Standard Definitions

Final Dispositions of Case Codes and Outcome Rates for Surveys

Revised 2011

RDD Telephone Surveys
In-Person Household Surveys
Mail Surveys of Specifically Named Persons
Internet Surveys of Specifically Named Persons

2011

THE AMERICAN ASSOCIATION FOR PUBLIC OPINION RESEARCH

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About this report

Standard Definitions is a work in progress; this is the seventh major edition. The American Association for Public Opinion Research plans to continue updating it, adding comparable definitions for other modes of data collection and making other refinements. AAPOR also is working with other organizations to further the widespread adoption and utilization of *Standard Definitions*. AAPOR is seeking the cooperation of companies that provide computer-assisted telephone interviewing (CATI) software. Some of these companies already have agreed to incorporate the definitions and formula into their software reports. AAPOR also is asking academic journals to use AAPOR standards in their evaluation and publication of articles; several, including *Public Opinion Quarterly* and the *International Journal of Public Opinion Research*, already have agreed to do so.

The first edition (1998) was based on the work of a committee headed by Tom W. Smith. Other AAPOR members who served on the committee include Barbara Bailar, Mick Couper, Donald Dillman, Robert M. Groves, William D. Kalsbeek, Jack Ludwig, Peter V. Miller, Harry O'Neill, and Stanley Presser. The second edition (2000) was edited by Rob Daves, who chaired a group that included Janice Ballou, Paul J. Lavrakas, David Moore, and Smith. Lavrakas led the writing for the portions dealing with mail surveys of specifically named persons and for the reorganization of the earlier edition. The group wishes to thank Don Dillman and David Demers for their comments on a draft of this edition. The third edition (2004) was edited by Smith who chaired a committee of Daves, Lavrakas, Daniel M. Merkle, and Couper. The new material on complex samples was mainly contributed by Groves and Mike Brick. The fourth edition was edited by Smith who chaired a committee of Daves, Lavrakas, Couper, Shap Wolf, and Nancy Mathiowetz. The new material on Internet surveys was mainly contributed by a sub-committee chaired by Couper with Lavrakas, Smith, and Tracy Tuten Ryan as members. The fifth edition was edited by Smith who chaired the committee of Daves, Lavrakas, Couper, Mary Losch, and J. Michael Brick. The new material largely relates to the handling of cell phones in surveys. The sixth edition was edited by Smith who chaired the committee of Daves, Lavrakas, Couper, Reg Baker, and Jon Cohen. Lavrakas led the updating of the section on postal codes. Changes mostly dealt with mix-mode surveys and methods for estimating eligibility rates for unknown cases. The seventh edition was edited by Smith who chaired the committee of Daves, Lavrakas, Couper, Timothy Johnson, and Richard Morin. Couper led the updating of the section on internet surveys and Sara Zuckerbraun drafted the section on establishment surveys.

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Background

For a long time, survey researchers have needed more comprehensive and reliable diagnostic tools to understand the components of total survey error. Some of those components, such as margin of sampling error, are relatively easily calculated and familiar to many who use survey research. Other components, such as the influence of question wording on responses, are more difficult to ascertain. Groves (1989) catalogues error into three other major potential areas in which it can occur in sample surveys. One is coverage, where error can result if some members of the population under study do not have a known nonzero chance of being included in the sample. Another is measurement effect, such as when the instrument or items on the instrument are constructed in such a way to produce unreliable or invalid data. The third is nonresponse effect, where nonrespondents in the sample that researchers originally drew differ from respondents in ways that are germane to the objectives of the survey.

Defining final disposition codes and calculating call outcome rates is the topic for this booklet. Often it is assumed — correctly or not — that the lower the response rate, the more question there is about the validity of the sample. Although response rate information alone is not sufficient for determining how much nonresponse error exists in a survey, or even whether it exists, calculating the rates is a critical first step to understanding the presence of this component of potential survey error. By knowing the disposition of every element drawn in a survey sample, researchers can assess whether their sample might contain nonresponse error and the potential reasons for that error.

With this report, AAPOR offers a new tool that can be used as a guide to one important aspect of a survey's quality. It is a comprehensive, well-delineated way of describing the final disposition of cases and calculating outcome rates for surveys conducted by telephone, for personal interviews in a sample of households, and for mail surveys of specifically named persons (i.e., a survey in which named persons are the sampled elements). For this third mode, this report utilizes the undelivered mail codes of the United States Postal Service (USPS) which were in effect in 2000.

AAPOR hopes to accomplish two major changes in survey research practices. The first is standardizing the codes researchers use to catalogue the dispositions of sampled cases. This objective requires a common language, and definitions that the research industry can share. AAPOR urges all practitioners to use these codes in all reports of survey methods, no matter if the project is proprietary work for private sector clients or a public, government or academic survey. This will enable researchers to find common ground on which to compare the outcome rates for different surveys.

Linnaeus noted that "method [is] the soul of science." There have been earlier attempts at methodically defining response rates and disposition categories. One of the best of those is the 1982 Special Report *On the Definition of Response Rates*, issued by the Council of American Survey Research Organizations (CASRO). The AAPOR members who wrote the current report extended the 1982 CASRO report, building on its formulas and definitions of disposition categories.

In addition to building on prior work, this report also addresses recent technological changes. Survey researchers, especially those who conduct telephone survey research, have had to wrestle with a fast-expanding number of problems that influence response rates. The burgeoning number of cellular phones and other telecommunications technologies are good examples. This report takes into account these and other possible developments. It allows researchers to more precisely calculate outcome rates and use those calculations to directly compare the response rates of different surveys.

This report currently deals only with four types of sampling modes: random-digit dial (RDD) telephone surveys, in-person household surveys, mail surveys of specifically named persons, and Internet surveys of specifically named persons. There is also a discussion of mixed-mode surveys. There are several other modes. There is also a section on establishment surveys. In future updates, AAPOR will expand this report to include additional types of samples. In this report, AAPOR attempts to provide the general framework for disposition codes and outcome rates that reasonably can be applied to different survey modes. As with any general compilation, some ability to be specific may be missing. For example, additional developments in telecommunication technology may introduce the need for additional disposition codes. AAPOR looks forward to seeing the industry adopt this framework, extending it to apply to other modes of data collection, and to revising it as the practice of survey data collection changes.

This report:

- Has separate sections for each of the three survey modes.

- Contains an **updated, detailed and comprehensive set of definitions** for the four major types of survey case dispositions: interviews, non-respondents, cases of unknown eligibility, and cases ineligible to be interviewed.

- Contains **four tables delineating final disposition codes**: one for RDD telephone surveys; one for in-person households surveys; one for mail surveys of specifically named persons, and one for Internet surveys of specifically named persons..

- Provides the **operational definitions and formulas** for calculating response rates, cooperation rates, refusal rates, and contact rates. Here are some basic definitions that the report details:

  Response rates - The number of complete interviews with reporting units divided by the number of eligible reporting units in the sample. The report provides six definitions of response rates, ranging from the definition that yields the lowest rate to the definition that yields the highest rate, depending on how partial interviews are considered and how cases of unknown eligibility are handled.

  Cooperation rates - The proportion of all cases interviewed of all eligible units ever contacted. The report provides four definitions of cooperation rates, ranging from a minimum or lowest rate, to a maximum or highest rate.

Refusal rates - The proportion of all cases in which a housing unit or the respondent refuses to be interviewed, or breaks-off an interview, of all potentially eligible cases. The report provides three definitions of refusal rates, which differ in the way they treat dispositions of cases of unknown eligibility.

Contact rates - The proportion of all cases in which some responsible housing unit member was reached. The report provides three definitions of contact rates.

- Provides a **bibliography** for researchers who want to understand better the influences of non-random error (bias) in surveys.

- Finally, the report should be used to **report outcome rates**. The AAPOR Council stresses that all disclosure elements, not just selected ones, are important to evaluate a survey. The Council has cautioned that there is no single number or measure that reflects the total quality of a sample survey. Researchers will meet AAPOR's Standards for Minimal Disclosure requirements (Part III of the Code of Professional Ethics and Practices) if they report final disposition codes as they are outlined in this book, along with the other disclosure items. AAPOR's statement on reporting final disposition codes and outcome rates can be found at the back of this booklet in its press release on the matter.

AAPOR recognizes that the report will be used in many ways. The initial portion of this report is meant to be an easily accessible overview, covering some basic definitions, and giving some background about certain kinds of survey error. For survey practitioners who wish to implement the report's recommendations, the formulas and definitions in the back of the report — Tables 1-4 — must be consulted.

Standard Definitions

Introduction

There are many different schemes for classifying the final disposition of cases in a survey. Our committee reviewed more than two dozen classifications and found no two exactly alike. They distinguished between 7 and 28 basic categories. Many codes were unique to a particular study and categories often were neither clearly defined nor comparable across surveys.[1]

To avoid this babel of survey disposition codes, and to allow the comparable reporting of final dispositions and consistent calculation of outcome rates, AAPOR proposes a standardized classification system for final disposition of sample cases, and a series of formulas that use these codes to define and calculate the various rates.

A detailed report of the final disposition status of all sampled cases in a survey is vital for documenting a survey's performance and determining various outcome rates. Such a record is as important as detailed business ledgers are to a bank or business. In recognition of this premise, the reports on the final disposition of cases are often referred to as accounting tables (Frankel, 1983; Madow, et. al., 1983). They are as essential to a well-documented survey as the former are to a well-organized business.[2]

Final Disposition Codes

Survey cases can be divided into four main groups:

a. interviews;

b. eligible cases that are not interviewed (non-respondents);

c. cases of unknown eligibility; and

d. cases that are not eligible.

The text that follows and the tables at the end of this report are organized to reflect these

[1] Examples of some published classifications can be found in Hidiroglou, et al., 1993; Frey, 1989; Lavrakas, 1993; Lessler and Kalsbeek, 1992; Massey, 1995; Wiseman and McDonald, 1978 and 1980.

[2] The AAPOR statement on "best practices" (AAPOR, 1997, p. 9) calls for the disclosure of the "size of samples and sample disposition — the results of sample implementation, including a full accounting of the final outcome of all sample cases: e.g., total number of sample elements contacted, those not assigned or reached, refusals, terminations, non-eligibles, and completed interviews or questionnaires …"

four groupings. Although these classifications could be refined further (and some examples of further sub-classes are mentioned in the text), they are meant to be comprehensive in that all possible final dispositions should fit under one of these categories.

The first of the following sections and Table 1 cover random-digit-dial (RDD) telephone surveys of people living in households.

The second section and Table 2 deal with in-person interviews with people living in households. As is typically the case, these in-person interviews are assumed to be based on a list of addresses/residences from a master sample frame or other listing. With our treatment of this mode, the target population is assumed to be people (usually adults) living in households. The codes could be adapted for other populations and units of interest (e.g., students in schools, employees of a company, businesses in a town).

The third section and Table 3 deal with mail surveys of specifically named persons. Mail surveys often are complex, and in many cases eligibility is very difficult to ascertain. Consequently, Table 3 assumes that the specifically named person in a sampling frame is the sampling unit and that only this named person is the appropriate respondent, e.g., another person who has replaced the respondent in a business hierarchy is not acceptable in this type of mail survey. Table 3 also assumes that often there will be some confirmation for the researcher that the specifically named person is, for example, alive, or otherwise still available to return the questionnaire.

The fourth section and Table 4 cover Internet surveys of specially named persons.

The four sections contain considerable redundancy. We did this on purpose so that researchers interested only in one mode can learn about the disposition codes for that mode and not have to read the sections dealing with the other two modes.

Modifications of the Final Disposition Codes

It is permissible to collapse categories if this does not compromise the calculation of outcome rates. For example, refusals and break-offs can be reported as 2.10 rather than separately as 2.11 and 2.12 or others (2.31-2.34) reported as generic others (2.30). Simplifications are permissible when they do not obscure any of the standard rates delineated below. For example, no outcome rates depend on the distinctions among non-contacts (2.21-2.25), so only the summary code 2.20 could be used if surveys wanted to keep the number of categories limited. Simplified categories do not redefine classes and do not remove the need for having clear definitions of sub-classes not separately reported (e.g., break-offs).

As indicated above, more refined codes may be useful both in general and for special studies. These should consist of sub-codes under the categories listed in Tables 1-4. If researchers want categories that cut across codes in the tables, they should record those categories as part of a separate classification system or distinguished as sub-codes under two or more of the codes already provided.

Temporary vs. Final Disposition Codes
A number of final disposition classifications used by others include codes that more properly reflect temporary status. Examples include:

- Maximum call limit met,
- Call back, respondent selected,
- Call back, respondent not selected,
- No call back by date of collection cut-off, and
- Broken appointments.

These and other temporary dispositions often are peculiar to individual CATI systems and survey operations, and are not necessarily dealt with here. However, they should be replaced with final disposition codes listed in Tables 1-4 when final dispositions are determined at the end of the survey.

In converting temporary codes into final disposition codes one first must use appropriate temporary codes. Temporary disposition codes should reflect the outcome of specific call attempts that occur before the case is finalized. Many organizations in effect mix disposition codes with what can be called action codes. Action codes do not indicate the result of a call attempt, but what the status of the case is after a particular attempt and what steps are to be taken next. Examples of these are:

- Maximum of Number of Attempts
- General Callback
- Supervisor Review

In each case these codes fail to indicate the outcome of the last call attempt, but instead what the next action is (respectively, no further calls, callback, and supervisor to decide on next step). While action codes are important from a survey management point-of view, they should not be used as call-specific, temporary, disposition codes. Action codes are rather generally based on summaries of the status of cases across attempts-to-date. In effect, they consider the case history to date and indicate the summary status and usually also what the next step is.

The "Supervisor Review" category and perhaps another sometimes utilized code, "Potential Problem," represent a special case. It may mean that an interviewer needs to consult with a supervisor before deciding on how to code the outcome of a call (a kind of temporary, temporary-disposition code). As such, they should be listed as an "other" case and more explicitly described. If they are used instead to mean that a case is awaiting a supervisor's decision on how to proceed, then it is an action code and should not be used as a temporary, disposition code.

Temporary codes that might be added to the final disposition codes used herein would include the following:

- Eligible, Non-Interview

  2.111a - Soft Refusal, Other*
  2.111b - Hard Refusal, Other*
  2.112a - Soft Refusal, Respondent
  2.112b - Hard Refusal, Respondent

  2.121 - Breakoff, During Introduction
  2.122 - Breakoff, After Interview Started

  2.12a - Definite Appointment, R
  2.12b - Definite Appointment, Other*
  2.13a - Unspecified Appointment, R**
  2.13b - Unspecified Appointment, Other*,**

  2.34 - Other, Referred to Supervisor

- Unknown Eligibility, Non-Interview

  3.91 - Other, Referred to Supervisor

* = Two sub-categories are included here, refusals/appointments in which the respondent is unknown and refusals by non-Rs.
** = For example, when R/other asks interviewer to call back at another time, but no specific time is scheduled

Next, one needs to select a final disposition code from the often numerous and varied temporary disposition codes. In considering the conversion of temporary to final disposition codes, one must consider the best information from all contact attempts. In deciding between various possibly contradictory outcomes three factors need to be considered: 1) status day, 2) uncertainty of information, and 3) hierarchy of disposition codes.[3]

First, when different codes appear across attempts, it is important to determine what the situation was on "status day" (see discussion under "Eligible, No Interview (Non-response) on p. 12). For example, if a residence was vacant for the first two weeks of the field period during which time one or more attempts were made to contact the residence and then the unit became occupied with a new household and a refusal occurred, the case would count as not eligible, vacant (4.6), rather than a refusal as long as it was definitively established that the residence was unoccupied on status day.

