



2014 St. Louis Jewish Community Study Methodology

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ST. LOUIS JEWISH COMMUNITY SURVEY DESIGN AND METHODOLOGY SUMMARY

1.1 Overview

On behalf of the Jewish Federation of St. Louis, Jewish Policy and Action Research (JPAR) conducted the 2014 St. Louis Jewish Community Survey (SLJCS) from April 1, 2014 to June 23, 2014. The goal of the SLJCS was to provide information about the Jewish community for use in planning and action by the organized Jewish community.

The study collected complete survey data from a representative sample of 1,003 households in which at least one adult age 18 or older considered himself or herself Jewish. Interviews were stratified, using a combination of RDD, listed, and distinctive Jewish name (DJN) sample to increase the incidence of households with Jewish members.

This report is organized in four sections. The first section discusses the sample design. The next section describes data collection and fielding. The final two sections address weighting procedures and the response rate to the survey.

The study was designed to capture reliable data for residents of St. Louis City and County and St. Charles County. The SLJCS 2014 sample is representative of this area's Jewish population living in households. Institutionalized people without access to telephone landlines were excluded from the sample.

1.2 Sample Design Objectives

To achieve the sample design parameters stated above, the SLJCS employed a multi-dimensional sample design. Specifically, the design stratified by both telephone type (landline and cell phone) and by areas of high and low Jewish density. The sample design will be fully explicated in the section on sample. This resulted in 12 strata in a 2 x 6 design

TABLE 1: Sample Stratification

Sampling Frame	Telephone Type	List and Density
1	Landline	FSL: Federation Supplied Lists
2	Landline	DJN
3	Landline	RDD High Jewish Density
4	Landline	RDD Low Jewish Density
5	Cell	Federation Supplied List
6	Cell	RDD High Jewish Density
7	Cell	RDD Low Jewish Density

Where:

FSL = Jewish community supplied lists of telephone numbers from multiple sources within the St. Louis Jewish community, including the Jewish Federation (with a high proportion of likely Jewish households).

DJN = “White pages” listed numbers of households with Distinctive Jewish Names, after deduplication of DJNs in Federation-supplied-lists

RDD = randomly generated telephone numbers after deduplication of all telephone numbers in either the FSL or DJN lists.

Cell Phone = randomly generated cell phone numbers after deduplication of all telephone numbers from the FSL list.

1.3 Data Collection

The SLJCS 2014 study executed a high quality dual-frame (landline and cell phone) telephone data collection strategy designed to attain the highest cooperation rate possible.

Further details on data collection are provided later in this report.

1.4 Response Rates

The overall response rate for SLJCS 2014 is a composite of the screener completion rate (i.e., success in introducing the survey to a household and selecting an adult to be interviewed) and the full interview completion rate (i.e., success in getting the selected person to complete the full interview).

The overall SLJCS 2014 response rate was 38.5% percent.

TABLE 2: Survey Topics

Topics	Households	Adults in Household	Child in Household
Residency and mobility	X	X	
Religious identity and parentage		X	X
Respondent demographics, household composition and adult demographics	X	X	
Children under 18: Number, ages, Jewish education/upbringing			X
Jewish information/education, study, ritual behavior, Jewish & Israel attachment	X	X	
Childhood/teen-age experiences of respondent and household		X	
Synagogue membership, religious service attendance, travel to/live in Israel		X	
Media use/Jewish information		X	
Identity within Jewish community		X	
Participation in Jewish programs	X	X	
Connection to the St. Louis Area	X	X	
Health and care for elderly relatives	X	X	
Philanthropy	X	X	
Additional demographics	X	X	

1.5 Weighting the Sample

Survey data are weighted to adjust for differential sampling probabilities, to reduce any biases that may arise because of differences between respondents and non-respondents (i.e., nonresponse bias), and to address gaps in coverage in the survey frame (i.e., coverage bias). Survey weights, when properly applied in surveys can reduce the effect of nonresponse and coverage gaps on the reliability of the survey results (Keeter et al. 2000, Groves 2006). Details are provided in the section regarding weighting.

2. SAMPLING METHODS

2.1 Overview

The 2014 St. Louis Jewish Community Study (SLJCS 2014) utilized a sample design that included Federation and other Jewish organization supplied lists, DJN sample, and landline sample split into landline published, unpublished, and cell phone numbers. We have executed Jewish Community Surveys in 24 other communities, and in six other communities specifically we incorporated cell phones.

The SLJCS 2014 study area included St. Louis City and County and St. Charles County. Overall, any Jewish Community Study starts with one basic number: the number of households (regardless of whether they are Jewish) known to exist in the target geography, as provided by U.S. Census Bureau figures (in this case, the 2012 Claritas figures based on Census data). We then divide the number of households in each stratum as follows:

Strata 1 thru 2—Federation Supplied Lists (FSL): These sampling frames were provided by the Jewish Federation of St. Louis and included names and telephone numbers for 16,838 unique households in the greater St. Louis area. This sample was assumed to yield the highest incidence of Jewish households. Of these households, 3,276 records were quarantined into a separate listed cell phone stratum since they were associated only with cell phone numbers. Of the households including a landline number, 3,034 were randomly selected and called in the course of interviewing. 567 interviews were completed with respondents from the FSL Landline Frame. Of the households including only a cell number, 950 were randomly selected and called in the course of interviewing. One hundred ninety interviews were completed with respondents from the FSL Cell Phone Frame.

Telephone interviewing in the Jewish Community/Federation list frame found that 25% of the landline and roughly 7% of the cellphone records were non-working, resulting in a final household estimate in these strata of 10,174 for landline and 3,053 for cells. These households were subtracted from the 695,343 total households in the St. Louis area, leaving a residual 682,116 households in the remaining strata.

