted.

For the most part, the news (television or paper) was a passive form of information in that individuals received information about H1N1 without specifically seeking information about H1N1. Individuals didn’t watch television news or read the paper for the sole purpose of receiving information of the H1N1 pandemic or vaccine. Much of the internet usage as well seems to be a passive information source. When asked if there was a specific web site a parent interviewee went to for information, she responded, “Whatever was on my Road Runner home page. You just link to it.” Occasionally a participant will mention that he/she did an internet search, actively searching for information about
H1N1. These searches were typically a “Google” search, and interviewees were not able to remember the sites that the search led them to.
Pandemic Definition

Almost 25 percent of people interviewed said they didn’t know what a pandemic was. Most of the people in this group were elderly individuals. Of the people who attempted to define pandemic, many described it using the following words: sickness, death, widespread/global in scope, disease that affects “everyone”, disease that spreads quickly, uncontrollable. Many were confused about the relationship between pandemic and epidemic. Some thought it was similar to/the same as an epidemic, not as severe as an epidemic, or more severe than an epidemic.

A minority of people believed that a pandemic is defined as panic or something that “causes pandemonium,” and a few people believed that there are groups who have something to gain financially by defining an outbreak as a pandemic.

Pandemic Definitions

“A pandemic is… I don’t have a really good definition actually, but in laymen’s terms, it’s probably a disease of some sort, an illness, that spreads wildly beyond control of any authorities or higher governments.” [College Student]

“I think it’s something that takes over the population… something that’s growing exponentially to the point that we can’t control or sustain.” [Minority, College Student]

A pandemic is “a mass scare amongst the country or a large group of people.” [College Student]

“I guess if you talk about it quite often with your friends, like in everyday… in a daily basis, that could be considered a yeah, a pandemic.” [Minority, College Student]

“A pandemic is when everyone starts getting nervous and starts panicking about everything.” [Parent]

The [H1N1 outbreak] “was [a] big scare to [help] the pharmaceutical companies make a big bundle.” [Elderly]
Pandemic Likelihood

Most people felt that a pandemic was possible, could happen, or would probably happen in the 21st century (see text box at right). Some people in this category mentioned the history of pandemics (i.e. the 1918 flu pandemic); others mentioned that new diseases/illnesses/etc. are always appearing. Some people felt that a pandemic is more likely in the 21st century than in the past. Those in this category cite increases in transportation/travel; others mentioned populations and people being in close proximity to one another; others mentioned that germs are developing mutations to become more resistant to the current methods of protection/prevention.

Some people felt that a pandemic will happen, but would not be severe, or that a pandemic was less likely in the 21st century. Some reason that medical research, education, medications/vaccines, and/or technology are more advanced than in the past, making a pandemic less likely. Others felt that talk of pandemic is “hype” or that it could only happen through bio-chemical warfare.

Pandemic Likely

“Well that’s a dog-gone good question! There [have] been several different things, outbreaks, all over the world at different times, and I guess partly it’s a question of availability of appropriate medication and communication.” [Elderly, vaccinated]

“Oh, I’m sure it’s going to happen.” [College Student with negative view of vaccines in general]

“I think it’s very possible because of mass transit and continental connections. I also think that the responses to a pandemic could be more effective than they were in the past.” [College Student, vaccinated]

“…. there’s too many people coming and going, you know. I mean there’s…. the world’s such a small place with people hopping on an airplane, they can go anyplace, and I think that people coming from different countries abroad and, you know, meeting in with the different populations. I think it’s very easy to have a pandemic happen.” [Elderly, vaccinated]

Pandemic Not Likely

“I think it’s less likely because of research and education constantly being done. The public is more aware of how to prevent spreading illness.” [Parent, negative opinion about H1N1 vaccine]

“I don’t know. I think it should be rare because of the health and medical supplies we offer now.” [Parent, vaccinated]

“…. Well, I don’t know. I’m not afraid of those kinds of things, and I think again, it’s a lot of media hype. It’s like the worry about 2012…. the world’s going to end. They’ve been crying about pandemics and telling us the big one’s coming and things like that forever…” [Parent with negative view of vaccines in general]

“The only way that would be possible is if another county would use bio-chemical warfare on us, but I think we’re pretty prepared because as soon as the swine flu was out there the government was out there with a vaccine. People in health care, military, they got their vaccine. I think we were very prepared.” [Minority, Parent, vaccinated]

“I think it’s a little more ridiculous because we’ve come so far with vaccines and helping it work and availability of it is much easier to get to. I think we overact sometimes.” [Parent, not vaccinated]
Was H1N1 a pandemic?

Overall, those interviewed did not think that the 2009-2010 flu season was as bad as in years past (Figure 7). Consequently, most people did not view the swine flu as a pandemic (Figure 8). [Look into whether or not those who viewed it as pandemic were more likely to get vaccinated.]

Figure 7: How bad was this past year’s flu season?

Figure 8: Was the swine flu a pandemic?
Clinics and Alternative Strategies

Those interviewed were aware of clinics throughout the area mentioning clinic locations at the Health Department, schools, pharmacies, hospitals and Binghamton University. Most thought they were convenient and available. There were some negative comments, but many of these were hearsay or from individuals who had bad experiences at clinics, such as long lines. Very few people mentioned that clinic available impacted their ability to get vaccinated. Overall, the story that individuals tell about clinics is that they were hard to find in the beginning, but the vaccine was available in many locations by the end of the pandemic.

