

**Can sequential mixed-mode design help increase
response rates? A test of two mixed-mode designs
in the California Maternal and Infant Health
Assessment Survey**

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Maternal Infant Health Assessment (MIHA)

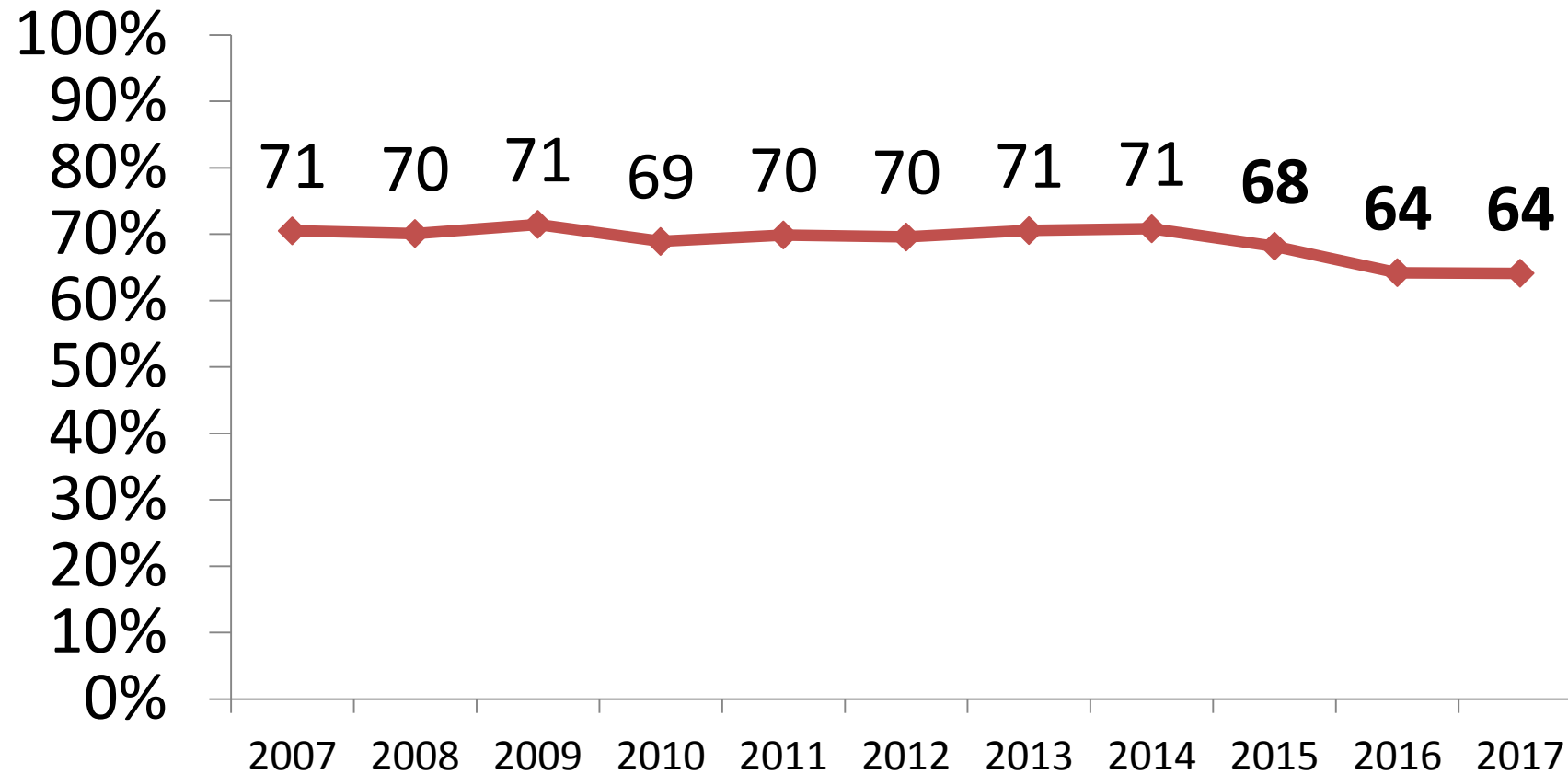
- Annual statewide representative sample from birth certificates of CA women with live births in February - May
- Stratified sample weighted to represent the diverse California state maternity population
- 6,400 – 7,000 participants each year since 2010
- Unweighted response rates of 61-64% over the last few years

For more information about MIHA, visit www.cdph.ca.gov/MIHA

Data collection methods

- All are sent an advance letter, 1st survey packet and reminder postcard
- Non-respondents sent a 2nd survey packet, and then entered into telephone follow-up
- Survey offered in English and Spanish and sent to mailing address listed in the birth certificate
- Linkages for phone numbers, better addresses
 - WIC, GDSP, Genesys, Intelius
- Upfront incentives
- Rewards vary across data collection

