Comparison of Influenza Vaccination Rates in Cell-Only, Cell-Mostly, and Landline Households in the National 2009 H1N1 Flu Survey

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ABSTRACT:

The National 2009 H1N1 Flu Survey (NHFS) was a random digit dial (RDD) landline and cellular telephone survey that operated from October 2009 through June 2010. Conducted by NORC for the Centers for Disease Control and Prevention, the NHFS tracked H1N1 and seasonal influenza vaccination coverage nationally on a weekly basis. This paper examines results from the NHFS to detect differences between landline and cellular telephone respondents in vaccination rates, influenza-related behaviors, reasons for not getting the vaccine, as well as demographic characteristics. The analysis will attempt to determine to what extent health behaviors differ between respondents from each sample type, accounting for demographics. We also compare estimates from the landline interviews to the combined estimates to gauge the potential bias in landline-only estimates due to under-coverage.

Introduction

The National 2009 H1N1 Flu Survey (NHFS) was a random digit dial (RDD) telephone survey conducted by NORC on behalf of the Centers for Disease Control and Prevention, operating from October 2009 through June 2010. The survey provided weekly monitoring of influenza A (H1N1) 2009 monovalent and seasonal influenza vaccination coverage rates, nationally and at the state level, among all persons age six months and older. In addition to vaccination coverage, the survey obtained information regarding respondents' health behaviors and attitudes toward the flu, as well as a number of household demographics.

Unlike many surveys which sample only landline telephone numbers, the NHFS includes interviews obtained by cellular phone as well. Because of the increasing number of "cell phone only" and "cell phone mainly" households in the U.S., there is growing interest in the differences between landline and cell phone samples and the potential differential effects on survey estimates. This paper examines results from the NHFS to detect differences between landline and cellular telephone respondents with regard to demographic characteristics, ease of contact, flu-related opinions, vaccination rates, and reasons for not being vaccinated. Logistic regression analyses quantify the effect of telephone status on survey estimates of vaccination coverage rates, and we compare estimates from the landline interviews to the combined, dual-frame estimates to gauge potential bias in landline-only estimates.

Background

The NHFS utilizes a Computer Assisted Telephone Interview (CATI), beginning with a screening section, which differs depending on the type of telephone dialed. For landline calls, the screener is used only to identify whether there is at least one age-eligible adult (18+ years) in the household. One adult among all eligible adults is then selected at random. The survey assumes that, because a landline number was dialed and the call was answered, the household qualifies as a "landline household."

Cellular telephone numbers are screened to verify that the phone belongs to an adult, and also that this adult resides in a "cell phone only" or "cell phone mainly" household. A household is "cell phone only" if the respondent reports that there is no landline telephone in the home. A "cell phone mainly" household is defined as a home with a landline number available, but where the respondent indicates that it would be unlikely for the landline to be answered if it were to ring while the adult was in the home. Households that are "cell phone only" or "cell phone mainly" are included among the completed surveys, while those from the cell phone sample who report that a landline telephone in their home is likely to be answered are excluded. If eligible, the answering adult is chosen as the respondent with no random selection taking place.

Aside from the screening section, the content of the survey is largely the same regardless of the type of telephone. The questionnaire first requests information from the adult respondent about his or her level of concern over the 2009 H1N1 flu virus, and asks the respondent's opinions regarding the safety and effectiveness of vaccines. The adult is then asked about H1N1 and seasonal influenza vaccinations received, including the number of doses and the modes of delivery. Unvaccinated NHFS respondents are also asked to report the primary reason for not being vaccinated.

If the adult respondent belongs to a household that also contains one or more children under 18, one child is selected at random. Selection of the child is followed by a set of vaccination status questions analogous to those on adult interview, answered by a knowledgeable adult within the household. Demographic information including race and ethnicity, household income, and education level is requested for both the adult and child.

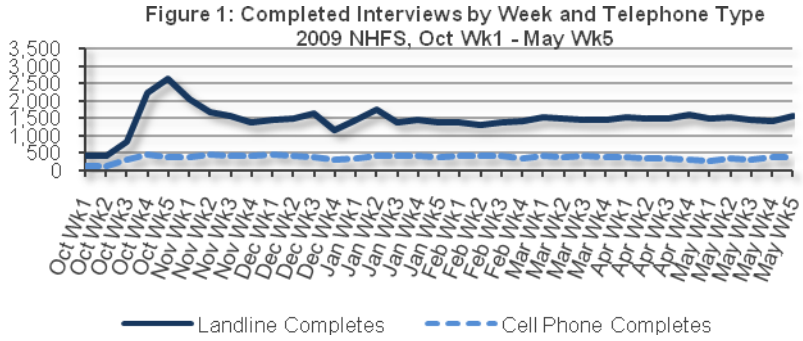
NHFS Data Collection

Between the first week of October, 2009 and the last week of May, 2010, a total of 897,169 telephone lines were drawn from the NHFS sample frame. Of these, 670,841 were landlines and 226,328 were cell phones.

Among the 670,841 landline telephones sampled, 77.5 percent were identifiable as residential, non-residential, or non-working numbers (known as the *resolution rate*). Among identified residential telephones, 99.6 percent completed the screener to determine the presence of an eligible adult (known as the *screener completion rate*), with 43.4 percent of sample adults in screened and eligible households being classified as completed adult interviews (known as the *interview completion rate*). The product of the resolution rate, the screener completion rate, and the interview completion rate, known as the *CASRO response rate*, was 34.0 percent for the landline sample.

Generally, cell telephones were less likely to be resolved, though much of this was due to the greater availability of landline telephone resolution services; some landline numbers can be resolved without being dialed. The screener completion rate was also lower than that of the landline sample, but screened adults from the cell phone sample were more likely to proceed to complete the survey. Of the 226,328 cell phone lines, 53.3 percent were resolved, 85.7 percent of personal-use lines completed the screener, and 55.9 percent of eligible adults completed the survey, leading to a CASRO rate of 25.5 percent.

