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2012 Ohio Medicaid Assessment Survey

Methodology Report

Submitted To

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1. Introduction

1.1 Project Overview

The Ohio Department of Jobs and Family Services (Ohio Medicaid), the Ohio Colleges of Medicine Government Resource Center (GRC), The Ohio State University (OSU), the Ohio Department of Health, and other State of Ohio health-associated agencies teamed with RTI International (RTI) to conduct the 2012 Ohio Medicaid Assessment Survey (OMAS), the latest in a series of surveys dating back to 1998, previously called the Ohio Family Health Survey (OFHS). Similar to earlier iterations of the Ohio Family Health Survey, the 2012 OMAS collected data on the health status, health insurance status, health care access and utilization, and demographics of Ohioans for the purpose of assisting in the efficient and effective operations of the Ohio Medicaid program and associated programs. Specifically, the 2012 OMAS:

- Provides data comparable to earlier versions of the OFHS conducted in 2010, 2008, 2004, and 1998, in order to assess changes over time;
- Informs the development of services to Ohio's Medicaid and potentially Medicaid eligible populations;
- Helps policy-makers assess the impact of recent changes in the health of Ohioans, Ohio's economic climate, the health care marketplace and government programs related to health care reform; and
- Helps policy-makers evaluate the health risks of Ohioans.

The OMAS was fielded from May through September 2012. Data collection was conducted via telephone surveys with a randomly selected adult or adult proxy in case of interview difficulties and, if applicable, an adult proxy on behalf of a randomly selected child (18 years or younger), in randomly selected Ohio households with landline telephones and Ohio individuals with cell phones.

RTI met with the sponsoring State agencies, GRC, OSU and the OMAS Research Team, in February, 2012, to initiate the contract and review methodological procedures for implementing the OMAS. This collaboration continued through weekly meetings, ongoing reporting of results and co-development of survey instruments and methodological procedures for data capture, cleaning and reporting.

The OMAS Research Team was concerned with maintaining methodological continuity between the 2012 OMAS and earlier iterations of the OFHS, as well as maintaining a high standard for quality assurance in project procedures to preserve the validity of the data collected. This report describes the procedures involved in achieving these objectives.

1.2 Design Overview

The 2012 OMAS adult and child questionnaires covered several topics regarding the health and health insurance status of Ohio residents. Topics included:

- Type of health insurance coverage, if any;
- General physical, mental, and dental health status;
- Health care use and needs;
- Perceptions of health care quality;
- Access to health care; and
- Health-associated demographics.

The survey consisted of two main sections, one for the randomly selected adult in the household, and a second for an adult proxy responding for a randomly selected child under the age of 19, if one was presently residing in the adult respondent's household. Unlike prior iterations of the OFHS, the age at which one was considered a child for purposes of household enumeration and administration of the child survey instrument was raised from 17 and under to 18 and under for the 2012 OMAS. The reason for this change is to adjust the child age classification to the Ohio Medicaid program eligibility rules.

The sample design for the 2012 OMAS was a complex design consisting of traditional landline and cell phone numbers. This design is explained in the next section.

1.3 Institutional Review Board (IRB) Determination

Since the 2012 OMAS involves collecting data about adult respondents and child respondents via an adult proxy, study documents including the design, research protocol, and questionnaires were delivered to the Institutional Review Boards (IRB) at The Ohio State University, the Ohio Department of Health (ODH), as well as the IRB at RTI. The IRBs reviewed materials and spoke with the Principal Investigators at OSU, the GRC, and the Project Director at RTI, in order to assess whether the 2012 OMAS fell under their respective responsibilities for protecting human subjects in sponsored research. The IRBs determined that the 2012 OMAS was research in support of governmental agency programs, which under Federal code does not necessarily require IRB oversight. The ODH IRB did agree that ODH would field and respond to respondent calls about the survey, including complaints and requests for information, and that ODH staff taking such calls would report any concerns to the ODH and RTI IRBs.

2. Sampling

2.1 Objectives of the Sample Design

The 2012 Ohio Medicaid Assessment Survey (OMAS) employed a five-pronged design consisting of the following:

1. A list-assisted random digit-dial (RDD) sample of landline numbers (base sample);
2. A high, medium, and low incidence African-American RDD supplemental sample (African-American over-sample);
3. An Asian and Hispanic surname-based sample (Asian and Hispanic surname list samples);
4. A simple random sample of cell phone numbers (cell phone sample); and
5. An over-sample of households with children (child over-sample).

2.2 Sampling Plan

The OMAS sampling plan was a probability-based design with known probabilities of selection at each stage of selection. This design allows for inference to be made for the entire state of Ohio, as well as select metropolitan counties and various subpopulations and regions of interest.

As we describe in this section, five separate samples were allocated to meet the OMAS goals. For each of the five designs discussed previously, ***Exhibit 1*** summarizes the starting number of phone numbers that were selected and the number of completed interviews for each sample type.

Exhibit 1. Proposed Sample Sizes by Type of Sample

Type of Sample	Sample Size from Vendor	Target Number of Completed Interviews	Actual Number of Completed Interviews
Base landline sample[a]	656,022	13,665	14829
African American oversample[b]	127,250	2,400	2214
Hispanic surname sample	10,087	641	452
Asian surname sample	15,090	641	236
Cell phone sample	116,455	5,008	5198
Total	925,704	22,355	22929

[a] Includes numbers selected for the households with children over-sample

[b] Number selected in the high African-American density strata in the 7 metropolitan counties.

2.3 Population of Interest

The target population for the OMAS was the total, non-institutionalized adult and child populations residing in residential households in Ohio. Excluded from this population were adults and children...

- In penal, mental, or other institutions;
- Living on military bases covered by dedicated central office codes;
- Living in other group quarters such as dormitories, barracks, convents, or boarding houses (with 10 or more unrelated residents);
- Contacted at their second residence during a stay of less than 30 days;

- Living in Ohio less than a month;
- Without access to a residential phone (landline or cell phone);
- Who did not speak English or Spanish well enough to be interviewed; and
- With physical or mental impairments that prevented a respondent from completing an interview (as defined by the interviewer or by another member of the household), if a knowledgeable proxy was not available.

2.4 Sampling Frames

The landline samples for the OMAS consisted of a random sample of telephone numbers from all current operating telephone exchanges in Ohio. MSG's Genesys system was used to generate the full set of 100-blocks in Ohio – 100-blocks refers to groupings of 100 phone numbers based on the area code, exchange, and next two numbers (e.g. 614-366-31XX is a 100-block). Listed landline information is used to assign 100-blocks to counties and zip codes, allowing sampling statisticians to target a sample. For the cell phone sample, the Telecordia Local Exchange Routing Guide was used to identify the cell phone 1,000-blocks in Ohio, due to the lack of regional assignment information for many cell phone numbers.

2.5 General Sample Design

The 2012 OMAS was a stratified simple random sample of telephone numbers in Ohio. There were 105 unique strata in the 2012 OMAS. There were two sampling frames based on the type of phone being contacted (landline or cell). The landline frame was then further split into 104 strata. Non-metropolitan counties were each a stratum (81 strata). Each of the 7 metropolitan counties[1] were further split into three strata based on the density of African-Americans living in the Census tract (21 strata). Furthermore, all listed numbers with an Asian or Hispanic surname were placed in their own stratum (2 strata). The cell phone frame was a single statewide stratum (1 stratum).

2.6 Base Landline Sample

A random sample of 100-blocks was selected. This sample was selected through a list-assisted 1+block RDD method. Thus, we worked with MSG to remove any 100-blocks that did not contain any residential numbers.

The initial sample of phone numbers was stratified by the eight Medicaid Managed Care Regions in Ohio and the counties within the region. Any listed phone numbers associated with an Asian or Hispanic surname was excluded. Because of the study's desire to create direct estimates for the Medicaid Managed Care Regions, an equal number of phone numbers were allocated to each region (i.e., a balanced allocation). The sample was then be proportionally allocated to counties within Medicaid Managed Care Regions to ensure representation from all 88 counties in Ohio. Within each stratum all phone numbers had an equal probability of selection regardless of whether they were listed or unlisted. Although listed households have shown a higher propensity to respond, they are fundamentally different from unlisted

[1] The seven metropolitan counties include Cuyahoga, Franklin, Hamilton, Lucas, Montgomery, Stark, and Summit.

households. Therefore, since the potential increase in bias was large, listed households were not oversampled.

2.7 African-American Over-sample

One key goal of the OMAS was to produce reliable probability-based estimates of the African-American population. To achieve this, an over-sample of telephone numbers in the seven high-density African-American counties (Cuyahoga, Franklin, Hamilton, Lucas, Montgomery, Stark, and Summit) was conducted.

Because of the desire to produce an African-American estimate for each of the seven largest urban counties, a balanced allocation of the African-American over-sample was used. However, because the African-American population in Stark County is only 7.5% (according to the 2010 Census) and the largest concentration of African-Americans in a Census tract is 60%, we allocated less of the over-sample to Stark County. Therefore, the design allocated 300 completed interviews to Stark County and 350 completed interviews to the other six counties (from which we expect 50% of respondents to be African-American in Stark County and 75% of respondents to be African-American in the other six counties). Each county was then further stratified into high-, medium-, and low-density African-American areas. Current data from Claritas was used to determine the percentage of African-Americans in each phone exchange. Phone exchanges were stratified into three categories (high-density, medium-density, and low-density). The categories were created in such a way to maximize the likelihood of obtaining the desired number of African-American respondents while maintaining a reasonable unequal weighting effect.

As expected, most African-American respondents were found in the high density African-American strata. However, a larger than expected portion were identified through the cell phone sample. The table below (see ***Exhibit 2***, page 6) shows the distribution of African-American respondents across the seven Metro counties by sampling stratum within each of the counties.

2.8 Asian and Hispanic List Samples

Another goal of the OMAS was to obtain reliable probability-based estimates of Asians and Hispanics residing in Ohio. To ensure this, a random sample of telephone numbers associated with households linked to someone with either an Asian or Hispanic surname was selected. A two-step process was used to create the list of Asians and Hispanics residing in Ohio. First, a database of all listed numbers in Ohio was generated with associated names and telephone numbers. Second, a list of all possible Asian and Hispanic surnames was generated. All persons in the first database with a surname listed in the second database were included in the Asian and Hispanic lists from which the sample was drawn.

Because a list of all persons with a listed telephone number in Ohio with an Asian or Hispanic surname was used as a frame, the sample of telephone numbers was selected by simple random sampling. The sample was not stratified, but rather randomly selected at the statewide level. Therefore, we expected counties with a higher Asian or Hispanic population to have an increased sample in proportion to their Asian and Hispanic populations. Furthermore, because screening was conducted, persons selected in a

surname stratum that were contacted, but did not belong to the desired ethnic group were not asked to participate in the survey. Therefore, these individuals had a zero probability of selection. Although potential for bias may be introduced, prior rounds of the Ohio Family Health Survey (OFHS), the predecessor to OMAS, suggested that this bias is minimal.

Exhibit 2. Number of African-American Respondents within the Seven Metro Counties, by Stratum Type

County	Concentration	Definition	Completes	AA Completes
Cuyahoga County, Ohio	Low	%Black < 50%	722	101
	Medium	50% <= %Black < 80%	350	225
	High	%Black >= 80%	405	340
	Other LL	--	137	6
	Cell	--	281	85
Franklin County, Ohio	Low	%Black < 40%	564	87
	Medium	40% <= %Black < 50%	251	120
	High	%Black >=50%	323	214
	Other LL	--	123	2
	Cell	--	578	118
Hamilton County, Ohio	Low	%Black < 40%	730	118
	Medium	40% <= %Black < 50%	68	40
	High	%Black >=50%	296	161
	Other LL	--	83	3
	Cell	--	450	123
Lucas County, Ohio	Low	%Black < 30%	580	56
	Medium	30% <= %Black < 50%	173	67
	High	%Black >= 50%	164	91
	Other LL	--	54	1
	Cell	--	184	41
Montgomery County, Ohio	Low	%Black < 40%	740	57
	Medium	40% <= %Black < 50%	71	29
	High	%Black >=50%	373	231
	Other LL	--	37	1
	Cell	--	283	60
Stark County, Ohio	Low	%Black < 5%	434	7
	Medium	5% <= %Black < 20%	179	6
	High	%Black >= 20%	375	78
	Other LL	--	25	0
	Cell	--	165	16
Summit County, Ohio	Low	%Black < 30%	746	46
	Medium	30% <= %Black < 40%	183	40
	High	%Black >= 40%	233	100
	Other LL	--	55	1
	Cell	--	202	26
Total			10,617	2,697

2.9 Cell Phone Sample

The cell phone sample was a random sample of phone numbers from cellular-dedicated 1,000-blocks. The cell phone sample was an important component to the 2012 OMAS design. Based on the latest available data during the design phase (June 2011), 31.6% of all households use only cell phones (Bloomberg and Luke, 2011). Furthermore, an even greater percentage are "mostly" cell phone users, which means that even though they have a landline in their household, interviewers are likely to only reach them through a cell phone. Studies have shown that cell phone only and mostly cell phone

individuals skew toward younger adults. Therefore, it is critical to include a reasonably sized cell phone sample to generate accurate estimates for the state of Ohio. To minimize any potential bias by excluding cell phone respondents, 25.6% of the sample was allocated to the cell phone sample. The cell phone sample was an overlapping sample with the landline sample in that we included those residents that had both a landline and a cell phone.

2.10 Households with Children Over-sample

The Ohio Department of Health provided funding to allow the OMAS to over-sample households with children. The over-sample was conducted in both the landline and cell phone samples. The landline and cell phone samples were selected simultaneously with their respective over-samples to ensure there was no overlap between the samples. In other words, a single landline sample and single cell phone sample were drawn to complete both the baseline sample and the child oversample (allowing the baseline sample and oversample to have the same distribution across the state). As such, all numbers within each sample were screened to determine if the household (for landline numbers) or person (for cell phone numbers) had any children. If the called number indicated children in the household, then the interview continued with certainty. However, if the called number indicated that no children were present (i.e., adult only numbers) then a proportion of numbers were screened out of the survey. By screening out some numbers with only adults, the proportion of sampled respondents with children is larger than it would have been under a simple random sample. Based on the past two iterations of the OFHS, we anticipated that 28% of landline numbers would have a child and 33% of cell phone numbers would have a child. This resulted in us using a screening rate of 22.8% for landline numbers and 19.7% for cell phone numbers.

2.11 Starting Sample Size of Telephone Numbers

In order to achieve the desired number of completed interviews, a response ratio factor was applied to the desired number of completed interviews to obtain the starting number of telephone numbers that were purchased from MSG. The ratios varied by stratum type (i.e., landline, cell phone, surname sample). This average ratio was based on previous OFHS experience. However, based on the 2008 OFHS, we recognized that persons across strata did not respond at the same rate. Therefore, based on the response rates from 2008, the ratio used to determine the starting number of selected phone numbers was adjusted to account for the varying response propensities across strata. The adjustment applied to the average rate was the ratio of the average 2008 response rate and the response rate within the stratum in 2008. For the landline RDD samples (i.e., base landline, African-American over-sample, and landline child over-sample) an average response rate of 37:1 was used. For cell phone samples (base cell phone, child over-sample), a ratio of 17:1 was used. For the Asian surname sample a ratio of 88:1 was used. For the Hispanic surname sample a ratio of 27:1 was used. The Asian and Hispanic surname samples used different ratios because the accuracy rate in identifying a person in the correct minority group in the Asian surname list was lower than in the Hispanic surname list. ***Exhibit 3*** shows the amount of sample released by stratum.

