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Gift Card Incentives and Non-Response Bias in a Survey of Vaccine Providers: The Role of Geographic and Demographic Factors

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ABSTRACT

Gift Card Incentives and Non-Response Bias in a Survey of Vaccine Providers: The Role of Geographic and Demographic Factors

By Joshua Van Otterloo

This study investigates the effects of non-response bias in a 2010 mailed survey assessing experiences with H1N1 influenza vaccine administration among a diverse sample of providers (N=765) in Washington state. Though we garnered a high response rate (80.9%) by using evidence-based survey design elements, including intensive follow-up and a gift card incentive from Target, non-response bias could exist if there were differences between respondents and non-respondents. We investigated differences between the two groups for seven variables: road distance to the nearest Target store, practice type, previous administration of vaccines, region, urbanicity, size of practice, and Vaccines for Children (VFC) program enrollment. We also examined the effect of non-response bias on survey estimates. Statistically significant differences between respondents and non-respondents were found for four variables: miles to the nearest Target store, type of medical practice, whether the practice routinely administered additional vaccines besides H1N1, and urbanicity. Practices were more likely to respond if they were from a small town or rural area (OR=7.68, 95% CI=1.44-40.88), were a non-traditional vaccine provider type (OR=2.08, 95% CI=1.06-4.08) or a pediatric provider type (OR=4.03, 95% CI=1.36-11.96), or administered additional vaccines besides H1N1 (OR=1.80, 95% CI=1.03-3.15). Of particular interest, for each ten mile increase in road distance from the nearest Target store, the likelihood of provider response decreased (OR=0.73, 95% CI=0.60-0.89). Of those variables associated with response, only small town or rural practice location was associated with a survey estimate of interest, suggesting that non-response bias had a minimal effect on survey estimates. These findings show that gift card incentives alongside survey design elements and follow-up can achieve high response rates. However, there is evidence that practices farther from the nearest place to redeem gift cards may be less likely to respond to the survey.

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CHAPTER I

LITERATURE REVIEW

I. Physician Surveys, Response Rates and Methods Used to Improve Response Rates

Physician Surveys and Response Rates

Physician surveys are a useful tool for examining attitudes and practices in healthcare settings. However, in order to be generalizable, surveys should be conducted to achieve high response rates. First and foremost, a high response rate limits non-response bias since there is less influence from systematic non-response as the pool of non-respondents shrinks. Second, high response rate surveys will typically cost less per response and lower the total cost necessary to reach a sufficient sample[1]. Lastly, response rates are commonly interpreted as a proxy for overall survey quality and the extent of survey non-response bias, despite evidence that response rates are not an especially good indicator of survey quality or non-response bias[2-4].Yet, no gold standard for an acceptable response rate exists. Isaac and Michael[5] suggest response rates need to be at least 80% to obtain accurate estimates. Warwick and Lininger[6] and Grady and Wallston[7] indicate that response rates above 50% are very good for mailed questionnaires. Gehlbach[8] suggests response rates over 80% are very good, although those between 40% and 80% are not unacceptable. DeMaio[9], Fowler[10], and McFarlane[2], report that even response rates in excess of 80% may be unacceptable if non-response bias is present.

However, achieving a high response rate is challenging and is more challenging among physicians than with the general population. Denscombe[11] suggests that

researchers are fortunate to get a response rate of 20% although other texts report that response rates of 10% are not uncommon[12]. In a meta-analysis of published mailed surveys over a one year period, Asch et al[13] found an average response rate of physician surveys was 54%; the average among non-physician surveys was 68%. Another meta-analysis[3] reported similar recorded physician response rates with an average of 61% for all surveys and 51% for surveys with more than 1000 observations. Approximately 10% of these published papers had a response rate less than 30% and in both meta-analyses, the authors found published material from surveys with less than a 15% response rate.

Methods to Increase Response Rates

To address non-response bias, methods research has been conducted with the goal of increasing response rates to physician surveys. Common successful methods to increase response rates include the use of incentives (both financial and non-financial) and survey design elements. These survey design elements include multiple modes for returning surveys, personalization, inclusion of multiple survey contacts' information, partnering with reputable organizations, respondent follow-up, and other elements making the survey more respondent friendly. Despite widespread adoption of at least some of these methods, there has been no observed upward trend in response rates over time[3,14].

Survey Incentives

Of the methods listed above, offering incentives is the most studied for mailed surveys[15,16]. In one meta-analysis, financial incentives produced higher response rates in every physician survey included for analysis[17]. The increases in response rates compared to no incentive varied from 8.6% to 45.6%. In another meta-analysis, even a modest $1

incentive was associated with higher response rates compared to no incentive[15]. Studies that directly offered varying monetary incentives generally show that the greater the incentive, the higher the response rate[15-23] although this is not universally the case[24,25]. Of studies that compared prepaid to promised financial inducements, prepaid inducements were superior[26-28]. Further, cash payments are more effective than monetary donations to charity[20], entry into a lottery for a cash prize[29,30], or donations to their alma-mater[31].

Several studies have assessed the effectiveness of non-financial incentives. A variety of incentives have being investigated, most with only token value such as stickers[32], pens[33], informational material[34] and candy[35]. Compared to physicians receiving no incentive, these token incentives appear to have little or no impact on response rates[29-33,36,37]. Studies including more substantial nonmonetary incentives have met mixed results. A study with an inducement of the opportunity for a weekend getaway for two[38] had a small but statistically significant increase in physician response while another offering a USB flash drive[39] did not improve response rates. A study offering continuing medical education credits (CME's)[40] led to a small increase in response rates for some physician groups, although not others. Several meta-analyses[15,16,41] conclude that token non-monetary incentives have no effect on response rates; however these meta-analyses are inconclusive about more valuable non-monetary incentives. In those studies that have comparing monetary incentives to non-monetary incentives, monetary incentives appear to be more effective than non-monetary incentives[18,42].

Gift cards are a middle ground between traditional monetary incentives and non-monetary incentives in that they hold the same value as cash however they are only

redeemable at certain locations. Despite the increasing use of gift cards in the general population[43] and the use of gift card incentives in survey research[44], comprehensive research has not been done on the effect of gift cards on response rate. What is available is a series of case studies on the use of gift cards as incentives with mixed results. One study found significantly higher response for gift cards compared to a prepaid phone card[45]. Another comparing the use of checks compared to gift cards of equal value[46] found significantly lower response rates for gift cards. Yet another study compared cash incentives to electronic and paper gift certificates[47] in an online survey finding that cash was superior to both paper and electronic gift cards, even in a highly technologically savvy sample. With the exception of the study comparing checks to gift cards, these studies have limited application to mailed physician surveys due to special population concerns and survey methodology. However it would suggest that gift cards, while not necessarily as effective as cash, could be more effective than other non-monetary incentives.

Survey Elements

In addition to incentives, other survey elements have been proposed to increase response rates, either alone or in tandem with other elements and incentives. Generally, these elements serve to make the survey more respondent friendly, increase the perceived legitimacy of the survey, or increase the likelihood that the physician reviews the survey.

Respondent-friendly survey elements are strategies that make the survey more straightforward, less time consuming, and generally more appealing. Of the elements that make the survey easier more respondent-friendly, making surveys shorter appears to have

the greatest effect[17,48]. Other elements found to increase response rates include focusing on salient topics to the study population[49], allowing multiple avenues for returning the survey, and including a stamped return envelope in the original mailing[50,51]. Questionnaires on sensitive topics generally have lower response rates than those not addressing sensitive topics, regardless of assurances of anonymity[52,53]. Tracking response and day of the week surveys are received do not appear to affect response rate[56] .

Elements that increase the perceived legitimacy or value of the survey emphasize the importance, legitimacy or the value of the study. Examples of these elements that improve response rates include pre-notification of the survey, assurances of confidentiality[17], partnering with relevant organizations[54], and personalization of survey materials[41]. Although not directly tested, there is some evidence that including names and contact information for the survey researchers increases response[41].

Certain elements have been considered specifically for physician surveys that work to get the survey into the physician's hands. Survey mode and delivery are particular issues for physicians since it is often difficult to get past “gatekeepers” and get the survey to the proper person[15]. A study comparing survey packets by US Mail compared to Federal Express found an 8% higher response rate for Federal Express[55]. Other meta-analyses have confirmed this finding that surveys delivered by courier have higher response rates than non-courier service delivery[17,41]. The other primary administrative strategy shown to increase response rates is to contact non-respondents after the initial mailing[17] and include replacement questionnaires in subsequent contacts[41].