The number of people who thought that there was a shortage and the number of people who did not think that was shortage was about the same. Those who mentioned a shortage made note that the shortage occurred initially and only lasted a while. Like the negative stories about clinics, a majority of people heard about the shortage from others, including the media and several people did experience the shortage first-hand.

More than 80 percent of those we interviewed said that they would not get vaccinated in a drive-through setting. A majority expressed concerns about safety: making mistakes, lack of sanitation, having a reaction to the vaccine after driving away, etc. Some felt that a drive-through setting was improper for providing vaccinations. Several people in this category mentioned fast food. To paraphrase one interviewee: You get your hamburger from the drive-through – not your vaccine! Some simply preferred their doctor, a clinic, or a medical mini-van (more traditional/familiar medical setting). A few expressed resistance because the concept was unfamiliar or strange to them. A few expressed concern over the medical competency of the person giving the vaccine. A few people could not use this option, as they no longer drive.

In contrast, slightly less than half of those interviewed would get vaccinated if a medical mini-van came to their community and an additional 20 percent would consider such an alternative. Of those who would not use a medical mini-van, many emphasized the importance of having personal contact with a healthcare professional. Some questioned the legitimacy of the medical mini-van (i.e. suspicious/creepy/weird). Some questioned the safety and/or sanitation of the medical mini-van.

[Are these people who were vaccinated anyway?]
Elderly

Despite being the least likely cohort to be infected with H1N1, the elderly were the most likely group to get both seasonal and H1N1 vaccines with 50 percent of those interviewed vaccinated against H1N1. This cohort views vaccines as safe and effective. While some (20 percent) have reservations about the H1N1 vaccine, they are accustomed to getting flu vaccines on an annual basis. Many don’t know the word “pandemic” or were not familiar with the nasal vaccine. They were more trusting than any other group of CDC, government, and Health Department.

![Figure 9: Elderly vaccine opinions](image-url)
Parents with children < 18

Parents are less likely than elderly to view influenza as a serious disease for themselves or their children. 36 percent of the parents vaccinated their children for H1N1 and 26 percent had a negative opinion about the H1N1 vaccine. Comparisons between elderly and parents should be treated with caution as the elderly group contained no racial minorities. An additional category is added for this group as there were five parents who had a positive view of the H1N1 vaccine but were not able to get it for their children, largely due to scheduling conflicts.

As mentioned earlier, this group was more likely to get information from internet than the elderly cohort and also frequently mentioned their child’s school as a source of information. White parents were likely to say that they would have gotten their children vaccinated if they felt that the H1N1 situation was worse in this area.

Figure 10: Vaccine opinions of parents with children under 18 years of age
College students

Overall, college students did not view themselves as at risk for flu and didn’t view flu as a serious disease. They often do not differentiate between the seasonal and H1N1 vaccine and frequently mention the “girl in New Jersey” who had the bad reaction to the seasonal flu vaccine when asked about the H1N1 vaccine. This group, especially minority students, said that knowing someone with H1N1 would have convinced them to get the H1N1 vaccine. White students, on the other hand, said that they would have been convinced to get the H1N1 vaccine if the swine flu was worse in this area.

The students who did not get the vaccine reported many reasons for not getting the vaccine such as the lines being too long and the times being inconvenient but the top two reasons for not getting the vaccine were not being in the risk groups/having a strong immune system and not seeing anyone around them get the virus. Students in this group got the majority of their vaccine information through email from school (including students who went to colleges other than Binghamton University). These students overwhelmingly trust the CDC, BCHD and the government for vaccine information and the BCHD for vaccine administration. These students also reported getting vaccine information from TV news such as CNN, Fox News and MSNBC. They also reported using sources such as YouTube, WebMD, Yahoo Main Page and AOL Main Page. They also reported using Google to do general searches on vaccines but did not report the results of those searches. The students who were not vaccinated believed a pandemic could occur in the 21st century but did not believe that this past year’s H1N1 outbreak was pandemic. It seems that the main reason they didn’t believe it was pandemic is because no one they knew got the flu. They also used the word "hype" in reference to media coverage and school email a great deal and made reference to drug companies being out for profit.

Most of the students who did get the vaccine got it because they did not want to get sick. A few had been sick with the flu before and did not want it again. These students got the majority of their vaccine information through email from school (including one student who attended a school other than Binghamton University). They reported a high level of trust in school information - “Because they send out a ton of emails. That’s all they talked about”. These students overwhelmingly trust the CDC, BCHD and the government for vaccine information and the BCHD for vaccine administration. Students who were vaccinated for H1N1 also reported getting vaccine information from their personal doctors and other medical professionals. With the exception of one student, all the students understood what a pandemic was and believed that the outbreak was or was headed to pandemic status.