Exhibit 3. Sample Released for Calling by Stratum

Stratum	Stratum Description	Total Sample
1	Adams County, Ohio	925
2	Allen County, Ohio	9,257
3	Ashland County, Ohio	3,427
4	Ashtabula County, Ohio	3,862
5	Athens County, Ohio	8,097
6	Auglaize County, Ohio	3,623
7	Belmont County, Ohio	5,874
8	Brown County, Ohio	2,267
9	Butler County, Ohio	15,044
10	Carroll County, Ohio	1,349
11	Champaign County, Ohio	1,575
12	Clark County, Ohio	6,604
13	Clermont County, Ohio	6,846
14	Clinton County, Ohio	2,297
15	Columbiana County, Ohio	12,049
16	Coshocton County, Ohio	3,339
17	Crawford County, Ohio	1,242
18	Cuyahoga County, Ohio - Low Density	40,889
19	Cuyahoga County, Ohio - Medium Density	22,808
20	Cuyahoga County, Ohio - High Density	22,407
21	Darke County, Ohio	4,469
22	Defiance County, Ohio	2,338
23	Delaware County, Ohio	6,716
24	Erie County, Ohio	2,684
25	Fairfield County, Ohio	4,529
26	Fayette County, Ohio	884
27	Franklin County, Ohio - Low Density	31,490
28	Franklin County, Ohio - Medium Density	14,908
29	Franklin County, Ohio - High Density	15,690
30	Fulton County, Ohio	3,409
31	Gallia County, Ohio	2,443
32	Geauga County, Ohio	2,610
33	Greene County, Ohio	9,974
34	Guernsey County, Ohio	4,131
35	Hamilton County, Ohio - Low Density	28,712
36	Hamilton County, Ohio - Medium Density	5,431
37	Hamilton County, Ohio - High Density	18,472
38	Hancock County, Ohio	5,106
39	Hardin County, Ohio	2,483
40	Harrison County, Ohio	1,861
41	Henry County, Ohio	2,588
42	Highland County, Ohio	1,713
43	Hocking County, Ohio	511
44	Holmes County, Ohio	3,232
45	Huron County, Ohio	2,482
46	Jackson County, Ohio	3,935
47	Jefferson County, Ohio	6,812
48	Knox County, Ohio	1,805
49	Lake County, Ohio	8,382
50	Lawrence County, Ohio	5,725
51	Licking County, Ohio	3,861
52	Logan County, Ohio	2,724
53	Lorain County, Ohio	10,805
54	Lucas County, Ohio - Low Density	25,370
55	Lucas County, Ohio - Medium Density	8,899
56	Lucas County, Ohio - High Density	16,006
57	Madison County, Ohio	1,114
58	Mahoning County, Ohio	32,774
59	Marion County, Ohio	1,996
60	Medina County, Ohio	6,917
61	Meigs County, Ohio	1,920
62	Mercer County, Ohio	2,742
63	Miami County, Ohio	6,121
64	Monroe County, Ohio	1,283
65	Montgomery County, Ohio - Low Density	30,355
66	Montgomery County, Ohio - Medium Density	8,976
67	Montgomery County, Ohio - High Density	15,830
68	Morgan County, Ohio	1,104
69	Morrow County, Ohio	2,287
70	Muskingum County, Ohio	6,492
71	Noble County, Ohio	1,914
72	Ottawa County, Ohio	2,653
73	Paulding County, Ohio	1,053
74	Perry County, Ohio	634
75	Pickaway County, Ohio	1,750
76	Pike County, Ohio	921
77	Portage County, Ohio	7,051
78	Preble County, Ohio	3,037
79	Putnam County, Ohio	1,858
80	Richland County, Ohio	5,070
81	Ross County, Ohio	2,703
82	Sandusky County, Ohio	2,919
83	Scioto County, Ohio	2,723
84	Seneca County, Ohio	4,471
85	Shelby County, Ohio	3,791
86	Stark County, Ohio - Low Density	17,146
87	Stark County, Ohio - Medium Density	7,950
88	Stark County, Ohio - High Density	17,796
89	Summit County, Ohio - Low Density	29,387
90	Summit County, Ohio - Medium Density	7,482
91	Summit County, Ohio - High Density	21,049
92	Trumbull County, Ohio	29,082
93	Tuscarawas County, Ohio	4,690
94	Union County, Ohio	2,008
95	Van Wert County, Ohio	1,726
96	Vinton County, Ohio	1,478
97	Warren County, Ohio	8,495
98	Washington County, Ohio	5,242
99	Wayne County, Ohio	7,270
100	Williams County, Ohio	1,652
101	Wood County, Ohio	10,256
102	Wyandot County, Ohio	1,133
103	Cell phone	116,455
104	Asian Surname	15,091
105	Hispanic Surname	10,887

2.12 Creation of Sample Replicates

Once each of the samples was selected, the selected telephone numbers were grouped into replicates containing up to 50 telephone numbers. Replicates were formed at the stratum level. Because the sample size of phone numbers selected in a given stratum was not necessarily in a multiple of 50 some replicates contained fewer than 50 phone numbers. Sets of replicates were released in a manner proportional to the population distribution in the state. ***Exhibit 4*** indicates the dates in which new replicates were released into the field and the amount of telephone numbers associated with the released replicates.

Exhibit 4. Sample Released by Date

Release Date	Total Sample
5/15/2012	17,313
5/18/2012	39,043
5/22/2012	46,037
5/25/2012	102,467
6/6/2012	38,215
6/15/2012	58,240
6/26/2012	58,661
7/5/2012	59,298
7/11/2012	54,074
7/16/2012	38,143
7/20/2012	27,257
7/31/2012	37,891
8/3/2012	31,700
8/6/2012	32,821
8/10/2012	28,204
8/14/2012	239,921
9/10/2012	7,676
9/21/2012	1,244
9/24/2012	7,500
Total	925,705

2.13 Selection of Respondents within a Household

Among the households contacted through a landline, one adult (i.e., person 19 years of age or older) was selected using the modified most recent birthday method. Among those contacted through a cell phone, the owner of the phone (if 19 years of age or older) was selected. Persons contacted on an unexpected phone type (i.e., a landline sample number that is a cell phone or vice versa) were considered ineligible for the study.

Furthermore, in households with children, one child was selected using the most recent birthday method. However, rather than having the child complete a survey, a proxy respondent that was most knowledgeable about the child was identified to complete the survey for the child. Ideally, this adult was the same as the one selected to complete the adult survey, but it was someone different when the randomly selected adult indicated he/she could not accurately respond for the child.

2.14 Number of Respondents

The survey achieved 22,929 total interviews including 17,731 from the landline frame and 5,198 from the cell phone frame. Across the strata the sample achieved its targeted respondent sample size goals obtaining at least 30 interviews in each stratum. Furthermore, in all Medicaid regions except the Northeast, the study met its target goal. (Stark County did not meet its African-American oversample target goal). ***Exhibit 5*** presents the number of completed interviews in each county by phone type.

Exhibit 5. Completed Interviews by County and Telephone Type

County	Land	Cell	Total
Adams County, Ohio	56	20	76
Allen County, Ohio	140	78	218
Ashland County, Ohio	68	32	100
Ashtabula County, Ohio	93	48	141
Athens County, Ohio	186	27	213
Auglaize County, Ohio	69	27	96
Belmont County, Ohio	195	15	210
Brown County, Ohio	61	40	101
Butler County, Ohio	373	246	619
Carroll County, Ohio	49	10	59
Champaign County, Ohio	63	31	94
Clark County, Ohio	212	83	295
Clermont County, Ohio	212	112	324
Clinton County, Ohio	56	23	79
Columbiana County, Ohio	332	66	398
Coshocton County, Ohio	108	14	122
Crawford County, Ohio	40	15	55
Cuyahoga County, Ohio	1582	281	1,863
Darke County, Ohio	134	37	171
Defiance County, Ohio	72	17	89
Delaware County, Ohio	173	74	247
Erie County, Ohio	66	36	102
Fairfield County, Ohio	115	66	181
Fayette County, Ohio	29	10	39
Franklin County, Ohio	1198	579	1,777
Fulton County, Ohio	77	19	96
Gallia County, Ohio	76	15	91
Geauga County, Ohio	86	22	108
Greene County, Ohio	268	86	354
Guernsey County, Ohio	109	23	132
Hamilton County, Ohio	1160	451	1,611
Hancock County, Ohio	87	40	127
Hardin County, Ohio	41	23	64
Harrison County, Ohio	60	4	64
Henry County, Ohio	36	18	54
Highland County, Ohio	46	21	67
Hocking County, Ohio	31	11	42
Holmes County, Ohio	44	20	64
Huron County, Ohio	70	32	102
Jackson County, Ohio	104	17	121
Jefferson County, Ohio	192	13	205
Knox County, Ohio	42	30	72
Lake County, Ohio	204	39	243

(continued)

Exhibit 5. Completed Interviews by County and Telephone Type (continued)

County	Land	Cell	Total
Lawrence County, Ohio	150	16	166
Licking County, Ohio	133	74	207
Logan County, Ohio	42	34	76
Lorain County, Ohio	305	81	386
Lucas County, Ohio	933	185	1,118
Madison County, Ohio	44	26	70
Mahoning County, Ohio	735	104	839
Marion County, Ohio	44	49	93
Medina County, Ohio	142	62	204
Meigs County, Ohio	82	10	92
Mercer County, Ohio	54	23	77
Miami County, Ohio	161	45	206
Monroe County, Ohio	54	9	63
Montgomery County, Ohio	1169	284	1,453
Morgan County, Ohio	52	4	56
Morrow County, Ohio	27	26	53
Muskingum County, Ohio	209	24	233
Noble County, Ohio	48	2	50
Ottawa County, Ohio	62	29	91
Paulding County, Ohio	41	8	49
Perry County, Ohio	31	7	38
Pickaway County, Ohio	49	25	74
Pike County, Ohio	27	6	33
Portage County, Ohio	203	73	276
Preble County, Ohio	69	27	96
Putnam County, Ohio	49	15	64
Richland County, Ohio	130	81	211
Ross County, Ohio	83	29	112
Sandusky County, Ohio	104	32	136
Scioto County, Ohio	67	33	100
Seneca County, Ohio	80	23	103
Shelby County, Ohio	88	28	116
Stark County, Ohio	944	165	1,109
Summit County, Ohio	1163	202	1,365
Trumbull County, Ohio	667	103	770
Tuscarawas County, Ohio	128	42	170
Union County, Ohio	51	41	92
Van Wert County, Ohio	47	23	70
Vinton County, Ohio	42	2	44
Warren County, Ohio	232	106	338
Washington County, Ohio	174	30	204
Wayne County, Ohio	120	55	175
Williams County, Ohio	54	10	64
Wood County, Ohio	193	63	256
Wyandot County, Ohio	34	11	45
Total	17,731	5,198	22,929

3. Questionnaire

3.1 Instrument Content

The 2012 OMAS questionnaire consisted of two main sections, an adult section and a child section. Within each section, there were separate modules focusing on topics such as health insurance coverage, health status, health care utilization, and health care access.

Exhibit 6 is a summary of each questionnaire section:

Exhibit 6. Questionnaire Content by Section

Questionnaire Section	Contents of Section
Introduction and Screener Questions for Main Sample	Interviewers: • Identify themselves and describe the purpose for the call; • Give general information about the survey; • Number of people in the household and the family; • Randomly select a member of the household age 19 or older; • Determine respondents' ability to answer questions about their health insurance coverage; • Offer some initial background information about the study; and • Establish the selected respondents' insurance status.
Currently Insured (Adult)	Questions included a variety of characteristics about the respondent's health insurance, such as: • Type; • Source; • Length of coverage; • Previous coverage; and • Respondents' lack of coverage in the past.
Currently Uninsured (Adult)	Respondents who were currently uninsured were asked about: • The last time they had insurance; • Type and source of their previous health insurance; and • The reasons they were uninsured.
Health Status and Care-Giving (Adult)	Questions focused on respondents': • General physical and mental health; • Current and past health care conditions; • Need for assistance in day-to-day activities, special therapy, and treatment or counseling; and • Use of tobacco products and alcohol.
Utilization and Quality of Adult Health Care Services (Adult)	Section asked respondents: • When they last visited a doctor; • Whey they last saw a dentist; • Number of times spent in a hospital overnight; • How many times they had to go to the emergency room; and • If they were currently pregnant and receiving prenatal care (female respondents 19-44 only)

(continued)

Exhibit 6. Questionnaire Content by Section (continued)

Questionnaire Section	Contents of Section
Access to Care and Unmet Needs (Adult)	Topics covered: • The place respondents usually went for health care; • Whether they had a personal doctor or nurse; • Characteristics of the care received at their usual place of care; • Whether they needed professional help coordinating health care and how often help was received; • Whether they needed to see a specialist within the past 12 months; • Their ability to access dental care; • Whether they experienced difficulty in getting needed prescriptions and other health care due to cost; • Use of prescription pain medications; • Ease of accessing care compared to three years ago; and • Economic stressors related to health care, including ability to pay medical bills.
Food Security and Meal Frequency	Questions focused on food habits • Food availability; and • Family meal habits – frequency in home, in front of a screen; and cooked at home
Employment	Respondents were asked about: • Their job status, and if they were currently employed. • A description of their work place setting; health insurance offered by their employer; the number of hours they worked; and • The number of persons employed at their current place of business.
Demographics and Family (Adult)	Demographic questions in this section included: • Marital status; • Spouse/partner's employment status; • Education; • Race and ethnicity; • Income; • Number of telephone numbers within the household; and • If there was any lack of telephone service within the past 12 months.
Screening Questions for Eligible Child	The first section of the child questionnaire asked adults about: • The selected child's age and gender; • Their relationship to the child; • Their ability to answer questions about the child's health insurance coverage; and • The selected child's current insurance status.
Insurance Coverage (Child)	Adults were asked a variety of questions about their child's health insurance coverage, such as: • Type; • Source; • Period of time the child had been covered; • Previous coverage; and • Any possible lack of coverage in the past.
Currently Uninsured (Child)	Adults of children who were currently uninsured were asked questions about the: • Last time the child had insurance; • Type and source of the previous insurance; and • Reasons the child was uninsured.
Health Status (Child)	Questions in this section focused on the child's: • General and physical health; • Frequency of exercise and screen time; • Use of prescription drugs and health services; • Ability to do age-appropriate activities; and • Need for special therapy, treatment, or counseling.

(continued)

Exhibit 6. Questionnaire Content by Section (continued)

Questionnaire Section	Contents of Section
Utilization and Quality of Health Care Services (Child)	This section asked respondents about the child's: • Doctor and dental visits; and • If they had stayed overnight stays in a hospital and any visits to an emergency room.
Access to Care (Child)	Interviewers asked respondents about: • Where the child usually goes to receive health care; • If the child has a personal doctor or nurse; • Whether the child needed professional help coordinating health care and how often help was received; • Any needs for a specialist within the past 12 months; and, if applicable, • Whether they had a problem seeing a specialist.
Unmet Health Needs (Child)	This section of the survey asked about: • Access to dental care, vision care, and other types of health care for the child; • Whether the child had not had a prescription filled because of the cost; and • The ease of access to medical care for the child compared with three years ago
Demographics (Child)	Demographic items included the child's: • Race/ethnicity; and • The employment status of his or her parents.
Interviewer Assessment	After the respondent was no longer on the phone line, the interviewers rated: • The quality of information obtained in the interview; • Reasons for substandard information, if they indicated that to be the case; and • The language in which the interview was conducted.
Weighting Questions	The following questions were used in the weighting process • How many phone lines do you have? • How many people live in the household • Do you have a cell phone (for landline respondents) or landline phone (for cell phone respondents)? • How many landline numbers/cell phones do you have?

