

Evaluating the Effectiveness of Early Bird Incentives in a Web Survey

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The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the National Center for Health Statistics, Centers for Disease Control and Prevention, or NORC at the University of Chicago.

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- Telephone surveys are challenged by:
 - The need to transition to a dual frame (landline + cell) telephone sampling design
 - The public's increasing reluctance to participate in interview-style surveys
 - (Curtin, Presser, & Singer, 2005)
 - The costs associated with conducting a dual-frame survey
 - (Smyth et al., 2009)

- NIS-Multimode Experiment conducted in quarter 3 of 2013 to address these design challenges
- Research questions:
 - Will using electronic modes of collecting NIS data
 - 1) Result in higher survey response rates?
 - 2) Lower screening requirements?
 - 3) Improve timeliness of data collection?
 - 4) Have potential consequences for data quality?
 - 5) Draw respondents who are demographically different from those interviewed by telephone?

National Immunization Survey (NIS)

- National, dual-frame RDD survey sponsored by the Centers for Disease Control and Prevention (CDC)
- Screen households with children 19 to 35 months of age and teenagers 13 to 17 years of age
- Two components:
 - **CATI Instrument:** collects demographic data as well as vaccination provider contact information and consent to contact providers
 - **Provider Record Check:** collects vaccination histories from healthcare providers

- Same questionnaire structure for web and CATI interview:
 - Screener
 - Section B: Vaccinations
 - Section C: Demographics
 - Marks a “complete” for interview completion rate
 - Section D: Provider Look-up
 - Question to grant consent for CDC to contact vaccination providers
 - Health Insurance Module

- Web survey designed for NIS and NIS-Teen
- 48,045 sample lines flagged for 6 experimental groups or control
 - Designed to yield about 100 completed interviews across conditions
 - Experiment limited only to landline telephone respondents
- Mailed letters in 2 batches
 - Approximately 1,500 undeliverable addresses
- Moved to telephone 14 days after mailing
 - Cases still have access to web until they complete or screen out

• Web First

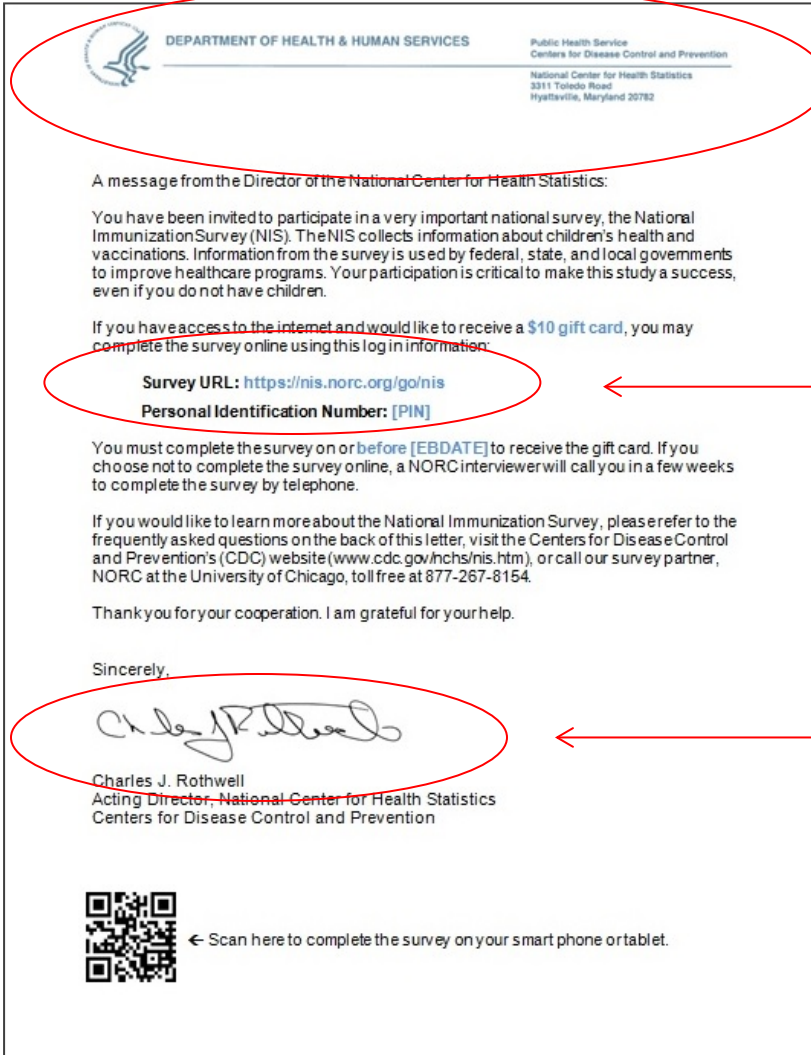
- Included a link to a Web option of the NIS and NIS-Teen in the advance letter.
 - <https://nis.norc.org/go/nis>
 - Secure website on NORC servers
- Embedded two additional experiments on the effectiveness of incentives and the use of Quick Response (QR) codes in encouraging respondents to use the Web instrument.

Design of Web-First Experiment (cont'd)

Incentive Experimental Groups	QR Code Experimental Groups	
	No QR Code	QR Code
No Incentive	<ul style="list-style-type: none"> • Advance letter with URL • Cardstock insert 	<ul style="list-style-type: none"> • Advance letter with URL and QR code • Cardstock insert with QR code
Prepaid Incentive	<ul style="list-style-type: none"> • Advance letter with URL • Cardstock insert • \$1 prepaid incentive 	<ul style="list-style-type: none"> • Advance letter with URL and QR code • Cardstock insert with QR code • \$1 prepaid incentive
Early Bird Incentive	<ul style="list-style-type: none"> • Advance letter with URL • Cardstock insert • \$1 prepaid incentive • Promised incentive* if completed within 10 days 	<ul style="list-style-type: none"> • Advance letter with URL and QR code • Cardstock insert with QR code • \$1 prepaid incentive • Promised incentive* if completed within 10 days