II. Non-Response Bias in Physician Surveys

Non-response bias arises when the non-respondents are in some way systematically different than those who responded to the survey. In this manner the responses that the surveyors receive are not representative of the population sampled. Previous efforts to investigate non-response bias in surveys of health practitioners have been assessed by comparisons of (a) respondents and non-respondents based upon demographic and contextual variables[14,57,58], (b) survey results at different phases of data collection[59], and (c) responses to the initial survey and responses to a second follow-up survey of non-respondents[60], or a combination of these approaches[2,61]. The first method compares demographic and contextual variables available on the entire sampling frame to determine if a certain group is statistically more or less likely to respond than other groups and whether these demographic and contextual characteristics are associated with survey responses. The second method treats respondents replying in different time periods as separate groups and compares survey responses between the groups. In this method respondents are categorized as responding before and after follow-up based on the "continuum of resistance" model[62] which suggest that respondents who require contact with the investigators more closely resemble those who did not respond than those who did. In short, the model posits that if investigators followed up with non-respondents enough, they could achieve a 100% response rate. Thus those that required multiple follow-ups are more closely resemble those who did not yet respond, so they can act as a proxy for nonrespondents. The third method requires an additional survey of the non-respondents, and the demographics and responses to this survey are compared to the original survey.

Previous studies of non-response bias in health practitioner questionnaires have found demographic differences between respondents and non-respondents despite high response rates. However these demographic differences vary between studies, largely due to contextual factors and limited characteristics available on the sampling frame. A study of specialty physicians found evidence of non-response bias for gender and survey length, but not for region or urbanicity[2]. A survey of dentists found only non-significant differences between demographic variables, however there were still significant differences between early and late respondents[4]. A study of general practitioners found differences in years practicing, practice type, health region, and municipality size[61]. A study of pharmacists found differences by pharmacy type[59]. In those studies that tried to estimate the extent of bias, the impact on survey estimates is thought to be small or negligible[2,4,14,57,58,61]. This is thought to be due to relatively homogenous populations being sampled and reasonably high response rates. When response rate and non-response bias have been compared, there does not appear to be an association between the two[2,4], though these studies were comparing groups with relatively high response rates.

In general, previous studies have focused on whether overall estimates have been affected by non-response bias due to an unknown mechanism. Less effort has been invested in testing whether a particular mechanism inherent within the survey introduces non-response bias. To date, there are no studies linking study incentives with non-response bias. In this study, we specifically examine the impact of practice type and distance to the nearest location where respondents can redeem gift cards in a survey that used gift card incentives.

CHAPTER II

Gift Card Incentives and Non-Response Bias in a Survey of Vaccine Providers: The Role of Geographic and Demographic Factors

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ABSTRACT

This study investigates the effects of non-response bias in a 2010 postal survey assessing experiences with H1N1 influenza vaccine administration among a diverse sample of providers (N=765) in Washington state. Though we garnered a high response rate (80.9%) by using evidence-based survey design elements, including intensive follow-up and a gift card incentive from Target, non-response bias could exist if there were differences between respondents and non-respondents. We investigated differences between the two groups for seven variables: road distance to the nearest Target store, practice type, previous administration of vaccines, region, urbanicity, size of practice, and Vaccines for Children (VFC) program enrollment. We also examined the effect of non-response bias on survey estimates. Statistically significant differences between respondents and non-respondents were found for four variables: miles to the nearest Target store, type of medical practice, whether the practice routinely administered additional vaccines besides H1N1, and urbanicity. Practices were more likely to respond if they were from a small town or rural area (OR=7.68, 95% CI=1.44-40.88), were a non-traditional vaccine provider type (OR=2.08, 95% CI=1.06-4.08) or a pediatric provider

type (OR=4.03, 95% CI=1.36-11.96), or administered additional vaccines besides H1N1 (OR=1.80, 95% CI=1.03-3.15). Of particular interest, for each ten mile increase in road distance from the nearest Target store, the likelihood of provider response decreased (OR=0.73, 95% CI=0.60-0.89). Of those variables associated with response, only small town or rural practice location was associated with a survey estimate of interest, suggesting that non-response bias had a minimal effect on survey estimates. These findings show that gift card incentives alongside survey design elements and follow-up can achieve high response rates. However, there is evidence that practices farther from the nearest place to redeem gift cards may be less likely to respond to the survey.

INTRODUCTION

Understanding the experiences of physicians and health practitioners is vital to planning for and understanding public health interventions. Many physician surveys are conducted by mail. In a 1991 meta-analysis of 178 articles published in 111 different journals, response rates to mailed physician surveys varied from approximately 20% to 90%, with an average response rate of 54%. In contrast, mail surveys of non-physicians in this meta-analysis had an average response rate of 68% [13]. When survey response rates are low, the study sample may not adequately represent the target population, especially when non-respondents differ from respondents in important ways.

Various methods to increase mail survey response rates have been explored. Specific survey protocol elements have been used successfully to increase response rates, including: cash incentives, inclusion of contact information of many study investigators,

personalization and first-class stamps on return envelopes [15], multiple follow-ups, the inclusion of replacement questionnaires during follow-up, the use of short questionnaires [41], and the use of a courier service such as FedEx [51]. Non-cash incentives such as pens, stickers, token donations to charity, entry into a lottery, and informational material have been found to be less effective than cash incentives [16]. Additionally, cash incentives have been shown to increase response rates more than other methods, especially when incentives are upfront rather than promised [26]. Use of gift cards as an alternative monetary incentive has been shown to be more effective at increasing response rates than non-monetary incentives [45].

In previous studies of physician non-response bias, demographic differences were found between respondents and non-respondents, even when high response rates were achieved [2,4,57]. However, the effect of non-response bias on survey measures was negligible or small [2,57,61]. One explanation for this finding was that these studies examined relatively homogenous populations of physicians (e.g., dentists [4], pediatricians [14], or general practitioners [61]).

We conducted a survey of Washington vaccine providers in September–November 2010 to assess vaccine providers' experiences during the H1N1 pandemic. We used an evidence-based protocol which included a gift card incentive. Gift cards allow individual receipt and usage tracking and replacement of lost or stolen cards, reducing risks associated with sending cash by mail. Some of the vaccine providers faced potential barriers to easy use of gift cards, such as long travel distances to the nearest store or lack of internet access for online use of gift cards. Thus, the perceived value of the incentive could be different based upon geographic and demographic factors, which could

introduce non-response bias. Additionally, it has been shown that it is more difficult to get high response rates from some vaccine provider types than others, particularly pharmacies [59] and correctional facilities [63].

Since there was significant heterogeneity in characteristics of healthcare providers in Washington, we assessed whether use of gift card incentives introduced non-response bias. Previous studies addressing non-response bias have examined demographic and geographic factors. However, there are no studies addressing the impact of practice type and distance to the nearest location where respondents can redeem incentives in the context of gift card incentives.

The current study investigates demographic and geographic non-response bias in a survey of Washington H1N1 influenza vaccine providers using gift card incentives.

METHODS

We conducted a survey of Washington vaccine providers to investigate experiences, concerns, and use of immunization information systems (IIS) during the 2009-2010 H1N1 influenza immunization campaign. The purpose of the survey was to assess provider response to novel pandemic influenza A, the challenges associated with vaccine priority groups, and the potential to leverage existing systems in vaccine and non-vaccine related emergencies. Due to the liability of sending cash through the mail, we used gift card incentives in lieu of cash in an effort to maximize response rates.

Ethics

The Emory University Institutional Review Board (IRB) approved the study as exempt (#0004491). The Washington State IRB approved the study as non-human subject research (#E-072110-H). Informed consent was obtained via courier delivery of a Frequently Asked Questions (FAQ) document included with the survey which addressed the purpose, risks and benefits, confidentiality, incentives, and voluntary nature of the survey.

Sample

We drew a stratified random sample of 800 vaccine providers from 2,523 eligible practices who ordered H1N1 vaccine from the Washington State Department of Health and Human Services during the 2009-2010 H1N1 influenza pandemic. The sample size of 800 was based on a minimum anticipated response rate of 50%, and we sought survey estimates accurate within ±5% for all measures. All women's health providers (n=107, Table 1) and correctional facilities (n=31, Table 1) were selected, and the remaining providers were selected by stratified random sample. Women's health providers and correctional facilities were oversampled for pooled analysis with surveys in other states. The remaining six categories of provider types were proportionally represented in the sample: non-traditional vaccinators (e.g., alternative medicine, rehabilitation, occupational health, specialists), under-25-year-old priority group practices (e.g., pediatrics, college health services), pharmacies, government providers (e.g., Indian Health Service, local health jurisdictions, Veterans Affairs), hospitals and acute care, and traditional family practices. After eliminating 34 duplicate addresses and 1 Oregon address, 765 questionnaires were delivered.