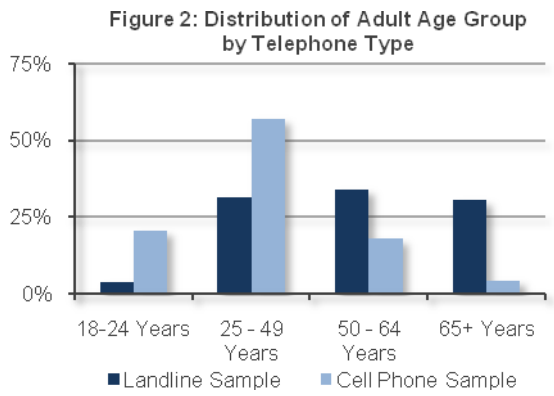
A total of 63,659 completed interviews from the combined NHFS samples had been collected as of the last week of May, 2010. The cell telephone sample accounted for 12,662 (19.9 percent) of the NHFS completes, and following the initial ramp-up of the survey this proportion was fairly stable as shown in Figure 1.

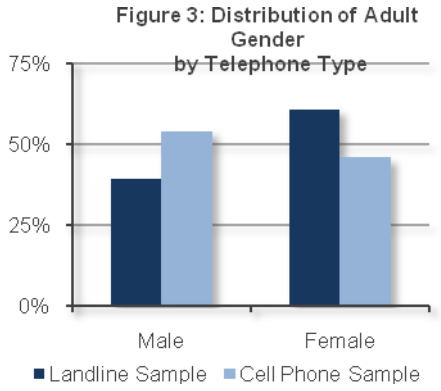


Demographic Comparisons between Landline and Cell Completes

The potential differences between completed surveys collected through landline telephone and those obtained by cell phone are of great interest to researchers of public opinion and survey methodology. This interest has only grown in recent years as the percentage of households reachable only or mainly by cell phone has dramatically increased. By gathering survey completes from both landline and cell phone sample frames, the NHFS offers an opportunity to compare the two sets of respondents across a number of criteria.

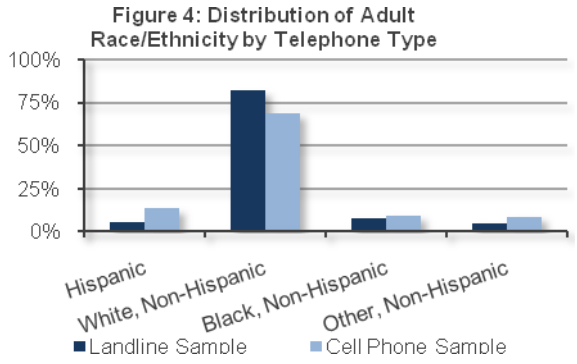
We first attempt to gain an understanding of how the respondents to the survey differed by sample frame. To do so, simple contingency testing for associations between sample frame and demographics was conducted. Because all child responses were gathered from households in which an adult also responded, the data were limited only to adults to preserve independence of the responses. Respondents with missing data were also removed. In all cases (results not shown), a Chi-Square test for general association showed a statistically significant relationship between the sample frame and the demographic characteristic. Among the major findings were that the cell phone completes were generally younger, more likely to be male, less likely to be white, and much more likely be a renter rather than a home owner. These results are consistent with findings related to telephone status as reported by Blumberg and Luke (2010).

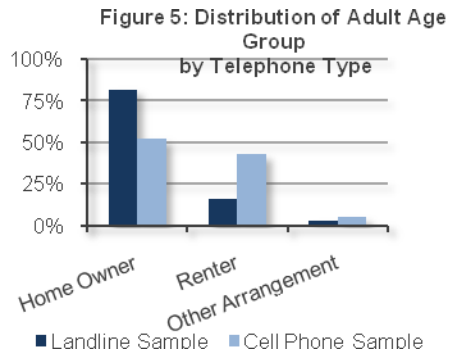




As shown in Figure 2, adult cell phone respondents were more likely than landline respondents to be between the ages of 18 and 24 (21% vs. 4%). Cell phone respondents were also more likely than landline respondents to fall into the 25-49 year age group (57% vs. 32%). Landline completes were more evenly distributed and more likely to come from the 50-64 age group (34% vs. 18%), and especially from the group aged 65 years and older, where the largest difference was seen (31% vs. 4%). Looking next at the distribution of gender by telephone type (Figure 3), the cell phone respondents were more balanced (46% males, 54% females) than landline respondents (39% male, 61% female). Much of this difference is likely due to a differential response mechanism; in the landline environment men respond at a lower rate than women, but in the cell-phone environment they respond at a similar rate. A more balanced gender distribution means adjustments for gender during survey weighting need not be as variable.

Landline and cell respondents also differ with regard to race and ethnicity (Figure 4), with landline respondents more likely to be non-Hispanic whites (82% vs. 69%) and cell phone respondents more likely to be non-white and, particularly, Hispanic (13% vs. 5%). Another not surprising but dramatic difference between the respondents by sample frame is with regard to home ownership status. Landline respondents were less than half as likely as cell phone respondents to be renters (16% vs. 43%) rather than home owners (Figure 5).