*Incentives paid by Amazon.com gift card for completed Web interviews, cash for telephone interviews

Early-Bird Letter with QR Code

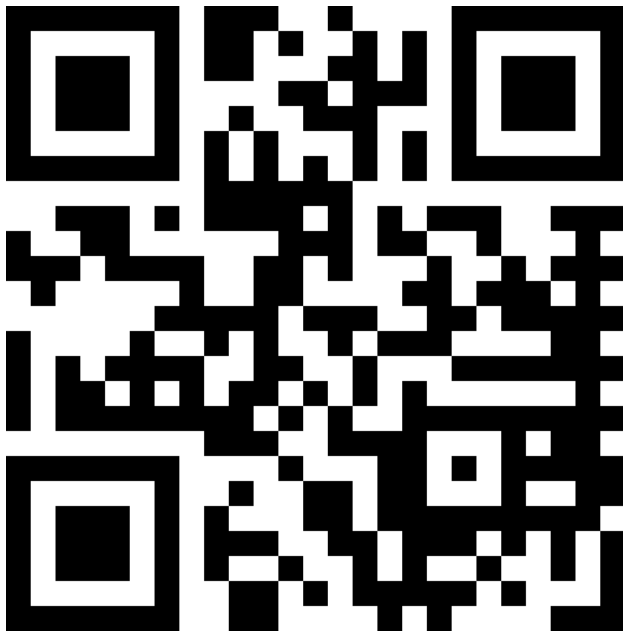


**CDC Official
Logo**

URL and PIN

Signature

Web First QR Code



Can be scanned
with smartphone
app and
respondents are
taken to the web
survey



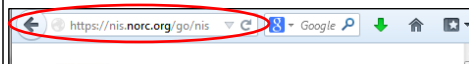
Web Instruction Insert

Front

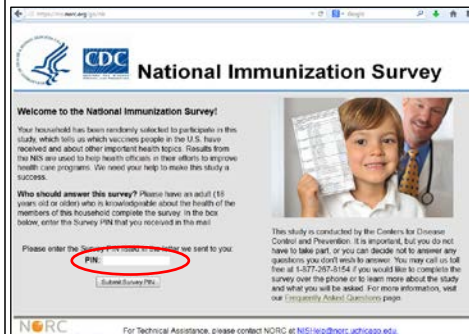
YOU CAN COMPLETE THE NATIONAL IMMUNIZATION SURVEY ON THE WEB!

Here's how in 4 easy steps...

Step 1: Open your web browser and enter the web address in the address bar (<https://nis.norc.org/go/nis>).



Step 2: Enter your Survey Personal Identification Number (PIN). Then click "Submit Survey PIN". Your PIN is: [PIN].

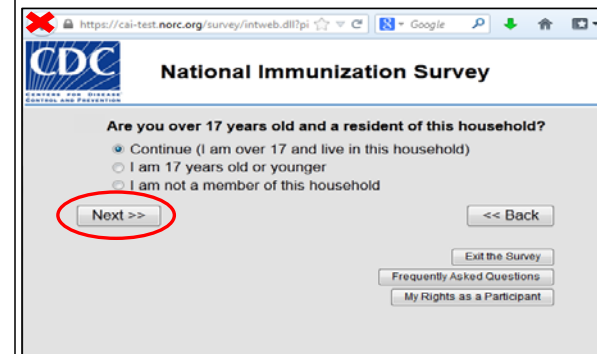


Over

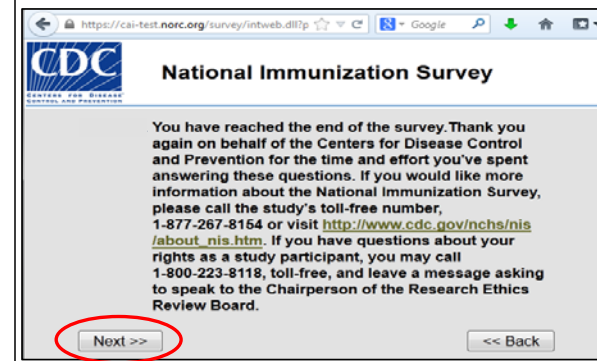
Back

Step 3: Answer the question on the screen and click "Next" to get to the following question. You may click "Back" to return to a previous question.

Do **NOT** use your browser's back button or you will have to log back into the survey.



Step 4: Complete the last question and click "Next" to exit the survey.



Web Introduction Screen



National Immunization Survey

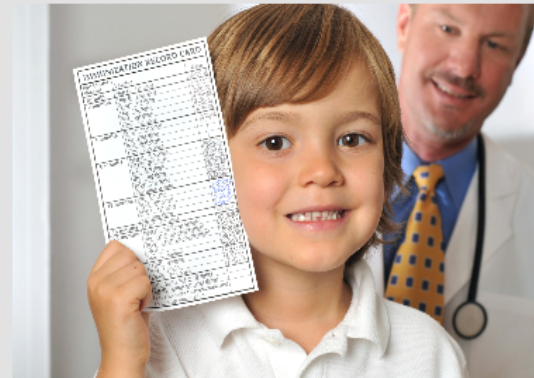
Welcome to the National Immunization Survey!

Your household has been randomly selected to participate in this study, which tells us which vaccines people in the U.S. have received and about other important health topics. Results from the NIS are used to help health officials in their efforts to improve health care programs. We need your help to make this study a success.

Who should answer this survey? Please have an adult (18 years old or older) who is knowledgeable about the health of the members of this household complete the survey. In the box below, enter the Survey PIN that you received in the mail.

Please enter the Survey PIN listed in the letter we sent to you:

PIN:



This study is conducted by the Centers for Disease Control and Prevention. It is important, but you do not have to take part, or you can decide not to answer any questions you don't wish to answer. You may call us toll free at 1-877-267-8154 if you would like to complete the survey over the phone or to learn more about the study and what you will be asked. For more information, visit our [Frequently Asked Questions](#) page.