Stratum 3—Distinctive Jewish Surname (DJN) Frame: Through its sister company, Marketing Systems Group (MSG), JPAR obtained a list of all telephone numbers in the greater St. Louis area. In order to avoid duplication, all numbers that were found both in the FSL and DJN strata were removed from the DJN strata. In total we found 4,987 records that were not already in the FSL, and with a non-working adjustment we overall estimated 4,031 households with a DJN not already on Jewish community lists. 1,888 records were released, from which 30 interviews were completed from the DJN sampling frame.

Further subtraction of DJN households resulted in 678,085 non-FSL/DJN households.

Stratum 4—Residual Landline RDD Sample: After subtracting the FSL and DJN sample from the general RDD frame, additional sampling frames were created from all remaining telephone numbers in the Greater St. Louis area. 54,453 numbers were drawn as the sample for these frames after MSG scrubbed 84,043 phone numbers in advance of final sampling as business or non-working numbers. Sample was split into high and low expected Jewish incidence substrata. Ninety three interviews were completed through the high expected Jewish incidence stratum and 21 from the low.

Stratum 5—RDD Cell Phones: In addition, JPAR dialed cell phones to account for the fact that it was estimated that currently approximately 40 percent of households in the greater St. Louis area did not own landline telephones at the time of the study; see the weighting section for details on the estimate of Cell Phone Only (CPO) households. Sample was split into high and low expected Jewish incidence substrata. Thirty one interviews were completed through the high expected Jewish incidence stratum and 71 from the low.

Importantly, there is a difference between the sampling frame and the interviewing frames, such that our ultimate sample frame is CPO households, while in practice we interviewed everyone we encountered on cell phones, whether or not they own a landline telephone. Yet, our universe household counts are CPO –specifically, 39% of the 695,343 St. Louis households, or 271,235 households, are CPO. Since, however, our interviewing frame was not CPO but all cell phone owners, we converted our interviewing frames to match this sampling frame at the end of the study by moving all dual owners (households that own both a landline and cell phone) to either the RDD high or low strata, based on their reported zip code and which of the two strata (high or low) in which that zip code belonged. In this manner, we were able to convert the interviewing strata to the sampling strata. Again, more details of this method can be found in the Weighting Section.

The sampling frame developed for the study is provided below in Table 3:

Table 3: Universe Household Counts

	Strata	HHS
1	FSL Landline	10,174
2	FSL Cell	3,053
3	DJN	4,031
4	Landline RDD	406,850
5	Cell Phone RDD	271,235
TOTAL		695,343

The overall sampling design contained a number of features across several dimensions, including sample stratification, household selection criteria, and within household selection criteria. These are summarized below and then furnished in more detail later in this section.

1) Sample stratification

- Set interview targets per sample frame.
- Set interview targets per stratum.

2) Household-level selection

- Screening households with respondents less than 18 years of age.
 - If the person on the phone is younger than 18, interviewer asks for another household member who is 18 or older (landline frames only).
 - If there is no household member 18 or older, the household is not eligible, and the interview is terminated.
- Screening households to interview only households in which at least one adult considered him or herself to be Jewish.

3) Individual-level selection

- The person answering the phone served to represent the household, given that the majority of questions in the survey were household-level questions.

2.2 Sample Stratification

Strata were developed as detailed earlier in this sampling section. Overall, the reason to stratify is twofold. First, the stratification serves to define the primary clusters utilized for predicting survey non-response. For example, as is the case in most Jewish surveys, the cooperation rate among Jewish FSL households is typically much higher than the cooperation rates of Jewish Unpublished households. By weighting to the number of households in each of these strata, we control for a potential overcount of FSL Jewish households (see Dutwin, Miller and Ben-Porath, 2011). Secondly, the stratification served to cap costs, since any survey of a low-incidence population tends to be quite costly. There is nothing more expensive in telephone research than the need to “hang-up” on a large majority of households willing to conduct a survey (in this case, non-Jewish households). Costs are limited by oversampling interviews in strata of high Jewish incidence (the FSL, where traditionally Jewish household incidence is more than 75%) and undersampling in low incidence strata where Jewish incidence in many communities is less than one percent.

That said, executing an over/undersampling strategy requires careful consideration of potential costs and benefits. The more one disproportionately samples, the more one introduces variance in the weights, and therefore inflates a survey’s margin of error. As such, we had to be conscious to not excessively oversample FSL and DJN strata.

3. DATA COLLECTION

3.1 Questionnaire

The questionnaire was developed by JPAR researchers along with the St. Louis Jewish project team. The core of the questionnaire replicated questions appearing in previous Jewish population surveys conducted by JPAR. In addition, questions were uniquely tailored to address areas of interest to the St. Louis Jewish Federation.

Prior to the field period JPAR programmed the study into CfMC Computer Assisted Telephone Interviewing (CATI) system. Extensive checking of the program was conducted to ascertain that all skip patterns were followed.

3.2 Pre-Test

Pretest interviews are conducted in order to insure that proper wording, question sequencing, and informational objectives are being met. They also provide an opportunity to (1) get feedback from interviewers and supervisors regarding the clarity of the instrument (including issues and concerns raised by respondents) and (2) monitor interviewers and make modifications to interviewer training procedures and materials.

