RECONNECT
RESEARCH
A Dial800 Company

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Scott Richards, Founder/CEO
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What is RICS?

A truly new telephone research sampling tool
where **people initiate the call**,
not the researcher.

Objective

To conduct telephone research with better precision* at a **fraction of the time & cost** of outbound DFRDD surveying.

*Compared to DFRDD, RICS yields unweighted samples that more closely match the characteristics of the general population,

MIDI CALLS™

Misdialed

Incomplete

Disconnected

Inbound

Platform that Connects

Research

- High Costs
- Low response rates

Telephone Carriers

- Slim margins
- Wasted calls

~1 Billion MIDI Calls a Month in USA

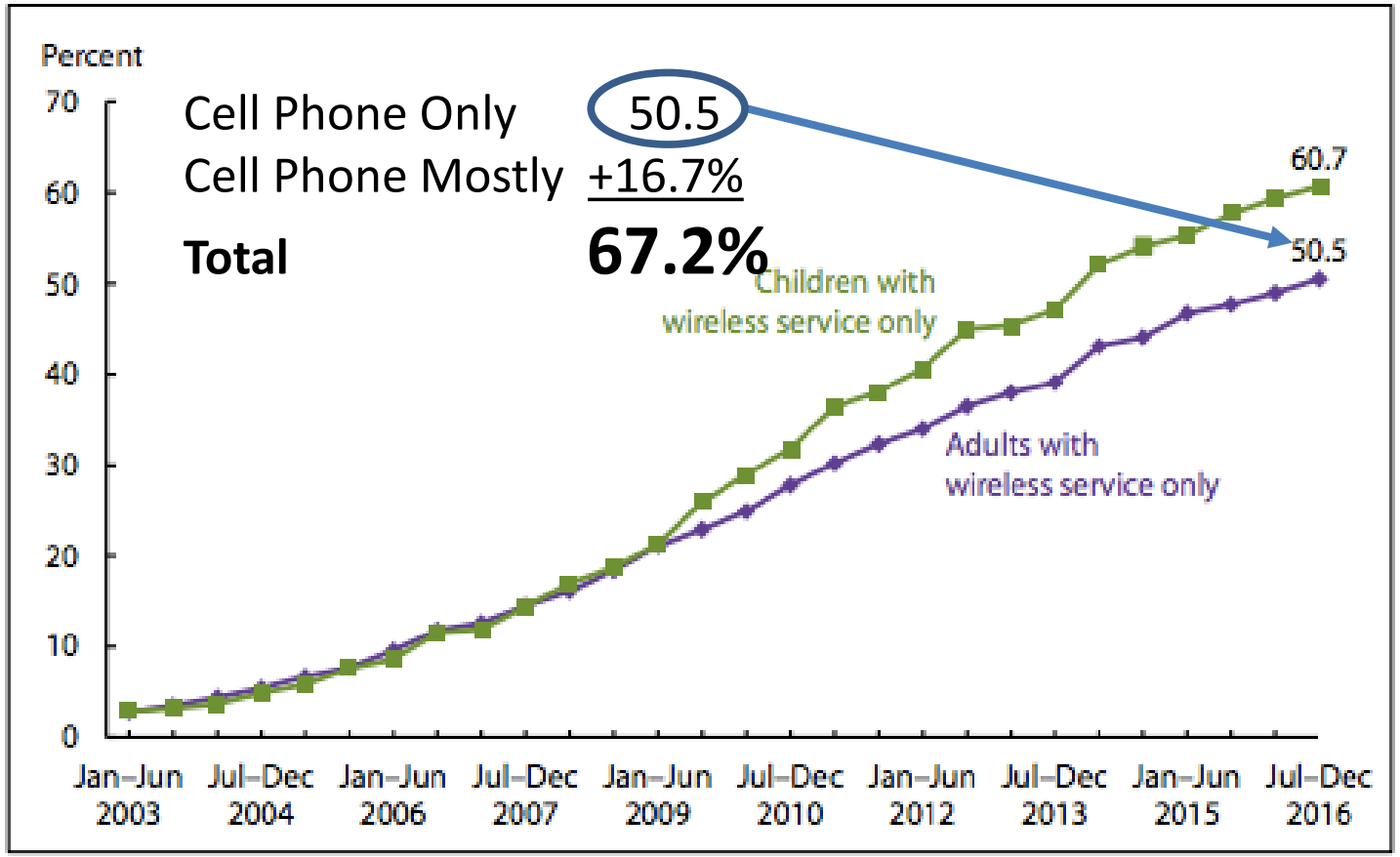
Adults 18+	220 Mill
MIDI Calls (per person)	X 5
Total USA	**1 Bill**
Total World	**20 Bill**

NATIONAL CENTER FOR HEALTH STATISTICS

National Health Interview Survey Early Release Program

Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July–December 2016

Stephen J. Blumberg, Ph.D., and Julian V. Luke
Division of Health Interview Statistics, National Center for Health Statistics



How do Telephone Carriers Send us Calls?

- We are interconnected with in the carrier network via a class 4 telecom soft-switch.

- When a carrier can't complete a call, they send it to us and we play the intercept message and invite the caller to take a survey.

Intercept Message

- Please answer our brief national health survey by RTI International.
- This should take less than 7 minutes.
- Your call couldn’t be completed and was sent to this survey.
- Let’s begin…

Screener

If you're 18 or older press 1,
if you’re 17 or younger press 2.

If Pressed 1
Thank you. This survey is voluntary and your answers are confidential.

If Pressed 2
Thank you. This study is for adults 18 and older only. [TERMINATE]

How does RICS Work?

