

WELCOME TO:



What are AAPOR Standard Definitions?

Calculating AAPOR Response rates made easy!

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Acknowledgements

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What are the AAPOR standard definitions?

1

Comprehensive way of describing the final disposition of cases sampled for a survey from a variety of frames

2

Provides a common language and definitions that the research industry can share

3

Includes formulas for calculating outcome rates for surveys in a systematic way

4

Facilitates survey researchers in meeting AAPOR's Standards for Minimal Disclosure requirements as outlined in the Code of Professional Ethics and Practices

5

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



How is the 10th edition different from the previous Standard Definitions?

- Wholesale reorganization of *Standard Definitions* structured by frame rather than mode due to increasing reliance on new sampling frames and mixed-mode studies
 1. Multi-Mode does **NOT** imply multi-frame
 2. Case dispositions are tied to the sample frame, **NOT** the mode of contact or mode of response
- Added important information about calculating outcome rates for multi-mode designs
- New/changed subcodes
- New dispositions/outcomes tied to SMS methodologies



What has not changed?

- Codes are still presented within four main categories:
 1. Completed interviews;
 2. Eligible cases that are not interviewed (non-respondents);
 3. Cases of unknown eligibility; and
 4. Cases that are not eligible.
- The formulas for calculating response, cooperation, refusal, and contact rates
- The majority of outcome codes across all frames

Webinar Objectives

- Outline several “rules” for case classification
- Introduce the four frame types described in the 2024 AAPOR Standard Definitions
 - List frames
 - Address-based frames (ABS)
 - Random-digit dial telephone frames (RDD)
 - Probability-based panel frames
- Discuss the interpretation of the main AAPOR outcome codes within each frame
- Describe some sources of confusion common to mixed-mode studies
- Briefly introduce the different formulas for calculating response (and other outcome) rates
- Q&A



A Complete is a Complete...

TABLE 1. VALID INTERVIEW DISPOSITIONS ACROSS MODES

Description	Value	Notes & Examples
Interview	1.0	<p>A priori definitions are required to determine whether a case is a complete or partial interview (or a breakoff). Three widely used standards for defining these three statuses are:</p> <ul style="list-style-type: none"> a) the proportion of all applicable questions answered, b) the proportion of all applicable questions asked, and c) the proportion of crucial or essential questions answered
Complete	1.1	<p>Example A: More than 80% of questions answered Example B: More than 80% of questions asked Example C: 100% of crucial or essential questions answered</p>
Complete by Proxy	1.11	
Partial	1.2	<p>Example A: 50%-80% of questions answered Example B: 50%-80% of questions asked Example C: 50%-99% of crucial or essential questions answered</p>
Partial by Proxy	1.21	

Keep in mind...

- Layered subcodes can provide useful operational information but are not required for the calculation of outcome rates. Therefore, it is permissible to collapse categories within the main groups (complete, eligible nonresponse, unknown, ineligible)
- Case classification defined here are based on final disposition coded. Temporary codes, contact-attempt codes, or action codes should be replaced by final codes before assigning computing outcome rates.
 - Final codes represent the most informative status of a case at the close of data collection
 - Temporary disposition codes may lead to different final status codes for different frames
- Any substitution of sampled cases, replacing an originally-sampled unit with another, must be reported.
- If samples are released in replicates, all units within a replicate must be treated as released sample regardless of whether any contact was attempted.



Why is sample frame so important to calculating response rates?

- In most studies, the majority of sampled cases will not complete the survey
- Determining the outcome status for nonresponding cases requires making assumptions about a sampled unit's eligibility
- These assumptions are often based on information (or prior assumptions) from the sample frame
 - For example, a mailed survey returned as nondeliverable to a person selected from a list frame (e.g., a list of company employees) suggests a locating issue with the case and may be classified as eligible nonresponse, while the same mail return for an address-based sample (ABS) study often suggests a sampled address is not eligible.
 - The same result leads to different case status depending on the frame from which the sampled unit was selected
- Keep in mind that the outcome rates are based on the high-level codes (**1: Complete**, **2: Eligible nonresponse**, **3: Unknown eligibility**, and **4: Not eligible**) so it is most important to correctly classify at this level.