Each respondent received a unique PIN in the letter

Example of Web Display

CDC
CENTERS FOR DISEASE
CONTROL AND PREVENTION

National Immunization Survey

S1. Are you over 17 years old and a resident of this household?

- Continue (I am over 17 and live in this household)
- I am 17 years old or younger
- I am not a member of this household

[Next >>](#) [<< Back](#)

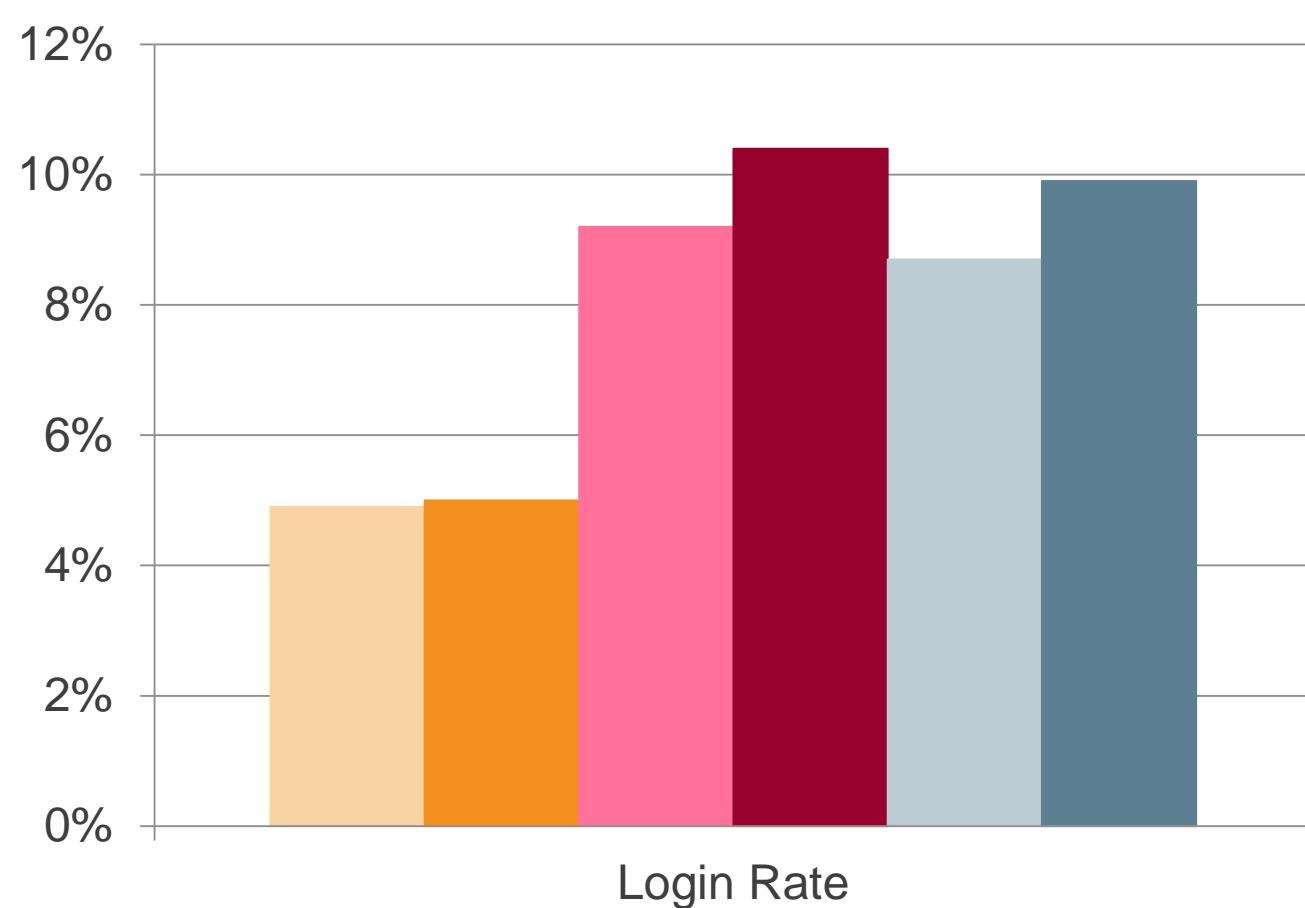
[Exit the Survey](#)

[Frequently Asked Questions](#)

[My Rights as a Participant](#)