A total of sixteen pretest interviews were conducted on March 31, 2014 using sample from the combined Federation List. The 16 interviews ranged in length from 15.5 minutes to 28.8 minutes. The average length of the interview was 22.4 minutes. Overall, the instrument worked well and respondents appeared to be engaged in the interview; however, a summary of recommended revisions was produced and revisions to the instrument were implemented on the basis of the pretest. As anticipated, analysis of the pretest interviews pointed to the benefit of making adjustments both to interviewer training protocols and the instrument. The final survey screening questions and complete survey interview questions are included at the end of this methodological appendix.

We noticed that a handful of interviewers struggled with a few of the “Jewish”/Hebrew pronunciations. In order to address this issue, we conducted additional training before the study was launched, focused specifically on helping specific interviewers to become more comfortable with these words. On the whole, though, interviewers were experienced with conducting Jewish Community studies and were able to pronounce words correctly without further training.

We identified questions in the survey instrument that either seemed to be confusing to respondents or could benefit from further clarification in the instrument, including those indicated below:

- We suggested asking spouse age using the same format as we used for asking respondent age in Q.16.
- Question 55 asking whether family and friends outside of St. Louis would consider moving to St. Louis if there were greater economic opportunities caused issues for several respondents. One had two children in the area, and nobody outside, so he did not know how to answer the question. We suggested adding a DNR code for “no family or friends outside of the St. Louis area” and rephrasing the question to read: “Do you have any friends or family who would seriously consider moving to St. Louis if there were greater economic opportunities... yes or no?” Both of these suggestions were implemented following the pretest.
- Following the pretest, we added a definition of SSI for interviewers to refer to during the interview.

3.2 Field Period

The field period for this study was April 1 through June 23, 2014. The interviewing was conducted by one of the JPAR principals, SSRS in Media, PA. All interviews were conducted using the CATI system. The CATI system ensured that questions followed logical skip patterns and that complete dispositions of all call attempts were recorded.

3.3 Interviewer Training

CATI interviewers received both written materials on the survey and formal training. The written materials were provided prior to the beginning of the field period and included:

- An annotated questionnaire that contained information about the goals of the study as well as detailed explanations of why questions were being asked, potential obstacles to be overcome in getting good answers to questions, and respondent problems that could be anticipated ahead of time as well as strategies for addressing them.
- A list of pronunciations for specific Jewish terms that appear in the survey.
- An interviewer guide, providing project specifications and background information about the JFC and the survey.
- A list of “Frequently Asked Questions” (FAQs) along with standard answers to the FAQs.

Interviewer training was conducted both prior to the study pretest (described previously) and immediately before the survey was officially launched. Call center supervisors and interviewers were walked through each question in the questionnaire. Interviewers were given instructions to help them maximize response rates and ensure accurate data collection. They were also instructed to complete the basic identity screening question (“Is there anyone in the household who considers himself or herself to be Jewish?”) even with reluctant respondents, to allow as accurate an account as possible of household Jewish status even where no completed interviews were anticipated.

In order to maximize survey response, JPAR enacted the following procedures during the field period:

- Instituting a call rule of original plus no less than 6 calls before considering a sampling unit “dead.”
- Varying the times of day, and the days of the week that call-backs are placed using a programmed differential call rule.
- Explaining the purpose of the study and assuring respondents that there were no ulterior motives (namely, fundraising) underlying this survey.

- Permitting respondents to set the schedule for a call-back.
- Instructing interviewers to attempt completing the single-question Jewish identity screener with all respondents, even if they were about to break-off before the screener.
- Offering a monetary incentive to reluctant cell phone respondents determined to be living in a Jewish household.

3.4 Screening

Beyond the data collected from Jewish household respondents, the survey was designed to collect information from all respondents (Jewish or otherwise) at a level that would allow an accurate estimate of Jewish household membership in the greater St. Louis area. In total 9,493 Jewish status screeners were collected.

3.5 Editing and Coding

The importance of coding, the process whereby raw data are converted into meaningful categories, cannot be minimized. SSRS employs only experienced coders. Each one is trained thoroughly by the Coding Supervisor prior to beginning work on a study. Before this training process begins, the Coding Supervisor is briefed and an in-depth review of the unique features of the study is held with the project direction staff. Once interviewing is under way, the Coding Department begins transcribing verbatim answers to the open-ended questions. Codes are constructed by the Coding Supervisor or Study Director based on a minimum sample of 20% of respondents.

Codes are built on a frequency of 3% or more. If an answer does not meet the specified frequency, list sheets of Other Responses are maintained. These listings are updated frequently. If they show an emergence of some response which justifies creation of a new category code, such a code is established. All codes are compiled in a question-by-question coding manual, which is reviewed in a detailed training session. This training session encompasses the following areas:

- Discussion of the study's background and objectives. Each coder is made aware of how the coding function fits into the overall analytic scheme.
- Question-by-question and column-by-column instruction. The entire coding manual is carefully reviewed, with special emphases placed on any problem areas or special features of the project.
- Review of open-ended codes. This ensures that each code is thoroughly understood by the staff.

3.6 Timeline

The study timeline has been as follows:

Table 4: Timeline

Milestone	Date(s)
Most of the data collection completed	6/15/2014
Extra completes finished	6/30/2014
Clean and check data file	Completed by 7/3/2014
Initial file review	Week of 7/7/2014
Weighting of data	7/14/14-7/7/25
Final review of file	Completed by 8/22/14
Delivery of preliminary data	9/10/2014

3.7 Call Rules for the CATI Interviews

Telephone interviewing included one initial call plus six callbacks. To increase the probability of completing an interview, we established a differential call rule that required that call attempts be initiated at different times of day and different days of the week.