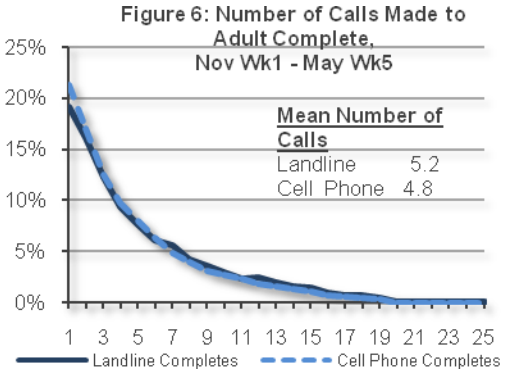
Other tests for association between sample frame and demographics showed that cell phone respondents were less likely to earn incomes of more than $75,000 and were more likely to fall below the poverty line; that while respondents differed relatively mildly in education status, landline respondents were more likely to be college graduates; and that cell phone respondents were more likely to reside in the central city of a metropolitan

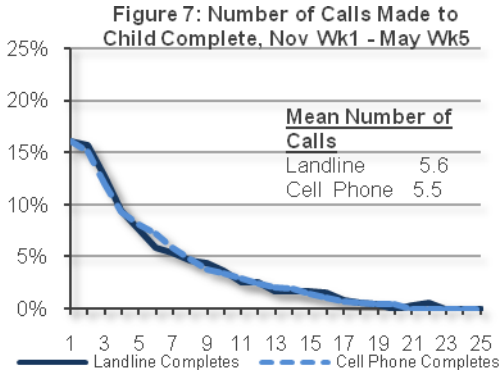
statistical area (MSA). Cell phone respondents were more likely than landline respondents to have children in the home, and among those households that did include children under 18, cell phone respondents were more likely to have an oldest child under 3 years old while parents in landline households generally had older children.

Ease of Contact

The NHFS consisted of a five-week rolling sample, where a new panel of sample cases was released (i.e. was first dialed) each week and each panel remained active for five weeks. A sampled telephone number was dialed until either a completed interview was obtained or five weeks had elapsed, after which time no further attempts were made. During the five weeks, a minimum of eight call attempts were made, but if there is an indication that a landline telephone does belong to a residential household, or that a cell phone belongs to an individual for personal use, more attempts were made.

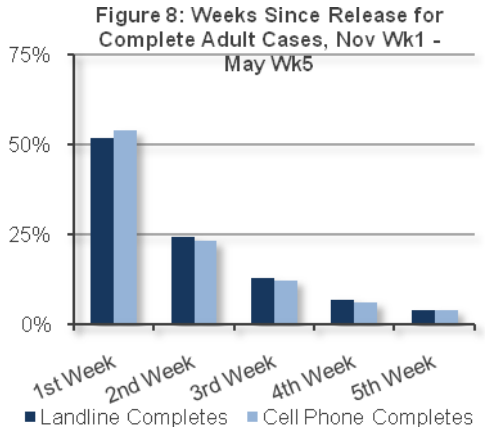
In addition to the demographic characteristics considered in the previous section, we examine the ease of obtaining a completed survey as measured by two quantities: the number of calls to the telephone number needed to obtain the completed interview; and the number of weeks following sample release that elapsed prior to the completion of the interview.

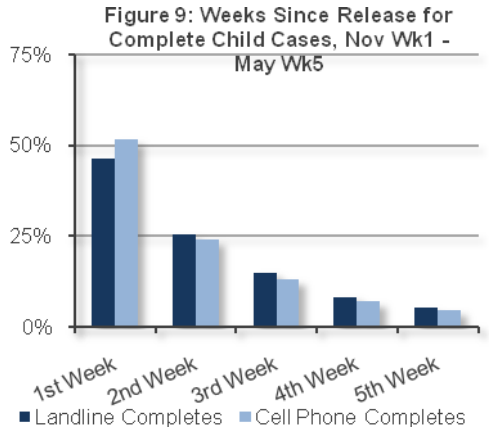




In terms of the number of calls to completion, there does not appear to be a very large difference between landline and cell phone samples. Adults from cell phone households were slightly more likely to complete the survey in just one call (Figure 6), and completed the survey in a slightly smaller mean number of dials (4.8 vs. 5.2 for landline respondents). For children, there does not appear to be any relationship between sample frame and the number of dials needed (Figure 7).

Similarly, there is not a very strong relationship between sample frame and the number of weeks elapsed between sample release and interview completion. Although cell phone adults were somewhat more likely to complete the interview in the first week since release, this relationship does not appear to be particularly strong (Figure 8). For children, the association may be slightly stronger with 52% completing in the first week since release, compared to only 46% of landline cases (Figure 9).

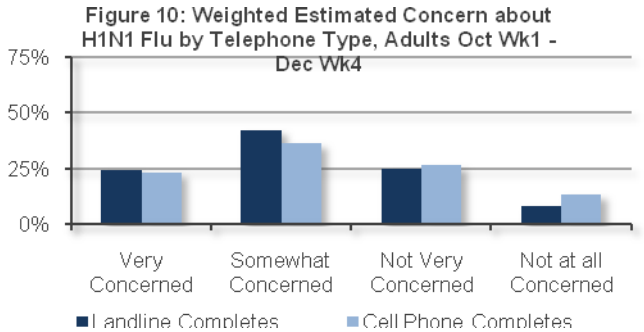




Comparison of Weighted Survey Estimates

While analyses of demographic characteristics and ease of contact provide useful information about the types of respondents that complete the survey, of greater concern is how the differential effects of sample frame might affect the estimates generated from survey data. Prior to estimation, the data are weighted to account for both between-household and within-household selection probability and for the combination of panels and sample frames. The landline and cell phone cases are combined using the National Health Interview Survey estimates of the national distribution of landline and cell households. This step ensures that cases are appropriately combined to represent the full population from each sample frame, such that any differential effects of sample frame will be properly accounted for in the estimates.