MIHA response rates began dropping in 2015

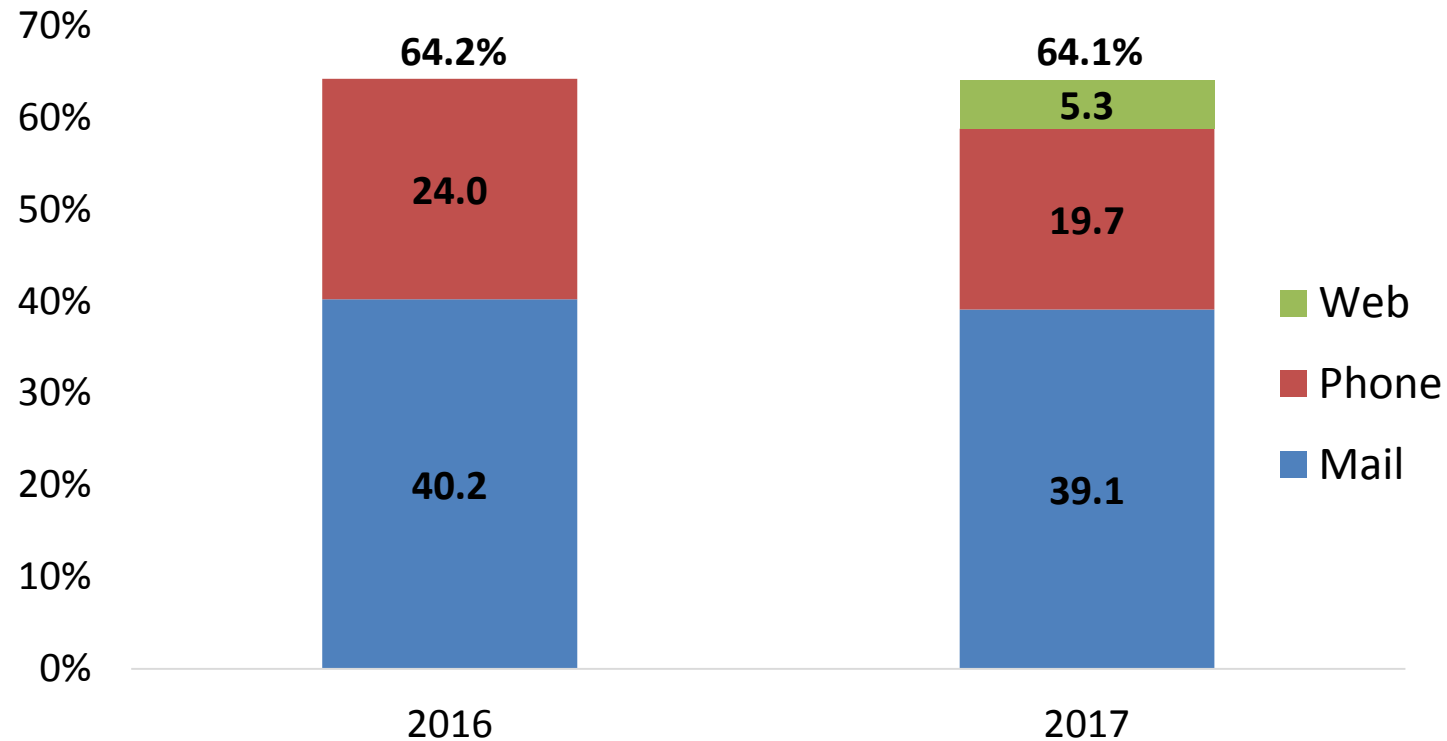


Web survey implementation: MIHA 2017

- Low response rate compared to similar time point in 2016
- Added during week 26 of data collection (over 4 months after data collection began)
- Programming into web survey program
- How to notify non-respondents of new mode?
- Did it help?

Response rate by mode, MIHA 2016 and MIHA 2017

Addition of a web mode, MIHA 2017



Web survey implementation: MIHA 2018

- Goals were to improve or maintain:
 - Response rates
 - Costs
 - Representativeness of sample
- In sequential mode offering, different modes are offered one at a time
 - Literature indicates this is most effective (increases response rates, lowers costs)
 - Less research on what works for postpartum women

Experimental protocol, MIHA 2018

- Offer three survey modes: mail, phone (CATI), web
- Project approved to send text and e-mail messages
- Random sampling of experimental group
 - Random assignment (by stratum) to experimental or control group
- Sequential offering of survey modes by group
 - Experimental group:
Mail → Web → Phone
 - Control group:
Mail → Phone → Web

Data collection timeline: mail phase

Event	Mode and details		Timing
Advance letter	Experimental and Control Advance letter, address change postcard		Day 0
First questionnaire (Q1)	Experimental and Control: Questionnaire, cover letter, inserts, endorsement letter, cash, pen		6-7 days after Advance
Reminder postcard	Experimental: Mail + Web	Control: Mail Only	Day 20-21 (14 d after Q1)
	Web invite reminder postcard	Generic reminder postcard	
Second questionnaire (Q2)	Experimental: Mail + Web	Control: Mail Only	Day 34-35 (14 d after postcard)
	2 nd questionnaire + web mode reminder	2 nd questionnaire	

Note: after Q1 mailing, only follow-up with non-respondents

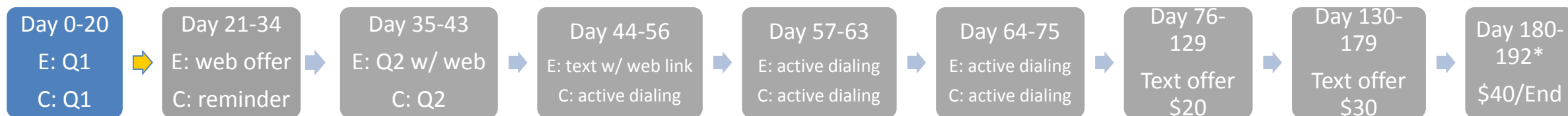
Data collection timeline: text/phone phase

Event	Mode and details		Timing
	Experimental: Texting → Active dialing	Control: Active dialing	
Phone contact begins	Web mode reminder via text message	Active dialing (web mode offered to refusals)	Day 42-45 (8-10 d after Q2)
Phone contact continues	Active dialing (web mode offered to refusals)	Active dialing (web mode offered to refusals)	(E): Day 54-58 (12-15 d later)
Double gift card offered for completion	Experimental: Active dialing + text messages	Control: Active dialing + text messages	Day 72-78 (E): 20 d later (C): 28 days later
	Web mode reminder, double reward offered	Web mode and double reward offered	
\$30 gift card offered	Same as above		Day 125-133 (47-57 days later)
\$40 gift card offered	Same as above		Day 166-196 (88-118 days later)