Second, information on a case may be uncertain due to contradictory information across or within attempts (e.g., one neighbor reporting that a residence is vacant versus other evidence that it may be occupied). If the definitive situation for a case can not be determined, one should take the conservative approach of assuming the case is eligible or

[3] For a discussion of assigning codes see McCarty, Christopher, "Differences in Response Rates Using Most Recent Versus Final Dispositions in Telephone Surveys," *Public Opinion Quarterly*, 67 (2003), 396-406.

possibly eligible rather than not eligible.

Finally, there is a hierarchy of disposition codes in which certain temporary codes take precedence over others. If no final disposition code is clearly assigned (e.g., completed case, two attempts both coded as refusals), then generally the outcome of the last attempt involving human contact will determine the final disposition code.

Following the logic of the human-contact-over-other-outcome rule means that once there was a refusal the case would ultimately be classified as a refusal unless: a) the case was converted into an interview or b) definitive information was obtained later that the case was not eligible (e.g., did not meet screening criteria). For example, repeated no answers after a refusal would not lead to the case being classified as no contact nor would a subsequent disconnected telephone number justify it being considered as a non-working number.

Likewise, in converting temporary codes into final codes, a case that involved an appointment that did not end as an interview might be classified as a final refusal even if a refusal was never explicitly given, depending on circumstances. Unless there is specific evidence to suggest otherwise, it is recommended that such cases be classified as a refusal.

If no final disposition code is clearly assigned and there is no human contact on any attempt, precedence should be given to the outcome providing the most information about the case. For example, in a case consisting of a combination of rings-no-answer, busy signals, and answering-machines outcomes, the final code would be answering machine (2.22 or 3.14) rather one of the other disposition codes. If there are different non-human-contact outcomes and none are more informative than the others, then one would generally base the final disposition code on the last contact.

Of course when applying these hierarchy rules, one must also follow the status day and uncertainty guidelines discussed above.

A survey wanting to maintain distinctions peculiar to a particular project could do so by having them as a) one or more additional sets of temporary or terminal codes, or b) sub-categories under the temporary or final disposition codes in Tables 1-4. For example, one could subdivide refusals into a) refusals by respondent; b) broken appointments to avoid an interview; c) refusals by other household members; and d) refusals by a household member when the respondent is unknown. These refusal distinctions can be especially valuable when a survey is deploying a "refusal conversion" process (Lavrakas, 1993).

Substitutions

Any use of substitutions must be reported.[4] First, whatever substitution rules were used must be documented. Second, the number and nature of the substitutions must be reported. These should distinguish and cover both between and within household substitutions. Third, all replaced cases must be accounted for in the final disposition codes.

[4] Substitution involves the replacement of an originally sampled unit by another unit. This might be an inter- or intra-household replacement.

For example, if a household refuses, no one is reached at an initial substitute household, and an interview is completed at a second substitute household, then the total number of cases would increase by two and the three cases would be listed as one refusal, one no one at residence, and one interview. In addition, these cases should be listed in separate reports on substitutions. Similarly, within household substitution would have to report the dropped and added cases as well as separately documenting procedures for substitutions and number of substitutions. Respondent selection procedures must be clearly defined and strictly followed. Any variation from these protocols probably constitutes substitution, and should be documented as such.

Proxies
Any use of proxies must be reported.[5]

First, rules on the use of proxies must be reported. Second, the nature and circumstances of proxies must be recorded and any data file should distinguish proxy cases from respondent interviews. Third, in the final disposition code complete and partial interviews must be sub-divided into respondents (1.11 or 1.21) or proxies (e.g., 1.12 or 1.22). In the case of household informant surveys in which a) one person reports on and for all members of the household and b) any responsible person in the household may be the informant, this needs to be clearly documented and the data file should indicate who the informant was. In the final disposition codes and in any rates calculated from these codes, researchers need to say clearly that these are statistics for household informants. Rates based on household informants must be explicitly and clearly distinguished from those based on a randomly chosen respondent or a person fulfilling some special household status (e.g., head of household, chief shopper, etc.) When both household and respondent-level statistics are collected, final dispositions for both households and respondents should be reported.

Complex designs
Complex surveys such as multi-wave panels and surveys that use a listing from a previous survey as a sample frame must report disposition codes and outcome rates for each separate component and cumulatively. For example, a three-wave, longitudinal survey should report both the disposition codes and related rates for the third wave (second reinterview) and the cumulative dispositions and outcome rates across the three waves. Similarly, a survey such as the 1995 National Survey of Family Growth (NSFG), which was based on a sample of women of childbearing age derived from a round of the Health Interview Survey (HIS), should report on both the outcomes from the NSFG field efforts and incorporate results from the earlier HIS effort (i.e., calculating in non-response cases from both HIS and NSFG). See discussion in section "Some Complex Designs" on page 40.

[5] A proxy is the use of one individual to report on an originally sampled person. This person might be a member of the sampled person's household or a non-member (e.g. a caregiver).

RDD Telephone Surveys of Households

For the purposes of the language used in this section, an RDD telephone survey is one in which households are randomly sampled within some geopolitical area using one of several random-digit dialing techniques that generate telephone numbers. This discussion covers RDD telephone surveys conducted via landlines, cell phones, or a combination of the two. *Standard Definitions* uses the Census definition of households, group quarters and other related matters. The section also assumes that one "eligible" respondent is selected per household to be interviewed. This within-unit selection might occur via a Kish selection procedure, one of the birthday methods, or by some other systematic procedure. While some argue that sampling cell-phone numbers eliminates the need for further sampling since the cell phone identifies a single individual, research indicates that cell-phone sharing does occur. This means the cell-phone answerer should be asked if the phone is used by more than one eligible individual (e.g. more than one adult in their household in a sample of people 18+)(AAPOR Cell Phone Task Force, 2008; Tucker, Brick, and Meekins, 2007; Brick, Edwards, and Lee, 2007). (The reader should note that this section and Table 1 could easily be modified for use in an RDD survey of businesses within a geopolitical area.) It is important to describe in detail the way in which the RDD sample was drawn. Among other features this should include mention of whether the sample was a) restricted to blocks or banks of numbers with a certain minimum number of listed telephone numbers (e.g., at least one listed number per hundred bank), b) purged of business numbers by cross-reference to databases such as the Yellow Pages, c) screened of non-productive numbers before the sample was released to interviewers, and d) modified or cleaned in any other way. It must also describe how landlines and cell phones were handled, including whether both were covered and, if so, how they were included. This would include a description of dual samples, if they are used, and how they are combined into a single set of results.

1. Interviews

As shown in Table 1, interviews in RDD telephone surveys are divided into two groups: a) complete interview (1.1) and b) partial interview (1.2). Each survey should have an a priori explicit definition of what constitutes a complete vs. a partial interview and what distinguishes a partial interview from a break-off (i.e., a refusal sometime after the interview has commenced).

Three widely used standards for defining these three statuses are: a) the proportion of all applicable questions answered, b) the proportion of crucial or essential questions answered,[6] and c) the proportion of all applicable questions administered (Frankel, 1983). For example, the following are standards that surveys might adopt to determine whether a case is a complete interview, partial interview, or break-off:

a. Less than 50% of all applicable questions answered (with other than refusal or no answer) equals break-off, 50%-80% equals partial, and more that 80% equals complete, or

[6] Crucial or essential questions might include variables that are the key independent or dependent variables in a study. For example, a survey designed to measure racial differences might include respondent's race or a survey to examine the causes of depression might require a scalable score on the measure of clinical depression.

b. Less than 50% of all applicable questions asked equals break-off, 50-80% equals partial, and more than 80% equals complete, or

c. Less than 50% of all essential or crucial questions answered (with other than a refusal or no answer) equals a break-off, 50-99% equals partial, and 100% equals complete, or

d. The above three could be used in combination. For example, one might require 100% of crucial questions and 80% of other questions being answered to count as a complete case.

Although no precise definition of complete or partial cases or break-offs is proposed here, researchers must provide a clear definition of these statuses for surveys. Suitable criteria include those described above. Of course less stringent definitions of complete or partial cases will mean that there will be more item non-response in cases deemed complete or partial.

Cases that are counted as break-offs and excluded from the analysis file should not be counted as partial cases in calculations of response and other outcome rates.

2. Eligible, No Interview (Non-response)
Eligible cases for which no interview is obtained consist of three types of non-response: a) refusals and break-offs (2.10); b) non-contacts (2.20); and c) others (2.30). See Table 1.

Refusals and break-offs consist of cases in which some contact has been made with the telephone household and a responsible household member[7] has declined to do the interview (2.11) or an initiated interview results in a terminal break-off (2.12 — see above on what constitutes a break-off vs. a partial interview).[8] Further useful distinctions, not all of which are included in Table 1, are a) who refused, i.e., known respondent (2.111) vs. household member (2.112); b) point of the refusal/termination (e.g., before/after introduction, and before/after respondent selection); and c) reason for the refusal/break-off.

Non-contacts in RDD surveys include cases in which the number is confirmed as an eligible household, but the selected respondent is never available (2.21) or only a telephone answering device (e.g. voicemail or a telephone answering machine) is reached with only its message confirming a residential household (2.22). In the later cases, it may be further broken down by whether the interviewer left a message (2.221 — e.g., alerting the household that it was sampled for an important survey and that an interviewer will call back at another time, or with instructions on how a respondent could call back) or whether the interviewer did not leave any message (2.222). A related piece of information that might be recorded is whether a text message was sent (Brick et al., 2007; Callegaro et al., 2007), but that as such would not constitute a final disposition code.

[7] What constitutes a "responsible household member" should be clearly defined. For example, the Current Population Survey considers any household member 14 years of age or older as qualifying to be a household informant.

[8] Discontinuations due to dropped calls or other technological problems are not considered as break-offs.

Other cases (2.30) represent instances in which there is a respondent who did not refuse the interview, but no interview is obtainable. They include: a) death (2.31); b) the respondent's physical and/or mental inability to do an interview (2.32); c) language problems (2.33); d) sound quality too poor/intermittent (2.34);[9] e) location/activity not permitting an interview (e.g. cell phone reached while person is driving)(2.35); and f) miscellaneous other reasons (2.36).

Whether death makes a case a non-respondent or an ineligible respondent depends on fieldwork timing. Surveys have to define a date on which eligibility status is determined. This usually would be either the first day of the field period or the first day that a particular case was fielded. Thus, for example, if a person were alive and selected as the respondent from a sampled housing unit in an RDD survey on this status date, but died before an interview was completed, the case would be classified as a non-response due to death (2.31). Similar time rules would apply to other statuses.

Respondents who are physically and/or mentally unable to participate in an interview would include both permanent conditions (e.g., senility, blindness or deafness) and temporary conditions (e.g., pneumonia or drunkenness) that prevailed whenever attempts were made to conduct an interview. With a temporary condition it is possible that the respondent could be interviewed if re-contacted later in the field period.[10]

Language problems include cases in which no one in the household at the time the interviewer makes contact can speak a language in which the introduction is to be given (2.331) or cases in which the selected respondent does not speak a language in which the interview is to be conducted (2.332) or cases in which an interviewer with appropriate language skills cannot be assigned to the household/respondent at the time of contact (2.333).[11]

The miscellaneous designation (2.35) would include cases involving some combination of other reasons (2.30) or special circumstances (e.g., vows of silence, lost records, faked cases invalidated later on). [12]

3. Unknown Eligibility, Non-Interview

Cases of unknown eligibility and no interview (3.0) include situations in which it is not known if an eligible residential household exists at the sampled telephone number (3.10) and those in which such a household exists, but it is unknown whether an eligible respondent resides there (3.20).

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[9] This code differs from Technical Phone Problems (3.16) in that enough information is gathered to confirm eligibility, but the audio impediments are too great to permit an interview.

[10] As elsewhere, more detailed distinction should be used when appropriate. For example, in a survey on drug and alcohol use a special sub-code for intoxicated respondents might be useful.

[11] Language cases can be counted as not eligible (4.70) if the survey is defined as only covering those who speak certain languages. For example, until 2006 the General Social Survey defined its target population as English-speaking adults living in households in the United States (Davis, Smith, and Marsden, 2007). Whenever language problems are treated as part of 4.70 instead of 2.33, this must be explicitly stated.

[12] For calculating household-level cooperation and contact rates as defined later in this document, all codes under Non-contact (2.2 in Tables 1-3) assume no contact with the household and all codes under Other (2.3) assume contact with the household. Situations that would appear to fall under these codes, but which are not consistent with the non-contact/ contact rules, must be handled consistently with those rules when using the specified formulas for cooperation and contact rates.

One class of unknown cases in RDD surveys include telephone numbers that were sampled but not dialed, or in which there was the introduction of replicates in which the cases were simply not assigned or attempted before the end of the field period (3.11). Unassigned replicates should be considered ineligible cases, but once interviewers began contacting numbers in a replicate, all cases in that replicate would have to be individually accounted for.

Other unknown household cases in RDD surveys include: a) always busy (3.12); b) no answer (3.13); c) a telephone answering message (e.g. voicemail or a telephone answering machine) that does not conclusively indicate whether the number is for a residential household or not (3.14); d) call-screening, call-blocking, or other telecommunication technologies that create barriers to getting through to a number (3.15); e) technical phone problems, e.g., phone circuit overloads, bad phone lines, phone company equipment switching problems, etc. (3.16); and f) ambiguous operator's messages that do not make clear whether the number is associated with a household or not (3.161)(see AAPOR Cell Phone Task Force, 2008 & 2010b; Callegaro et al., 2007) . This problem is more common with cell phone numbers since there are both a wide variety of company-specific codes used and these codes are often very unclear (AAPOR Cell Phone Task Force, 2010b). Because several of these (e.g. 3.16 and 3.161) often are temporary problems, it is advised that these numbers be redialed on occasion within the field period. In each of these cases, there is insufficient information to know whether the sampled number represents a residential household.

In establishment surveys when the sample consists of phone numbers of establishments obtained from a list, rather than phone numbers from a RDD sample, interviewers also encounter similar circumstances as listed in **a** through **f** that make it hard to determine if the establishment is present at the number and, if present, if it is eligible. Interviewers on establishment surveys have two additional tools to help ascertain if the establishment is still in existence. These are calling Directory Assistance and sending a Fed Ex Letter with signature confirmation; information emerging from these methods can confirm that the case is out of business – in which case it would be considered Not In Sample (4.10)[13].However, if Directory Assistance and Fed Ex do not confirm that the case is out of business, then the project needs to accept the integrity of the list and assume that the establishment is in the sample. In most studies, the case would need to be finalized as the appropriate disposition code in the Unknown Eligibility, Non-Interview category because eligibility could not be formally determined. Normally, projects do not have high enough confidence in the sample list to presume that all sample members are eligible; however, if this was the case then the case could be finalized as the appropriate disposition code under Eligible Non-Interview.

Cases for which there is a household and it is not known if there is an eligible respondent (3.20) usually crop up because of a failure to complete a needed screener (3.21). Even if this failure clearly were the result of a "refusal," it would not be so classified unless the existence of an eligible respondent were known or could be inferred. Related cases

[13] Organizational surveys typically differentiate between Not In Sample as concluded based on interviewer observation (Out of Business being the most common example of Not In Sample) and Ineligible as evaluated by the screener instrument. However, both are considered as ineligible and are removed from the denominator in response rate calculations.

especially involving cell phones include instances in which it cannot be confirmed that the answerer is a resident of a household in the geographic area covered. If a person's household status could not be confirmed or disconfirmed, code 3.30 might be used.