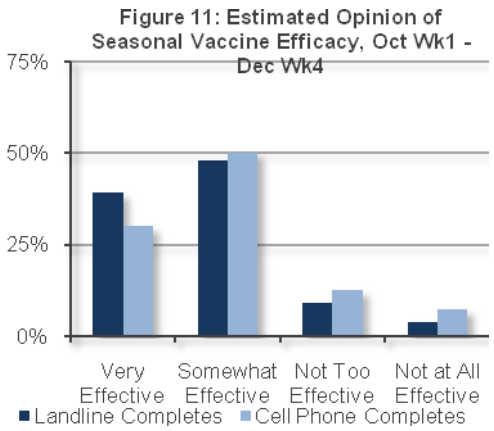
As a final step in the weighting process, the data are controlled to Census population estimates based on age group, race and ethnicity, gender, and 10 geographical regions defined as collections of states. It should be noted that these post-stratification adjustments are carried out on the total sample, not separately within the landline and cell phone cases. As such, this weighting step should not be expected to adjust for differences between landline and cell cases. The two sample frames are separated here only for illustration.

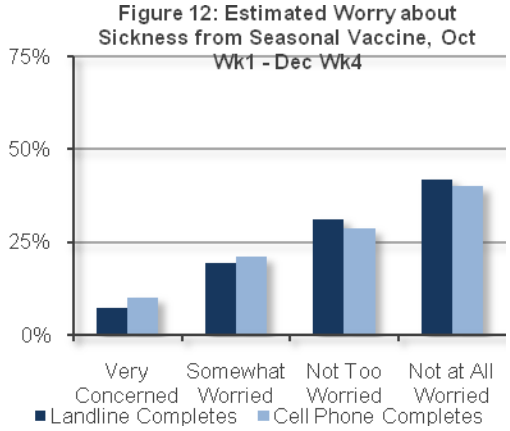


Adults responding to the NHFS are asked, “How concerned are you about the H1N1 Flu?” Using adult response data from early in the flu season (Oct week 1-Dec week 4) the estimates differed between landline and cell respondents (Figure 10); landline cases were

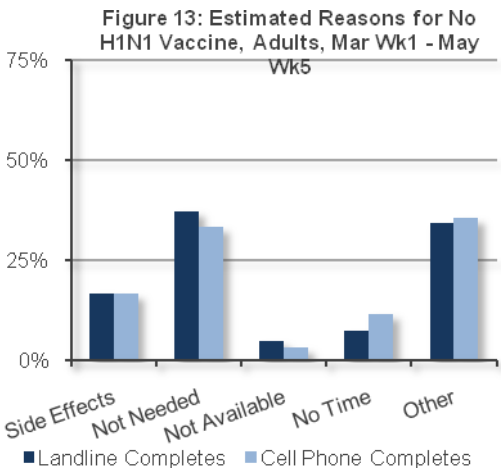
more likely to express that they were somewhat or very concerned about the H1N1 flu, while cell respondents more often reported not being at all concerned.

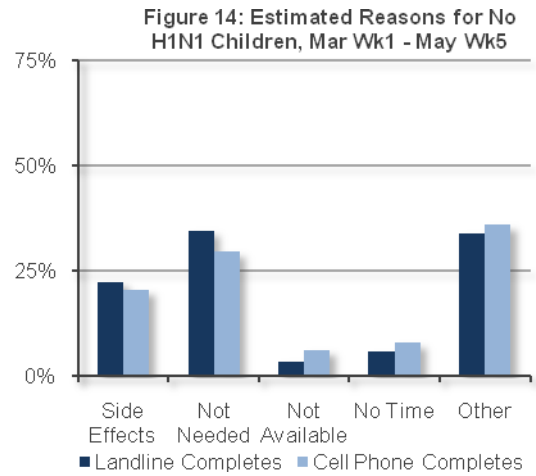
This pattern of differentiation in weighted survey estimates between landline and cell phone cases is seen in a number of questionnaire items. With regard to both the H1N1 and seasonal vaccines, weighted estimates from cell phone cases suggest that these respondents did not believe vaccines are as effective as landline respondents (Figure 11). They also were more likely to report being very worried about getting sick from receipt of a vaccine (Figure 12).





Another questionnaire items asks, for unvaccinated adults and children, what the primary reason was for not being vaccinated for the H1N1 flu. Again there were differences in the weighted estimates derived from late-season survey responses (Mar week 1-May week 5) when comparing landline and cell phone cases. Unvaccinated adults from the landline frame were more likely to report that the primary reason was that the H1N1 vaccine was not needed, while cell phone adults were more likely to express that they simply did not have enough time (Figure 13). A similar pattern was seen in the reported non-vaccination reasons for children as reported on their behalf by the adult respondent (Figure 14). For children, respondents from the cell frame were also estimated to be more likely to say that the primary factor was availability.





To assess the differential impact of sample frame on survey estimates of H1N1 and seasonal influenza vaccination coverage rates, we plot the weighted estimates by telephone type. The estimates were plotted across survey weeks, allowing a visual inspection of any differences over time.