Materials

Identical printed and online survey instruments were used to collect data from study participants. The printed survey instrument was a five-page, single-sided questionnaire. The paper survey was single-sided in order to facilitate the option of returning the survey by fax. The questionnaire consisted of 39 questions divided into 5 sections: practice demographics (5 items), communication with public health and the public (6 items), 2009 H1N1 vaccination administration (15 items), staff participation in public health preparedness activities (4 items), and use of IIS (8 items). We collected information on practice demographics including questions about provider type, participation in Vaccines for Children (VFC, a federal vaccine program), role of the contact (i.e., the onsite vaccine coordinator to whom the survey was targeted) in the practice, and size of the practice. The communications section of the survey addressed sources of public health information, effective communication methods from public health agencies, and effectiveness of previous local and state public health department communications. Questions addressing vaccine administration covered topics of priority group guidelines, staff vaccine coverage, and challenges of vaccine administration. We asked questions covering preparedness activities including questions about past participation in training or preparedness drills and past involvement in actual emergency responses. Finally, a section on the use of IIS included questions about the use and ease of use of Washington's IIS, Child Profile.

On September 15, 2010, sampled providers received a fax that informed them about the upcoming survey and outlined the survey goals. Two weeks later, we sent the

survey by FedEx to study participants as a “survey kit”. Each was addressed to the person identified by the Washington State Department of Health and Human Services as the primary contact for ordering H1N1 vaccine at the practice. We used FedEx for delivery with the goals of increasing response rates and tracking signed receipt of the survey and gift card. Also included in the survey kit were a hard copy of the survey instrument, a cover letter, an informed consent framed as a FAQ page, a postage-paid addressed return envelope, a pen, and a $25 gift card to Target to thank the contact for their time. Target is the second largest discount retailer in the United States [15]. Target stores sell household items, apparel, electronics, and health and grocery products. We chose this retailer for the incentive because it offers a wide selection of merchandise, good geographic coverage, gift cards that are redeemable online, and the ability to delay gift card activation to protect our investment. The cover letter described the contents of the survey kit and the objectives of the survey, provided contact information of the investigators, and indicated ways that respondents could complete the survey (mail, fax, or online). In addition to addressing general concerns about confidentiality, the voluntary nature of the survey and the risks and benefits of the survey, the FAQ addressed gift card use, survey funding, and the multiple ways to return the survey. The website address of the online survey tool was chosen to be simple and was printed on all survey materials. Gift cards could be used in-store at any Target location or could be used online at Target.com. The online survey tool was administered using Feedback Server version 2008.1 (Geneva, Switzerland).

Non-respondents received a fax reminder two weeks after the first mailing, including the full survey instrument, cover letter, and survey FAQ document. Three weeks after the first mailing, we contacted non-respondents by telephone a maximum of

three times over a period of 9 weeks. We left voicemail messages with the provider contact if direct contact was not possible after the first follow-up. Missing, incomplete, or outdated information was updated during telephone follow-up with the vaccine provider. Nine weeks after the initial mailing, remaining non-respondents received a personalized fax reminder. The reminder included the full survey instrument, a history of follow-up with that individual to date, and a reminder that his/her response was valuable for obtaining a representative sample.

Measures

We assessed non-response bias by comparing survey respondents with non-respondents, and by comparing early respondents to late respondents by demographic and practice-related variables: road distance in miles or in minutes to the nearest Target store, type of practice, geographic region of Washington, degree of urbanicity (as defined by the U.S. Census Bureau), whether the practice regularly administers vaccines, and size of practice. Each of these predictors has either been shown previously to affect response rates or was of particular interest in this study.

We used GoogleMaps to calculate road distance in miles and driving time needed to reach the nearest Target store from each provider by the shortest possible route. Late response was defined as responding after the first fax follow-up two weeks after delivery, and early response was defined as responding before the first follow-up. Demographic and practice-level data about providers was obtained from the Washington State Department of Health and Human Services, including physical address, local health jurisdiction, and whether the practice had registered to provide vaccines other than H1N1.

We categorized geographic regions in Washington using region categories defined by the Washington State Department of Health and Human Services [65]. Respondents self-reported provider category (type of practice) and size of practice. Degree of urbanicity was determined using Rural-Urban Commuting Area (RUCA) codes obtained by ZIP code approximation through the Rural Health and Research Center [66]. We combined small town and rural designations to permit analysis due to small strata sizes.

The three survey estimates of interest were ease of adherence to priority group guidelines, perceived capability to respond to future public health emergencies, and participation in training drills or emergency preparedness exercises. We dichotomized ease of adherence to priority group guidelines into those responding “Easy - The guidelines made it easy for our practice to make decisions on who should or should not receive the vaccine.” compared to those responding “Moderate -The guidelines gave us general guidance, but we still had to make some case-by-case decisions that we were not sure were covered by the guidelines.” or “Hard - In most cases, the guidelines were not specific enough to help our practice make decisions on who should receive vaccine.” We categorized perceived capability to respond to future public health emergencies into those practices responding “Strongly Agree” or “Agree”, compared to all other responses on a five-point Likert Scale from “Strongly Agree” to “Strongly Disagree” to the statement “The H1N1 vaccination campaign illustrated that our practice or pharmacy branch is capable of responding to large scale public health events.” We assessed participation in training drills or preparedness exercises by comparing practices responding “Yes” compared to those responding “No” or “Not sure”.

Analysis

We used Fisher exact test to evaluate the bivariate association between each predictor and the outcome. We used logistic regression modeling to assess the effect of each predictor on response status and response timing. Models of best fit were determined based upon whether adding additional variables confounded the relationship between the primary variables of interest and the dependent variable by more than ten percent and whether they contributed significantly to R-squared. Only models containing miles to the nearest Target location and practice type were eligible for consideration as these were the primary variables of interest.

We used Fisher exact test to evaluate the association between late response (a proxy for non-response) and survey estimates to determine if late respondents answered differently than early respondents. We used late response as a proxy because we were interested in the impact of non-response bias on survey estimates, but we do not know how the non-responders would have answered. Late responders more closely resemble non-responders than early responders since, without follow-up, late responders would have likely been non-responders. For those factors that affected response status, we used logistic regression to assess the effects of each predictor on survey estimated effect measures of interest: ease of adherence to priority group vaccine guidelines, perceived capability to respond to future public health emergencies, and participation in training drills or preparedness exercises. If, for example, rural and metropolitan clinics adhere to guidelines similarly, then the finding that rural clinics are more likely to respond would not affect the quality of survey estimates. However, if rural clinics are more or less able

to adhere to guidelines, we would want to determine the magnitude and direction of non-response bias on survey estimates.

All statistical analyses were performed using SAS v. 9.2 (Cary, NC). Results were considered statistically significant at an alpha level of 0.05 for all tests.

RESULTS

Response Rate and Non-Response Bias

Completed questionnaires were returned by 619 out of 765 (80.9%) vaccine providers sampled. Of these, 25 did not provide identifying information and could not be matched to the sample list. Since these providers could not be matched to demographic and geographic variables, these responses were included as non-respondents in this analysis. Of the 594 responses with identifying information and a valid time stamp, 404 (69.2%) were returned before any reminders were received. Number of responses and cumulative response rate by timing of follow-up are shown in Figure 1. Descriptive statistics are presented in Table 1.

Bivariate results stratified by response status and response timing are presented in Table 1. There was no significant difference between respondents and non-respondents by distance to Target store in miles ($p=0.730$) or in minutes ($p=0.955$). There was a significant difference among respondents and non-respondents by whether the practice regularly administers vaccines and by type of practice (Table 1). Those practices that regularly administer vaccines were significantly more likely to respond to the survey than those practices that provided H1N1 influenza vaccine only (82.4% compared to 74.6%,

p=0.013). By type of practice, response rates were lowest for pharmacies (69.4%) and highest for pediatric practices (91.4%) (p=0.002).

Bivariate results stratified by early versus late response are also presented in Table 1. There was no significant difference between early respondents and late respondents by distance to the nearest Target in miles (p=0.215) or in minutes (p=0.196). There was a significant difference between early respondents and late respondents by whether the practice regularly administers vaccines (Table 1). Those practices that provided H1N1 influenza vaccine only were significantly more likely to respond late than those practices that regularly administer vaccines (34.9% compared to 25.1%, p=0.014). The proportion of pharmacies that responded late was significantly higher than the proportion of traditional family practices that responded late (44.0% compared to 27.7%, p=0.047).