Both groups spoke highly of the CDC and a comment that captures their overall attitude towards the CDC is: "They have government brains". They also said they trust the government and a comment that captures their overall attitude towards the government is that the government is "interested in protecting their citizens".
Figure 11: Vaccine opinions of college students
Racial Minorities

In addition to the racial minorities captured in the parents and college student categories, we interviewed four adults with no children. Of these four, none were vaccinated. One was negative about vaccines in general, one did not feel that the H1N1 was necessary for him/her, the third viewed the H1N1 vaccine negatively and the fourth was not able to distinguish between the seasonal flu and the H1N1 vaccine. Overall, as Figure 12 indicates, non-whites held more negative views about vaccines when the results are aggregated. However, 50 percent of the non-white parents we interviewed vaccinated their children as compared to 36 of white parents. The difference is most pronounced among college age students where only one of the 16 non-white students was vaccinated for H1N1 (6 percent) compared to 29 percent of the white college students.

Figure 12: Vaccine opinions of racial minorities
Non-English Speakers

Although we conducted nine interviews with non-English speakers through English as a Second Language (ESL) classes, we were not able to get through the entire interview protocol due to translation difficulties. By talking with teachers and the Executive Director of the American Civic Association, we feel that the non-English population is one that merits additional efforts to reach. According to the 2000 Census, 8.9 percent of the population of Broome County and 13.6 percent of the population of Binghamton, the county’s largest city, speak a language other than English in the home.

Through the interviews we conducted we found that there was large variation in the degree of understanding about where to obtain vaccinations in general and the H1N1 vaccine in particular. This variation is due to level of proficiency in English as well as various differences in cultural understanding about vaccines.

Because of the connectedness of many immigrant groups, we recommend that the BCHD work with the American Civic Association to develop trusted contacts within each community. Immigrant communities often rely on a particular member of their community who has been in the United States long enough to understand both the language and the institutions. By forming relationships with these community members, BCHD will develop a network by which information may be distributed during emergencies. Additionally, BCHD should work with the ESL classes offered through BOCES and Binghamton High School to develop vaccine and flu related curricula.
Conclusions and Recommendations

The national media and the international internet did much to shape the perceptions of Broome County residents with respect to H1N1 and the H1N1 vaccine. It is important to recognize that any local message about influenza or pandemic control or vaccine will need to be able to compete with these media giants who are generally trusted by their viewers. That said, an often cited quote from the field of geography is of use here: “Everything is related to everything else, but near things are more related than distant things.” Although the national media and the internet exert a strong influence on the perceptions of people regarding vaccines in general and the H1N1 vaccine in particular, for many, local information trumps the more distant national media when it comes to determining whether the H1N1 pandemic was indeed a pandemic or deciding to get the H1N1 vaccine. Many of those who did not think the swine flu was a pandemic believed so because they didn’t know anyone infected or didn’t perceive it to be a problem locally. Likewise, many people would have been convinced to get the H1N1 vaccine if someone they knew had contracted swine flu. Finally, the “nearest” connection of all is that those who had the flu were much more likely to get vaccinated for H1N1—personal experience was the most convincing factor.

Unfortunately, the most common answer to the question “what would have convinced you to get an H1N1 vaccine” was not related to geography: the answer was “nothing.” Most of those who answered in this way are those who expressed skepticism and mistrust for government, and by extension, the CDC and BCHD. Reaching this segment of the population may be more difficult than convincing them of the locality of the problem.

Another obstacle to convincing younger adults to get the H1N1 vaccine is the belief that influenza is a disease that is only dangerous to the old or those with compromised immune systems. Many young people believe that being “healthy” is sufficient prevention for flu.

Recommendation 1: Create a flu literacy campaign. The messages that need to be conveyed as a part of this campaign are: 1) Flu is serious disease, 2) All age groups are at risk, 3) Being healthy isn’t enough to protect you from the flu. The message should contain research from the CDC as it is the most trusted source for flu and vaccine information. It should also contain personal stories to connect with those who rely on personal experience more than research. These personal stories should come from people from varied racial backgrounds.

Recommendation 2: Create a pandemic literacy campaign. The messages that need to be conveyed as a part of this campaign are: 1) H1N1 was a pandemic, 2) Pandemics more likely because of travel and population density, and 3) Vaccinations and other ways of preventing spread of germs are effective ways of stopping a pandemic. The message should stress that the pandemic had an impact locally as well as globally.
Internet Survey Overview

The Broome County Health Department (BCHD) created an online survey with Survey Monkey™ to gather resident feedback on their response to the 2009-2010 H1N1 influenza pandemic. The survey was launched on March 7, 2010 and gathered 169 responses before the survey was revised to include additional demographic information. After that modification, the survey was relaunched on May 5, 2010 which yielded another 97 completed surveys. (A map of the survey is available in Appendix A. A complete set of figures from the survey data can be found in Appendix B.)

Based on the basic demographic information collected from the final 97 participants, the sampled population was not representative of the greater Broome County population. Indeed, of 93 participants who identified their race, only two were racial minorities. Further, the age of survey respondents skewed middle-aged, with an oversampling of people aged 30-59.

Response to questions concerning the BCHD were positive, highlighted by the number of people who felt that the health department (a) educated them on how to protect themselves and prevent the flu; (b) kept the public informed about the flu through the media; (c) ran efficient and effective flu clinics that were well-publicized; (d) is prepared for emergencies, and; (e) strengthened public perception of their ability to respond to future emergency situations based on their response to the H1N1 pandemic.

