GAUGING THE EFFECTS OF THE NHIS RESPONDENT RULE AND WITHIN-HOUSEHOLD SAMPLING STRATEGY

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1. Introduction.

In planning household surveys, one attempts to design samples at a fixed data collection cost with the smallest sampling variances. These sample designs are carried out using survey operational and administrative features. These features, such as data collection mode, call attempt strategies, and respondent rules, are partially designed to reduce nonsampling error. Under a fixed data collection cost, changing these parameters may dramatically affect the survey sample size.

We easily measure how changing a survey's sampling plan affects the sampling variances. We, however, often struggle to measure how changing other design features affect survey cost and data quality (e.g., response rates and bias). In fact, survey design is often hampered by the uncertainty in estimating these costs under alternative values of design parameters. Such information is usually difficult to obtain.

In this preliminary analysis we look at the effects of varying two NHIS design features. In particular, we vary the within-household sampling strategy and the respondent rule for the NHIS basic health and demographic questionnaire (BHDQ). A respondent rule governs the conditions under which proxy data are acceptable in survey data collection. For this paper, all other current NHIS design parameters are assumed fixed.

Note, the NHIS interview consists of two parts. One is the BHDQ. The other is one or more supplements. A specific supplement on a current health topics is usually fielded for one year. Most supplements require data collection from one sample adult (i.e., person aged 18 and over) per sample household. Examples of these supplements: in 1987, Cancer Epidemeology and Control; in 1988, Alcohol. Other supplements collect household information or collect information after screening for individuals with a rare characteristic. Examples: in 1986 and 1989, Health Insurance.

Under a fixed data collection cost, changes in these two NHIS design features have many affects. By changing to a self response rule under a fixed data collection cost, we protect against BHDQ proxy error. We, however, may reduce the protection against both sampling error and nonresponse bias. This reduced protection against sampling error for minority statistics and statistics for smaller domains may be particularly problematic.

"[Under current procedures] the NHIS interviewer attempts to have all family members 18 years of age or older present for the [BHDQ] interview. When this is not possible, proxy response is accepted for absent adult family members. In most situations, proxy response are used for persons under 19 years of age. Persons 17 and 18 years of age may respond for themselves, however [**Current Estimates from the NHIS, U.S., 1987**. page 134]." In the 1988 NHIS, 63 percent of the BHDQ respondents 18 and over are present for the whole BHDQ interview and 70 percent are present for at least some of the interview.

Recent BHDQ response rates are 95 percent or higher. An NHIS interviewer currently the BHDQ data can obtain data from any knowledgeable adult in a sample household. This high response rate protects against nonresponse bias.

If NHIS no longer permits such BHDQ proxy response, interviewers will likely experience more refusals and absent respondents. The interviewers, thus, will make additional call attempts for survey data. There is, however, also uncertainty in estimating the BHDQ response rate under a change to self reporting rule. Under self-reporting, patterns and effects, if any, of disproportionate nonresponse are not known.

While changing the BHDQ respondent rule, we compare the effects of changing the BHDQ within-household sampling strategy. BHDQ data are now collected for every household member. Alternatively the BHDQ would use a within-household sample.

Preparing recommendations for these NHIS design features is difficult. A design feature enhancing statistics for one kind of NHIS goal usually adversely affects statistics for other NHIS survey goals. Thus developing recommendations for these design features requires prioritizing NHIS objectives. It also requires an assessment of the quality of BHDQ data using the current respondent rule.

Section 2 discusses design options for both NHIS respondent rules and within-household sampling strategies. Section 3 discusses estimating the cost and other effects of these changes. Assuming fixed data collection cost, Section 4 discusses theorized NHIS samples with such features. Section 5 compares the BHDQ effects of these alternative designs. Section 5 looks for other effects. Section 6 identifies additional research. In particular, we need to assess the margin of errors in fundamental parameters used in this research. Section 7 provides recommendations. Section 8 summarizes the paper.

2. Options for NHIS respondent rules and within-household sampling strategies.

There has been discussion of changing the NHIS respondent rules for the BHDQ and analyzing the effects of such changes. The NHIS does not collect information, however, on whether individuals under 18 years of age are present at the BHDQ interview. Proxy is used for BHDQ data for individuals not present at the BHDQ interview. Note, 80 percent of the females but 58 percent of the males are present for at least some of the BHDQ interview. Estimates for males, thus, are more likely to be subject to proxy bias.