List Frames

- A frame that lists specifically-named persons, with or without the ancillary information necessary to collect data
 - Employee lists, enrollment lists, membership lists, patient lists
 - Registry-based samples (RBS), e.g., registered voter lists or service subscribers
 - The second phase of a two-phase survey, in which the sampling frame is a list of persons who were rostered in phase one
- Typically assumed that the target population is synonymous with the list
- Assumptions about the coverage and quality of a list frame must be determined prior to data collection
 - Must decide a priori whether all/most list members should be considered eligible for the study
 - Inaccurate/incomplete contact information does not necessarily provide status information about a case
- If additional eligibility criteria are determined through screening, final status must account for the lack of eligibility information derived from the screening process

List Frames: Eligible Nonrespondents (2.0)

- If all list members are assumed to be eligible (i.e., list is assumed to be up-to-date/accurate & no additional screening criteria are used to determine eligibility) then **the majority of nonrespondents** from this frame will be classified as 2.0 Eligible Nonrespondents
- If additional eligibility criteria are required (e.g., screening for specific individuals or confirming current group membership), then a case **must first have been determined to be eligible** to be classified as an eligible nonrespondent

2.1xx:

Explicit or implicit refusal by named individual or proxy (e.g., logged in but did not complete/survey breakoff, returned blank questionnaire, set but did not keep appointment)

2.2xx:

Non-contact, eligibility known or assumed (e.g., named respondent never available, voicemail only, questionnaire completed after field close)

2.3xx:

Other nonresponse, eligibility known or assumed (e.g., deceased after reference date, other barrier to completion)

List Frames: Unknown Eligibility (3.0)

- If screener required and no screener completed or list accuracy warrants confirmation of group membership & no survey completed
 - Refusals where screening/confirmation is required
 - Undeliverable or unanswered where screening/confirmation is required
- The vast majority of unknown eligibility from list samples will be **coded as 3.2xx** (No Screener Completed, Unknown)
 - No 3.1xx codes (unknown housing unit) for list frames because list frames exist, by definition, at level of the primary sample unit
 - 3.9xx codes should be used for highly unusual cases in which the eligibility is undetermined and does not clearly fit into one of the above designations (e.g., high levels of item nonresponse in the screening interview prevents eligibility determination)



List Frames: Not Eligible (4.0)

Typically applies when the named sample entity is reached but is determined to be ineligible based on screening or membership verification criteria.



Can include situations where the named respondent is deceased prior to survey start (status day)



Ineligible in current replicate because quota filled in previously released sample replicate prior to the release of the case's replicate.



Duplicate listings



Address-based Sample (ABS) Frames

- Comprehensive list of addresses from which a sample is randomly selected (i.e., original sampling unit is the address of a residence or a business – that is, the entity at a specific location)
 - USPS Computerized Delivery Sequence File (CDSF)
 - Census Bureau’s Master Address File (MAF)
 - Listed Sample from an Area Frame
- Compatible with single and multi-mode designs, however, it is assumed that no ancillary information is necessary to collect data besides the address itself
- Mail is often the primary or initial mode of contact
 - Can include push-to-web letters requesting survey completion online
 - May have auxiliary contact information (e.g., phone numbers) appended to the address listing, **but the sample unit for which status is coded remains the address**



Address-based Sample (ABS) Frames: Within Household Screening

- Often within-unit respondent selection or screening will be used to determine if there is at least one eligible respondent to complete the survey questionnaire
 - Kish method or some form of the “birthday” method might be used randomly (or pseudo-randomly) to sample a respondent among all eligible persons residing at the sampled address
 - A purposively determined respondent might be designated by their role within the unit. (e.g., a parent or guardian, the person most knowledgeable of the household’s expenses, etc.)
- Assumes that the survey is implemented in a single phase and a single disposition code applies to both the screener and the main interview
 - Care must be taken in determining whether a sampled unit should be assigned an eligible nonrespondent or an unknown eligibility code (depending on presence/completion of a screener)
 - In a two-phase design, dispositions are assigned separately for the screening and main interview phases. Different standards should be applied to the two phases