3.8 Refusal Avoidance and Conversion Strategies

With the increased popularity of telemarketing and the use of telephone answering machines and calling number identification (i.e., caller-ID), the problem of non-response has become acute in household telephone surveys. In addition to the incentives and call rules for the CATI interviews outlined above, we employed several other techniques to maximize the response rate for the survey. This included providing a clear and early statement that the call was not a sales call. The introduction included an explanation of the purpose of the study, the expected amount of time needed to complete the survey, and a discussion of the incentives.

In an effort to maximize the response rate in the interview phase, respondents were given every opportunity to complete the interview at their convenience. For instance, those refusing to continue at the initiation of or during the course of the telephone interview were offered the opportunity to be contacted at a more convenient time to complete the interview. A key way to increase response rates is through the use of refusal conversions. Though all of SSRS's interviewers regularly go through "refusal aversion" training, refusals are still a regular part of survey research. SSRS used a core group of specially-trained and highly-experienced refusal conversion interviewers to call all who initially refused the survey in an attempt to persuade respondents to complete the survey.

3.9 Caller ID

A caller ID tag was included in the sample record for all respondents with a phone number. Any respondents with caller ID capabilities on their telephones received the caller ID “STL COMM STUDY.” Although it is impossible to verify what respondents actually saw on their caller IDs, extensive tests indicate that the caller ID was working properly for the majority of calls. This ID was set up to decrease the likelihood that the respondent would screen out the phone calls when confronted by an unfamiliar number on the caller ID.

4. RESPONSE

4.1 Overview

Response rates are one method used to assess the quality of a survey, as they provide a measure of how successfully the survey obtained responses from the sample. The American Association of Public Opinion Research (AAPOR) has established standardized methods for calculating response rates (AAPOR, 2008). This survey uses AAPOR’s response rate definition RR3, with an AAPOR-approved alternative method of addressing ineligible households.

4.2 Defining the Response Rate

SSRS calculates response rates in accordance to AAPOR RR3 calculations. However, the AAPOR Standard Definitions manual does not provide explicit formula for screener surveys.

Screener Studies

Generally, screener surveys are different than general population surveys in that there are two levels of eligibility: household and screener. That is, a sample record is “household eligible” if it is determined that the telephone number reaches a valid household. “Screener eligible” refers to whether known household-eligible records are eligible to in fact complete the full survey. In the case of the SLJCS, screener eligibility refers to whether a household was in the target geography and had at least one member of the household that considers himself or herself to be Jewish.

The standard AAPOR screening RR3 is as follows:

$$\frac{I}{I + R + NR + [(UNR)e_2 + (UR)]e_1}$$

Where:

e_2 = Estimated Percent of Household Eligibility

e_1 = Estimated Percent of Screener Eligibility

“E” calculations are completed via the standard “proportional representation” method dictated by AAPOR. In short, e_2 equals all identified household / (all identified households + all identified non-households) and e_1 equals all identified households eligible to do the full survey / (all identified households known to be eligible to do the full survey + all identified households known to not be eligible to do the full survey).

4.3 Final Response Rates

The overall response rate for the St. Louis Jewish Community Survey is 38.5%.

The landline response rate is 42.8% and the cell phone response rate is 25.8%.

Final response rates are summarized in Table 5.

By way of comparison, recent JPAR studies have had similar response rates to the St. Louis results. A recent study of the Columbus, Ohio area achieved a response rate of 32.0%.¹ The response rate was 36% in the landline strata and 23% in the cell phone strata.

In 2011, the response rate for the Jewish Community Study of New York was also 32% overall: 35% in the landline and 30% in the cell phone strata. In Cleveland 2011, JPAR achieved an overall 37% response rate, 41% in the landline frames and 18% in the cell phone frames.

¹ Note that Table 5 includes sample pre-scrubbed for business and non-working numbers by MSG; 84,043 numbers were scrubbed via MSG attempts, designed to determine if a selected RDD number was actually a residential, working number. Since they were dialed, these are part of the response rate.

The total number of RDD Landline calls reflected in Table 5 is 138,496 (77,631 RDD LL High and 60,865 RDD LL Low. However, since SSRS never “worked” these records, other tables show sample without these records. In Table 6, for example, the SSRS dialed RDD Landline numbers is listed as 54,453. These numbers were dialed by SSRS interviewers for the survey after 84,043 numbers were scrubbed by MSG from the total original RDD LL pool of 138,496.

Table 5: Response Rates by Strata

Disposition	Fed List	Fed List	RDD		Cell High	Cell low	TOTAL Landline	TOTAL Cell	TOTAL	
	LL	Cell	DJN	LL high						LL low
Eligible, Interview (Category 1)										
Complete	567	190	30	93	21	31	71	711	292	1,003
Eligible, non-interview (Category 2)										
Refusal and breakoff	25	2	7	23	15	8	35	70	45	115
Break off	22	7	2	17	9	3	11	50	21	71
Answering machine household-message left	3	-	1	3	-	-	6	7	6	13
Physically or mentally unable/incompetent	-	-	1	-	-	-	-	1	-	1
Language problem	-	-	-	2	-	-	-	2	-	2
Unknown eligibility, non-interview (Category 3)										
Always busy	11	3	12	392	539	10	46	954	59	1,013
No answer	691	180	407	8,628	5,986	1,316	4,622	15,712	6,118	21,830
Answering machine-don't know if household	152	88	135	2,297	1,424	1,300	3,810	4,008	5,198	9,206
Call blocking	4	1	3	75	37	1	10	119	12	131
Housing unit, unknown if eligible respondent	222	92	154	1,644	1,246	1,540	3,350	3,266	4,982	8,248
No screener completed	455	107	512	3,098	2,923	2,789	6,342	6,988	9,238	16,226
Not eligible (Category 4)										
Fax/data line	57	13	55	2,494	1,259	41	86	3,865	140	4,005
Non-working number	656	71	266	53,493	43,419	1,543	3,081	97,834	4,695	102,529
Business, government office, other organizations	51	11	44	2,181	1,343	360	702	3,619	1,073	4,692
No eligible respondent	118	185	259	3,191	2,644	1,931	4,349	6,212	6,465	12,677
Total phone numbers used	3,034	950	1,888	77,631	60,865	10,873	26,521	143,418	38,344	181,762
Response Rate 3	40.0%	46.3%	21.0%	36.7%	26.2%	20.8%	14.5%	42.8%	25.8%	38.5%
Cooperation Rate 3	92.3%	95.5%	76.9%	69.9%	46.7%	73.8%	60.7%	85.6%	81.6%	84.4%