Additional data collection effort is required with a change to self reporting. Not all individuals targeted for the BHDQ would be present at the initial NHIS household interview. To offset such additional survey efforts, one alternative design feature introduces BHDQ within-household sampling. In fact, "The HIS Questionnaire Redesign Workgroup had recommended that as part of the NHIS 1995 sample redesign, consideration be given to (a) selection of one or more sample adults and sample a child in each household and (b) self reporting for by sample persons aged 14 years and over."

2.1. Changing the BHDQ respondent rule

Under one NHIS change, we insist on BHDQ self response from persons aged 14 years and over. There is growing NHIS evidence that teens can report valid NHIS data. In particular, self response has been planned or used to obtain data for individuals 12-17 years of age in the Teenage Attitude and Practices Survey and in the Youth Risk Behavior Survey. For the BHDQ, the NHIS interviewers, however, are instructed to use proxy response by an adult for those under 18 years of age. 17-18 year olds may respond for themselves. For persons aged 17 years or older, NCHS looked at effects of changing the NHIS respondent rule. In a 1972 statistical experiment, NCHS collected data for persons aged 17 years of age or older using either self-response or the current respondent rules. Nationally representative estimates for the population aged 17 years and older were prepared respectively based on proxy and self respondent rules. In this study, estimates for several subdomains of the population aged 17 years and older, were compared. Some large differences were identified.

Changing the BHDQ reporting rule for persons 17 years of age or older affected estimates, especially those for smaller domains and those for males. Some differences were statistically significant. Still estimates for smaller domains are subject to large sampling error. Since disproportionate proxy response occurs in several domains (e.g., for males), many differences were not surprizing. This experiment, however, provided no information on the effect of proxy reporting for persons under 17.

The 1990 applicability from this 1972 experiment is uncertain. Over the last 20 years, society has changed substantially. Despite such changes, these data illustrate the potential proxy bias in survey estimates. We found relative large bias in survey subdomain estimates, with most much smaller.

These changes in society affect the differences in survey estimates that might now be expected under the current and self response rules. For example, in 1970, 43.3 percent of the female civilian population aged 16 and over participated in the labor force. In 1987, 56.0 percent of the female civilian population aged 16 and over participated in the labor force. In the same period, the proportion of children under 18 living in single parent households rose from 14.8 to 26.9 percent.

2.2. Changing the BHDQ within-household sampling rules

While potentially changing the BHDQ respondent rule, we also may change the current BHDQ within-household sampling strategy. Collecting BHDQ data based on a within-household sample would offset increased survey efforts resulting from self-reporting.

Two within-household NHIS sampling strategies were considered for the BHDQ. First the current strategy. BHDQ data now are collected on every person in a sample household. We alternatively considered sampling within households. We would select one SP aged 18 years and over and select one SP 18 years of age. Data collection for many supplements use this sampling plan.

2.3. Design options sets under consideration.

While these design alternatives can be combined in several ways, we investigated three sets of design options.

1.--Current BHDQ respondent rule, current BHDQ within-household sampling plan.

2.--Self response for individuals aged 14 years and older, within household for the BHDQ select a sample person aged 18 years or older and select a sample person under age 18.

3.--Self response for individuals aged 14 years and older, current BHDQ within-household sampling plan

3. Estimating the cost and other effects of these design changes.

Changing to a BHDQ self-response respondent rule will increase data collection cost per household. The increased cost results from additional, expensive face-to-face call attempts to secure self response. There is uncertainty, however, in estimating this increased cost. Additional call attempts by telephone are not considered here. Current NHIS procedures specify face-to-face data collection for BHDQ data. There may also be effects on the data by data collection mode.

Changing to a BHDQ self-response rule will affect other NHIS operational and administrative features. For example, since on the average interviewers will be required to make more call attempts to each sample household, more interviewer time and interviewer travel will be needed per household.

3.1. Estimating increased survey costs due to such changes.

Estimating survey data collection costs under different values of design parameters is difficult. We noted that such estimates also are often subject to considerable error. For the design options under consideration, Census estimated the increased data collection cost from BHDQ self response for the current NHIS sample size.

Conservative approaches are often used to estimate data collection costs. By conservative we mean that survey data collection costs presumably are not underestimated. Underestimating data collection costs means that before the end of the survey cycle, no budgeted data collection funds are available.