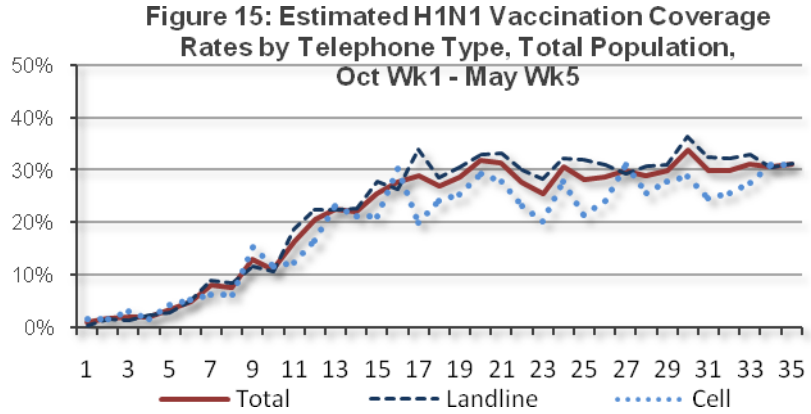
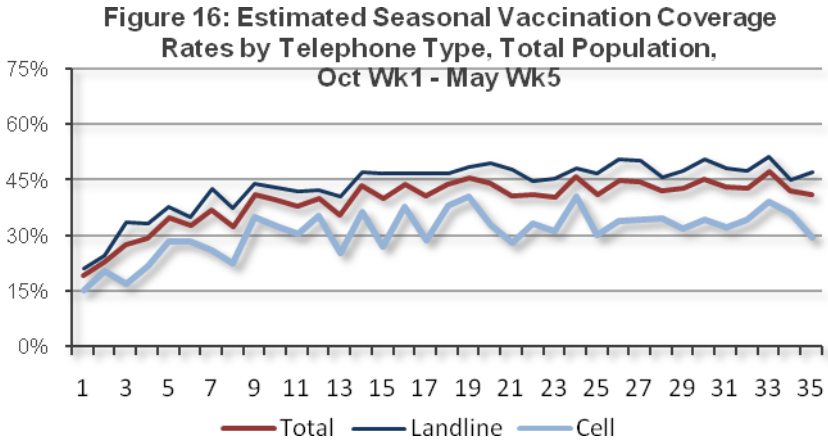


Figure 15 shows the national estimated H1N1 vaccination coverage rate among all persons aged 6 months and older from the first week of October through the final week of May. The total sample estimates in solid red show a clear increasing trend with variability as expected, but when these weighted results were broken out by sample frame it appeared that the estimates derived from the cell phone cases were generally lower than those obtained from landline completes. For adults, the median difference between landline and cell phone estimates was +2.4%, and the difference was positive for 27 of the 35 weeks. The results were similar for children, though less dramatic. The median difference for children was +1.5% and 19 of the 35 weeks showed a positive difference.



Unlike the H1N1 estimates, the differential effect for seasonal vaccination coverage rate (Figure 16) was much larger for adults than for children. The median difference in adult estimates across the 35 weeks was +17.0% with all 35 of the deviations being positive. For children, only 24 of the 35 weeks showed a positive difference in the estimates, and the median difference was +3.9%.

Logistic Regression of Reported Vaccination Coverage

The univariate analyses presented above do not control for important differences between the landline and cell respondents, such as age, race/ethnicity, and income, which may be related to attitudes and vaccination coverage rate. Therefore, logistic regression models were designed to predict the receipt of flu vaccines, using telephone type as a potential covariate. Two such models were built, one with the receipt of an H1N1 vaccination as the response variable, and the second predicting receipt of a seasonal vaccination. In addition to sample frame, the models included: demographic factors such as age group, gender, race and ethnicity, income/poverty status, education level, owner/renter status, and the presence of children in the household; membership in a flu-related high-risk group; geographical variables including MSA type and state of residence; and weeks from sample release to interview completion. The data for the models consisted of all survey weeks combined, which afforded larger sample sizes, but required the addition of an interview week indicator, as vaccination rates are expected to increase over time.

The significant variables selected for the H1N1 model with no interactions, in the order chosen by stepwise selection, are as follows.

Stepwise Variable Selection for H1N1 Model	
1. Interview Week	7. Presence of Children
2. H1N1 Risk Group	8. Poverty Status
3. Age Group	**9. Sample Frame**
4. State	10. Owner/Renter Status
5. Education level	11. MSA Type
6. Race/Ethnicity	12. Gender

Although a number of factors were chosen earlier by the model, sample frame was chosen as a significant predictor of H1N1 vaccination. The estimated odds ratio for the effect of being from the cell phone frame, using landline cases as a reference, was 0.88 with a 95% confidence interval of [0.84,092]. This result suggests that, even in the presence of the many other controlling factors shown above, respondents from the cell frame were less likely to report the receipt of an H1N1 vaccine. The odds-ratio estimates for all of the above selected factors with five or fewer levels can be found in Appendix A.

The logistic regression model with no interactions built to predict the reported receipt of a seasonal influenza vaccination showed similar results, an important difference being that sample frame was selected earlier. In addition, age group was the first selected variable in the seasonal model, even over interview week. The weeks-since-release variable was also chosen, having not been selected by the H1N1 model, suggesting differences between early and late reporters to the survey.

Stepwise Variable Selection for Seasonal Model	
1. Age Group	**7. Sample Frame**
2. Interview Week	8. Race/Ethnicity
3. Seasonal Risk Group	9. Gender
4. Education Level	10. MSA Type
5. State	11. Weeks Since Release
6. Income/Poverty Status	12. Owner/Renter Status

The odds-ratio estimates for the above factors with five or fewer levels can also be found in Appendix A. The estimated odds ratio for the effect of sample frame, once again comparing cell phone cases to the reference landline cases, was 0.83 with a 95% confidence interval of [0.80,0.86]. The smaller sample frame odds-ratio from the seasonal model and the earlier point of selection are in keeping with the already noted effect that sample frame seems to have a larger effect on estimates of seasonal vaccination coverage than for H1N1 estimates.

A final interesting finding from this portion of our study is the selection of different variables in predicting H1N1 vaccinations when building logistic regression models separately by sample frame. The same variables were allowed to enter the model, but sample frame was removed, with two separate models being built (one among landline cases, one among cell). The variable selection order below shows that, in addition to some minor re-ordering, the model built on landline completes chose two significant variables not deemed significant by the cell model. These are MSA type and weeks since release.