3.2 Survey Development

Researchers from the GRC, The Ohio State University College of Public Health, Ohio health-associated state agencies, and RTI project staff (the Research Team) collaborated on the development of the survey questionnaire. The Research Team initiated the process by taking the survey instruments used in the 2008 and 2010 OFHS iterations and reviewing them with the sponsoring state agencies to assess which items would remain, which would be removed, and what new items would be necessary to meet the current needs of the agencies. These needs were incorporated into sections consisting of health system access and use, health demographics, poverty and economic stressors, health status, and healthcare reform policy issues for adults and children.

After the Research Team had developed a working draft of the adult and child instruments, RTI project staff assisted with finalization of the instrument and preparation for pilot testing. RTI staff examined the instruments for ease of administration and response, wording and response categories for new items, transitions and overall survey flow, skip patterns and item-specific logic, and actual survey length versus the budgeted length restrictions.

RTI received a draft version of the questionnaire from the Research Team in late March, 2012, with the goal of programming, testing and finalizing the survey for a pilot test in early April. RTI's project team:

- Reviewed the initial questionnaire item-by-item to assess question construction, order, and structure;
- Discussed each section of survey instrument and prepared preliminary training materials;
- Contributed items developed by RTI from other surveys to replace occupation-related items that were not deemed adequate based on prior iterations of the OFHS;
- Compiled a comprehensive assessment of recommended revisions to the 2012 OMAS instrument, identifying problems that the project team believed the instrument posed for data collection and posed strategies for resolving those problems;
- Prepared the next version of the questionnaire based on project team suggestions and strategies; and
- Conducted a pilot test to develop a comprehensive assessment of recommended revisions to review with the Research team. A detailed description of the pilot test follows.

3.3 Pilot Test

The primary objective and purpose of the OMAS pilot test was to replicate the conditions for full-scale survey data collection, to determine more accurately the survey length for both the adult and the child versions of the instrument, and to further check the Computer Assisted Telephone Interviewing (CATI) programming, assess questionnaire flow, evaluate respondent understanding, identify potential fielding issues, and a refine our understanding of interviewer training needs.

Interviewing for the pre-test started on Friday, April 13, 2012 and continued through Wednesday, April 18. All of the telephone interviewing occurred at the RTI CATI call center in Raleigh, North Carolina.

Pre-testing was completed using an English-only version of the instrument for landline sample, which had been developed by the Research Team and reviewed by RTI project staff. At the conclusion of interviewing, RTI obtained 103 completed interviews. Pilot test examination included identifying and correcting overt problems such as flow patterns and respondent comprehension, including response distribution, to examining missing data, proportions of "do not know" and "refused", extremely small cell sizes, and question series inconsistencies.

For the pilot test, RTI released 12,130 pieces of sample from across the state, in randomly-assigned replicates of 50. RTI did not pre-screen the sample with the vendor prior to calling, as is sometimes done, relying instead on a predictive dialer to automatically dispose of non-working numbers and for our interviewing staff to code out businesses.

As stated above, one of the goals of the pilot test was to assess the interview length for both adult and child against the budgeted length of 22 minutes for adults, and 5-6 minutes for children. The pilot test results indicated a mean adult interview length of about 22 minutes, but with a range of 14 minutes to 48

minutes. Given the short time in the field and the probability that the actual fielding would probably be more difficult, it was estimated that the adult instrument was probably slightly over budgeted length. For the child, the mean time in addition to the adult section was about 9 minutes, indicating that section was well over the budgeted length.

For a detailed report on the pilot test, please see ***Appendix A: Pilot Test Report***.

3.4 Cuts for Length

To bring the survey within a budgeted average of 22 minutes for adult respondents and 6 minutes per child proxy, questions were cut from both the adult and child instruments, primarily the latter. The guideline for deleted questions consisted of time considerations (long banks of questions), whether an item would show much movement over the two-year period since the 2010 OFHS, and the degree to which a question was of importance to the Ohio Medicaid program or important in terms of examining economic impact, health risk change, and health system stress for Ohioans.

Beyond deletions, the introduction and closing statements were revised to shorten the survey and reduce break-offs. Other minor text changes were made for clarity and flow purposes. Finally, a number of small logic errors were found and corrected.

Final versions of the Adult and Child questionnaires with CATI specifications can be found in ***Appendix E: Final Questionnaires***.

4. Data Collection

4.1 Procedures

RTI used a proprietary Case Management System (CMS) and the Blaise Computer Assisted Telephone Interviewing (CATI) package to program and field the 2012 OMAS. Telephone numbers in the sample were dialed by RTI's i3 telephony system. Together the programs provided call management and replicate controls, multilingual interviewing capabilities, data back-up and monitoring, and incidence tracking. The software automatically controlled skip and fill logic, as well as range checking for numeric data. The programming logic directed the questionnaire's flow and prevented an interviewer from entering data in the wrong field. On any given screen of the questionnaire, the program only accepted a predetermined range or type of response.

4.1.1 Implementation Protocol

The 2012 OMAS closely followed the CDC's BRFSS calling protocols, as prior iterations of the OFHS had. The instrument maintains counters to manage protocol. The 2012 OMAS used a 15 attempt protocol for landline sample, and a 5 attempt protocol for the cell phone sample.

4.1.1.1 Call Scheduling

In line with prior iterations of the survey, to encourage younger and more diverse population participation, RTI scheduled most interviewing session hours for weekday evenings, Saturday days, and Sunday evenings. The target time interviewing period was between 5 p.m. and 9 p.m. respondent time on weekdays, between 10 a.m. and 9 p.m. on Saturday, and between 1 p.m. and 9 p.m. on Sundays. RTI's call center also scheduled shifts between 9 a.m. and 5 p.m. weekdays for up to a maximum of 20% of total session hours, primarily to dispose of business numbers as well as to reach respondents who work or are otherwise unavailable in the evenings.

4.1.1.2 Number of Attempts

Interviewers made up to 15 attempts to reach an eligible household and interview an eligible adult for each telephone number in the landline sample frame. Each call attempt was given a minimum of five rings. The attempts were rotated through weekday day, weekday evening, Saturday day, and Sunday evening shifts to maximize coverage of the residential population.

Persistent "ring no-answers" were attempted a minimum of four times at different times and days of the week. Each number was called a minimum of 15 times over the data collection period. If a respondent was contacted on the last call, and an interview could not be completed, another attempt was made.

Lines that were busy were called back a minimum of five times at 20-minute intervals. If the line was still busy after the fifth attempt, the number was attempted again on different calling occasions until the record was resolved.

Following the cell-phone protocol of earlier iterations of the OFHS, cell phone numbers had a maximum attempt limit of five calls.

4.1.1.3 Callbacks

The CATI system allowed two types of callbacks, depending on whether or not the respondent could offer a specific time and date to be contacted again. A system-scheduled callback was assigned to a record that could not be given a specific date and time, and a scheduled callback was for respondents who indicated a definite appointment for re-contact.

For a definite appointment, the record waited until the designated time to be released. At this time, the system found the next available station and delivered the record as the next call. The call history screen that accompanied each record informed the interviewer that the call was a definite appointment and described the circumstances of the original contact.

RTI's system also accommodated the restarting of interrupted interviews using a definite callback strategy. If a cooperative respondent had to terminate an interview, but wanted to finish at a later time, it was possible to set a definite callback for that exact time and restart the interview where it left off. If the interviewer who began the survey was available at the prescribed time, the system sent the call back to that station.

RTI's CMS system automatically handled callbacks for "no answer," "busy," and "answering machine" outcomes. Repeated no answers were retried at different times of day and days of the week as follows: If a call between 5 p.m. and 6 p.m. resulted in a no answer, the record was put in the queue to be retried between 8 p.m. and 9 p.m. of the same shift. Then, if the number was not retried during the shift, it was automatically cycled to the next shift according to the logic defined for the calling schedule.

Calls resulting in a busy signal were automatically recycled within the same shift according to a preset schedule. As with no answers, if a shift closed before an automatically rescheduled busy was attempted the number was cycled to the next available calling time.

Callbacks to specific respondents were entered into the computer by interviewers and handled automatically by the CMS program. RTI's system accommodated both general and specific callbacks. General callbacks, where respondents requested that we try to reach them at a generally specified time of day ("I usually get home around six o'clock") were sorted and allotted automatically by the system. They were held out of the sample until the appointed hour, when they were sent to a station with an open slot for that call. They had a higher system priority than returning no answer and busy records, but lower priority than specific callbacks.

4.1.2 Household Selection

The 2012 OMAS definition for determining eligible households was based on prior OFHS surveys. This defines an eligible household as any residential housing unit such as an apartment, a house, or a mobile home. Non-eligible households included: dormitories, hospital rooms, nursing homes, group

homes, sororities/fraternities, halfway houses, shelters, prisons or barracks, businesses— or any number that reached a computer or fax line, or pay phone. If the selected respondent did not live in Ohio for at least one month prior to the interview, the household was also considered ineligible.

4.1.3 Respondent Selection

After a household was determined to be eligible, then household members were verified as being eligible; eligibility included all related adults (aged 19 years or older), unrelated adults, roommates, and domestic workers who considered the household their home. Household members did not include adult family members who were living elsewhere at the time of the interview.

Unlike the BRFSS, the 2012 OMAS used the "most recent birthday method" to randomly select a respondent for an interview. Interviewers asked, "Now, I would like to identify the adult currently living in your household, 19 or older, who had the most recent birthday. Who would that be?" Due to the length and complexity of the 2012 OMAS, the "most recent birthday method" was most appropriate in order to effectively select a potential interviewee while minimizing respondent burden. Unfortunately, even when implemented properly by an interviewer, respondent error (either intentional or non-intentional) may affect results. For example, a respondent could potentially confuse the household member with the most recent birthday (to the calling date) with the household member with the next upcoming birthday.

For the cell phone sample, the adult associated with the cell phone was by default the selected respondent.

4.1.4 Proxy Interviews

The 2012 OMAS allowed for the use of proxy interviews in the same manner as the 2010 and 2008 administrations. Proxies were only allowed in instances where the selected respondent has a cognitive or physical impairment. A knowledgeable adult for the proxy was defined as someone 19 or older who was able to answer questions about the selected respondent's health insurance. For interviews that were suspended and resumed, the CATI program prompted interviewers to continue the survey only with the person who started the interview. As mentioned in the previous sections, proxies were not allowed in the cell phone study.

Proxy interviews were conducted for all child interviews in the OMAS. In these interviews, the screener randomly selected the child with the most recent birthday. Then the interviewer asked to speak to the adult most knowledgeable about the selected child's health insurance. For the cell phone sample, the adult associated with the cell phone was asked to answer the child questions, rather than handing the cell phone to another adult.

4.1.5 Refusal Conversion

All interviewers calling on the 2012 OMAS were trained to avoid refusals. When respondents refused to participate, RTI's refusal conversion specialists made at least one more contact, with exceptions for cases where a callback would be clearly inappropriate. Most initial refusals were handled

by staff on an individual basis, with customized procedures for each case. Whenever a respondent refused to be interviewed or terminated an interview in progress, the interviewer recorded information as to why the respondent refused or terminated the interview, and entered this information into the CATI system. This information was reviewed by staff just before calling the telephone number again. During non-response refresher trainings, supervisory staff compiled these cases and reviewed effective strategies for non-response avoidance and conversion.

While a high response rate was important, the role of the interviewers was not to harass respondents into participating in either the selection process or the interview. Interviewers were trained to inform their supervisor about the following situations:

- If the respondent was verbally abusive, or threatened litigation;
- If the respondent requested to be placed on a "do not call" list; or
- If the household refused to transfer the call to the selected respondent and stated that they would never allow the call to be passed to the selected respondent.

These numbers were terminated and coded as final refusals not to be called back.

4.1.6 Spanish Interviewing

RTI conducted the 2012 OMAS in English and Spanish. Of the 22,929 completed records in the final data file, 277 (1.2%) were collected in a specialized CATI effort associating Spanish speaking interviewers with records flagged during the primary collection effort as belonging to non-English speaking households. The procedure for conducting interviews in Spanish was straightforward: when a bilingual interviewer reached a Spanish-speaking respondent, the interviewer explained the survey in Spanish and continued directly into the interview without interruption. When a non-Spanish speaking interviewer contacted a Spanish-speaking household, the record was coded for Spanish interviewing, and the system automatically routed the record to a bilingual interviewer for subsequent attempts.

4.1.7 Methods Used to Increase Response Rates

As has been done for prior iterations of the OFHS, RTI implemented a variety of methods to maximize response rates for the 2012 OMAS:

- The use of a "short" version of the child questionnaire;
- Leaving messages on answering machines and privacy managers;
- Providing verification numbers for RTI and the survey sponsors;
- Employing special refusal conversion efforts;
- Reattempting phone numbers on different days, and at different times of the day, to maximize efforts to each household; and
- Conducting interviews in Spanish as well as English.

Each of these is described in detail below.

4.1.7.1 "Short" Version of Child Questionnaire

Mid-survey terminations were more likely in the child section of the survey due to the length of the survey and the similarity of the child questions to the previously asked adult questions. This had been true in prior iterations of the OFHS and continued to be a problem with the 2012 OMAS. In an effort to boost response rates and avoid mid-terminate surveys, the Research Team agreed to implement a shortened child section during which the fundamental questions for the child were asked before the survey was suspended.

The Research Team defined the fundamental child questions (following the child's name, nickname, or initials) as the child's age and whether or not the child had health insurance. If the selected child did have health insurance, the respondent was asked whether or not the child was covered by Medicaid or another government assistance program. If the child did not have health insurance coverage, the respondent was asked if the child had health insurance at any time in the last 12 months, or inquired when the child last had health care coverage.

Partially completed records were called to the maximum attempts set in the protocol in an attempt to complete the remainder of the child questions. If the remainder of child questions was not obtained and the record had reached 15 attempts, the record was considered a complete.

4.1.7.2 Leaving Messages on Answering Machines

RTI interviewing staff left messages on persistent "answering machine" and "privacy manager" dispositions, informing respondents of the study and scheduling another call attempt for the following day. The message stated that RTI interviewers were calling on behalf of the State of Ohio and that a callback at their convenience would be appreciated. The call center's toll-free telephone number was left on the answering machine. Messages were left on the first and fourth attempts to a household if an answering machine or privacy manager was reached on these attempts. For privacy managers, if a message could not be left, the interviewers were instructed to enter the call center's toll-free telephone number. RTI's call center supervisors were set up to handle incoming respondent calls to complete the interview in response to an answering machine message.

The text of the answering machine message appears below:

> "Hello, my name is _____, and I am calling on behalf of the State of Ohio. We are conducting a survey on health and health care issues. Your participation would help the State of Ohio make better health care policy decisions for its residents. Please call us at (PROJECT TOLL-FREE NUMBER) at your convenience."