Login Rate by Condition

- URL Only
- URL + QR
- URL + \$
- URL + QR + \$
- URL + EB
- URL + QR + EB

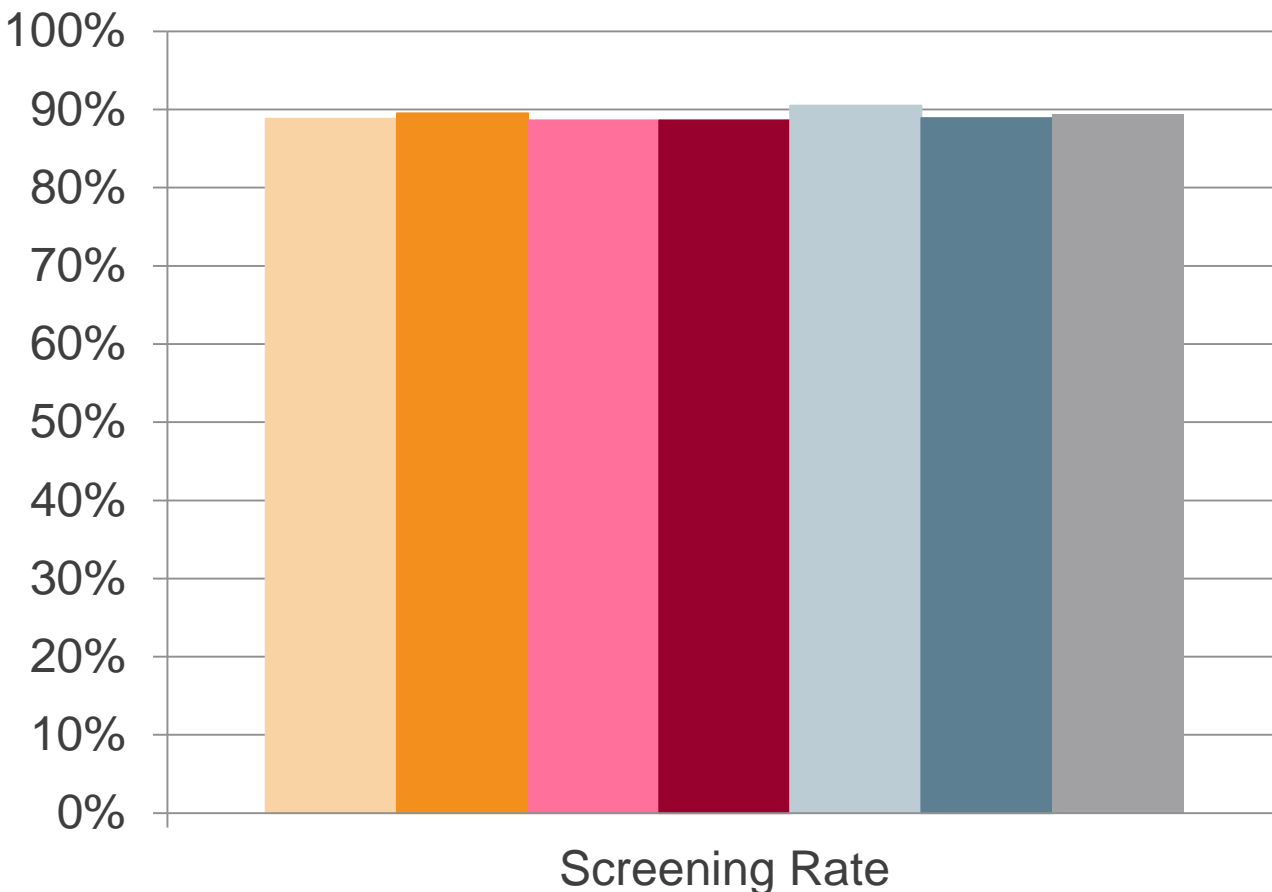


All conditions except URL + QR are significantly higher than the URL Only condition (all $p < .001$)

Denominators:
URL Only: 6867
URL + QR: 6833
URL + \$: 6870
URL + QR + \$: 6878
URL + EB: 6871
URL + QR + EB: 6863

Screening Rate by Condition

- Landline Control
- URL Only
- URL + QR
- URL + \$
- URL + QR + \$
- URL + EB
- URL + QR + EB

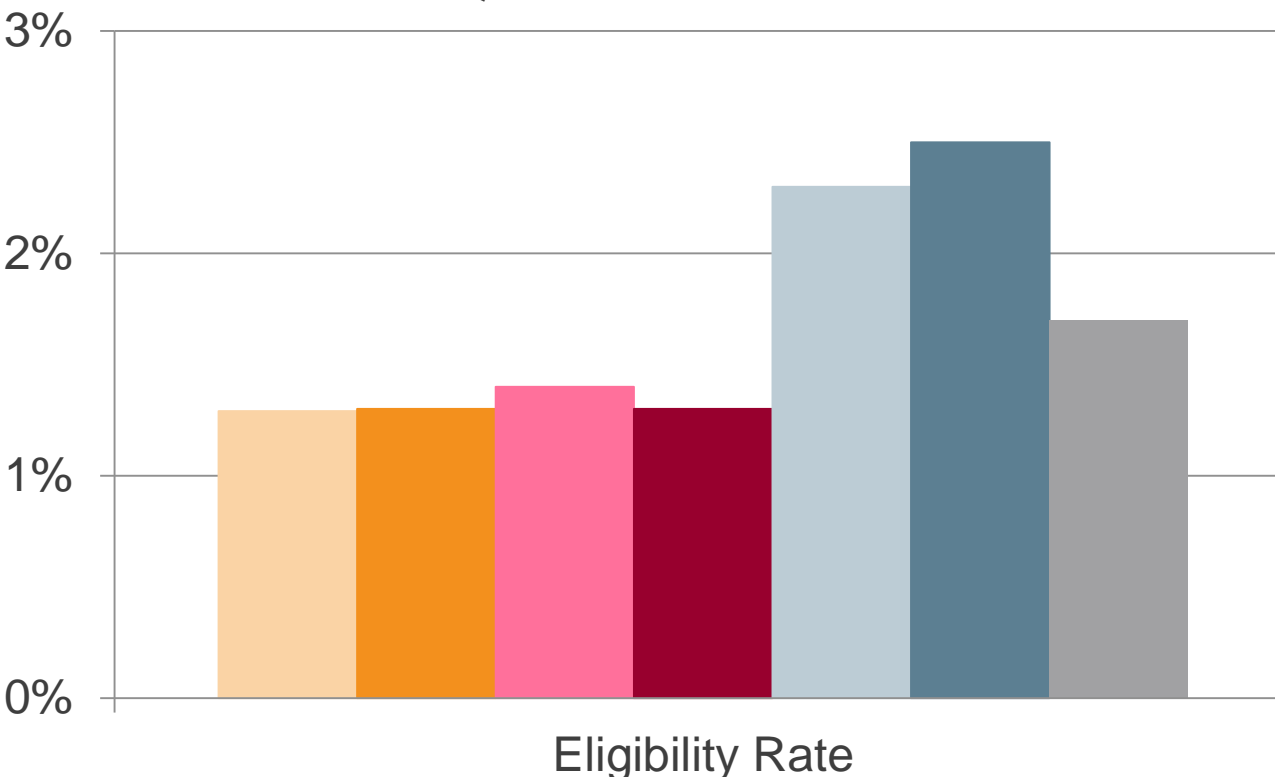


No significant differences between landline control and all experimental conditions

Denominators:
URL Only: 2672
URL + QR: 2777
URL + \$: 2867
URL + QR + \$: 2943
URL + EB: 2931
URL + QR + EB: 2896

