Appendix C

2020 National Survey of Children's Health
Table of State Sample Sizes

2020 NSCH - Estimated State Sample Sizes

State Sample Sizes	Base Sample Oversampling Rate[1] 'k'	Proportion of Households with Children from 2018 ACS 'P'	Base Sample Sampling Variance[1] 'R'	Total Sample[2]	Stratum 1 Sample (Admin Flag for HHLD w/Children)	Stratum 2a Sample (Admin Flag for HHLD w/o Children)
Alabama	4	29%	1.03	4900	3000	1900
Alaska	3	27%	0.98	6900	3000	3900
Arizona	3	32%	0.98	5100	2800	2200
Arkansas	3	32%	0.98	5900	3200	2700
California	3	44%	1.03	4100	2800	1300
Colorado	3	37%	0.98	9400	5200	4200
Connecticut	3	39%	0.99	3800	2400	1400
Delaware	3	37%	0.98	4600	2900	1700
District of Columbia	6	24%	1.06	4400	2900	1400
Florida	3	32%	0.98	5200	3100	2100
Georgia	3	37%	1.01	5300	3300	2000
Hawaii	3	32%	1.06	4800	2000	2800
Idaho	3	35%	0.98	3400	2000	1400
Illinois	3	36%	0.98	4000	2500	1600
Indiana	3	38%	0.99	3900	2400	1400
Iowa	6	26%	1.05	3100	2000	1100
Kansas	4	36%	1.06	3300	2200	1100
Kentucky	4	29%	1.00	4600	2700	1900
Louisiana	3	32%	1.00	6400	3700	2700
Maine	7	22%	1.05	3900	2400	1500
Maryland	3	40%	0.99	3500	2300	1200
Massachusetts	4	36%	1.04	3200	2100	1100
Michigan	4	36%	1.04	3100	2100	1000
Minnesota	4	39%	1.02	2400	1600	750
Mississippi	4	29%	1.05	6000	3600	2400
Missouri	4	34%	1.05	3900	2500	1300
Montana	5	21%	0.99	5100	2600	2500
Nebraska	5	28%	1.02	5200	3300	1900
Nevada	3	35%	0.99	4800	2900	1900
New Hampshire	5	30%	1.06	3700	2400	1300
New Jersey	3	42%	1.01	3600	2300	1300
New Mexico	4	22%	1.01	6300	3100	3200
New York	3	34%	0.99	4900	2800	2100
North Carolina	4	35%	1.06	3900	2600	1400
North Dakota	6	23%	1.01	3800	2300	1500
Ohio	4	37%	1.05	3500	2400	1100
Oklahoma	4	27%	1.04	5300	2900	2400
Oregon	4	34%	1.03	14500	9500	5100
Pennsylvania	4	35%	1.02	3500	2300	1200
Rhode Island	4	33%	1.05	4000	2600	1500
South Carolina	4	31%	1.04	4900	3100	1800
South Dakota	5	24%	1.01	4100	2300	1800
Tennessee	4	34%	1.06	3900	2600	1300
Texas	3	40%	1.03	4800	3000	1700
Utah	3	48%	1.03	2700	1900	800
Vermont	5	24%	0.99	4000	2300	1700
Virginia	3	40%	0.98	3300	2100	1200
Washington	3	37%	0.98	3700	2200	1500
West Virginia	4	23%	0.99	5500	2600	2900
Wisconsin	4	36%	1.03	6900	4600	2300
Wyoming	4	27%	0.99	5100	2700	2400
Total				240,000	144,000	96,000
Proportion by Strata					60%	40%

[1] These are the Stratum 1 oversampling rates and the sampling variances for the base production sample only. Colorado, Nebraska, Oregon, and Wisconsin all have additional sample that may have different oversampling rates and sampling variances.

[2] Sample sizes include both the base production sample as well as the additional sample in CO, NE, OR, and WI. All sample sizes have been rounded.

Calculations for State Sample Sizes

The oversampling rate (k) was calculated to maximize the sample from Stratum 1 without increasing the variance (R) too much beyond that of a proportional stratified design of a similar cost.

(P) is the proportion of households with children based on the 2018 ACS audit[1].

The portion of the sample coming from each stratum was calculated using the oversampling rate (k) and the proportion of all households in each of the sampling strata (W1 and W2a). Address valid rates, child prevalence rates, and Screener and Topical returns rates were estimated by state and stratum primarily using previous years' response outcomes. A national total sample size of approximately 240,000 was determined based on budget. This includes the base production sample for all states as well as additional sample in Colorado, Nebraska, Oregon, and Wiscon. We expect the base production sample will produce approximately 700 Topical interviews per state. The expected number of interviews along with previous years' response information was used to calculate stratum sample sizes (n1 and n2a) in each state.

For example, in Alabama[2]:
The oversampling rate (k) was recalculated to be 4.0, for an R = 1.03. Of the 2018 ACS households eligible for NSCH sampling, 28.1% would be put in Stratum 1 (W1) and 71.9% would be put in Stratum 2a (W2a).

The portion of the sample coming from Stratum 1 was estimated to be (k*W1) / (W2a + k*W1) = 61.0% and the portion of the sample from Stratum 2a was 39.0%.

We can expect a completed Topical from 91.5% (Valid) * 39.5% (Screener) * 79.6% (Children) * 75.5% (Topical) = 21.7% of addresses in Stratum 1 and 75.7% (Valid) * 43.1% (Screener) * 9.0% (Children) * 82.4% (Topical) = 2.4% of addresses in Stratum 2a.

Since we expect to get 700 Topicals per state, we can get the state sample size (n) by evaluating the following:

(n * Portion of the sample from Stratum 1 * Stratum 1 completed Topical rate) + (n * Portion of the sample from Stratum 2a * Stratum 2a completed Topical rate) = 700.

Within rounding, it then follows that n = 700 / (61.0% * 21.7% + 39.0% * 2.4%) = 4900. Now n1 = 4900 * 61.0% = 3000 and n2a = 4900 * 39.0% = 1900.

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[1] Before mailout, this will be updated with the 2019 ACS.

[2] Note that numbers have been rounded here for all calculations.