4.1.7.3 Survey Verification Lines

RTI's call center dedicated a toll free telephone number to receive respondent calls regarding the legitimacy and validity of the study. RTI staff also made contact information for the Ohio Department of

Health (ODH) available to those respondents who wished to contact the survey sponsors directly. Of the sponsoring agencies, ODH took responsibility for responding to concerns about the survey effort and shared this information with the GRC and RTI.

4.1.7.4 Refusal Conversion Efforts

Refusal conversion for the 2012 OMAS occurred at two points: the initial contact with the household and during any subsequent contacts with the household. Study protocols allowed for the re-attempt of households that had initially refused. The section on Refusal Conversion below has more detailed information on the refusal conversion protocols for the OMAS.

4.1.7.5 Reattempting Numbers

As discussed above in Implementation Protocol, telephone numbers that did not initially produce a completed interview were contacted on different days, and at different times of the day, to maximize efforts to reach each household. The study protocol allowed calling to be done over many weeks to ensure that respondents on vacation and those not at home during common calling hours could be reached.

4.1.7.6 Conducting Interviews in Spanish

The 2012 OMAS was conducted in English and Spanish to maximize response rates and increase the participation of Ohio's Hispanic population. As noted previously, a small percentage (1.2%) was conducted by Spanish speaking interviewers with households which were flagged as non-English speaking by the Case Management System.

4.1.8 Determining a Completed Interview

An interview was considered complete when a selected respondent or knowledgeable proxy answered the:

- Adult portion of the questionnaire for an adult-only household; or
- Adult portion of the questionnaire and the entire child portion in households where there is a child.

For the 2012 OMAS, additional records were also considered completed interviews for the purpose of meeting interviewing targets by region and household demographics if the...

- Adult portion of the questionnaire and the fundamental questions (as identified and agreed to by the Research Team and RTI) in the child portion of the questionnaire were answered. Records of this nature were only considered a complete if the record was brought to protocol while trying to re-contact the respondent to answer the remainder of the questions in the child section of the survey.
- Adult portion of the questionnaire was completed with some or all of the child questionnaire missing. These records were retried through the end of the survey period to attempt to complete the child portion of the survey.

In the 2012 OMAS final dataset, there are two variables indicating the status of the adult and child sections of each case. The variable "partial_flag_a" is coded "1" for complete adult case, and "2"

for a partial adult case. A small number of cases (472 out of 22,929) terminated the adult section before completing it but were substantially done with that section of the interview and were later coded as completes. The variable "partial_flag_c" is coded "1" for a completed child survey, "2" for a partial child survey, "3" for a refusal to complete the child section, and "4" for cases where there were no children in the household.

4.1.9 Interviewer Training

RTI conducted numerous interviewer training sessions for the 2012 OMAS. The first session preceded the pilot test in April, and multiple sessions were held prior to the fielding of the main study in May and throughout the field period. The training was conducted by RTI's call center and project management team at RTI's Raleigh, North Carolina call center training facility. Members of the Research Team participated in the pilot test and initial field period training sessions. RTI's extensive training, combined with study quality control procedures, assured consistent, high quality interviewing throughout data collection.

The quality of data collection depends largely on the performance of the interviewing staff. Interviewers on this study were specifically recruited for health care research and call center experience. RTI developed an intensive two-day training curriculum for the 2012 OMAS, integrating project-specific background discussion with hands-on practice interviewing, review of general and project-specific protocols, and quizzes to reinforce learning.

Interviewers had to complete training and certification prior to beginning "live" calling in production. Training consisted of eight hours split between the two evenings. Topics covered during training focused heavily on the survey's background and structure, study specific protocols and procedures, pronunciation, and answering frequently asked questions. Members of the Research Team attending the training sessions assisted with additional study details and answered interviewer questions.

During training, interviewers participated in two round-robin mock interviews, two paired-practice mocks, and completed individual survey practice. Field certification for the OMAS involved two oral quizzes, successfully attending and participating during training sessions and exercises, and completing a practice interview during their first scheduled shift. Interviewers needed to achieve 100% correct on both oral quizzes to become certified and begin calling.

The 2012 OMAS pilot training agenda included (***Exhibit 7***).

In addition, any attendees who were new hires were required to complete RTI's standard new hire training, which includes our *iLearning* and on-site introductory CATI training systems. Additional information about the training can be found in ***Appendix B: Interviewer Training Manual***.

Exhibit 7. Agenda

Time, Minutes	Topic
Evening 1	
5	Welcome and Introduction
25	Survey Background, Purpose and Structure
10	Respondent Rights and Importance of Confidentiality
20	Frequently Asked Questions
10	**BREAK**
10	Pronunciation Exercise
60	Round-robin mock #1 (Adult Only)
20	Distressed Respondent Protocol/ Sensitivity Training
15	Importance of Refusal Avoidance
60	Paired Practice #1
5	Wrap-up/Homework Guidance

Time, Minutes	Topic
Evening 2	
20	Collaborative FAQ review and protocols review
45	Paired Practice #2
20	Individual FAQ review
10	Elements specific to using the dialer
75	Round-robin #2 (Adult and Child Questionnaire)
15	**BREAK**
20	Certification Quizzes • Oral FAQ Quiz • Oral Pronunciation Quiz
30	Individual Survey Practice

RTI conducted follow-up refresher trainings and distributed project bulletins with frequently asked questions and issues encountered during fielding to all stations. These trainings re-emphasized survey protocol, covered strategies for handling refusals, reviewed the procedures for suspended records, and reviewed particular survey items with which the interviewers had difficulty. The refresher trainings reinforced quality control during data collection to assure reliable, valuable data. Much of the information discussed during refresher trainings was based on feedback from the Research Team, who participated in both live monitoring and the review of recorded interviewing sessions throughout the field period.

4.2 Response Rates

In order to affirm the representation of the target population in a study, researchers look to response rates as indicators of performance. There is no one agreed upon standard response rate formula since each project lends itself to different measures of performance. Several of these performance measures are discussed below.

All response rates will be affected by the procedure of assigning final status dispositions. The results of each call attempt were assigned a disposition according to guidelines published by the American Association for Public Opinion Research. These final dispositions can be summarized as:

Eligible

- Completes and partial interviews (if applicable)
- Refusals and non-contacts (after confirming eligible household)

Ineligible

- Survey Ineligible = No eligible respondents in household
- Non-residential = Not a residential phone number

Unknown

- Unknown Eligible (known HH) = Confirmed household but did not establish survey eligibility
- Unknown HH = Cannot confirm whether the number is residential or not

Each telephone record's history of attempts is analyzed to determine the record's final status. Priority is given to outcomes that gather the most information. (For more information, see ***Exhibit 8*** below.)

Exhibit 8. Distribution of Disposition Codes by AAPOR Response Category and Phone Type

Rank	AAPOR Group	Label	Count		
			Landline	Cell Phone	All Records
1	1.1	Completes (full interviews only)	17,506	4,951	22,457
2	1.2	Partial Complete	225	247	472
3	2.1	Refusals and Break-offs	14,786	2,192	16,978
4	2.2	Non Contact (incl. Answering Machines)	3,050	1,010	4,060
5	2.3	Other	667	106	773
6	4.4	Tech Circumstance (incl. Changed Number, Cellular Phones, Pagers)	850	156	1,006
7	4.5	Non-Residence (incl. Businesses, Dorms)	61,302	3,901	65,203
8	4.7	No Eligible Respondent (incl. No Adults, Not Qualified for Oversample)	98,183	4,902	103,085
9	4.2	Fax/Data Line	16,928	48	16,976
10	4.3	Non-Working, Disconnected Number	447,341	43,717	491,058
11	3.2	Housing Unit, Unknown if Eligible Respondent (Screener Not Completed)	61,856	21,043	82,899
12	3.9	Unknown Eligibility, Other (incl. Language Barrier, Physical Impairment Preventing Interview)	86,116	34,620	120,737

4.2.1 Lower-Bound Response Rate

The lower-bound response rate provides the lowest possible response rate figure. Also known as AAPOR Response Rate #1, it is obtained by dividing the number of completed interviews by the maximum number of potentially qualified households:

$$RR1 = \frac{Completes}{Eligible + Unknown}$$

For this survey, the lower-bound response rate was 9.5% for the landline sample, 7.7% for the cell phone sample, and 9.0% overall.

4.2.2 CASRO and AAPOR Response Rates

Some response rates take into account the ability of the interviewing staff to establish contact with potentially eligible households, and to resolve all numbers that do not ring into potentially eligible households. In cases where resolution is not achieved—that is, telephone numbers cannot be assigned dispositions that definitely reflect eligibility—these response rates generally use an estimate of the rate at which telephone numbers ring into eligible households to classify a fraction of these numbers of unknown disposition as eligible. Compared to the Lower-bound, these response rates increase the response rate calculation by not assuming all unscreened numbers belong to qualifying households. In addition, some "adjusted" response rates assign cases to the denominator where the respondent is eligible but unable to complete the interview due to impairment or language difficulties. One adjusted response rate, defined by Council of American Survey Research Organizations (CASRO) and equivalent to AAPOR's Response Rate #3 calculates the eligible households by taking a proportion of the unresolved numbers and classifying them as eligible.

$$RR3 = \frac{Completes}{Eligible + e_u \times Unknown}, \text{ where } e_u = \left(\frac{Eligible}{Eligible + Ineligible} \right)$$

For this study, this calculation produced an AAPOR 3 response rate of 30.2% for the landline sample, 24.4% for the cell sample, and 29.4% overall.

4.2.3 Upper-Bound /Cooperation Response Rate

The upper-bound response rate provides the most optimistic percentage of generally recognized response rates. The upper-bound, also known as AAPOR's Cooperation Rate #5, is a measure of interviewer performance and does not take into account sample quality (e.g. numbers that ring but are never answered), nor household behavior that prevents contact (e.g. privacy manager technology, screening calls using an answering machine, etc.).

$$CR1 = \frac{Completes}{Eligible}$$

The upper-bound cooperation rate for this study was 51.9% for the landline sample, 66.2% for the cell sample, and 54.0% overall.

4.2.4 All Rates—Presented by State, Region, Stratum, and County

The sampling design includes strata for each county, a cell phone supplement, and African American oversamples in six counties. Response rates for each of these can be found in ***Appendix C: Response Rate & Disposition Tables.***

4.2.5 Coverage Estimates of Sub-populations

The following tables (see ***Exhibits 9-12***, page 27) detail expected and observed (without weighting or imputation) percentages of the population classified by key demographic variables by region

and age group. The unweighted observed sample is compared to population distributions from the American Community Survey (ACS) 5-year averages. An arrow pointing up (↑) indicates that the observed sample percentage is statistically different from the population percentage in the positive direction. An arrow pointing down (↓) indicates that the observed sample percentage is statistically different from the population percentage in the negative direction.

The sample tends to over represent populations with lower incomes, particularly those below the poverty level, and under represent populations with incomes over three times the poverty level. This is consistent with the 2004, 2008 and 2010 survey. The African American oversampling in metro areas was successful in increasing the percentage of African American respondents. The sample is skewed heavily towards female and older age groups. This is typical in contemporary telephone surveys and is consistent with 2008 and 2010.

Exhibit 9. Expected and Observed Ratio of Income to Poverty[a]

	Total Responses	Percent, %							
		Under 1.0		1.0 to 2.0		2.0 to 3.0		Over 3.0	
		Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.
Age Group									
Total	27,897	14.8	22.9↑	17.9	21.1↑	17.5	15.9↓	49.8	40.0↓
0-17	5,068	20.2	25.6↑	20.7	20.5↓	19.2	15.6↓	39.9	38.4↓
18-64	14,818	13.1	23.6↑	15.1	18.1↑	16.9	14.7↓	54.9	43.7↓
65+	8,011	12.2	20.0↑	29.6	27.2↓	16.9	18.4↑	41.3	34.5↓
Region									
Total	28,444	14.8	22.8↑	17.9	21.1↑	17.5	15.8↓	49.8	40.2↓
Appalachian	5,612	17.1	25.1↑	21.8	25.0↑	19.4	16.3↓	41.8	33.7↓
Metropolitan	15,538	16.3	24.6↑	17.6	20.6↑	16.6	14.6↓	49.6	40.2↓
Rural Non-App	3,502	11.7	19.1↑	18.6	20.9↑	19.9	19.4↓	49.8	40.6↓
Suburban	3,792	10.3	15.9↑	14.8	18.0↑	16.8	16.9↑	58.1	49.2↓

[a] The ratio of the reported household income to the Federal poverty level for the reported household size.

Exhibit 10. Expected and Observed Gender

	Total Responses	Percent, %			
		Male		Female	
		Exp.	Obs.	Exp.	Obs.
Region					
Total	28,378	48.8	41.4↓	51.2	58.6↑
Appalachian	5,599	49.5	40.8↓	50.5	59.2↑
Metropolitan	15,507	48.3	40.5↓	51.7	59.5↑
Rural Non-App	3,497	49.5	44.5↓	50.5	55.5↑
Suburban	3,775	49.2	43.6↓	50.8	56.4↑

Exhibit 11. Expected and Observed Race/Ethnicity

	Total Responses	Percent, %							
		Hispanic		White		Black		Other	
		Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.
Region									
Total	27,747	2.9	4.8↑	81.6	75.6↓	12.0	13.9↑	3.5	5.7↑
Appalachian	5,479	1.2	2.4↑	93.9	90.5↓	2.8	2.8↓	2.1	4.4↑
Metropolitan	15,134	3.6	5.6↑	72.5	64.9↓	19.6	23.1↑	4.3	6.4↑
Rural Non-App	3,425	2.8	5.1↑	92.8	87.6↓	1.9	2.7↑	2.5	4.6↑
Suburban	3,709	2.1	4.9↑	91.2	86.3↓	3.7	3.5↓	3.1	5.4↑

Exhibit 12. Expected and Observed Age

	Total Responses	Percent, %							
		0-17[1]		18-34[1]		35-54		55+	
		Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.
Region									
Total	27,897	25.4	18.2↓	22.0	11.1↓	30.4	23.2↓	22.2	47.5↑
Appalachian	5,530	24.9	17.5↓	20.7	10.3↓	30.0	23.1↓	24.4	49.1↑
Metropolitan	15,199	25.1	18.1↓	23.3	11.2↓	30.1	23.0↓	21.5	47.7↑
Rural Non-App	3,444	26.5	18.8↓	20.2	12.1↓	30.6	23.3↓	22.8	45.8↑
Suburban	3,724	26.0	19.0↓	20.4	11.0↓	31.6	24.1↓	21.9	45.9↑

[a] The 2012 OMAS defined a child as a person 18 years old or younger based on Medicaid eligibility criteria. However, the ACS uses 0-17 as an age category. Therefore, to have equal comparisons age categories were recreated based on respondent data to match the ACS.

4.3 Issues with Survey Implementation

The 2012 OMAS was a complex survey effort involving a long survey instrument, complicated sample design, and strict calling protocol. Inevitably, RTI's project team encountered difficulties in survey administration. RTI and the Research Team monitored live interviewing, listened to recordings in a database of all interviews, and looked at weekly disposition reports as well as interim dataset deliveries, to provide feedback to the RTI team on problems encountered in the field. In addition to the usual problems found while monitoring live interviewing, such as following protocol, adhering to the script, etc., below are examples of more significant problems encountered.