Conversely, residents complained about: (a) the lack of access to vaccines, especially early in the flu season; (b) the safety of the H1N1 vaccine; (c) the amount of media “hype” about H1N1, and the ultimate lack of reported cases to back up the media’s “overreaction”; and (d) flu clinics not being held after work hours, so people with day jobs would be able to attend. The first three complaints may be attributed to vaccine manufacturers, the Centers for Disease Control and Prevention (CDC) or the New York State Department of Health (NYSDOH), but may be mitigated or managed by effective communication from the BCHD about their role in the vaccine and information distribution process. The fourth—that clinics were not offered in the evening—should be taken into consideration for future flu clinics.

Broome County Residents

“The Broome County Health Department’s response was outstanding…”

“I believe they were effective in spreading the word and educating the public about HINI…”

Broome County Residents

“The overwhelming problem was the lack of lack of vaccine during the height of the pandemic in Broome County.”

“Pros/cons of nasal spray vs. injection weren’t very clear.”

“…I was deeply offended by the way this flu and the vaccine were ‘hyped’ in the media by the..."
Due to the low survey response rate, tests for statistical significance—linking answers to demographic data, or questions to other questions to show a correlation between responses—failed to return substantial relationships. Most interestingly, survey respondents who regularly have the seasonal flu shot were much more likely to get the H1N1 vaccine, people with higher levels of education tended to vaccinate more frequently, while people with higher incomes were less likely to vaccinate.¹

¹ (p ≤ 0.001). See Appendix C for an explanation of these results and all other statistical analyses.
Internet Survey Demographics

Online respondents skewed middle-aged and female, with women responding almost twice for every male participant (174: 89), with the majority of participants aged 40-59 (Figure 13).

![Survey Participants and Broome County population by age group](image)

Figure 13: Survey respondents and Broome County population by age group

Almost half of the respondents (47 percent) had children under the age of 18, while 14.4 percent reported that they themselves were full time students. Neither parental and/or student status had any impact on responses to the survey. 10 percent of respondents were uninsured, while the remaining participants reported having private insurance, Medicaid/SCHIP/Family Health Plus or Medicare. Roughly half (49 percent) of respondents reported a household income below $45,000, with the remaining half skewing to household incomes over $85,000. According to the U.S. Census Bureau, in 2008 real dollars, the median household income in Broome County was $44,253, a close approximation to the median household income of survey respondents (Table 2). 73 percent of respondents had at least some college, earned a two or four year degree, or went on to earn a Master’s or Ph.D. (Table 3) Survey respondents skewed white (91 of 93 residents who provided racial information), indicating that this is not a random or representative sample of Broome County Residents.
Table 2: Income of survey respondents

<table>
<thead>
<tr>
<th>Income</th>
<th>Responses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0-$25,000</td>
<td>25</td>
<td>25.77%</td>
</tr>
<tr>
<td>$25,001-$45,000</td>
<td>22</td>
<td>22.68%</td>
</tr>
<tr>
<td>$45,001-$65,000</td>
<td>11</td>
<td>11.34%</td>
</tr>
<tr>
<td>$65,001-$85,000</td>
<td>12</td>
<td>12.37%</td>
</tr>
<tr>
<td>$85,001-$105,000</td>
<td>15</td>
<td>15.46%</td>
</tr>
<tr>
<td>$105,000+</td>
<td>12</td>
<td>12.37%</td>
</tr>
</tbody>
</table>

n = 97

Table 3: Education level of survey respondents

<table>
<thead>
<tr>
<th>Education</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No High School</td>
<td>3.09%</td>
</tr>
<tr>
<td>High School/GED</td>
<td>17.53%</td>
</tr>
<tr>
<td>Vocational Certificate / Training</td>
<td>6.19%</td>
</tr>
<tr>
<td>Some College (no degree)</td>
<td>23.71%</td>
</tr>
<tr>
<td>Two Year Degree (Associates)</td>
<td>16.49%</td>
</tr>
<tr>
<td>Four Year Degree (Bachelors)</td>
<td>19.59%</td>
</tr>
<tr>
<td>Masters/Professional Degree</td>
<td>11.34%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2.06%</td>
</tr>
</tbody>
</table>

n = 97

12 respondents (12.4 percent) indicated that they worked in the field of healthcare, half of which worked in healthcare ancillary services. According to 2000 U.S. Census Bureau projections, approximately 15.6 percent of Broome County Residents would qualify in these categories.

Table 4: Survey respondents who work in health care field

<table>
<thead>
<tr>
<th>Do you work in the Healthcare Sector/Field?</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, I do not work in the healthcare field</td>
<td>85</td>
</tr>
<tr>
<td>Yes, I am a Doctor</td>
<td>2</td>
</tr>
<tr>
<td>Yes, I am a Nurse (RN, LPN)</td>
<td>2</td>
</tr>
<tr>
<td>Yes, I am a Nursing Aide or Patient Care Assistant</td>
<td>1</td>
</tr>
<tr>
<td>Yes, I work in ancillary services (billing, coding, dietary, physical therapy)</td>
<td>6</td>
</tr>
<tr>
<td>Yes, I am a Pharmacist or Pharmacy Technician</td>
<td>1</td>
</tr>
</tbody>
</table>

n = 97
Internet Survey Comments

Comments from survey respondents fell into themed categories: Positive about vaccines, the BCHD, CDC, and clinics in general; Criticisms about vaccines, the BCHD, CDC, and clinics in general; Complaints about the amount of hype the media was giving H1N1, especially when there was no vaccine available; Complaints about vaccine production and distribution; Desires for more follow-up on the total number of cases actually diagnosed; Questions about why some people could get the H1N1, and other questions as to why people weren’t allowed to be tested for H1N1.

