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UNIVERSITY OF MICHIGAN

Lunch & Learn

Disposition Codes and Outcome Rates

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Design, Methodology & Statistical Support



Outline

- Overview of AAPOR disposition code and outcome categories
- Disposition in different sample management systems
- Response rates and other outcome rates
- Other considerations



Overview of AAPOR disposition code and outcome categories



AAPOR Disposition Codes and Outcome Categories

- What happens to each sample line throughout and at the end of data collection?
- Disposition codes and outcome categories are a simple but useful form to summarize that without having to inspect the full history of each sample line or look at each individual interviewer's note
- Disposition code provides more details, when needed
- Outcome categories presents a high-level summary



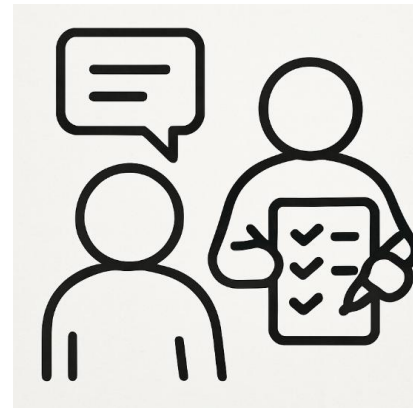
How do we use disposition codes/outcome categories?



Reporting



Monitoring
survey protocols



Provides support
to interviewers



Weighting



Standard Definitions

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 survey outcome rates is the topic for the [Standard Definitions report](#). 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 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 (landline and cell), for personal interviews in a sample of households, for mail surveys of specifically named persons (i.e., a survey in which named persons are the sampled elements), and for Web surveys.

AAPOR urges all practitioners to use these standardized sample disposition 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.

[Read More](#)



Revisions to the Standard Definitions

- 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 J. Michael Brick.
- The fourth edition (2006) 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 subcommittee chaired by Couper with Lavrakas, Smith, and Tracy Tuten Ryan as members.
- The fifth edition (2008) was edited by Smith, who chaired the committee of Daves, Lavrakas, Couper, Mary Losch and Brick. The new material largely relates to the handling of cell phones in surveys.
- The sixth edition (2009) was edited by Smith, who chaired a 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 (2011) 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.
- The eighth edition (2015) was edited by Smith who chaired the committee of Daves, Lavrakas, Couper, and Johnson. The revised section on establishment surveys was developed by Sara Zuckerbraun and Katherine Morton. The new section on dual-frame telephone surveys was prepared by a sub-committee headed by Daves with Smith, David Dutwin, Mario Callegaro, and Mansour Fahimi as members.
- The ninth edition was edited by Smith who chaired the committee of Daves, Lavrakas, Couper, Johnson, and Dutwin. The new section on mail surveys of unnamed person was prepared by a sub-committee headed by Dutwin with Couper, Daves, Johnson, Lavrakas, and Smith as members.
- The tenth edition (2023) was edited by Ned English who chaired the committee of Amaya, Berkold, Jackson, Kirzinger, Marlar, McPhee, and Nagle. Amaya and McPhee led the revision and update of dispositions for this new version and drove much of the restructuring. Additional support for this edition was provided by Kristen Olson, Ashley Hyon, Ben Philips, Stephen Immerwahr, and Clifford Young, and P.J. Lugtig.

Downloads

[Download the full Standard Definitions Report \(10th edition, 2023\)](#)

[Download the Methods of Calculating Eligibility Rates \(August, 2009\)](#)

[Download the Response Rate Calculator V5.1 \(Excel Spreadsheet – April, 2023\)](#)

[Watch the February 2024 webinar on the New Standards Definitions](#)

<https://aapor.org/wp-content/uploads/2024/03/Standards-Definitions-10th-edition.pdf>



Data Collection

DCO Vision, Mission, and Values Statement

Clinical Contact Program (CCP)

[CCP Cumulative Call Report](#)
[Respondent & Interviewer Support Protocol](#)

Polices and Guidelines

[Recording Phone Calls](#)
[Stolen SRC Iwer Hardware Process](#)
[Stolen SRC laptop process](#)

Recruitment and Staffing

[Contingent Staff Allocation Principles 2023](#)
[GIT Concepts Manual](#)
[Interviewer Handbook](#)
[Interviewer Incentives Policy](#)
[New Hire Recruitment Website](#)
[Onstaffer Recruitment Website](#)
[Request for SSL Services Form](#)
[Recruitment and Training Timeline](#)
[SRC Interviewer Website](#)
[TeamTailor](#)