Eligibility Rate by Condition

- Landline Control
- URL Only
- URL + QR
- URL + \$
- URL + QR + \$
- URL + EB
- URL + QR + EB

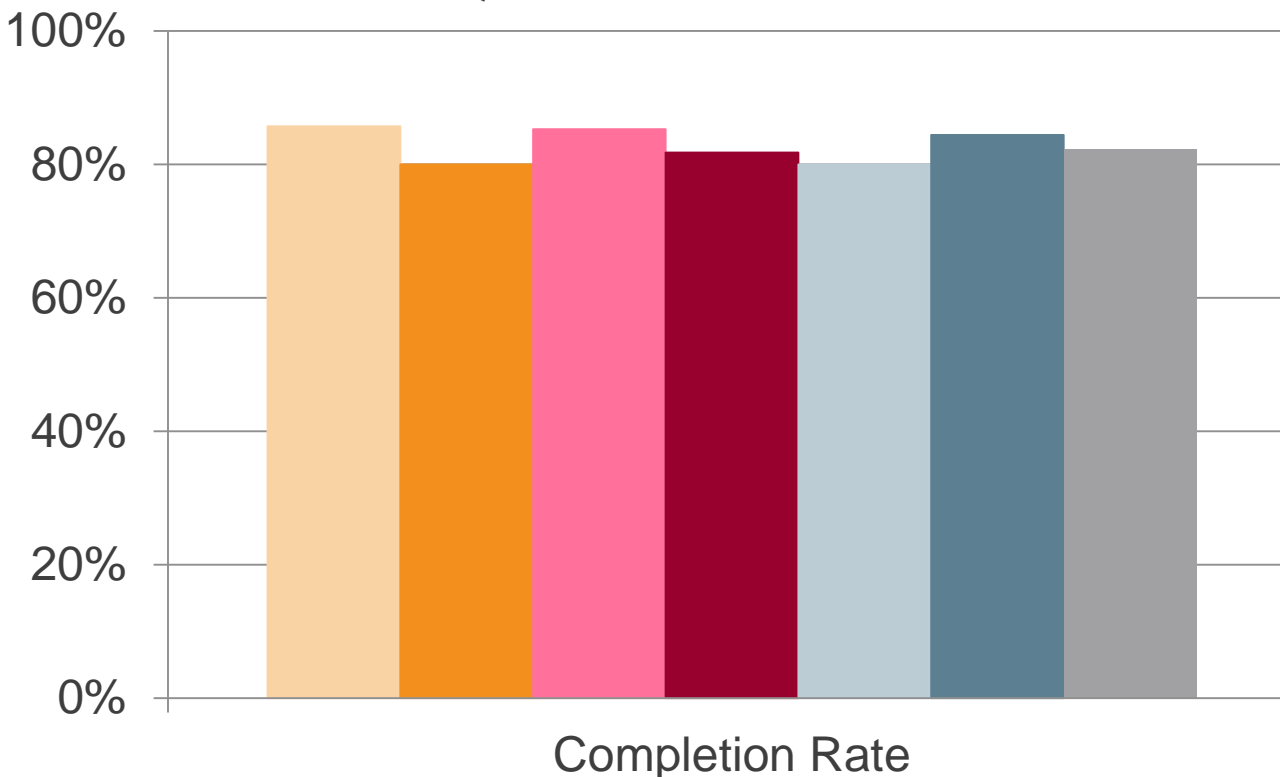


**URL + QR + \$ and
URL + QR + EB
significantly higher
than landline control
($p < .01$)**

Denominators:
URL Only: 2391
URL + QR: 2461
URL + \$: 2540
URL + QR + \$: 2664
URL + EB: 2606
URL + QR + EB: 2589

Completion Rate by Condition

- Landline Control
- URL Only
- URL + QR
- URL + \$
- URL + QR + \$
- URL + EB
- URL + QR + EB



No significant differences between landline control and all experimental conditions

Denominators:

URL Only: 30

URL + QR: 34

URL + \$: 33

URL + QR + \$: 60

URL + EB: 64

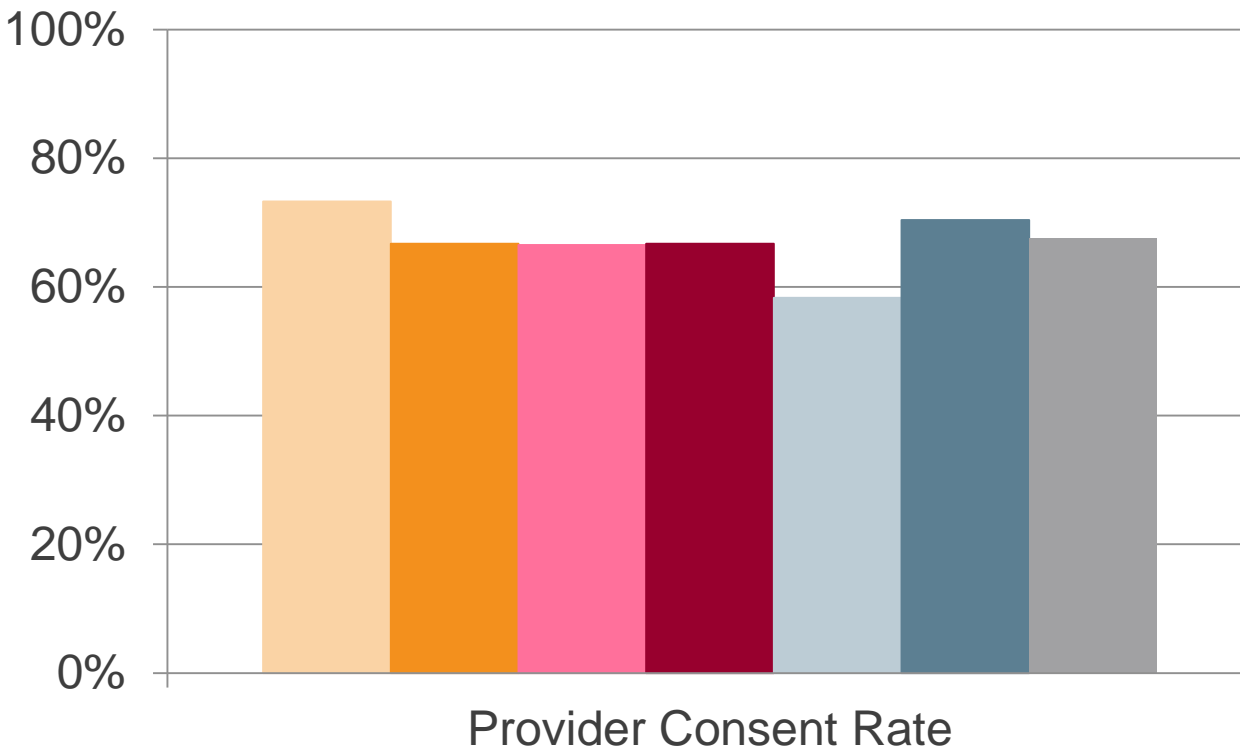
URL + QR + EB: 45

Provider Consent Rate by Condition

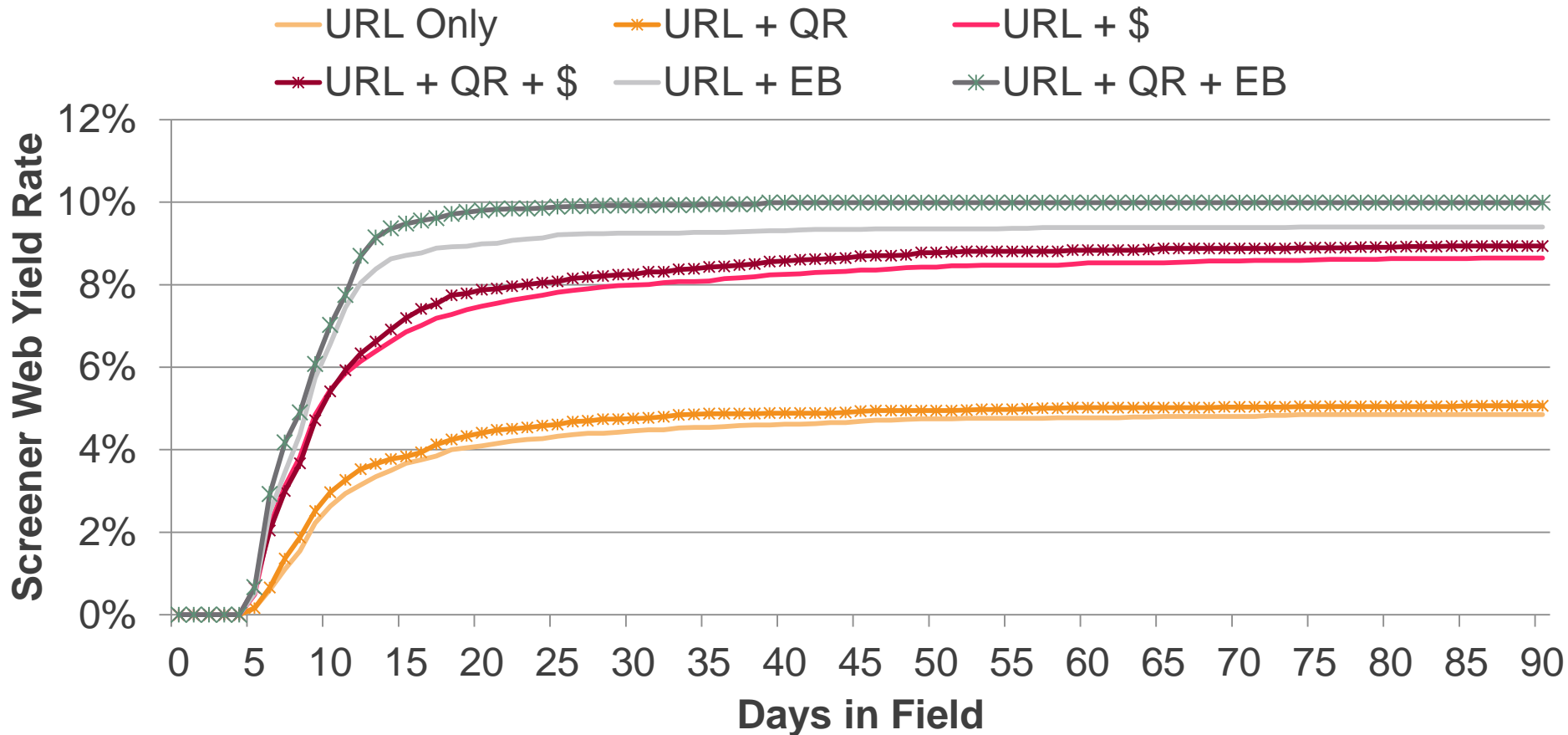
- Landline Control
- URL Only
- URL + QR
- URL + \$
- URL + QR + \$
- URL + EB
- URL + QR + EB

No significant differences between landline control and all experimental conditions

Denominators:
URL Only: 24
URL + QR: 29
URL + \$: 27
URL + QR + \$: 48
URL + EB: 54
URL + QR + EB: 37