- The Asian and Hispanic surname samples provided a significant challenge. First, in order to determine eligibility, the race and ethnicity questions were moved to the front section of the questionnaire. However, this ran the risk of respondents catching on to a way to screen out of the survey; therefore placement of the questions was critical. The pilot test had these questions very early in the screening process, which did not work well as a high percentage of households screened out. For the main fielding of the study, these questions were placed after respondent selection, as had been the case in the 2008 and 2010 iterations. Yet, eligibility remained very low compared to those waves, with only about 20% of households contacted in the Asian sample and 60% of households in the Hispanic sample qualifying based on race. This lowered the productivity of these samples significantly as compared with earlier waves. RTI staffed the Hispanic surname study with bilingual interviewers to maximize response, and re-trained interviewers calling on both samples in the front-end screening procedures, but

in the end the performance of the Asian surname sample with respect to eligibility rate was very poor.

- Implementing the child oversample was done by combining the "main" landline and cell samples with the landline and cell oversamples of households with children, and adjusting the rate at which households without children were accepted into the study. The initial estimate for this "walkaway rate" was based on approximately 30% of households qualifying based on the results of the 2010 OFHS. However, the eligibility rate was much lower in 2012 for the landline sample, whereas the cell sample was close to the 2010 estimate. During data collection, we observed that that proportion of landline numbers with children was significantly less than previous OFHS studies. To account for this, the screening rate was altered to screen out more adult only numbers in the landline sample. The likely cause of this discrepancy is the continuing shift of younger adults and families with children away from reliance on a landline phones to cell phones. In the end, RTI had to reduce the expected number of interviews with households with children due to the large discrepancy between expected and actual incidence.

To account for this subsampling of adult only numbers, the weights for adult only numbers that were included in the respondent sample were adjusted to ensure proper inference to the full target population. This was done by dividing the weights of adult numbers included in the sample, by one minus the screen out rate. The screen out rate was the average screen out rate used across all replicates within a particular phone type (i.e., the weighted average of all screen out rates used, by phone type, during the course of data collection).

- Many respondents, on asking for and receiving explanations as to the purpose of the study on our toll-free number, objected that they were not eligible as they were not enrolled in a Medicaid program. In order to overcome these concerns, references to the Ohio Medicaid Assessment Study were replaced with references to the "Ohio Family Health Study".
- For the 2012 OMAS, the African-American oversample included seven counties. As discussed in the Sampling section above, telephone numbers ringing into these seven metropolitan regions were divided into high-, medium-, and low-density strata, density being the relative proportion of African-American households in the exchange. RTI over-sampled the high and medium density strata to achieve the target number of African-American interviews, but there were challenges. First, the target number of interviews was very high relative to the overall sample size, as compared with earlier iterations of the survey. This made the over-sampling even more difficult to achieve. Second, the incidence of self-reported African-American adults was lower than estimated based on Census data, requiring additional sample to be released in these areas to meet targets. This is another case where the migration to cell phones may be a factor: it is possible that African-American households are moving to cell-only status at higher rates, at least in some metropolitan counties. Since the over-sample was based on landline sample only, this would make the targets more difficult to achieve.

4.4 Interviewer Debriefing and Retraining

During the OMAS data collection period there were two types of primary interviewer re-training: 1) general follow-up training approximately one week after an interviewer had completed general training and, 2) ongoing, individual training based upon observations from monitoring sessions (both live and recorded). There were also regular quality circle meetings to provide interviewers with updates on

progress, provide information on any instrument changes, give/receive any feedback, and cover any administrative items.

The main points of focus during the general re-trainings were proper coding of case disposition, questionnaire administration, refusal aversion/conversion, and clarifying any issues which the telephone interviewers encountered in their first week of production (Question & Answer format) and needed additional clarification or guidance. During individual trainings with monitors or supervisors, telephone interviewers were provided specific instances and examples of where improvement could be made. These sessions were inclusive both of on-site monitoring as well as monitoring conducted by the client team. Overarching observations from both sets of monitoring were nearly the same and improvement was observed over time. Some comments included:

- Issues with pronouncing numbers like a "northern" and the word ask;
- Lack of familiarity with the questionnaire - "stumbling and sounding choppy";
- Reading answer choices and/or interviewer notes when not necessary;
- Not consistently emphasizing highlighted words;
- Reading too slow, or too fast;
- Over probing or insufficient probing;
- Interviewers being chatty and overly casual;
- Good and appropriate handling of difficult respondents by addressing concerns, explaining the survey and maintaining professionalism;
- Being accommodating with elder respondents; adjusting tone of voice, pace and being patient;
- Enunciating and reading clearly;
- Good use of neutral probing and interviewer prompts;
- Engaging respondents to participate; and
- Enthusiastic and pleasant tone of voice.

In addition, the verbatim coding process, which was an ongoing process conducted by RTI and the Research Team during the field period, revealed the need to integrate verbatim questions into the retraining procedures.

When observations from monitoring were felt to be a trend as much as isolated occurrences, this feedback was provided to interviewing staff during quality circle meetings to make sure there was no widespread misunderstanding. Feedback from interviewers during these meetings was mostly related to handling specific questions as well as getting clarification of standard interviewing techniques. Most interviewers expressed enjoyment with the work and being part of a research team. The only consistent negative feedback from interviewers was frustration with restrictive schedules/hours availability due to an entirely East Coast sample and client request to limit dialing time prior to 6pm. The desire for greater hours was the project's greatest cause of attrition as staff looked elsewhere for longer work periods.

4.5 Changes to CATI During the Field Period

Some changes to the 2012 OMAS CATI program were necessary after the start of the field period. These changes were made when the Research Team and RTI determined that the program was not adequately accounting for situations that presented the interviewer or the respondent with difficulty asking and answering questions or navigating the instrument. Most of these changes were minor or informational, and did not affect the structure of the CATI dataset. The following is a summary of changes made during fielding:

- The screening question S11_rev was created based on S11 to allow a tenth category for "lives alone" (this led to a data model change);
- The screening question INT1 was modified to remind interviewers that an adult proxy respondent was only acceptable when the selected respondent suffered a physical impairment that prevented him or her from completing the interview;
- The response categories for Pi90 were modified to assist the interviewer when the selected respondent did not want to provide the selected child's name; and
- The question G71 was revised such that the statement "Include any job from which //you were/PERSON FROM S1 was// temporarily absent" was removed from the question and placed as an "if necessary" prompt for the interviewers.

4.6 Recommendations Changes to Survey Design and Implementation

In addition to issues discussed in other sections of this report, RTI recommends the Research Team consider the following changes for future implementations of the OMAS:

- Survey development period placed severe constraints on the start-up period, and multiple revisions to the instruments after delivery to RTI greatly increased programming time and the ability to turn around testing quickly; RTI recommends that the Research Team have a final instrument to deliver to the contractor for revisions, programming and testing.
- The survey is too long, especially for households with children, increasing nonresponse; RTI recommends that the Research Team limit the number of topics covered in the survey to bring the total survey length for an adult and child interview to less than 30 minutes.
- RTI's experience reaching younger households, minority households, and households with children via the cell phone frame suggests that the Research Team should allocate a greater proportion of the sample to the cell phone frame in future iterations; while cell phone interviews are still much more expensive than landline interviews, the demographics of landline respondents lead to large design effects thus reducing the effective sample size. This issue is being explored further by RTI and the Research Team staff based on the data from the 2012 OMAS.
- That said, RTI also found that the demographics of populations transitioning to cell phone only status make it much more difficult to target racial and ethnic groups within particular geographic areas; this was the case with the African American oversample. As this is a very recent issue and needs to be explored further, RTI does not have a specific recommendation for addressing this issue at this time.

5. Data Processing and Analysis

5.1 Dataset

RTI collected the OMAS data in a proprietary Case Management System (CMS) and the Blaise survey software program. CMS and Blaise stored telephone disposition data, sample data, response data, and data created by the survey program into a database. Our i3 telephone system – the 'dialer' – also stored data related to telephone numbers, call attempts, and dispositions. All data were tied together through a master ID variable. The final dataset delivered to the Research Team was created in the SAS statistical program. The final dataset contains sample information and survey responses, but does not include the telephone number to preserve respondent confidentiality.

5.2 Data Processing

5.2.1 Cleaning the Data

5.2.1.1 Inconsistent Responses

Some inconsistencies in the data could not be rectified with the CATI program during the interview. The following describes these inconsistencies, along with the corrective action steps taken for each.

- **Inconsistencies due to incorrect open-end recoding:** There were a few occurrences where the open-ended response did not match the question (i.e., Why was it a problem seeing a specialist—"It was not a problem to see a specialist." The initial question asking whether it was a problem should have been answered, "Not a problem.") These were resolved and fixed in the open-end recoding programs.
- **Inconsistencies due to respondents providing contradictory responses:** In certain cases, consistency between data points was not forced during the interviewing process because issues regarding respondent burden would jeopardize the completion of the interview. For example, if a respondent stated that there were more adults in the family than in the household, the CATI script was programmed to verify this information. If the respondent stated that their response was correct, the inconsistency remained. These inconsistencies remained in the final dataset.
- **Inconsistencies introduced during post-processing:** Occasionally, respondents provided contradictory responses, and the steps to correct the inconsistency yielded further complications. For example, if a respondent mentioned that he or she was insured through a current job, he or she was automatically coded as being employed. The next question asked the same respondent to indicate place or employment. Some respondents answered that they did not work or that they had lost their job. This inconsistency remained.

5.2.1.2 Outliers—Out-of-range Responses

The CATI program developed for the 2012 OMAS was designed to minimize inconsistent responses throughout the questionnaire, and range checks were set to appropriate limits on responses. For example, if a question asked "How many days in the last 30 did you drink alcohol?" the answer should fall between zero and 30. All range checks were "hard" in the sense that the computer would not allow an out-of-range response to be entered. Consistency checks verify that responses matched one another across questions. For instance, a respondent said that there were more adults in his or her central family unit than

lived in the household; a consistency check prompted the interviewer to reconcile the responses between the two questions.

5.2.1.3 Missing Values

After working with the Research Team to identify candidate variables for imputation at the household and individual levels, RTI conducted data imputation—rather than accept high levels of non-response resulting from "don't know" or "refused" responses, or from questions not asked. The section on Imputation below contains additional information on the OMAS imputation procedures.

Both "don't know" and "refused" were consistently coded throughout the questionnaire as 98 and 99, or 998 and 999.

5.2.2 Coding Open-ended Responses

The 2012 OMAS used the coding manuals from the 2008 and 2010 OFHS iterations as a starting point for the development of a coding process. From these coding guides, additional codes were added as needed to allow for comparability with prior years while still giving added flexibility to the coders. All open-ended responses from the data were then output into files which were subsequently imported into customized Excel program for verbatim coding. Several coders worked under a supervisor who checked their work for consistency. Coding results were shared with the Research Team on a regular basis, with the delivery of interim datasets during fielding, for review and approval or suggestions for changes in coding procedures.

Final coded verbatim data were merged back onto the SAS dataset for delivery to the Research Team. Data variables containing recoded verbatims have the appendage "_rec" on the variable name in the final dataset.

5.2.3 Recoded, Derived, and Auto-coded Variables

In the 2012 OMAS several variables were created to make analysis of the data easier. These variables come in one of three forms:

- Recoded variable;
- Derived variable; and
- Auto coded variable.

5.2.3.1 Recoded Variable

Recoded variables are variables that exact replicates of a survey item only renamed to something that is more intuitive to the user. These variables were created for the items of analytic importance that can be directly linked to only one survey question.

5.2.3.2 Derived Variable

Derived variables are variables that are created from two or more survey items. These items often involve the skip logic in the survey to ensure that the levels of the derived variable are properly

categorized. Furthermore, certain characteristics can be ascertained from several questions in the survey (e.g., does the person have insurance). Derived variables look at all of these items when categorizing an individual to have a particular characteristic.

5.2.3.3 Auto Coded Variables

Auto coded variables are variables created by the CATI program during the interview based on respondent answered questions. These variables are created during the interview process so that they can be utilized during the interview.

5.2.4 Quality Review

RTI conducted extensive tests of the integrity of the final data. RTI programmers developed SAS scripts that tested the integrity of all survey responses against the CATI logic, as well as against the recoded, derived and auto-coded variables. These scripts attempted to flag cases that were in violation of any logic rules. Inconsistencies were logged in an output file and checked by data processing staff to see whether any of the data processing programs needed to be corrected.

In one case, the above scripts yielded a problem with the original CATI logic concerning variables that determined the creation of variable "prior_c" in the child data. This derived variable was meant to capture previous insurance coverage, but due to incorrect skip pattern instructions in the final specifications, it did not capture all relevant cases and was therefore dropped from the final dataset.

5.2.5 Data Formatting

The final SAS dataset has an associated SAS format library. This library contains variable labels to assist the end user in understanding the source and content of the variable. The SAS format library was set into 32 bit and 64 bit versions to accommodate SAS versions.

5.3 Weighting

For the 2012 OMAS, RTI incorporated four major steps in the process to create the survey weights to ensure proper inference to the target population. These broad steps are:

- Nonresponse adjustment;
- Dual-frame adjustment;
- Post-stratification; and
- Weight trimming.

This section describes these steps in detail.

5.3.1 Nonresponse Adjustment

The first step in the weighting adjustment process was to adjust the design-based weights for nonresponse and other survey design factors (i.e., child oversample, number of people in the household, number of telephone lines, number of time phone number sampled). In order to account for each of these

adjustments the nonresponse step was broken into 4 sequential parts. Each of these parts was conducted separately for adult respondents (including those with a child) and the child interviews. These parts were implemented as described below.

- Nonresponse adjustment (wt1): Within sampling stratum (county for landline numbers and state for cell phone and Asian and Hispanic surname samples) the design-based weights of respondents were adjusted to account for the weight of the eligible non-responding phone numbers.
- Child oversample adjustment (wt2): Among households without children, wt1 was divided by the ratio of responding adults without children and the sum of responding households without children and households without children that were subsampled out of the survey. Respondents with children were not adjusted (i.e., wt2=wt1).
- Multiple selection adjustment (wt3): OMAS 2012 required multiple samples selections from MSG (4 in all). This was necessary because the number of non-working residential numbers was higher than expected resulting in needing more starting telephone numbers than initially expected. In order to avoid needing to calculate conditional probabilities of selection, each sample was drawn from all numbers in the stratum including those numbers selected in prior samples. Therefore, it was possible for a number to be selected more than once. However, a number was only fielded one time during data collection To account for this, wt2 was multiplied by the number of times a phone number was selected (i.e., wt3=wt2*k_i where k_i=1, 2, 3, or 4 is the number of times phone number *i* was selected in order to account for the number of times it was selected).
- Multiple phone number adjustment (wt4): Respondent weights were divided by the number of phone numbers (of the phone type – landline or cell phone - being responded on) reported by the respondent (i.e., wt4=wt3/n_j where n_j=1, 2,…,k* is the number of phone numbers person j has capped at 3 for landline respondents and 2 for cell phone respondents.
- Number of people in household adjustment (wt5): To account for the sub-selection of a respondent within a household for landline respondents, the weight is multiplied by the reported number of people in the household (capped at 4) (i.e., wt5=wt4*n_h) where n_h=1, 2, 3, 4 is the number of adults in the household (a similar adjustment was made for the child weight using the number of children in the household). No adjustment was made for cell phone respondents (i.e., wt5=wt4).