Time and Expense

[2023 Field Iwer Pay Schedule](#)
[2023 SSL Pay Schedule](#)
[2024 Field Iwer Pay Schedule](#)
[2024 SSL Pay Schedule](#)
[SSL Project Shift Cancellation Policy](#)
[Allowable Expenses](#)
[Safe and Imprest Cash Access procedure](#)
[Tenrox \(aka Upland\)](#)
[Tenrox Reports](#)

Training and Support

[Training Norms](#)
[Training Resources](#)
[MSMS Onboarding Resources](#)

Systems

[Canvas \(Online Learning System\)](#)
[DCSR](#)
[FRED](#)
[MSMS MAP Portal](#)
[ODS Project Management Portal \(PQT, PIPPA\)](#)
[OLIVE 4.0](#)
[Onstaffer Recruitment Website](#)
[RShiny](#)
[TeamTailor](#)
[UKG Ready](#)
[WebTrak 3](#)
[Web Logging](#)

Other Documents

[Data Collection Projects Mailing Lists](#)
[Interviewer Satisfaction Survey 2023](#)
[Guidelines for Use of Google Forms with Field Staff](#)
[Master Result Codes](#)
[Project Set up \(Visio\)](#)
[Project Closeout \(Visio\)](#)
[Request Template for Batch Locating \(coming soon!\)](#)
[Request Template to Use Interviewer Characteristics in Analysis](#)
[SSL Amazon Connect \(AmCon\) Features](#)



AAPOR Outcome Categories

Every sample line should be classified into one of these four main outcome categories:

1. **Eligible, Interview (R)**

- I = Complete interview
- P = Partial interview

2. **Eligible, Non-Interview (NR)**

- R = Refusal and break-off
- NC = Non-contact
- O = Other

3. **Unknown Eligibility, Non-Interview (UN)**

- UH = Unknown if household/occupied housing unit
- UR* = Unknown if sampled unit is eligible/housing unit contains an eligible respondent
- UO = Unknown, other

4. **Not Eligible (NS = Non-Sample)**

- No eligible respondent (screened ineligible)
- Not a housing unit
- Vacant housing unit

*New in 10th edition of AAPOR Standards Definition

Complete vs Sufficient Partial vs Breakoff

- Complete interview: survey was 100% completed
 - With some minimum levels of item nonresponse (Don't know/Refusals)
- Sufficient partial interview: survey was started and completed up to a minimum point
 - Project specific
 - For weighting and response rates: treated as an **interview**
- Breakoff: survey was started and stopped before minimum point
 - Project specific
 - Treated as a **nonresponse** for both weighting and response rate



Unknown vs Known Eligibility

- Survey eligibility:
 - Target/Survey Population
 - A specific group of people or elements that a study focuses on
 - The target/survey population determines the eligibility criteria
 - Sometimes, project-specific constraints is also included
- Screening to determine the eligibility of the sample lines
 - In many cases, we are not able to determine the eligibility:
 - FTF surveys: Nobody at home
 - Phone surveys: Ring, No answer (No answer machine/Voice mail)
 - Mail surveys: Mail never returned
 - Not assume they are eligible or ineligible → Unknown eligibility



Non-Interview vs Non-Sample

- Non-Interview (Known Eligible)
 - Eligible cases that are not interviewed (typically due to nonresponse)
- Non-Sample (Known Ineligible)
 - ABS sample
 - Whether the address exists and is occupied by a household
 - Whether the household contains at least one person in the survey's target population
 - ANES 2024: US citizens in the 50 states + DC who were 18+ on Election Day
 - Not a housing unit (non-sample)
 - Not an occupied housing unit (non-sample)
 - No US citizen 18+ on Election Day in the household (screened ineligible)



