



Published in final edited form as:

*J Reprod Med.* 2015 ; 60(11-12): 471–479.

## Impact of video education on influenza vaccination in pregnancy

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### Abstract

**Objective**—Despite influenza vaccination being an integral part of prenatal care, vaccination rates remain low. We evaluated the impact of pre-visit video education on patients' vaccination health beliefs and vaccination rate.

**Study design**—From November 2013-January 2014, unvaccinated patients seen for routine prenatal care were randomized to pre-visit vaccination video education or control. Pre and post video health beliefs were assessed on a 5-point scale and unvaccinated participants were subsequently interviewed by phone.

**Results**—In 105 randomized participants, intervention positively influenced health beliefs as demonstrated by differences in mean pre- vs. post scores for intervention vs. control: vaccination may harm mother (difference = -0.05, p=0.009) and baby (difference=-0.44, p=0.015), and vaccination can protect mother (difference=0.49, p=0.003) and baby (difference=0.59, p=0.001). Vaccination rates were 28% intervention and 25% control (p=0.70). Provider recommendation was associated with vaccination (47% if recommended vs.12% if not, p<.001). Phone interviews revealed susceptibility to influenza and vaccine safety as primary reasons for remaining unvaccinated

**Conclusions**—Video education positively influenced vaccination health beliefs without impacting vaccination rates. Physician's recommendation was strongly associated with participant's decision to become and may be most effective when emphasizing influenza vaccination's protective impact on the newborn.

### Keywords

Influenza vaccines; mothers; pregnancy; prenatal care; vaccination; health education

## Introduction

Influenza vaccination during pregnancy, regardless of trimester, is considered an integral part of prenatal care, recommended by the American College of Obstetricians and Gynecologists and the Advisory Committee on Immunization Practices since 2004.<sup>1</sup> Despite strong endorsements, established benefits for the mother and newborn<sup>2-4</sup>, and known vaccine safety<sup>5, 6</sup>, the reported United States vaccination coverage among pregnant women for the 2012-2013 influenza season was only 50.5%.<sup>7</sup>

There are several known barriers to vaccination such as system factors (vaccine availability and cost) clinician factors (absence of financial incentives, liability concerns<sup>8-11</sup>) and patient factors. Patient factors are primarily lack of knowledge about vaccination and vaccination health beliefs<sup>12, 13</sup>. The Health Belief Model identifies factors predictive of health behavior change and has been shown to predict a diverse range of health behaviors including receipt of influenza vaccination in children and the elderly<sup>12</sup>. Perceived susceptibility to influenza, perceived effectiveness of vaccination and related to harm of vaccination have all been linked to influenza vaccination during pregnancy<sup>14</sup>.

Reported interventions to improve vaccination rate in pregnancy have primarily focused on the provider. Such interventions have shown some success included a provider-focused reminder in the paper chart<sup>15</sup>, a provider alert in the electronic health record<sup>16</sup>, as well provider education, standing order sets, and regular assessment of provider immunization rates<sup>16-18</sup>. Interventions targeted solely to patients have been limited to text messaging with mixed results<sup>19, 20</sup>. Video education, although not previously evaluated for influenza vaccination in pregnancy, has been found to improve human papilloma virus vaccination knowledge and acceptability<sup>21</sup> as well as vaccine series completion<sup>22</sup>.

The purpose of this study was to investigate the impact of office based video education on influenza health beliefs and vaccination uptake among pregnant women. For study participants choosing not to become vaccinated, we explored their rationale and sought insight as to what information in a video, if any, might have influenced them to choose to obtain vaccination.

## Materials and Methods

We used the electronic health record (EHR) to identify patients from three suburban Cleveland Clinic Health System OB/GYN offices which included 11 eligible providers. From November 1, 2013 through January 31, 2014, we identified women with no documented influenza vaccination in the 2013-2014 influenza season who were scheduled for a routine prenatal visit. We excluded patients who (1) were employees of the Cleveland Clinic, (2) were cared for by a co-investigator, (3) had an allergy to eggs or the vaccine, (4) had high risk pregnancies or (5) did not speak English as their primary language.

We approached patients in the waiting room prior to their appointment to confirm study eligibility establish their willingness to participate. Patients were informed that the study would involve their viewing and educational video prior to the visit, completing a short survey, and that the information obtained from the study would help us better understand and

improve health care of patients during their pregnancy. Those potentially interested were escorted potential participants into a designated study room where a study coordinator assigned participants to a randomization group using a computer-generated randomization sequence stratified by location. Physicians were blinded to patient allocation and not given instructions regarding any change in their usual routine.