Positive Comments about the BCHD

“I am very impressed with you and the whole situation.”

“Good Job in providing information and keeping the public informed.”

“I believe they were effective in spreading the word and educating the public about H1N1. I liked how there was no fee, and no registration. The easier and cheaper it is the more likely people are to get vaccinated, which protects all of us.”

“I felt the BCHD did an outstanding job in setting up numerous vaccinators at the clinic so the waiting time was minimal for anyone.”

“Keep up the good work. In the face of mass uncertainty, you clearly did the best you could and gave much consideration to organizing the process. Thanks.”

“The Broome County Health Department’s response was outstanding. The responsiveness to the community was timely and helpful.”

Negative Comments

Also I was not thrilled with my response from Broome County on why we were not testing for H1N1.

“I’m seriously losing confidence in the Departments of Health and the CDC. Housecleaning is obviously needed along with an infusion of people who can think about real world situations and not just quote old statistics about ‘the aged and the very young.’”

“…like i said …many including my self have a strong distrust for government.”

Vaccine Availability

“By the time vaccine was available, the worst of the pandemic locally was past. I view this as a federal and state issue, and believe Broome County did its best to provide information and clinics as early as possible.”

“The only issue seemed to be the availability of the vaccine. That is not in control of the county if they are not supplied because the manufacturer can’t make it quickly enough.”

“The overwhelming problem was the lack of vaccine during the height of the pandemic in Broome County.”
Comments about the Media

“‘What pandemic? Seemed blown out of proportion.’
“I believe the hype was unnecessary.’

‘…I think it went a little overboard.’

“My problem is not with the Broome County Response but with the sense of panic created by the CDC and media. What are the numbers? Something like 30% nationwide were vaccinated - to read the media reports, the other 70% should be either gravely ill or dead.’

“I understand there was a major shortage of vaccine, but all the media coverage was difficult to deal with when those of us that wanted to be vaccinated couldn’t find a place to receive it.”

“My frustration was that there was a lot of hype about the seriousness of this illness and the need for vaccination but no vaccinations to be had.”

Public Perceptions/Misperceptions

“concerned it may not be safe”

“Did not think it was necessary”

“felt it was unnecessary”

“I felt that the real way to be safe from this disease is ignored in favor of vaccines. Vitamin D is far more effective than any vaccine, and a healthy lifestyle. I feel you are a puppet to big pharma, hiding the risks of vaccines and over hyping this illness. Is all the crap in vaccines really healthy? I do not trust your organization.”

“H1N1 is just another government scare tactic.”

“Flu viruses keep mutating. It is evolutionarily ignorant to try to vaccinate against them.”

“Enormous amounts of money have been wasted on this vaccine for the benefit of pharmaceutical companies. Hand washing, access to clean healthy food, rest when stressed, and, most importantly, appropriate injection of Vitamin D3 have been PROVEN to be far more effective than any flu vaccine. Flu vaccines of any kind are a scam. People around me at work take seasonal flu vaccines and develop a bad bout of the flu within a few weeks. I have never taken a flu vaccine and tend not to develop the flu during the winter. This past winter I did but only because of extreme stress of many kinds and not enough Vitamin D3.”

“Overall, I believe the response was good, but I do believe the lack of testing everyone presenting with symptoms (and even telling people NOT to go to the dr.’s office if you have symptoms) caused the epidemic to be worse than it could have been.”

“Why because no one was being tested, because broome county did not want to lose money in a tough economic time.”
Internet Survey Findings

Opinions of the BCHD: An Overview

As evidenced below, the public overwhelmingly agreed that the BCHD organized a sufficient number of clinics, kept the public informed, educated the public on how to protect themselves from illness, worked with the local schools, and helped facilitate the local response to H1N1. The one area topic that people knew least about was the public information, or town hall sessions. If the BCHD wants to move forward with these sessions, additional attention should be paid to promoting them.

Figure 14: Please indicate whether you Agree or Disagree with the following general statements regarding Broome County’s response to the H1N1 Pandemic
Vaccine Recipients

57.8% of survey respondents reported getting the H1N1 vaccine. A significant number of people who elected to get the H1N1 vaccine also chose to get a seasonal vaccine ($p<0.001$). Similarly, people who did not get the seasonal vaccine also chose not to get the H1N1 vaccine. People who get it, get it; people who don’t, don’t.

Additionally, the survey confirms the result of the individual interviews that older individuals (age 50+) were more likely to have been vaccinated against H1N1 than younger adults ($p<=0.05$).
Reasons People Did Not Get the H1N1 Vaccine

Aside from some of the open-ended comments about vaccines in general, respondents who did not get the H1N1 simply chose not to be vaccinated, did not like shots and/or did not believe that the vaccine was safe. Strategies to fight apathy can help with those who simply chose not to receive one, promotion of the nasal vaccine could assist those with fears of needles and shots, but fighting the perception that the H1N1 vaccine was not safe is an uphill battle (especially in consideration of respondent comments).