Disposition in different sample management systems



Disposition in SurveyTrak

- Master Resultcode Table ([SRO Intranet](#))
 - Reviewed and approved by SRO Admin
 - Standard for SurveyTrak/WebSMS/BlaiseSMS Projects
 - Each project will follow this and create project specific resultcode table
 - Some result codes will trigger result flags
 - Ever Contact
 - Ever Resist
 - Ever Appointment
 - Result types are not mutually exclusive
 - Interim vs Final



| Disposition | 1000 Series | Description | Category |
|-------------|-------------|---|--------------------------------------|
| Final | 1000 | Completes | Interviews |
| Interim | 1400 | Answering Machine / Service Reached | |
| | 1500 | Privacy Manager | |
| | 1600 | Pager, Fax, Modem, Text Messenger, TTY | |
| | 1700 | Cell Phone | |
| | 2000 | Bad Address, Bad Number | |
| | 3000 | Not Answered, No Contact | |
| | 4000 | Contact, General Callback | |
| | 4100 | Contact, Best Time Known | |
| | 4200 | Contact, Appointment Made | |
| | 4300 | Contact Initial Resistance | |
| | 4500 | Locating by Interviewer | |
| | 4600 | Locating by Locating Team | |
| | 4900 | Hold | |
| Final | 5000 | Final Refusals | Non-Interview or Unknown Eligibility |
| | 6000 | Other Non-Interview/Unknown Eligibility | Non-Interview or Unknown Eligibility |
| | 7000 | Non-Sample | Not Eligible |
| | 8000 | Non-Sample | Not Eligible |
| | 9000 | Study Specific Codes | Depends |



Disposition in SurveyTrak

- Master Resultcode Table
 - 5000 (Refusal) & 6000 series: need to distinguish Unknown vs. Known Eligibility
 - 9000 series (Study Specific Codes)
 - HRS 2022 Main:
 - 9080 Remove from Sample: Locating Exhausted, Final (O)
 - 9081 Rem from Samp: R Deceased Can't ID Proxy (O)
 - 9095 Field Case Completed lw via Web (I)
 - DAWN D-AMP:
 - 9002 NI, Out-of-Area (O)
 - 9003 NS, Removed Before Production (NS)
 - 9004 NS, INF, Assoc. R Not Interviewed (NS)



Disposition in MSMS

- There is no master table as a standard
- Each task rule state has a corresponding AAPOR Category

| PSID_2025_PROD | | STARRS_W5_PROD | | HRS_2024_PROD | |
|------------------|----------------|----------------------------------|----------------|---------------------|----------------|
| Task Rules State | Aapor Category | Task Rules State | Aapor Category | Task Rules State | Aapor Category |
| 1001 | I | AcceptedComplete | I | AcceptedComplete | I |
| 1005 | P | ConsentReminder | I | AcceptedPartial | P |
| 8011 | NS | ExpireOutstandingSampleLineTasks | I | NoContact | NC |
| 9001 | NS | SetPhaseAtRelease | I | NonSample | NS |
| 9002 | NS | StopOutstandingSampleLineTasks | I | BreakOff | O |
| 9003 | NS | ThankYouLetter | I | Incarcerated | O |
| 9004 | NS | AcceptedPartial | P | Institutionalized | O |
| 9007 | NS | Deceased | NS | Language | O |
| 6004 | O | NonSample | NS | LimitedEffort | O |
| 6005 | O | Breakoff | O | LocatingExhausted | O |
| 6001 | O | Deployed | O | NotAvailable | O |
| 6003 | O | EligNI | O | Other | O |
| 6007 | O | Incarcerated | O | PermanentCondition | O |
| 6092 | O | Institutionalized | O | NotAcceptedComplete | R |
| 5001 | R | NoContact | O | Refusal | R |
| 5002 | R | NotAcceptedComplete | O | RemoveFromStudy | R |
| 5004 | R | PermanentCondition | O | | |
| 5005 | R | Refusal | R | | |
| 5006 | R | WithdrawFromStudy | R | | |
| | | UnknownNI | UO | | |

Assigning Final Disposition Codes

- Consider the best information from all contact attempts when determining the final disposition
 - Need “status day” if eligibility criteria change over time
 - The frame from which a sampled unit is selected must be considered
 - RDD frame: phone number
 - Disconnected number => non-sample
 - Refusal on phone => refusal
 - ABS frame: address or housing unit
 - Vacant at screening => non-sample (ANES fresh sample)
 - Refusal on phone number attached to an address => unknown eligibility
 - List or Panel: named person
 - Vacant => non-interview if no other contact information available (ANES panel)



Assigning Disposition Codes

- Non-Interview vs Unknown Eligibility - Refusal
 - SurveyTrak
 - 5001 Final Refusal, R (R)
 - 5002 Final Refusal, Inf, R Known (R)
 - 5003 Final Refusal, R Unknown (UR)
 - 5004 Final Refusal, Proxy (R)
 - 5006 Final Refusal, Do Not Attempt RC (R)
 - MSMS (ANES2024)
 - WebScreenerRefusal (UR)
 - WebBreakOff (UR)
 - Pre Break Off (R)
 - PanelRefusal (R)