Table 2 presents the logistic regression odds ratios (OR), 95% confidence intervals (95% CI) and p-values for the relationship between practice characteristics and survey response. Adjusting for type of practice, vaccinating for only H1N1, region of Washington, and degree of urbanicity, practices that were further from their nearest Target store were less likely to respond to the survey. The odds of receiving a response from a practice ten miles further from the nearest Target than another practice were 0.73 (95% CI=0.60-0.89) times the odds of the nearer practice. Pediatric providers were significantly more likely than traditional family practice providers to respond to the survey (OR=4.03, 95% CI=1.36-11.96; Table 2). Non-traditional providers were significantly more likely to respond to the survey than traditional family practice providers (OR=2.08, 95% CI=1.06-4.08; Table 2). Providers that only provided H1N1

influenza vaccine were significantly less likely to respond than providers that regularly administer vaccines (OR=0.56, 95% CI=0.32-0.97; Table 2). Small town or rural providers were significantly more likely to respond to the survey than metropolitan providers (OR=7.68, 95% CI=1.44-40.88; Table 2).

The logistic regression model predicting response status based on the set of predictors (distance to nearest Target store, type of practice, vaccinator for only H1N1, region of Washington, and degree of urbanicity) was significant ($p<0.05$), but the model R-squared was low (0.082). The self-reported predictors of practice size and VFC enrollment were not significantly associated with response status, and were not included in the final logistic regression model. Regression coefficients were calculated using both distance in miles and minutes to the nearest Target; using one or the other strategy gave similar regression coefficients and identical conclusions. The final model used distance in miles because its R-squared was slightly higher than the model using distance in minutes.

The logistic regression model comparing early respondents versus late respondents is presented in Table 2. There was no significant association between the set of predictors (distance to the nearest Target store, type of practice, vaccinator for only H1N1, region of Washington, degree of urbanicity) and late response ($p =0.064$, Table 2). Self-reported predictors practice size and VFC enrollment were not significantly associated with response status, and were not included in the final logistic regression model.

Non-Response Bias and Survey Estimates

Next, we assessed the consequences of non-response bias in terms of demographic variables on the survey variables of interest: easy adherence to guidelines on priority groups, capability of the practice to respond to future public health emergencies, and whether the practice participated in disaster training or preparedness exercises.

There was no significant association between response timing (early/late) and key survey responses (Table 3). Table 4 presents logistic regression results predicting three survey estimates of interest based on the set of predictors shown to affect response (distance to nearest Target store in miles, type of practice, administering vaccinations for only H1N1, region of Washington, and degree of urbanicity). The model for ease of adherence to guidelines was not significant (p=0.061). None of the models had a high R-squared, although R-squared was greater for the model predicting training or preparedness activities (R-squared=0.254) compared to the models for ease of adherence to guidelines (R-squared=0.067) and perceived practice capability to respond to public health emergencies (R-squared=0.104). Each of the models for the survey estimates were influenced by different sets of independent variables. None of the independent variables were significant in more than one of the models predicting survey estimates.

There was no significant observed effect of the number of miles to the nearest Target store on self-reported ease of adherence to guidelines (OR=0.87, 95% CI=0.72-1.05), perceived capability to respond to future public health emergencies (OR=0.87, 95% CI=0.65-1.16), or participation in disaster training or preparedness exercises (OR=1.15, 95% CI=0.92-1.43). Small town or rural location of the practice was positively associated with perceived capability to respond to future public health

emergencies (OR=20.83, 95% CI=1.02-425.51). Practices located in small town or rural locations comprised 5.4% of sampled practices (41 of 765, Table 1) which accounts for the wide confidence intervals. The other variables shown to affect response (vaccination for only H1N1, and pediatric and non-traditional vaccinator provider types) were not significant in all models.

Our estimate of overall perceived capability of respond to public health emergencies is likely biased up and away from the null, because small town or rural location of the practice was positively associated with response and was also associated with increased perceived capability to respond to future public health emergencies. The magnitude of the bias is small. No other estimates associated with response were also associated with survey estimates; there is no evidence that survey estimates of ease of adherence to guidelines or participation in training exercises or preparedness drills were biased due to non-response.

DISCUSSION

This study supports previous study findings showing that incentives and study design factors improve response rates. We achieved a high response rate for this survey of Washington vaccine providers, which may have reduced potential non-response bias. However, we found statistically significant differences between respondents and non-respondents for four study variables – distance to the nearest Target, type of medical practice, whether the practice routinely administered more vaccines than H1N1, and urbanicity. Of particular interest, the negative association between distance to the nearest Target and response was significant and meaningfully large. This suggests that, while gift

card incentives – along with other study design factors – can increase response rates, investigators should be aware that where and how gift cards can be used may affect who responds to the survey. If researchers use gift card incentives, they should use gift cards that appeal to and are easily redeemable by their study population. Even in a large state such as Washington, we saw that even relatively short distance increases to a Target location had a significant and meaningful impact on the probability of response.

However, those variables associated with non-response were not significantly related to survey estimates of interest, with the exception of small town or rural location of the practice. Small town or rural location was positively associated with response and with perceived capability to respond to future public health emergencies. This indicates that the overall survey estimate of perceived capability to respond to future public health emergencies is an overestimate. However, small town or rural practices made up a small fraction (5.4%, Table 1) of the sample, which suggests that non-response bias in this survey estimate is small. All other variables significantly associated with key survey estimates of interest were not significantly associated with response or timing of response.

The design of our study built on existing work evaluating methods to increase response rates. We used multiple evidence-based methods to ensure a high response rate for our survey, and thus we are unable to evaluate the effectiveness of individual protocol design factors. As pointed out in previous studies, it is important to have a broad set of demographic and practice variables available on the entire sampling frame [4]. In our study, the variables available on the entire sampling frame explained only a small proportion of the variation in response, timing of response, and survey estimates. Low

model R-squared indicates that there are likely several unmeasured factors associated with survey response. Variables such as the role of the survey contact, number of patients vaccinated, and respondent income were not considered for analysis because these variables were not available for non-responders. Although some variables were associated with response and survey estimates, almost 20% of sampled H1N1 vaccine providers did not respond and we do not know how they would have answered.

Further research could explore the relationship between distance to the nearest place to redeem gift cards and likelihood of response. This should include surveys that are specifically designed to compare gift cards to cash incentives, take place outside of Washington, or provide gift cards to stores other than Target to assess whether results are context-specific.

Future surveys using gift card incentives would benefit from making an informed choice about gift card selection. Investigators should consider the geographic distribution of the selected gift card store, the option of redeeming the gift card online, and internet access among respondents during project planning.

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TABLES.