Address-based Sample (ABS) Frames: Appended Auxiliary Contact Information

- Sometimes researchers augment an ABS sample by appending additional information, (e.g., email or phone number) to sampled addresses from external sources such as commercial databases
- In ABS, the goal of data collection is to obtain a response from the physical address to which the phone number or email address was matched, not the phone number or email address per se
 - Appended contact information is often incomplete or incorrect, but the quality of the appended data does not usually provide information about the status of the sampled address
 - Persons contacted by these modes should be screened to confirm that the person lives at the sampled address
 - Goal must still be to obtain eligibility information about the individuals **at the sampled address**, regardless of contact mode.



ABS Frames: Eligible Nonrespondents (2.0)

- Sampled address must have been confirmed to exist and be an occupied residence
- Must confirm whether the household at the address is eligible, that is, whether (conditional on the address being eligible) the household contains at least one person in the survey's target population
- If contacting via an appended phone number or email address, it must be confirmed that the individual reached lives at the sampled address.
 - No phone-related codes (e.g., 2.22x, 2.34, 2.37) should be used for ABS samples unless the phone number has been confirmed to be associated with the sampled address



ABS Frames: Eligible Nonrespondents, Continued

2.1xx:

Some contact has been made with the household, and they have refused to participate or have broken-off.

- If applicable, household must be determined to be eligible prior to refusal or breakoff
- E.g., returned blank questionnaire, set but did not keep appointment

2.2xx:

Household is confirmed as eligible but selected respondent never available or unable to complete during the field period

- This is not common for ABS except occasionally with in-person collection

2.3xx:

Other nonresponse, eligibility known (e.g., deceased after reference date, other barrier to completion)

- May include language barriers or physical/mental incapacity
- Note: USPS “occupant deceased code” is not an eligible nonrespondent code for ABS

ABS Frames: Unknown Eligibility (3.0)

- Unknown Eligibility with ABS frames typically falls into one of two categories
 - Unknown whether the address occupied residential housing unit (3.1xx)
 - There is sufficient information to determine whether the address is associated with a housing unit, but insufficient information to determine whether the housing unit/resident is eligible (3.2xx)
- Most accurate computations of e (the proportion of unknown eligible cases considered eligible for the calculation of outcome rates) treat these groups independently
- Most USPS undeliverable codes (UAA) will indicate ineligibility of a sampled address. However, they should be interpreted in the context of whether additional screening is required (e.g., USPS Category: Refused by Addressee [REF] or Returned to Sender due to Various USPS Violations by Addressee may imply a valid address but would be considered unknown eligibility if additional screening is required)

ABS Frames: Unknown Eligibility, Continued

- The standard definitions provide a number of separate disposition codes for phone outcomes associated with dialing phone numbers that have been appended to an ABS.
 - Multiple codes are provided for researchers who wish to document the operational results
 - Most phone outcomes for ABS with appended phone numbers will be categorized as some version of unknown eligibility
- The miscellaneous unknown eligibility code (3.9) should be used only for unusual situations in which it cannot be determined whether an address includes eligible persons that do not fit into the above categories.
 - E.g., high levels of item nonresponse in the screening items precluded an eligibility determination



ABS Frames: Not Eligible (4.0)

There are specific situations in which an ABS sampled case would be classified as ineligible:

1

- 4.3x: The sampled address does not exist (e.g., identified as a nonexistent address by USPS or address not found by a field interviewer)
- 4.5x: Housing unit is not a within-scope housing unit (e.g., address is a business, group quarters, etc.)
- 4.6x: Housing unit is vacant (or seasonal and unoccupied)

2

- 4.1x: Housing unit determined to be eligible but selected respondent is not eligible (not common for ABS because typically selection would only occur among screened eligible respondents)
- 4.7x: Address is a within-scope housing unit but does not include any persons in the target population