Finally, a miscellaneous other category (3.90) should be used for highly unusual cases in which the eligibility of the number is undetermined and which do not clearly fit into one of the above designations.

One example is a case in which a number dialed is answered but not by a responsible adult. Another example is a case in which not enough information is gathered to ascertain eligibility. Diligent researchers will, of course, attempt to determine if these households contain eligible respondents, which, if successful, would yield another disposition code.

4. Not Eligible

As with any survey, RDD samples sometimes include telephone numbers at households outside the sampling area's geopolitical boundary (4.10). For example, this often happens when using RDD to sample relatively small areas such as counties, towns, or neighborhoods. This also happens with some frequency when sampling cell numbers, which often move with a person who relocates his/her residency to a new geographic area.

Additional ineligible cases for RDD surveys include: a) dedicated fax/data line (4.20); b) non-working and disconnected number (4.30); and c) possibly various special technological circumstances (4.40) such as pagers (4.44).

Fax/data lines (4.20) are excluded when they are dedicated lines in a residence used solely for those purposes. However, lines that are used by a housing unit for both regular phone calls and data links are eligible.[14]

Non-working numbers are numbers that are not assigned (typically new numbers not yet issued or unused SIM cards) (4.31) and disconnected numbers that were previously assigned (4.32). It also may be useful to separately list numbers that are designated as "temporarily out of service" (4.33), and depending on the length of the field period, these numbers may become operational before the field period ends and thus they should be redialed on occasion. These telephone dispositions (the 4.30 subset) differ from technical phone problems (3.16) in which a number is assigned to reach a household, but does not do so or for which the sound clarity is too poor to permit an interview because of problems with the equipment.

Rules need to be established for handling special technological circumstances (4.40). First, changed numbers (4.41) — ones that originally reached a particular residential or nonresidential location but now that location is reached by another number — usually should be excluded from an RDD sample. In the typical situation, a household has been assigned a new number and a telephone company recording notifies the caller of that new

[14] Dual-use lines that automatically respond to an in-coming data or voice transmission in the appropriate manner are not a problem, but those that must be manually switched from data to voice to receive voice calls can create problems. Researchers should make several attempts to verify the status of such lines.

number. However, researchers may elect to retain the case in the sample, call the new number, and delete the changed number. If a "changed number" situation causes two numbers that can reach a household, researchers would have to apply a weight to correct for non-equal probability of selection just as if there were two numbers reaching the household directly.

If one wanted to include such changed numbers, one would have to ask an informant at all reached numbers if the number was a changed number referred to by a changed number recording, just as one needs to ask about how many phone numbers directly reach a household. If it is a changed number, the old number could be deemed ineligible on the basis that the household is reachable via its new number, and no weight needs to be applied. This second procedure is simpler to implement.

If both landlines and cell phones are included in the survey, then codes 4.45 (cell phones) and 4.46 (landlines) would not be used. If only cell phones were being sampled, code 4.46 for landlines would be used or if only landlines were eligible, then code 4.45 for cell phones would be utilized. If the samples covered both cell phones and landlines, proper weights and adjustments for dual-sample frames, if used, are needed (AAPOR Task Force on Cell Phones, 2008; Callegaro et al., 2007; Brick et al., 2006; Currivan and Roe, 2004). Researchers also should specify rules to deal with call forwarding (4.43). If the call is transferred from one line to another within a residence, or from one residence to another (4.431), then this might not be a problem if enough were learned to use weighting to adjust for the unequal probabilities of selection due to multiple phone lines. However, if a call is forwarded from a nonresidential location (e.g., someone's place of business) to a residence (4.432), then the original sampled number should be treated as ineligible (nonresidential) and no interview should be completed. If a forwarded call reaches a residence outside the sampling area, but the original number was a residence inside the sampling area, then additional special rules are needed.

In any RDD household survey, a good portion of numbers dialed will reach nonresidences and/or nonresidents (4.50) such as businesses or government offices (4.51) that are ineligible by definition. But some also will reach residential units such as institutions (prisons, sanitariums, etc. — 4.52) and group quarters (military barracks, a telephone in the hallway of a sorority house, etc. — 4.53). Clear definitions of what makes these cases ineligible must be developed for interviewers to follow.[15] Occasionally, a household and a business share the same telephone number. One should include such numbers as eligible, and exclude only those numbers that are solely business numbers. Additionally, cell-phone numbers may also reach people who are not eligible household members. For example, among other reasons, this would include cell phones attached to persons who are not household residents such as college students living in dorms or foreign visitors staying in hotels.

Housing units with no eligible respondents (4.70) are rare in surveys of all adults and would mostly consist of residences with no one 18 years of age or older. Occupied housing units should be presumed to contain someone 18 or older unless contrary

[15] For Census definitions of households, group quarters, and related matters see Rawlings, 1994 and U.S. Census, 1993.

information is obtained. But for samples of sub-groups (e.g., parents with children living with them, RV owners, retired people) a large majority of housing units might be ineligible and the presence of an eligible respondent cannot be assumed. This category (4.70) differs from 4.10 in that the housing unit is otherwise eligible, but lacks an eligible respondent, while in the former case the housing unit is not properly part of the sample.

Some RDD surveys will use special screening sequences to determine if there is an eligible resident in the household (e.g., pre-election surveys that screen for "likely voters"). In these surveys, some households will not have an eligible respondent and thus the number is treated as ineligible (4.70).

Sometimes RDD sampling is used to reach subgroups in the general population. Unlike the situation in which a screener is used to determine eligibility, these surveys are meant to interview a set number of respondents (i.e., a quota) within each subgroup (e.g., younger women, older women, younger men, older men). Once the quota is filled for a subgroup (i.e., the subgroup is "closed"), any household contacted without a resident in an "open" subgroup would be treated as ineligible (4.80).

Finally, additional reasons for non-eligibility can be coded under Other (4.90).

In-Person Household Surveys

For the purposes of the language used in this section, an in-person household survey is assumed to be one in which housing units are sampled from an address-based sampling frame of some geopolitical area using one of several probability sampling techniques. *Standard Definitions* uses the Census definition of households, group quarters and other related matters. It is also assumed that one "eligible" respondent is selected per housing unit to be interviewed. This within-unit selection might occur via a Kish selection procedure, one of the birthday methods, or by some other systematic procedure. (The reader should note that this section and Table 2 could easily be modified for an in-person survey of businesses within a geopolitical area.)

1. Interviews

As shown in Table 2, interviews are divided into two groups: a) complete (1.1) and b) partial (1.2). Each survey should have an a priori explicit definition of what constitutes a complete vs. a partial interview and what distinguishes a partial interview from a break-off.

Three widely used standards for defining these three statuses are: a) the proportion of all applicable questions answered, b) the proportion of crucial or essential questions answered,[16] and c) the proportion of all applicable questions administered (Frankel, 1983). For example, the following are standards that surveys might adopt to determine whether a case is a complete interview, partial interview, or break-off:

a. Less than 50% of all applicable questions answered (with other than a refusal or no answer) equals break-off, 50%-80% equals partial, and more that 80% equals complete, or

b. Less than 50% of all applicable questions asked equals break-off, 50-80% equals partial, and more than 80% equals complete, or

c. Less than 50% of all essential or crucial questions answered (with other than a refusal or no answer) equals a break-off, 50-99% equals partial, and 100% equals complete, or

d. The above three could be used in combination. For example, one might require 100% of crucial questions and 80% of other questions being answered to count as a complete case.

Although no precise definition of complete or partial cases or break-offs is proposed here, a survey must provide a clear definition of these statuses. Suitable criteria include those described above. Of course less stringent definitions of complete or partial cases will mean that there will be more item non-response in cases deemed complete or partial.

Cases that are counted as break-offs and excluded from the analysis file should not be

[16] Crucial or essential questions might include variables that are the key independent or dependent variables in a study. For example, a survey designed to measure racial differences might include respondent's race or a survey to examine the causes of depression might require a scalable score on the measure of clinical depression.

counted as partial cases in calculations of response and other outcome rates.

2. Eligible, No Interview (Non-response)
Eligible cases for which no interview is obtained consist of three types of non-response: a) refusals and break-offs (2.10); b) non-contacts (2.20); and c) others (2.30). See Table 2.

Refusals and break-offs consist of cases in which some contact has been made with the housing unit and a responsible household member has declined to do the interview (2.11) or an initiated interview results in a terminal break-off (2.12 - see above on what constitutes a break-off vs. a partial interview).[17] Further useful distinctions, not all of which are included in Table 2, are a) who refused, i.e., known respondent (2.112) vs. household member (2.111); b) point of refusal/termination (e.g., before/after introduction, and before/after respondent selection); and c) reason for the refusal/break-off.

In establishment surveys, refusals include not only refusals by the target respondents but may also reflect a superior within the respondent's own organization and/or in a related organization with supervisory authority telling the respondents that they are not permitted to participate. Extensions of code 2.11 similar to 2.111 and 2.112 can be created to indicate who refused for the establishment.

Non-contacts in in-person household surveys consist of three types: a) unable to gain access to the building (2.23), b) no one reached at housing unit (2.24), and c) respondent away or unavailable (2.25). The denied-access cases would include situations like guarded apartment buildings or homes behind locked gates. For a case to fall into this category, researchers must determine that the sample unit is an occupied unit with an eligible respondent and no contact with members of the housing unit is achievable.[18] The same is the case in the no-one-at-residence disposition, in which no contact is made with a responsible household member, but the presence of an eligible household member is ascertained.[19] Finally, the unavailability of the designated respondent means that enough information is obtained to determine who the respondent is, but the respondent is never available when the interviewer attempts an interview.

Other cases (the 2.30 subset) represent instances in which the respondent is/was eligible and did not refuse the interview, but no interview is obtainable because of: a) death, (2.31); b) the respondent is physically and/or mentally unable to do an interview (2.32); c) language problems (2.33); and d) miscellaneous other reasons (2.35).

Whether death makes a case a non-respondent or an ineligible respondent depends on fieldwork timing. Surveys should define a date on which eligibility status is determined. This would usually be either the first day of the field period or the first day that a

[17] What constitutes a "responsible household member" should be clearly defined. For example, the Current Population Survey considers any household member 14 years of age or older as qualifying to be a household informant.

[18] Refusal by a security guard or tenants' council to grant access does not constitute a "refusal" since these are not representatives of the targeted housing unit. However, if a request for an interview were conveyed to a responsible household member by such an intermediary and a message of a refusal returned to the interviewer, then this should be classified as a refusal.

[19] Further distinctions could distinguish cases involving temporary absences (e.g. family away on vacation for two weeks) and other reasons for non-contact.

particular case was fielded. Thus, for example, if a person were alive and selected as the respondent from a sampled housing unit in an in-person household survey on this status date, but died before an interview was completed, the case would be classified as a non-response due to death (2.31). Similar time rules would apply to other statuses. For example, a housing unit that was occupied on status date and then became vacant because the household moved before any other contact was attempted would be a non-contact case (2.20) if no interview was obtained (and not a vacant housing unit, and therefore not a not-eligible case, 4.60).

Respondents who are physically or mentally unable to participate in an interview would include both permanent conditions (e.g., senility, blindness or deafness) and temporary conditions (e.g., pneumonia or drunkenness) that prevailed whenever attempts were made to conduct an interview. With a temporary condition it is possible that the respondent could be interviewed if recontacted later in the field period.[20]

Language problems include cases in which no one in the housing unit at the time the interviewer makes contact can speak a language in which the introduction is to be given (2.331) or cases in which the selected respondent does not speak a language in which the interview is to be conducted (2.332) or cases in which an interviewer with appropriate language skills cannot be assigned to the housing unit or respondent at the time of contact (2.333).[21]

The miscellaneous designation (2.35) would include cases involving some combination of other reasons (2.30) or special circumstances (e.g., vows of silence, lost records, faked cases invalidated later on).[22]

3. Unknown Eligibility, Non-Interview

Cases of unknown eligibility and no interview (3.0) include situations in which it is not known if an eligible housing unit exists (3.10) and those in which a housing unit exists, but it is unknown whether an eligible respondent is present in the housing unit (3.20).

In in-person household surveys, unknown housing unit cases include those for which it is unknown whether a housing unit is involved (3.10) and for which it is known that there is a household, but the existence of an eligible respondent is unknown (3.20). The former (3.10) includes: a) not attempted or worked (3.11); b) unable to reach/unsafe area (3.17); and c) unable to locate an address (3.18). Not-worked cases (3.11) include addresses drawn in the sample, but for which no interviewer was available and surveys with short field periods or the late introduction of replicates in which the cases were simply not

[20] As elsewhere, more detailed distinction should be used when appropriate. For example, in a survey on drug and alcohol use a special sub-code for intoxicated respondents might be useful.

[21] Language cases can be counted as not eligible (4.70) if the survey is defined as only covering those who speak certain languages. For example, until 2006 the General Social Survey defined its target population as English-speaking adults living in households in the United States (Davis, Smith, and Marsden, 2007). Whenever language problems are treated as part of 4.70 instead of 2.33, this must be explicitly stated.

[22] For calculating household-level cooperation and contact rates as defined later in this document, all codes under Non-contact (2.2 in Tables 1-3) assume no contact with the household and all codes under Other (2.3) assume contact with the household. Situations that would appear to fall under these codes, but which are not consistent with the non-contact/ contact rules, must be handled consistently with those rules when using the specified formulas for cooperation and contact rates.

assigned or attempted before the end of the field period.[23] Unable-to-reach cases (3.17) include remote areas inaccessible due to weather or other causes or areas in which interviewers are not assigned because of safety concerns (e.g., high crime, rioting, or evacuations). Location problems (3.18) typically involve rural residences in which the description of the sampled unit is errant (e.g., wrong street name) or inadequate to allow an interviewer to find the housing unit (e.g., the house that had been painted red to the left of where the general store used to be).

Situations in which it is unknown whether an eligible respondent resides in the household most frequently consists of a failure to complete a needed screener (3.21). Even if this failure were clearly the result of a "refusal," it would not be so classified unless the existence of an eligible respondent was known or could be inferred. Other reasons for unknown eligibility would include missing data on a crucial screening item. Of course, many surveys do not employ explicit screening sequences to determine respondent eligibility. In these cases, this set of disposition (3.20) would not apply to the survey.

Finally, a miscellaneous other category (3.90) should be used for highly unusual cases in which the eligibility of the housing unit is undetermined and which do not clearly fit into one of the above designations.

4. Not Eligible

Not eligible cases for in-person household surveys include: a) out-of-sample housing units (4.10); b) not-a-housing unit (4.50); c) vacant housing units (4.60); d) housing units with no eligible respondent (4.70); and e) situations in which quotas have been filled (4.80).

Out-of-sample cases (4.10) would include ineligible housing units that were incorrectly listed as in the address frame such as housing units that turn out to be outside the primary sampling unit in which they were thought to be located or other incorrect inclusions in list samples.

Not-a-housing unit would include non-residential units such as businesses, government offices, and other organizations (4.51) and residential units such as institutions (prisons or sanitariums, 4.52) and group quarters (military barracks, work camps, etc., 4.53).[24] These could include classifications based on observations or inquiries from people in the area. For in-person interviews it is important to determine that a residential unit does not exist within a business or institution (e.g., an apartment at the back of a store or a warden's house by a prison). Of course, either establishment surveys or surveys of people that went beyond the household population would have different eligibility rules.

Vacant housing units (4.60) are those that did not contain a household on the status date. This would include regular, unoccupied houses, apartments, and trailers and trailer slots without mobile homes on them (4.61). For temporary, seasonal, and vacation residences (4.62), the survey needs to have clear occupancy rules so one can decide when to classify

[23] Unassigned replicates should be considered ineligible cases, but once interviewers began contacting addresses in a replicate, all cases in that replicate would have to be individually accounted for.