Stepwise Variable Selection for H1N1 Model on Landline Cases	**Stepwise Variable Selection for H1N1 Model on Cell Phone Cases**
Interview Week	Interview Week
H1N1 Risk Group	H1N1 Risk Group
Age Group	Age Group
Education Level	State
State	Education Level
Race/Ethnicity	Race/Ethnicity
Income/Poverty Status	Income/Poverty Status
MSA Type	Presence of Children
Presence of Children	
Weeks Since Release	

Potential Landline-Only Bias

Landline-only bias may exist to the extent that landline respondents are different than cell phone respondents. Weighting adjustments are often used to control for these differences, but bias may still exist if differences between landline and cell phone respondents cannot be explained by other factors, or if these factors are not considered in weighting and estimation. To better gauge the potential for landline-only bias in estimates of vaccination coverage from the NHFS, a landline-only weight was derived, such that controlling to population totals by age, race/ethnicity, gender, and geographic region was done on all landline cases together, with cell phone cases excluded. Because the control factors are also related to the receipt of a vaccination, it was expected that they would ameliorate to some extent any differences between landline and cell phone completes. Remaining differences may suggest the potential for bias.

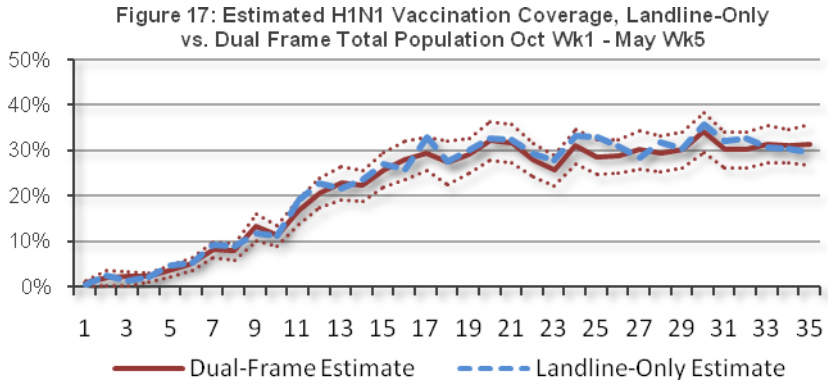
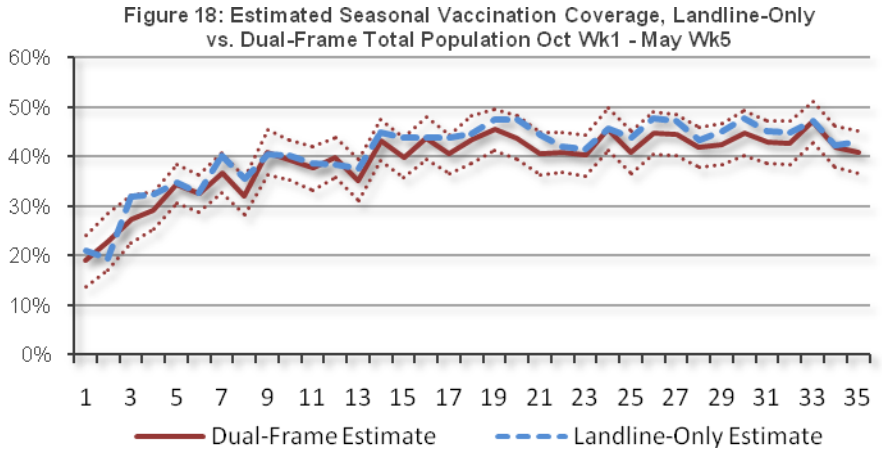


Figure 17 shows the weekly dual-frame estimated H1N1 vaccination coverage rate among all persons aged 6 months and older, along with the corresponding 95% confidence limits in dotted lines. The dashed line represents the estimates derived from the weighted landline cases only. Having been subject to control totals, it is clear that the landline-only estimates are not considerably different than the dual-frame estimates, but it does appear that there is a slight but fairly consistent upward bias in the landline-only estimates.

For adults, the median difference between landline and dual-frame phone estimates was +0.6%, and the difference was positive for 23 of the 35 weeks. This effect was not seen among children. The median difference for children was 0.0% and 18 of 35 weeks showed a positive difference. The landline estimate did fall outside of the confidence interval for the dual-frame estimate on one occasion, but it should be noted that with 35 estimates shown, the probability of this occurring simply by chance at least once is 85 percent. The differences between landline and dual-frame estimates for adults and children are plotted in Appendix B.

As with H1N1 estimates, the seasonal results obtained from landline cases were not drastically different from the dual-frame estimates, but the landline-only estimates do appear to be fairly consistently higher than the dual-frame estimates (Figure 18).



The median difference in adult estimates across the 35 weeks was +2.1% with 29 of the 35 deviations being positive. For children, 24 of the 35 weeks showed a positive difference in the estimates, and the median difference was +2.3%. Median differences between landline-only and dual-frame estimates for other demographic groups can be found at the end of Appendix B.

Summary

In summary, we find that cell phone respondents to the NHFS are very different in terms of demographics, as expected based on national estimates of characteristics of persons in cell-only households. These differences are manifest in survey estimates. Logistic regression analyses show that the choice of sample frame had a significant effect on predicted vaccination coverage, and our alternative landline-only estimates showed that the potential for landline-only bias remains after controlling for a selection of other factors. It is not clear that this effect is statistically significant, however, and it may be explained by other factors.

Further research is planned to provide additional insights into interpretation of NHFS findings and design of potential future surveys. Plans include: an update of the analysis using the full survey period, which completed on June 26, 2010; to explore additional factors to be included in the logistic regression models; and evaluation of alternative weighting procedures for the landline cases. It is possible that by using more granular age controls, or by including other controlling factors such as home owner status or MSA status, for example, one could eliminate any remaining differences between the landline-only and dual-frame estimates. Further research is also needed to assess non-response bias in cell phone samples.