Consenting participants were requested to: (1) complete a pre-visit questionnaire, (2) view an intervention or control video, (3) attend prenatal visit as usual and (4) complete a post-visit survey prior to departure from the office. During the prenatal visit, screening and recommendation for the influenza was left to the discretion of the obstetrician. We randomly selected study participants whose EHR indicated that they did not receive the vaccine at any point during the 2013-2014 season, and, between four and eight weeks after their visit, used a structured phone interview to gain insight as to their reasons for not becoming vaccinated. During the interview, we used an open-ended question to inquire as to why participants elected not to become vaccinated and then, using a Likert-type scale, asked participants to rate how eight concepts for a proposed revised video may or may not have influenced them to become vaccinated. The trial was stopped when recruiting resources allocated to enrollment were complete and sufficient post-visit phone interviews had been completed to generate some general themes.

The study was approved by the Cleveland Clinic Institutional Review Board

### Study Intervention and Outcome Measures

The intervention consisted of an educational video developed by the Centers for Disease Control and Prevention (CDC) that is currently available online.<sup>23</sup> The video, *Protect Yourself, Protect Your Baby* (3 ½ minutes), addresses vaccination health beliefs concepts found to be predictive of vaccination and is intended to contain a clear and easy to understand format. Those in the control group viewed *Put Your Hands Together*, a CDC video of the same length addressing handwashing hygiene.<sup>24</sup>

The primary study outcome was receipt of influenza vaccine on the day of the visit as determined by review of the EHR. Secondary outcomes were changes in vaccination health beliefs as measured by the pre- and post-visit questionnaires. The pre- and post-visit questionnaire (supplemental digital content) was developed from that validated by Gorman et al.<sup>14</sup> by selecting questions potentially influenced by the content of the video and added the following: (1) demographics not in the EHR, (2) questions related to the control video, (3) recall whether doctor recommended flu shot and (4) perceptions of the video itself.

### Statistical Analysis

Patient characteristics were summarized as means and standard deviations or frequencies and percentages as appropriate. The t-test (including a paired t-test to compare pre- and post-video scores within each group) and Pearson's chi-squared test were used to compare continuous and categorical characteristics, respectively. To obtain a sense of the relative improvement in health belief scores attributable to the intervention video, we compared the difference in each score between the intervention and control groups, pre- vs. post-video. That is, for each health belief, we measured (post-video intervention group score minus pre-

video intervention group score) minus (post-video control group score minus pre-video control group score). Next, we used logistic regression to model the association between vaccination and health belief scores in each group, both unadjusted (univariate analysis) and adjusted (multivariate analysis) for pre-video scores, trimester and randomization assignment. Sample size calculation was based on an assumed vaccination rate of 40% with the intervention group showing a 15% improvement. With 105 patients (52 vs. 53), the study has a power of 80% to detect an effect size of 0.55 in the improvement of knowledge score (intervention compared with control, two-sided  $\alpha=0.05$ ). All analyses were conducted using SAS 9.3 (Cary, NC), and statistical significance was established at two-sided  $p<0.05$ .

## Results

Study personnel identified 507 pregnant women with no documented influenza vaccination of whom 244 had a scheduled prenatal visit coinciding with onsite enrollment. Of 244, 61 had their office visit before the study coordinator had a chance to discuss the study, 34 had already been vaccinated (without documentation in the EHR), and 44 declined participation. The remaining 105 participants were randomized (53 watched the intervention video and 52 the control video); 100 patients (51 intervention, 49 control) conducted both the pre- and post-visit questionnaires with 94% of questionnaire items having both a pre- and post-video response.

Patient characteristics appear in Table I. The mean age (SD) was 31 (5.4), 76% indicated their race as white, and 78% had a college education or higher. Fifty percent of participants were in their 2<sup>nd</sup> trimester, 94% had private medical insurance and 70% had not had a flu vaccine during the previous flu season.

Table II shows the effects of the video on health beliefs. Video intervention positively influenced four health beliefs as demonstrated by significant differences in mean pre- vs. post-video questionnaire scores for the intervention vs. control groups: (1) Getting a flu shot may harm me (intervention = -0.36 vs. control= 0.14,  $p=0.009$ ), (2) Getting a flu shot may harm my baby (intervention = -0.36 vs. control= 0.09,  $p=0.015$ ), (3) Getting a flu shot can protect me against the flu (intervention=0.43 vs. control=-.06,  $p=0.003$ ), (4) Getting a flu shot can protect my baby against the flu (intervention=0.82 vs. control=0.23,  $p=0.001$ ).