[24] For Census definitions of households, group quarters, and related matters see Rawlings, 1994 and U.S. Census, 1993.

housing units in this category rather than in other categories such as no-one-at-residence (2.24).[25] Other (4.63) would include unusual cases and cases not clearly distinguishable between 4.61 and 4.62. In establishment surveys, establishments which are out of business are also not eligible.

Housing units with no eligible respondents (4.70) are rare in surveys of all adults and would mostly consist of residences with no one 18 years of age or older. Occupied housing units should be presumed to contain someone 18 or older unless contrary information is obtained. But for samples of sub-groups (e.g., parents with children living with them, RV owners, retired people) a large majority of housing units might be ineligible and the presence of an eligible respondent cannot be assumed. This category (4.70) differs from 4.10 in that the housing unit is otherwise eligible, but lacks an eligible respondent, while in the former case the housing unit is not properly part of the sample.

In surveys that employ a quota, interviewers will encounter cases that contain only respondents in groups for which the quota already has been filled (4.80). An example is a household with only women residents when a gender quota is used and the female target already has been met. Researchers must clearly define the quotas and how they are to be filled.

Finally, additional reasons for non-eligibility can be coded under Other (4.90).

In all cases concerning final disposition codes involving ineligibility, definite evidence of the status is needed. For example, failure to find anyone at home would not be sufficient to classify a housing unit as vacant. Reports from neighbors, a derelict appearance, no signs of habitation, etc. would be needed beyond repeated inability to find anyone at home. When in doubt a case should be presumed to be either eligible or possibly eligible rather than ineligible, unless there is clear evidence leading to the latter classification.

[25] For rules for usual place of residence in the Current Population Survey see U.S. Bureau of Census, 1978 and for the Census see U.S. Bureau of the Census, 1993.

Mail Surveys of Specifically Named Persons

Mail surveys vary greatly in the populations they cover, and the nature and quality of the sample frames from which their samples are drawn. Also, assumptions about eligibility differ among sample designs, which has an important bearing on the assignment of final disposition codes.

Table 3 addresses mail surveys of specifically named persons. It assumes that only the named person is the appropriate respondent and that some confirmation is needed that the named respondent is at the target address or otherwise still eligible for inclusion. An example might be a sample of registered voters residing in a particular community drawn from voting records. Such a sample would consist of registrants residing in a community at the time the voting list was compiled. To be eligible for a particular mail survey, the selected registered voters might well have to still reside at their indicated address or otherwise be an eligible voter in the same community. A failure to receive a reply to the mail survey would place them in the unknown eligibility category, since it could not be confirmed that they were still residents of the community being sampled. Similarly, various postal return codes that failed to establish whether the person still lives at the mailed address would continue to leave eligibility unknown.

For other types of mail surveys the assumptions would be different. For some surveys of specifically named persons, one should assume that the selected person was eligible, unless otherwise determined. An example might be a sample of employees of a company from a complete, accurate, and up-to-date list of all people working for the organization. As before, only the named person would be eligible, but in this case, the lack of a returned questionnaire would not place the person in the unknown eligibility category, but designate that person as a non-respondent. Likewise, a postal return code indicating that the person had moved would not change the employee's eligibility (although one might want to confirm with the company that this person was still an active employee). Similarly, other mail surveys may not be of specifically named persons. The survey could be of persons holding a position with an organization (e.g., CEO of a company or leader of a religious congregation) or a functional role in a household (e.g., chief grocery shopper or primary wage earner). Also, some postal surveys may want to sample addresses regardless of who the current occupant is, while others will want to follow-up with a listed resident even if that person no longer resides at the sampled address. The appropriate assumptions that can be made about eligibility for such surveys will depend upon details of their sample designs. It is important that sampling and eligibility criteria be made explicit and precise when the postal survey is designed.

In these and other instances the rules of eligibility and the assumptions about eligibility will vary with the sample design. The same postal return codes may properly be assigned to different final dispositions in two studies based on different eligibility assumptions as in the examples above. Because the nature of mail surveys is quite variable, researchers must clearly describe their sample design and explicitly state and justify their assumptions about the eligibility of cases in their sample to properly inform others of how the case dispositions are defined.

Throughout this section, and in Table 3, *Standard Definitions* explicitly uses the language

employed by the United States Postal Service (USPS) to account for all USPS dispositions in which mail is not delivered to an addressee. Researchers operating in other countries should treat these classifications as instructive and naturally will have to use their own postal service's codes. Non-USPS codes should follow the *Standard Definitions'* logic and intent, as illustrated by the USPS codes.

1. Returned Questionnaires
In the mail mode, the returned self-administered questionnaire is the equivalent to an "interview" in the telephone and in-person modes.

Returned questionnaires are divided into two groups: a) complete (1.1) and b) partial (1.2). Each survey should have an a priori explicit definition of what constitutes a complete vs. a partial interview and what distinguishes a partial interview from a break-off.

Three widely used standards for defining these three statuses are: a) the proportion of all applicable questions answered, b) the proportion of crucial or essential questions answered,[26] and c) the proportion of all applicable questions administered (Frankel, 1983). For example, the following are standards that surveys might adopt to determine whether a case is a complete interview, partial interview, or break-off:

a. Less than 50% of all applicable questions answered (with other than a refusal or no answer) equals break-off, 50%-80% equals partial, and more that 80% equals complete, or

b. Less than 50% of all applicable questions asked equals break-off, 50-80% equals partial, and more than 80% equals complete, or

c. Less than 50% of all essential or crucial questions answered (with other than a refusal or no answer) equals a break-off, 50-99% equals partial, and 100% equals complete, or

d. The above three could be used in combination. For example, one might require 100% of crucial questions and 80% of other questions being answered to count as a complete case.

Although no precise definition of complete or partial cases or break-offs is proposed here, a survey must provide a clear definition of these statuses. Suitable criteria include those described above. Of course less stringent definitions of complete or partial cases will mean that there will be more item non-response in cases deemed complete or partial.

2. Eligible, No Returned Questionnaire (Non-response)
Eligible cases for which no interview is obtained consist of three types of non-response: a) refusals and break-offs (2.10); b) non-contacts (2.20); and c) others (2.30). See Table 3.

[26] Crucial or essential questions might include variables that are the key independent or dependent variables in a study. For example, a survey designed to measure racial differences might include respondent's race or a survey to examine the causes of depression might require a scalable score on the measure of clinical depression

Refusals and break-offs consist of cases in which some contact has been made with the specifically named person, or with the housing/business unit in which this person is/was known to reside/work, and the person or another responsible household/business member has declined to have the questionnaire completed and returned (2.11) or a questionnaire is returned only partially completed with some notification that the respondent refuses to complete it further (2.12 - see above on what constitutes a break-off vs. a partial questionnaire).[27] Further useful distinctions, not all of which are included in Table 3, are a) who refused, i.e., known respondent (2.112) vs. other person (2.111); b) point within the questionnaire of refusal/termination; and c) reason for refusal/break-off. In mail surveys, entirely blank questionnaires are sometimes mailed back in the return envelope without any explanation as to why the questionnaire was returned blank. Unless there is good reason to do otherwise, this should be treated as an "implicit refusal" (2.113). In some instances in which a noncontingent cash incentive was mailed to the respondent, the incentive is mailed back along with the blank questionnaire. Researchers may want to create a unique disposition code to differentiate these from the 2.113 outcome in which no incentive was returned.

Known non-contacts in mail surveys of specifically named persons include cases in which researchers receive notification that a respondent was unavailable to complete the questionnaire during the field period (2.25).[28] There also may be instances in which the questionnaire was completed and mailed back too late — after the field period has ended — to be eligible for inclusion (2.27), thus making this a "non-interview."

Other cases (2.30) represent instances in which the respondent is eligible and does not refuse the interview, but no interview is obtainable because of: a) deaths, including cases in which the addressee is identified by the USPS to be "Deceased" (2.31); b) respondent physically or mentally unable to do the questionnaire (2.32); c) language problems (2.33); literacy problems (2.34), and d) miscellaneous reasons (2.36).

Whether death makes a case a non-respondent or an ineligible respondent depends on fieldwork timing. Surveys have to define a date on which eligibility status is determined. This would usually be either the first day of the field period or the first day that a particular case was mailed the questionnaire. Thus, for example, if a person were alive and selected as the respondent on this status date, but died before a questionnaire was completed, the case would be classified as a non-response due to death (2.31). Similar time rules would apply to other statuses.

Eligible respondents who are physically or mentally unable to complete the questionnaire (2.32) would include both permanent conditions (e.g., senility, blindness or paralysis) and temporary conditions (e.g., pneumonia or drunkenness) that prevailed throughout the field period. With a temporary condition it is possible that the respondent could/would complete the questionnaire if recontacted later in the field period or if the field period were later extended.

[27] Responsible household members" should be clearly defined. For example, the Current Population Survey considers any household member 14 years of age or older as qualifying to be a household informant.

[28] Further distinctions could distinguish cases involving temporary absences (e.g. family away on vacation for two weeks) and other reasons for non-contact.

Language problems (2.33) include cases in which the respondent does not read a language in which the questionnaire is printed (2.332).[29] It would also include instances in which a questionnaire which is printed in a language the respondent can read is never sent to the respondent (2.333). In contrast, literacy problems (2.34) would apply to cases in which the specifically named person could speak the language in which the questionnaire was printed, but could not read it well enough to comprehend the meaning of the questions.

The miscellaneous designation (2.36) would include cases involving some combination of other reasons (2.30) or special circumstances (e.g., lost records or faked cases invalidated later on).

In mail surveys of specifically named persons — particularly ones in which the mail is the only sampling mode — this subset of dispositions (Other, 2.30) would occur only if the researchers received unsolicited information about the respondent that allowed for such classification of the final disposition. However, in most instances one would assume that no information would be returned, which would lead to the case being classified as an "unknown eligibility" disposition.

3. Unknown Eligibility, No Returned Questionnaire

Cases of unknown eligibility and no returned questionnaire (3.0) include situations in which nothing is known about whether the mailed questionnaire ever reached, or could have reached, the address and thus the person to which it was mailed (3.10); those in which it reached the address, but it is unknown if the specifically named person is present at the address and if so whether this person is eligible (3.20); those in which the mailing could not be delivered (3.30); and those in which new "forwarding" information is learned (3.40).

The unknown-eligibility subset in which nothing is learned about whether the mailing could or did reach the sampled respondent is broken down further into cases in which a) the questionnaire was never mailed (3.11) and cases in which b) absolutely no information ever reaches the researcher about the outcome of the mailing (3.19). These latter dispositions often occur with high frequency in mail surveys.

Situations in which the address to which the questionnaire was mailed is known to exist and for which the addressee is known to have not received the mailing include the case of no screener being completed, for questionnaires requiring such (3.21). They also include instances in which the U.S. Postal Service (USPS) labels "refused by addressee" (3.23), either because the addressee "refused to accept the delivery" (3.231) or "refused to pay additional postage" that might have been needed (3.232). There also are cases in which the USPS will not deliver mail to certain addressees because they have committed USPS violations (3.24); the USPS does not deliver these mailings and returns them to the sender

[29] Language cases can be counted as not eligible (4.70) if the survey is defined as only covering those who read certain languages. For example, until 2006 the General Social Survey defined its target population as English-speaking adults living in households in the United States (Davis, Smith, and Marsden, 2007). Whenever language problems are treated as part of 4.70 instead of 2.33, this must be explicitly stated.

as undeliverable due to "USPS violations by addressee."

Finally, there are other cases in which the address, itself, precludes delivery and the researcher is left not knowing whether there is an eligible respondent at the "correct" address (3.25). These cases include: a) an "illegible" address, which means one that cannot be read by the USPS (3.251); b) an "insufficient" address on the mail (3.252), for example, one missing a street number in the receiving post office's delivery area; c) the absence of a proper mail receptacle at the address for the USPS to leave mail (3.253); and d) USPS suspension of mail to a commercial mail receiving agency (3.254).

In each of these circumstances, the researcher learns that the address to which the mailing was intended does (or may) exist, but does not know whether or not an eligible respondent is at the address.

Another set of possible dispositions in mail surveys of specifically named persons are those instances in which the mailing cannot be delivered to the person for whom it is intended or it is received at an address where the respondent no longer resides; thus the mailing is returned as "undeliverable" (3.30). Of note, in these cases, the researcher at least learns that no eligible respondent is at the address used for the mailing.

There are many subcategories of this class of dispositions designated by the USPS.

First are those in which mailing cannot be delivered because of some problem with the address (3.31). These include instances where the USPS tries, but is not able to find the "known" addressee at the designated address (3.311); and those in which a postal box is closed, e.g. for nonpayment of rent (3.312).

There also are cases in which the USPS does not attempt delivery because of a determination that no such address exists (3.313). This subcategory may be due to there being "no such number" (3.3131); "no such postal office" in a state (3.3132); "no such street" (3.3133); or a vacant address (3.3134).

The USPS also will not deliver mail in many other circumstances, thus letting the researchers know only that the address used will not reach the addressee. These circumstances include the general category of "not delivered as addressed" (3.314). This category can be further subdivided into the USPS designations: a) "unable to forward" (3.3141), including those cases in which there is no change of address order on file, the forwarding order has expired, forwarding postage is not guaranteed, or the sender has specified "do not forward;" b) "outside delivery limits" (3.3142), in which an address is not in the geographic area of delivery for the post office that received the mail; and c) "returned for better address" (3.3143), for mail of local origin (i.e., mail that is mailed at and delivered by the same post office).

Additionally, there are other mail survey outcomes in the United States that leave the researchers uncertain of the eligibility status of the sampled respondent. These include USPS categories: a) "moved, left no address" (3.32) which is likely a final disposition; b) "returned for postage" (3.33) which would be a final disposition if the researcher did not re-mail it, or a temporary disposition if the researcher did re-mail it; c) "temporarily

away, holding period expired" (3.34); and d) "unclaimed — failure to call for mail" (3.35). In cases in which special postage or other means of mail is used that requires a signature from the addressee (e.g., certified mail, registered mail, next-day mail, etc.), it is possible that the mail eventually will be returned because no one signed for it (3.36).

A final group of dispositions in which the researcher is left not knowing if the addressee is eligible is when the mail has been returned undelivered, but has forwarding information (3.40). In some of these cases, the mail may have been opened (3.41) and in others it may not (3.42). Ultimately, whether these dispositions are temporary or final depends upon the researcher's choice to re-mail it with the corrected address. In another instance, the researcher learns that the address does not exist, but learns nothing more due to a "dispute about which party has right to delivery" which the USPS cannot resolve (3.50).

4. Not Eligible

Not eligible cases for mail surveys of specifically named persons include: a) the named person being found to be ineligible due to screening information returned to the researchers and thus out-of-sample (4.10); b) no eligible respondent (4.70); c) situations in which quotas have been filled (4.80); and d) duplicate listings (4.90).

In mail surveys of specifically named persons that require the addressee to complete a screen to determine eligibility, researchers may have sampled cases that later are determined not to be eligible. For example, as noted previously, there may be instances in which living at a specific address or within a small geographic area is what "qualifies" a person for eligibility. If that named person no longer lives at the address for which he or she was sampled, it may make the person ineligible and s/he is out of the sample (4.10). In a rare instance in which eligibility in the mail survey is determined at least by two criteria, the first being that the address of the housing unit is part of eligibility, the use of the "No Eligible Respondent" code (4.70) would be appropriate if the person is at the sampled address but no longer is eligible because of some other selection criterion.