IVR invites the caller to take a survey

Screener qualifies the caller

Conduct the survey

- IVR
- Live Interviewer
- Text to mobile survey

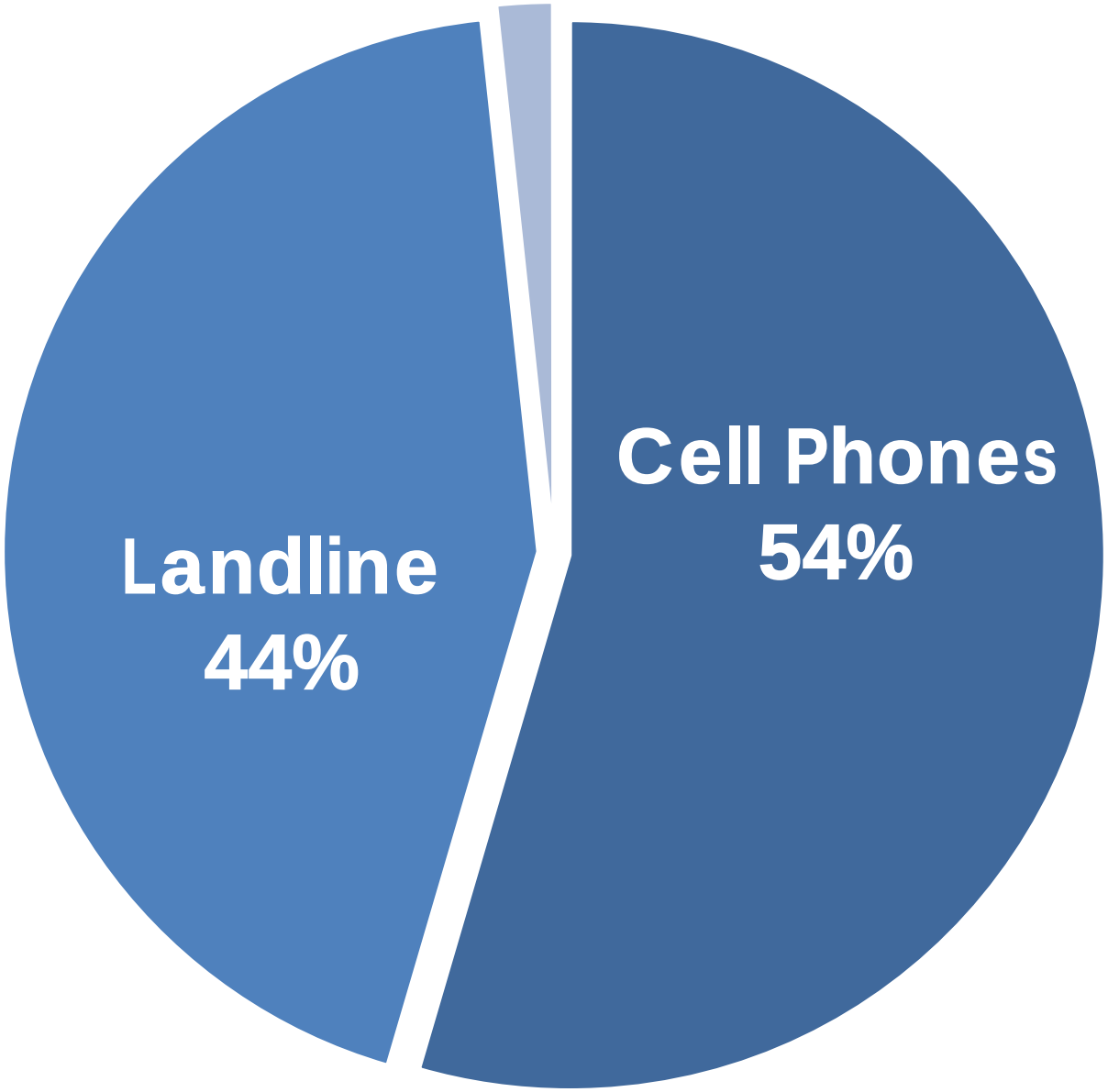
Route Calls with Paradata

1. Date & Time
2. Callers phone number (ANI)
3. City, State, Zip
4. Phone type (Landline/Mobile)

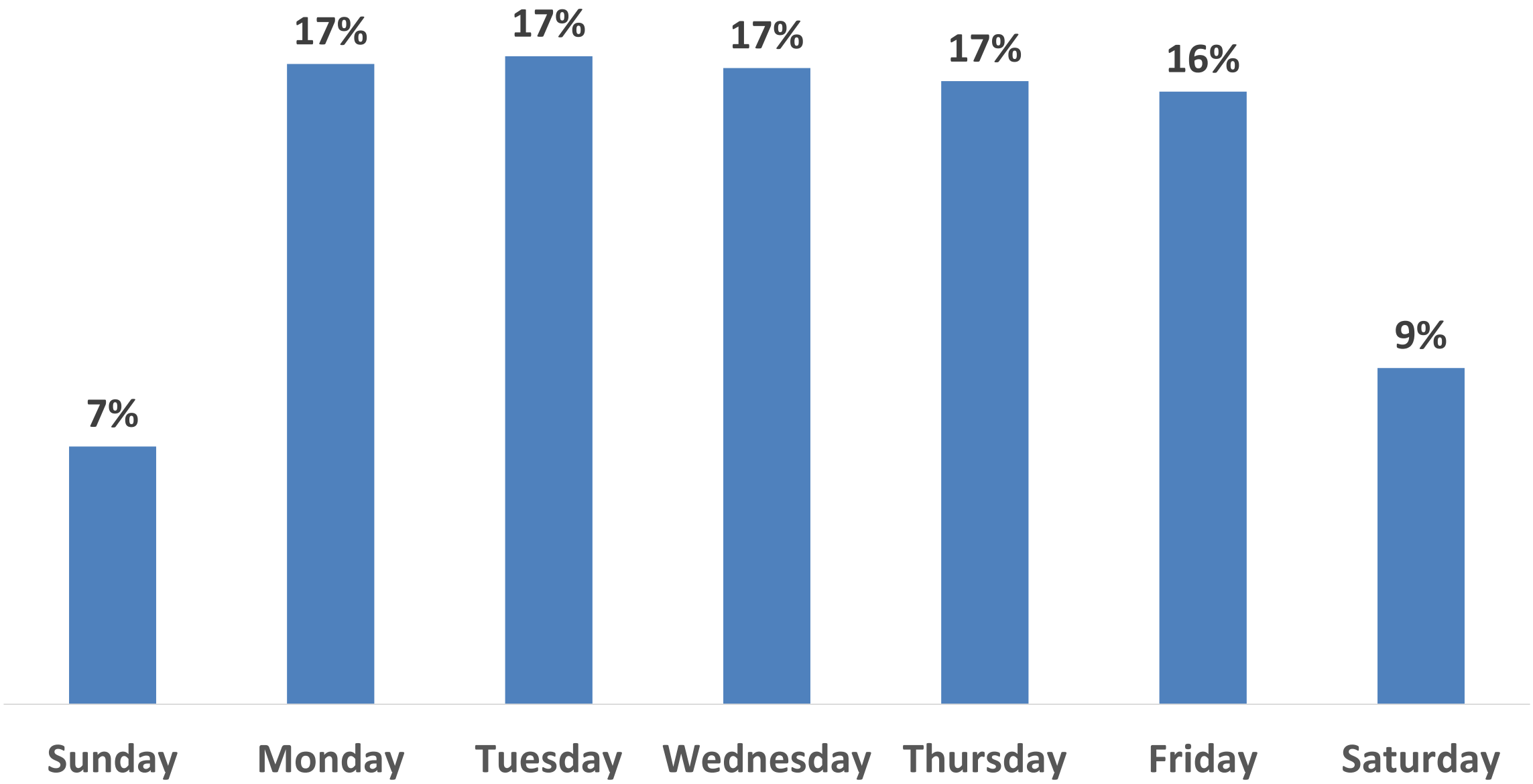
Sample Frame

10 Million Unique Calls

54% of Calls from Cell Phones

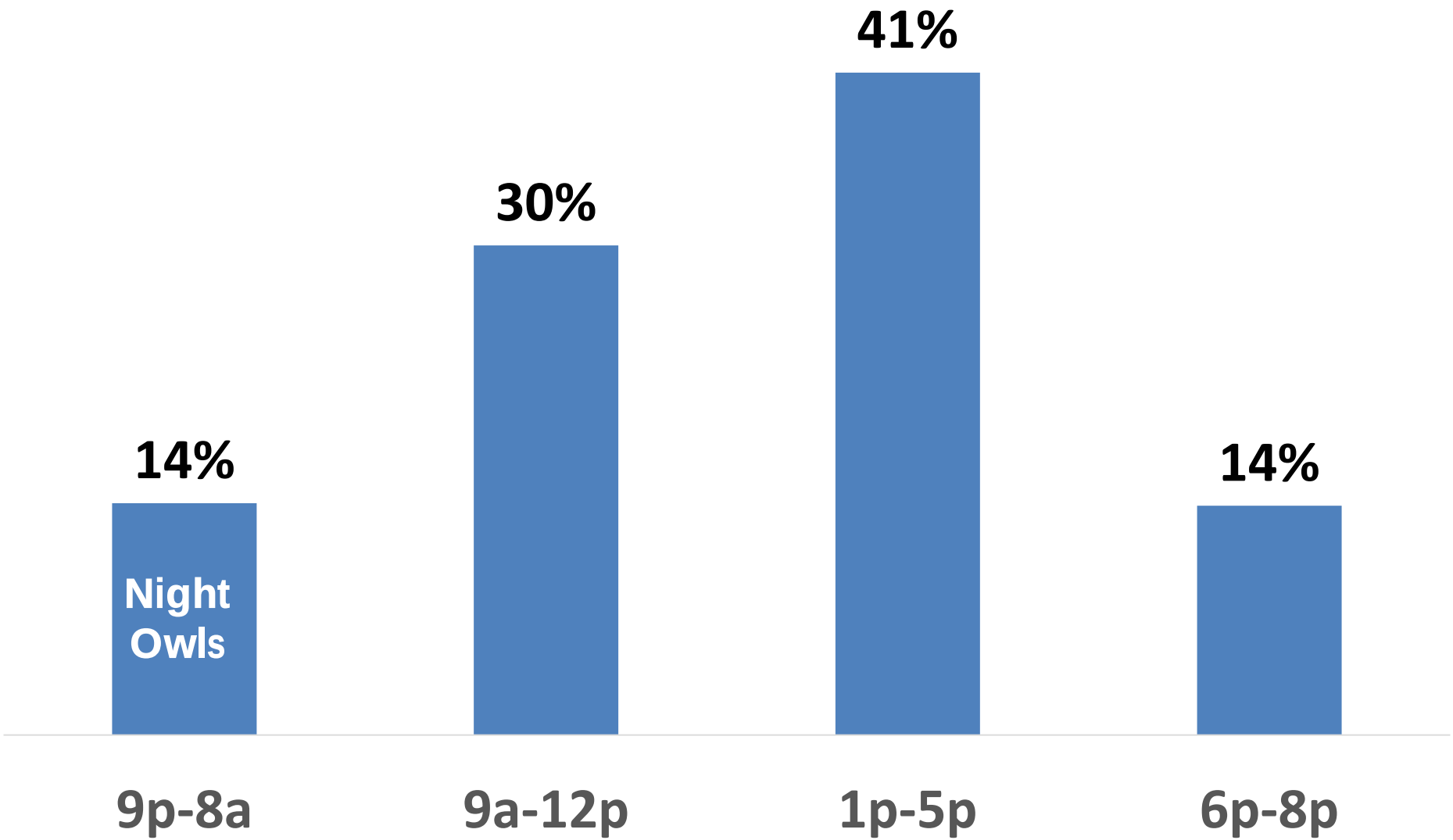


Calls by Day of the Week

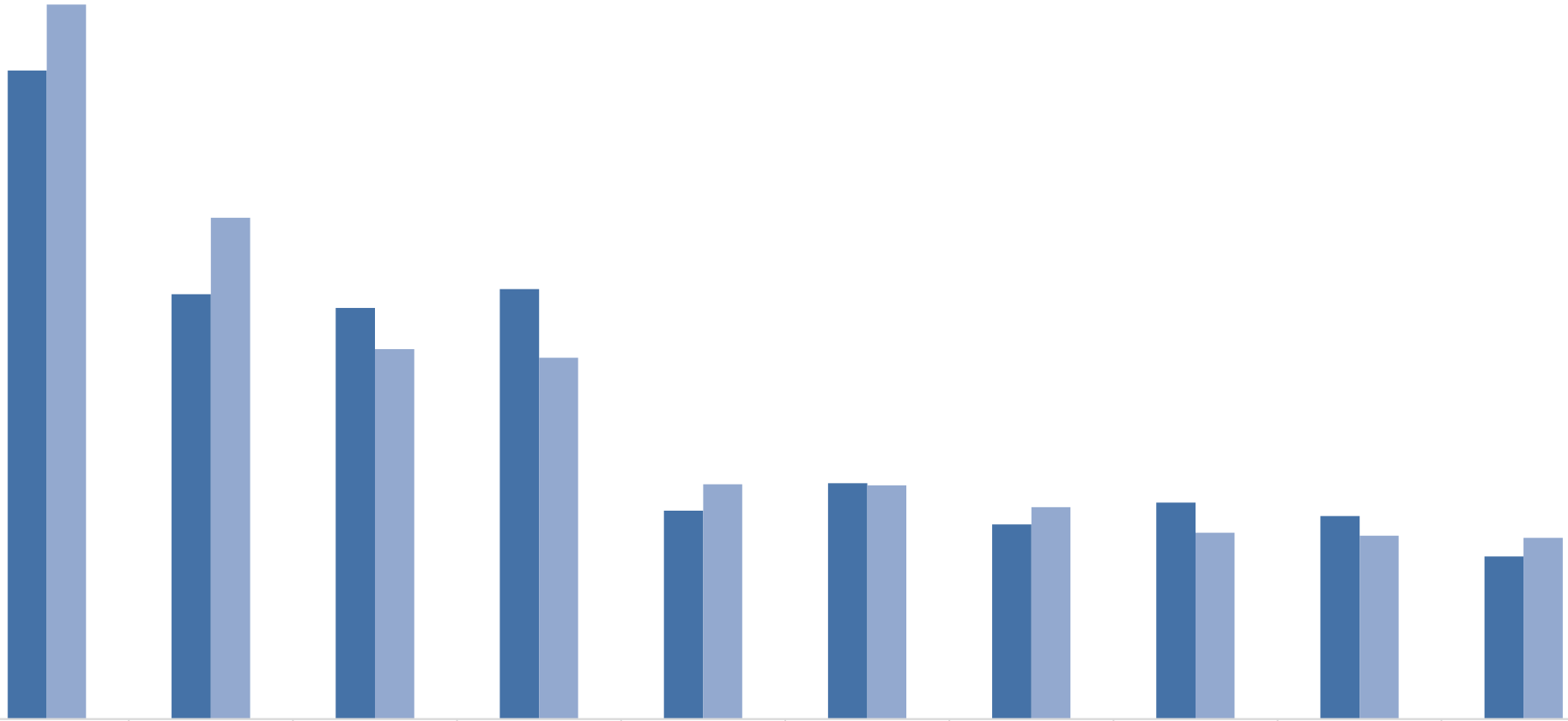


Calls by Daypart

(EST)

