
MEMORANDUM**TO:** CHIPRA 10-State Evaluation Team**FROM:** Kimberly Smith and Christopher Trenholm**DATE:** 10/25/2011**SUBJECT:** Sample Design for the Survey of Enrollees and Disenrollees

This memorandum describes the sample design for the household survey of CHIP and Medicaid enrollees and disenrollees to be conducted as part of the CHIPRA 10-state evaluation. It serves as a follow on to the design report by providing further specification of several key aspects of the sample design previously described. First, it presents refined definitions of the three sample domains that comprise the target population for the survey. Second, it specifies the target sample sizes for each state and sample domain, based on the “compromise allocation” approach to sample allocation discussed in the design report. Finally, it presents the level of precision provided by the specified sample design.

The household survey will be administered to parents and guardians of current and former CHIP enrollees in 10 states: Alabama, California, Florida, Louisiana, Michigan, New York, Ohio, Texas, Utah, and Virginia. In 3 of these states—California, Florida, and Texas—the survey will also be administered to parents and guardians of Medicaid enrollees. Information will be collected on the characteristics of these children, their movement in and out of the programs, and their experiences accessing and using health care. The sample will be designed so that survey data can be used for three purposes: (1) to make inferences about the three enrollment domains for each state; (2) to make comparisons among comparable domains across states; and (3) to make comparisons between CHIP and Medicaid enrollment domains within the three states selected for the Medicaid survey.

In the remainder of this memorandum, we specify the target population for the survey, how the sample will be allocated across states and domains, and the resulting precision of the parameter estimates generated from the survey data.

TARGET POPULATION

The target population for the CHIP and Medicaid samples will be drawn from three domains (or sub-populations) of enrollees in each program: (1) new enrollees, (2) established enrollees, and (3) disenrollees. Two exclusion criteria will be used to further limit the target population: age of the child at the time of sampling and the child’s basis of eligibility for CHIP or Medicaid

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 2

(as discussed below).¹ For each sample domain, the start of enrollment will be based on the date of eligibility determination and the end of enrollment will be based on the date of disenrollment. These two dates are chosen because they best approximate the time when a parent would consider the child to be enrolled or to be disenrolled. Because these dates may be among several shown in the administrative files, they may need to be identified with the assistance of the state.

Depending on the state, CHIP may be administered either (1) separately from Medicaid, (2) as an expansion to Medicaid, or (3) as a combination of these two. *For the CHIP survey, the target population includes both possible administrative models; that is, it includes both enrollees/disenrollees in the separately-administered (S-CHIP) component and the Medicaid-expansion (M-CHIP) component.* Note that for the states in the third group—the so-called “combination states” that administer both components—the sample size for each component will be proportional to the respective population size in the domain. Having included all M-CHIP enrollees/disenrollees in the target population for the CHIP survey, the target population for the Medicaid survey excludes these children. Thus, *for the Medicaid survey, the target population includes only enrollees/disenrollees in the “traditional” (Title XIX-funded) Medicaid program and NOT those in the M-CHIP component of the program.*

Below, for both the CHIP survey and the Medicaid survey, we present definitions and stratification schemes for each sample domain.

1. New Enrollees

Sample Definition: A child enrolled in the specified program (CHIP or Medicaid) during two consecutive months, preceded by a gap in coverage of at least one month. This corresponds to a monthly coverage spell of “011”, where 0 equals a month without coverage in the specified program and 1 equals a month with coverage.

Note that, in some study states, children may be newly enrolled in CHIP or Medicaid under a “presumptive eligibility” policy, which provides temporary coverage while a final eligibility determination is made. This period of temporary coverage can typically last for up to two months, requiring a slightly modified definition of new enrollment for these children (see below).

Sample Restrictions and Refinements:

¹ Sample eligibility determinations will be made based on the state administrative data at the time of sample frame construction and not based on respondent self-reports at the time of the interview, with one exception. Children who are reported as “deceased” at the time of the interview will be excluded from the sample.