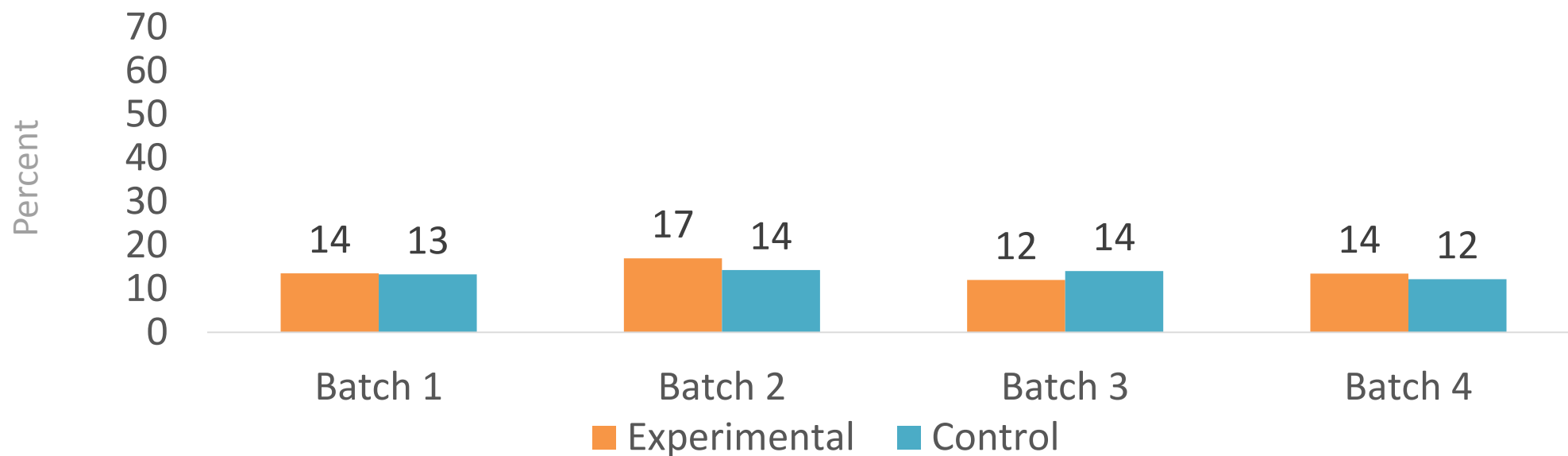
Research Questions

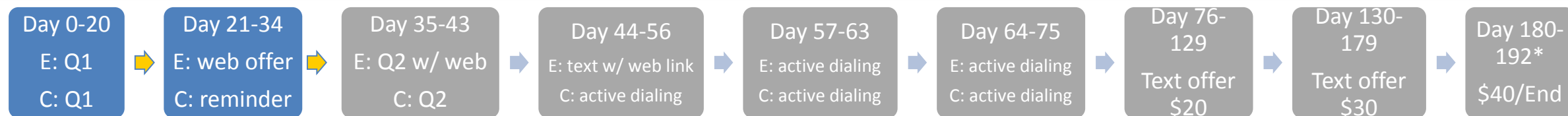
- When introducing a web mode, did response rates vary between the two sequential mixed-mode designs?
- Did a full implementation of web mode help increase the response rate in 2018 compared to 2017?
- How did the operational cost compare before and after a full implementation of web mode?
- How did the operational costs vary between the two sequential mixed-mode designs?

Results

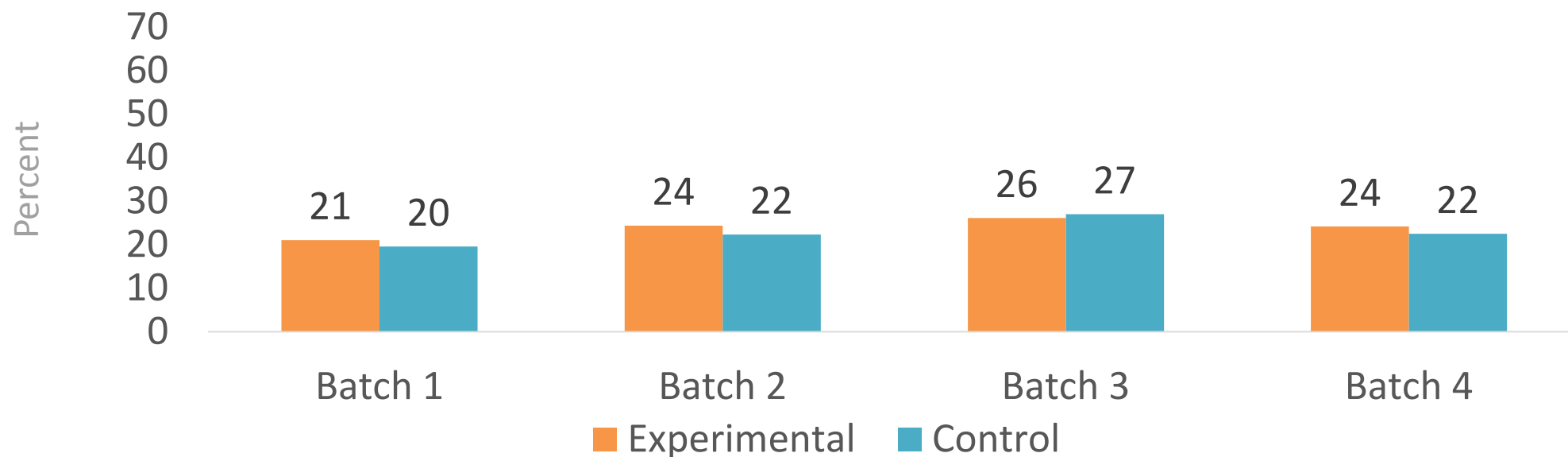


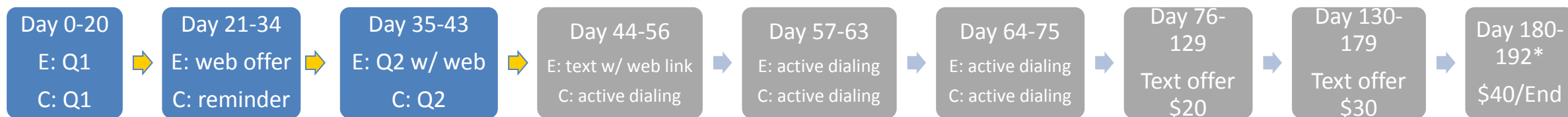
Response rate by batch and group, MIHA 2018