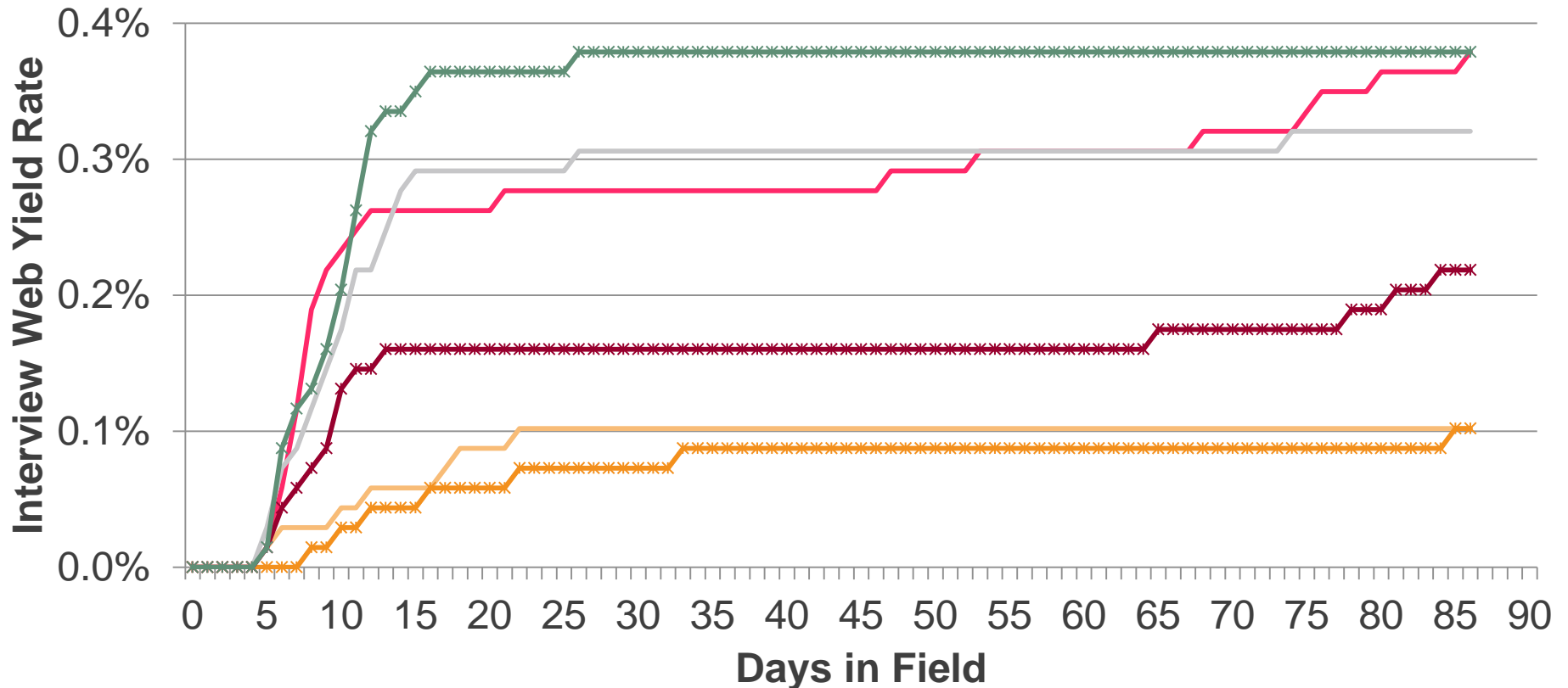
NIS Screener Web Rate by Days in Field and Experimental Group



Final URL Only and URL + QR rates significantly lower than other four rates in pairwise comparisons (all $p < .05$)

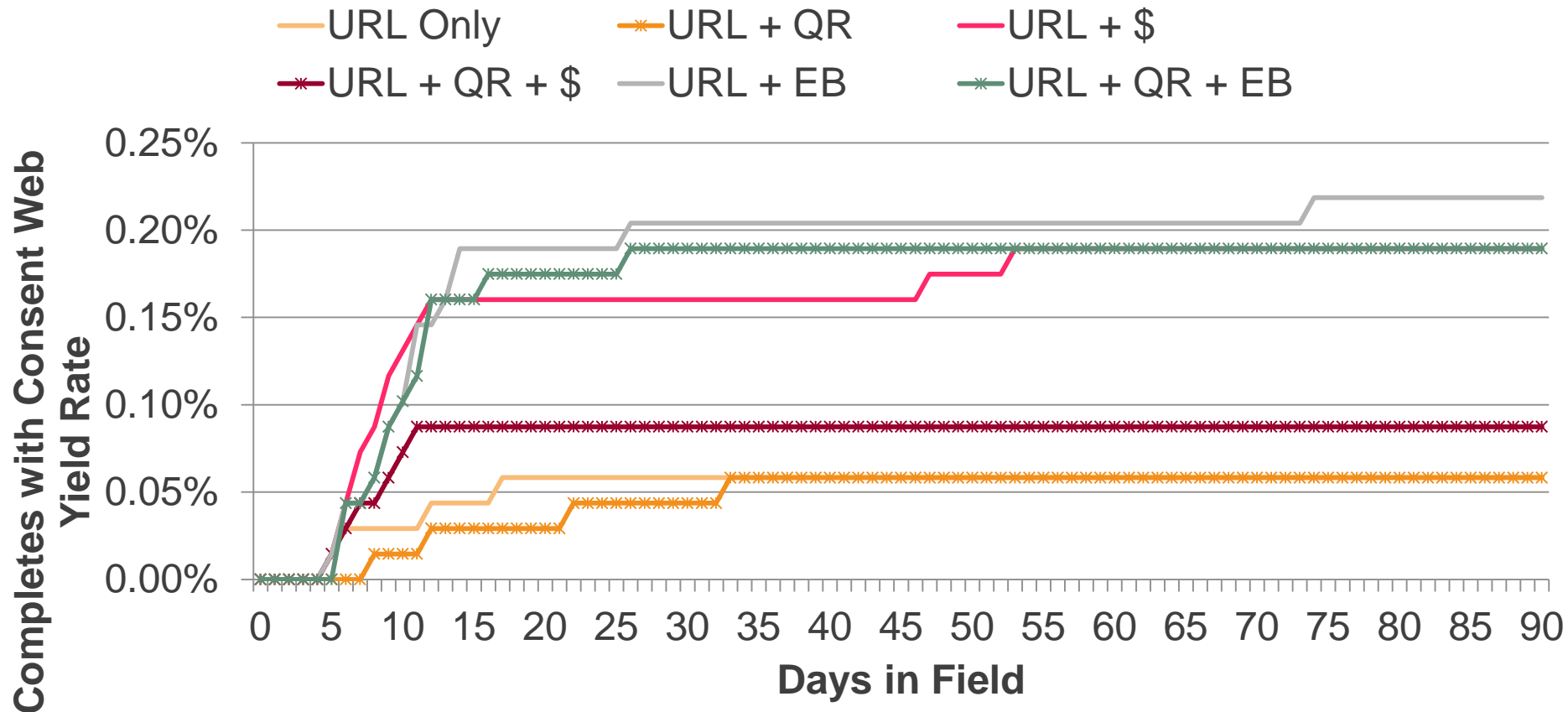
NIS Complete Web Rate by Days in Field and Experimental Group