In mail surveys that employ a quota, there will be cases in which returned questionnaires are not treated as part of the final dataset because the quota for their subgroup of respondents already been filled (e.g., responses from women when a gender quota is used and the female target has already been met) (4.80). What the quotas are and how they are to be filled must be clearly defined.

Another final type of "ineligibility" occurs in mail surveys, especially those that use a large "mailing list" as the sampling frame. This will happen when duplicate listings are sampled — ones in which the same individual inadvertently appears more than once in the sampling frame. If these are recognized as duplicates only after the mailings have been returned by the respondent, e.g., when a respondent mails back a completed questionnaire and a blank one with a note that s/he received two questionnaires, the additional mailing(s) should be treated as not eligible due to duplicate listings (4.81).

Finally, additional reasons for non-eligibility can be coded under Other (4.90).

In all cases about final disposition codes involving ineligibility, definite evidence of the status is needed. When in doubt, a case should be presumed to be eligible or possibly

eligible rather than ineligible, unless there is unambiguous evidence leading to the latter classification.

Internet Surveys of Specifically Named Persons

Like mail surveys, Internet surveys also vary greatly in the populations they cover and the nature and quality of the sample frames from which their samples are drawn. Many types of Internet surveys do not involve probability sampling. These include opt-in or access panels (see AAPOR, 2010a), or unrestricted self-selected surveys (for a review, see Couper, 2000). The AAPOR Task Force (2010a) provides a detailed discussion of the inferential issues related to non-probability panels, and specifically recommends that "Researchers should avoid nonprobability online panels when one of the research objectives is to accurately estimate population values" (p. 5). For non-probability samples, response rate calculations make little sense, given the broader inferential concerns. Further, for many of these surveys, the denominator is unknown, making the calculation of response rates impossible (cf. Callegaro and DiSogra, 2008).

In this section we focus on four popular types of Internet surveys: 1) Internet surveys of specifically-named persons (i.e., using list-based samples), 2) probability-based Internet panels, 3) non-probability Internet panels, also called opt-in or access panels, and 4) river samples or self-recruited online samples. For the latter two types, we use the term "participation rate" to avoid confusion with the response rates described in the rest of this document.

Internet Surveys of Specifically Named Persons

For Internet surveys of specifically named persons, and, in particular, those using sampling frames of e-mail addresses where all members of frame have Internet access (i.e., coverage is not an issue), one can establish parallels with the discussion of mail surveys of specifically named persons addressed earlier in this document. Using an examination of the similarities and dissimilarities between the two modes, this section provides disposition codes for Internet surveys of specifically named persons (see Table 4).

This section focuses on list-based sampling frames of e-mail addresses. In other words, the assumption is that the target population is synonymous with the sampling frame and thus is defined as those persons on the list with Internet access and a working e-mail address. Different assumptions need to be made, and different rates apply, in the case of mixed-mode (e.g., mail and Internet) designs. For instance, in the case of mailed invitations to an Internet survey, such as where mail addresses but not e-mail addresses are available, a hybrid combination of the categories in Table 3 and Table 4 may apply.

Table 4 addresses Internet surveys of specifically named persons. It assumes that the request or invitation to participate in the survey is sent electronically. Table 4 also assumes that only the named person is the appropriate (i.e., eligible) respondent and that some confirmation is needed that the named respondent is at the sampled e-mail address and/or otherwise still eligible for inclusion. An example might be a sample of currently registered college students drawn from the registrar's records. The records may include students who have graduated, dropped out or transferred. To be eligible for the particular Internet survey, the student must currently be taking classes. A failure to receive a reply to the Internet survey would place them in the unknown eligibility category, since it could not be confirmed that they were still currently active students.

Of note, and as in the case of mail surveys, an e-mail invitation may be returned as undeliverable, not because the sampled person is no longer eligible, but because the e-mail address that appears on the list is incorrect or outdated. For example, consider an e-mail list of students at a university or members of a professional association. Some persons on the list no longer may be registered students or members of the association but still have other valid e-mail addresses not known to the researcher; others still may be students or members in good standing, but they have changed e-mail addresses. Compared to the accuracy of a regular mail address and the effect that accuracy has on delivery to the intended recipient, e-mail addresses are much less tolerant of errors. Whereas a postal employee often can and will "make sense" of inaccuracies in a regular mailed address, there currently is no process on the Internet that strives to match email addresses that have spelling errors in them to the most likely recipient. Furthermore, e-mail suffers from a greater degree of "churn" or changes in address than does regular mail, and hence one cannot simply assume that such cases are ineligible. Thus, an undelivered e-mail message essentially would place such cases in the unknown eligibility category. Of course, eligibility of such persons could be verified by other means.

Depending on the quality of the list, different assumptions can be made about eligibility. For example, if it is known that the list is both accurate and current, it can be assumed that all those from whom one receives no response are eligible sample persons who therefore must be treated as nonrespondents. As with the other modes of data collection described in this document, the appropriate assumptions about eligibility may depend upon details of the sample design and the state of the sampling frame or list. Researchers thus must clearly describe their sample design and explicitly state and justify their assumptions about the eligibility of cases in the sample to properly inform others of how the case dispositions are defined and applied.

Furthermore, unlike regular mail, e-mail addresses tend to be associated with an individual, rather than a household or business. So, if the e-mail is not read by the targeted person (for reasons of change of employment, death, illness, etc.), it is less likely to be opened and read by another person than is a regularly mailed questionnaire sent to the same sampled respondent. This means that the researcher may be less likely to get word back about an e-mail message that was sent to a person who is no longer at that address. Similarly, e-mail messages may not be read or returned for a number of technical reasons. Return receipt typically only works within a single domain, so surveys conducted over the Internet (as opposed to an Intranet) are likely to include e-mail addresses for which the delivery status is unknown. In addition, e-mail may be successfully delivered to the address, but never seen by the addressee because of spam filters, inboxes that are too full, or a host of other technical reasons.

So, in contrast to regular mail, the researcher often has far less detailed information on the delivery and receipt status of an e-mail invitation. In contrast, once a sample person reads the e-mail and clicks on the URL to start the survey, the researcher may know much more about the later stages of the questionnaire completion process (various forms of partial surveys) than in traditional mail surveys. This may vary depending on the particular design of the Internet survey. For example, surveys that use a paging design, breaking the survey into groups of items that are submitted in turn to the Web server, can identify the point at which a respondent decided to terminate the survey, and breakoffs

can be identified in similar ways to interviewer-administered surveys. On the other hand, Internet surveys that employ scrolling designs, in which all the questions are in a single HTML form, will not be able to distinguish between breakoffs and nonrespondents, and in this respect are more similar to regular mail surveys. In addition, as long as a respondent submits the questionnaire to the Web server—even without answering all questions—the capture of partially completed questionnaires is possible. In summary, breakoffs can be identified by the particular point at which the survey instrument is terminated, while partials are identified by the number or proportion of questions that are answered. Similar rules as used in mail surveys to distinguish between complete interviews, partials, and break-offs can be used for Internet surveys.

Again, clear descriptions of the decisions made and justification for the classification used is needed for others to understand the outcome of the Internet data collection effort.

1. Completed and Partial Questionnaires

In an Internet survey, there are many levels of completion of the instrument. At one extreme, the respondent provides an answer to every one of the items and submits the completed questionnaire via the Internet. But some respondents may get partway through the questionnaire then, for various reasons, fail to ever complete it. These cases are typically referred to as "abandonments," "breakoffs," "drop-outs" or partials. Still others may read, or at least view, every question in the questionnaire and submit the instrument after reaching the final question, but decline to answer all of the questions. These may also be viewed as partials, or as completes with missing data.

How these various types of incomplete cases are classified may depend on the objectives of the survey and the relative importance of various questions in the instrument, as well as on the particular design of the Internet survey (whether, for example, it is permitted to skip items without providing an answer). The sections in this document on other modes of survey data collection have a discussion of the different decision rules for classifying cases as complete versus partial versus break-off, and that discussion will not be repeated here. However, a survey must provide a clear definition of theses statuses. The breakoff category could be further differentiated into the various sections or even items at which the breakoff occurred, depending on the importance of these sections to the survey.

At the very least, Web survey dispositions for "returned" questionnaires should distinguish between two groups, (1.1) complete and (1.2) partially complete (partials or breakoffs with sufficient information to meet criterion), and provide a description of how these groups were determined.

2. Eligible, No Returned Questionnaire (Non-response)

This group includes all those from whom no or insufficient data are obtained, but could not be classified definitely as ineligible (2.0). The three main groups that can be identified are refusals and break-offs (2.11 and 2.12), non-contacts (2.20) and others (2.30); see Table 4.

Explicit refusals can occur in Web surveys when the recipient replies to the e-mail

invitation stating that he or she does not want to participate in the survey (2.111). Implicit refusals are those where a respondent visits the Internet survey URL and logs in with an ID and/or password, but fails to complete any of the survey items (2.112). Both types of refusals are likely to be rare.

The second broad category of non-response includes those cases for which the researcher receives notification that a respondent was unavailable to complete the questionnaire during the field period (2.20). Two subcategories of non-contact of relevance to Web surveys include cases where the respondent indicates that he or she is absent or unavailable during the field period, e.g., by means of an "out-of-office" message or other such automated reply (2.26), or when the questionnaire was returned after the close of the field period (2.27). Of note, the more common case of simply receiving no response to the invitation, and no indication whether or not the invitation was received, is classified under "unknown eligibility" below. The category 2.20 is reserved for those cases where some evidence is obtained that the selected respondent is eligible but unable to complete the questionnaire. This may include the rare instances where a receipt is sent that the potential respondent has received and/or opened the e-mail message, but no further response is received.

The residual category of others (2.30) is reserved for all other eligible but non-completed cases. One example might be where the researcher is notified, whether by e-mail or other means, that the recipient of the survey invitation is unable to complete the survey for a variety of possible reasons, such as physical or mental incapacity, incarceration or hospitalization, language barrier, and so on. Again, these cases are likely to be rare.

3. Unknown Eligibility, No Questionnaire Returned

Cases of unknown eligibility and no completed questionnaire (3.0) include situations in which nothing is known about whether the invitation to participate in the Internet survey ever reached the person to whom it was addressed (3.10), or in which the invitation or request was not delivered for a variety of reasons (3.30).

Whether and how information comes back to the researcher about e-mail that is not delivered to the intended recipient various across different e-mail systems and e-mail servers. Because of such wide variations and rapid changes in e-mail technology, a detailed breakdown of codes to parallel the USPS categories in Table 3 is not possible at this time. For this reason, the subcategories of unknown eligibles (3.0) are left deliberately broad. Some researchers, depending on the particular circumstances of their study, may have more information about what happened to the outgoing e-mail message. In such cases it is appropriate to provide more detailed dispositions under the 3.0 category umbrella. In the case of mailed invitations to an Internet survey, the detailed USPS categories in Table 3 are applicable.

As with mail surveys, the unknown-eligibility subset in which nothing is learned about whether the invitation could or did reach the sampled respondent (3.10) is broken down further into cases in which a) the invitation was never sent (3.11) and cases in which b) absolutely no information ever reaches the researcher about the outcome of the e-mail invitation (3.19). This latter disposition often occurs with high frequency in Internet

surveys. The former (3.11) could occur in circumstances where there is insufficient information on the frame to send an invitation, or the request was not sent for some other reason. Examples of this include a name on the list with a missing or obviously erroneous e-mail address.

Cases in which the e-mail invitation generates a response that indicates the invitation was undelivered are classified under 3.30. The particular form of the notification may generate a disaggregation into subcategories of 3.30 as appropriate. Finally, category 3.40 is reserved for the cases where forwarding information is obtained (e.g., in the case of a mailed invitation), and 3.90 is reserved for miscellaneous other types of non-response with unknown eligibility.

4. Not Eligible

Not eligible cases for Internet surveys of specifically named persons include: a) the named person being found to be ineligible due to screening information returned to the researchers and thus out-of-sample (4.10); b) situations in which quotas have been filled (4.80); and c) duplicate listings (4.81).

In surveys that require the addressee to complete a screen to determine eligibility, researchers may have sampled cases that later are determined not to be eligible. For example, there may be cases in the sampling frame that no longer are registered as students at the university or whose membership in the association has lapsed. Category 4.10 is thus reserved for cases that are screened out using information obtained in the questionnaire or by other means. In Internet surveys that employ a quota, there will be cases in which some completed questionnaires are not treated as part of the final dataset because the quota for their subgroup of respondents has already been filled (4.80). What the quotas are and how they are to be filled must be clearly defined by the researcher.

Another final type of "ineligibility" may occur when there are duplicate listing in the frame (e.g., a person is listed twice or provides two or more e-mail addresses, both of which are sampled). If these are recognized as duplicates only after the questionnaires have been returned by the respondent, the additional questionnaire(s) should be treated as not eligible due to duplicate listings or duplicate submissions (4.81). This may occur in the case where access is not tightly controlled, and the respondent submits more than one questionnaires.

Finally, additional reasons for non-eligibility can be coded under Other (4.90).

In all cases concerning final disposition codes involving ineligibility, definitive evidence of the status is needed. When in doubt a case should be presumed to be eligible or possibly eligible rather than ineligible, unless there is clear evidence leading to the latter classification.

Probability-Based Internet Panels

Probability-based Internet panels use probability sampling methods to select and recruit participants to a panel. In some cases, the panel may be restricted to Internet-users only (i.e., the population is defined as Internet users); in other cases, Internet access is provided to panel

members as needed, to ensure broader coverage of the population. Panel members are then sent invitations to specific surveys at agreed-upon intervals. Individual surveys may be sent to all panel members or a subset of eligible members. These panels therefore have two main stages at which nonresponse may occur – the initial recruitment into the panel and the invitation to a particular survey. In practice there are a number of additional steps (see AAPOR, 2010a; Callegaro and DiSogra, 2008; and Couper et al., 2007). Full details of the various metrics used for such panels are described by Callegaro and DiSogra (2008). This document provides a brief overview of some key metrics.

The first stage in a pre-recruited probability-based panel is the initial recruitment interview. This is typically done by telephone, but other modes of recruitment (such as mail or personal visit) could be used. The response rate to this initial interview is calculated in the normal fashion for the particular mode as described elsewhere in this document. A series of screening questions are then asked to determine eligibility for the panel, based on predetermined criteria which may include language, age, and Internet access or use restrictions. For example, the Gallup Panel (see Rookey, Hanway, and Dillman, 2008; and Tortora, 2009) conducts Internet surveys only among eligible persons who report regular Internet use, whereas the Knowledge Networks KnowledgePanel in the U.S. (see Smith, 2003; and Callegaro and DiSogra, 2008) and the LISS panel in the Netherlands (see Scherpenzeel and Das, 2010) both provide Internet access to those who do not currently have it. Eligible persons are asked to consent to joining the panel. An initial recruitment rate (RECR) can be computed as follows:

$$\text{Recruitment rate (RECR)} = \frac{IC}{IC + (R + NC + O) + e(UH + UO)}$$

Where *IC* is the initial consent rate, and the remaining terms are as defined elsewhere in this document. Following agreement to join the panel, potential panelists are provided with equipment (if necessary) and instructions to complete the surveys.

Many panels consider a panelist enrolled only after completion of one or more initial profile surveys. Thus, a profile rate (PROR) can be computed as follows:

$$\text{Profile rate (PROR)} = \frac{(I + P)}{(I + P) + (R + NC + O)}$$

Using AAPOR RR5 (counting completes only) or RR6 (counting completes and partials), where all the terms in the expression are as used elsewhere in this document.