Table 1. Demographic characteristics by response status and response time

Variable	Mean (SD) or N(%)*						Group P-Value**	Mean (SD) or N (%)*				Group P-Value**
	Total Sample (n=765)		Respondent (n=594)		Non-Respondent (n=171)			Early Respondent (n=404)		Late Respondent (n=180)		
Mean distance to Nearest Target (miles)	12.0	(19.1)	11.9	(19.0)	12.5	(19.4)	0.730	11.3	(17.9)	13.4	(21.6)	0.215
Mean time to nearest Target (minutes)	18.5	(22.5)	18.4	(22.7)	18.5	(22.0)	0.955	17.6	(21.0)	20.3	(26.2)	0.196
Type of Practice (%) ***							0.037					0.063
Non-Traditional Vaccinators	149	(19.5)	118	(79.2)	31	(20.8)		80	(69.6)	35	(30.4)	
Pediatric Providers	48	(6.3)	44	(91.7)***	4	(8.3)		34	(77.3)	10	(22.7)	
Pharmacy Providers	147	(19.2)	102	(69.4)	45	(30.6)		56	(56.0)***	44	(44.0)	
Government Providers	60	(7.8)	51	(85.0)	9	(15.0)		35	(70.0)	15	(30.0)	
Hospital Providers	31	(4.1)	26	(83.9)	5	(16.1)		17	(70.8)	7	(29.2)	
Traditional Family Providers	192	(25.1)	144	(75.0)	48	(25.0)		104	(72.2)	40	(27.8)	
Corrections Facilities	31	(4.1)	25	(80.6)	6	(19.4)		15	(60.0)	10	(40.0)	
Women's Health Providers	107	(14.0)	84	(78.5)	23	(21.5)		63	(76.8)	19	(23.2)	
Type of Vaccinator (%) ***							0.013					0.014
Vaccinator for more than H1N1	296	(38.7)	244	(82.4)***	52	(17.6)		182	(74.9)***	61	(25.1)	
Vaccinator for only H1N1	469	(61.3)	350	(74.6)	119	(25.4)		222	(65.1)	119	(34.9)	
Region of Washington (%)							0.403					0.429
North	96	(12.6)	75	(78.1)	21	(21.9)		48	(64.9)	26	(35.1)	
Northwest	47	(6.1)	39	(83.0)	8	(17.0)		27	(71.1)	11	(29.0)	
West	81	(10.6)	63	(77.8)	18	(22.2)		39	(62.9)	23	(37.1)	
Southwest	52	(6.8)	42	(80.8)	10	(19.2)		32	(78.1)	9	(22.0)	
Tacoma	109	(14.3)	80	(73.4)	29	(26.6)		61	(76.3)	19	(23.8)	
Seattle	212	(27.1)	161	(75.9)	51	(24.1)		111	(71.6)	44	(28.4)	
North Central	30	(3.9)	23	(76.7)	7	(23.3)		14	(60.9)	9	(39.1)	
South Central	64	(8.4)	57	(89.1)	7	(10.9)		35	(61.4)	22	(38.6)	
East	74	(9.7)	54	(73.0)	20	(27.0)		37	(68.5)	17	(31.5)	
Metro Type (%)							0.680					0.146
Metropolitan	643	(84.1)	495	(77.0)	148	(23.0)		340	(70.0)	146	(30.0)	
Micropolitan	81	(10.6)	65	(80.2)	16	(19.8)		41	(64.1)	23	(35.9)	
Small Town or Rural	41	(5.4)	34	(82.9)	7	(17.1)		23	(67.6)	11	(32.4)	
VFC Status (%)												0.075
VFC Provider	---		---		---			184	(74.2)	64	(25.8)	
Non-VFC Provider	---		---		---			203	(67.2)	99	(32.8)	
Mean Daily Number of Patients Seen	---		---		---			49.5	(71.1)	55.4	(111.8)	0.441

Note: total n is not the same for VFC status and mean daily number of patients due to item specific non-response
*Means and standard deviations are given for continuous variables, counts and percents for categorical variables
** P-Values reported in this column are group tests. For example, the P-Value reported for type of practice compares the model including practice type variables to the one not including practice type variables by likelihood ratio tests.
*** P<0.05. Individually significant variables marked with *** were compared to a reference category by Fisher exact test.

Table 2. Logistic Regression: Association between response and timing of response with geographic and demographic variables

Variable	Response (vs. No Response) Odds Ratio	95% Confidence Limits	*p*		Late Response (vs. Early Response) Odds Ratio	95% Confidence Limits	*p*	
Miles to the nearest Target*	0.73	(0.60 - 0.89)	0.002	**	1.14	(0.95 - 1.38)	0.167	
Type of Practice (vs. Family Practice)								
Non-Traditional Vaccinators	2.08	(1.06 - 4.08)	0.033	**	0.79	(0.39 - 1.62)	0.526	
Pediatric Providers	4.03	(1.36 - 11.96)	0.012	**	0.75	(0.33 - 1.71)	0.495	
Pharmacy Providers	1.21	(0.63 - 2.32)	0.572		1.39	(0.68 - 2.83)	0.366	
Government Providers	2.22	(0.96 - 5.15)	0.063		1.00	(0.47 - 2.13)	0.996	
Hospital Providers	2.83	(0.96 - 8.36)	0.060		0.81	(0.29 - 2.26)	0.692	
Corrections Facilities	2.30	(0.79 - 6.69)	0.125		1.16	(0.44 - 3.10)	0.765	
Women's Health Providers	1.79	(0.93 - 3.46)	0.082		0.60	(0.29 - 1.22)	0.158	
Vaccinator for only H1N1								
(vs. vaccinator for more than H1N1)	0.56	(0.32 - 0.97)	0.040	**	1.73	(0.99 - 3.04)	0.056	
Region of Washington (vs. North)								
Northwest	1.90	(0.69 - 5.26)	0.215		0.62	(0.25 - 1.58)	0.317	
West	0.89	(0.41 - 1.96)	0.755		1.12	(0.52 - 2.43)	0.767	
Southwest	1.28	(0.54 - 3.03)	0.580		0.46	(0.18 - 1.13)	0.089	
Tacoma	0.72	(0.37 - 1.41)	0.337		0.55	(0.26 - 1.15)	0.114	
Seattle	0.96	(0.52 - 1.74)	0.885		0.75	(0.40 - 1.39)	0.355	
North Central	1.04	(0.33 - 3.31)	0.946		1.15	(0.38 - 3.42)	0.808	
South Central	2.25	(0.87 - 5.79)	0.094		1.15	(0.55 - 2.42)	0.711	
East	0.76	(0.36 - 1.58)	0.457		0.83	(0.38 - 1.82)	0.646	
Urbanicity (vs. metropolitan)								
Micropolitan	2.74	(1.00 - 7.54)	0.051		0.71	(0.30 - 1.69)	0.441	
Small Town or Rural	7.68	(1.44 - 40.88)	0.017	**	0.48	(0.12 - 1.94)	0.304	

Note: the model with late response as the dependent variable is not significant P>0.05
*Per ten mile increase
** P<0.05

Table 3. Survey estimates by timing of response

Variable	Total Respondents		Early Respondents		Late Respondents		P-Value*
	N	%	N	%	N	%	
Adherence to guidelines on priority groups was easy (n=569)	361	(62.9)	254	(64.5)	107	(61.1)	0.452
Practice is capable to respond to future public health emergencies (n=567)	460	(81.1)	323	(82.2)	137	(78.7)	0.353
Participation in disaster training or preparedness exercises (n=577)	253	(43.9)	186	(46.4)	67	(38.1)	0.069

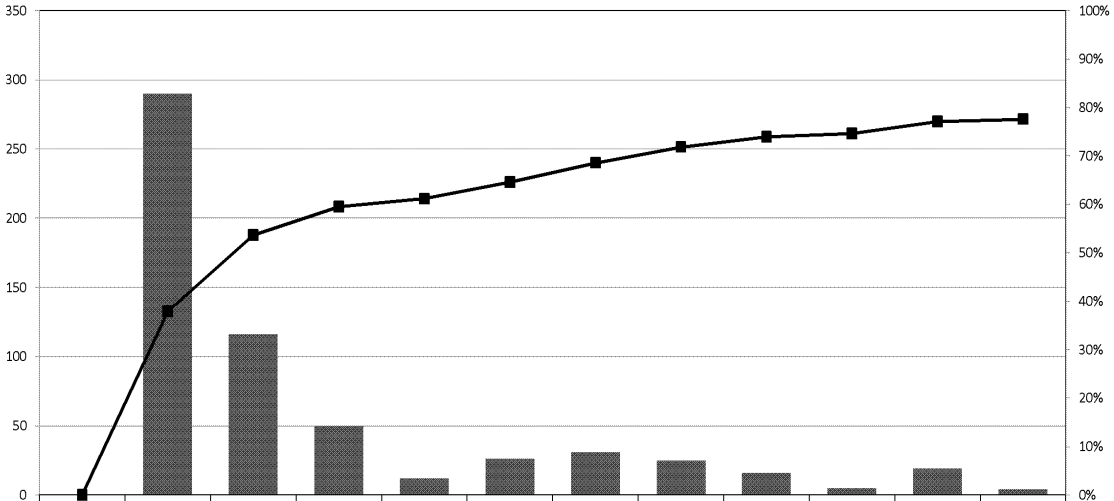
Note: n varies by variable due to item specific non-response
*P-values reported are Fisher exact tests between timing of response and survey answers

Table 4: Logistic Regression: Association between survey estimates with geographic and demographic variables