Figure 17: Reasons for not getting H1N1 vaccine
Virus/Vaccine Sources of Information

Broome County residents sought information about H1N1 from multiple sources. Very few respondents selected a single, sole source for information. Those who used the BCHD Pandemic website were more likely to be those who regularly get the seasonal flu vaccine (p<0.01), and were more likely to get the H1N1 vaccine (p<=0.001).

Figure 18: How did you learn about and/or follow Broome County’s Health Department H1N1 activities? (select all that apply)
H1N1 Vaccine Clinics and Opinion of BCHD

Parking

“I don’t remember the name of the school, but after finding a parking spot, which was rather difficult, the process took about a hour…”

“The staff was extremely friendly and made it a point before the clinic even began to come out and let us know what was going on and when they were going to start the clinic, so people didn’t get impatient. When I left the clinic I was thinking it would horrible to get out of the parking lot but they had officers directing traffic and it was easy. Overall I would say that the Health Dept. did a wonderful job.”

The BCHD earned high marks for the clinics it conducted. Compared with respondents that attended non-BCHD clinics, clients rated the BCHD clinics higher overall, finding the staff knowledgeable and either loving or hating the parking circumstances (as quoted above).

Figure 19: Ratings for BCHD clinics

* n=100
As a result of BCHD’s pandemic response, a majority of those surveyed responded that their perception of BCHD’s ability to respond to a pandemic was strengthened (Figure 21), leading them to be “confident” or “very confident” about BCHD’s ability to respond to an emergency (Figure 22). Older people (age 50+) were more likely to have their opinions strengthened ($p<0.01$).
Figure 21: After observing the response to the 2009 Influenza Pandemic my perception of the following organizations’ ability to respond to an emergency is . . .

Figure 22: After observing the response to the 2009 Influenza Pandemic how confident are you in the following organizations’ ability to respond to an emergency
Appendix A:

Survey Monkey Internet Survey Design
Q#2: Please select gender.

Q#3: Please enter your age.

* Q#4: Do you have children under the age of 18?

Q#5: Are you a full time student?

Q#6: What type of insurance do you have, if any?

Q#7: Please indicate the range of your household income.

Q#8: Please select the highest level of education completed.

Q#9: Please indicate which of the following represents your race.

Q#10: Do you work in the Healthcare Sector/Field?

Q#11: Please indicate whether you Agree or Disagree with the following general Statements regarding Broome County’s response to the H1N1 Pandemic.

Q#12: Did you receive an H1N1 vaccination?

* Demographic questions #4-10 added after 169 people had already responded to the survey.
Q#13: For the reasons listed below, indicate whether or not they affected your decision.

Q#14: Did you get the seasonal flu vaccine this year?

Q#15: How often do you get the seasonal flu vaccine?

Q#16: Where you present with anybody else when they received THEIR H1N1 Vaccination?

Q#17: What type of H1N1 vaccine did you receive?

Q#18: Did you get the seasonal flu vaccine this year?

Q#19: How often do you get the seasonal flu vaccine?

Q#20: Select the location type of clinic you attended.

BCHD

Other

Q#21: Please rate the following aspects of the clinic you visited.

Q#22: The paperwork I needed to fill out was simple and easy to understand.

Q#23: Please enter any suggestions you have about how we can improve our clinic operations.

Q#24: Please rate the following aspects of the clinic you visited.

Q#25: How much were you charged to receive an H1N1 vaccine?
Q#26: How did you learn about and/or follow Broome County's Health Department H1N1 activities? (select all that apply)

Q#27: Did you visit the official Broome County Government Influenza Pandemic Web Page one or more times since it was launched in May 2009?

Yes  No

Q#28: Please rank the following aspects of the Broome County H1N1 Webpage.

Q#29: What did you use the Broome County H1N1 website for? (check all that apply)

Q#30: You indicated that you submitted a question/comment to the BCHD via the H1N1 website. Please rate the following:

Q#31: Did you call the BCHD H1N1 Hotline (778-3331)?

Yes  No

Q#32: Please rate the following statements related to the H1N1 Hotline:

Q#33: After observing the response to the 2009 Influenza Pandemic my perception of the following organizations' ability to respond to an emergency is:
Q#34: After observing the response to the 2009 Influenza Pandemic how confident are you in the following organizations' ability to respond to an emergency?

Q#35: During the H1N1 response, most of the vaccination clinics did NOT require pre-registration. If you attended a clinic in the future, what pre-registration method, if any, would you prefer?

Q#36: Are you interested in serving on an H1N1 response focus group?

Yes

No

Q#37: Contact Information for Focus Group Volunteers

Q#38: Please provide any additional comments you have regarding your opinions about Broome County's response to the H1N1 Influenza Pandemic.

The End.
Appendix B:

Survey Monkey Online Survey Results
Question #2: Please select gender.

Mean = 1.66
Std. Dev. = 0.474
N = 253

Question #3: Please enter your age.

Mean = 45.14
Std. Dev. = 14.203
N = 263
Question #4: Do you have children under the age of 18?

- No: 54%
- Yes: 46%

Question #5: Are you a full time student?

- No: 86%
- Yes: 14%
Question #6: What type of insurance, if any, do you have?

**Insurance**

- Medicaid/SCHIP/Family Health Plus
- Medicare
- None (uninsured)
- Private

Question #7: Please indicate your total household income.

**Household Income**

- $0-$25,000
- $25,001-$45,000
- $45,001-$65,000
- $65,001-$105,000
- $105,001+$
Question #8: Please select the highest level of education completed.