The Census Bureau used a simple linear model to estimate the increased cost from NHIS self reporting. For each self-response design option, the increased cost was estimated by multiplying a constant times the corresponding estimated number of BHDQ SP's (14 years of age or older) not present at the NHIS interview.

Under each within-household sampling plan, the 1988 NHIS data file was used to determine the number of targeted persons 18 years of age or older not present at the initial NHIS interview. No similar NHIS information, however, is available for persons under 18 years of age. Census, thus, estimated the proportion of persons aged 14-17 who would not be present at the BHDQ initial interview.

For this model, Census estimated the constant additional data collection cost per person (aged 14 years and over) targeted for the sample but not present at the initial NHIS interview. For this constant Census used the current data collection cost for a completed BHDQ interview.

Westat separately estimated this parameter for the cost model. Westat's figure was similar to that provided by the Census Bureau. Obviously the cost structure is more complex.

While this approach crudely estimates the increased cost from changing the respondent rule, it conservatively estimates cost. No measure of its margin of error is available. Some further analysis showed that conclusions were not sensitive to a 20 percent drop on the additional per person cost for data collection from persons not present at the initial NHIS interview.

Under the current BHDQ within-household sampling plan and respondent rule (design option 1), Census estimates the FY88 NHIS direct data collection cost as $4,249,335. The total Census project cost was estimated as $7,288,975. For design option 2 (Self response for individuals aged 14 years and older, within household for the BHDQ select a sample person aged 18 years or older and select a sample person under age 18) for the current household sample size, we estimate that NHIS data collection cost would increase by $866,215 or 20 percent. For design option 2 (Self response for individuals aged 14 years and older, current BHDQ within-household sampling plan) for the current household sample size, we estimate NHIS data collection cost would increased by $2,058,310 or 48 percent. We ignore the effect of these design changes on Census cost other than that for data collection.

3.2. Estimating increased BHDQ nonresponse rates due to such changes.

According to conventional wisdom, the change to BHDQ self reporting will increase BHDQ nonresponse rates for the BHDQ. In some cases, interviewers will be unable to contact persons targeted for the BHDQ. Interviewers will experience additional refusals for the BHDQ. For these cases under self response alternatives, we assume that a proxy response is not acceptable. Proxy response is also not acceptable for the supplements data collection based on adult SP's.

The Census Bureau estimates that under self response, the BHDQ relative response rate would be 90 percent. This is consistent with NHIS experience with NHIS supplement data collection where self response from a sample adult is required, but face-to-face interviews is not. The completion rates for these data collection efforts range between 85-95 percent. The 90 percent figure may be ambitious, because NHIS permits supplement data collection by telephone. Minor changes in this estimated response rate will probably not affect the later analysis in this paper.

With self reporting, one problem may be disproportionate response. In general, securing response to the NHIS is not a problem if the person is present at the initial BHDQ interview. The problem is securing response from individuals not present at the initial BHDQ interview. An interviewer usually cannot just obtain an interview by appointment.

To identify such patterns, we looked at the Cancer Supplement to the 1987 NHIS. In the basic sample for the Cancer Supplement, a sample person aged 18 years or over by household was targeted for this supplement. The response rate was much lower when the SP was not present at the BHDQ interview. It should be noted that for the Cancer Supplement, data collection potentially could be completed by telephone.

4. <u>Theorized designs with such features</u>.

The 1988 NHIS was used to simulate the samples under the alternative designs. For option 1, we used the full NHIS sample. For options 2 and 3 we modified the 1988 full NHIS sample.

For option 2, a SP 18 years of age or older and a SP under 18 from each household was selected in the 1988 NHIS sample. This, for example, cut the sample size of persons 18 years of age or older from 88,000 to 47,000. This, of course, is essentially the current NHIS household sample size.

Section 3.1 notes that the data collection cost for this design option was 20 percent more expensive than that for the current survey design. To compensate for 20 percent cost increase, we used a household sample size of 83 percent (100 1/1.2) of that in the current survey plan. Households were then subsampled by dropping weekly samples. The resultant sample is also nationally representative. This sample was further cut by 10 percent in the same fashion so the resultant sample reflect interviewed cases.

For option 3, we also started with the full 1988 NHIS. Section 3.1 noted that the data collection cost for this option was 48 percent more expensive than that for the current survey design. To compensate for this cost increase, we used a household sample size 67 percent (100 1/1.48) of that in the current survey plan. Households were then subsampled by dropping weekly samples. The resultant sample is also nationally representative. This sample was further cut by 10 percent in the same fashion so the resultant sample reflect responding cases. These data sets were used to approximate the number of complete interviews obtained by specific characteristics of interest under the three design options.