5.3.2 Dual-frame Adjustment

In order to minimize potential respondent bias, the 2012 OMAS incorporated a dual-frame design that utilized both landline and cell phone numbers. In order to maximize the likelihood of reaching a potential respondent, the OMAS design allowed for respondents to be selected from either their landline or cell phone number (if they had both). However, the weight for these dual-frame respondents needs to be adjusted to account for the fact that they could have been selected from either frame. In order to identify the dual-frame respondents, the 2012 OMAS asks each respondent if they have a cell phone (if responding on a landline) or cell phone (if responding on a cell phone).

The 2012 OMAS used single-frame estimation (SFE) to adjust the weights of these dual-frame users. SFE treats dual-frame users as if they were selected from a single combined cell phone and landline frame. To achieve this goal, the joint probabilities of selection are calculated for each dual-frame user.

Under an SFE approach, the weights for single frame users equals its non-response adjusted weight (i.e., an adjustment factor of one was applied). Mathematically, the SFE weights can be written as

$$wt_{SFE} = \begin{cases} wt5 & \text{for landline only numbers} \\ \dfrac{1}{1/wt5_{LL} + 1/wt5_{Cell}} & \text{for dual frame users} \\ wt5 & \text{for cell phone only users} \end{cases}$$

Prior to deciding to use the single-frame estimation, several other dual-frame adjustment approaches were considered and compared to each other. These approaches included a 50/50 composite approach, a composite approach with lambda (the proportion of the dual-frame users weight assigned to the landline dual-frame respondents) optimized to minimize the unequal weighting effect, and a composite approach with lambda optimized to minimize the design effect for past year's income. After comparing the standard errors for key estimates resulting from each of these approaches, it was determined that the SFE approach produced the smallest standard errors. Based on this analysis, the SFE approach was deemed the most appropriate for the 2012 OMAS.

5.3.3 Post-stratification

After the dual-frame adjustment, the respondent weights were post-stratified to known control totals. This step ensures that weights of the respondents accurately reflect the distribution of the target population. In other words, this step corrects for the fact that the distribution of the respondent sample may not be the same as the distribution of the target population. In order to do this adjustment, RTI utilized the generalized exponential model (GEM; Folsom & Singh, 2002) which is a raking procedure which simultaneously controls the marginal totals. Separate models were fit for the adult respondents and the child interviews. The 2012 OMAS controlled for the following characteristics for the adult respondents:

- Age (6 levels)
- Race (5 levels)
- Gender (2 levels)
- Phone type (3 levels)
- Medicaid (2 levels)
- County type (4 levels)
- Education (4 levels)

Exhibit 13 displays the control totals used for the adult population totals (population frequency), the marginal adjustment made at each characteristic level and the minimum and maximum weight adjustment.

The child weights were post-stratified to the following characteristics:

- Age (4 levels)
- Race (5 levels)
- Gender (2 levels)
- Phone type (3 levels)
- Medicaid (2 levels)
- County type (4 levels)

Exhibit 13. Adult Sample Weighting Adjustments

Adult Variable	Marginal Weight Adjustment	Minimum Adjustment		Population	
		Factor	Factor	Frequency	Percent
Intercept	3.3022	0.0285	19.6938		
AGE					
01-19-24	4.8274	0.0868	15.4174	931,258	10.78
02-25-34	5.0092	0.0667	19.6938	1,409,959	16.32
03-35-44	4.4784	0.0656	14.176	1,479,831	17.13
04-45-54	3.6127	0.0487	11.6306	1,742,191	20.17
05-55-64	2.5547	0.0336	7.2721	1,452,266	16.81
06-65+	2.1339	0.0285	6.2495	1,622,015	18.78
RACE					
01-WHITE	3.5766	0.4951	17.8306	7,202,213	83.38
02-BLACK/AFRICAN AMERICAN	2.9558	0.4373	12.7396	987,344	11.43
03-HISPANIC	2.564	0.3045	8.8701	212,186	2.46
04-ASIAN	4.7176	0.6657	19.6938	210,763	2.44
05-OTHER	0.1781	0.0285	0.8374	25,014	0.29
GENDER					
1=MALE	3.7326	0.0285	19.6938	4,150,314	48.05
2=FEMALE	2.984	0.0289	14.6484	4,487,206	51.95
PHONE TYPE					
1-Cell	3.0969	0.0517	11.22	2,260,957	26.18
2-Dual	4.2392	0.063	19.6938	5,572,842	64.52
3-Land Line	1.4077	0.0285	6.6176	803,721	9.30
MEDICAID STATUS					
01-MEDICAID	2.9653	0.0285	14.4915	1,087,250	12.59
02-NOT MEDICAID	3.432	0.0289	19.6938	7,550,270	87.41
REGION					
1-Appalachian	2.9788	0.0285	14.4241	1,358,955	15.73
2-Metropolitan	3.3791	0.0289	19.6938	4,721,175	54.66
3-Rural Non-Appalachian	3.0564	0.0289	14.5009	1,136,620	13.16
4-Suburban	3.6395	0.0354	17.7348	1,420,770	16.45
Education					
01-UP TO HIGH SCHOOL BUT NO DIPLOMA	3.8051	0.0592	19.6938	1,071,635	12.41
02-HIGH SCHOOL GRADUATE OR EQUIVALENT	3.2143	0.044	12.5762	2,999,431	34.73
03-SOME COLLEGE	3.8947	0.0498	13.4731	2,588,763	29.97
04-COLLEGE OR MORE	2.6865	0.0285	7.7836	1,977,691	22.89

Exhibit 14 displays the control totals used for the child population totals (population frequency), the marginal adjustment made at each characteristic level and the minimum and maximum weight adjustment.

Exhibit 14. Child Sample Weighting Adjustments

Child Variable	Marginal Weight Adjustment	Minimum Adjustment		Population	
		Factor	Factor	Frequency	Percent
Intercept	5.502	0.3586	19.3419		
AGE					
01-< 1	5.3555	0.4597	13.7886	139,042	4.80
02-1-5	5.66	0.4258	19.3419	727,954	25.11
03-6-12	5.855	0.3586	16.6666	1,066,326	36.78
04-13-18	5.0771	0.3653	14.4759	965,662	33.31
RACE					
01-WHITE	5.8279	2.2808	12.8179	2,157,050	74.41
02-BLACK/AFRICAN AMERICAN	5.3108	2.193	10.5079	448,837	15.48
03-HISPANIC	3.4228	1.2458	7.0014	142,488	4.92
04-ASIAN	10.3529	4.0367	19.3419	136,159	4.70
05-OTHER	0.8267	0.3586	1.5989	14,450	0.50
GENDER					
1=MALE	5.3656	0.3813	18.456	1,481,842	51.12
2=FEMALE	5.6521	0.3586	19.3419	1,417,142	48.88
PHONE TYPE					
1-Cell	3.3726	0.3586	7.7195	758,839	26.18
2-Dual	7.3315	0.6808	19.3419	1,870,395	64.52
3-Land Line	5.7661	0.6531	13.7886	269,750	9.30
MEDICAID STATUS					
01-MEDICAID	6.1822	0.5112	19.3419	1,196,475	41.27
02-NOT MEDICAID	4.6024	0.3586	13.5577	1,702,509	58.73
REGION					
1-Appalachian	5.0183	0.3586	10.4611	444,262	15.32
2-Metropolitan	5.4838	0.3653	17.6824	1,558,185	53.75
3-Rural Non-Appalachian	5.5389	0.4138	17.3949	405,284	13.98
4-Suburban	6.0607	0.3813	19.3419	491,253	16.95

5.3.4 Weight Trimming

The final step in the weighting process was to trim the extreme weights. This step is conducted to ensure that no one respondent has too much influence on the estimates. For the 2012 OMAS we trimmed the largest 5% of weights. In doing so, we identified weights larger the weight value at the 95th percentile. Weights larger than this value were capped at the 95th percentile. The trimmed weight was redistributed to weights below the 95th percentile such that their weights were kept in the weighting class from which they came. In other words, we ensured that the marginal control totals created in the post-stratification step were maintained. The trimming step was conducted using the GEM.

5.4 Imputation

Key survey variables for which a respondent did not provide an answer were imputed to allow for a complete data file during analysis. These variables were identified for one of two reasons: 1) their necessity in the weighting process, and 2) the need to be part of a complete data file to ensure that records with a missing value in one of these variables could still be included in analyses using these variables. Such variables are identified in the final dataset with the appendage "_imp" on the variable name. Variables were imputed using one of three approaches:

1. Weighted sequential hot deck using the nonresponse adjustment weight;
2. Random draw from an empirical distribution; or

3. Stochastic regression imputation.

5.4.1 Hot Deck

Hot deck selects a donor within a imputation class with the weighted characteristics most similar to the imputee to determine the value of the imputed variable. Imputation classes varied for each imputed variable. Medicaid region and phone type were used as starting points for the imputation classes. The demographic variables (gender, education, age, and race) were imputed beginning with the characteristic with the least amount of missingness. Hot deck was used for the following variables (variables used for imputation classes in parentheses):

- Gender (region, phone type);
- Education (region, phone type, gender);
- Race/ethnicity (region, phone type, gender, education);
- Age (region, phone type, gender, education, race[2]);
- Insurance status (region, phone type, gender, education, race);
- Medicaid status (region, age, education, insurance status);
- Number of adults in household (region, age, phone type, gender, education, race);
- Number of adults in family (region, phone type, education, number of adults in HH, race);
- Number of children in household (child complete, region, phone type, education, number of adults in household);
- Number of children in family (child complete, number of adults in household, number of children in household);
- Number of phone lines (region, age, phone type) – capped at 3;
- Tenure (region, age, race);
- Child's gender (region);
- Child's race (adult's race);
- Child's age (region, child's gender);
- Child insurance status (region, child race, adult insurance);
- Child Medicaid status (region, race, adult Medicaid, child insurance);
- Last month's family income (stratified by employment status, adult age category, gender, education);
- Adult's health status (region, poverty level, age, race); and
- Child's health status (region, poverty level, child age, child race)

5.4.2 Random Draw from Empirical Distribution

When a respondent refused to give an exact amount for their family's annual income, but did provide a range of their income, their exact income was imputed. In order to do this we randomly selected a value from the empirical distribution of those that provided an exact income value. This was done using the following steps:

[2] Used when a response to S14a was provided. This occurred in 279 of the cases in which age was imputed.

- Assume that for respondents having the same number of people in the household, last year's income has a lognormal distribution with mean and standard deviation equal to those observed in the sample.
- For range respondents (those that provided the number of people in their household, but did not provide a precise dollar amount for last year's income), determine the percentiles from the lognormal distribution estimated in step #1 corresponding to the upper and lower bounds on the provided income range.
- For each range respondent, take a random draw from the lognormal distribution estimated in step #1, under the constraint that the random draw be taken from within the set of values bounded by the percentiles found in step #2.

5.4.3 Stochastic Regression Imputation

When the respondent did not provide the exact family income in the past year nor provided an income range a regression model was used to impute income. SAS's PROC MI with a log transformation was used to implement this model. The model included the following covariates:

- Gender (2 levels);
- Race/ethnicity (5 levels);
- Education (4 levels);
- Age (6 levels);
- Number of people in the family (continuous);
- Tenure (2 levels);
- Employment status in the past week (2 levels);
- Marital status (4 levels); and
- Employer health insurance (2 levels)

5.4.4 Amount of Item-nonresponse

Across all the variables imputed the level of missing data ranged from 0.09% (gender) to 27.62% (last month's income). In general, of the 22 items imputed, all except last month's income had fewer than 10% of responses missing. ***Exhibit 15*** shows the number and percent of missing data for each item imputed.

Exhibit 15. Number and Percent Missing Data for Imputed Variables

Variable	Non-Respondents	Respondents	Pct. Missing
Gender (S15)	21	22,908	0.09
Adult Race (race5_a_rec)	322	22,607	1.40
Education (educ)	461	22,468	2.01
Adult Age (S14)	545	22,384	2.38
Adult insurance (insrd_a)	52	22,877	0.23
Adult Medicaid (medicd_a)	391	22,538	1.71
Number adults in HH (S10)	2	22,927	0.01
Number adults in family (S11)	37	22,892	0.16
Number children in HH (S12)	55	22,874	0.24
Number children in family (S13)	8	22,921	0.03
Number of phone lines	442	22,487	1.93
Own or rent (tenure)	1,298	21,631	5.66
Child gender (p148)	45	5,470	0.82
Child race (race5_c_rec)	383	5,132	7.46
Child age (i90a)	76	5,439	1.38
Child insurance (insrd_c)	55	5,460	1.00
Child Medicaid (medicd_c)	156	5,359	2.83

Adult health status (d30)	167	22,762	0.73
Child health status (l125)	143	5,372	2.59
Last month income (pinq_235)	6,333	16,596	27.62
Family income (h85_value)	7,347	15,582	32.04

6. Data Usage

6.1 Assessment of Data Quality

2012 OMAS data quality can be examined based on a variety of aspects, including the quality of the questionnaire (e.g. the validity and reliability of survey items), the sample design and implementation, response and cooperation rates, and verification interviews. Based upon a review of these aspects, the 2012 OMAS data should provide a statistically accurate description of actual characteristics of the Ohio general population.

The following section provides an individual assessment of data quality based on the aspects listed above.

6.1.1 Questionnaire

The data gathered from the instrument are of high quality—as indicated by the following;

- The questionnaire went through rigorous testing, the 1998, 2004, 2008, and 2010 survey iterations were all used to identify and revise invalid and/or unreliable items;
- Many of the items in the questionnaire were obtained through other questionnaires that are known to have already tested for their validity and reliability;
- Throughout data collection, over 10% of interviews were monitored by QA and project management staff, as well as by the Research Team; any minor problems found were identified and resolved.

Past iterations of the OFHS conducted validations studies, usually on five percent of interviews, to confirm that an interview took place and to confirm respondent answers. RTI proposed not conducting a validation study for several reasons. Telephone numbers can change during fielding, leading to the possibility that a validation call reaches a disconnected number or some other outcome that would incorrectly be considered invalid. Respondents can be inconsistent in their responses to validation questions. Most importantly, validation results are difficult to interpret and use. As noted above, RTI provided the Research Team with access to a database of all recorded interviews, lessening the utility of a validation study. Since a validation study was part of the original scope of work, RTI provided additional survey services to the Research Team in the form of survey translations.

6.1.1.1 Sample Design and Implementation

The original sample design was intended to provide estimates with required levels of precision for regions.

Correcting weights for a clustered sample design does not inherently produce a data file balanced to county populations but is well suited for many analyses across larger groups. Future sample designs must consider the level of data use at the state, region, and county levels in order to determine whether it is appropriate for needs.

For the African-American over-sample, stratifying the frame of telephone exchanges by anticipated African American incidence increased the accuracy of estimates for this sub- population compared to a strictly random digit dial approach, yet added a layer of complexity to the weighting process.

6.1.1.2 Response and Cooperation Rates

As described in detail earlier in the report, response and cooperation rates for the 2012 OMAS were 29.4% and 54.0% respectively. As previously documented, rates such as these are commonly seen in recent large-scale projects and have been accepted for providing statistically reliable results when obtained using proper collection methodologies.

6.1.2 Instructions for Using Weights

For the purposes of design-based (variance) estimation, the data file includes the following design variables:

- WT_A, WT_C, adjusted survey weights for adult-level and child-level estimates and analyses
- STRATUM, a stratum indicator for generating design-based variance estimators.