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 3

- Age range: The child must be at least one year (12 months) of age and less than 19 years of age.
- Excluded eligibility groups: The child's basis of eligibility (BOE) must be household income; any child with an alternate BOE at the time of sampling will be excluded. This restriction pertains largely to Medicaid and spans a large number of eligibility groups, including: blind/disabled, SSI, institutionalized, foster care, qualified as Medically Needy; or received partial benefits because of dual eligibility for Medicare, immigrant status, or other reasons. Some assistance may be needed from the state to identify all of these restricted groups.
- Treatment of temporary ("presumptive") eligibility: If a sample child has an eligibility code reflecting presumptive eligibility, s/he will be held until the next data extract is provided by the state and a final eligibility determination is made. If that determination results in continued enrollment, the sample child remains in the target population and is released to the SOC for interview. Otherwise, the sample child is dropped from the target population. As with the eligibility codes for exclusion, some assistance from states may be needed to identify the relevant code(s) for this temporary eligibility status.

Stratification for Sampling:

- Pre-enrollment coverage: The new enrollee population will be stratified into three groups that characterize a child's recent coverage transition:
 1. "Churners": New enrollees in CHIP/Medicaid who are *returning to the same program* after a gap in coverage of just one, two, to three months (i.e., 1011, 10011, or 100011).
 2. "Transfers": New enrollees in one program (CHIP/Medicaid) who are *transferring from the other program* (Medicaid/CHIP) following a gap in coverage of *zero*, one, two or three months.
 3. "Clean cases": New enrollees who are neither churners nor transfers, as defined above.

As described further in the design report, *we will only sample for interview children in the third "clean cases" group* in order to maximize the analytic value of the

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 4

overall study sample.² Note that transfers and churners will be retained for eventual analysis; for example, drawing on their public coverage histories from the administrative data, we can pool these two groups with the “clean cases” and construct an accurate estimate of prior insurance coverage among all new CHIP (or Medicaid) enrollees.

- Income: In California and New York, new enrollees will be further divided into two income groups: (1) upper-income and (2) lower-income. Children in households above 200 percent of the federal poverty line (FPL) are considered upper-income. As specified below, the purpose of this stratification is to oversample upper-income new enrollees—a population that is relatively small in both California and New York but that holds considerable interest given the anticipated expansion of public coverage under health reform.³

2. Established Enrollees

Sample Definition: A child enrolled in the specified program (CHIP or Medicaid) for 12 consecutive months.⁴

Sample Restrictions and Refinements:

- Age range: The child must be at least one year (12 months) of age and less than 19 years of age.

²Survey data on new enrollees who either churn or transfer have limited value to our analysis—for two reasons. First, based on our experience from the prior CHIP survey, few parent(s) of these children even recognize a new enrollment has taken place because their short gap in coverage and/or their transfer between programs goes unnoticed. Thus, these parent(s) are unable to report reliably on anything related to their new enrollment experience. Second, because these children’s prior coverage history reflects a period of public coverage, it does not serve as a valid counterfactual for measuring the impacts of CHIP. Thus, we would make little use of any data we might collect on their health or health care outcomes prior to enrolling.

³ Two other states, Alabama and Louisiana, also provide CHIP coverage to children above 200 percent FPL. However, the relative size of these populations is too small to permit oversampling at the level necessary to obtain meaningful estimates for this subgroup.

⁴ The enrollment period for established enrollees in the prior survey was 5 months. The period was extended to 12 months to facilitate comparisons of key survey outcomes—such as health care access and use—to benchmark measures from validated national and state surveys.

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 5

- Excluded eligibility groups: All children whose BOE is not income-based will be excluded from the CHIP and Medicaid samples (see new enrollee definition for list of excluded groups).

Stratification for Sampling:

- Income: In California and New York, established enrollees will be stratified into upper- and lower-income groups, where upper-income is defined as above 200 percent of the FPL.

3. Recent Disenrollees

Sample Definition: A child who has been disenrolled in the specified program (CHIP or Medicaid) for at least one month and who was previously enrolled for at least two months prior to their month of disenrollment. This corresponds to a monthly coverage spell of “110”, where 0 equals a month without coverage in the specified program and 1 equals a month with coverage.

Sample Restrictions and Refinements:

- Age range: The child must be at least one year (12 months) of age and less than 20 years of age.
- Excluded eligibility groups: All children whose BOE is not income-based will be excluded from the CHIP and Medicaid samples (see new enrollee definition for list of excluded groups).