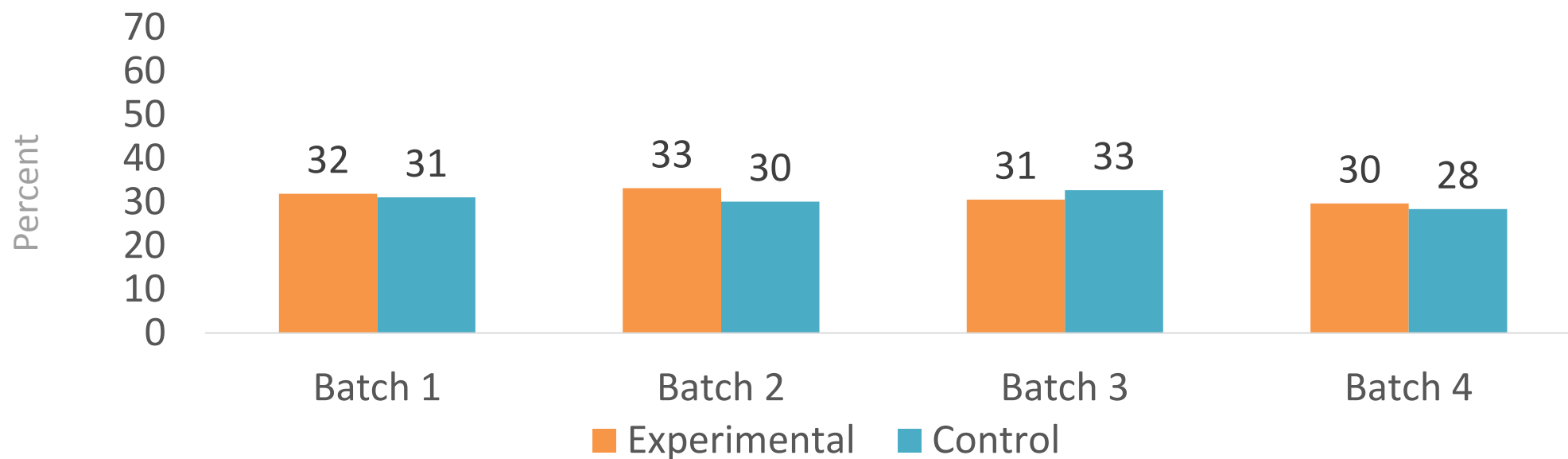


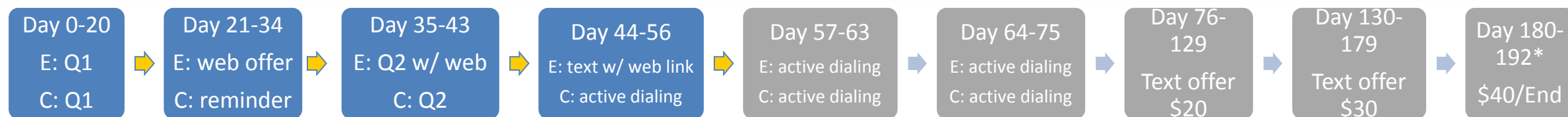
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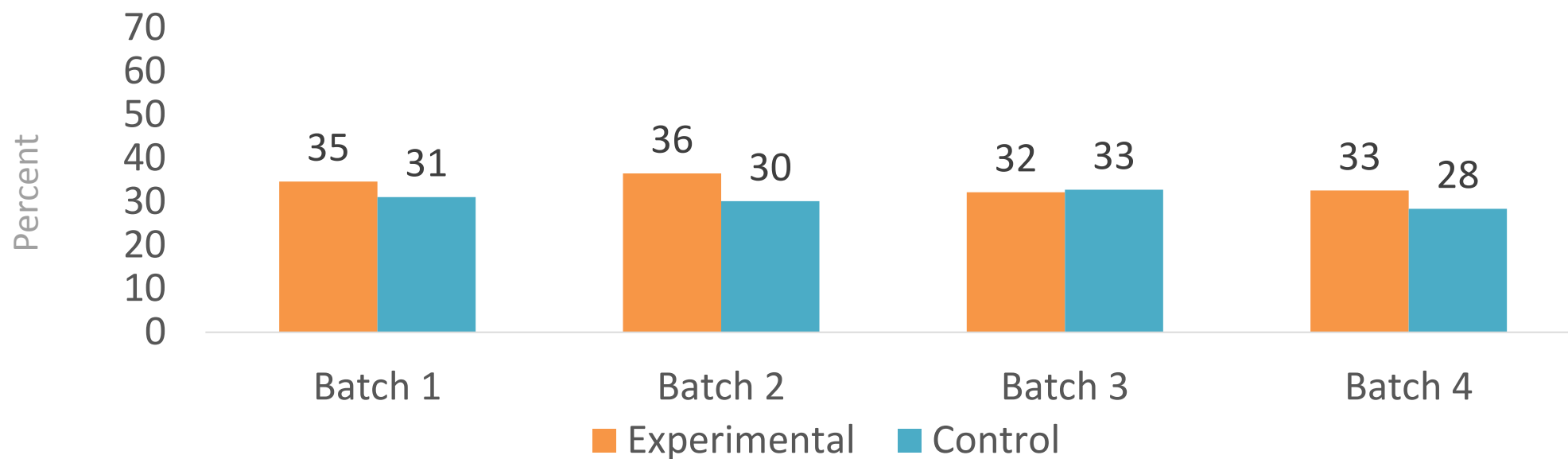