Variable	Easy Adherence to Guidelines (vs. Moderate or Hard Difficulty)			Capable to Respond to Public Health Emergencies (vs. Neutral or Not Capable)			Participation in disaster training or preparedness exercises (vs. No Training)		
	Odds Ratio	95% Confidence Limits	*p*	Odds Ratio	95% Confidence Limits	*p*	Odds Ratio	95% Confidence Limits	*p*
Miles to the nearest Target *	0.87	(0.72 - 1.05)	0.157	0.87	(0.65 - 1.16)	0.342	1.15	(0.92 - 1.43)	0.232
Type of Practice (vs. Family Practice)									
Non-Traditional Vaccinators	1.31	(0.65 - 2.62)	0.455	0.71	(0.31 - 1.61)	0.402	1.36	(0.68 - 2.73)	0.389
Pediatric Providers	1.65	(0.79 - 3.48)	0.187	2.10	(0.66 - 6.64)	0.208	1.71	(0.82 - 3.55)	0.154
Pharmacy Providers	0.81	(0.41 - 1.63)	0.560	1.48	(0.61 - 3.62)	0.384	0.34	(0.16 - 0.74)	0.006
Government Providers	0.82	(0.41 - 1.65)	0.581	0.74	(0.30 - 1.90)	0.513	3.30	(1.54 - 7.06)	0.002
Hospital Providers	1.95	(0.71 - 5.33)	0.194	0.47	(0.16 - 1.43)	0.180	10.16	(2.73 - 37.82)	0.001
Corrections Providers	0.74	(0.27 - 1.98)	0.541	1.81	(0.45 - 7.59)	0.407	7.32	(2.16 - 24.80)	0.001
Women's Health Providers	1.61	(0.83 - 3.12)	0.155	0.93	(0.42 - 2.08)	0.853	0.74	(0.38 - 1.44)	0.375
Vaccinator for only H1N1 (vs. vaccinator for more than H1N1)	1.34	(0.78 - 2.29)	0.288	0.77	(0.40 - 1.46)	0.430	1.17	(0.67 - 2.04)	0.587
Region of Washington (vs. North)									
Northwest	1.68	(0.68 - 4.14)	0.260	0.36	(0.13 - 0.97)	0.052	0.41	(0.16 - 1.04)	0.061
West	1.73	(0.78 - 3.82)	0.178	1.15	(0.38 - 3.48)	0.802	0.69	(0.30 - 1.55)	0.366
Southwest	1.47	(0.64 - 3.35)	0.360	0.55	(0.20 - 1.48)	0.238	1.56	(0.67 - 3.62)	0.303
Tacoma	1.30	(0.64 - 2.64)	0.471	1.37	(0.52 - 3.63)	0.528	0.89	(0.43 - 1.84)	0.753
Seattle	0.91	(0.51 - 1.65)	0.766	0.78	(0.35 - 1.74)	0.549	0.81	(0.43 - 1.51)	0.503
North Central	0.63	(0.21 - 1.91)	0.413	3.18	(0.34 - 28.59)	0.309	1.09	(0.32 - 3.71)	0.888
South Central	0.89	(0.43 - 1.85)	0.754	0.44	(0.18 - 1.10)	0.078	0.41	(0.18 - 0.93)	0.032
East	0.77	(0.37 - 1.64)	0.503	0.72	(0.26 - 2.00)	0.518	0.29	(0.12 - 0.70)	0.006
Urbanicity (vs. metropolitan)									
Micropolitan	1.23	(0.51 - 2.95)	0.651	1.81	(0.49 - 6.15)	0.376	1.61	(0.61 - 4.24)	0.340
Small Town or Rural	1.38	(0.36 - 5.37)	0.639	20.83	(1.02 - 425.51)	0.049	1.99	(0.47 - 8.33)	0.348

Note: model with Easy adherence as the dependent variable was not significant P>0.05
*Per ten mile increase

Figure 1. Number of Responses and Response Rate by week and timing of followup



	Prenotice	Mailing		Fax Notice	Calls Begin						Personal Fax	
	-2	0	1	2	3	4	5	6	7	8	9	10
Number of Responses	0	290	116	50	12	26	31	25	16	5	19	4
Response Rate	0.0%	37.9%	53.7%	59.6%	61.2%	64.6%	68.6%	71.9%	74.0%	74.6%	77.1%	77.6%

CHAPTER III.

PUBLIC HEALTH IMPLICATIONS

The results from this study support previous work showing that incentives and study design elements can achieve a high response rate. While this study did not directly test whether gift card incentives or various study design elements increase response rates relative to not having these elements, it does provide a case study of a relatively large questionnaire of diverse medical providers achieving a response rate in excess of 80%. For researchers interested in maximizing response rates to achieve a representative sample and enjoy a good return on money invested, this survey protocol may serve as a template.

Surveys of physicians are an essential tool for assessing the knowledge, practices, and beliefs of the medical community; however these surveys often suffer from low response rates. Surveys suffering from low response rates are vulnerable to non-response bias due to an unrepresentative sample. One method commonly used to increase response rates is the use of financial incentives, and in lieu of cash incentives, gift card incentives are being used. This study found that the use of gift cards influenced who responded to the survey. Future surveys using gift card incentives would benefit from making an informed choice about gift card selection. Investigators should consider the geographic distribution of the selected gift card store, the option of redeeming the gift card online, and internet access among respondents during project planning in order to maximize response rates and minimize the potential bias introduced.

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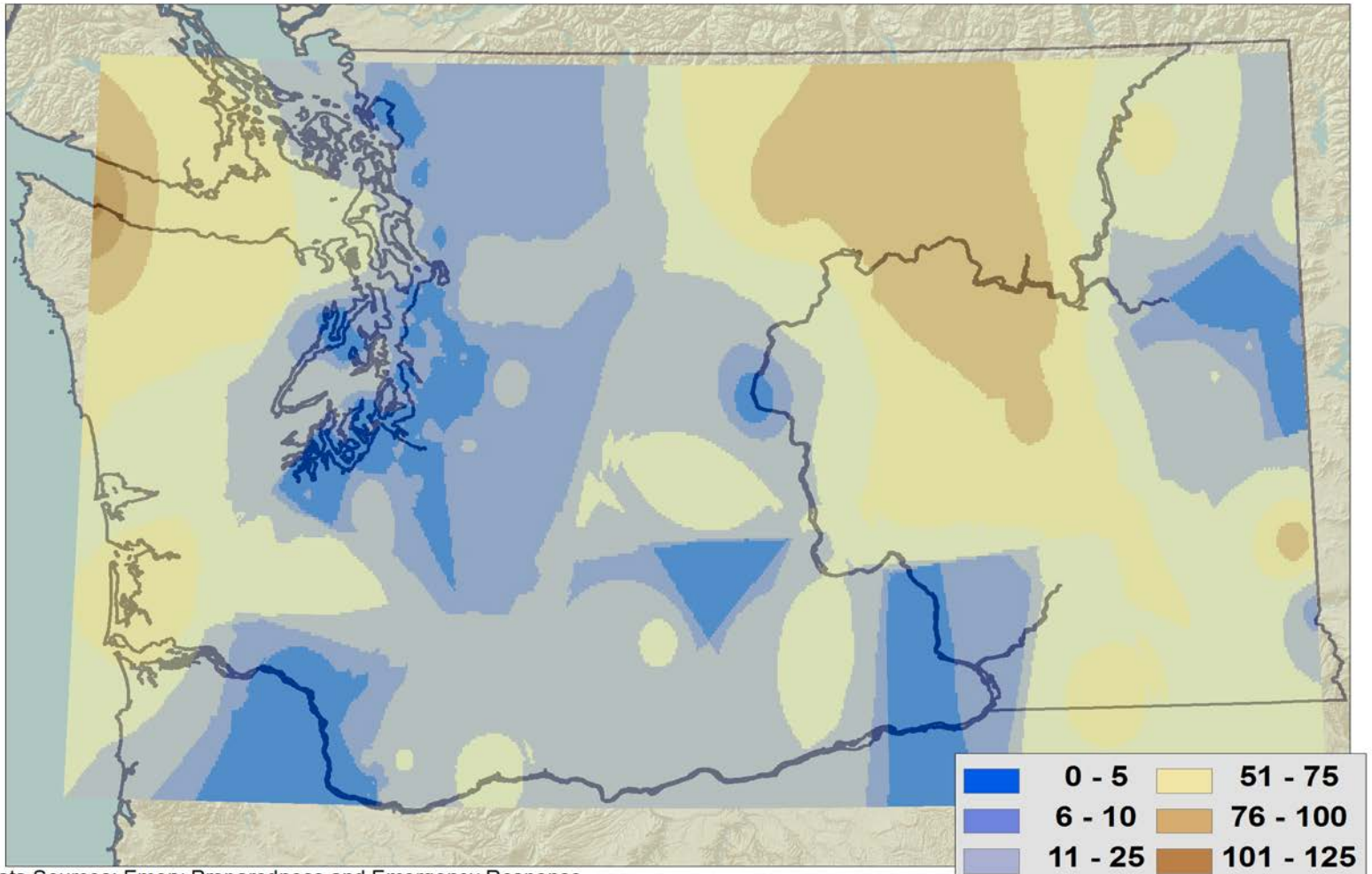
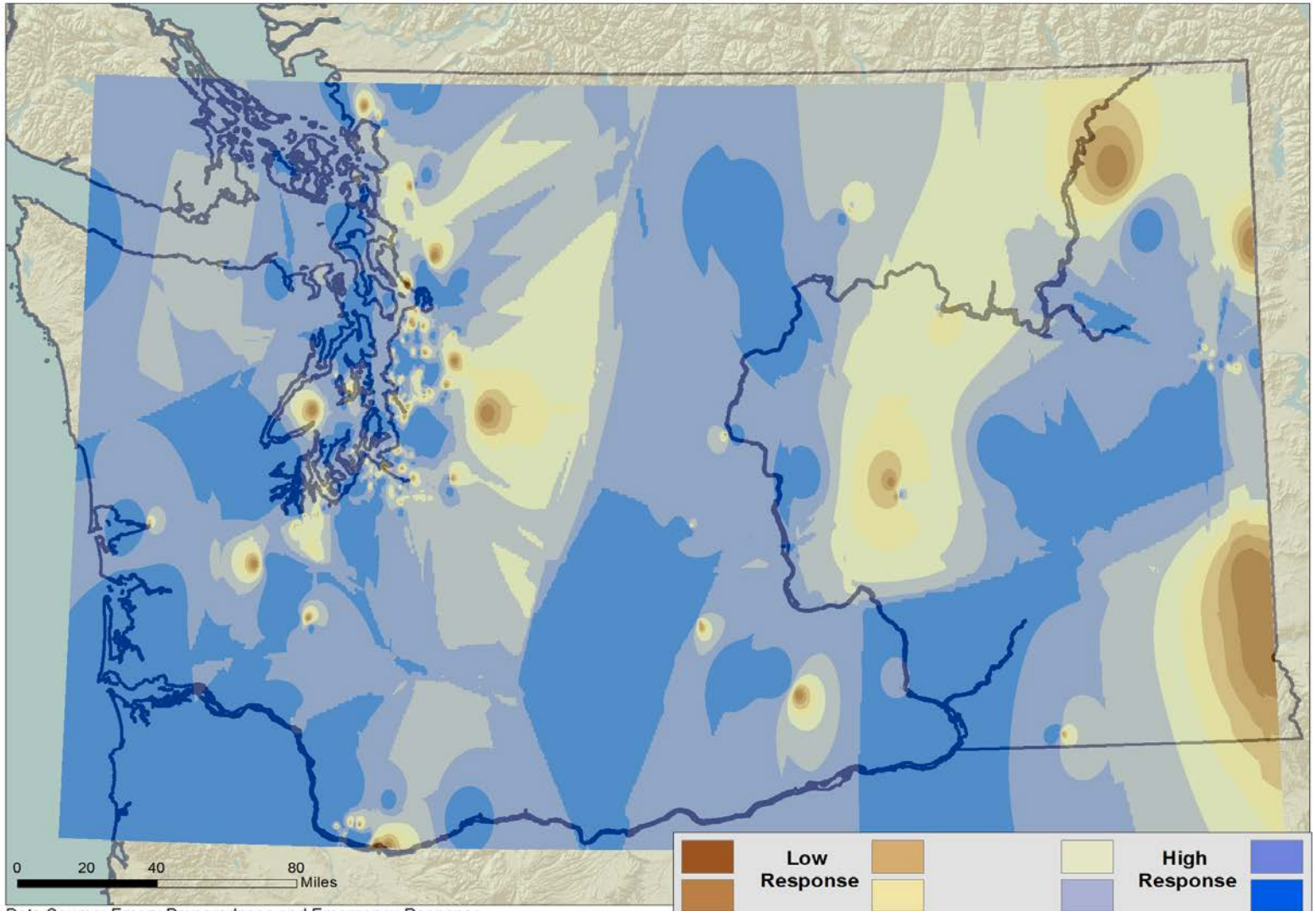
APPENDIX 1: Additional Figures