Stratification for Sampling:

- Post-disenrollment coverage: The recent disenrollee domain will be stratified into three groups that characterize the child’s coverage status after disenrollment:
 1. “Churners”: Children recently disenrolled from CHIP/Medicaid who *return to the same program* after a gap in coverage of just one month (i.e., 1101).
 2. “Transfers”: Children recently disenrolled from one program (CHIP/Medicaid) who *transfer to the other program* (Medicaid/CHIP) following a gap in coverage of *zero* months or one month.
 3. “Clean cases”: Recent disenrollees who are neither churners nor transfers, as defined above.

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 6

As with the new enrollee domain, *we will only sample for interview recent disenrollees in the third “clean cases” group.* Relevant data on the characteristics of these sample members and their coverage transitions will be obtained from administrative records.

- Income: In California and New York, recent disenrollees will be stratified by income using the same stratification scheme described above for new enrollees.

SAMPLE ALLOCATION AND SAMPLE SIZES

The most basic allocation of the study sample across the CHIP and Medicaid states is an “equal allocation”, whereby we aim to complete interviews with the parent(s)/guardian(s) of 500 children in each of the three sample domains across the ten CHIP states and three Medicaid states. This would yield a total survey sample of 15,000 CHIP children and 4,500 Medicaid children, equal to the total sample specified in the RFP for the evaluation. As described in the design report, however, two factors lead us to employ an alternate approach to allocating the survey sample across states and domains. First, to better understand the characteristics and experiences of enrolled children (particularly subgroups), we want to obtain a larger sample of established enrollees. Second, to minimize the design effects associated with pooling data, we want to increase the sample sizes in larger states.⁵

In addition, to better understand the experiences of children from households with relatively high incomes—a key group targeted by upcoming health reforms—we will sample within each sample domain a disproportionate share of children in households above 200 percent of the FPL.⁶ While four survey states—Alabama, California, Louisiana, and New York—have CHIP eligibility limits exceeding 200 percent of the FPL, we will restrict our analyses of this sub-group to the two states with relatively sizable populations of upper-income enrollees: California and New York. Given the small proportion of enrollees in income bands above 200 percent of the FPL, oversampling is essential for obtaining precise estimates of this group.

Our recommended sample allocation is, therefore, a function of four interrelated constraints and considerations: (1) the total sample size for the study, (2) the sample size required to produce

⁵ The sample design assumes that we will use sample weights to account for differences in the size of the CHIP/Medicaid populations across states and to obtain pooled estimates that are representative at the 10-state level.

⁶ As mentioned previously, in the new enrollees and disenrollee domains, all transfers or churners will be included in the final analysis sample, but not interviewed. Therefore, oversampling will only occur with the third (“All other children”) stratum in these two sample domains.

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 7

sufficiently precise within-state descriptive statistics on key sub-groups of established enrollees, (3) the minimum sample size needed to obtain reasonably precise within-state estimates in small states (and within-stratum estimates of upper-income enrollees in California and New York), and (4) the maximum number of sample members that can be allocated to the largest states. The closer the sample size “ceiling” is to the sample size that would be allocated to the largest states under proportional allocation, the lower the design effect and greater the precision of our pooled estimates. This final parameter is determined by the first three.

In order to examine the precision of various sample sizes and sample allocations across domains and states, we first estimated the likely design effects associated with clustering and non-response adjustments, and the unequal weighting arising from various sample allocations. Next, using these design effects, we analyzed the confidence interval (CI) half widths for a series of descriptive statistics, calculated for different combinations of states, domains and subgroups. Finally, to assess the available precision when comparing outcomes among samples (for example, between new and established enrollees) or among sub-groups (for example, defined by race and ethnicity or other demographics), we estimated minimum detectable differences, or “MDDs,” for alternative sample sizes.⁷ Based on these calculations, we determined that a target sample size of 5800 established enrollees would provide sufficient precision for anticipated sub-group outcomes at the state and 10-state level. This also allows for precise estimates of outcomes in the new enrollees and disenrollee domains, which will each have a target sample size of 4600 under this allocation. The minimum sample size required to generate reasonable precise within state/stratum estimates was determined to be 400.