References

Blumberg SJ, Luke JV. *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2009*. National Center for Health Statistics. May 2010.http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201005.htm

Appendix A – Odds-Ratio Estimates for Logistic Regression Models

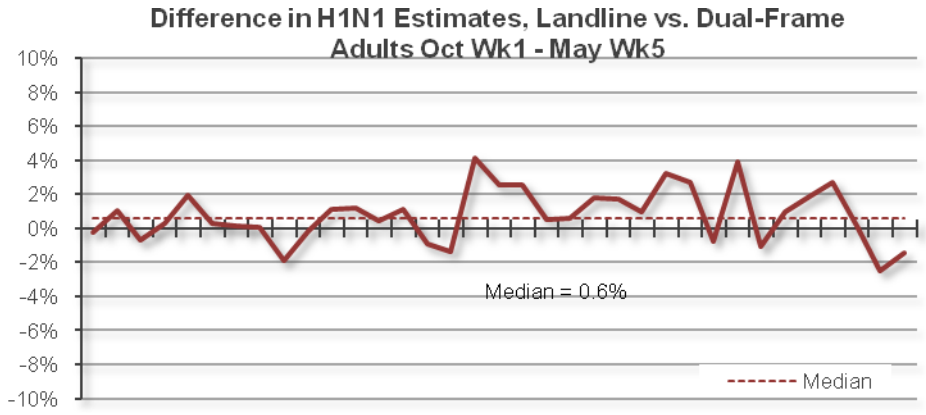
H1N1 Model Odds-Ratio Estimates

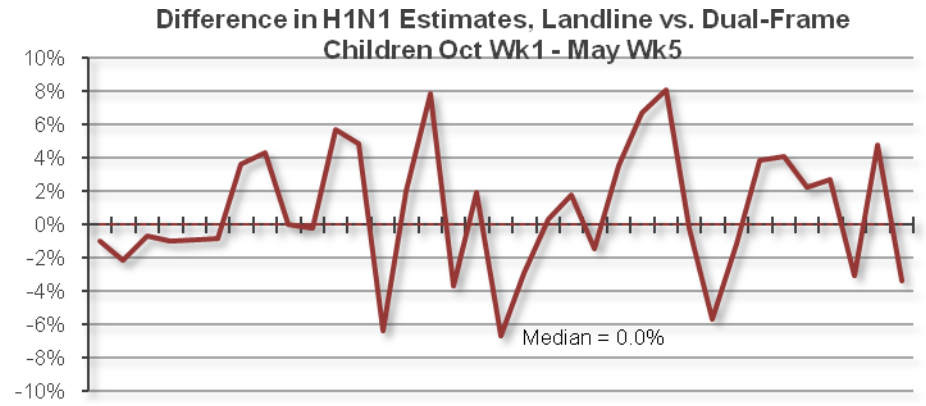
Effect	Level	Odds Ratio Estimate	Odds Ratio Lower 95% CI	Odds Ratio Upper 95% CI
H1N1 Risk Group	Limited Risk Group	3.07	2.89	3.27
	Initial but not Limited	2.02	1.89	2.16
	Not Initial Risk Group REF	--	--	--
Age Group	6 Months - 3 Years	1.65	1.50	1.82
	4 - 8 Years	2.59	2.34	2.86
	9 - 12 Years	1.74	1.57	1.92
	13 - 17 Years	1.43	1.30	1.57
	18 - 24 Years	0.66	0.60	0.72
	50 - 64 Years	1.17	1.09	1.25
	65+ Years	1.66	1.53	1.81
	25 - 49 Years REF	--	--	--
Education Level	<12 Years	1.08	1.00	1.17
	Some College	0.97	0.91	1.03
	College Graduate	1.34	1.27	1.43
	12 Years REF	--	--	--
Race/Ethnicity	Hispanic	0.99	0.93	1.06
	Black, Non-Hispanic	0.72	0.67	0.78
	Other, Non-Hispanic	0.99	0.91	1.08
	White, Non-Hispanic REF	--	--	--
Adult/Child Composition	Adult with Children	1.16	1.09	1.24
	Adult, No Children REF	--	--	--
Income/Poverty Status	>$75K	1.19	1.13	1.25
	Below Poverty	1.14	1.06	1.22
	<$75K, Above Poverty REF	--	--	--
Sample Frame	**Cell Phone**	**0.88**	**0.84**	**0.92**
	Landline REF	**--**	**--**	**--**
Renter/Owner Status	Home Owner	0.88	0.81	0.94
	Renter	0.85	0.78	0.92
	Other/Unknown REF	--	--	--
MSA Status	MSA, Central City	0.96	0.90	1.02
	MSA, Non-Central City	0.90	0.85	0.96
	Non-MSA REF	--	--	--
Gender	Male	0.94	0.90	0.98
	Female REF	--	--	--