In an exploratory analysis (Table III), univariate analysis showed several beliefs associated with vaccination and multivariate analysis demonstrated two beliefs independently associated with vaccination: (1) "Getting a flu shot can protect me" (odds ratio=2.19, 1.08-4.44,  $p=.003$ ) and (2) "Getting a flu shot can protect my baby" (odds ratio=2.04, 1.14-3.66,  $p=0.02$ ).

Influenza vaccination rates during the office visit were 28% (15/53) in the intervention group and 25% (13/52) in the control group ( $p=0.70$ ). Of 97 participants who reported whether the provider recommended vaccination, 45 (46%) indicated the shot was recommended. Patients recalling a provider recommendation were more likely to be vaccinated than those who did not (47% (21/45) if recommended vs. 12% (6/52) otherwise,  $p<0.001$ ). After adjusting for pre-visit belief scores, pregnancy trimester and randomization

group, those recalling a recommendation had significant differences in several adjusted post-intervention health belief scores including being more likely to believe that getting sick from influenza would be harmful to themselves and their newborn (potential harm from the flu) compared to those who did not recall a recommendation (Appendix Table I).

In the post visit questionnaire, both groups reported equally that they understood the information in the video (intervention=4.0/5 vs control=4.0/5). However, those in the intervention group reported they believed the information less than did those in the control group (handwashing video) (4/5 vs. 5/5,  $p<0.001$ ).

We attempted to contact 65 of the 77 study participants who remained unvaccinated by phone: 26 eventually answered or called back and 13 agreed to a phone interview. Table 4 shows quotes from selected patients with two general themes identified for declining vaccination: (1) susceptibility to influenza and (2) vaccine safety. When asked to rate eight concepts for a proposed revised video in regards to its potential to influence them to become vaccinated, showing evidence that getting the shot can't harm the baby (3.5/5) and evidence that the shot can protect the baby in the first six months of life (3.5/5) were the only concepts that were rated positively (Appendix Table II).

## 4. Discussion and Conclusions

### 4.1 Discussion

In this randomized controlled trial of pregnant women during the flu season who had not received influenza vaccine, we found that video education viewed prior to a routine prenatal visit positively influenced health beliefs regarding influenza vaccination without improving the rate of vaccination. In particular, the video improved beliefs about the safety and efficacy of the flu vaccine. In contrast, the physician's recommendation was strongly associated with both an improvement in health beliefs about the dangers of influenza and with becoming vaccinated. Those patients who reported that their physician recommended the vaccine were 4 times as likely to be vaccinated as those who did not.

The Health Belief Model (HBM) uses cognitive concepts to predict screening behavior based on four primary domains: (1) susceptibility, (2) severity, (3) benefits to action and (4) barriers to action<sup>25</sup>. Our findings are in line with others who have demonstrated vaccination health beliefs to be predictive of vaccination. In a prospective cohort study by Henninger that followed a group of pregnant women during the 2010-2011 influenza season, trust in recommendations, perceived susceptibility to and seriousness of influenza, perceived regret about not getting vaccinated, and lower vaccine safety concerns were associated with vaccination<sup>12</sup>. Using a cross-sectional telephone questionnaire, Gorman et al. reported vaccination was more common among women who felt more susceptible to influenza, who perceived greater vaccine effectiveness and whose doctors recommended they have flu shots<sup>14</sup>. In our study, health beliefs relating to susceptibility and severity of influenza as well as benefits of vaccination (vaccination protecting both mother and baby) were predictive of vaccination

The importance of provider recommendation in improving vaccination rate has been well documented<sup>10, 13, 26-28</sup>. In one study, Silverman et al. reported that 56% of postpartum women said that they would have accepted influenza vaccination during pregnancy if their provider had recommended it<sup>28</sup>. In our study, those patients who reported that their physician recommended the vaccine were four times as likely to be vaccinated as those who did not: (47% vs. 12%). Regarding the influence of provider recommendation on health beliefs, after adjusting for all other factors, we found that physician recommendation positively influenced post office visit vaccination susceptibility and severity beliefs regarding