5. SURVEY WEIGHTS AND VARIANCE ESTIMATION

5.1. Weighting Overview

Weighting procedures of Jewish Population Surveys have evolved significantly over the past ten years. One major development has been the need to deal with the dual-frame (landline and cell phone) nature of current designs. In addition, methods to post-stratify such studies to known distributions on typical demographic measures such as age and education were once seen as too costly (having to administer such questions to thousands of non-Jewish households) and complex, but are now viewed as a critical step in dealing with typical survey non-response and to ensure the accuracy of the data.

This section will detail the following steps taken in weighting the 2014 SJCS:

1. Construction of a screening dataset that includes all cases for which there is information identifying the household as a Jewish household or not;
2. Development of universe household counts with which to weight data at the household level;
3. Completion of the screening dataset by dealing with missing data and dual frame households;
4. Development of base weight corrections for number of phones and adults as well as stratification and by-county corrections based on the universe household counts;
5. Post-stratification, and;
6. Development of final household weights and person weights.

5.2 Construction of a Screening Dataset

This stage commenced with the creation of a full sample file, including cases for all 97,719 sample records that were dialed during the field work (excluding the pre-scrubbed 84,043 prior to field interviewing). This file includes (1) sample-level variables such as strata, telephone exchange, county, etc., (2) all data that were gathered in the screener-section of the survey and (3) select questions from the main survey that are relevant for the determination of Jewish Status (e.g., does the second/third/etc. adult in the household consider themselves to be Jewish) or weighting (e.g., number of adults in the household, etc.).

Table 6: Full Sample File Sample Counts

Strata	Sample
Federation-Supplied List Landline	3,034
Federation-Supplied List Cell	950
DJN (Landline)	1,888
RDD (Landline)	54,453
RDD Cell Phone	37,394
TOTAL	97,719

The second step in developing a screening dataset is to limit cases only to those sample records for which there is a determination of Jewish Status. To do so, we develop a Jewish Status variable that determines the following statuses of cases:

1. Jewish complete
2. Jewish partial
3. Messianic
4. Non-Jewish
5. Unknown

This is done first programmatically, through an extensive set of logic based on answers to screening and main survey questions. This logic is designed to only determine Jewish status for cases in which there is clearly at least one Jewish adult in the household, and for such households, whether that household completed the interview or not. Non-Jewish cases are broken down into those that are not Jewish in the conventional sense versus those that are considered Messianic (that is, may consider themselves to be Jewish but believe Jesus was the messiah), and those that have Jewish origins (that is, do not consider self Jewish, but have some combination of at least one parent that was Jewish).

There are a number of cases for which the program logic was not able to determine Jewish Status despite identity data on the respondent and/or other persons in the household. This was due primarily either to a case having incomplete information or seemingly contradictory information. These cases were allowed to be completed by the interviewer since Jewish status was unclear and the person may have been Jewish or the household may have included a Jewish adult other than the respondent. Such cases are generated through programming logic into a “borderline” variable as follows:

1. Jewish Complete, but “Jewish and Something Else,” excluding those whose response is “Just Jewish,” “Definitely Jewish,” “Jewish but not religious,” etc.
2. Jewish Complete, but “Jewish and Something Else” with regard to their religion specifically, again excluding Jewish responses. This includes those who say no religion or some other specific religion.

Overall 47 cases fell into this category. Each of these cases was independently reviewed by three different members of JPAR, each offering their sense of whether the household includes at least one Jewish member. These cases can be very difficult to determine, given that respondents who indicated that they are “partially Jewish” or “Jewish and something else,” may have very personal ways of defining their Jewishness (e.g., their former spouse was Jewish, or because they sometimes feel Jewish, or because they were raised as Jewish and something else). In some households, there is again contradictory information, such as people who said they are Jewish but then later identify their specific religion as Christian, Protestant, and their explanations indicated a Christian rather than a Jewish household. Still others indicated that they are ‘partially Jewish’ since all Christians are really Jewish, or because they sometimes feel Jewish, even though their parents and their religion are Christian.

While the final completed interview data file includes 1,003 completed Jewish interviews, a total of 1,016 interviews were actually completed – including the 13 later deemed to be non-Jewish.

5.3 Development of Universe Household Counts

Perhaps the most critical step in the entire weighting process is the development of household universe counts. These counts serve as critical control totals, the “gold standard” with which data must conform. The first delineation of household counts and the data itself is of course by strata: We must know what numbers of households reside in each of the sample strata that were used in the survey, so that we can match data to these household proportions. Secondly, we further break down each stratum by county, to ensure proper counts by county, resulting in 5 weighting cells (see tables later in this report). Notably, these universe counts sequester households into a number of cells in order to enact a level of control to the data; however, too many cells would lead to small cell sizes in the data.

The procedure in developing the household universe counts is as follows. First, because the study was completed just after the U.S. Census Bureau made public household and population counts at the county level, we derived these counts from the Census website.