4. <u>Comparing BHDQ effects of design features</u>.

4.1 Sample size considerations.

Assuming fixed cost, we first compared the estimated sample sizes from the three design options. The BHDQ sample size is reduced from the current 122,310 to 48,900 by using a self-response rule coupled with within-household sampling. For large subdomains this cut in sample size may not be a severe problem. For small subdomains this cut in sample size may be a problem.

For these subdomains the increased BHDQ standard errors may reduce the data utility. The precision of point estimates is reduced and the survey's ability to detect differences is also reduced.

As with other NHIS redesign research, we focus on estimated percents. To gauge the effective sample sizes of these samples, we need design effects for each alternative design. The design effect for the current NHIS sample can be computed using the fitted a and b curves for the NHIS generalized variance functions published in NCHS Series 10 reports. The calculated value of the design effect was slightly reduced because these curves are conservative. These curves are based on variables some of whose values may be geographically clustered. For option 1, we, thus, reduced the design effect for standard errors from 1.4 to 1.2. Except for a slight subsampling of households within PSU, Option 1 and Option 2 are the same. The same value was used for the design effect under option 3. For option 2, we used the design effect as read from the curve, 1.2, for a supplement based on a sample adult.

4.2 Protection against proxy error

In comparing strategies using the self and proxy reporting rules, we calculated the relative root mean square error. This combines the effect of sampling error and proxy bias. Using survey data, we are easily able to measure sampling error but not to measure bias. Auxiliary information is needed to measure bias.

Table 1 shows the mean square error, by the estimated proportion size, the domain size, and the level of proxy bias. With hypothesized large levels of proxy bias, a self-response rule (options 2 and 3) yields estimates with smaller mean square error. With hypothesized small levels of proxy bias, a proxy rule (the current rule) yields estimates with smaller mean square error. In other situations the respondent rule yielding the smallest mean square error varies.

For the BHDQ, the respondent rule generally yielding the smallest mean square error, thus, depends on one's estimate of the magnitude of proxy bias in survey estimates. It also depends on how often estimates subject to a large proxy error occur in analysis.

For the BHDQ, Option 3 yield the largest effective sample size, although it slightly decreases the protection against sampling error. Option 3 is the preferred choice, because of sample size considerations. More work is needed on issues of nonresponse bias and proxy bias.

5. Other effects.

Other effects result from changing these design features. Some are related to the smaller sample size resulting from a self-response rule. Additional effects will result from changing to within household sampling.

5.1. Potential effect on segment and assignment sizes.

A BHDQ potential change to a self-reporting rule means that, additional efforts will be required to complete the same number of interviews in each segment. The additional efforts for call attempts will require more interviewer time and travel per household than is required under the BHDQ current design.

The NHIS interviewers now struggle to complete their assignments within the allotted time. Thus, under self response the size of interviewer assignments will need to be cut. With fewer households in an assignment, interviewers would have more time for the additional callbacks. An interviewer's weekly assignment now consists of approximately 20 eligible household addresses.

5.2. Impact on supplements

There are two main effect resulting from potential changes in BHDQ design features. First under either approach implementing a self- reporting options 2 or 3, the supplement's sample size will be cut.

Table 2 shows that the potential changes in BHDQ design features differ in effects on the supplement sample sizes. First look at SP supplements. Design option 3, which is based on the fewest households, would yield an adult sample person supplement that is 60 percent of that yielded under the current design. For design option 2, the similar sample size is 83 percent of that for the current design.

If the NHIS sample is used to screen all household members for a condition, option 2 results in a sample that is 40 percent of the current design sample size. For design option 3, the similar sample size is 60 percent of that for the current design. Screening frequently occurs in supplements. In the 1991 NHIS supplements, we screen for women who had a child in the last five years. This is also the situation encountered in data collection for the chronic condition list, where each list is administered to 1/6 of the sample households. Here option 1 or 3 is the preferred option, because of sample size considerations. The choice would depend on the assessment of proxy error.

Second, with within-household sampling, BHDQ data may not be available for persons selected for the supplements. In some cases supplements have been administered to more than one person in a household, or to an individual in target population straddling adults and children. The within-household sampling required under these designs are incompatible with selecting a sample adult and sample child by household. This could be a major problem, unless the BHDQ data was added to the supplement. Still such additional data collection would be awkward.