Additional Figure 1: Estimated Miles to the nearest Target



Data Sources: Emory Preparedness and Emergency Response Research Center, Washington State Department of Health and Human Services, ESRI North American Street Maps

Additional Figure 2: Estimated areas of response and nonresponse



Data Source: Emory Preparedness and Emergency Response Research Center, Washington State Department of Health and Human Services, ESRI North American Streetmaps

APPENDIX 2: Survey Tool

Washington Health Care Providers & Practices H1N1 Influenza Vaccine and Preparedness Survey

Please complete this survey one of the following ways:
Online at **www.vaccinesurvey.com**.
Fax this completed copy to **404-712-8345, Attn: Katy Seib,**
Mail this completed copy using the postage paid envelope enclosed in the survey kit**.**

Please provide the following contact information for our records:

Name of clinic: _____ Clinic zip code: __ __ __ __ __

Section I. Practice Demographics

1. Please describe your practice:

- □ Private pediatric practice
- □ Private family medicine practice
- □ Private OB/GYN practice
- □ Pharmacy – national/regional chain pharmacy
- □ Pharmacy – local/independent pharmacy
- □ Specialty practice (e.g. neurology, oncology, multi-specialty)
- □ Local Health Jurisdiction (LHJ)/public health agency clinic
- □ Tribal clinic
- □ Other publically-supported clinic (e.g., Section 330, FQHC, etc.)
- □ Other: _____

2. Does your practice participate in the Vaccines for Children (VFC) Program?

- □ Yes
- □ No
- □ Not currently, but we are considering participation
- □ Don't know

3. What is your role within your practice or pharmacy branch?

- □ Medical assistant
- □ Medical Director
- □ Nurse (RN, LPN)
- □ Nurse Manager/Director
- □ Nurse Practitioner
- □ Office or pharmacy manager
- □ Pharmacist
- □ Pharmacy technician
- □ Physician
- □ Physician's assistant (PA)
- □ Other clinical: _____
- □ Other administrative staff: _____

4. How many physicians are in your practice or pharmacy branch?

□ None □ 1-3 □ 4-6 □ 7-9 □ 10 or more

5. How many pharmacists are in your practice or pharmacy branch?

□ None □ 1-2 □ 3-4 □ 5 or more

6. For each of the following patient categories, please indicate, on average, how many individuals are seen in your practice or pharmacy branch within a single day.

Children <5 years	Children 5-18 years	Adults 19+ years	Pregnant women

Section II. Communications with Public Health and the Public

7. In your practice or pharmacy branch, who is the person(s) responsible for receiving and disseminating updates from public health officials to clinic staff regarding influenza vaccine administration? (You may check more than one response.)

- □ Medical assistant
- □ Medical Director
- □ Nurse (RN, LPN)
- □ Nurse Manager/Director
- □ Nurse Practitioner
- □ Office or pharmacy manager
- □ Pharmacist
- □ Pharmacy technician
- □ Physician
- □ Physician's assistant (PA)
- □ Other clinical: _____
- □ Other administrative staff: _____

8. To the best of your knowledge, which of the following entities does the person(s) specified above rely upon the most to obtain timely, accurate information regarding outbreaks and public health threats that affect your community?

- □ Federal government agencies (e.g. CDC)
- □ News media (e.g. TV, internet news sites, newspapers)
- □ Professional societies (e.g. American Academy of Pediatrics, American Medical Association)
- □ State health departments
- □ Local health departments
- □ Other sources: _____

9. How does this person(s) disseminate information they receive from public health officials to practice or pharmacy branch staff? (You may check more than one.)

- □ Face-to-face conversations with physicians and/or staff
- □ Routine staff meetings (e.g. daily or weekly)
- □ Email (e.g. mass email forward, scanning in a hard-copy document and emailing to physicians and/or staff)
- □ Hard-copy facsimiles or flyers
- □ Posting in common areas (e.g. kitchen, break room, common area)
- □ Other: _____

10. In the matrix below, please indicate the MOST EFFECTIVE ways for public health departments to communicate information to your practice or pharmacy branch about the following public health emergencies. (You may check more than one communication method for each type of emergency.)

	Community outbreaks	Vaccine shortages for routine immunization	Pandemic influenza vaccine supply (e.g. H1N1 vaccine)
Blast faxes	☐	☐	☐
Email	☐	☐	☐
In person visits to provider offices	☐	☐	☐
Newsletters	☐	☐	☐
Notifications by postal mail	☐	☐	☐
Phone calls	☐	☐	☐
Press releases	☐	☐	☐
Posting information to WA's Immunization Information System (CHILD Profile)	☐	☐	☐
Posting information on general health department website	☐	☐	☐
Notifications through the Health Alert Network (HAN/SECURES)	☐	☐	☐
Sponsored conference calls	☐	☐	☐
Text message alerts	☐	☐	☐
Twitter feeds	☐	☐	☐

11. Regarding preparedness for the 2009 H1N1 influenza vaccination campaign, how would you characterize the usefulness of information or guidance you received from the health department?