3

- 4.8x: Unreleased sample replicate/Duplicate listing
- 4.9x: Other

ABS Frames: Not Eligible (4.0), Continued

- The first group (and likely the third group) will contribute the estimates of eligibility for the housing unit (HU)
- The second group contributes to estimates of individual-level eligibility
- Cases should be assigned to a “not eligible code” for ABS samples where some or all mail has been returned with one of the USPS undeliverable codes, and no more definitive information has been received (e.g., a complete or active refusal)
- Frame information about vacancy will not always match information returned from the postal service
 - USPS guidelines, an address must be unoccupied for 90 days to be classified as vacant
 - Housing units can become occupied after the sample is drawn



Random-Digit Dial (RDD) Telephone Frames

- Randomly-selected phone numbers independent of names or addresses
- Common now to use Dual-frame RDD (DFRDD) where two samples are drawn – one from a landline frame and one from a cell-phone frame
- Like ABS designs, an RDD phone number's eligibility can be decomposed into
 - Whether the phone number itself is eligible (i.e., is working and belongs to an individual who lives in a household?)
 - Whether the person(s) reached via the phone number is eligible (i.e., the phone number is used by at least one person in the survey's target population)



Random-Digit Dial (RDD) Frames, continued

RDD samples are not, necessarily, samples of individuals

Landline RDD numbers can often reach households that contain multiple eligible individuals


Cell phones are primarily individual devices in the U.S., researchers have found within-household selection among cell RDD samples unnecessary (Carley-Baxter, Peytchev, and Black 2010)

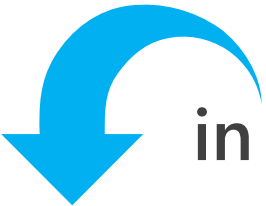
DFRDD samples should be treated as two separate frames for the purpose of computing response rates


The overall rate is calculated using the weighted average between the two rates based on the proportion of the sample in each frame compared to the total sample


Reporting individual frame rates is also recommended


RDD Frames: Eligible Nonrespondents (2.0)


 To use any 2.x code, the sampled phone number must have been confirmed to be associated with an occupied residence (landline) or with a person who lives in a household (cell).


 If further screening for eligibility is required, confirmation that the phone number is associated with at least one eligible person must be determined


 **2.1xx:** Some contact has been made with the individuals associated with the phone number, and they refuse or break-off

 All assume no screening or confirmed eligibility

 **2.2xx:** Household/phone is confirmed as eligible but selected respondent never available or unable to complete during the field period

 e.g., No contact has been made with a human, but a phone answering device confirms it is the number for the selected sample member (e.g., "You have reached John Smith. Please leave a message") and no additional screening is necessary

 **2.3xx:** Other nonresponse, eligibility known (e.g., deceased after reference date, other barrier to completion)

 Unique to RDD: Cell phone reached while person is driving (AND no screening required or eligibility confirmed)

RDD Frames: Unknown Eligibility (3.0)

- Like ABS Frames, unknown eligibility with RDD frames typically occurs because
 - there is insufficient information to determine whether the phone number is associated with a housing unit. (3.1xx)
 - there is sufficient information to determine whether the phone number is associated with a housing unit/individual, but insufficient information to determine whether the housing unit or individual is eligible (3.2xx)
- 3.1x codes includes cases where the phone number is in an assigned replicate but was never dialed
- 3.2x codes typically include cases where no screener was completed
- Specific situations (e.g., encountering an answering device) could lead to different subcodes if there is not sufficient information to determine if the number is associated with an individual or residence (3.123) or if it is not clear if the individual meets the screening criteria (3.2153)

RDD Frames: Not Eligible (4.0)

- Ineligibility of the sampled unit is more common in RDD than in ABS since it is common for sampled numbers to not be connected to a working residential line
- 4.10: Selected Respondent Screened Out of Sample/ Ineligible
 - Commonly occurs when households are outside the sampling area's geographical boundary (e.g., RDD used to sample small areas (e.g., counties, towns) or sampling a cell number when the owner has relocated their residency to a new geographic area)
- 4.20-4.4x: Indicate technologically-driven reasons why the number is non-working
 - Temporarily out-of-service numbers may be considered ineligible if eligibility is determined upon dialing or could be redialed later in the field period and their final disposition would depend on the later contact attempts.
 - Changed/forwarded numbers are out of scope. Attempts should not be made to dial the new number or interview individuals at the forwarding number.