**Education**

- No High School
- High School/GED
- Vocational Certificate / Vocational Training
- Some College (no degree)
- Two Year Degree (Associates)
- Four Year Degree (Bachelors)
- Masters/Professional Degree
- Doctorate

Question #9: Please indicate which of the following represents your race:

**Race/Ethnicity**

- Prefer Not to Answer
- Caucasian (White, non-hispanic)
- Asian
- Hispanic or Latino
**Question #10:** Do you work in the Healthcare Sector/Field?

- Yes, I work in ancillary services
- Yes, I am a Doctor
- Yes, I am a Nurse (RN, LPN)
- Yes, I am a Pharmacist or Pharmacy Technician
- No, I do not work in the healthcare field

**Question #11:** Please indicate whether you Agree or Disagree with the following general statements regarding Broome County's response to the H1N1 Pandemic.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>Disagree</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organized a sufficient number of H1N1 vaccination clinics.</td>
<td></td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Kept the public informed through the media (press conferences, interviews, etc.)</td>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Hosted a sufficient number of public information (town hall) sessions</td>
<td></td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Educated the public about how to protect themselves and others from illness</td>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Worked with local schools and school districts</td>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Facilitated local H1N1 response efforts</td>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

n = 261-263
Question #12: Did you receive an H1N1 vaccination?

![Pie chart showing the percentage of people who received or did not receive an H1N1 vaccination.]

Question #13: For the reasons listed below, indicate whether or not they affected your decision.

- By the time I attempted to get the vaccine, the pandemic was over.
- I attempted to get the vaccine but there was none available.
- No specific reason; just chose not to receive one.
- I did not know where to get an H1N1 vaccine.
- I have an allergy or medical condition that makes me... (fill in the blank).
- I do not like shots.
- I do not believe the H1N1 vaccine was safe.
- I attempted to receive the H1N1 vaccine but was not... (fill in the blank).
- I did not believe the H1N1 vaccine was effective.
Question #14: Did you get the seasonal flu vaccine this year?

- Yes
- No

n = 57

Question #15: How often do you get the seasonal flu vaccine?

- Every Year
- Most Years
- Occasionally
- Rarely
- I have Never Received a Seasonal Flu Vaccine

n = 57
Question #16: Were you present when anyone else (e.g. spouse, child, parent, friend, etc.) when they received THEIR H1N1 vaccination?

\[ n = 109 \]

Question #17: What type of H1N1 vaccine did you receive?

\[ n = 42 \]
Question #18: Did you get the seasonal flu vaccine this year?

Yes
No

n = 45

Question #19: How often do you get the seasonal flu vaccine?

Every Year
Most Years
Occasionally
Rarely
I have Never Received a Seasonal Flu Vaccine

n = 45
Question #20: Select the location type of the clinic you attended.

- Local School Building (public or non-public)
- Health Department Building (Front Street, Binghamton)
- Housing Complex
- Oakdale Mall (StayHealthy Center)
- Private Medical Practice (Doctor’s Office, Nurse Practitioner’s Office, etc)

Question #21: Our answer to the last question indicates that you likely attended a clinic operated by the Broome County Health Department. Please rate the following aspects of the clinic you attended.

- Very Good
- Good
- Okay
- Poor
- Very Poor

n = 103

* n=100
Question #22: The paperwork I needed to fill out was simple and easy to understand.

Question #24: Your answer to the last question indicates that you likely did not attend a clinic operated by the Broome County Health Department. Please rate the following aspects of the clinic you attended.
Question #25: How much were you charged to receive an H1N1 vaccination?

- Free/Covered in full by Insurance
- $1.00-5.00
- $6.00-10.00
- $11.00-15.00
- $16.00-20.00
- $21.00-25.00
- $26.00-30.00
- More than $30.00

n = 62

Question #26: How did you learn about and/or follow Broome County’s Health Department H1N1 activities? (select all that apply)
Question #27: Did you visit the official Broome County Government Influenza Pandemic Web Page one or more times since it was launched in May 2009?

![Pie Chart](image)

52% Yes

48% No

n = 254

Question #28: Please rank the following aspects of the Broome County H1N1 Webpage.

![Bar Chart](image)

- The website contained helpful links to other resources
- The website provided answers to most of my questions
- The information was up to date
- The website was easy to navigate
- The information was clear and accurate

n = 123
Question #29: What did you use the Broome County H1N1 website for? (check all that apply)

- Find Clinic Times/Locations: 32%
- Submit Questions/Comments to the Health Department: 5%
- Download Consent Forms: 3%
- Access State/Federal H1N1 Websites: 13%
- Sign-up to Follow the Response on Twitter: 0%
- Sign-up to Follow the Response on Facebook: 1%
- General Information (about the Virus/Vaccine): 46%

**NOTE: Only 2 Respondents**

Question #30: You indicated that you submitted a question/comment to the Broome County Health Department via the H1N1 website. Please rate the following.

**NOTE: Only 2 Respondents**

- It was easy to submit my question: [Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree]
- The Health Department: [Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree]
- The answer I received: [Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree]
- The response I received: [Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree]
- I was offered an appointment: [Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree]

n = 2
Question #31: Did you call the Broome County H1N1 Hotline (778-3331)?