As health beliefs have been predictive of vaccination, it would follow that positively influencing such beliefs might translate into behavior change. Our findings are in line with others not demonstrating such an effect. Nyhan et al recently evaluated the impact of four different pro vaccine messages to impact health beliefs about the MMR vaccine and intent to vaccinate their children. In that study of 1759 moms age 18 years or older, some of the messages improved a barrier to vaccination (misconceptions about the MMR causing autism) without impacting the intent to vaccinate<sup>29</sup>. In addition, some messages actually decreased the intent to vaccinate among parents with the least favorable vaccine attitudes. In our study, video education viewed just prior to a prenatal visit positively influenced health beliefs regarding barriers and benefits of influenza vaccination without improving the rate of uptake. Our findings extend Nyhan's observation of unchanged intention to vaccination to unchanged actual vaccination rates. We did not demonstrate a decrease in vaccination rate corresponding to the decreased in intention to vaccinate found in Nyhan's trial.

There are several possible explanations as to why the video in our study positively impacted health beliefs without improving vaccination rate. First, the health beliefs items altered by the intervention may not be the ones that drive vaccination. This seems the most likely explanation, because the video failed to impact patient beliefs about the seriousness of influenza for either the patient or her baby, whereas the physician recommendation, which was associated with vaccination, was associated primarily with perception of these two outcomes. Moreover, patients who declined vaccination cited not being at risk as one of the main reasons they chose not to be vaccinated.

Alternatively, the video may have affected the right beliefs, but the magnitude of the change may not have been enough to affect behavior.

Finally, the information presented may not have been “subtle enough” to promote change. Subtle healthcare messages such as narrative communication (storytelling, cartoons, case histories, testimonials) has been shown to be more likely to reduce resistance to change “by means of avoiding participant's cognitive resources from defending against a potentially counter attitudinal message”<sup>30</sup>. As reported by Nyhan as an explanation for their results, “broadly consistent with other literature on motivated reasoning, the messages used might have brought to mind other vaccine concerns to defend their anti-vaccine attitudes.”

**4.11 Study Limitations**

First, the study was limited to those with English as their primary language and those scheduled for routine prenatal care. The lack of effect of video education on vaccination rates may have been the result of the video's content and not the mode of delivery. However, the fact that the video did positively impact health beliefs implies that the video content was appropriate. The association between physician recommendation and outcome was observational and may have been subject to confounding. Moreover, physician recommendation was assessed by patient report and could be affected by recall bias. Nevertheless, given the strength of the observed association and similar findings by others, it seems reasonable to conclude that physician recommendation is a powerful motivator for vaccination. Finally, our study was conducted in three health centers in one geographical area with patients who were mostly white, privately insured and college educated. Results may not be generalizable to other populations, who may have different concerns about vaccination.

**Conclusions**

While video education is increasingly popular (YouTube, WEB MD) and can positively influence health beliefs, in this setting it did not influence influenza vaccination rates in pregnancy. Provider recommendation influenced health beliefs, was associated with a higher rate of vaccination, and be most effective when providers emphasize its protective impact on the newborn.

**Acknowledgments**

Bo Hu, PhD; Nancy Albert, PhD, CCNS, CCRN; Cleveland Clinic research fellows: Robert Bales, MD, Andrei Brateanu, MD, Abhishek, Deshpande, MD, PhD, Aaron Hamilton, MD, Stacey Jolly, MD, Amanda Lathia, MD, Mahesh Manne, MD, Anita Misra-Hebert, MD, MPH, Nirav Vakharia, MD

Disclosure of Financial Support: This study was funded by the Cleveland Clinic Research Program Committees

**Appendix Table I**

Difference in adjusted\* post intervention scores: Doctor recommended vs. no recommendation or could not recall recommendation

Questions (abbreviated)	Mean	SD	P
<b>1 = Disagree strongly, 5 = Agree strongly</b>			
If I have the flu, I may not be able to perform my daily activities.	0.26	0.12	0.031
If I have the flu, it could lead to serious health problems for ME.	0.46	0.18	0.011
I have the flu, it could lead to serious health problems for MY BABY	0.40	0.15	0.010
Getting a flu shot while I am pregnant could HARM ME.	0.04	0.17	0.841
Getting a flu shot while I am pregnant could HARM MY BABY.	0.04	0.17	0.821
Getting a flu shot while I am pregnant can PROTECT ME against getting the flu.	0.20	0.16	0.209
Getting a flu shot while I am pregnant can PROTECT MY BABY against getting the flu	0.20	0.16	0.208
I think it's IMPORTANT for my family members to get the flu shot.	0.36	0.15	0.018