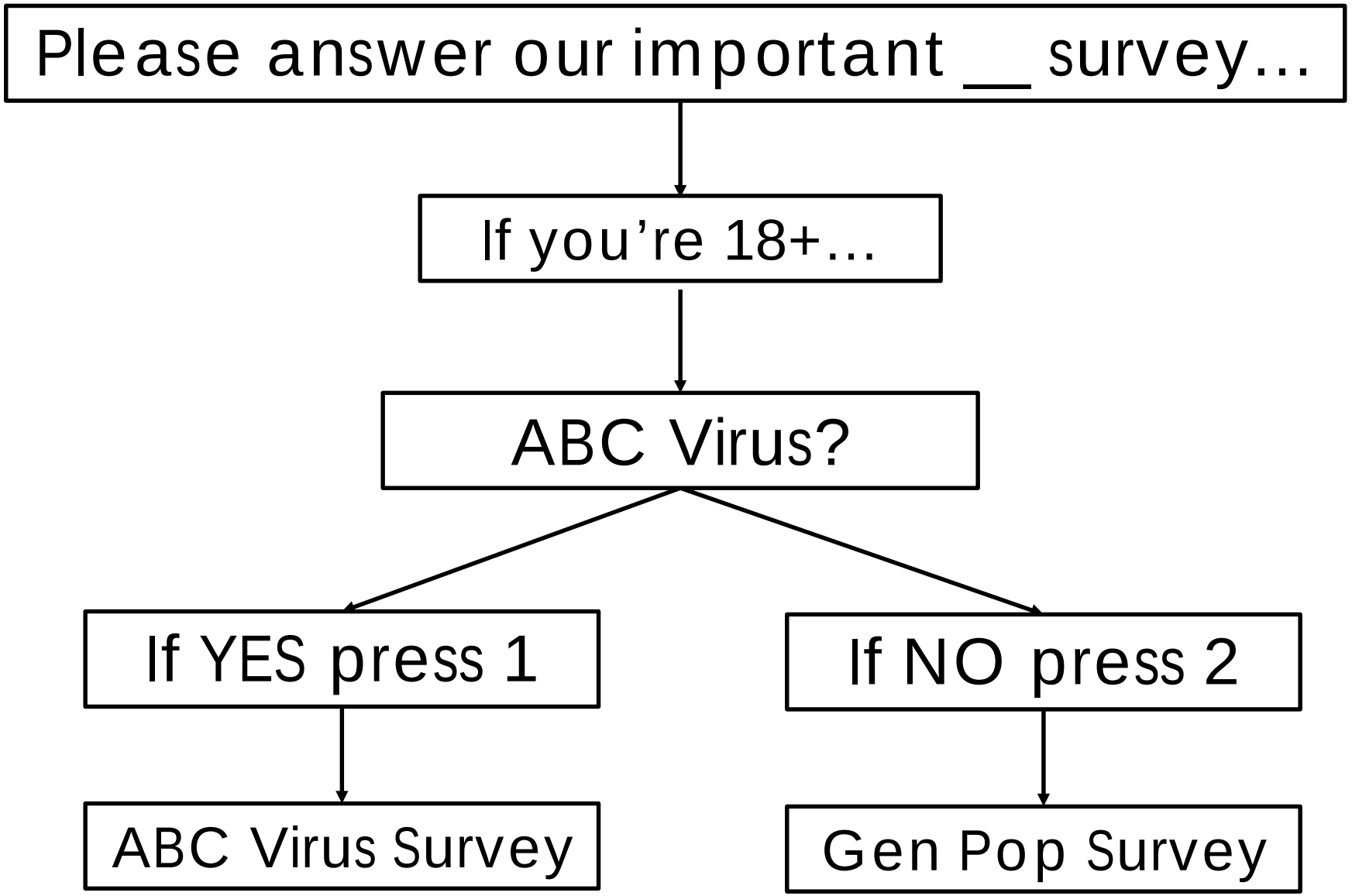


Calls from Top 10 States



	CA	TX	FL	NY	IL	PA	OH	GA	NC	MI
RICS	10.8%	7.1%	6.8%	7.2%	3.5%	3.9%	3.2%	3.6%	3.4%	2.7%
US Census	11.9%	8.3%	6.2%	6.0%	3.9%	3.9%	3.5%	3.1%	3.1%	3.0%

Rare Population



Why do we Believe People Answer RICS Surveys?

Since the person made the call, they:

1. Are expecting to speak with someone and have the time

2. Feel in-control and anonymous

3. Therefore, they feel safer to give their honest opinion than when a stranger calls them, especially to an IVR.

What's Next?

1. Close Knowledge Gaps
2. International
   - Mexico, Africa, Saudi Arabia & UK
3. Mobile data collection
4. Natural Speech

Total Survey Error

Knowledge Gaps for RICS

1. Coverage Error
2. Sampling & Adjustment Error
3. Nonresponse Error
4. Measurement Error

Coverage Error

- How does RICS frame differ from all possible RICS frames?
- What, if any, Coverage Biases are associated with the RICS frame?
- Are certain demo subgroups disproportionally represented in the RICS frame, and if so, which ones; and why?

Sampling and Adjustment Error

- How does the RICS frame vary by month, week, day of week, and time of day, and thus how should a sample be drawn from it to best fit a given survey's purpose?

- On what basis should RICS sample data be weighted, either as a stand-alone study or combined with data from another type of survey sample?

- By what statistical means should a RICS dataset be combined with a probability-based dataset and would it yield findings that are "closer to the truth?"

Nonresponse Error

- How do respondents react to recruitment via RICS IVR?
- What is the reliability of the screening that is carried out via RICS IVR?
- What is the size of the nonresponse that occurs between shifting from IVR to live-Interviewer, and does it lead to non-ignorable nonresponse bias?
- Across what subject domains and types of surveys do RICS final unweighted samples compare favorably to, or perform even better than, DFRDD unweighted final samples?

Measurement Error

- How do various aspects of an IVR questionnaire affect data quality?
- What Response Errors are likely to occur when data are provided via IVR and what are the correlates of these errors?
- How do data from questions administered via IVR differ from data for the same questions administered via Live-interviewer?

RICS Findings AAPOR 2017

- RTI International
- Pew Research Center
- Westat

Evaluating Bias in a Survey Using Redirected Inbound Call Sampling Methodology

Burton Levine
Karol Krotki
2017 AAPOR Conference

RTI International is a registered trademark and a trade name of Research Triangle Institute.

AAPOR 2017 RICS Research—RTI International

- 27 Questions (~5 Minutes) on IVR
  - NHIS National Health Interviewer Survey
  - BRFSS Behavioral Risk Factor Surveillance Study
  - ACS American Community Survey (demo)

- RICS was superior to BRFSS compared to most ACS and NHIS benchmarks;
  - More low education, 18-24 yr. olds, and African Americans in RICS

- Night Owls (10pm-8am) 24% of respondents. Explains demographic differences

- Primacy effects noted when respondent allowed to select an answer as soon as the answer is spoken by the IVR system

- RICS shows promise for being used for Surveillance purposes (e.g., Flu)

Data collection metrics

Data collection for two separate one-week periods

- January 6—January 13
- February 24—March 3

Inbound calls	Respondents	Yield rate (%)
139,022	10,469	7.5

Interview length

minimum	Percentile					maximum
	10th	25th	50th	75th	90th	
1.2	2.7	4.1	4.8	5.4	6.1	11.3

Data collection metrics *(continued)*

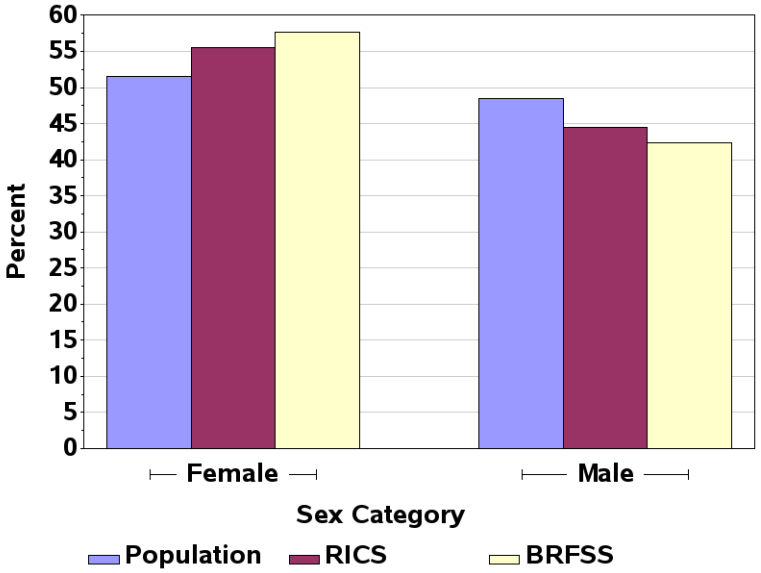
Flow of subjects through the study

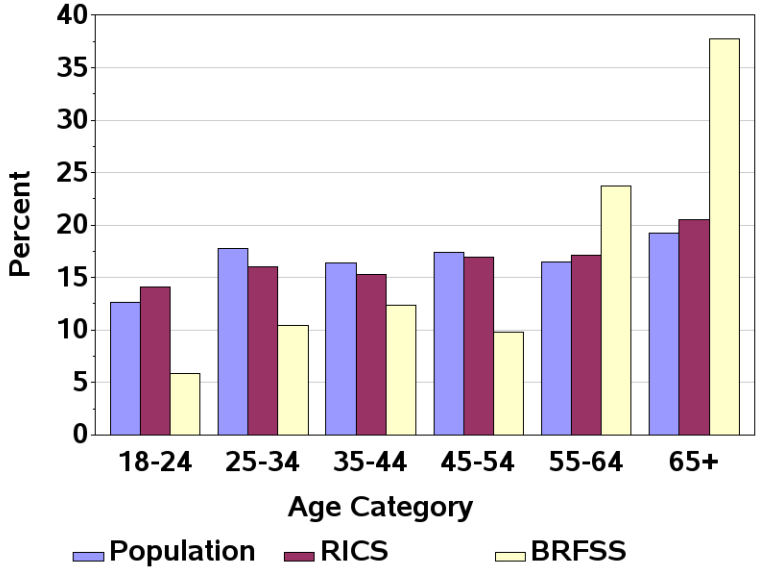
Category	Quantity	Percent of sample remaining	Percent of MIDI calls	Percent of previous column
Inbound calls	139,022	100	100	N/A
Eligible geography	137,840	99	99	99
Responded to screener	24,735	18	18	18
Adults	21,998	89	16	89
Respondents	10,469	48	8	48
Finished Survey	8,157	78	6	78