Finally, a completion rate (COMR) can be computed for response *to a particular survey invitation* sent to eligible panel members, again using AAPOR RR5 or RR6:

$$\text{Completion rate (COMR)} = \frac{(I + P)}{(I + P) + (R + NC + O)}$$

While the formula for the rate is the same as that for the profile rate (PROR) described above, the denominator for the COMR is based on eligible panel members who have completed the profile survey(s), while that for the PROR is based on those who agreed to join the panel.

Based on these three components, a cumulative response rate (CUMRR) can be computed as follows:

$$\text{Cumulative response rate (CUMRR)} = \text{RECR} \times \text{PROR} \times \text{COMR}$$

In practice, there may be several more steps involved. First, recruitment to such panels is often done on an ongoing basis, and the composition of the panel changes over time. The initial recruitment rate may thus be a composite measure, based on a number of different rates. Further, screening questions often are used to determine eligibility for a particular survey (if the criteria

cannot be determined from the profile questions). This necessitates a further step in the computation. Finally, panel attrition is of importance if employing a longitudinal design to study responses across surveys or time. Full details of these issues are discussed in Callegaro and DiSogra (2008).

Non-Probability Internet Panels

Like probability-based panels, non-probability Internet panels consist of several steps. A key difference is that the first step, recruitment into the panel, is not based on a known sampling frame with known probabilities of selection. The population thus cannot be clearly defined. A variety of different recruitment methods are used to build such a panel (see AAPOR Task Force, 2010). Although the number of people who join the panel is usually known, the number of people who were exposed to the invitation, and the number of invitations to which they were exposed, are not known. The number of panel members invited to a particular survey, and the number who respond to the invitation and complete the survey, are known. This latter rate should not be referred to as a "response rate" because of the association of that term with probability samples, and because this rate is only a partial rate. Following the AAPOR Task Force (2010) and ISO 26362 (2009), we recommend calling this rate a "participation rate," which is defined as the number of respondents who have provided a usable response divided by the total number of initial personal invitations requesting participation.[30]

Although a participation rate can be calculated for the completion of a particular survey by previously-recruited panel members, using such a rate as an indicator of possible nonresponse error makes little sense; however, the participation rate may serve as a useful indicator of panel efficiency. This rate is influenced by the particular panel management strategies employed. For example, if "inactive" panel members (however defined) are removed from the panel, the participation rate is likely to be higher. The participation rate serves as an indicator of how much effort is required to recruit panel members to a particular survey, and how many need to be invited to get a targeted number of completed surveys. Given varying practices in panel management, the participation rate may have little utility as a comparative measure across panels.

River Samples and Self-Selected Online Samples

A variety of self-selected online surveys are still popular today, despite the fact that they are non-probability samples and restricted only to Internet users who are exposed to the invitation and decide to click on the associated link and complete the survey. These include river sampling[31] and the use of social media (e.g., Facebook) for recruitment of survey participants. The AAPOR Online Task Force (2010) has a discussion of river sampling. For these approaches, as with the non-probability access panels, the denominator (exposures to the invitation) is rarely known, and the population of interest is not well defined. We thus caution strongly against the computation and presentation of any metrics discussed in this document for such sources, other than the narrow use of "participation rate" described above for the purposes of evaluating operational efficiency rather than for making any inferential statements. Furthermore, such "samples" should be clearly identified as non-probability or self-selected samples.

[30] Of note, Callegaro and DiSogra (2008) refer to this as a "completion rate."

[31] River sampling recruits [from the internet] using banner ads, pop-up ads and similar instant "capture" promotions. Individuals who volunteer to participate are screened for their reported demographic characteristics and then "randomly assigned" to the appropriate survey. Hence the metaphor of being captured from the flowing river of online persons (DiSogra, 2008).

Mixed-Mode Surveys

Standard Definitions defines disposition codes for specific modes (RDD telephone surveys of households, in-person household surveys, mail surveys of specifically named persons, and Internet surveys of specifically-named persons), but some surveys use multiple modes in what are called mixed-mode designs. Mixed-modes designs can consist of surveys in which there are separate samples which are conducted with different modes, a unified sample in which multiple modes are used for individual cases (e.g. in address-based samples employing both in-person and postal approaches to obtain responses), or a combination of both. In any case, disposition codes appropriate to the mode utilized for a particular attempt and its outcome would be employed. Thus, an in-person attempt might be coded as not able to locate address (3.18) and a postal attempt for the same case as no such address (3.313). These two codes may reflect the same underlying fact about the address, but naturally are distinct codes reflecting the mode differences. However, for calculating outcome rates many of the detailed, mode-specific disposition codes are irrelevant. They can be collapsed into the major categories used in the outcome formulas used in *Standard Definitions*. In the mail and in-person example mentioned above, both would become unknown eligibility (3.0). Of course, the mixed-mode results may differ from one another rather than agree, just like different attempts in the same mode often yield different results. Rules for determining the final disposition codes discussed earlier in *Standard Definitions* applies to mixed-mode designs just as to single-mode designs. For some suggestions on keeping track of cases across modes see Chearo and Van Haitsman (2010).

Establishment Surveys

Surveys of establishments, which include businesses, health-care providers, educational institutions, and other organizational entities, may be conducted using telephone, in-person, mail, internet or mixed-mode methods. As such, they encounter many of the same operational issues and events described in the Standard Definitions document (i.e., reaching non-working numbers, reaching the maximum number of contacts, refusals, partial interviews, etc.). They therefore require pending disposition codes for all phases of locating, contacting, gaining cooperation, appointment setting, and final disposition codes for closeout. These are discussed within the appropriate sections of Standard Definitions.

Establishment surveys differ from household surveys in three major ways: (1) Typically, the samples for establishment surveys are built from a list (or lists) that is either publicly available, purchased, provided by a stakeholder, or emerges from a related survey. The reliance on an exogenous list gives rise to operational issues regarding sample integrity that do not generally affect household surveys.(2) Establishment surveys have a different process of defining and revising target respondents, and (3) Establishment surveys may involve multiple and nested respondents and/or questionnaires within a single case. The three sections below discuss these points and highlight the standards regarding disposition codes and response rates for each.

1. Sample integrity issues.

Situations may arise which cause the project to re-examine whether cases should, in fact, be considered in the sample. Some examples include:

- The interviewer discovers that an establishment on the sample list has merged with or split from another establishment Or, similarly, two establishments on the list have merged. Should the establishment(s) in its new configuration be considered the "case" that was targeted by the sample?
- The interviewer discovers that all units on the sample list do not reflect the same unit of analysis. That is to say, in some cases the lowest organizational unit may enter the sample frame, but in other cases a higher level, or "rolled-up" organizational unit may enter the frame. An example of a lower unit might be an individual physician office; an example of a rolled-up unit might be an independent practice organization which represents physicians' offices. Cleaning and standardizing the list should be performed prior to interviewing, but sometimes this task is nuanced enough that it requires interviewers to evaluate every sample member. In that case, the evaluation and any standardizing of the sample members is performed during the survey itself, and the final dispositions of all sample members are assigned after the survey is completed.
- A related problem is that sometimes establishments are duplicated on the list if the list has multiple entry points. Deduplicating the sample list should certainly be performed prior to interviewing, but sometimes the task is complicated enough that it requires interviewers to evaluate every sample member
- The interviewer discovers that an establishment has moved out of the target survey area. Deciding whether it is eligible to be included in the sample requires examination of the original intent of the sampling list. If the intent was to sample establishments in a given geographical area, then the relocated establishment is ineligible. But if the intent was to build a sample of

establishments using a geographically-based frame, then the relocated establishment is still eligible.

- The interviewer realizes that the establishment is not engaged in the target sector of concern to the survey. This may be due to changes within the establishment, or ambiguities in the technical classifications of the list.

Standards - disposition codes

The project should anticipate these types of sample questions and establish decision rules and disposition codes that instruct the interviewer how these cases should be handled. The disposition codes should also provide transparency in regards to how the project handled and coded these sample issues. Cases which are considered "out of sample" should be given an appropriate final disposition code and should be excluded from the denominator in calculating the response rate. Establishment surveys generally distinguish between cases that are coded as "out of the sample" per interviewer observation and cases that are evaluated to "ineligible" per a screener instrument. Both of these are distinct from "unknown eligibility" which describes the situation when the survey has been unable to contact the establishment or determine anything about its eligibility.

2. Issues regarding definition of respondents

Establishment surveys have a distinct process for defining and revising the target respondent. Unlike household surveys where the sample unit is the respondent, in establishment surveys the establishment is the sample unit. Questionnaires are completed by a target respondent who functions as an informant on the establishment's behalf. The following points apply regarding defining the respondent:

- Identifying the name and contact information of target respondent is often a necessary step in establishment surveys because the sample list does not usually include this information, or, if it does, the information may be outdated.
- A target respondent could be in a given position, such as "the CEO" or "the principal." An explicit plan should establish who should be the respondent if this position is currently vacant, or if a particular term is not in use in that establishment. There is great variability in the terms used, particularly in small businesses (owner, manager, boss), small agencies (administrator, director, executive director, owner) and the health-care industry (administrator, director of nursing, head nurse, director of resident services.)
- On the other hand, the definition of target respondent could be more fluid. It might be defined as for example "the person most knowledgeable about this agency" or "the person most familiar with the residents of this facility." The interviewer needs to interact dynamically with the establishment in order to identify the target respondent(s). Also, the target respondent identified could vary given the policies of the establishment.
- Situations will arise when the target respondent is not knowledgeable enough about the subject matter to complete the survey, lacks the organizational authority to agree to participate, or is otherwise inappropriate or unable to respond. Protocols should establish contingency plans for these situations so that interviewers know when and how they may identify appropriate alternative respondents. In household surveys when the originally sampled respondent cannot respond, the survey might use a proxy respondent. However, in establishment

surveys, the newly identified respondent is generally not considered a proxy, but merely an alternative informant.

Standards: response rates

The protocols must describe and provide transparency in how the project defines respondents, because response rates will vary based on how narrowly or widely acceptable respondents are defined.

Calculation of response and outcome rates should be done at the sample unit level – that is to say, the establishment itself, not at the respondent or informant level. These rates should reflect the number of sample units which completed or refused as a percentage of the number of eligible sample units. The identity or position of the informant completing the questionnaire is not important to response rates, though the project may wish to track this information for operational purposes.

3. Issues regarding multiple questionnaires per establishment

Establishment surveys can have multiple and nested questionnaires per establishment. A school, which typically has a natural hierarchical structure, provides a good example of a nested case: a school sample unit may have component questionnaires consisting of a school questionnaire, a budget questionnaire, a health questionnaire, multiple parent questionnaires, multiple student questionnaires, and multiple student transcripts. These surveys require additional considerations in regards to defining respondents and calculating response rates.

- As stated above in the single-questionnaire case, the survey protocol should specify acceptable and unacceptable respondents for the different questionnaires. Some questionnaires could have several acceptable respondents (for example, a budget questionnaire could be completed by a principal, superintendent, or staff member familiar with the budget) but other questionnaires may have only one acceptable respondent (for example, the health questionnaire may only be answerable by the school nurse). In addition, some respondents may be acceptable for multiple questionnaires.
- Disposition codes should be established for each component questionnaire and should reflect the range of outcomes appropriate to that particular questionnaire, including incomplete and complete, and ineligible if the questionnaire did not apply to the particular sample unit (for example, if the school did not have a health clinic the health questionnaire would be coded as ineligible). Questionnaire–level, response rates may then be computed to indicate the response rate for each questionnaire after removing from the denominator any ineligible questionnaires.
- The project will probably also want to compute a response rate at the sample unit level to portray response at the sample unit level, which in this example is the school establishment as a whole. The rules for computing this rate should be set out ahead of time and transparently described. One typical definition is to establish the most crucial of the component questionnaires to which all the sample units will by definition be eligible; if a school has completed this crucial questionnaire then the "school case" is considered complete. A stricter definition might be that the school establishment cannot be considered complete unless all component questionnaires have been completed. Following the appropriate

AAPOR standard definitions, sample units which were ineligible or not part of the sample should be removed from the denominator of this case-level response rate.

Standards: response rates

If there is more than one questionnaire, the survey should report response rates for each questionnaire separately. The survey may in addition wish to report a response rate for the case as a whole, and if one is reported, the definition of how it was calculated should be described.

Calculating Outcome Rates from Final Disposition Distributions

Numerous outcome rates are commonly cited in survey reports and in the research literature. The same names are used to describe fundamentally different rates and different names are sometimes applied to the same rates. As a result, survey researchers are rarely doing things in a comparable manner and frequently are not even speaking the same technical language. As Groves and Lyberg (1988) have noted, "(t)here are so many ways of calculating response rates that comparisons across surveys are fraught with misinterpretations." Among the more common terms utilized are response, cooperation, refusal, and contact.

As defined by CASRO (Frankel, 1983) and other sources (Groves, 1989; Hidiroglou, et al., 1993; Kviz, 1977; Lessler and Kalsbeek, 1992; Massey, 1995), the response rate is the number of complete interviews with reporting units divided by the number of eligible reporting units in the sample. Using the final disposition codes described above, several response rates are described below:

RR = Response rate
COOP= Cooperation rate
REF = Refusal rate
CON = Contact rate
I = Complete interview (1.1)
P = Partial interview (1.2)
R = Refusal and break-off (2.10)
NC = Non-contact (2.20)
O = Other (2.30)
UH = Unknown if household/occupied HU (3.10)
UO = Unknown, other (3.20, 3.30, 3.40, 3.90)
e = Estimated proportion of cases of unknown eligibility that are eligible

Response Rates

$$\mathbf{RR1} = \frac{\mathbf{I}}{\mathbf{(I + P) + (R + NC + O) + (UH + UO)}}$$

Response Rate 1 (RR1), or the minimum response rate, is the number of complete interviews divided by the number of interviews (complete plus partial) plus the number of non-interviews (refusal and break-off plus non-contacts plus others) plus all cases of unknown eligibility (unknown if housing unit, plus unknown, other).

$$\mathbf{RR2} = \frac{\mathbf{(I + P)}}{\mathbf{(I + P) + (R + NC + O) + (UH + UO)}}$$

Response Rate 2 (RR2) counts partial interviews as respondents.

$$\mathbf{RR3} = \frac{\mathbf{I}}{\mathbf{(I + P) + (R + NC + O) + e(UH + UO)}}$$

Response Rate 3 (RR3) estimates what proportion of cases of unknown eligibility is actually eligible. In estimating e, one must be guided by the best available scientific information on what share eligible cases make up among the unknown cases and one must not select a proportion in order to boost the response rate.[32] The basis for the estimate must be explicitly stated and detailed. It may consist of separate estimates (Estimate 1, Estimate 2) for the sub-components of unknowns (3.10 and 3.20) and/or a range of estimators based of differing procedures. In each case, the basis of all estimates must be indicated. [33]

$$\mathbf{RR4} = \frac{\mathbf{(I + P)}}{\mathbf{(I + P) + (R + NC + O) + e(UH + UO)}}$$

Response Rate 4 (RR4) allocates cases of unknown eligibility as in RR3, but also includes partial interviews as respondents as in RR2.

$$\mathbf{RR5} = \frac{\mathbf{I}}{\mathbf{(I + P) + (R + NC + O)}}$$

$$\mathbf{RR6} = \frac{\mathbf{(I+ P)}}{\mathbf{(I + P) + (R + NC + O)}}$$

Response Rate 5 (RR5) is either a special case of RR3 in that it assumes that e=0 (i.e. that there are no eligible cases among the cases of unknown eligibility) or the rare case in which there are no cases of unknown eligibility. Response Rate 6 (RR6) makes that same assumption and also includes partial interviews as respondents. RR5 and RR6 are only appropriate when it is valid to assume that none of the unknown cases are eligible ones, or when there are no unknown cases. RR6 represents the maximum response rate.