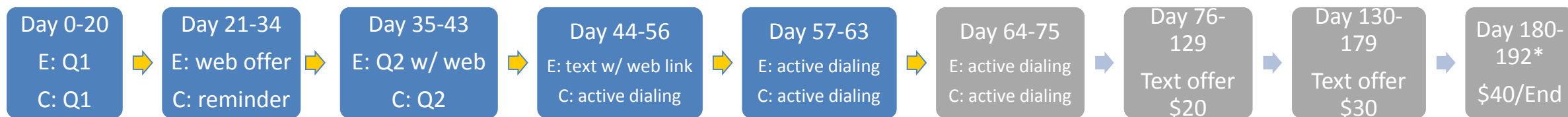
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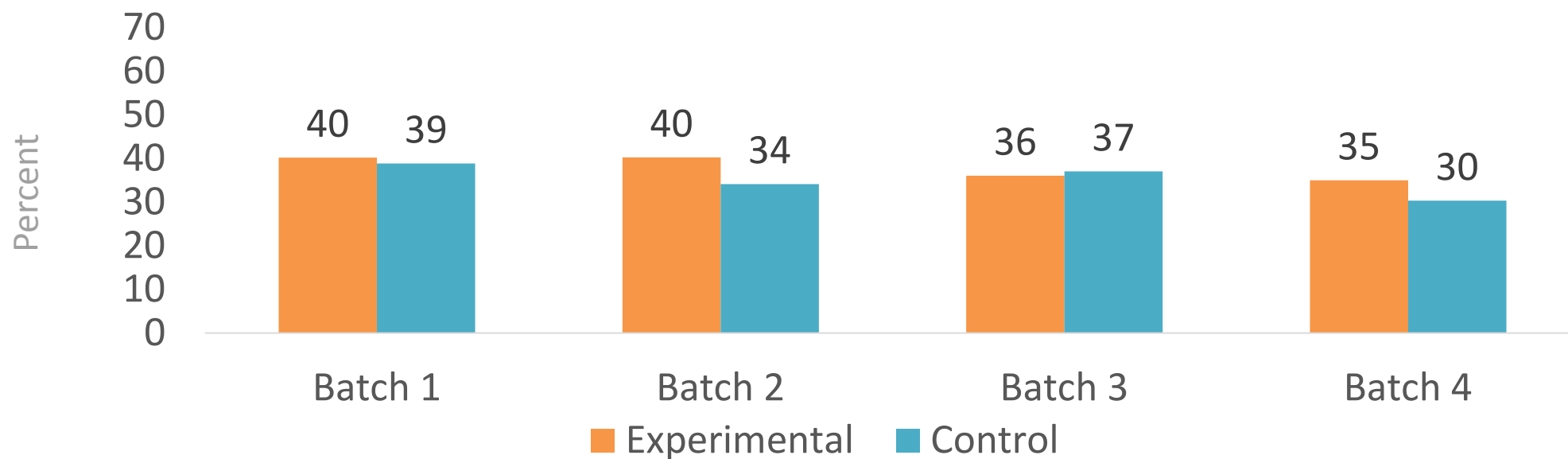


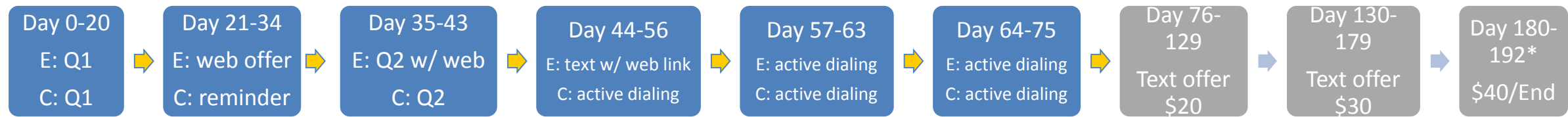
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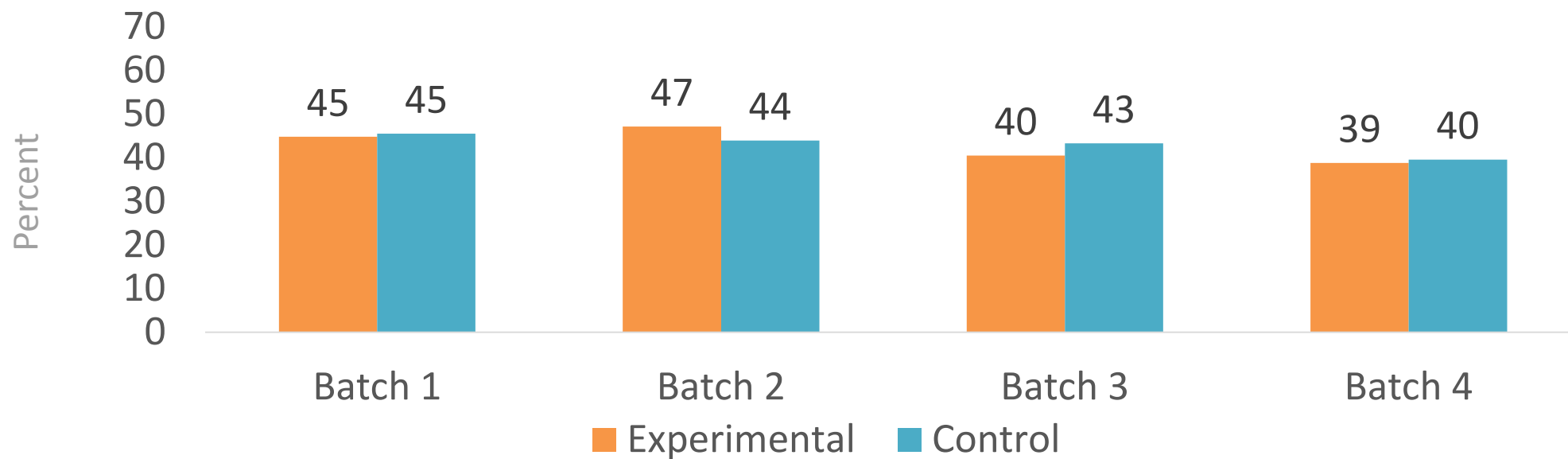