Additionally, we know what number of Federation-Supplied List households we gathered before the fielding commenced, and furthermore the number of such households that only supplied a cell phone compared to those that supplied at least one landline, both adjusted for non-response. For all of these records we also know the county. As well, we know the number of households that have distinctive Jewish surnames (DJN), again adjusted for non-response, and we can de-duplicate these numbers from the numbers supplied in the Federation-Supplied List database. Duplicate numbers are subtracted from the DJN counts. As well, we know the total number of households with a listed telephone number (again by county). DJN numbers by definition are listed, and therefore must be de-duplicated from the universe of listed households. As a final step, it must be ascertained for each Federation-Supplied List case whether it is a listed or unlisted household. Listed counts are de-duplicated from the total counts of listed households (this procedure is done separately for both the High and Low Listed RDD strata). In the end, this procedure provides universe counts by county for the Federation-Supplied List landline only and Federation-Supplied List dual (landline and cell phone), Federation-Supplied List cell phone only, DJN (with Federation-Supplied List records subtracted), and other listed households (listed households with DJN and listed Federation-Supplied List records subtracted, again divided into high and low incidence strata). Since we know the total number of households by county from the Census, we can then derive the number of unlisted households by subtracting all the aforementioned strata from the total.

It is also critical to know the number of households that reside in the Cell Only RDD frame, since there are no county-level numbers available for such an estimate. The National Health Interview Survey, however, estimates at the regional and state level, and has recently published an estimate and direct measure for St. Louis. These estimates are produced by the National Health Interview Survey (NHIS) and the State Health Access Data Assistance Center (SHADAC), based on a logistic regression model predicting phone use. Replicating their procedure, we derived cell-phone-only (CPO) household estimates for greater St. Louis area. Our model produced results in-line with the NHIS estimate, therefore providing validity that our estimates for each county would be accurate. One final step in the procedure is to model these data to the time period of the survey field, since the most recent published NHIS dataset is from 2009. Given that the increase in CPO households every half-year since 2006 has been roughly linear, we simply made a linear projection to arrive at early 2014 CPO estimates.

An important feature of this procedure is that it solves the problem that there are a number of Jews in the St. Louis area that do not have a St. Louis area code. Even though it is true that Jews that are CPO (and NOT on the Federation supplied lists, since we dialed all cell

phone only records on that list, regardless of area code) are not covered by the survey, they are counted, in the sense that the cell phone interviews attained in the survey are weighted to the outside NHIS estimate of CPO households in the St. Louis area. Of course, this does mean that the cell phone interviews we did attain may hold bias, since they purportedly represent all CPO Jewish households in the St. Louis area, but only from interviews of CPOs who have a St. Louis area code. While true, research into this issue has found that typically, the under-coverage is less than 15% (that is, only 10 to 15% of all CPOs likely have a non-St. Louis area code), and that the bias between those covered and those that are not is nominal (Dutwin et al., 2011 and 2012).

A final step in the development of universe household counts is to then divide unlisted households into CPO households and unlisted landline households. This is easily done by multiplying the total households for each county by the CPO estimate, with the remaining households being defined as unlisted landline households.

These procedures resulted in the universe counts and CPO estimates which were summarized in Table 3 above and are repeated here for convenience.

Table 3: Universe Household Counts (Repeated)

	Strata	HHs
1	FSL Landline	10,174
2	FSL Cell	3,053
3	DJN	4,031
4	Landline RDD	406,850
5	Cell Phone RDD	271,235
TOTAL		695,343

5.4 Completion of the Screening Dataset

Weighting the data to the universal household counts, at its very core, is a simple re-balancing procedure where the percent of sample is made to weight to the percent of the universe in the table above. A number of steps were required to attain this “apples-to-apples” table of strata by county.

First, county had to be attained for the entire screening dataset. We used the respondent-provided county data from the screener and questionnaire where possible, and then filled in missing data with county as it was provided by MSG, SSRS’s sister company and sample provider, in their landline sample feeds. By design, county was asked upfront in the cell phone screener since county is not available from MSG for cell phone sample. These steps insured that there were no missing data on county for all cases in the screening dataset.

Second, to match the universe counts, the sample attained from the RDD cell phone strata had to be relocated to the landline RDD strata if the data showed such a record to be a dual-use household. In other words, the RDD Cell Phone frame needed to be converted to a CPO frame to match the fact that the universe counts in Table 3 (above) for these strata are for CPO households only.

Overall, the sample table of screener data cases for strata is as follows:

Table 7: Screener Data Cases by Final Strata

	Strata	Cases
1	FSL Landline	702
2	FSL Cell	220
3	DJN	279
4	RDD	7,065
5	CPO	1,227
TOTAL		9,493

In addition to CPO status, a number of other variables are necessary for the weighting procedure, and it is highly desirable that these data are fully populated as well. For the base weighting procedure, these variables include the number of landline and cell phone telephones utilized by adults in the household. For post-stratification, we utilize age, education, race/ethnicity, and gender. These demographics were asked of all interviewed Jewish households, and (by sampling design for cost reduction purposes) of 25 percent of cell phone non-Jewish households and 20 percent of non-Jewish households all other landline sampling frames. This strategy saves costs while furnishing enough cases with data with which to impute. The imputed data are only used to generate a post-stratification weight. After the post-stratification weights have been generated, all non-Jewish imputed cases are deleted from the database as we provide a final file with Jewish cases only.