[32] For example, different values of e would be appropriate in a survey requiring screening for eligibility (e.g., sampling adults 18-29 years old). Two different e's might be used for confirmed households that refused to complete the screener (for which we need an estimate of the likelihood of one or more household members being 18-29) and units that were never contacted (for which we need an estimate of the proportion that are households and an estimate of those with someone 18-29)

[33] For a summary of the main methods for estimating e in surveys (1) minimum and maximum allocation, 2) proportional allocation, 3) allocation based on disposition codes, 4) survival methods, 5) calculations of number of telephone households, 6) contacting telephone business offices, 7) linking to other records, and 8) continued calling), see Smith, 2009.

Cooperation Rates

A cooperation rate is the proportion of all cases interviewed of all eligible units ever contacted. There are both household-level and respondent-level cooperation rates. The rates here are household-level rates. They are based on contact with households, including respondents, rather than contacts with respondents only. Respondent-level cooperation rates could also be calculated using only contacts with and refusals from known respondents.

$$\mathbf{COOP1} = \frac{\mathbf{I}}{\mathbf{(I + P) + R + O}}$$

Cooperation Rate 1 (COOP1), or the minimum cooperation rate, is the number of complete interviews divided by the number of interviews (complete plus partial) plus the number of non-interviews that involve the identification of and contact with an eligible respondent (refusal and break-off plus other).

$$\mathbf{COOP2} = \frac{\mathbf{(I + P)}}{\mathbf{(I + P) + R + O}}$$

Cooperation Rate 2 (COOP2) counts partial interviews as respondents.

$$\mathbf{COOP3} = \frac{\mathbf{I}}{\mathbf{(I + P) + R}}$$

$$\mathbf{COOP4} = \frac{\mathbf{(I + P)}}{\mathbf{(I + P) + R}}$$

Cooperation Rate 3 (COOP3) defines those unable to do an interview as also incapable of cooperating and they are excluded from the base. Cooperation Rate 4 (COOP4) does the same as Cooperation Rate 3, but includes partials as interviews.

Refusal Rates

A refusal rate is the proportion of all cases in which a housing unit or respondent refuses to do an interview, or breaks-off an interview of all potentially eligible cases.

$$\mathbf{REF1} = \frac{\mathbf{R}}{\mathbf{(I + P) + (R + NC + O) + (UH + UO)}}$$

Refusal Rate 1 (REF1) is the number of refusals divided by the interviews (complete and partial) plus the non-respondents (refusals, non-contacts, and others) plus the cases of unknown eligibility.

$$\mathbf{REF2} = \frac{\mathbf{R}}{\mathbf{(I + P) + (R + NC + O) + e(UH + UO)}}$$

Refusal Rate 2 (REF2) includes estimated eligible cases among the unknown cases similar to Response Rate 3 (RR3) and Response Rate 4 (RR4) above.

$$\mathbf{REF3} = \frac{\mathbf{R}}{\mathbf{(I+ P) + (R + NC + O)}}$$

Refusal Rate 3 is analogous to Response Rate 5 (RR5) and Response Rate 6 (RR6) above. As in those cases the elimination of the unknowns from the equation must be fully justified by the actual situation. Non-contact and other rates can be calculated in a manner similar to refusal rates. Refusal, non-contact, and other rates will sum to equal the non-response rate.

Contact Rates

A contact rate measures the proportion of all cases in which some responsible member of the housing unit was reached by the survey. The rates here are household-level rates. They are based on contact with households, including respondents, rather than contacts with respondents only. Respondent-level contact rates could also be calculated using only contact with and refusals from known respondents.

$$\mathbf{CON1} = \frac{\mathbf{(I + P) + R + O}}{\mathbf{(I + P) + R + O + NC + (UH + UO)}}$$

Contact Rate 1 (CON1) assumes that all cases of indeterminate eligibility are actually eligible.

$$\mathbf{CON2} = \frac{\mathbf{(I + P) + R + O}}{\mathbf{(I + P) + R + O + NC + e(UH + UO)}}$$

Contact Rate 2 (CON2) includes in the base only the estimated eligible cases among the undetermined cases.

$$\mathbf{CON3} = \frac{\mathbf{(I + P) + R + O}}{\mathbf{(I + P) + R + O + NC}}$$

Contact Rate 3 (CON3) includes in the base only known eligible cases.

Reporting Outcome Rates

In reporting response rates and all other outcome rates calculated according to the rules and formulas indicated above, researchers must precisely define which rates are being used. For example, a statement that "the response rate is X" is unacceptable. One must report on exactly which rate was used such as "Response Rate 2 was X." In addition, a table showing the final disposition codes for all cases should be prepared for the report and made available upon request.[34]

[34]In addition, weighted outcome rates for multiple-stage samples would be needed when there is differential representation of respondents (e.g. students or employees) by intermediate sampling units (e.g., schools or firms). Weighted outcome rates should be used as needed and any weighting should be explained in detail.

Some Complex Designs

When surveys use complex designs, the reporting of response and other outcome rates also becomes more complicated. Here guidelines are presented for three general situations: 1) a design selected with unequal probabilities of selection; 2) a design selected in stages; and 3) a two-phase design that subsamples nonrespondents. The third design is relatively specific but is included because subsampling nonrespondents and using more intensive methods to encourage them to respond is an important special case. Complex designs often require that the principles given in more than one of these sections be combined to report rates.

Single Stage Samples with Unequal Probabilities of Selection. *In single stage designs where the units are sampled with unequal probabilities, the rates should be weighted by base weights that are the inverse of the selection probabilities or a number that is proportional to the inverse*. In other words, the counts of cases that are used in computing rates should be replaced by the sums of the base weights of the completed cases. For example, the numerator in **RR1**, the count of the number of completed interviews, should be replaced by the sum of the weights of completed cases.

Example: Suppose a sample of persons is selected with unequal probabilities, where the selection weight for person i is w_i (the reciprocal of the probability of the sampling rate for that person in the survey). The numerator for RR1 should be the sum of the w_i for all the persons that completed the interview. The denominator contains the corresponding weighted counts. This response rate estimates the percentage of persons in the frame that responded.

For example, **RR1** becomes

$$\mathbf{RR1_w} = \frac{I_w}{(I_w + P_w) + (R_w + NC_w + O_w) + (UH_w + UO_w)}$$

where the subscript w reflects the use of weighting. That is, the I in the simple **RR1** is the total number of interviews (i.e., $I = \Sigma I_i$, where $I_i = 0$ if the i^{th} sample case is not an interview and $I_i = 1$ if the i^{th} sample case is an interview). In the $\mathbf{RR1_w}$, I_w is the weighted sum of the I_i or $I_w = \Sigma w_i I_i$. Similarly, $P_w = \Sigma w_i P_i$, and so on for R_w, NC_w , O_w, UH_w, and UO_w.

Multistage Sample Designs. *In multistage designs, the rates for the units that are sampled at the last stage should incorporate nonresponse at the earlier stages.*

Example: Suppose a sample of households is selected in the first stage and a sample of persons is selected in the second stage or schools are samples at the first stage and students at the second stage. As an example consider a design that attempts to interview all persons aged 18-44 in each sample household. The rates for the first stage (i.e., household-level rates) are computed as noted above. The person-level rates are computed estimating the number of 18-44 year olds missed in nonrespondent households.

For example, if households are selected with equal probabilities, **RR1-RR6** should be based on counts of persons 18-44 sampled in respondent and nonrespondent households. Typically the number of persons 18-44 in nonrespondent households is not fully known, so to compute

$$\mathbf{RR3} = \frac{I}{(I + P) + (R + NC + O) + e(UH + UO)}$$

some persons counts must be estimated. I, P, R, NC, and O are numbers of nonrespondent persons 18-44 in the households where some persons responded and are usually known. On the other hand, the term e(UH + UO) is an estimate of the number of sampled persons 18-44 in sample households that were completely nonrespondent (e.g., there was a refusal before a listing of persons in the household was attained). (UH + UO) is the estimated total number of persons in those nonrespondent households and e is the estimated proportion of persons in the nonrespondent households that are 18-44 and eligible for the sample.

A common practice is to estimate **RR1-RR6** as a product of a screening rate and an interview rate. The screening rate is the percentage of occupied housing units with 18-44 year olds that provided a household listing (i.e., determination of eligibility). The interview rate is the percentage of sampled persons who provided an interview. Multiplying the rates implicitly assumes that the distribution of persons 18-44 in the nonrespondent sample households is the same as in the respondent sample households. It is recommended that some investigation of this assumption be conducted if this computation is utilized.

However, the definition of RR1 and RR2 necessitate a more conservative approach. All unknown cases at all stages should be maintained in the base and this naturally lowers the response rate compared to the multiplicative approach just described.

Two Phase Sample Designs. *In two-phase designs that subsample nonrespondents, the rates should be computed using weights that account for the probability of the subsampling.* Two-phase designs draw a probability sample of nonrespondents after completion of a first phase effort and apply a different recruitment protocol for those sampled into the second phase. Survey estimates are based on weighted counts of respondents from the first and second phases combined. The general idea of such designs is that at some point in the survey the units that have not responded are subsampled and the remaining efforts are only used to get these units to respond .[35] In this case, the unweighted count is replaced by a weighted count where the weight is the base weight for the units that are not subsampled (e.g., those that complete the interview before subsampling is implemented) and is the product of the base weight and the inverse of the subsampling rate for the units that are subsampled. Note that the weights for the units that are eligible for subsampling but are not subsampled are set equal to zero, and this generally makes the unweighted and weighted rates very different.

[35] For more discussion of these types of designs see Hansen and Hurwitz, 1946 and Elliot, Little, and Lewitzky, 2000.

Example: Suppose a sample of households is selected and the base weight for household i is w_i. The nonresponding households are subsampled so that each nonrespondent has a 50% chance of being subsampled. The weight for computing response rates is w_i for households that were not eligible for subsampling, $2w_i$ for the households that were subsampled, and 0 for the households that were eligible for subsampling but not included. The expressions for the response rates are essentially the same as those for single stage samples with unequal probabilities of selection.

For example, RR1 becomes

$$\mathbf{RR1_w} = \frac{I_w}{(I_w + P_w) + (R_w + NC_w + O_w) + (UH_w + UO_w)}$$

where the subscript w reflects the fact that the total I is a weighted total. That is, the I in the simple **RR1** is the total number of interviews (i.e., $I = \Sigma I_i$, where $I_i = 0$ if the i^{th} sample case is not an interview and $I_i = 1$ if the i^{th} sample case is an interview). In the $\mathbf{RR1_w}$, I_w is the weighted sum of the I_i or $I_w = \Sigma w_i I_i$. Similarly, $P_w = \Sigma w_i P_i$, and so on for R_w, NC_w , O_w ,UH_w, and UO_w.

Conclusion

Good survey research practice rests on a foundation of solid methodology. One key component of any scientifically reliable methodology is the clear and consistent reporting of the methods utilized so that comparisons across studies and the replication of results can be carried out. To facilitate that goal, AAPOR proposes this standardized set of final disposition codes for use in all surveys. In turn, AAPOR advocates that these codes be used in the definition and calculation of various outcome rates such as response rates. AAPOR urges all survey researchers to adopt these final disposition codes and related outcome rates and to make them available as part of the documentation accompanying any report of survey results.

The AAPOR Code of Minimal Disclosure requires researchers to provide "the response rates computed according to AAPOR Standard Definitions. At a minimum, a summary of disposition of sample cases should be provided so that response rates could be computed." AAPOR believes researchers who use the survey designs covered in this booklet should include in reports about their surveys the outcome rates outlined above when such rates can be calculated. Those kinds of surveys include those using random or full-probability samples such as RDD telephone surveys. For surveys with sample designs that do not use such samples (e.g., block quota samples), appropriate outcome rates using the number of attempted cases, the number of completed cases and the number of refusals should be reported.

The AAPOR Council has stressed the importance for survey researchers to disclose all their methods, including outcome rates. Council ruled that all disclosure elements, not just selected ones, are important and should be reported. Researchers will meet the code's requirements if they report final disposition codes as they are outlined in this book. The Council also cautioned that there is no single number or measure that reflects

total survey quality, and all elements should be used to evaluate survey research. Council's press release detailing its policy is at the back of this booklet.

References

American Association for Public Opinion Research, *AAPOR Report on Online Panels*. Deerfield, IL: American Association for Public Opinion Research, 2010a.

American Association for Public Opinion Research, *Best Practices for Survey and Public Opinion Research and Survey Practices that AAPOR Condemns*. May, 1997.

American Association for Public Opinion Research, Guidelines and Considerations for Survey Researchers When Planning and Conducting RDD and Other Telephone Surveys in the U.S. with Respondents Reached via Cell Phone Numbers. 2008.

American Association for Public Opinion Research, AAPOR Cell Phone Task Force, 2010, *New Guidelines and Considerations for Survey Researchers When Planning and Conducting RDD and Other Telephone Surveys in the U.S. with Respondents Reached via Cell Phone Numbers*, 2010b.

Brick, J. Michael et al., "Cell Phone Survey Feasibility in the U.S.: Sampling and Calling Cell Numbers Versus Landline Numbers," Public Opinion Quarterly, 71 (2007), 23-39.

Brick, J. Michael et al., "Nonresponse Bias in a Dual Frame Sample of Cell and Landline Numbers," Public Opinion Quarterly, 70 (2006), 780-793.

Brick, J. Michael; Edwards, W. Sherman; and Lee, Sunghee, "Sampling Telephone Numbers and Adults, Interview Length, and Weighting in the California Health Interview Survey Cell Phone Pilot Study," Public Opinion Quarterly, 71 (2007), 793-813.

Callegaro, M., and DiSogra, C. (2008), "Computing Response Metrics for Online Panels." *Public Opinion Quarterly*, 72 (5): 1008-1032.

Callegaro, Mario et al., "Fitting Disposition Codes to Mobile Phone Surveys: Experiences from Studies in Finland, Slovenia, and the USA," Journal of the Royal Statistical Society, A, 170 (2007), 647-670.

Chearo, David and Van Haitsman, Martha, "Standardized Attempt Codes for Unified Multi-Mode Case Histories," Survey Practice, (October, 2010), at http://surveypractice.org/2010/10/27/standardized-codes-for-multi-mode/

Couper, M.P. (2000), "Web Surveys: A Review of Issues and Approaches." Public Opinion Quarterly, 64 (4), 464-494.

Couper, M.P., Kapteyn, A., Schonlau, M., and Winter, J. (2007), "Noncoverage and Nonresponse in an Internet Survey." *Social Science Research*, 36 (1): 131-148.

Currivan, Douglas B. and Roe, David J., "Using a Dual-Frame Sample Design to Increase the Efficiency of Reaching Population Subgroups in a Telephone Survey," Paper presented to the American Association for Public Opinion Research, Phoenix, May, 2004.

Davis, James A.; Smith, Tom W.; and Marsden, Peter V., *General Social Surveys, 1972-2006: Cumulative Codebook*. Chicago: NORC, 2007.

DiSogra, C. (2008), River Sampling: A Good Catch for Researchers? http://www.knowledgenetworks.com/accuracy/fall-winter2008/disogra.html

Elliott, Michael R.; Little, Roderick J.A.; and Lewitsky, Steve, "Subsampling Callbacks to Improve Survey Efficiency," *Journal of the American Statistical Association*, 95 (2000), 730-738.

Frankel, Lester R., "The Report of the CASRO Task Force on Response Rates," in *Improving Data Quality in a Sample Survey*, edited by Frederick Wiseman. Cambridge, MA: Marketing Science Institute, 1983.