Questions (abbreviated)	Mean	SD	P
I intend to ASK my family members to get the flu shot.	0.18	0.13	0.168
<b>1 = Not at all, 5 = quite a lot</b>			
Imagine that you <u>did not</u> get a flu shot and are hospitalized for pregnancy complications from getting the flu. How much would you regret not getting a flu shot?	0.38	0.14	0.007
Imagine that you <u>did not</u> get a flu shot and YOUR NEWBORN is hospitalized for problems from getting the flu. How much would you regret not getting a flu shot?	0.42	0.15	0.005

\* Adjusted for pre-intervention scores, trimester, randomization group

## Appendix Table II

Post intervention phone interview: Participant rating of proposed updated video: (n= 13<sup>\*</sup>)

Please rate the following ideas (1-5) we are thinking of including in an updated video as follows: 1= absolutely would not have influenced me to get the flu shot → 5 = absolutely would have influenced me to get the shot.	Mean	SD
Show evidence that most do get the shot.	2.43	1.16
Show evidence that the shot can't give you the flu.	2.86	1.46
Show evidence that the shot can't harm your baby.	<b>3.50</b>	1.34
Emphasize important to get shot even if had not had it in the past.	2.29	0.99
Emphasize shot will protect your baby in 1 <sup>st</sup> 6 months of life.	<b>3.50</b>	1.16
Recommendation to get the shot from a well-known celebrity.	1.07	0.27
Story in the news if received the shot with a positive outcome.	2.29	1.20
Story in the news if not received the shot with a negative outcome.	2.50	1.34

\* 9 intervention, 4 control

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**Table I**  
**Demographics of study participants**

Characteristics		Control (n=52)	Intervention (n=53)	P
Age (mean, yrs)		32.23	31.23	0.346
Race	Black	23.1%	20.8%	0.665
	Asian	1.9%	0%	
	White	71.2%	73.6%	
	Hispanic	1.9%	1.9%	
	Multi-race	1.9%	0%	
	Refused	0%	1.9%	
	Other	0%	1.9%	
Education	Some high school	3.8%	1.9%	0.262
	High school	3.8%	11.3%	
	Some college	15.4%	25.4%	
	College	42.3%	37.7%	
	Post college	34.6%	22.6%	
Insurance	Private	86.5%	92.5%	0.560
	Received influenza shot 2012-2013 season?	Yes	30%	30%

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**Table II**

**Impact of Video Intervention on Health Belief Scores\***

Questions	Scores		SD	SD	Mean	SD	Post video		Difference (intervention vs. control, post video vs. pre video)	P
	Pre video						Mean	SD		
	Mean	SD								
1 =Disagree strongly, 2 = Disagree, 3 = I do not know, 4= Agree, 5 =Agree strongly										
If I have the flu, I may not be able to perform my daily activities. (N= 49 control, 51 intervention)										
Control	3.83	1.02	3.80	0.98					0.00	1.000
Intervention	3.79	1.08	3.82	1.01						
If I have the flu, it could lead to serious health problems for ME. (N= 49 control, 51 intervention)										
Control	3.10	1.31	3.31	1.10					0.29	0.17
Intervention	3.04	1.22	3.53	1.12						
If have the flu, it could lead to serious health problems for MY BABY. (N= 49 control, 51 intervention)										
Control	3.53	1.10	3.53	1.02					-0.04	0.18
Intervention	3.69	1.10	3.65	1.06						
Getting a flu shot while I am pregnant could HARM ME. (N= 48 control, 51 intervention)										
Control	2.42	0.90	2.56	0.94					-0.50	0.009
Intervention	2.73	1.08	2.37	1.00						
Getting a flu shot while I am pregnant could HARM MY BABY. (N= 48 control, 51 intervention)										
Control	2.60	0.89	2.69	0.99					-0.44	0.015
Intervention	2.72	1.11	2.36	0.99						
Getting a flu shot while I am pregnant can PROTECT ME against getting the flu. (N= 48 control, 51 intervention)										
Control	3.75	0.98	3.69	0.93					0.49	0.003
Intervention	3.43	1.03	3.86	0.96						
Getting a flu shot while I am pregnant can PROTECT MY BABY against getting the flu. (N= control, 51 intervention)										
Control	3.25	1.04	3.48	0.90					0.59	0.001
Intervention	3.08	1.02	3.90	0.94						
I think it's IMPORTANT for my family members to get the flu shot. (N= 48 control, 51 intervention)										