To account for the design effects of oversampling upper-income children in California and New York to achieve a pooled sample size of 400 for separate analysis of this sub-group, we made a slight modification to the compromise allocation method used for the new enrollee and disenrollee domains. To ensure that the effective sample sizes for these two sample domains in California and New York are sufficient to meet our analysis objectives after taking into account these larger design effects, we based the compromise allocation on a total sample size of 4500 (rather than 4600) for each of these domains. In doing so, we reserved 200 sample members who we then allocated to the new enrollee and disenrollee samples in California and New York (50 sample members per domain in each state).

⁷ We calculated all MDDs with powers of 80 percent for two-tailed tests of significance with 95 percent confidence.

MEMO TO: CHIRPA-10 Evaluation Team
 FROM: Kimberly Smith and Christopher Trenholm
 DATE: 10/25/2011
 PAGE: 8

Table 1 presents the resulting target sample sizes for each state and sample domain for the CHIP survey, using the compromise allocation approach described above.⁸ In the established enrollee domain, this allocation allows for roughly 1025 sample members in states with large enrollee populations (California and Texas) and 400 sample members in the six states whose sample size would fall below that minimum under proportional allocation: Alabama, Louisiana, Michigan, Ohio, Utah, and Virginia. In the new enrollee and disenrollee domains, the maximum number of sample members allocated to large states is significant lower at 590, while the minimum is the same. The allocation of 50 additional sample members to each of these domains in California and New York results in New York having a larger sample than Texas, even though Texas has a larger CHIP population. The bottom panel of Table 1 shows target sample sizes by income stratum for California and New York.

Table 1: Target Sample Sizes (Completed Interviews) for the CHIP Survey, by State and Domain⁹

	Established Enrollees	New Enrollees	Recent Disenrollees
Total Survey Sample			
Alabama	400	400	400
California	1025	590	590
Florida	621	482	482
Louisiana	400	400	400
Michigan	400	400	400
New York	752	590	590
Ohio	400	400	400
Texas	1025	540	540
Utah	400	400	400
Virginia	400	400	400
Total	5823	4602	4602
Upper-Income/Lower-Income Sub-Sample			
California	200/825	200/390	200/390
New York	200/552	200/390	200/390

⁸ The target sample sizes for the Medicaid survey are presented in Appendix Table A1. We used the same compromise allocation approach described for CHIP survey to allocate the total Medicaid sample of 4,500 households across the three Medicaid states and sample domains.

⁹ Note that the final analysis sample will exceed the sample sizes shown in Table 1 in cases where transfers and churners are included in the new enrollee and disenrollee analysis samples.

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 9

PRECISION OF SAMPLE ALLOCATION AND SAMPLE SIZES

In this section, we present the precision and power provided by the specified sample design. First, in Table 2, we present confidence interval-half width estimates for a range of descriptive statistics.¹⁰ We focus on three illustrative proportional outcomes having the following sample means: (1) 50 percent; (2) 25 percent (or, equivalently, 75 percent); and (3) 10 percent (or, again equivalently, 90 percent). In each row of the table, we display for each illustrative outcome the associated CI half width for a specified sample size and sample composition of interest. The results in Table 2 show that there is clearly sufficient precision for anticipated outcomes across all three domains when pooled across states. This is true whether the outcomes focus on the full population or on subgroups. For example, for outcomes measured for a full established enrollee sample (shown in the first panel of Table 1), the half widths are 2.0 percentage points for a 50 percent proportion, 1.7 points for a 25/75 percent proportion, and 1.2 points for a 10/90 percent proportion. Half widths naturally rise when focusing on subgroups. However, even for a 25 percent subgroup within this domain, the half widths for the illustrative outcomes are less than 4 percentage points.¹¹ The second panel of Table 2 shows half-widths for the new enrollee and disenrollee estimates. While the half-widths are larger due to the smaller size of these domains, we will still be able to obtain a sufficient level of precision for full sample and sub-group pooled estimates.