Assigning Disposition Codes

• Non-Interview vs Unknown Eligibility

SurveyTrak (Master table)

| | |
|-------------|---|
| 6011 | NI: No Contact Call Limit Filled (UH) |
| 6002 | NI: Final Non-Contact Unknown HH (UH) |
| 6009 | NI: Limited Access, HH Eligibility Unknown (UH) |
| 6008 | NI: HH Eligibility Unknown (UH) |
| 6013 | NI: Final Non-Contact, Unknown R (UR) |
| 6015 | NI: Language Problem, R Unknown (UR) |
| 6016 | NI: Other Eligibility Unknown (UR) |
| 6014 | NI: Never Answered, Final NC, R Known (NC) |
| 6001 | NI: Locating Exhausted, R Known (O) |
| 6003 | NI: Incomplete Interview (O) |
| 6004 | NI: Permanent Condition (O) |
| 6005 | NI: Language Problem, R Known (O) |
| 6010 | NI: R Institutionalized, Eligible (O) |
| 6012 | NI: R Deceased (O or NS) |
| 6018 | NI: Unable to Identify Proxy (O) |
| 6007 | NI: Other Reason (O) |

MSMS

(ANES 2024)

| TaskRulesState | Aapor Category |
|----------------------------|----------------|
| PreUnknownElig | UO |
| WebNonResForwarded | UO |
| WebNonResMisdelivery | UO |
| WebNonResOther | UO |
| WebNonResponse | UO |
| WebNonResTemp | UO |
| WebNotStarted | UO |
| PanelNonRes | NC |
| PanelNonResponse | NC |
| PanelUndeliverable | NC |
| PanelVacant | NC |
| WebOtherEligNonResp | NC |
| Deceased | O |
| Language | O |
| LocatingExhausted | O |
| PanelNotStarted | O |
| PermanentCondition | O |



Assigning Disposition Codes – Screening/Main

- Separate projects (HRS2022,DAWN) vs one project (ANES2024)
 - Ensure interviewers are aware of the difference between known and unknown eligibility if using one project for screening and main
 - Screened Ineligible
 - If screening project: Interview
 - If one project: Non-sample



Assigning Disposition Codes – Screening Mode

- FTF – Easy to determine vacant or no such housing unit
- Mail push to web – Rely on USPS code on the returned mail
 - Vacant
 - USPS code = ‘Vacant’
 - Undeliverable
 - Depends on USPS codes
 - Get project approval for defining NS
 - Vacant takes higher priority than undeliverable
 - Screening/Main Interview tasks take higher priority than Vacant or Undeliverable



Can we map result codes to the AAPOR Category in the master resultcode table?

- Yes for most result codes
- Some result codes depend on
 - Sample frame
 - Whether separating screening or not
 - Project definition
 - Deceased
 - HCHD : voucher sample deceased at screening – Non-sample
 - HCHD : deceased at main stage – Non-interview
 - STARRS W5 : Non-sample
 - ANES : Non-Interview
 - Incarcerated
 - HRS 2024 – Non-interview
 - PSID 2025 – Non-sample
 - Vacancy (rare situation- NYCHVS, vacant is eligible, will interview the owners)



Response rates and other outcome rates



AAPOR Outcome Rates

- Response rates
 - The proportion of eligible units that respond to the survey. Ineligible units are removed from the denominator.
- Cooperation rates
 - The proportion of all cases interviewed of all eligible units ever contacted
- Refusal rates
 - The proportion of all potentially eligible cases that refuse or break off an interview
- Contact rates
 - The proportion of all cases in which some responsible member of the housing unit was reached by the survey



AAPOR Response Rates

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

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

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

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

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

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

- I = Completed Interview
- P = Partial Interview
- R = Refusal or Breakoff
- NC = Non-contact
- O = Other
- UH = Unknown if HH/occupied HU

- UR = Unknown if sampled unit is eligible
- UO = Unknown Other
- e = Estimated proportion of cases of unknown eligibility that are eligible

AAPOR Response Rates

Results types

R: Response

NR: Nonresponse (e.g., refusal)

UN: Unknown if occupied HU, etc.