Question #32: Please rate the following statements related to the H1N1 Hotline.

- The hotline staff were friendly and helpful
- The hotline hours (9a-5p) were acceptable
- A live person picked up in a timely fashion
- The recorded message provided answers to my questions
Question #33: After observing the response to the 2009 Influenza Pandemic my perception of the following organizations' ability to respond to an emergency is:

![Bar chart showing the percentage of strengthened, remained the same, and weakened responses for Broome County (at large), Broome County Health Department, Local Healthcare Facilities (hospitals, clinics), New York State Department of Health, and Centers for Disease Control (CDC).]

n = 245-25

Question #34: After observing the response to the 2009 Influenza Pandemic how confident are you in the following organizations' ability to respond to an emergency?

![Bar chart showing the distribution of responses for Not at All Confident, Not Confident, Indifferent, Confident, and Very Confident for Broome County, BCHD, Local Healthcare Facilities, NYSDOH, and CDC.]

n = 93-94
Question #35: Background: During the H1N1 response, most of the vaccination clinics did NOT require pre-registration. If you attended a clinic in the future what pre-registration method, if any, would you prefer?

![Pie chart showing pre-registration methods and preferences.]

- No pre-registration, just show up: 228
- Telephone-based registration: 24
- Internet-based registration (online form): 24
- No preference: 24

n = 250

Question #36: Are you interested in serving on an H1N1 response focus group?

![Pie chart showing interest in serving on a focus group.]

- Yes: 24
- No: 228

n = 252

Question #37: Contact Information for those wanting to participate in a focus group. (n=22)

Question #38: Open-ended comment regarding Broome County’s response to the H1N1 pandemic.
Appendix C:

Survey Monkey Tests for Statistical Significance
Methodology

Due to the low number of responses, and high number of possible answers each respondent might choose from, Pearson’s Chi-Square tests for statistical significance returned very few useable results. For example, when respondents were asked to rate their level of confidence in different organizations to respond to the next pandemic, they were offered five options. Ordinarily, this type of questions does an excellent job of showing how residents feel on a 5-point Likert scale, something easily understandable in a chart of graph. Here, however, the responses were spread too thin to return any significant results.

In order to challenge this dilemma, the following steps were taken:

- Demographic information was only collected form the final 97 survey participants, so data from the previous 167 participants could not be used for this portion of the analysis.
- Demographic categories for gender, whether the respondents were parents or not, students or not, and type of insurance did not affect responses in any significant manner.
- Only 2 people of 93 that volunteered their race identified themselves as minorities. Race did not have any effect on responses, likely because of the low ethnic minority response rate.
- Ages were collapsed first into groups of 10 year increments. This produced no noticeable results, so we expanded the size of the groups to those that were first being told to get immunized—those aged 0-49 years—and the rest of the population, aged 50-99 (1=0-49 Years; 2=50-99 Years).
- The collapsed Age categories, Income, and Level of Education did have an effect on how people responded to some survey questions.
- Household Income Ranges were collapsed from the original $10,000 survey increments to $20,000 increments.
- Questions #14 & #18 (Did you receive the seasonal flu vaccine this year?), as well as #15 & #19 (How often do you get the seasonal flu vaccine?) were combined to produce results from all respondents, not categorized separately as those that did/ and those that did not receive the H1N1 vaccine.
- Responses to questions #15 & #19 were collapsed from a five- to a three-point Likert scale, where 1= “Every Year” & “Most Years”, 2= “Occasionally” & “Rarely”, and 3= “I have Never Received a Seasonal Flu Vaccine”.


Data

**Q27 * Q15_AND_19_COLLAPSED Crosstabulation**

<table>
<thead>
<tr>
<th>Q15_AND_19_COLLAPSED</th>
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**Chi-Square Tests**

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<th>Asymp. Sig. (2-sided)</th>
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<td>Likelihood Ratio</td>
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<td>Linear-by-Linear Association</td>
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<td>N of Valid Cases</td>
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* a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.04.

Use of the BCHD Pandemic website as compared with how often people reported getting the seasonal flu vaccine. Website was heaviest from those that regularly get the seasonal flu vaccine.

**Q14_AND_18 * Q12 Crosstabulation**

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This illustrates that there is a relationship between the people who got the seasonal flu vaccine and those that were vaccinated against H1N1. As shown in the charts under the Internet Survey Findings heading, those that got the seasonal tended to get the H1N1, while those that chose not to get the seasonal also tended not to get the H1N1 vaccine.
**Q27 * Q12 Crosstabulation**

<table>
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This shows that there is a relationship between the people who reported getting the H1N1 vaccine with visiting the BCHD Pandemic flu website.

**AGEELIGIBLE_COLL * Q11C**

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**Chi-Square Tests**

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a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.40.

There is a relationship between people's age and their impression that the BCHD hosted a sufficient number of public information sessions.

**AGEELIGIBLE_COLL * Q12**

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Older people (aged 50+ years) were more likely to have been vaccinated against H1N1.

### AGEELIGIBLE_COLL * Q33A

#### Count

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#### Chi-Square Tests

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a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 49.12.
b. Computed only for a 2x2 table
Older people (aged 50+ years) were more likely to have their opinions strengthened by the Broome County response to the H1N1 pandemic.

There is a relationship between respondent age and their response to the BCHD’s ability to respond to an emergency.