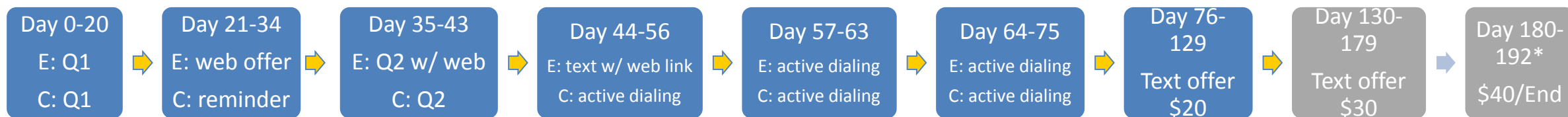
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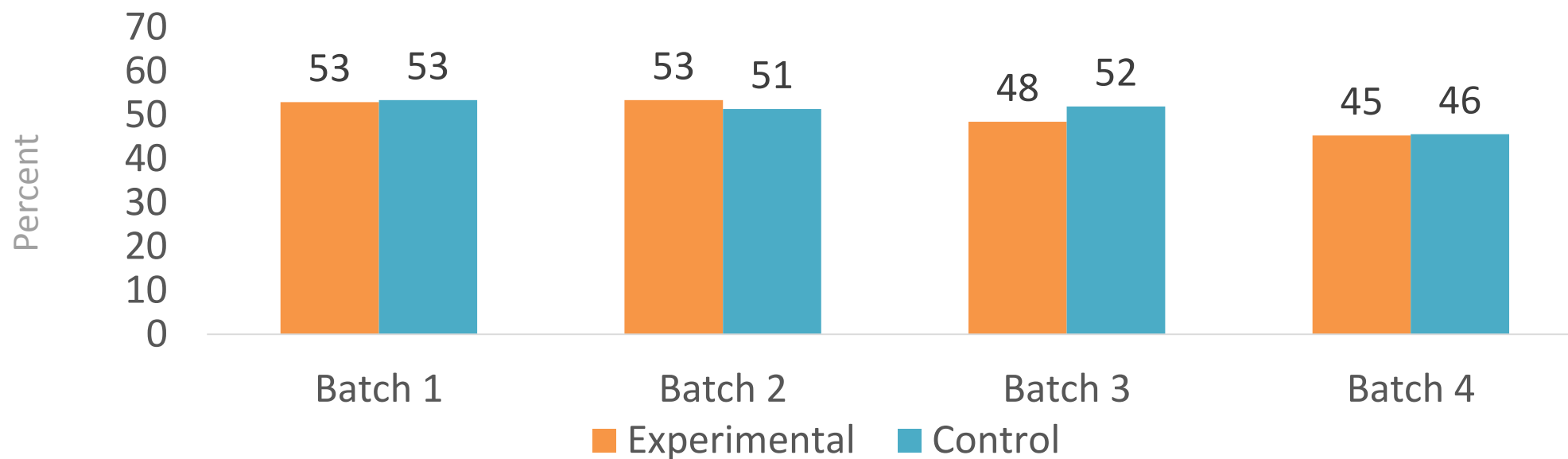


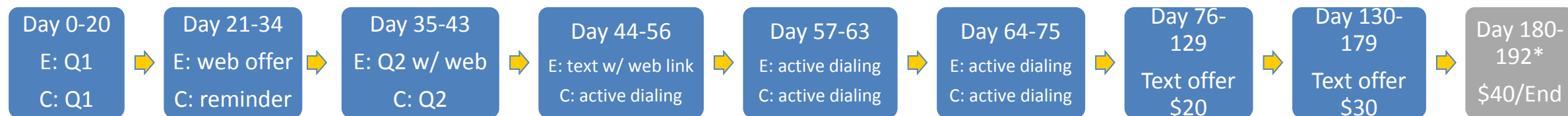
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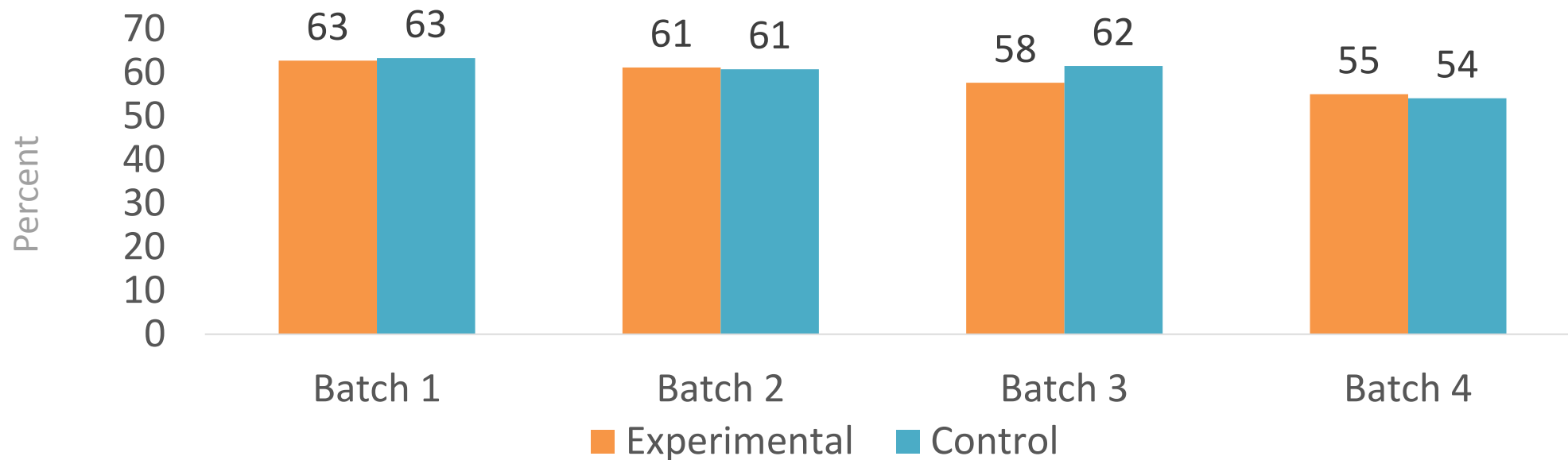