NS: Not eligible (e.g., vacant HU)

e: Estimated eligibility rate for UN,

$$e = \frac{R + NR}{\text{All cases} - NS}$$

Response rate formulas

$$RR1-2 = \frac{R}{R + NR + UN}$$

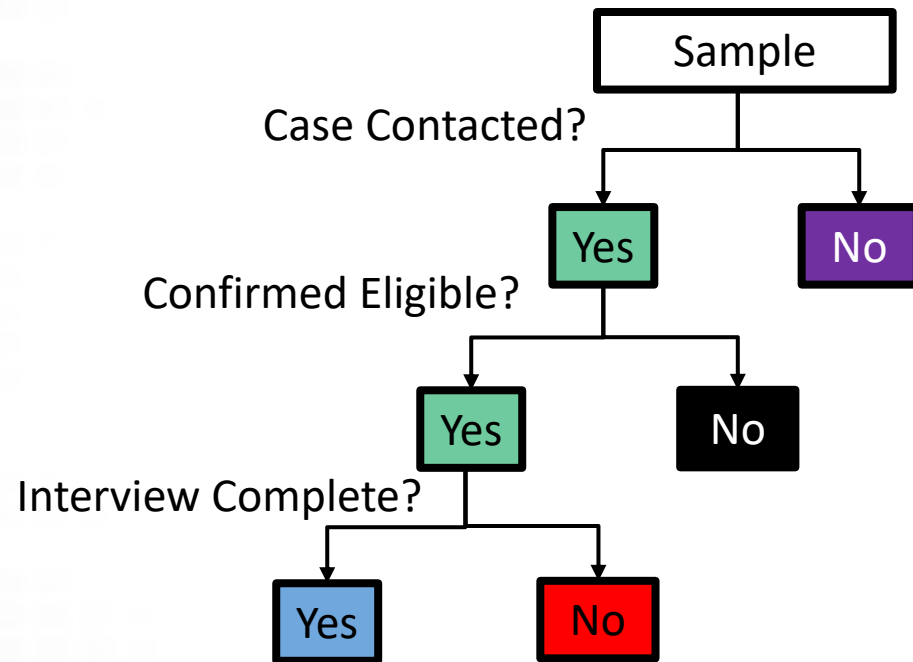
Assumes all unknowns as eligible

$$RR3-4 = \frac{R}{R + NR + e \times UN}$$

Assumes a portion of unknowns to be eligible through **e**

$$RR5-6 = \frac{R}{R + NR}$$

Assumes all unknowns as ineligible



Response rate calculation

$$e = \frac{R + NR}{\text{All cases} - NS}$$

$$RR1-2 = \frac{R}{R + NR + UN}$$

$$RR3-4 = \frac{R}{R + NR + e \times UN}$$

$$RR5-6 = \frac{R}{R + NR}$$



AAPOR Cooperation Rates

- Cooperation Rate 1 (COOP1) and 2 (COOP2) include “other” non-responding cases in the denominator

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

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

- Cooperation Rate 3 (COOP3) and 4 (COOP4) define “other” non-responding cases as unable to cooperate

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

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



AAPOR Refusal Rates

- Refusal Rate 1 (REF1) has the same denominator as RR1 & RR2
- Refusal Rate 2 (REF2) has the same denominator as RR3 & RR4
- Refusal Rate 3 (REF3) has the same denominator as RR5 & RR6

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

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

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

AAPOR Contact Rates

- Contact Rate 1 (CON1) has the same denominator as RR1 & RR2
- Contact Rate 2 (CON2) has the same denominator as RR3 & RR4
- Contact Rate 3 (CON3) has the same denominator as RR5 & RR6

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

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

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



Other considerations



To Weight or Not to Weight?

- Weighted Response Rate
 - Typically weighted by design weights (to account for unequal selection probabilities)
 - Interpretation:
 - Estimate of population response rate (as if conducting a census survey)
 - Response rate unconditional to the selected sample
- Unweighted Response Rate
 - Generally, not that much different from weighted response rate
 - Interpretation:
 - Response rate conditional to the selected sample

AAPOR's (Standards Definitions) recommendation

“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” [...]

*“When reporting this response rate, it should be noted that the response rate was weighted. **Unweighted response rates are useful as productivity measures between and across sampling strata.**”*

- For SRO purposes: unweighted response rates are generally more useful



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Thank you!

What questions do you have?

Next Lunch & Learn: May 20 (Tuesday)

Data Collection Monitoring: Dashboards and Reporting