Examples of these kinds of supplements are the 1987 Cancer Supplement and the proposed Youth Risk Behavior Survey. The Cancer Supplement sometimes selected 2 or more sample adults per household. The proposed Youth Risk Factor Survey, targeted for the 1992, NHIS, has a target population of persons aged 12-20 years. With the SP approach, BHDQ data are not always available for all individuals selected for these supplement's samples.

Considering effects on the supplements will change the preferred BHDQ design alternative. If one were to select a BHDQ design option based on the usual type of supplement data collection (i.e., a sample adult), one would select a different BHDQ design option than if one considered only the BHDQ.

Making the BHDQ decision on design alternative based only on SP supplements, one would select the design option yielding the largest effective supplements sample. Here option 2 is the preferred choice, because of sample size considerations.

5.3. Potential Impact on family statistics.

Again collection of data on a subset of individuals in a household would generally preclude the information to analyze data by family. Here we would like information on all family members. Either Option 1 or 3 is the preferred approach.

5.4. Potential Impact on the integrated design.

Any cut in the household NHIS sample size adversely affects the design of surveys whose samples are linked to the NHIS. The National Survey of Family Growth (NSFG) is the primary, on-going NCHS population-based survey linked to the NHIS. The NSFG linkage started with cycle IV. Here option 1 is the preferred choice, because of sample size considerations. Proxy error in the BHDQ is not a major concern.

For such an integrated design, we might use all persons listed in a household even if we collected the BHDQ data only from a SP. This approach is not without limitations.

Under this approach, the SP person selected for the BHDQ would not always be the same SP selected for any survey (e.g., NSFG) linked to the NHIS. Thus, the BHDQ data would not be available for linked samples. This is a drawback, since such data can be used in analysis and estimation. For example, the BHDQ data were used in NSFG estimation for a sophisticated nonresponse adjustment. This adjustment enhanced the NSFG data quality.

Also under this approach, more coordination will be needed between the NHIS and linked survey designers. We would need to identify in advance all information needed for disproportionate sampling in a linked design. In the NHIS year used to construct the sampling frame for the linked design, NHIS would potentially need to collect information needed for such linked designs from all household members, not just the BHDQ SP's.

5.6 Effect on data continuity

If NHIS changes to a BHDQ self-response rule , this may confound any identified differences in BHDQ trend data. Thus, NCHS should concurrently collect data using a self and current rules in order to directly measure the effect of changing to a self response rule. Here option 1 is the preferred choice, because it avoids problems due changes in respondent rule.

6. Other research.

Better information is needed on measuring proxy error and its effect in BHDQ data. Better information is needed on the relative cost of the proposed alternative design options. Better information is needed on the frequency that children aged 14-17 are present during the initial interview and their response rates in the alternative design options. Better information is needed on overall expected response rates under self response alternatives. Better information is needed on the effects of within household sampling by family instead of by household. Better information is needed on the robustness of these designs over partial NHIS funding.

7. Recommendations.

The recommendations are conditional on (1) the relative importance of particular components of NHIS data collection and (2) one's view of both the size and the importance of proxy and nonresponse error. These are the key parameters underlying any recommendation.

If proxy error is not perceived to be widespread or important, the current NHIS data collection plan appears reasonable. Otherwise, the NHIS current data collection plan is not reasonable.

With proxy BHDQ response deemed problematic, the NHIS design objectives have to be prioritized. One way to do this is based on the proportion of the NHIS interview time.

Since since 1985 data collection for adult SP supplements has dominated the NHIS interview, data collection for these supplements could be perceived as the NHIS primary objective. Secondary objectives are data from the BHDQ, supplements administered involving screening within households, and the chronic conditions lists.

In this case, the maximum precision is desired for estimates based on the adult SP supplements. We have to accept designs that yield less precise estimates for data collection in which information each person in a household screened (e.g., women pregnant in the last five years, persons with a particular condition such as diabetes). Alternative 2 is the desired strategy. Otherwise alternative 3 is the desired strategy, because permits screening more individuals.

8. Summary

The effect on BHDQ data of proxy error may be potentially large for certain statistics. If perceived as a major problem, then the NHIS should use a BHDQ self-response rule. Under a fixed data collection cost, a self response rule, however, has a large effect on the sample size.