RDD Frames: Not Eligible (4.0), Continued

- 4.5x: Used for situations where the sampled number is out of scope (e.g., associated with a business or group quarters)
- 4.70: Indicates that a screener was completed but there is no eligible respondent associated with the sampled phone number
- 4.8x: Used for fully unreleased replicates or duplicate sample numbers



Probability-based Online Panels

- Use probability sampling methods to select and recruit participants to a panel (often ABS).
- Panel members are sent invitations to specific surveys at agreed-upon intervals
 - Individual surveys may be sent to all panel members or a subset of eligible members
- Nonresponse can occur in 2 main stages: recruitment into the panel and the invitation to a particular survey
- Disposition codes and outcome rates will be recorded and calculated for each stage
 - Recruitment rates should follow the frame(s) used for recruitment (e.g., ABS)
 - Survey-level completion rates can be considered a list frame of named individuals



Probability-based Online Panels, Continued

- In practice, these rates are typically computed and provided by the company that maintains the panel
 - Always make sure study documentation includes both recruitment and study-level response rates (as well as overall response rates) when using sample from an online probability panel
 - Ask panel vendor to provide additional relevant outcome rates (e.g., profile and attrition rates) to ensure transparency
- Calculation of outcome rates is only appropriate for panels that use probability-based methods for recruitment and should not be calculated for opt-in/nonprobability samples
- For more details on the selection mechanisms in probability and nonprobability online samples and a discussion of other types of data-quality metrics that can be considered instead of or in conjunction with response rates, see the **AAPOR Task Force Report on Data Quality Metrics for Online Samples: Considerations for Study Design and Analysis** - <https://aapor.org/wp-content/uploads/2023/02/Task-Force-Report-FINAL.pdf>



Calculating Outcome Rates

AAPOR Standard Definitions provides formulas for the calculation of response rates (RR), cooperation rates (COOP), refusal rates (REF), and contact rates (CON) that are derived based on the assigned final case status codes.

AAPOR standards state that researchers should indicate specifically which outcome formula was used and make available a table showing the final dispositions status for all cases.

When a researcher is unsure which outcome rate formula is best for their study, providing multiple rates is good practice.

In studies using sample from multiple frames (of the same or different types), researchers should compute and report outcome rates separately for each frame as well as an overall rate that weights each frame proportionate to its representation in the final sample.

Outcome Rate Components

I	P	R	NC	O	UH	UR	UO	e
Complete interview (1.1x)	Partial interview (1.2x)	Eligible refusal and break-off (2.1x)	Non-contact (2.2x)	Other (2.3x, 2.9x)	Unknown if household/occupied HU (3.1x)	Unknown if sampled unit is eligible/housing unit contains an eligible respondent (3.2x)	Unknown, other (3.9x)	Estimated proportion of cases of unknown eligibility that are eligible

e can be decomposed into e_1 and e_2 to separate the % of *known-residential* cases estimated to have eligible respondents (e_1) or the % of *unknown-if-residential* cases that are estimated to be residential (e_2)



Response Rates

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

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

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

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

Response Rates

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

$$RR3 = \frac{I}{(I + P) + (R + NC + O) + ([e_1 e_2 \{UH + UO\}] + [e_1 UR])}$$

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

$$RR4 = \frac{I + P}{(I + P) + (R + NC + O) + ([e_1 e_2 \{UH + UO\}] + [e_1 UR])}$$

Cooperation Rates

A cooperation rate is the proportion of all cases interviewed of all eligible units ever contacted.

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

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

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

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

Refusal Rates

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

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

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

$$REF2 = \frac{R}{(I + P) + (R + NC + O) + ([e_1 e_2 \{UH + UO\}] + [e_1 UR])}$$

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

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.

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

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

$$CON2 = \frac{I + P + R + O}{(I + P) + (R + NC + O) + ([e_1 e_2 \{UH + UO\}] + [e_1 UR])}$$

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



Q&A: Stump the Standards Chair



Thank You, AAPOR

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