	Very Useful	Useful	Somewhat Useful	Not Useful	Irrelevant	I cannot recall
State Health Department	☐	☐	☐	☐	☐	☐
Local Health Department	☐	☐	☐	☐	☐	☐

12. In terms of communicating information on seasonal or H1N1 influenza vaccination to your practice or pharmacy branch:

a. What could your state health department have done better?

_____

_____

b. What could your local health department have done better?

_____

_____

Section III. 2009 H1N1 Vaccination Administration

13. At the beginning of the H1N1 vaccination campaign when vaccine was limited, please describe your practice's ability to adhere to the priority group guidelines:

☐ Easy	The guidelines made it easy for our practice to make decisions on who should or should not receive the vaccine.
☐ Moderate	The guidelines gave us general guidance, but we still had to make some case-by-case decisions that we were not sure were covered by the guidelines.
☐ Hard	In most cases, the guidelines were not specific enough to help our practice make decisions on who should receive vaccine.

14. How did your practice communicate information about H1N1 vaccine prioritization and availability with your patients or customers? (Check all that apply.)

- ☐ Email notifications
- ☐ Face to face during patient/customer visits
- ☐ Flyers distributed to patients/customers visiting the practice
- ☐ Phone calls to patients/customers
- ☐ Postcards/mailings
- ☐ Posters in exam rooms
- ☐ Posters in waiting rooms/restrooms
- ☐ Postings on our practice's website
- ☐ Hotline or recorded message on phone answering service
- ☐ Text message alerts
- ☐ Twitter feeds
- ☐ Other (please specify): _____

15. Were you or was anyone else in your practice concerned about denying H1N1 influenza vaccine to those in the lowest priority group (i.e. healthy adults and adults over the age of 65)?

- ☐ Yes, please describe: _____
- ☐ No
- ☐ N/A – we are a pediatric practice

Comment: _____

_____

16. In what ways did your practice or pharmacy branch extend services to vaccinate additional patients or customers against H1N1 influenza? (Check all that apply.)

- ☐ Hired additional staff to help vaccinate
- ☐ We extended our Monday – Friday business hours beyond our normal hours
- ☐ We opened on weekends when we do not normally open on weekends
- ☐ We extended our normal weekday and weekend hours
- ☐ We participated in mass vaccination clinics
- ☐ We did not extend our services
- ☐ Other
- ☐ I don't know

Comment: _____

_____

17. What barriers did your practice or pharmacy branch have to storing and administering H1N1 vaccine? (Check all that apply.)

- ☐ Limited storage space for vaccine
- ☐ Limited storage space for ancillary supplies
- ☐ Lack of staff capacity to administer additional vaccines
- ☐ We did not have any storage or staff barriers
- ☐ Other (please specify): _____

Comment: _____

_____

18. Which prioritized groups benefitted most from off-site mass vaccination clinics (check all that apply)?

- ☐ Children under 18 years old
- ☐ Healthy young adults 18-24
- ☐ Adults with underlying conditions
- ☐ Healthcare workers
- ☐ Pregnant women
- ☐ Persons 65+
- ☐ Uninsured or underinsured populations
- ☐ Minority populations
- ☐ Healthy adults age 24+

19. Did your practice or pharmacy branch offer seasonal and H1N1 vaccines to your staff?

- ☐ Yes, we offered both vaccines to staff
- ☐ We only offered seasonal influenza vaccine to our staff
- ☐ We only offered H1N1 influenza vaccine to staff
- ☐ No, we offered neither vaccine to staff
- ☐ Don't know

20. Did your practice require that your staff be vaccinated with seasonal influenza vaccine and/or H1N1 influenza vaccine?

- ☐ Yes, both vaccinations were required of staff
- ☐ Only seasonal influenza vaccine was required of staff
- ☐ Only H1N1 influenza vaccine was required of staff
- ☐ No, neither vaccine was required of staff

Comment: _____

_____

21. During the 2009 influenza season, approximately what percentage of your staff received each vaccine?

Seasonal Influenza Vaccine: _____% of our staff received this vaccine during the 2009 Flu Season

H1N1 Influenza Vaccine: _____% of our staff received this vaccine during the 2009 Flu Season

22. Did your practice vaccinate any patient or customer in an H1N1 vaccine target group, regardless of their capacity to pay?

- ☐ Yes, we vaccinated any patient or customer within a priority group, and waived any fees if they were unable to pay
- ☐ No, but we referred patients or customers who could not pay to alternate vaccination locations
- ☐ Other (please specify): _____

23. Did your practice vaccinate individuals within H1N1 vaccine target groups that were not established patients or customers of your practice or pharmacy?

- ☐ Yes, we provided vaccine to anyone who fell within an H1N1 target group
- ☐ No, we did not vaccinate individuals who were not our patients or customers
- ☐ Other (please specify): _____

24. Did you provide H1N1 vaccine to all patients or customers in target groups regardless of whether they thought they already had H1N1 influenza or influenza like illness in 2009?

- ☐ Yes, we vaccinated all patients or customers in target priority groups
- ☐ No, we only vaccinated those who did not already have H1N1 influenza
- ☐ Other (please specify): _____

25. For your practice, what measures worked best to get children to return for their second dose of H1N1 vaccine?

_____

_____

Section IV. Staff Participation in Public Health Preparedness Activities

28. In the past 5 years, have any members of your practice or pharmacy branch (e.g. doctors, nurses, pharmacists, physicians' assistants, administrative staff) participated in any training sessions or preparedness drills in response to large-scale public health disasters (e.g. hurricanes, earthquakes, pandemics, or terrorist events)?

☐ Yes ☐ No ☐ Not sure

29. If "YES" to the above question, please indicate which types of individuals have participated in disaster response training sessions (Check all that apply):

- ☐ Medical assistant
- ☐ Medical Director
- ☐ Nurse (RN, LPN)
- ☐ Nurse Manager/Director
- ☐ Nurse Practitioner
- ☐ Office or pharmacy manager
- ☐ Pharmacist
- ☐ Pharmacy technician
- ☐ Physician
- ☐ Physician's assistant (PA)
- ☐ Other clinical: _____
- ☐ Other administrative staff: _____

30. Has anyone in your practice ever participated in an actual response to a large-scale public health disaster (e.g. flood, hurricane, earthquake, terrorist event)?

☐ Yes, please describe: _____
☐ No
☐ Not sure

Comment: _____

_____

31. Are any physicians, nurses, pharmacists, or physicians' assistants in your practice currently involved in any medical surge capacity initiatives (e.g. Medical Reserve Corps or volunteer advanced registration program for health professionals)?

☐ Yes, please describe: _____
☐ No
☐ Not sure
Comment: _____

_____

Section V. Immunization Information System – CHILD Profile

32. Did your practice submit data to CHILD Profile, WA's Immunization Information System (IIS) vaccine registry, for H1N1 vaccine administration?

☐ Yes ☐ No ☐ Not sure
Comment: _____

_____

33. For which of your patients or customers did your practice or pharmacy branch submit H1N1 administration data to CHILD Profile?

- ☐ All 0-18 year olds
- ☐ Only VFC patients 0-18 years old
- ☐ All adult patients
- ☐ Some adult patients (i.e. healthcare workers or parents of pediatric patients)
- ☐ Not sure

34. For your practice or pharmacy branch, how easy was it to upload H1N1 vaccine administration data to CHILD Profile within 7 days of administration?

- ☐ Very Easy
- ☐ Easy
- ☐ Neutral
- ☐ Difficult
- ☐ Very Difficult
- ☐ N/A - we did not upload data to CHILD Profile

35. What method did your practice or pharmacy branch use to submit H1N1 influenza vaccination data to the CHILD Profile system?

☐ Electronic transfer into CHILD Profile through existing submission method
☐ Internet based entry directly into CHILD Profile
☐ Not sure
Comment: _____

_____

36. Did your practice or pharmacy branch use the CHILD Profile website to check the vaccination status of patients coming in for influenza (seasonal and/or H1N1) vaccine this season?

☐ Yes ☐ No ☐ Not sure
Comment: _____

_____

37. What is the most significant barrier to your practice's or branch's efficient use of Child Profile?

_____

_____

38. What is the most significant facilitator to your practice's or branch's efficient use of Child Profile?

_____

_____

39. What were the greatest concerns among members of your practice or pharmacy branch regarding vaccine administration for the 2009 – 2010 influenza season?

_____

_____

This is the end of the survey. Thank you for your participation!

Please provide any additional comments about the survey or about the survey material that you would like us to know:

_____

_____

_____