While the primary focus of the evaluation will be on outcomes and subgroups defined across states—an approach we adopted successfully for the prior study—we also plan to explore these outcomes at the state level as well. As seen in the lower rows of the two panels in Table 2, precision falls when focusing on state-specific outcomes. For a full sample established enrollee domain in the largest states (California and Texas), the largest half width shown (for a proportion of 50 percent) is 4.0 percentage points. This number increases to 5.9 percentage points for the smallest states in the sample. For the recent enrollee and disenrollee samples, the half-width for a 50 percent proportion in the largest states is 5.0 and in the smallest states 5.9.

¹⁰ Appendix Table A2 presents confidence interval half-widths estimates for outcomes based on the Medicaid sample.

¹¹ Based on findings from the earlier study, a 25 percent subgroup approximates many of the focal subgroups for the evaluation, including children with elevated health care needs, children in low-education households, and children in Spanish-speaking households.

MEMO TO: CHIRPA-10 Evaluation Team
 FROM: Kimberly Smith and Christopher Trenholm
 DATE: 10/25/2011
 PAGE: 10

Table 2. Confidence Interval (CI) Half Widths for Illustrative CHIP Outcomes

Sample Size [Composition]	Estimated CI Half Widths for Illustrative Proportions (shown in percentage points)		
	Mean=50% (E.g., Had Recent Preventive Visit)	Mean=25% (or 75%) (E.g., Has Elevated Health Care Need)	Mean=10% (or 90%) (E.g., Has Unmet Dental Need)
Established Enrollees			
Ten States Pooled (CHIP Sample)			
5,800 [full sample domain]	2.0	1.7	1.2
2,900 [50% domain subgroup]	2.6	2.3	1.6
1,450 [25% domain subgroup]	3.6	3.2	2.2
Individual State			
1025 [domain in largest state: CA]	4.0	3.5	2.4
400 [domain in smaller state; e.g. UT]	5.9	5.1	3.6
Upper Income			
400 [CA and NY Pooled]	5.9	5.1	3.6
New Enrollees and Recent Disenrollees			
Ten States Pooled (CHIP Sample)			
4,600 [full sample domain]	2.4	2.0	1.4
2,300 [50% domain subgroup]	3.2	2.8	1.9
1,150 [25% domain subgroup]	4.5	3.9	2.7
Individual State			
590 [domain in largest state: CA]	5.0	4.3	3.0
400 [domain in smaller state; e.g. UT]	5.9	5.1	3.6
Upper Income			
400 [CA and NY Pooled]	5.9	5.1	3.6

Notes: The confidence interval half width is equal to the standard error of an outcome multiplied by the standard normal deviate used in a 95% confidence interval, 1.96. Standard errors have been adjusted to reflect the expected design effect under a compromise allocation of sample members to states (see text for details).

Next, in Table 3, we present MDDs for comparisons of two sample domains for illustrative proportions given the sample allocation discussed above.¹² When pooling the 10 states' data and comparing outcomes between the established enrollee and new enrollee domains (top panel; row

¹² Appendix Table A3 presents MDDs for comparisons of Medicaid sample domains.

MEMO TO: CHIRPA-10 Evaluation Team
 FROM: Kimberly Smith and Christopher Trenholm
 DATE: 10/25/2011
 PAGE: 11

one), we have sufficient statistical power to detect differences of 4.8 percentage points for a proportion of 50 percent and differences of 4.1 percentage points for a proportion of 25 (or 75) percent. These differences are relatively modest—both equivalent to effect sizes of just over 10 percent (not shown), which is commonly considered “small” in social science research (Cohen 1988). MDDs naturally increase for comparisons of subgroups, but they remain around levels that can detect meaningful differences at desired power. For example, for a comparison between domains for a 50 percent subgroup (top panel; row two), the MDD on a 50 percent proportion is 6.3 percentage points, again equivalent to a “small” effect size. Perhaps not surprisingly, comparisons between domains or other subgroups within a single state have relatively weak statistical power, particularly for smaller states (not shown). We assume that the study of such within-state differences will be a relatively low priority for this study, as it was for the prior evaluation.