Sampling variances for the weighted estimates that account for the complex sample design can be computed with statistical software such as SUDAAN, STATA or SAS.

An example SUDAAN statement would necessitate a Nest statement where STRATUM is specified, and a Design statement with a "WR" specification for a with-replacement sampling design (approximation).

An example follows for a health insurance variable (INSRD_A) that is tabulated by region.

```
Proc Descript Data="OMAS.ssd" Filetype=sas Design=WR;
Weight  WT_A;
Nest    STRATUM;
Var     INSRD_A;
Tables  REGION;
Class   REGION;
Title   "OFHS, Percent of adults insured by region";
Print Percent SEPercent;
```

The example SAS code below shows how to compute the weighted percentage of adults insured state-wide.

```
Proc Surveymeans Data= OMAS mean;
Stratum STRATA;
Weight WT_A;
Var INSRD_A:
Class INSRD_A;
Domain REGION;
run;
```

6.1.3 Limitations and Cautions When Using the Data

The 2012 OMAS carries with it the following limitations and cautions regarding use of the data.

- The data was collected via telephone only. A telephone-only approach precluded the ability to:
  - Collect information from consumers of the sampled population without valid telephone numbers.
  - Maximize the number of attempts to reach non-respondents; a mail and telephone survey method increases the number of attempts.
  - Reach respondents in a manner that is most suitable for themselves; for example, respondents with limited speaking abilities may be more likely to conduct the survey via mail because they will not be required to talk to an interviewer.
  - Minimize bias that may result from only one mode of data collection; a study conducted in 1998 with the SF-36 questionnaire found that younger adults were more likely to refuse to participate when the study was administered via mail, while older adults were more likely to refuse telephone interviews.[3]
- Interviews were only conducted with households that could speak English or Spanish well enough to be interviewed. Thus, non-English and non-Spanish speaking households were excluded from the survey. As identified by the final dispositions, less than one-tenth of one percent of households contacted were unable to complete the survey because of a language barrier situation.
- The literature indicates that the use of proxies can introduce bias to the survey results. A number of studies have shown consistent differences between self and proxy reporting.[4] [5] [6] [7] [8] [9] [10] The research has shown that proxies have difficulty measuring another person's behaviors and/or disabilities because they have a different perception of the behavior or disability when it is not their own. The availability of the information also can be an issue when utilizing proxies as they may not have the direct knowledge to accurately respond about another person's behavior or opinions. Proxies were limited to cases where the selected household member had a long term or permanent physical or mental impairment. Of the 22,929 cases in

[3] Perkins JJ, Sanson-Fisher RW. (1998) An examination of self- and telephone-administered modes of administration for the Australian SF-36. *Journal of Clinical Epidemiology,* 51(11); 969-73.

[4] Todorov, A. Cognitive procedures for correcting proxy response biases in surveys. Applied Cognitive Psychology. 17: 215-224 (2003) Published online in Wiley InterScience 28 November 2002 (www.interscience.wiley.com) DOI: 10.1002/acp.850

[5] Ellis, BH, Bannister WM, Cox, JK, Fowler, BM, Shannon, ED, Drachman, D, Adams, RW, Giordano, LA. Utilization of the propensity score method: an exploratory comparison of proxy-completed to self-completed responses in the Medicare Health Outcomes Survey. Health and Quality of Life Outcomes, 2003, 1:47. 2003 Ellis et al;

[6] Bassett SS, Magaziner J, Hebel JR. 1990. Reliability of proxy response on mental health indices for aged, community-dwelling women. Psychology and Aging 5: 127–132

[7] Epstein AM, Hall JA, Tognetti J, Son LH, Conant L. 1989. Using proxies to evaluate quality of life. Medical Care 27(Suppl. 3): 91–98.

[8] Kovar MG, Wright RA. 1973. An experiment with alternate respondent rules in the National Health Interview Survey. Proceedings of the Social Statistics Section, American Statistical Association: Washington, DC; 311–316

[9] Mathiowetz NA, Groves RM. 1985. The effects of respondent rules on health survey reports. American Journal of Public Health 75: 639–644

[10] Mathiowetz NA, Groves RM. 1985. The effects of respondent rules on health survey reports. American Journal of Public Health 75: 639–644

the final data file, 134, or 0.58% were completed by proxy. Unrelated to the adult section, the child section was always by proxy.

- The inability to verify the information collected—and the reliance on self-reported insurance status and health behaviors—is another limitation of the study. While interviewer monitoring and the validation study verified the information as recorded by the interviewers, this survey's protocols did not allow for the verification of respondent's insurance status—by obtaining a copy of their insurance card. Research has shown that differences occur when comparing claims data and medical records to self-reported information provided in a telephone survey.[11]

The above limitations as they relate to the ability to use the 2012 OMAS data, are standard to any RDD telephone survey in that:

- The data can only be generalized to the population surveyed (i.e., the information cannot be generalized to households without telephones).
- Comparisons made to other data sources for Ohio must be done so with the understanding that differences in the data could result from differences in the how the survey was designed and conducted—not necessarily due to actual differences in the population of interest.
- In order to maximize coverage when conducting a telephone study using a dual frame of landline and cell phone numbers is necessary. The 2012 OMAS used an overlapping dual frame design. This design included respondents that could have been captured from either frame. This poses several methodological challenges related to a person with both a landline and cell phone having multiple chances of being selected. As discussed in the section on weighting, the 2012 OMAS utilized a single-frame estimation technique to account for this overlap and ensure proper weights for inference to the target population.

6.2 Survey Dispositions

The following presents the final dispositions for the entire study overall, as well as by region stratum, and county. For details, see ***Exhibits 16 through 19*** below.)

1.1 Interview
1.2 Partial Interview
1.3 Refusals
2.2 Non Contact
2.3 Other
3.2 Unknown Household
3.9 Unknown Other
4.2 Fax/Data Line
4.3 Non-Working, Disconnected Number
4.4 Tech Circumstance (incl. Changed Number, Cellular Phones, Pagers)
4.5 Non-Residence (incl. Businesses, Dorms)
4.7 No Eligible Respondent (incl. No Adults, Not Qualified for Oversample)

[11] Fowles JB, Rosheim, ZK, Fowler, EJ, Craft C, Arrichiello, L. The validity of self-reported diabetes quality of care measures. International Journal for Quality in Health Care 11:407-412 (1999).

Exhibit 16. Overall

Phone Type	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
Landline	17,506	225	14,786	3,050	667	61,856	86,116	16,928	447,341	850	61,302	98,183
Cell	4,951	247	2,192	1,010	106	21,043	34,621	48	43,717	156	3,901	4,902
Overall	22,457	472	16,978	4,060	773	82,899	120,737	16,976	491,058	1,006	65,203	103,085

Exhibit 17. Medicaid Region

Medicaid Region No	Sampling Medicaid Region	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
1	Central	3,267	93	2,225	538	112	12,343	17,893	2,365	68,733	148	8,909	13,449
2	East Central	3,660	59	2,774	667	124	14,279	20,616	2,927	79,476	156	12,935	17,336
3	Northeast	3,013	68	2,473	565	88	14,314	18,402	2,751	75,936	148	11,004	16,898
4	Northeast Central	1,996	40	1,706	401	81	6,450	11,404	1,523	43,093	99	5,824	9,650
5	Northwest	2,828	50	2,155	567	112	9,135	14,916	2,010	70,281	142	8,254	17,471
6	Southeast	1,920	29	1,602	333	67	4,891	8,355	1,095	38,241	64	3,859	5,158
7	Southwest	2,997	72	2,022	526	102	11,869	15,729	2,291	57,970	145	6,685	12,953
8	West Central	2,776	61	2,021	463	87	9,618	13,422	2,014	57,328	104	7,733	10,170

Exhibit 18. County Type Region

Region No	Sampling Region	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
1	Metro	13,898	336	9,826	2,449	478	56,710	78,349	11,047	308,217	614	45,929	62,002
2	Rural Appalachian	3,935	66	3,355	699	151	10,923	18,479	2,458	81,962	156	7,894	15,040
3	Rural Non-Appalachian	2,095	27	1,820	404	66	6,094	10,082	1,484	50,469	105	4,485	14,619
4	Suburban	2,529	43	1,977	508	78	9,172	13,827	1,987	50,410	131	6,895	11,424

Exhibit 19. Sampling Stratum

Stratum	Stratum Description	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
1	Adams County, Ohio	30	1	21	5	2	67	85	15	615	0	32	52
2	Allen County, Ohio	132	2	100	16	6	299	539	87	4,578	4	323	3,171
3	Ashland County, Ohio	65	0	49	12	1	171	264	55	2,338	7	203	262
4	Ashtabula County, Ohio	88	2	93	27	5	234	344	77	2,499	1	144	348
5	Athens County, Ohio	215	0	138	22	11	359	596	129	5,692	7	358	570
6	Auglaize County, Ohio	73	1	82	23	1	166	326	56	2,367	2	160	366
7	Belmont County, Ohio	186	1	134	33	8	527	871	129	3,001	9	499	476
8	Brown County, Ohio	61	0	48	8	2	142	255	41	1,458	1	84	167
9	Butler County, Ohio	354	3	314	68	18	1,363	1,734	385	8,268	25	1,010	1,502
10	Carroll County, Ohio	35	1	26	2	1	48	118	15	965	2	54	82
11	Champaign County, Ohio	56	0	42	9	2	130	174	24	918	0	67	153
12	Clark County, Ohio	201	0	151	40	4	584	833	116	3,570	6	550	549
13	Clermont County, Ohio	195	1	166	21	7	675	876	182	3,549	12	341	821
14	Clinton County, Ohio	53	0	48	4	0	106	182	48	1,555	4	124	173
15	Columbiana County, Ohio	335	4	309	76	12	960	1,662	255	6,643	16	825	952
16	Coshocton County, Ohio	107	1	104	16	2	232	473	74	1,832	3	240	255
17	Crawford County, Ohio	37	0	27	2	0	75	114	17	669	1	73	227
18	Cuyahoga County, Ohio - Low Density	715	7	581	127	22	3,768	4,219	1,044	22,663	36	4,365	3,342
19	Cuyahoga County, Ohio - Medium Density	347	3	234	48	8	1,217	1,567	430	13,246	58	2,242	3,408
20	Cuyahoga County, Ohio - High Density	399	6	315	53	16	1,180	1,683	283	15,604	13	1,296	1,559
21	Darke County, Ohio	97	2	69	22	3	174	357	60	3,305	2	160	218
22	Defiance County, Ohio	69	2	66	8	3	102	223	52	1,081	23	147	562
23	Delaware County, Ohio	130	3	115	27	1	535	659	185	4,013	7	459	582
24	Erie County, Ohio	65	1	44	9	1	185	314	67	1,456	2	214	326
25	Fairfield County, Ohio	115	0	93	17	5	350	575	105	2,539	10	390	330
26	Fayette County, Ohio	25	0	20	2	2	47	86	14	544	1	67	76
27	Franklin County, Ohio - Low Density	556	8	430	80	18	2,364	2,719	771	17,831	34	3,428	3,251
28	Franklin County, Ohio - Medium Density	250	1	167	24	9	934	1,145	466	8,217	13	1,234	2,448
29	Franklin County, Ohio - High Density	318	5	206	35	12	783	1,165	353	10,259	17	1,148	1,389
30	Fulton County, Ohio	61	4	46	9	2	126	276	38	1,484	2	128	1,233
31	Gallia County, Ohio	80	1	56	12	3	228	348	67	1,205	3	200	240
32	Geauga County, Ohio	77	3	65	10	0	275	389	101	686	1	173	830
33	Greene County, Ohio	246	0	197	28	9	912	1,244	228	5,140	25	983	962

(continued)

Exhibit 19. Sampling Stratum (continued)

Stratum	Stratum Description	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
34	Guernsey County, Ohio	107	2	124	18	6	321	527	94	2,255	1	271	405
35	Hamilton County, Ohio - Low Density	723	7	517	115	26	2,756	3,332	717	15,062	32	1,834	3,591
36	Hamilton County, Ohio - Medium Density	68	0	43	14	3	251	228	141	3,381	9	595	698
37	Hamilton County, Ohio - High Density	293	3	162	35	9	876	1,038	429	12,097	21	1,068	2,441
38	Hancock County, Ohio	76	0	84	16	3	295	483	134	2,438	8	490	1,079
39	Hardin County, Ohio	42	1	40	10	4	108	152	37	1,529	1	64	495
40	Harrison County, Ohio	43	2	33	8	1	101	159	30	1,325	3	52	104
41	Henry County, Ohio	30	0	44	6	2	90	152	22	1,295	3	52	892
42	Highland County, Ohio	50	0	34	4	2	106	157	19	1,161	2	63	115
43	Hocking County, Ohio	22	2	18	3	2	39	65	2	299	0	19	40
44	Holmes County, Ohio	41	0	42	7	1	129	178	57	1,920	0	182	675
45	Huron County, Ohio	58	0	37	7	1	102	168	36	1,825	6	115	127
46	Jackson County, Ohio	112	1	91	19	2	227	390	59	2,590	2	131	311
47	Jefferson County, Ohio	191	2	185	31	7	573	849	131	3,708	5	567	563
48	Knox County, Ohio	49	0	41	5	1	76	146	28	659	3	83	714
49	Lake County, Ohio	192	1	190	32	4	868	1,114	214	4,382	10	735	640
50	Lawrence County, Ohio	152	1	133	30	6	385	711	67	3,539	7	209	485
51	Licking County, Ohio	123	2	85	14	3	319	505	96	1,698	7	226	783
52	Logan County, Ohio	39	0	26	4	3	71	174	24	2,191	0	66	126
53	Lorain County, Ohio	257	5	201	38	3	783	1,195	237	3,810	4	632	3,640
54	Lucas County, Ohio - Low Density	576	4	485	104	17	1,990	2,753	564	13,983	22	2,340	2,532
55	Lucas County, Ohio - Medium Density	172	1	97	19	8	511	801	193	5,540	7	925	625
56	Lucas County, Ohio - High Density	161	3	123	25	20	536	733	259	11,443	10	1,551	1,142
57	Madison County, Ohio	31	0	23	7	5	83	115	35	649	3	82	81
58	Mahoning County, Ohio	698	14	664	137	27	2,311	3,807	769	17,922	37	3,232	3,156
59	Marion County, Ohio	37	0	37	7	2	123	159	28	1,234	4	137	228
60	Medina County, Ohio	138	4	152	24	3	594	868	200	3,752	9	559	614
61	Meigs County, Ohio	64	0	56	6	1	137	219	18	1,174	6	58	181
62	Mercer County, Ohio	52	0	52	11	0	123	255	39	1,581	1	121	507
63	Miami County, Ohio	154	0	130	24	6	443	642	117	3,389	13	438	765
64	Monroe County, Ohio	54	0	35	8	2	119	209	30	653	0	64	109
65	Montgomery County, Ohio - Low Density	732	8	572	102	31	2,406	3,096	636	17,182	31	2,706	2,853

(continued)

Exhibit 19. Sampling Stratum (continued)