Frey, James H., *Survey research by telephone* (2nd ed.). Newbury Park, CA: Sage, 1989.

Groves, Robert M., *Survey Errors and Survey Costs*. New York: John Wiley & Sons, 1989.

Groves, Robert M. and Lyberg, Lars E., "An Overview of Nonresponse Issues in Telephone Surveys," in *Telephone Survey Methodology*, edited by Robert M. Groves, et al. New York: John Wiley & Sons, 1988.

Hansen, M.H. and Hurwitz, W.N., "The Problem of Non-response in Sample Surveys," *Journal of the American Statistical Association*, 41 (1946), 517-529.
Hidiroglou, Michael A.; Drew, J. Douglas; and Gray, Gerald B., "A Framework for Measuring and Reducing Nonresponse in Surveys," *Survey Methodology*, 19 (June, 1993), 81-94.

International Organization for Standardization (2009), *ISO 26362:2009 Access Panels in Market, Opinion, and Social Research – Vocabulary and Service Requirements*. Geneva: ISO.

Kviz, Frederick J., "Toward a Standard Definition of Response Rate," *Public Opinion Quarterly*, 41 (Summer, 1977), 265-267.

Lavrakas, Paul J., *Telephone survey methods: sampling, selection, and supervision* (2nd ed.). Newbury Park, CA: Sage, 1993.

Lavrakas, Paul J., ed., "Special Issue: Cell Phone Numbers and Telephone Surveying in the U.S.," Public Opinion Quarterly, 71 (2007), 703-854.

Lessler, Judith and Kalsbeek, William D., *Nonsampling Error in Surveys*. New York: John Wiley & Sons, 1992.

Link, Michael W. et al., "Reaching the U.S. Cell Phone Generation: Comparison of Cell Phone Survey Results with an Ongoing Landline Telephone Survey," Public Opinion Quarterly, 71 (2007), 814-839.

Madow, William G.; Nisselson, Harold; and Olkin, Ingram, eds., *Incomplete Data in Sample Surveys*, Vol. I, Report and Case Studies. New York: Academic Press, 1983.

Massey, James T., "Estimating the Response Rate in a Telephone Survey with Screening," 1995 *Proceedings of the Section on Survey Research Methods*. Vol. 2. Alexandria, VA: American Statistical Association, 1995.

Rawlings, Steve W., "Household and Family Characteristics: March, 1993," *Current Population Reports*, P20-477. Washington, DC: Bureau of the Census, 1994.

Respondent Cooperation and Industry Image Survey. Port Jefferson, NY: Council for Marketing and Opinion Research, 1996.

Rookey, B.D., Hanway, S., and Dillman, D.A. (2008), "Does a Probability-Based Household Panel Benefit from Assignment to Postal Response as an Alternative to Internet-Only?" *Public Opinion Quarterly*, 72 (5): 962-984.

Scherpenzeel, A.C. and Das, M. (2010), "True Longitudinal and Probability-Based Internet Panels: Evidence from the Netherlands." In M. Das, P. Ester, and L. Kaczmirek (eds.), *Social Research and the Internet*. New York: Taylor and Francis, chapter 4.

Shapiro, Gary; Battaglia, Michael P.; Camburn, Donald P.; Massey, James T.; and Tompkins, Linda I., "Calling Local Telephone Company Business Offices to Determine the Residential Status of a Wide Class of Unresolved Telephone Numbers in a Random-Digit-Dialing Sample," 1995 *Proceedings of the Section on Survey Research Methods*. Vol. 2. Alexandria, VA: American Statistical Association, 1995.

Smith, Tom W. (2003), "An Experimental Comparison of Knowledge Networks and the GSS." *International Journal of Public Opinion Research*, 15 (2): 167-179.

Smith, Tom W., "A Revised Review of Methods to Estimate the Status of Cases with Unknown Eligibility," *Report of the Standard Definitions Committee for the American Association for Public Opinion Research*, September, 2009.

Tomaskovic-Devey, Donald; Leiter, Jeffrey, and Thompson, Shealy, "Organizational Survey Nonresponse," *Administrative Science Quarterly*, 39 (1994), 439-457.

Tortora, R. (2009), "Attrition in Consumer Panels." In P. Lynn (ed.), *Methodology of Longitudinal Surveys*. New York: Wiley, pp. 235-249.

Tucker, Clyde; Brick, J. Michael; and Meekins, Brian, "Household Telephone Service and Usage Patterns in the United States in 2004: Implications for Telephone Samples," Public Opinion Quarterly, 71 (2007), 3-22.

United States Postal Service. (2000). "USPS Endorsements for Mail Undelivered as Addressed; (Exhibit 4-1)," in *Domestic Mail Manual Issue* 55, p. F-3. Washington DC: GPO.

U.S. Bureau of the Census, *The Current Population Survey: Design and Methodology*. Technical Paper No. 40. Washington, DC: GPO, 1978.

U.S. Bureau of the Census, *1990 Census of Population and Housing Guide*. 1990 CPH-R-1A&B. Washington, DC: GPO, 1993.

Wiseman, Frederick and McDonald, Philip, *The Nonresponse Problem in Consumer Telephone Surveys*. Report No. 78-116. Cambridge, MA: Marketing Science Institute, 1978.

Wiseman, Frederick and McDonald, Philip, *Towards the Development of Industry Standards of Response and Nonresponse Rates*. Report 80-101. Cambridge, MA: Marketing Science Institute, 1980.

Table 1 - Final Disposition Codes for RDD Telephone Surveys

1. Interview	(1.0)
Complete	(1.1)
Partial	(1.2)
2. Eligible, Non-Interview	(2.0)
Refusal and break-off	(2.10)
Refusal	(2.11)
Household-level refusal	(2.111)
Known respondent refusal	(2.112)
Break-off	(2.12)
Non-contact	(2.20)
Respondent never available	(2.21)
Telephone answering device (message confirms residential household)	(2.22)
Message left	(2.221)
No message left	(2.222)
Other	(2.30)
Dead	(2.31)
Physically or mentally unable/incompetent	(2.32)
Language	(2.33)
Household-level language problem	(2.331)
Respondent language problem	(2.332)
No interviewer available for needed language	(2.333)
Inadequate audio quality	(2.34)
Location/Activity not allowing interview	(2.35)
Miscellaneous	(2.36)
3. Unknown Eligibility, Non-Interview	(3.0)
Unknown if housing unit	(3.10)
Not attempted or worked	(3.11)
Always busy	(3.12)
No answer	(3.13)
Telephone answering device (don't know if housing unit)	(3.14)
Telecommunication technological barriers, e.g., call-blocking	(3.15)
Technical phone problems	(3.16)
Ambiguous operator's message	(3.161)
Housing unit, Unknown if eligible respondent	(3.20)
No screener completed	(3.21)
Unknown if person is household resident	(3.30)
Other	(3.90)
4. Not Eligible	(4.0)
Out of sample	(4.10)
Fax/data line	(4.20)
Non-working/disconnected number	(4.30)
Non-working number	(4.31)
Disconnected number	(4.32)
Temporarily out of service	(4.33)
Special technological circumstances	(4.40)
Number changed	(4.41)
Call forwarding	(4.43)
Residence to residence	(4.431)
Nonresidence to residence	(4.432)
Pagers	(4.44)
Cell phone	(4.45)
Landline phone	(4.46)
Nonresidence	(4.50)
Business, government office, other organization	(4.51)
Institution	(4.52)
Group quarters	(4.53)
Person not household resident	(4.54)
No eligible respondent	(4.70)
Quota filled	(4.80)
Other	(4.90)

Table 2 - Final Disposition Codes for In-Person, Household Surveys

1. Interview	(1.0)
Complete	(1.1)
Partial	(1.2)
2. Eligible, Non-Interview	(2.0)
Refusal and break-offs.	(2.10)
Refusals	(2.11)
Household-level refusal	(2.111)
Known respondent refusal	(2.112)
Break-off	(2.12)
Non-contact	(2.20)
Unable to enter building/reach housing unit	(2.23)
No one at residence	(2.24)
Respondent away/unavailable	(2.25)
Other	(2.30)
Dead	(2.31)
Physically or mentally unable/incompetent	(2.32)
Language	(2.33)
Household-level language problem	(2.331)
Respondent language problem	(2.332)
No interviewer available for needed language	(2.333)
Miscellaneous	(2.36)
3. Unknown eligibility, non-interview	(3.0)
Unknown if housing unit	(3.10)
Not attempted or worked	(3.11)
Unable to reach/unsafe area	(3.17)
Unable to locate address	(3.18)
Housing unit/Unknown if eligible respondent	(3.20)
No screener completed	(3.21)
Other	(3.90)
4. Not Eligible	(4.0)
Out of sample	(4.10)
Not a housing unit	(4.50)
Business, government office, other organization	(4.51)
Institution	(4.52)
Group quarters	(4.53)
Vacant housing unit	(4.60)
Regular, Vacant residences	(4.61)
Seasonal/Vacation/Temporary residence	(4.62)
Other	(4.63)
No eligible respondent	(4.70)
Quota filled	(4.80)
Other	(4.90)

Table 3: Final Disposition Codes for Mail Surveys of Specifically Named Persons

1. Returned questionnaire	(1.0)
Complete	(1.1)
Partial	(1.2)
2. Eligible, "Non-Interview"	(2.0)
Refusal & Break-off	(2.10)
Refusal	(2.11)
Other person refusal	(2.111)
Known respondent-level refusal	(2.112)
Blank questionnaire mailed back, “implicit refusal”	(2.113)
Break-off questionnaire too incomplete to process	(2.12)
Non-Contact	(2.20)
Notification that respondent was unavailable during field period	(2.25)
Completed questionnaire, but not returned during field period	(2.27)
Other	(2.30)
Death (including USPS category: Deceased)	(2.31)
Physically or mentally unable/incompetent	(2.32)
Language	(2.33)
Respondent language problem	(2.332)
Wrong language questionnaire sent for needed language	(2.333)
Literacy problems	(2.34)
Miscellaneous	(2.36)
3. Unknown eligibility, "non-interview"	(3.0)
Nothing known about respondent or address	(3.10)
Not mailed	(3.11)
Nothing ever returned	(3.19)
Unknown if eligible respondent in unit	(3.20)
No screener completed	(3.21)
USPS category: Refused by Addressee	(3.23)
USPS category: Refused to Accept	(3.231)
USPS category: Refused to Pay Postage	(3.232)
USPS category: Returned to Sender due to Various USPS Violations by Addressee	(3.24)
USPS category: Cannot be Delivered	(3.25)
USPS Category: Illegible Address	(3.251)
USPS Category: Insufficient Address on Mail from One Post Office to Another Post Office	(3.252)
USPS Category: No Mail Receptacle	(3.253)
USPS Category: Delivery Suspended to Commercial Mailing Agency	(3.254)
Unknown Whereabouts, Mailing Returned Undelivered	(3.30)
USPS Category: Undeliverable as Addressed	(3.31)
USPS Category: Attempted — Addressee Not Known at Place of Address	(3.311)
USPS Category: Postal Box Closed	(3.312)
No Such Address	(3.313)
USPS Category: No Such Number	(3.3131)
USPS Category: No Such Post Office in State	(3.3132)
USPS Category: No Such Street	(3.3133)
USPS Category: Vacant	(3.3134)
Not Delivered as Addressed	(3.314)
USPS Category: Unable to Forward, Not Deliverable as Addressed	(3.3141)
USPS Category: Outside Delivery Limits	(3.3142)
USPS Category: Returned for Better Address	(3.3143)
USPS Category: Moved, Left No Address	(3.32)
USPS Category: Returned for Postage	(3.33)
USPS Category: Temporarily Away, Holding Period Expired	(3.34)
USPS Category: Unclaimed -- Failure to Call for Held Mail	(3.35)
USPS Category: No One Signed	(3.36)
Returned with Forwarding Information	(3.40)
Returned Unopened — address correction provided	(3.41)
Returned Opened — address correction provided	(3.42)
USPS Category: In Dispute about Which Party Has Right to Delivery	(3.50)
Other	(3.9)
4. Not Eligible, Returned	(4.0)
Selected Respondent Screened Out of Sample	(4.10)
No eligible respondent	(4.70)
Quota Filled	(4.80)
Duplicate Listing	(4.81)
Other	(4.90)

Table 4: Final Disposition Codes for Internet Surveys of Specifically Named Persons

1. Returned questionnaire	(1.0)
Complete	(1.1)
Partial or break-off with sufficient information	(1.2)
2. Eligible, "Non-Interview"	(2.0)
Refusal	(2.11)
Explicit refusal	(2.111)
Implicit refusal	(2.112)
Logged on to survey, did not complete any items	(2.1121)
Read receipt confirmation, refusal	(2.1122)
Break-off or partial with insufficient information	(2.12)
Non-Contact	(2.20)
Respondent was unavailable during field period	(2.26)
Completed questionnaire, but not returned during field period	(2.27)
Other	(2.30)
Language barrier	(2.33)
3. Unknown eligibility, "non-interview"	(3.0)
Nothing known about respondent or address	(3.10)
No invitation sent	(3.11)
Nothing ever returned	(3.19)
Invitation returned undelivered	(3.30)
Invitation returned with forwarding information	(3.40)
Other	(3.90)
Returned from a unsampled email address	(3.91)
4. Not Eligible, Returned	(4.0)
Selected Respondent Screened Out of Sample	(4.10)
Quota Filled	(4.80)
Duplicate Listing (4.81)	
Other(4.90)	

AAPOR Press Release on Response Rates

AAPOR's Council approved the following statement on March 11, 2000, that underlines the need in the survey research profession for standard definitions and document the link between this book and the AAPOR Code of Professional Ethics and Practices. It is posted at http://www.aapor.org.

Survey research is a complex scientific enterprise. In order to maintain public confidence in polls and surveys the members of the American Association for Public Opinion Research (AAPOR) believe that the full disclosure of methodology is essential. Its Code of Professional Ethics and Practices calls for it.

Recently, questions have been raised about what AAPOR's Code calls for in the reporting of response rates. For many years each survey organization had its own method for calculating response rates. As a consequence, it was not possible to compare the response rate calculations from one poll to another. To deal with this problem AAPOR has published a report called, Standard Definitions. It defines standardized measures for response rates, cooperation rates, refusal rates and contact rates. Each of these rates requires a count of the disposition of all units selected in the sample. The various disposition codes are standardized in the report.

AAPOR members will be in compliance with the Code of Professional Ethics and Practices if they readily make available to anyone requesting it the results of the disposition codes, as defined in Standard Definitions.

Those who wish to compare response rates for different surveys, or any of the other rates described in Standard Definitions, are urged to use the rate formula spelled out in Standard Definitions. They also are urged only to compare rates for surveys with similar sample designs; comparisons between polls with different sample designs are not possible. Response rates for two surveys are comparable only if they use (a) the same disposition codes, (b) the same formula for calculating response rate and (c) have similar survey designs. Disclosure of survey design also is required by AAPOR's Code.

"We encourage AAPOR members, whenever feasible, to provide the results for disposition codes for their surveys in their reports," according to Michael Traugott, a past AAPOR president. "We understand that some organizations will only be able to provide the results on request. This is the policy we have adopted for authors who publish in the association's journal, *Public Opinion Quarterly*.

"Full implementation of this requirement will place differential burdens on polling organizations, depending upon the nature and level of work they do," he added. "This will affect the rate at which they will come into compliance. However, we expect organizations to make continuous progress toward satisfying this requirement."

AAPOR's Code and *Standard Definitions* can be found at: www.AAPOR.org.