The alternative design options have different effects on the precision of estimates on NHIS data collection components (e.g., BHDQ, supplements based on sample persons, and supplements based on household screening, and the current condition lists). The design option that yields the most precise estimates for one kind of NHIS component yields relatively less precise estimates for the other NHIS data collection components. Balancing the gains and losses of these approaches is difficult.

In section 7, This paper recommends designs conditional on one's view of proxy error and the importance of particular NHIS design components. The recommendations, however, assume cost and response rate parameters for the alternative design options.

In the recommendation for additional research, we need to assess the validity of these assumptions. While the recommendations are not sensitive to minor variations in these parameters, they are sensitive to large variations. Any major BHDQ change needs to be thoroughly piloted and pretested.

Table 2

Design Option	Respondent Rule	Within Household Sampling	Supplement type Sample Adult	All
		% Current Sample Size		
1	Proxy	No	100	100
2	Self	Yes	83	40
3	Self	No	60	60

Table 1

Respondent and Within Household Sampling Rules	Relative Bias				Relative Bias				Relative Bias				Relative Bias			
	0.0	0.1	0.2	0.3	0.0	0.1	0.2	0.3	0.0	0.1	0.2	0.3	0.0	0.1	0.2	0.3
	Estimated Proportion															
	0.01				0.10				0.30				0.50			
	ROOT MEAN SQUARE ERROR															
	Base Total Adult Population (174,486,000)															
Current design	0.000	0.001	0.002	0.003	0.001	0.010	0.020	0.030	0.002	0.030	0.060	0.090	0.002	0.050	0.100	0.150
Sample adult no proxy	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
All adults no proxy	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003
	Base 100,000,000 Adult Population															
Current design	0.001	0.001	0.002	0.003	0.002	0.010	0.020	0.030	0.002	0.030	0.060	0.090	0.003	0.050	0.100	0.150
Sample adult no proxy	0.001	0.001	0.001	0.001	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
All adults no proxy	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
	Base 50,000,000 Adult Population															
Current design	0.001	0.001	0.002	0.003	0.002	0.010	0.020	0.030	0.003	0.030	0.060	0.090	0.004	0.050	0.100	0.150
Sample adult no proxy	0.001	0.001	0.001	0.001	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
All adults no proxy	0.001	0.001	0.001	0.001	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
	Base 10,000,000 Adult Population															
Current design	0.002	0.002	0.003	0.003	0.005	0.011	0.021	0.030	0.008	0.031	0.060	0.090	0.008	0.051	0.100	0.150
Sample adult no proxy	0.003	0.003	0.003	0.003	0.008	0.008	0.008	0.008	0.012	0.012	0.012	0.012	0.013	0.013	0.013	0.013
All adults no proxy	0.002	0.002	0.002	0.002	0.007	0.007	0.007	0.007	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011
	Base 1,000,000 Adult Population															
Current design	0.004	0.004	0.004	0.005	0.011	0.015	0.023	0.032	0.017	0.035	0.062	0.092	0.019	0.053	0.102	0.151
Sample adult no proxy	0.006	0.006	0.006	0.006	0.018	0.018	0.018	0.018	0.027	0.027	0.027	0.027	0.030	0.030	0.030	0.030
All adults no proxy	0.005	0.005	0.005	0.005	0.015	0.015	0.015	0.015	0.022	0.022	0.022	0.022	0.024	0.024	0.024	0.024
	Base 500,000 Adult Population															
Current design	0.005	0.005	0.006	0.006	0.016	0.019	0.026	0.034	0.025	0.039	0.065	0.093	0.027	0.057	0.104	0.152
Sample adult no proxy	0.008	0.008	0.008	0.008	0.025	0.025	0.025	0.025	0.039	0.039	0.039	0.039	0.042	0.042	0.042	0.042
All adults no proxy	0.007	0.007	0.007	0.007	0.021	0.021	0.021	0.021	0.032	0.032	0.032	0.032	0.035	0.035	0.035	0.035
	Base 100,000 Adult Population															
Current design	0.012	0.012	0.012	0.012	0.036	0.037	0.041	0.047	0.055	0.062	0.081	0.105	0.060	0.078	0.117	0.161
Sample adult no proxy	0.019	0.019	0.019	0.019	0.056	0.056	0.056	0.056	0.086	0.086	0.086	0.086	0.094	0.094	0.094	0.094
All adults no proxy	0.015	0.015	0.015	0.015	0.046	0.046	0.046	0.046	0.071	0.071	0.071	0.071	0.077	0.077	0.077	0.077