Table 3. Minimum Detectable Differences for Illustrative CHIP Outcomes

Sample Size [Composition]	Estimated CI Half Widths for Illustrative Proportions (shown in percentage points)		
	Mean=50%	Mean=25% (or 75%)	Mean=10% (or 90%)
	(E.g., Had Recent Preventive Visit)	(E.g., Has Elevated Health Care Need)	(E.g., Has Unmet Dental Need)
Comparisons of Established and New Enrollee Sample Domains			
Ten States Pooled			
5,800 : 4,600 [full domain vs. full domain]	4.8	4.1	2.9
2,900 : 2,300 [50% subgroup comparison]	6.3	5.5	3.8
1,450 : 1,150 [25% subgroup comparison]	8.8	7.6	5.3

Notes: The MDD is equal to the smallest difference between two samples that can be detected for a specified level of power and statistical significance. (We calculated the MDD above under standard assumptions of 80% power and 95% statistical significance, two-tailed test). Standard errors for calculating the MDD have been adjusted to reflect design effect that we expect for the different sample compositions shown, based on the results from the prior CHIP survey (see text for details).

MEMO TO: CHIRPA-10 Evaluation Team
FROM: Kimberly Smith and Christopher Trenholm
DATE: 10/25/2011
PAGE: 12

APPENDIX

MEDICAID SURVEY: SAMPLE SIZES AND PRECISION

MEMO TO: CHIRPA-10 Evaluation Team
 FROM: Kimberly Smith and Christopher Trenholm
 DATE: 10/25/2011
 PAGE: 13

Table A1. Target Sample Sizes (Completed Interviews) for the Medicaid Survey, by State and Domain

	Established Enrollees	New Enrollees	Recent Disenrollees
California	800	550	550
Florida	400	400	400
Texas	550	425	425
Total	1750	1375	1375

Table A2. Confidence Interval (CI) Half Widths for Illustrative Medicaid Outcomes

Sample Size [Composition]	Estimated CI Half Widths for Illustrative Proportions (shown in percentage points)		
	Mean=50%	Mean=25% (or 75%)	Mean=10% (or 90%)
	(E.g., Had Recent Preventive Visit)	(E.g., Has Elevated Health Care Need)	(E.g., Has Unmet Dental Need)
Established Enrollees			
Three States Pooled (Medicaid Sample)			
1,740 [full sample domain]	3.0	2.6	1.8
870 [50% domain subgroup]	4.0	3.5	2.4
435 [25% domain subgroup]	5.6	4.9	3.4
Individual State			
800 [domain in largest state: CA]	4.4	3.8	2.6
400 [domain in smaller state: FL]	5.9	5.1	3.6
New Enrollees and Recent Disenrollees			
Three States Pooled (Medicaid Sample)			
1,375 [full sample domain]	3.3	2.9	2.0
688 [50% domain subgroup]	4.5	3.9	2.7
344 [25% domain subgroup]	6.3	5.5	3.8
Individual State			
550 [domain in largest state: CA]	5.2	4.5	3.1
400 [domain in smaller state: FL]	5.9	5.1	3.6

Notes: The confidence interval half width is equal to the standard error of an outcome multiplied by the standard normal deviate used in a 95% confidence interval, 1.96. Standard errors have been adjusted to reflect the expected design effect under a compromise allocation of sample members to states.

MEMO TO: CHIRPA-10 Evaluation Team
 FROM: Kimberly Smith and Christopher Trenholm
 DATE: 10/25/2011
 PAGE: 14

Table A3. Minimum Detectable Differences for Illustrative Medicaid Outcomes

Sample Size [Composition]	Estimated CI Half Widths for Illustrative Proportions (shown in percentage points)		
	Mean=50%	Mean=25% (or 75%)	Mean=10% (or 90%)
	(E.g., Had Recent Preventive Visit)	(E.g., Has Elevated Health Care Need)	(E.g., Has Unmet Dental Need)
Comparisons of Established and New Enrollee Sample Domains			
Three States Pooled			
1,750 : 1,375 [full domain vs. full domain]	6.6	5.7	3.9
875 : 688 [50% subgroup comparison]	8.8	7.6	5.3
438 : 344 [25% subgroup comparison]	12.3	10.6	7.4

Notes: The MDD is equal to the smallest difference between two samples that can be detected for a specified level of power and statistical significance. (We calculated the MDD above under standard assumptions of 80% power and 95% statistical significance, two-tailed test). Standard errors for calculating the MDD have been adjusted to reflect design effect that we expect for the different sample compositions shown, based on the results from the prior CHIP survey (see text for details).