5.5 Base Weighting

Once sample universe and sample counts and final strata were attained for the screening data set and the Jewish household interviews, the formal weighting procedure could commence:

2. *Non-response (Household) correction.* In order to correct for the possibility that survey nonresponse was correlated with any variable of interest, and to attain accurate household counts for demography, we employed a weighting class correction applying the variable known for all sample members and the population, as discussed earlier in this report: sampling frame. This was accomplished by calculating the population household percentage for each of the 5 frame cells (in table 3) and then dividing, in each cell, the percentage in the known household population by the percentage in the sample for each cell in the table independently. The ratio between the population cell percentage and the weighted sample cell percentage produced the primary household weight.

3. *Household adults correction.* This base weight correction simply multiplies each case by the number of adults in the household. This is capped at 3 adults maximum and essentially converts the household weight into a person weight so that the data can be post-stratified to population counts of adults ages 18 and older.

4. *Composite household baseweight.* The final composite household base weight is a product of the two corrections noted above: strata and number of adults. This product is then adjusted again to match total households in strata in the sample.

5.6 Post-stratification correction

Post-stratification weighting was conducted in order to correct for biases in response patterns across various demographic groups, allowing the demographic breakdown of the final data to approximate the breakdown in the target population. For the SLJCS, *the total sample for which identity information was available* (Jewish and non-Jewish screening interviews, N=9,493) was adjusted by gender, education, county, race/ethnicity, phone use, and age to match the population parameters for the eight-county area on the basis of the U.S. Census Bureau's American Community Survey, 2012 for percentage frequency distributions on each variable. However, since the 2012 ACS is now a few years old, we took advantage of the 2014 U.S. Census to develop the total household counts upon which the percentages are based.

This sample was then weighted using a raking method, an iterative process of adjusting sample to known percentages along certain parameters (in this case, gender, race, education, county, and age), while applying the base weight to correct for the selection process.

5.7 Final Weights

The final step before post-stratification was to *multiply* the base weight by the number of persons in the household, since post-stratification is a person-level procedure. Now that we wanted to arrive at a final household weight, however, the post-stratified weight was then *divided* by the number of adults to again produce weights at the household level.

Non-Jewish households are then deleted from the file.

As well, household weights for Jewish completes are rebalanced to equal the weighted totals of all Jewish screener dataset cases (since we want to arrive at a final file that only includes Jewish households that completed the interview, we needed to in effect overlay the weights of ALL Jewish households contacted to only those Jewish households that completed the interview). This post-stratified household weight was then rebalanced one more time to account for the known universe estimates of strata by county.

5.8 Design Effect and Sampling Error Estimates

Given the complex sampling design used in the 2014 Greater St. Louis Jewish Community Study, the overall design effect of screener interviews was 1.61. The margin of error for the study — when data are based on all 1,003 completed Jewish household interviews — is a maximum of +/- 4.47% (rounded to 4.5% for public report presentations).

Design effect calculations have been increasingly used in Jewish community studies recently, mirroring the reality that they have been used as a standard sampling error adjustment phase for most professional surveys in the United States, etc.

Table 8 summarizes design effect² for a series of studies conducted by the JPAR partners from 2002 through St. Louis in 2014. The design effect for the St. Louis Study — 1.61 — is one of the lower design effects in recent JPAR studies. As such, the random, stratified sampling design used in St. Louis results in one of the smallest increases in potential sampling error of all studies that the JPAR partners have conducted. The estimated maximum sampling error of +/- 4.5% includes design effect impact.

² Design effect is the measure of variance based on weighting. Higher design effects inflate the margins of error compared to lower design effects.

Table 8: Comparative Household Design Effects: Jewish Community Studies

Community	N	Design Effect	SqRt Design Effect
St. Louis (2014) ¹	1,003	1.61	1.27
Columbus (2013) ¹	766	2.56	1.60
New York (2011) ¹	5,993	2.41	1.58
Cleveland (2011)	1,044	4.62	2.15
Baltimore (2010) ¹	1,213	5.30	2.30
Chicago (2010) ¹	1,993	4.43	2.10
Philadelphia (2009) ¹	1,217	2.52	1.59
Cincinnati (2008) ²	912	2.34	1.53
Denver (2007) ²	1,217	2.52	1.59
Atlanta (2006) ²	1,007	5.25	2.29
San Diego (2003) ²	1,080	1.77	1.33
Phoenix (2002) ²	793	3.17	1.78
New York (2002) ²	4,533	1.45	1.20
Pittsburgh (2002) ²	1,313	1.92	1.39

¹ = St. Louis, Columbus, New York, Cleveland, Baltimore, Chicago, and Philadelphia have a post-stratification weight; those are provided here

² = Non-post-stratified weight

Table 9 summarizes potential sampling error at the standard 95% confidence level based upon the number of interviews used in the specific analysis and the proportion of respondents who answered a dichotomous question as “yes” or “no.” For the entire sample of approximately 1,000 cases, the maximum potential error is 4.5%. For the approximately 900 Jewish respondents only, the margin of error would have a maximum value of approximately +/- 4.8%.

Not only does the size of the sub-group being analyzed have an impact on the maximum sampling error, but so does the survey response percentages, expressed as dichotomized categories. Table 9 estimates of sampling error reflect the two dimensions of the Table 9 matrix: the number of interviews among sub-groups and the survey response percentage.

For example, while the overall maximum sampling error estimate is +/- 4.8% for all Jewish respondents when the question being analyzed has a 50%/50% split, the potential sampling error would only be about +/- 3.8% for a survey question that has a 80%/20% split, such as whether being Jewish is important to the respondent (84%) or not important (16%). Both the sample size and the survey percentage determine maximum sampling error.