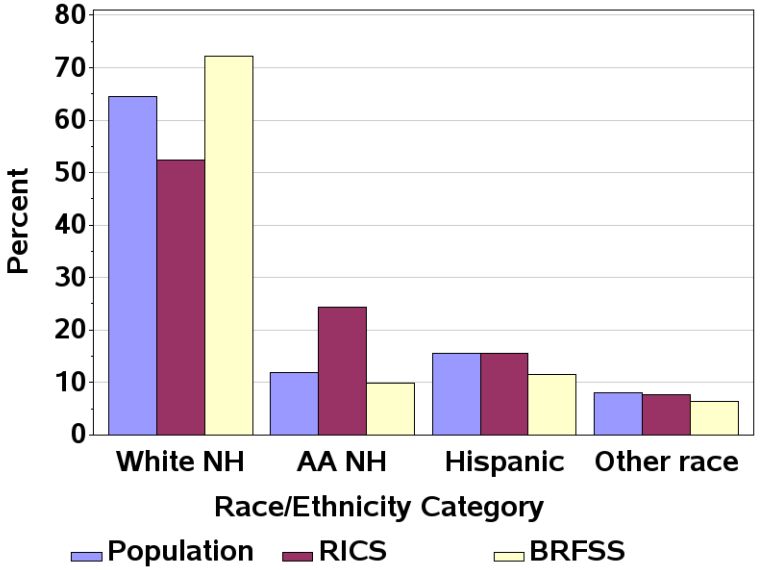
Response rate

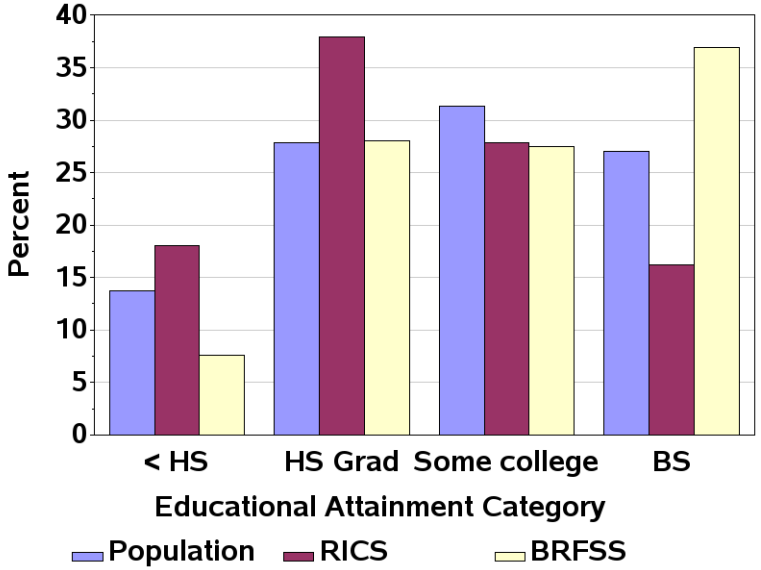
Respondents	Non-respondents	Unknown response status	Ineligible	e	AAPOR4
10,469	11,378	113,296	3,879	0.85	8.87%

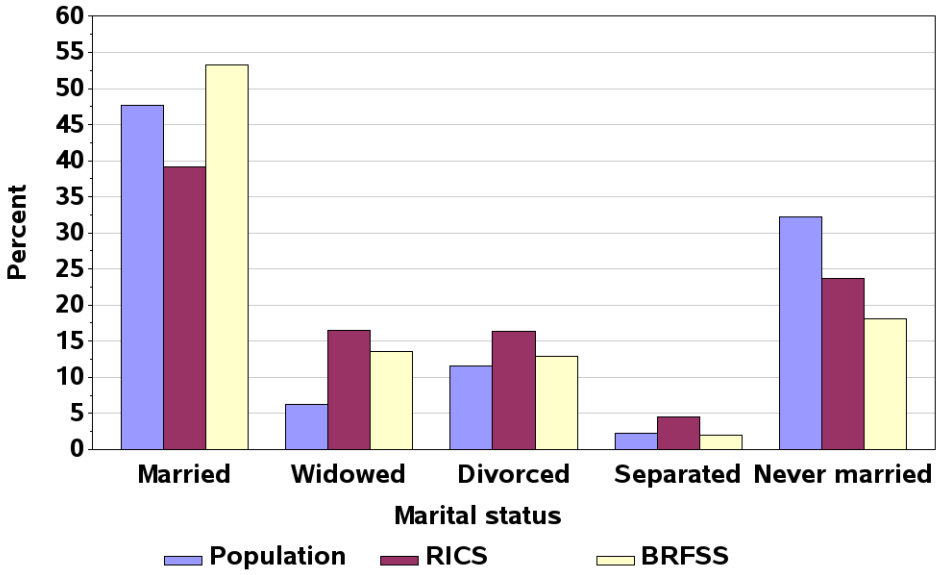
Comparison of RICS demographic distributions with population and BRFSS