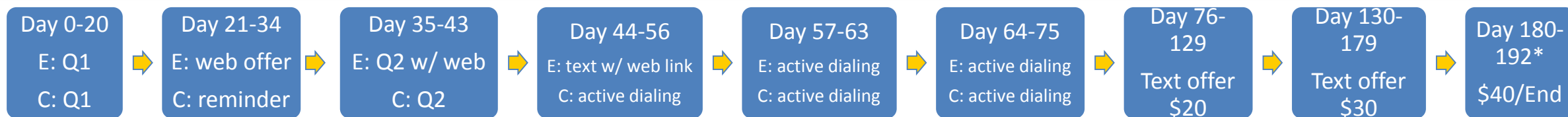
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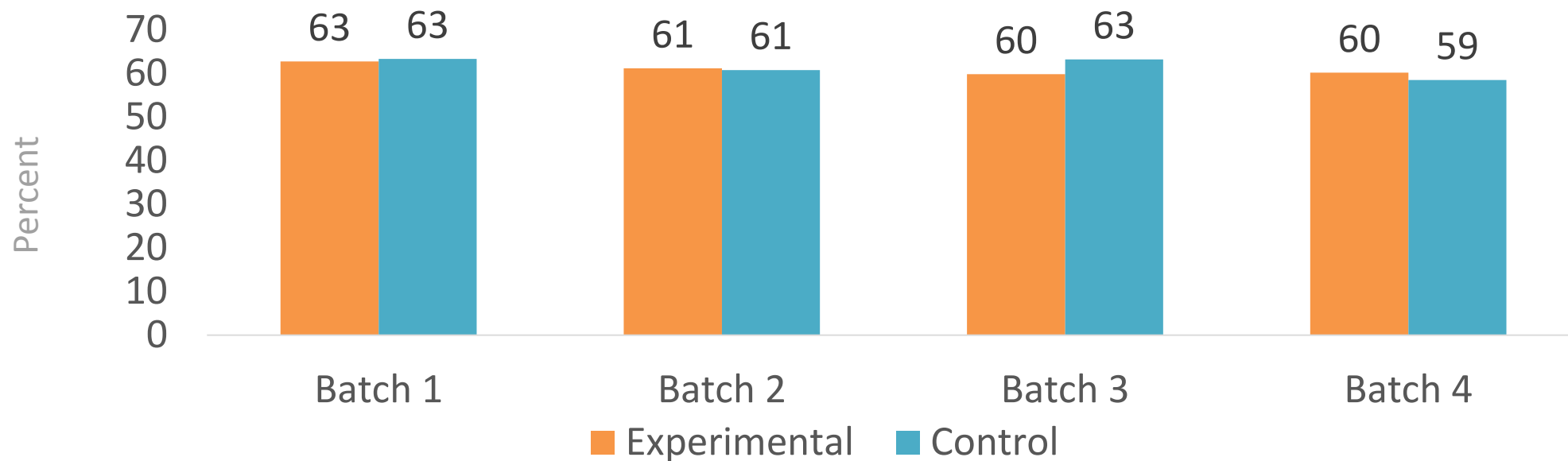


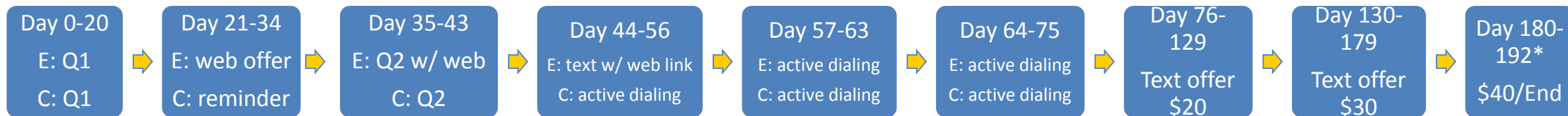
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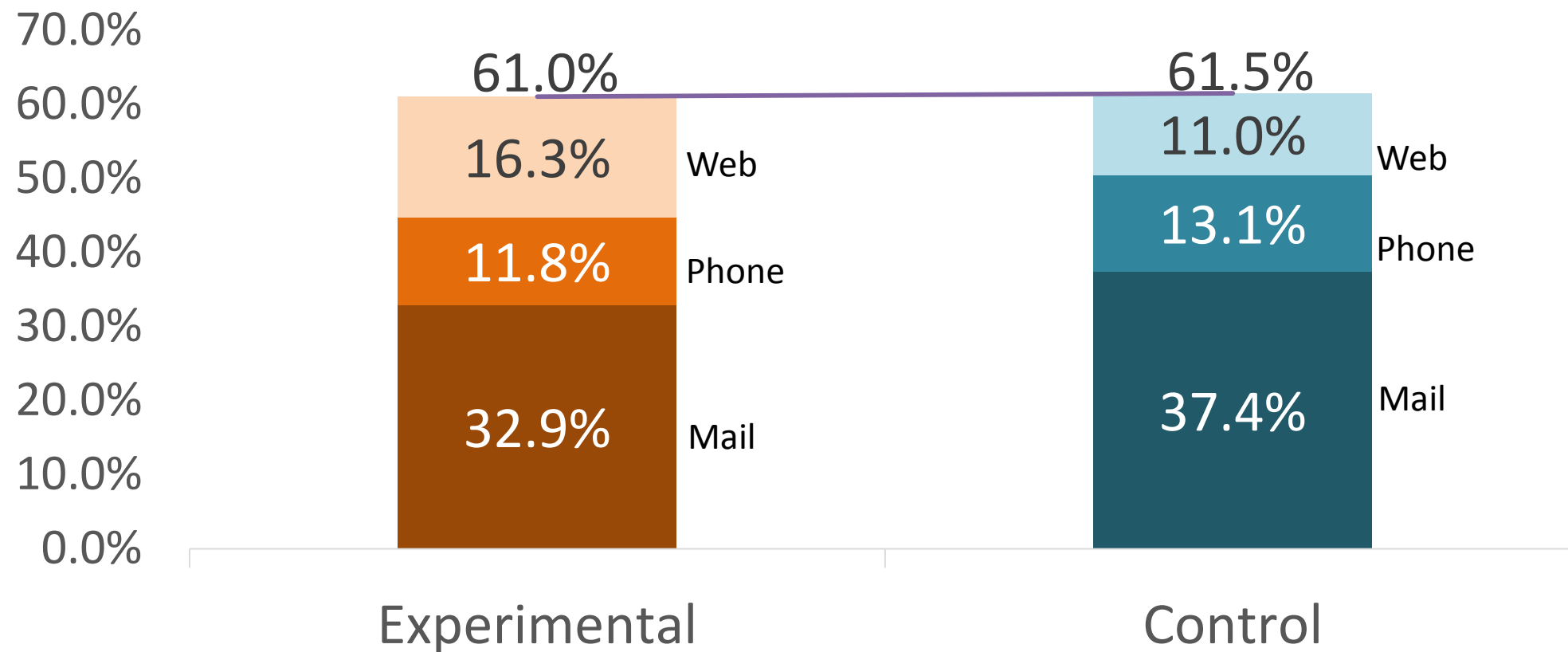