In general, a visual inspection and quick estimation of the potential sampling error will be sufficient for most survey readers/analysts, since the substantive significance of a small percentage increase in error is minimal when the survey results are utilized for program and policy decisions.

As the sample size gets smaller, the potential error increases. Thus, the margin of error for inmarried households (N=437) is lower than the margin of error for intermarried households (N=195). For a question on synagogue membership, 72% of the inmarried households respond “yes,” a household member belongs to a synagogue; the maximum margin of error is approximately +/-6.4%, slightly lower than the +/- estimated for 400 respondents at a 30%/70% survey split — the broadest 95% confidence interval for synagogue membership among the inmarried would be between 65.6% and 78.4%. In contrast, the estimated 26% of intermarried survey respondents who report household synagogue membership is most likely to be around 26%, but could be as much as 9.4% higher or lower (N=200, 30%/70% split, 95% CI = 16.6% to 35.4%). Given the enormous difference in the percentage of inmarrieds and intermarrieds who are synagogue members, the implications for program and policy decisions are minimally sensitive to potential sampling error variation.

Table 9
95% Confidence Interval Estimates by
Number of Interviews and Survey Data Percentage

Survey %:	Estimates of Survey Standard Errors: 95% Confidence Level						
	Number of Interviews						
	100	200	300	400	500	750	1000
5% or 95%	6.3	4.4	3.6	3.2	2.8	2.3	2.0
10 or 90%	8.6	6.1	5.0	4.3	3.9	3.2	2.7
20% or 80%	11.5	8.1	6.7	5.8	5.1	4.1	3.6
30% or 70%	13.1	9.4	7.6	6.6	5.9	4.8	4.1
40% or 60%	14.0	10.0	8.1	7.0	6.3	5.1	4.4
50%	14.4	10.2	8.3	7.2	6.4	5.2	4.5

5.9 Household and Jewish Population Estimates

The reported estimates of the number of Jewish households and Jewish persons living in those households are also subject to potential error of the estimate (calculated differently from sampling error, but the same basic concept). Table 10 indicates that the 61,100 estimate for Jewish persons is the most likely estimate of the number of Jews in the area based on the screening interviews and completed Jewish household interviews — 61,100 is the best estimate with a possible range at the traditional 95% confidence interval between 52,000 and 70,200. Statistically, it is highly unlikely that the real number of Jewish persons in the Study area is 52,000, or 53,000, or 54,000 - or 68,000, 69,000 or 70,000, but it is theoretically possible. The 61,100 Jewish person estimate is the most likely estimate of the number of Jewish persons in the Study area — any variation around the 61,100 Jewish persons estimate is most likely to be closer to the 61,100 estimate than to the outside ranges.

Similarly, Table 10 also summarizes the best estimates (rounded) of Jewish persons in the geographic sub-areas. Please note that the survey was statistically designed to provide an estimate of the number of Jewish persons in the overall three “county” area — St. Louis County, the City of St. Louis and St. Charles County. It was not designed to provide statistically representative estimates of the number of Jewish households and Jewish persons within the smaller geographic sub-areas. However, after the survey was completed, Jewish households were classified as living in these areas base on their zip code of residence.

Where the Jewish population has its highest density, and where the number of Jewish household interviews is highest, the estimated number of Jewish persons is a much more statistically reliable estimate than where the numbers of interviews are small and the percentage of all households that are Jewish is low. The geographic sub-area estimates of the number of Jewish persons is important, but so too is the pattern of Jewish life exhibited by respondents living in these Jewish households — in general, the sub-areas with the higher Jewish person estimates are the sub-areas with the greatest integration of survey respondents and their households into Jewish life in the St. Louis area.

Table 10

Upper and Lower Limits of Jewish Persons Estimates in Geographic Area
95% Confidence Intervals

Geography	Rounded Estimate	Number of Jewish Household Interviews	Rounded Lower Range of Estimate	Rounded Upper Range of Estimate
TOTAL STUDY AREA				
Jewish Households	32,900	1,003	29,200	36,700
Jewish Persons	61,100	1,003	52,000	70,200
SUB-AREAS –JEWISH PERSONS				
Creve Coeur Area	13,400	275	10,500	16,400
Chesterfield	12,000	196	8,300	15,700
University City/Clayton	9,000	183	7,000	11,100
Olivette-Ladue	6,100	123	4,300	7,900
St. Charles County	5,800	38	2,200	9,300
City of St. Louis	5,100	75	2,400	7,800
Des Peres- Webster	2,700	54	1,400	3,900
North County Residual	4,400	32	1,800	7,000
South County Residual	1,900	20	800	3,000

References

The American Association for Public Opinion Research. 2011. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 7th edition. AAPOR.

Dutwin, D., Miller, R., Ben-Porath, E. (2014). Jewish Community Studies: Opportunities and Challenges. *Studies in Contemporary Jewry*.

Dutwin, D., Call, K., Rapoport, R., Gildemesiter, S., and Sherr, S. (2011). Stratification of Cell Phones: Implications for Research. Phoenix, AZ: A paper presented at the 2011 AAPOR National Conference.

Dutwin, D., Buttermore, N., Call, C., and Gildemeister, S. (2012). Cell Phone Mobility in the U.S.: Implications for State and Local Research. Unpublished Manuscript currently under submission and review.

Graham, J.W. and B.J. Taylor, A.E. Olchowski, & P.E. Cumsille. 2006. Planned Missing Data Designs In Psychological Research. *Psychological Methods* 11:323-343.

Rubin, D. B. (1976). Inference and Missing Data. *Biometrika*, 36, 581-592.

Rubin, D. B. 1987. *Multiple Imputation for Nonresponse in Surveys*. New York: Chichester.