Stratum	Stratum Description	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
66	Montgomery County, Ohio - Medium Density	70	1	67	5	2	201	291	469	5,925	9	1,165	771
67	Montgomery County, Ohio - High Density	364	9	262	48	14	1,101	1,425	224	9,114	8	869	2,392
68	Morgan County, Ohio	45	1	27	5	1	66	121	13	748	2	20	55
69	Morrow County, Ohio	27	0	28	4	0	75	128	17	1,586	0	35	387
70	Muskingum County, Ohio	217	4	178	35	7	491	819	102	3,533	5	557	544
71	Noble County, Ohio	37	2	40	14	1	92	152	16	1,432	1	46	81
72	Ottawa County, Ohio	52	1	36	8	0	123	207	38	1,883	4	111	190
73	Paulding County, Ohio	38	0	27	4	0	57	141	13	584	1	52	136
74	Perry County, Ohio	24	0	12	0	0	31	77	5	436	0	15	34
75	Pickaway County, Ohio	49	0	43	8	4	117	237	26	1,012	2	94	158
76	Pike County, Ohio	22	1	28	3	1	43	75	10	605	0	26	107
77	Portage County, Ohio	183	2	136	28	5	639	858	168	3,355	8	697	972
78	Preble County, Ohio	65	1	62	7	1	179	295	41	2,089	1	114	182
79	Putnam County, Ohio	49	0	48	7	1	79	242	28	969	0	56	379
80	Richland County, Ohio	128	2	97	24	7	341	493	81	1,560	4	285	2,048
81	Ross County, Ohio	82	0	64	15	1	161	315	36	1,750	7	120	152
82	Sandusky County, Ohio	90	0	51	13	4	212	326	52	1,663	0	229	279
83	Scioto County, Ohio	67	0	59	8	3	166	288	51	1,661	3	145	272
84	Seneca County, Ohio	83	1	79	19	0	233	393	72	3,001	3	216	371
85	Shelby County, Ohio	74	2	98	16	1	218	422	74	2,313	2	200	371
86	Stark County, Ohio - Low Density	431	3	409	70	12	1,542	2,586	392	8,548	24	1,644	1,485
87	Stark County, Ohio - Medium Density	178	1	172	41	11	719	927	188	3,977	10	836	890
88	Stark County, Ohio - High Density	370	5	319	55	13	1,074	1,786	383	10,706	20	1,813	1,252
89	Summit County, Ohio - Low Density	742	4	554	119	19	3,053	4,044	790	13,975	40	2,658	3,389
90	Summit County, Ohio - Medium Density	182	1	131	28	7	729	822	133	4,380	2	755	312
91	Summit County, Ohio - High Density	228	5	164	26	15	814	961	460	14,067	17	2,571	1,721
92	Trumbull County, Ohio	675	12	533	90	32	1,761	3,082	486	15,732	34	1,562	5,083
93	Tuscarawas County, Ohio	126	1	118	26	3	340	581	91	2,711	5	305	383
94	Union County, Ohio	50	0	34	9	2	140	172	44	1,198	2	140	217
95	Van Wert County, Ohio	44	0	39	6	2	85	147	23	819	3	87	471
96	Vinton County, Ohio	28	0	32	9	0	67	129	16	1,085	0	42	70
97	Warren County, Ohio	196	2	193	40	5	938	1,094	267	3,319	11	658	1,772
98	Washington County, Ohio	165	4	131	25	2	405	620	112	2,861	6	483	428

(continued)

Exhibit 19. Sampling Stratum (continued)

Stratum	Stratum Description	1.1	1.2	2.1	2.2	2.3	3.2	3.9	4.2	4.3	4.4	4.5	4.7
99	Wayne County, Ohio	119	0	97	15	5	329	518	89	3,152	7	270	2,669
100	Williams County, Ohio	52	0	36	7	2	76	177	32	951	3	71	245
101	Wood County, Ohio	171	1	129	37	5	521	706	218	6,519	7	640	1,302
102	Wyandot County, Ohio	25	0	23	4	0	50	112	21	679	0	43	176
103	Cell phone	4,945	246	2,182	1,008	105	20,953	34,443	24	43,715	130	3,861	4,843
104	Asian Surname	222	14	726	259	42	4,348	5,992	118	844	7	186	2,332
105	Hispanic Surname	432	20	402	130	31	3,160	2,738	122	1,145	4	138	2,565

Appendix A: Pilot Test Report

(Separate Document on Project DVD/Web Site)

Appendix B: Interviewer Training Manual

(Separate Document on Project DVD/Web Site)

Appendix C: Response Rate and Disposition Tables

Overall, Percent

Sampling Phone	RR1	RR3	RR5	Coop LB	Coop UB
Cell	7.7	24.4	66.2	14.4	68.6
Landline	9.5	30.2	51.9	3.6	53.3
Overall	9.0	29.4	54.5	4.4	56.0

Medicaid Region, Percent

Medicaid Region No	Sampling Medicaid Region	RR1	RR3	RR5	Coop LB	Coop UB
1	Central	8.9	30.2	56.9	4.7	58.7
2	East Central	8.7	29.6	54.7	4.3	56.0
3	Northeast	7.7	28.2	52.7	3.8	54.4
4	Northeast Central	9.0	28.4	51.3	4.4	52.6
5	Northwest	9.5	31.7	54.2	3.8	55.8
6	Southeast	11.1	26.8	52.0	4.6	53.5
7	Southwest	9.0	29.8	56.9	5.0	58.7
8	West Central	9.7	29.5	55.5	4.6	56.9

County Type Region, Percent

Region No	Sampling Region	RR1	RR3	RR5	Coop LB	Coop UB
1	Metro	8.6	29.9	56.0	4.3	57.9
2	Rural Appalachian	10.4	27.4	51.5	4.4	52.7
3	Rural Non-Appalachian	10.2	31.0	51.4	3.9	52.4
4	Suburban	9.0	28.8	53.6	4.8	54.7

Stratum, Percent

Stratum	Stratum Description	RR1	RR3	RR5	Coop LB	Coop UB
1	Adams County, Ohio	14.2	27.1	54.5	4.5	57.7
2	Allen County, Ohio	12.0	44.7	54.8	2.7	55.9
3	Ashland County, Ohio	11.6	32.4	54.6	2.6	55.1
4	Ashtabula County, Ohio	11.1	25.8	46.3	3.3	46.3
5	Athens County, Ohio	16.0	34.9	58.9	3.6	60.4
6	Auglaize County, Ohio	10.8	25.6	42.7	2.9	43.2
7	Belmont County, Ohio	10.6	27.9	55.5	5.6	56.7
8	Brown County, Ohio	11.8	27.1	54.0	3.9	55.5
9	Butler County, Ohio	9.2	26.7	49.9	3.9	51.0
10	Carroll County, Ohio	15.2	31.3	55.6	3.4	55.6
11	Champaign County, Ohio	13.6	29.5	56.6	5.5	58.3
12	Clark County, Ohio	11.1	28.5	54.5	5.1	55.1
13	Clermont County, Ohio	10.0	27.6	52.8	5.0	54.0
14	Clinton County, Ohio	13.5	31.3	51.5	3.2	52.0
15	Columbiana County, Ohio	10.0	24.8	49.2	4.6	50.1
16	Coshocton County, Ohio	11.4	25.6	48.9	5.2	49.5
17	Crawford County, Ohio	14.5	37.6	56.1	5.0	56.1

Stratum	Stratum Description	RR1	RR3	RR5	Coop LB	Coop UB
	Cuyahoga Overall	8.8	32.6	54.3	2.7	56.3
18	Cuyahoga County, Ohio - Low Density	7.6	29.5	53.0	3.0	54.8
19	Cuyahoga County, Ohio - Medium Density	10.1	40.3	57.2	2.5	58.8
20	Cuyahoga County, Ohio - High Density	10.9	31.0	54.4	2.4	56.8
21	Darke County, Ohio	13.4	29.2	55.1	2.8	55.1
22	Defiance County, Ohio	14.6	35.4	47.9	5.6	48.9
23	Delaware County, Ohio	8.8	27.4	49.6	3.0	50.6
24	Erie County, Ohio	10.5	33.8	57.5	4.1	58.6
25	Fairfield County, Ohio	9.9	27.9	52.8	4.2	53.2
26	Fayette County, Ohio	13.7	32.1	53.2	4.2	55.6
	Franklin Overall	10.0	36.0	56.0	2.9	58.2
27	Franklin County, Ohio - Low Density	9.0	33.7	54.1	2.9	55.5
28	Franklin County, Ohio - Medium Density	9.9	39.6	57.7	2.9	60.8
29	Franklin County, Ohio - High Density	12.6	37.1	58.3	2.9	61.2
30	Fulton County, Ohio	11.6	42.8	54.5	3.8	55.5
31	Gallia County, Ohio	11.0	29.3	55.6	5.9	56.3
32	Geauga County, Ohio	9.4	33.7	51.7	9.2	51.7
33	Greene County, Ohio	9.3	29.4	53.5	4.4	54.5
34	Guernsey County, Ohio	9.7	23.6	43.5	4.3	45.1
	Hamilton Overall	10.3	35.0	57.5	3.3	59.3
35	Hamilton County, Ohio - Low Density	9.7	30.4	55.6	4.4	57.1
36	Hamilton County, Ohio - Medium Density	11.2	44.6	58.6	1.9	63.6
37	Hamilton County, Ohio - High Density	12.1	43.3	62.3	2.3	64.5
38	Hancock County, Ohio	7.9	31.3	44.4	2.9	46.1
39	Hardin County, Ohio	11.8	35.7	50.0	2.6	51.9
40	Harrison County, Ohio	12.4	27.5	55.1	3.1	55.8
41	Henry County, Ohio	9.2	31.5	39.0	2.2	39.5
42	Highland County, Ohio	14.1	30.2	58.8	4.0	59.5
43	Hocking County, Ohio	14.6	24.8	50.0	6.4	53.7
44	Holmes County, Ohio	10.3	36.3	47.7	2.0	47.7
45	Huron County, Ohio	15.5	34.7	59.8	3.0	59.8
46	Jackson County, Ohio	13.2	28.1	53.3	4.0	54.1
47	Jefferson County, Ohio	10.4	26.0	48.7	4.7	50.1
48	Knox County, Ohio	15.4	43.1	53.8	6.5	54.4
49	Lake County, Ohio	8.0	24.3	48.9	4.0	49.7
50	Lawrence County, Ohio	10.7	24.8	50.8	4.0	52.4
51	Licking County, Ohio	11.7	34.9	56.9	6.4	58.9
52	Logan County, Ohio	12.3	30.9	58.2	1.7	60.0
53	Lorain County, Ohio	10.3	38.2	53.5	6.0	54.4
	Lucas Overall	9.9	33.1	54.0	2.8	55.7
54	Lucas County, Ohio - Low Density	9.7	30.0	52.0	3.8	53.2
55	Lucas County, Ohio - Medium Density	10.7	37.7	62.5	3.0	64.7
56	Lucas County, Ohio - High Density	10.0	38.2	53.5	1.4	57.1
57	Madison County, Ohio	11.7	29.8	53.4	4.4	55.4
58	Mahoning County, Ohio	9.1	28.3	48.7	3.6	49.8
59	Marion County, Ohio	10.1	29.5	47.4	2.8	50.0
60	Medina County, Ohio	7.7	24.4	46.0	3.4	46.9
61	Meigs County, Ohio	13.2	27.3	53.3	4.9	54.7
62	Mercer County, Ohio	10.5	32.7	49.1	3.1	50.5
63	Miami County, Ohio	11.0	31.3	52.6	4.2	53.5
64	Monroe County, Ohio	12.6	27.0	57.4	7.2	58.7
	Montgomery Overall	10.8	33.8	54.3	3.4	56.0
65	Montgomery County, Ohio - Low Density	10.5	31.1	54.0	3.9	55.2
66	Montgomery County, Ohio - Medium Density	11.0	41.6	49.6	1.2	52.2
67	Montgomery County, Ohio - High Density	11.3	34.5	55.9	3.7	58.5

Stratum	Stratum Description	RR1	RR3	RR5	Coop LB	Coop UB
68	Morgan County, Ohio	16.9	28.0	60.8	5.5	62.5
69	Morrow County, Ohio	10.3	33.0	46.6	1.6	46.6
70	Muskingum County, Ohio	12.4	28.4	51.7	5.5	53.2
71	Noble County, Ohio	10.9	20.3	42.5	2.4	43.5
72	Ottawa County, Ohio	12.2	31.4	55.3	2.6	55.3
73	Paulding County, Ohio	14.2	33.3	58.5	5.9	58.5
74	Perry County, Ohio	16.7	30.3	66.7	5.1	68.6
75	Pickaway County, Ohio	10.7	26.0	51.0	4.4	51.0
76	Pike County, Ohio	12.7	26.5	43.1	3.4	44.9
77	Portage County, Ohio	9.9	32.5	55.3	5.0	55.8
78	Preble County, Ohio	10.7	24.5	49.6	2.9	50.0
79	Putnam County, Ohio	11.5	30.5	48.0	4.6	48.5
80	Richland County, Ohio	11.7	41.0	54.2	7.1	55.9
81	Ross County, Ohio	12.8	26.1	53.2	4.3	53.9
82	Sandusky County, Ohio	12.9	34.8	62.1	5.0	62.5
83	Scioto County, Ohio	11.2	29.4	52.3	3.8	53.6
84	Seneca County, Ohio	10.2	27.4	48.5	2.6	48.8
85	Shelby County, Ohio	8.9	23.0	41.1	3.0	41.8
	Stark Overall	9.1	27.9	50.4	3.9	51.6
86	Stark County, Ohio - Low Density	8.5	25.6	49.9	4.6	50.6
87	Stark County, Ohio - Medium Density	8.7	27.9	48.4	4.1	50.3
88	Stark County, Ohio - High Density	10.2	30.6	52.0	3.2	53.3
	Summit Overall	9.1	32.3	55.2	3.3	56.7
89	Summit County, Ohio - Low Density	8.7	29.3	55.0	4.8	56.2
90	Summit County, Ohio - Medium Density	9.6	27.4	55.5	3.9	57.2
91	Summit County, Ohio - High Density	10.3	41.2	55.6	1.6	58.2
92	Trumbull County, Ohio	10.9	33.7	53.4	4.0	54.3
93	Tuscarawas County, Ohio	10.5	25.7	48.8	4.2	49.4
94	Union County, Ohio	12.3	34.8	57.5	3.9	58.1
95	Van Wert County, Ohio	13.6	38.2	51.8	4.9	52.4
96	Vinton County, Ohio	10.5	21.3	43.8	2.4	46.7
97	Warren County, Ohio	7.9	28.7	47.7	5.3	48.5
98	Washington County, Ohio	12.2	30.2	53.9	5.2	54.8
99	Wayne County, Ohio	11.0	42.9	54.3	3.5	55.6
100	Williams County, Ohio	14.9	36.7	58.4	5.0	58.4
101	Wood County, Ohio	10.9	36.1	54.3	2.5	54.8
102	Wyandot County, Ohio	11.6	32.4	51.0	3.4	52.1
103	Cell phone	7.7	24.4	66.2	14.4	68.6
104	Asian Surname	1.9	5.5	21.6	12.2	23.3
105	Hispanic Surname	6.2	18.4	48.3	21.6	50.9

Appendix D: Data Dictionary

(Separate Document on Project DVD/Web Site)

Appendix E: Final Questionnaires

(Separate Document on Project DVD/Web Site)

Appendix F. Verbatim Coding Guide

(Separate Document on Project DVD/Web Site)