Response rate by batch and group at the end of data collection, MIHA 2018

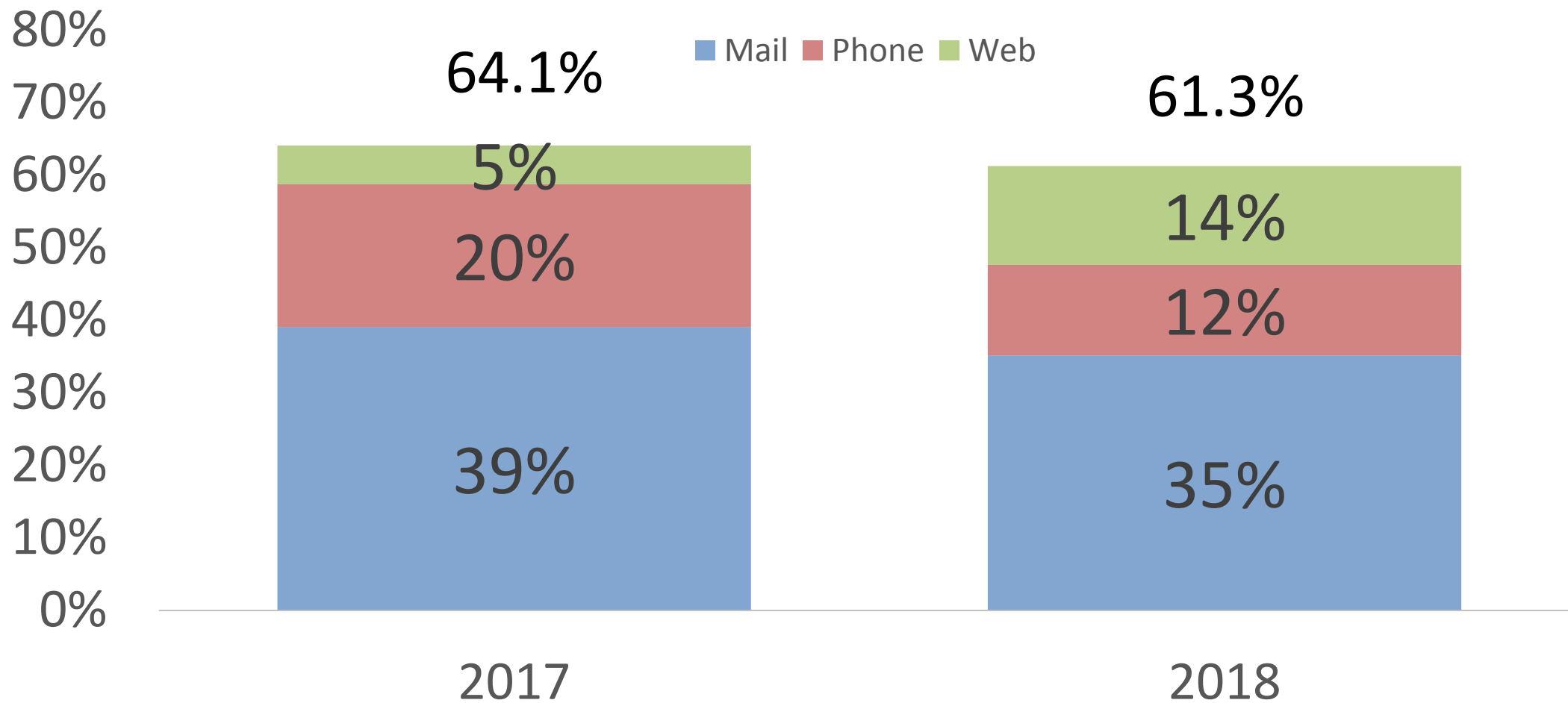




Response rate by mode, MIHA 2018



Response rate by mode, MIHA 2017 and MIHA 2018



Operational Costs, MIHA 2018 vs. MIHA 2017

Number of Women			Calculated Cost		
Year	2018	2017	2018	2017	
Incentives given					
\$1	8809	9311	\$8,809	\$9,311	
\$5	1198	721	\$5,990	\$3,605	
Total number	10,007	10,032	Total cost of incentives	\$14,799	\$12,916
Rewards given					
\$10	4,535	4,757	\$45,350	\$47,570	
\$20	544	438	\$10,880	\$8,760	
\$30	864	1,211	\$25,920	\$36,330	
\$40	146	N/A	\$5,840	\$0	
Total number	6,089	6,406	Total cost of rewards	\$87,990	\$92,660
			Total cost of incentives and rewards	\$102,789	\$105,576

Operational Costs for Experimental Group Vs. Control Group, MIHA 2018

Number of Women				Calculated Cost			
Year	2018	Experiment	Control	2018	Experiment	Control	
Incentives							
\$1	8809	4403	4406	\$8,809	\$4,403	\$4,406	
\$5	1198	596	602	\$5,990	\$2,980	\$3,010	
Total number	10,007	4,999	5,008	Total cost of incentives	\$14,799	\$7,383	\$7,416
Rewards							
\$10	4,535	2,249	2,286	\$45,350	\$22,490	\$22,860	
\$20	544	276	268	\$10,880	\$5,520	\$5,360	
\$30	864	427	437	\$25,920	\$12,810	\$13,110	
\$40	146	78	68	\$5,840	\$3,120	\$2,720	
Total number	6,089	3,030	3,059	Total cost of rewards	\$87,990	\$43,940	\$44,050
				Total cost of incentives and rewards	\$102,789	\$51,323	\$51,466

Conclusion

- A full implementation of web mode did not help to increase response rate
- Final response rate did not differ significantly between the two sequential mixed-mode design protocols
- Offering web mode early in a sequential mode design yielded
 - More web completes
 - Likely a lower response rates in mail and phone mode

Implications and Lessons Learned

- Web mode may help response rates when offered early on
- Not clear when best to introduce web mode
- Fewer mail and phone and more web would offer some cost savings
- Important to have all three modes available for completion

Thank You!

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MIHA website: www.cdph.ca.gov/MIHA