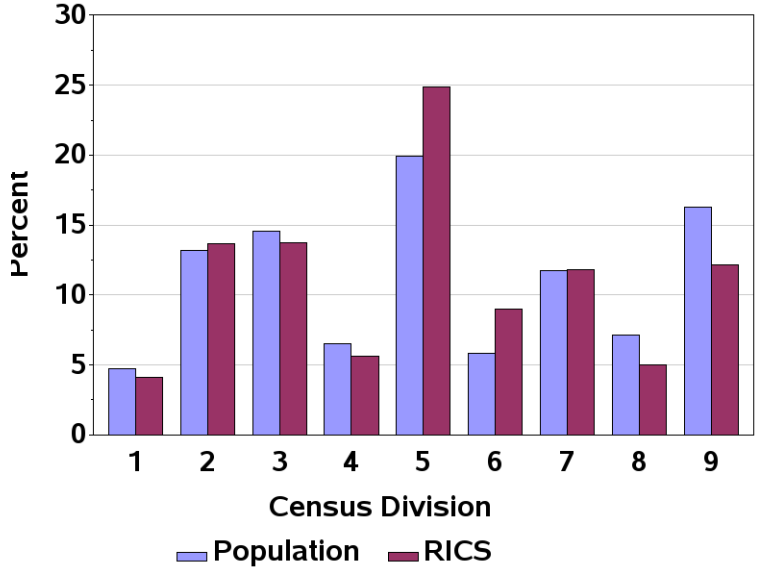




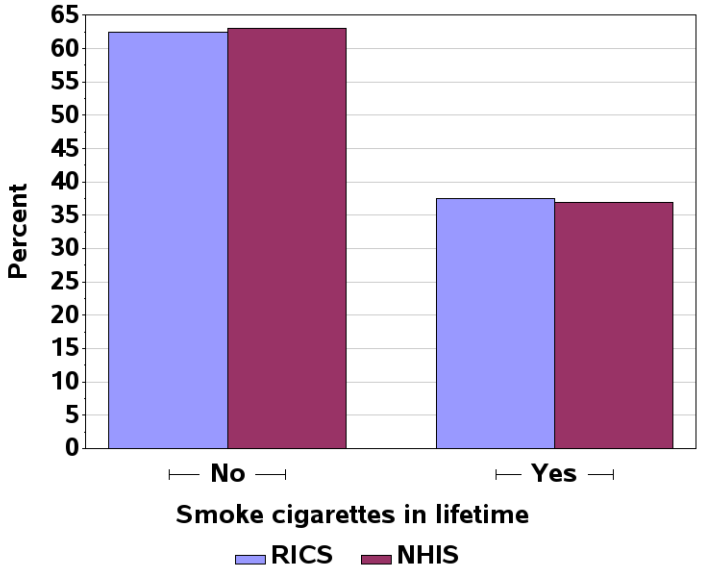


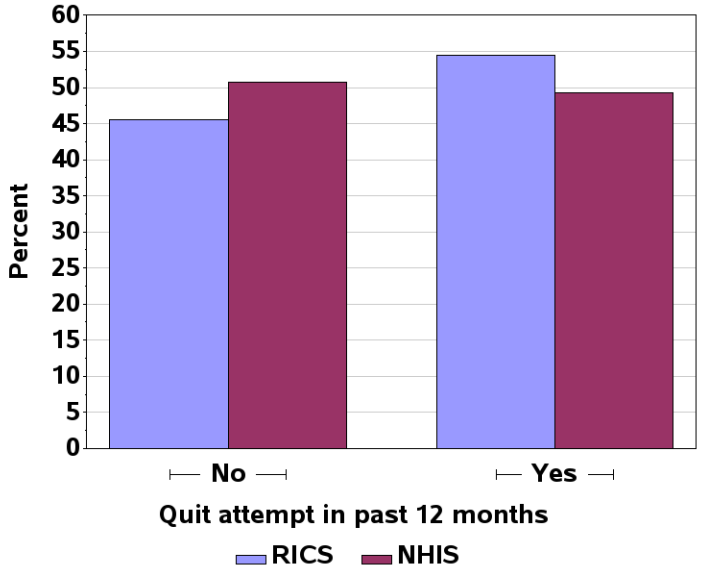


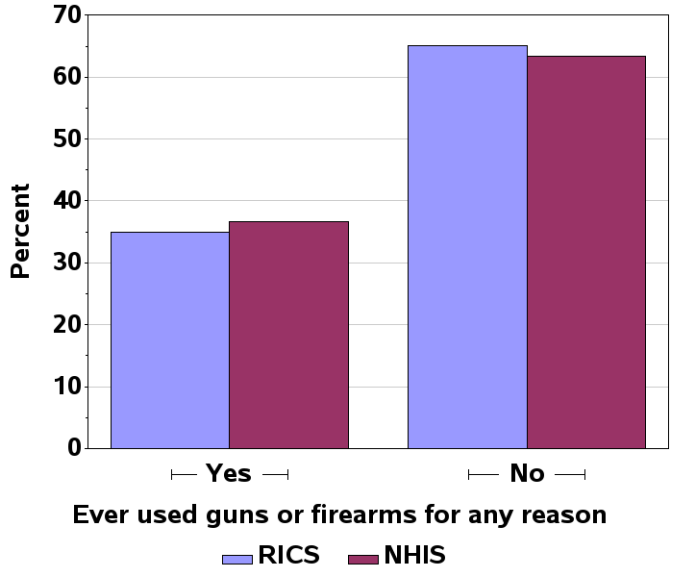


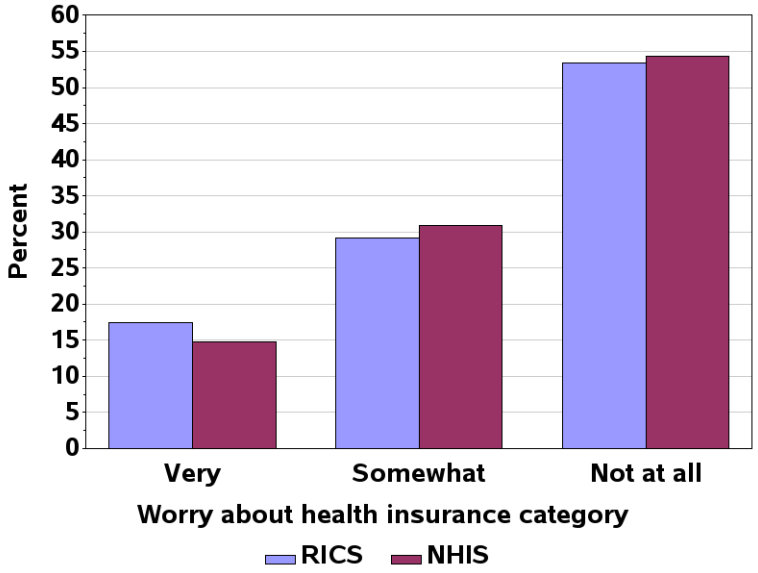


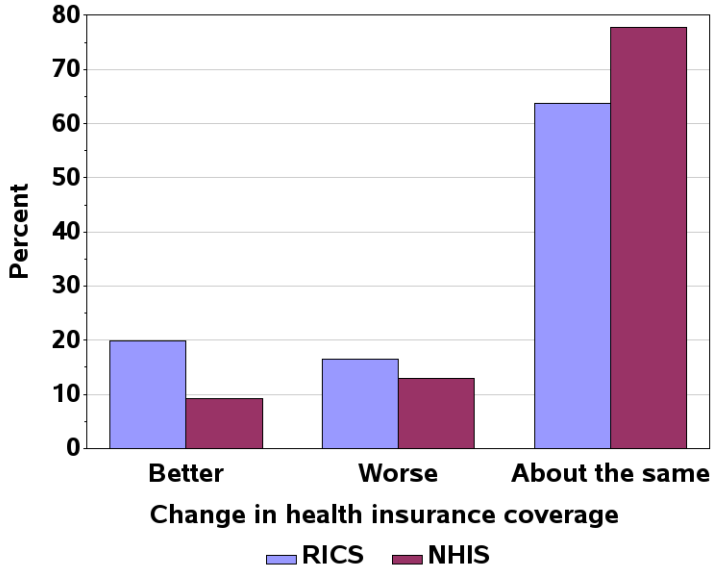
Comparing outcomes—categorical



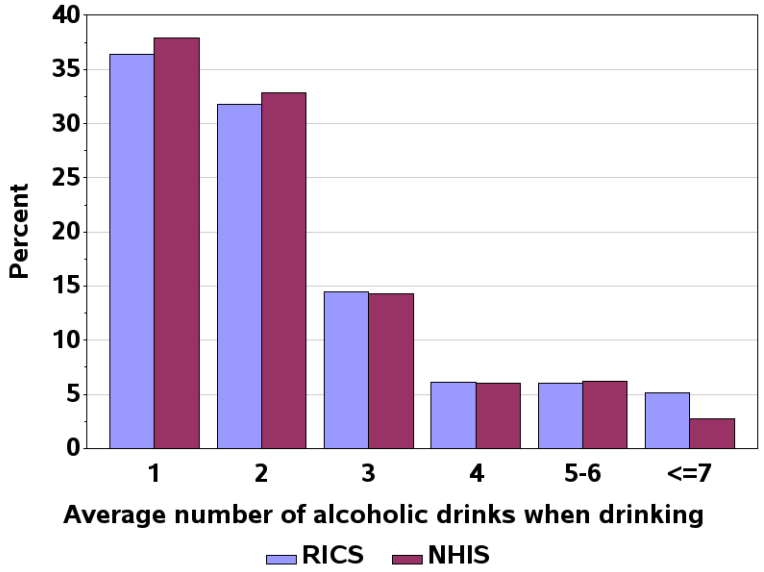


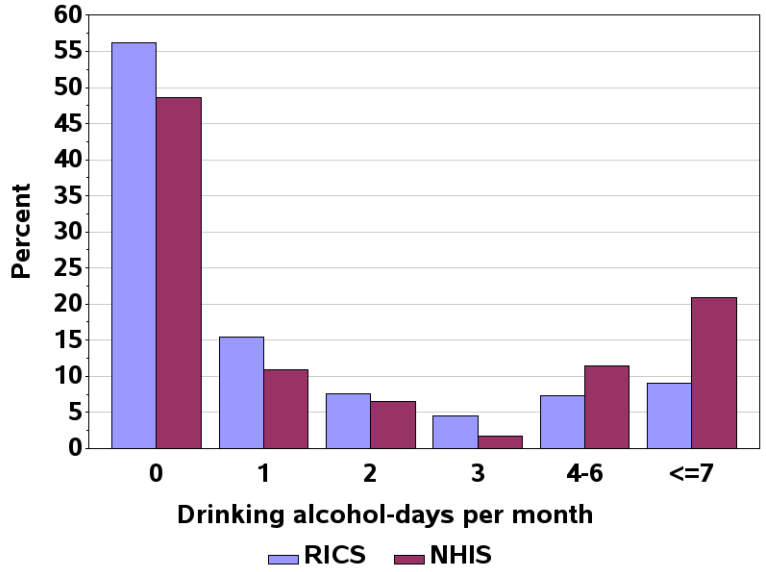


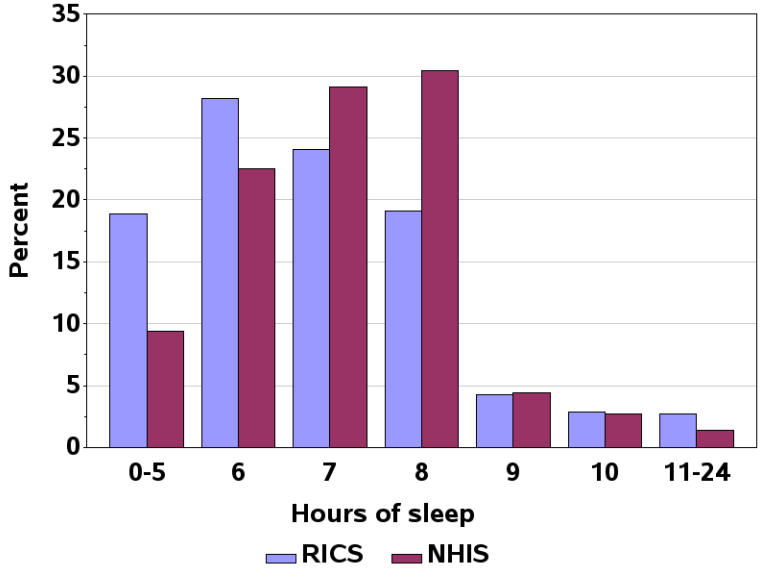


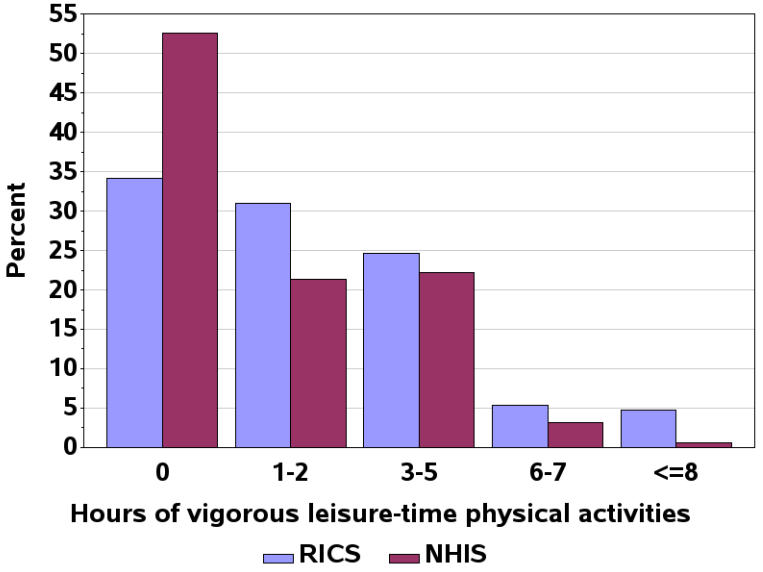


Comparing outcomes—continuous, made into categorical





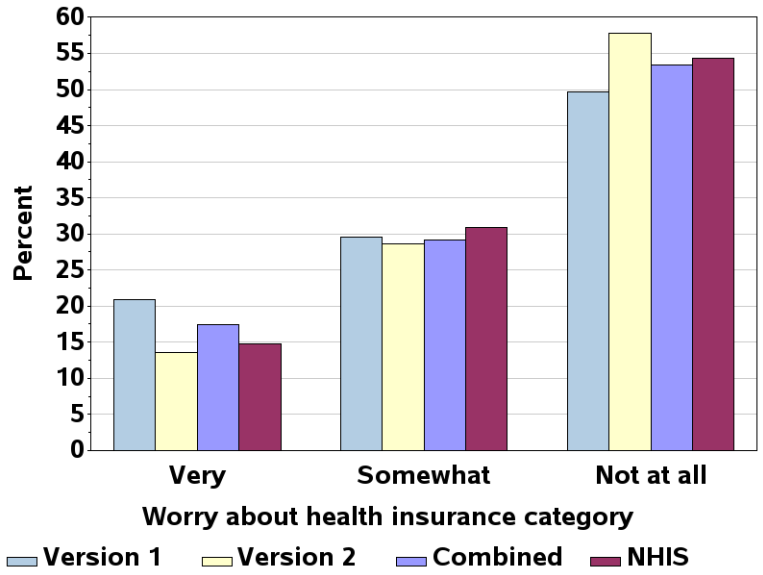




Investigating the ordering of the categories

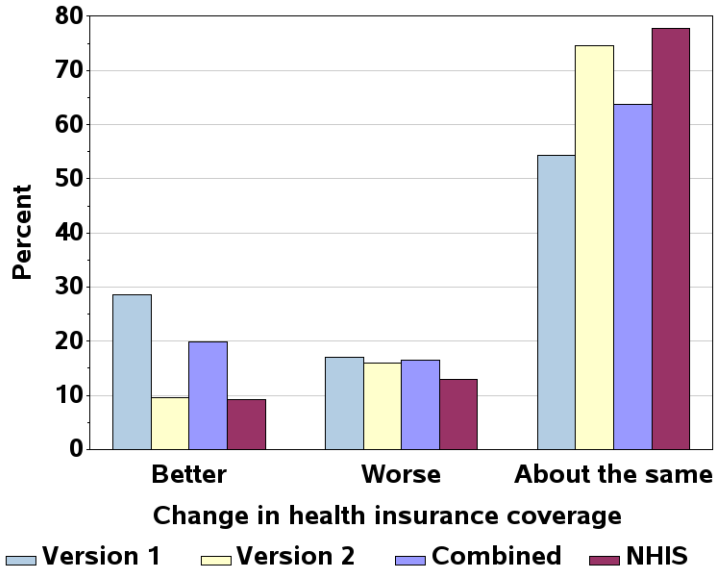
If you get sick or have an accident, how worried are you that you will be able to pay your medical bills?

Order	Version 1	Version 2
1	Very worried	Not at all worried
2	Somewhat worried	Somewhat worried
3	Not at all worried	Very worried



In regard to your health insurance or health care coverage, how does it compare to a year ago?