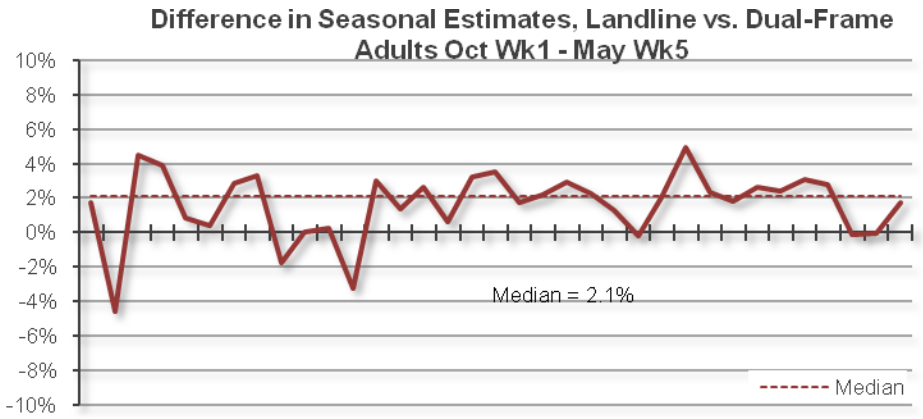
Seasonal Model Odds-Ratio Estimates

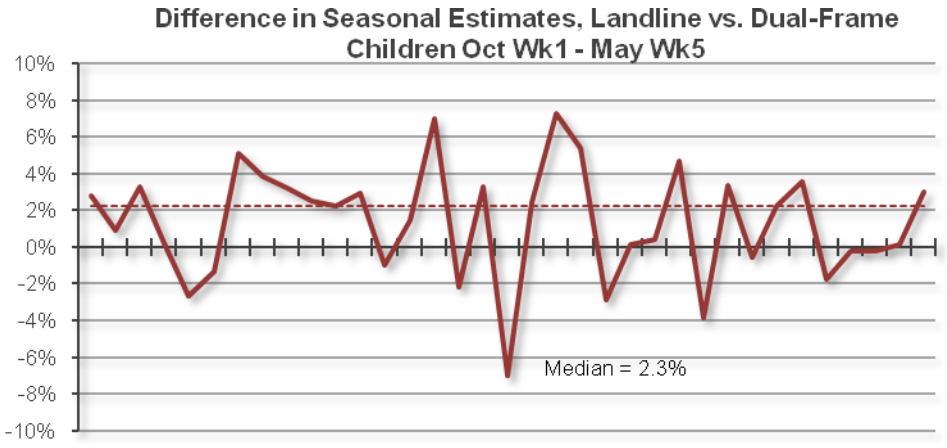
Effect	Level	Odds Ratio Estimate	Odds Ratio Lower 95% CI	Odds Ratio Upper 95% CI
Age Group	6 Months - 3 Years	1.59	1.47	1.72
	4 - 8 Years	1.05	0.97	1.14
	9 - 12 Years	0.76	0.70	0.83
	13 - 17 Years	0.61	0.57	0.66
	18 - 24 Years	0.66	0.62	0.71
	50 - 64 Years	1.07	1.01	1.13
	65+ Years	2.99	2.80	3.20
	25 - 49 Years REF	--	--	--
H1N1 Risk Group	Seasonal Risk Group	2.11	2.00	2.23
	Not Seasonal Rsk Grp REF	--	--	--
Education Level	<12 Years	0.90	0.84	0.97
	Some College	1.05	1.00	1.11
	College Graduate	1.31	1.25	1.38
	12 Years REF	--	--	--
Income/Poverty Status	>$75K	1.25	1.19	1.30
	Below Poverty	1.01	0.95	1.07
	<$75K, Above Poverty REF	--	--	--
Sample Frame	**Cell Phone**	**0.83**	**0.80**	**0.86**
	Landline REF	**--**	**--**	**--**
Race/Ethnicity	Hispanic	0.90	0.85	0.95
	Black, Non-Hispanic	0.78	0.74	0.83
	Other, Non-Hispanic	1.19	1.11	1.28
	White, Non-Hispanic REF	--	--	--
Gender	Male	0.87	0.84	0.91
	Female REF	--	--	--
MSA Status	MSA, Central City	1.07	1.01	1.13
	MSA, Non-Central City	1.16	1.10	1.22
	Non-MSA REF	--	--	--
Weeks to Completion	2 Weeks	0.95	0.91	1.00
	3 Weeks	1.03	0.97	1.08
	4 Weeks	0.97	0.90	1.04
	5 Weeks	1.20	1.10	1.31
	1 Week REF	--	--	--
Renter/Owner Status	Home Owner	0.95	0.90	1.01
	Renter	0.89	0.83	0.95
	Other/Unknown REF	--	--	--

Appendix B – Differences in Landline-Only and Dual-Frame Estimates of H1N1 and Seasonal Flu Vaccination Coverage Rates









	Differences between Landline-Only and Dual-Frame H1N1 Estimates				Differences between Landline-Only and Dual-Frame Seasonal Estimates			
	Median Difference	Number Positive	Number Outside CI	Pr[N >= n]	Median Difference	Number Positive	Number Outside CI	Pr[N >= n]
Total Sample	0.9%	23	1	0.83	2.0%	27	0	1.00
Adults	0.6%	25	3	0.25	2.1%	29	2	0.53
Children	0.0%	18	2	0.53	2.3%	24	0	1.00
65+	0.2%	19	0	1.00	0.0%	17	0	1.00
50 - 64	0.3%	22	2	0.53	1.4%	24	2	0.53
25 - 49	0.5%	21	0	1.00	2.1%	27	2	0.53
18 - 24	3.3%	21	4	0.10	3.0%	23	3	0.25
Female	0.6%	24	3	0.25	1.0%	28	0	1.00
Male	0.6%	21	3	0.25	1.8%	28	3	0.25
Hispanic	0.3%	18	6	0.01	5.1%	24	4	0.10
Non-Hispanic White	0.5%	22	1	0.83	0.7%	24	1	0.83
Non-Hispanic Black	0.0%	17	2	0.53	3.4%	26	3	0.25
Non-Hispanic Other	0.0%	17	2	0.53	-0.3%	17	1	0.83
Income > $75k	0.8%	23	2	0.53	0.8%	19	0	1.00
Income < $75k, Above Poverty	0.3%	22	3	0.25	1.9%	27	1	0.83
Below Poverty	-1.4%	15	5	0.03	-0.5%	15	3	0.25
Home Owned	0.1%	19	1	0.83	-0.1%	17	0	1.00
Rented	0.6%	19	4	0.10	1.7%	25	6	0.01
MSA, Principal City	1.9%	25	4	0.10	3.9%	30	5	0.03
MSA, Non-Principal City	0.1%	19	0	1.00	0.7%	21	2	0.53
Non-MSA	0.4%	20	1	0.83	1.0%	19	1	0.83