Questions	Scores		Post video		Difference (intervention vs. control, post video vs. pre video)
	Pre video	Mean	SD	Mean	
Control		3.31	1.31	3.40	1.30
	<b>Intervention</b>	3.08	1.35	3.33	1.34
I intend to ASK my family members to get the flu shot. (N=47 control, 51 intervention)					
Control		2.94	1.34	3.21	1.38
	<b>Intervention</b>	2.73	1.46	2.98	1.46
1 = Not at all, 2= A little, 3= I do not know, 4= A moderate amount, 5 = quite a lot					
Imagine that you <u>did not</u> get a flu shot and are hospitalized for pregnancy complications from getting the flu. How much would you regret not getting a flu shot? (N=48 control, 51 intervention)					
Control		3.83	1.56	3.83	1.59
	<b>Intervention</b>	3.74	1.52	3.80	1.55
Imagine that you did not get a flu shot and YOUR NEWBORN is hospitalized for problems from getting the flu. How much would you regret not getting a flu shot? (N=48 control, 51 intervention)					
Control		4.23	1.31	4.08	1.43
	<b>Intervention</b>	4.14	1.34	4.22	1.31
					0.17
					0.25
					-0.02
					0.86
					0.06
					0.23
					0.13

\* Results for questionnaire items containing both a pre and post-video response.

**Table III**  
**Exploratory analysis: Association between health beliefs and receipt of influenza vaccination**

Questions (abbreviated)	Univariate Odds ratio (CI) per one point increase	P	Multivariate Analysis* Odds Ratio (CI) per one point increase	P
<b>1 = Disagree strongly, 5 = Agree strongly</b>				
If I have the flu, I may not be able to perform my daily activities.	1.29 (0.88-1.87)	0.11		
If I have the flu, it could lead to serious health problems for ME.	1.51 (0.19-2.51)	0.021		
I have the flu, it could lead to serious health problems for MY BABY	1.70 (1.08-2.66)	0.032		
Getting a flu shot while I am pregnant could HARM ME.	1.70 (1.05-2.75)	0.005		
Getting a flu shot while I am pregnant could HARM MY BABY.	0.43(.024-.077)	0.008		
Getting a flu shot while I am pregnant can PROTECT ME against getting the flu	3.25 (1.62-6.54)	0.003	2.19 (1.08-4.44)	0.030
Getting a flu shot while I am pregnant can PROTECT MY BABY against getting the flu	2.42 (1.62-6.54)	0.001	2.04 (1.14-3.66)	0.016
I think it's IMPORTANT for my family members to get the flu shot.	2.01 (1.32-3.04)	0.001		
I intend to ASK my family members to get the flu shot.	1.90 (1.31-2.76)			
<b>1 = Not at all, 5 = quite a lot</b>				
Imagine that you <u>did not</u> get a flu shot and are hospitalized for pregnancy complications from getting the flu. How much would you regret not getting a flu shot?	2.45 (1.39-4.33)	0.04		
Imagine that you <u>did not</u> get a flu shot and YOUR NEWBORN is hospitalized for problems from getting the flu. How much would you regret not getting a flu shot?	6.24 (1.09-35.75)	0.002		

The multivariate analysis selects health belief questions using the stepwise selection procedure and retains questions with a p-value smaller than 0.05

**Table IV**  
**Selected quotes from phone interview addressing reasons for declining vaccination**

“Could you please explain your reasons choosing not to become vaccinated?”

<b>Susceptibility to influenza</b>
I never had a flu shot in the past... my mother is sensitive to it so I am worried I would be also. I work in a contained area...work from home...low exposure
I have never gotten one. When the shot became available- I was in 1st trimester and was sick- trying to deal and could not think about it. I have never had it and I do not get sick.
I have never had the shot or the flu- feel no need it
...not necessary... has benefits but not necessary... The risk vs benefit is not good for me
...never had it- no need to get it....we are vaccinated way too much
<b>Vaccine safety</b>
...never big on medicine unless it is absolutely necessary I know person had shot and got sick. I have never go the shot or the flu
I have relatives with bad reactions to it...my friend is nurse and she does not get it either
I could get sick- I am holding back until talk with doctor.
I follow NPR studies... they showed folks getting sick from the shot...not willing to take the risk 8 months pregnant.
...had it in past and did not feel it helped. I got it got sick after the shot. This is why I refused.

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