Order	Version 1	Version 2
1	Better	About the same
2	Worse	Worse
3	About the same	Better



Pew Research Center

Measuring public opinion with redirected calling to IVR

Courtney Kennedy, Nicholas Hatley, Kyley McGeeney

- *AAPOR Annual Conference 2017*

AAPOR 2017 RICS Research—Pew Research Center

- Dec 2016/Jan 2017, 3 Surveys, ~5K completions; IVR
- Public opinion questions; Benchmarks Pew CATI studies
- AAPOR RR3 = 8% (comparable to Pew CATI)
- Primacy effects of > 20pp differences for opinion items when respondent allowed to select an answer as soon as the answer is spoken
- RICS was superior to Pew CATI on some demographics: more low educational attainment respondents and Blacks in RICS, but over-represented Republicans by 10pp compared to their estimated population parameter

Research Design

- Fielded three surveys using redirected sampling + IVR December 9 – 22, 2016
  - Form A: Political engagement, political attitudes, benchmarks, demographics
  - Form B: Civic engagement, benchmarks, demographics
  - Form C: Political attitudes, telephone service, demographics
- Each form had about 30 questions. No incentives were used.
- National surveys of adults age 18 and older
- Weighted each the sample completing reach form using modified version of Pew Research Center protocol for RDD surveys
  - No base weight
  - Raked to align with U.S. adult population on region, age, sex, education, race/ethnicity
- Comparisons made to dual frame RDD survey of U.S. adults, Apr. 25–May 10, 2017

Order effects: are respondents answering carefully?

	Redirected IVR Study			RDD CATI Study		
Would you say you follow the news…	"All or most…" read first	"All or most…" read last	Order effect	"All or most…" read first	"All or most…" read last	Order effect
All or most of the time	53	31	23	57	62	-5
Some of the time	25	16	9	23	22	1
Only now and then	14	22	-8	9	10	-1
Hardly ever/Never	8	32	-25	11	5	6
	100%	100%		100%	100%	
Interviews	(907)	(781)		(749)	(704)	

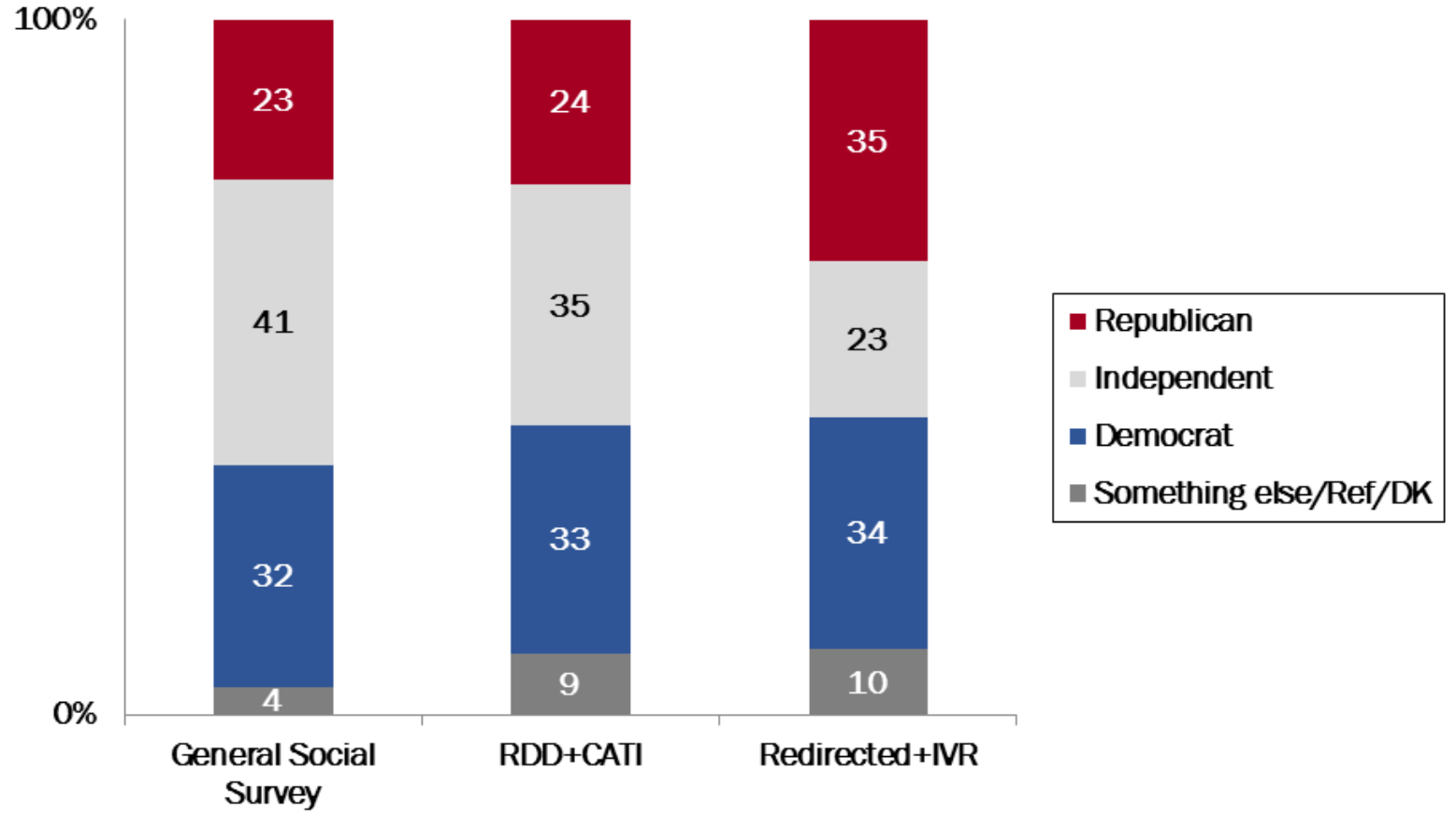
Note: Estimates are weighted

Order effects: are respondents answering carefully?

If you had to choose, would you rather have a…	Redirected IVR Study			RDD CATI Study		
	Smaller gov't read first	Smaller gov't read second	Order effect	Smaller gov't read first	Smaller gov't read second	Order effect
Smaller government with fewer services	49	42	7	46	43	3
Bigger government with more services	51	58	-7	45	48	-3
	100%	100%		100%	100%	
Interviews	(907)	(780)		(749)	(704)	