- URL Only
- *— URL + QR
- URL + \$
- *— URL + QR + \$
- URL + EB
- *— URL + QR + EB



URL Only and URL + QR both significantly lower than URL + \$, URL + EB, and URL + QR + EB in pairwise comparisons (all $p < .05$)

NIS Consent Web Rate by Days in Field in Field and Experimental Group



URL Only and URL + QR both significantly lower than URL + \$, URL + EB, and URL + QR + EB in pairwise comparisons (all $p < .05$)

Responsiveness by Condition

- Early-bird respondents log in more quickly after advance letter mailing

Condition	Mean Duration in Days (Advance Letter Mailing to First Web Login)
1: URL only	16.46
2: URL + QR	14.82
3: URL + QR + \$	14.25
4: URL + QR + EB	10.75
5: URL + \$	14.83
6: URL + EB	11.29

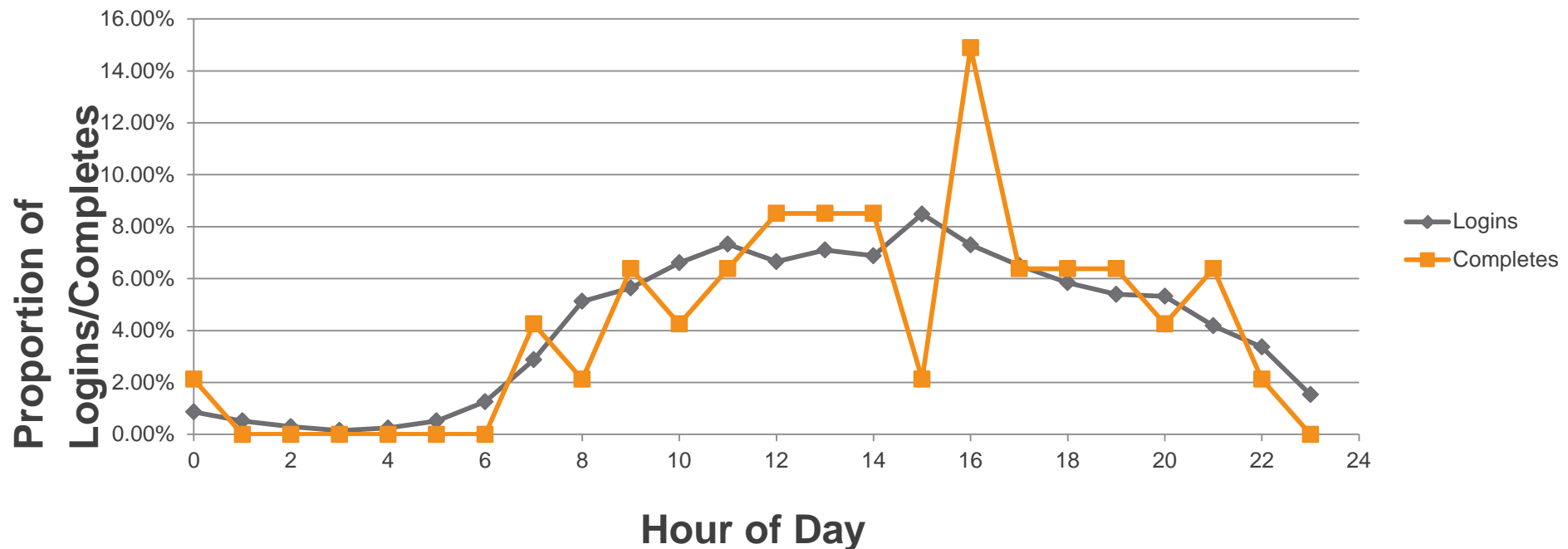
Responsiveness by Condition (cont'd)

- Durations in both early-bird conditions significantly shorter than all other conditions in Tukey range test
- Duration of URL-only condition significantly longer than URL + QR + \$1 condition and EB conditions
- URL + QR, URL + QR + \$1, and URL + \$1 conditions are **not** different from one another in any pairwise comparison

Web Respondent Behavior: Time of Participation

- Logins and completes both distributed during the day; few logins and no completes during late night/early morning hours

Density of All Web Logins and Completes by Hour of Day



Comparing Sociodemographic Variable Distributions

- Web-complete respondents:
 - Less likely to report receiving WIC benefits than CATI respondents
 - 22.3% vs. 38.4% ($\chi^2 = 19.21$; $p < .001$)
 - More likely to refuse initial income question*** than CATI respondents
 - 39.4% vs. 25.4% ($\chi^2 = 8.91$ $p < .01$)
- No significant differences in distribution by mode on:
 - Reporting having breastfed child
 - Race
 - Ethnicity
 - Marital status
 - Education variables

- Web reduces resources needed to screen respondents
- Early-bird incentives are effective in several domains:
 - Encouraging logins
 - Modestly higher eligibility
 - Improved yield and timeliness

Summary (cont'd)

- Data quality consistent across modes on most variables
- QR codes appear to improve login rate

- Small sample size limits statistical power of analyses
- Early-bird incentives available only on address-matched landline sample
 - This limitation may change as address matching improves for cell telephones

- Improving understanding of web as a viable mode alternative to telephone survey
- Improving web consent, data quality considerations for sensitive questions
- Other methods of improving overall response rates
 - ABS dual frame
 - Web + mail multimode

Acknowledgements

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