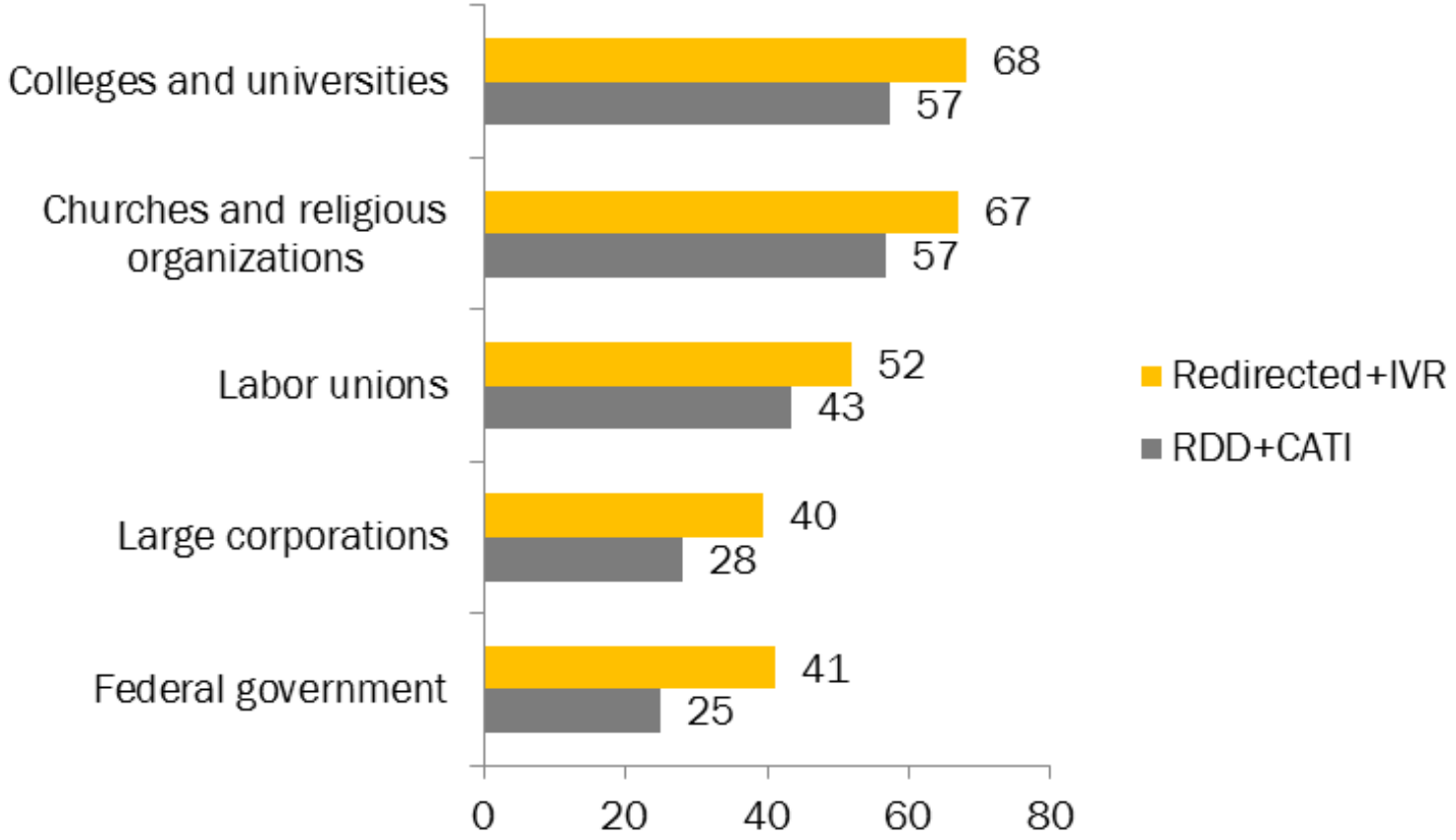
Note: Estimates are weighted

Benchmark comparison: party ID

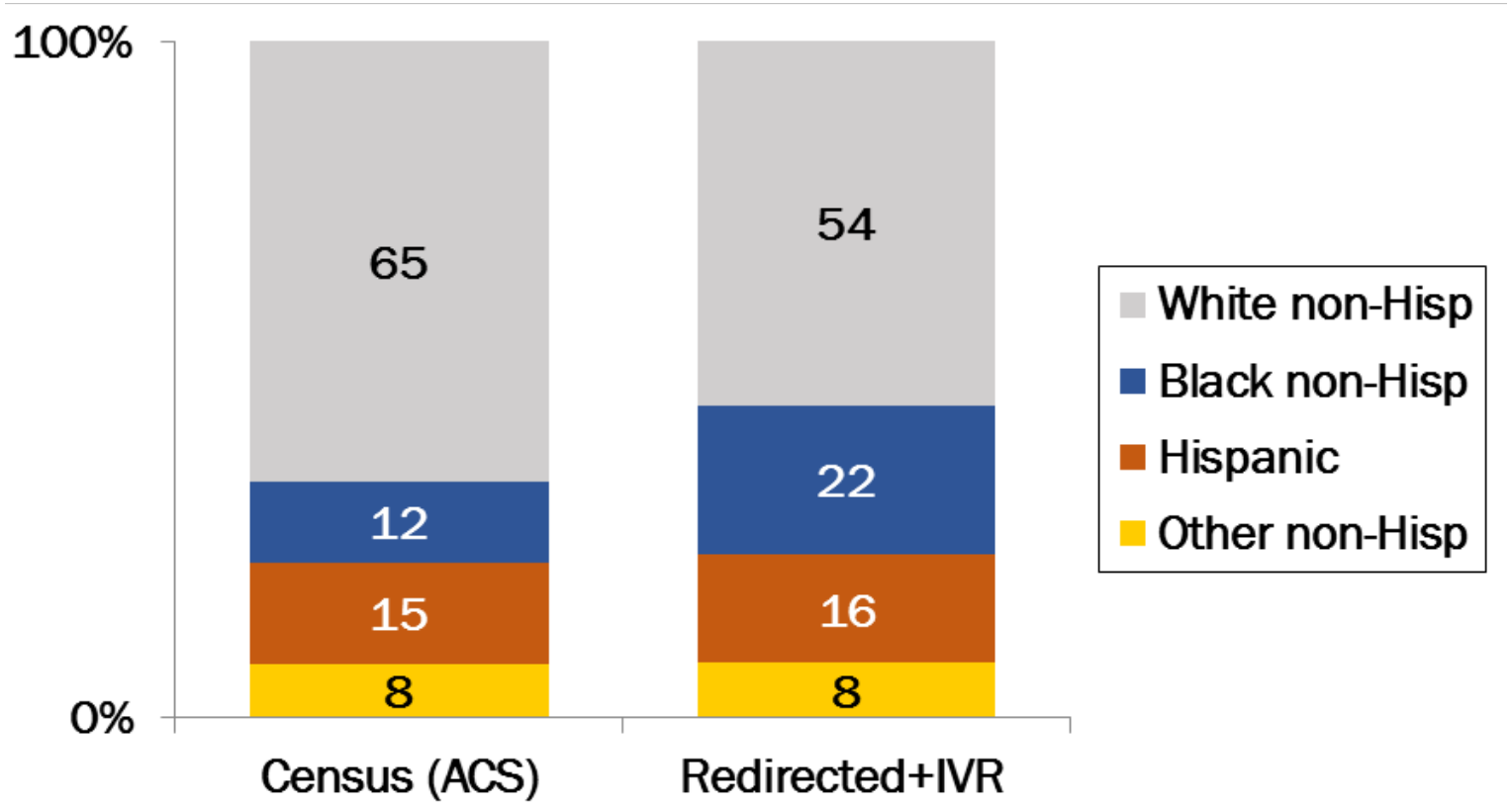


Comparison to dual frame RDD estimates

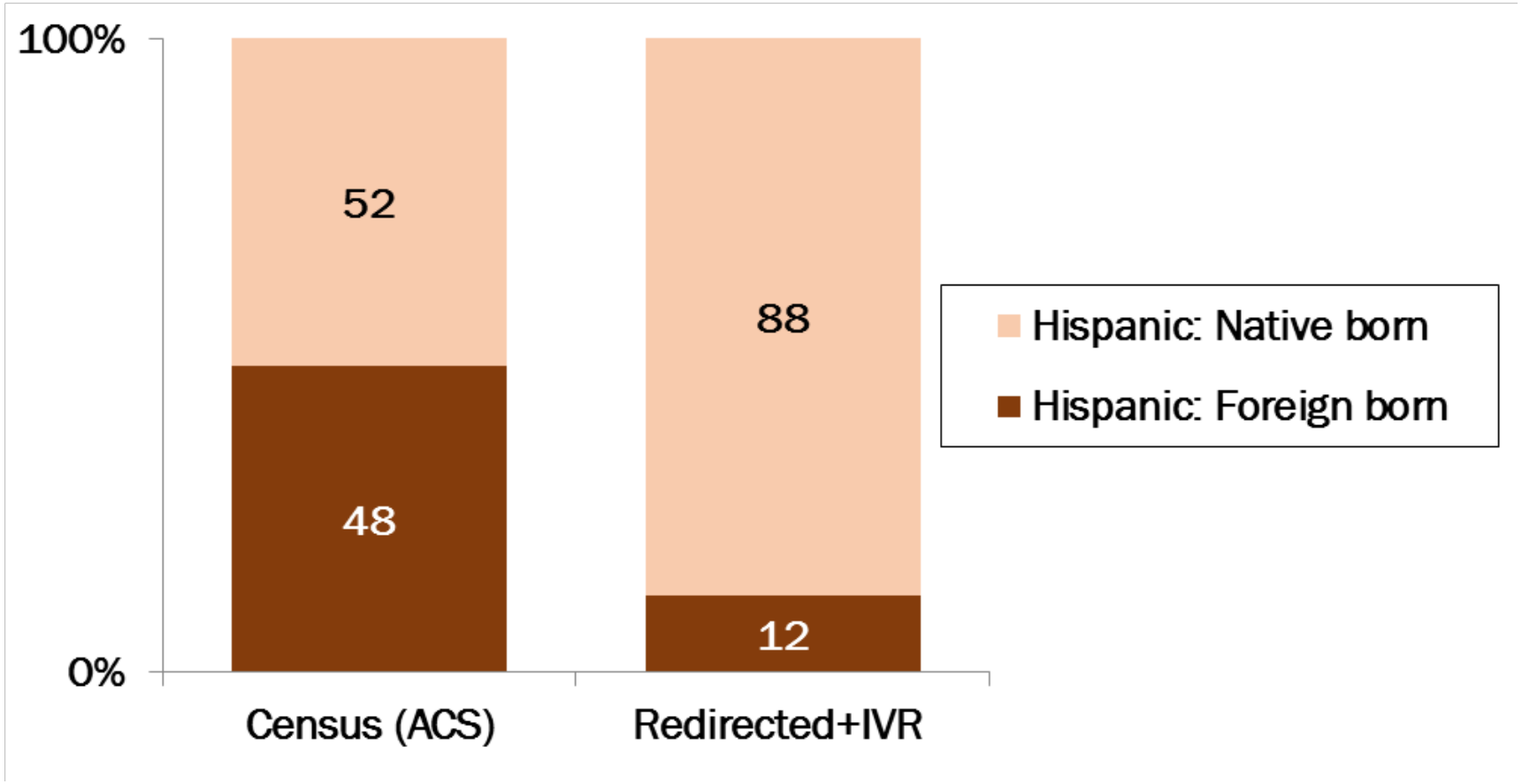
% saying ____ is having positive effect on the way things are going in this country



Unweighted demographics: race and ethnicity



Unweighted demographics: Hispanic nativity



Note: The Redirected+IVR survey was administered only in English

Redirected Inbound Call Sampling (RICS) – Pilot Test Results and Caller Reactions

Sarah Dipko and Eric Jodts, Westat

72nd AAPOR Annual Conference, New Orleans
May 2017

AAPOR 2017 RICS Research—Westat

- July 2016, ~8 Days, 1K completes, 22 questions from BRFFS
- IVR to live interviewer, AAPOR RR1 2.04%
- Challenges: Screening & staffing
- Compared to Census/ACS, RICS had proportionally more females, older adults, Blacks, low educ., and unemployed in final sample
- RICS less physical exercise than BRFSS (same finding at RTI)
- < 10% were unsettled, confused, or angry that their original call did not go through; but 51% said they would do a survey like this again

Design

- Used live interviewers for actual survey
  - Allowed for gathering insight into callers' perceptions/reactions
- Reconnect Research played IVR greeting on selected calls:
  - *"Please answer our important national health and safety survey. Don't miss this opportunity to have your voice heard! To begin the survey, please press 1 now."*
- Interested callers pressed 1 for survey, connected with Westat inbound data collectors
- 22 question 5-minute survey (BRFSS health questions, demographics)

Design (continued)

- No incentive, no callbacks, inbound calls only
- Goal of 1,000 completes
- Two-week data collection effort July 2016
  - 1.5 days – "message test" (8 versions of IVR greeting/1000 calls each)
  - "Winning message" selected for duration of test
    - "Press 1" rate of 7.9% among all selected calls
  - Remainder of production took 8.5 days to reach goal
- Interviewer debriefing held at conclusion of data collection (13 DC's)

Results: Responses to health questions

- Difference may vanish with weighting to compensate for age (MIDI sample older than population) and other characteristics, or may not…
  - Ever smoked 100+ cigarettes in lifetime?
    - Over-representation of ever smoked (45.1% MIDI vs. 40.7% BRFSS), and of current smokers (smoke every day or some days) among the "ever smoked" (50.6% MIDI vs. 40.5% BRFSS)
  - Health Status: Over-representation of good/fair/poor health (61.7% MIDI vs. 49.3% BRFSS)
  - Exercise in past 30 days: MIDI sample reported lower rate of exercise (66.3% MIDI vs. 72.4% BRFSS)
  - MIDI sample more likely to report sometimes/seldom/never use seatbelt (9.1% MIDI vs. 5.5% BRFSS)

Costs and management

- Relatively inexpensive way to complete phone surveys
  - Approximately 0.37 interviewer hours per complete
  - Production cost (interviewers/sample/systems) < $25 per complete
  - Live interviewing estimated to be roughly 4 to 5x more costly than IVR
    - Vast majority of calls selected for this test were “misdials” – general state of confusion among callers as to what they had reached…
  - Variation in call flow (pressing 1) and productivity by “shift”
    - Overall rate of callers pressing 1 = 8.2% (based on full sample)
    - “Message test” results from days 1 and 2 (for “winning” message) indicated rate of 7.9%
    - Spikes and troughs in this rate observed…can be difficult to manage with live interviewing effort, easy to absorb with IVR

Insights into caller reactions and perceptions

- Case notes for 2,196 refusals/breakoffs, interviewer debriefing feedback
  - Many callers expressed frustration, anger, confusion
  - Elderly callers confused by how they had reached us
  - Some callers thought our survey was a “scam”
  - Interviewers reported callers ecstatic to reach a real person
  - Not understanding call had not reached intended party (X), thought completing survey would lead them to reach X
    - Misunderstanding that survey was related to X
      - For some X’s (Medicare, Social Security, food stamps, WIC, social services, unemployment office, SafeLink, mental health services, health insurance company, their doctor, etc.) connection is understandable…
      - Other X’s (cable company, the Price is Right show, PlayStation) no obvious connection – some still completed survey (more than once) trying to reach X

IRB Issues

- "Live" interviewers provide crucial human touch
  - Effort should be made to try and help callers connect to X – quite possibly the best incentive, especially for elderly callers
  - If use RICS to target non-Internet population, remember this population unable to Google…
- Provide a "bailout" for those in distress
  - Are you in distress? If yes, instruct to end call so R can focus on emergency
  - Similar to "Are you currently driving" introduction used for cell phone samples

RICS R&D

1. Respondents
    - Experience
    - Informed Consent taking place
    - Help instructions

2. Unfold Answers

3. Primacy Effect Experiment; 2 x 2 design, ~300 completes each, 24/7 for 7 days

    - Factor 1: Answer Timing: Immediately or after all answers spoken

    - Factor 2: Answer Order: Normal & Reverse

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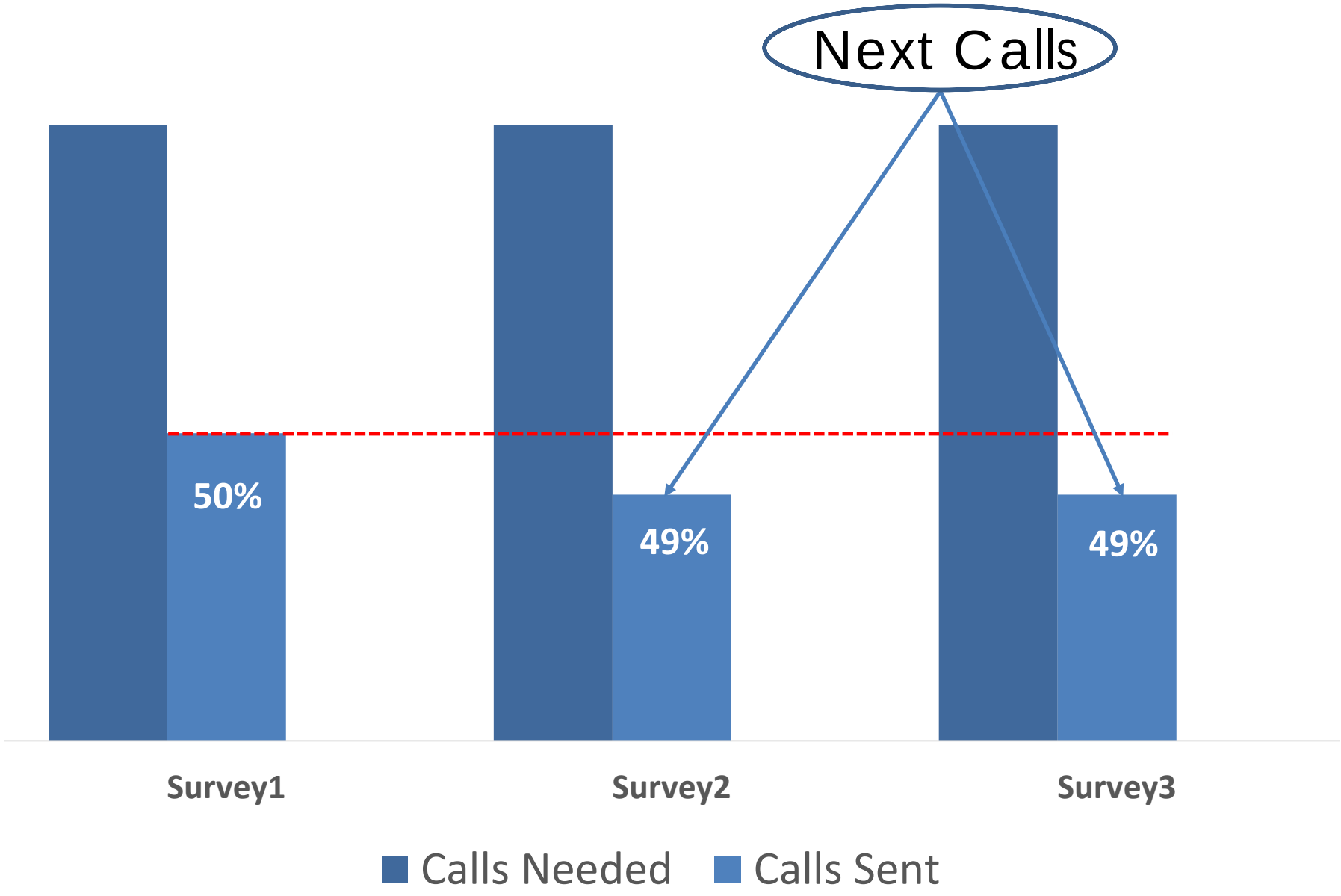
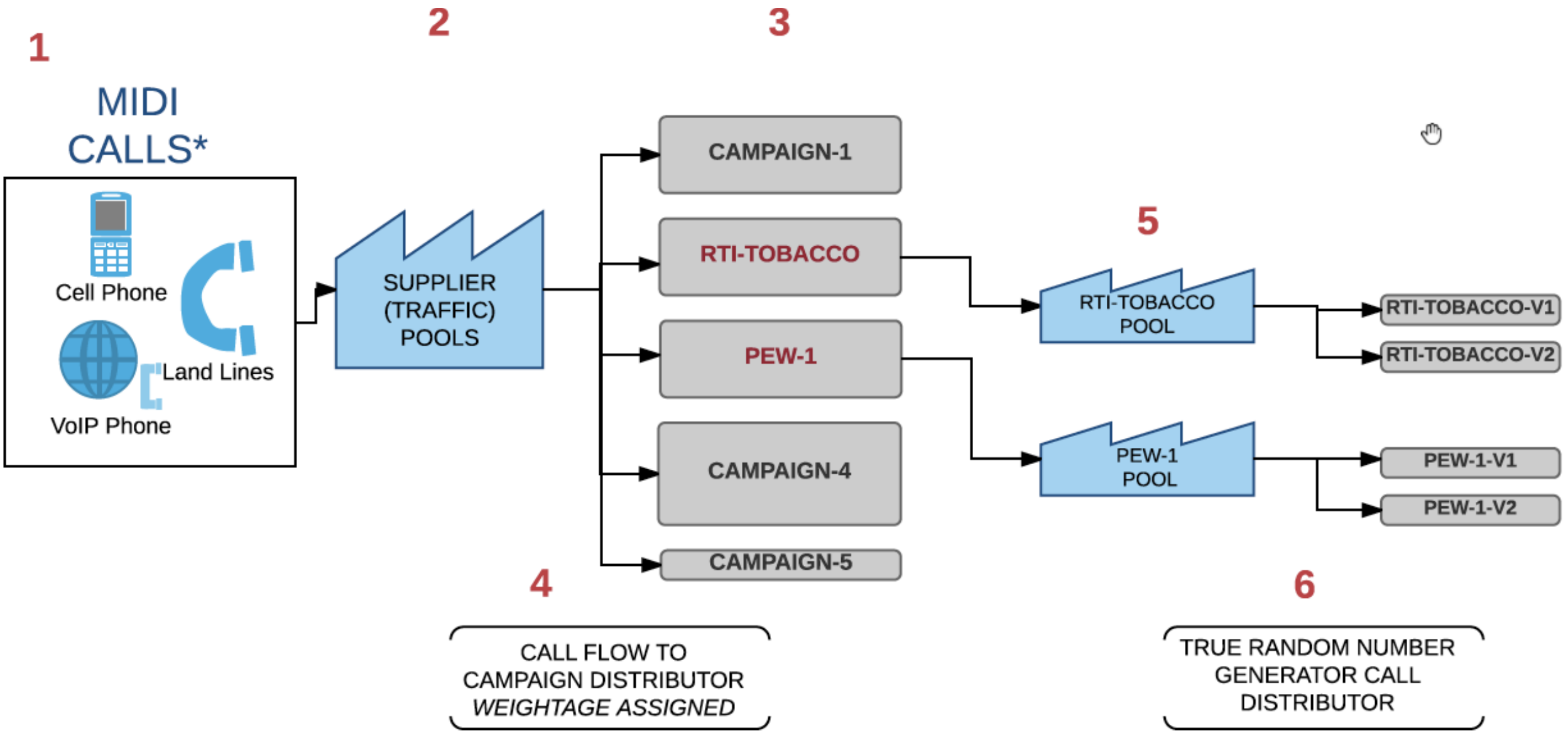
EXTRA SLIDES for Q&A

How are Calls Allocated?



True Random Number Generator

Based on Atmospheric Noise



How Many Surveys have you Completed?

Studies	Topics	Note	#	Total
Health	General, Tobacco, Sleep, Virus, Flu	BRFSS, NHIS, Live Interviewer, NYC only	9	35,000
Other	Internet Penetration, Greenbook GRIT	Cell/Land by US state Census	2	30,000
Political	Pres., FL Primary, IA Caucus	Working Moms with kids =< 18	5	3,100
Pending	Health, Political, Spanish Dominant Hispanic		4	7,000
Total			**20**	**75,100**

USA and World MIDI Calls*

Population		Per Person		USA		World		USA	World
Total		(average)		324,118,780		32,663,275		Reconnect Research Market Share	
18+ Years of Age			70%	230,000,000	70%	6,000,000,000			
Use a Phone			95%	220,000,000	80%	5,000,000,000		10%	2%
Calls of People 18+ that Use a Phone									
Daily		5.0		1,100,000,000		25,000,000,000		110,000,000	500,000,000
Monthly		150		33,000,000,000		750,000,000,000		3,300,000,000	15,000,000,000
Annual		1,800		396,000,000,000		9,000,000,000,000		39,600,000,000	180,000,000,000
MIDI Calls									
Daily	3.5%	% of Calls		38,500,000		875,000,000		3,850,000	17,500,000
Monthly		5.0		1,200,000,000		27,000,000,000		120,000,000	540,000,000
Annual		63		14,000,000,000		315,000,000,000		1,400,000,000	6,300,000,000
Completes									
Daily	8%	% of MIDI		3,080,000		70,000,000		308,000	1,400,000
Monthly				96,000,000		2,160,000,000		9,600,000	43,200,000
Annual		5.0		1,120,000,000		25,200,000,000		112,000,000	504,000,000

Examples of “Other” Carries

- Clements Telephone
- Diller Telephone
- Emily Cooperative Telephone
- Oklahoma Communication

Fee Schedule

effective as of 05/3/17

		Completes
		1,000
Completed Call Rate*	Cost per Complete	Total
20%	$3.54	$3,542
19%	$3.73	$3,728
18%	$3.94	$3,935
17%	$4.17	$4,167
16%	$4.43	$4,427
15%	$4.72	$4,722
14%	$5.06	$5,060
13%	$5.45	$5,449
12%	$5.90	$5,903
11%	$6.44	$6,439
10%	$7.08	$7,083
9%	$7.87	$7,870
8%	$8.85	$8,854
7%	$10.12	$10,119
6%	$11.81	$11,806
5%	$14.17	$14,167
4%	$17.71	$17,708
3%	$23.61	$23,611
2%	$35.42	$35,417
1%	$70.83	$70,833