

# Throwing in everything but the kitchen sink: Does combining the treatments of multiple single variable operational experiments result in additive or synergistic changes in response rate to Michigan PRAMS?

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### INTRODUCTION

Since the 1990's, researchers have documented a general decline in response rates to population-based surveys. Reflecting this trend, **between 2006 and 2015, the Michigan PRAMS weighted response rate dropped an average of 1.6% per year with no corresponding explanatory operational changes.**

**Incentives and rewards act to boost survey cooperation.** There are many examples in the literature of successful reward and/or incentive options suggesting that tailoring survey methods to sample characteristics with the intent of maximizing response rate extends to the reward and incentive choices offered.

**The timing of survey contacts can affect the researcher's ability to present a cohesive case for participation to sample members.** Specifically, notification letters cease to be effective if, by the time a copy of the survey is received, a sample member's recollection of the initial call to action is lost to time's dustbin. In 2015, changes to Michigan's USPS postal delivery resulted in longer times between sending and receiving mail.

To test the effect on response rates, **Michigan PRAMS combined treatments from three previous operational experiments that varied reward choice and options, added an incentive, and compressed the mailing schedule.** In general, the prior experiments showed positive, but not statistically significant increases in unweighted response rates. **We hypothesized that combining all three treatments would result in a statistically significant increase in unweighted response rate that was equal or greater to 4.7%** (bib 172 experiment: effect size=-4.6%, 95% CI: -7.5% to +16.6%; p=0.44 and bib 173 experiment: effect size=+4.6%, 95% CI: -13.4% to 22.4%; p=0.60), the largest non-significant increases observed among the single variable experiments.



INCENTIVE

Packaged PRAMS silicone baby bib with message sent with Mail 1

↑ 4.7%



REWARD CHOICE

Mom offered choice between two \$10 gift cards to different stores as a reward

↑ 3.2%



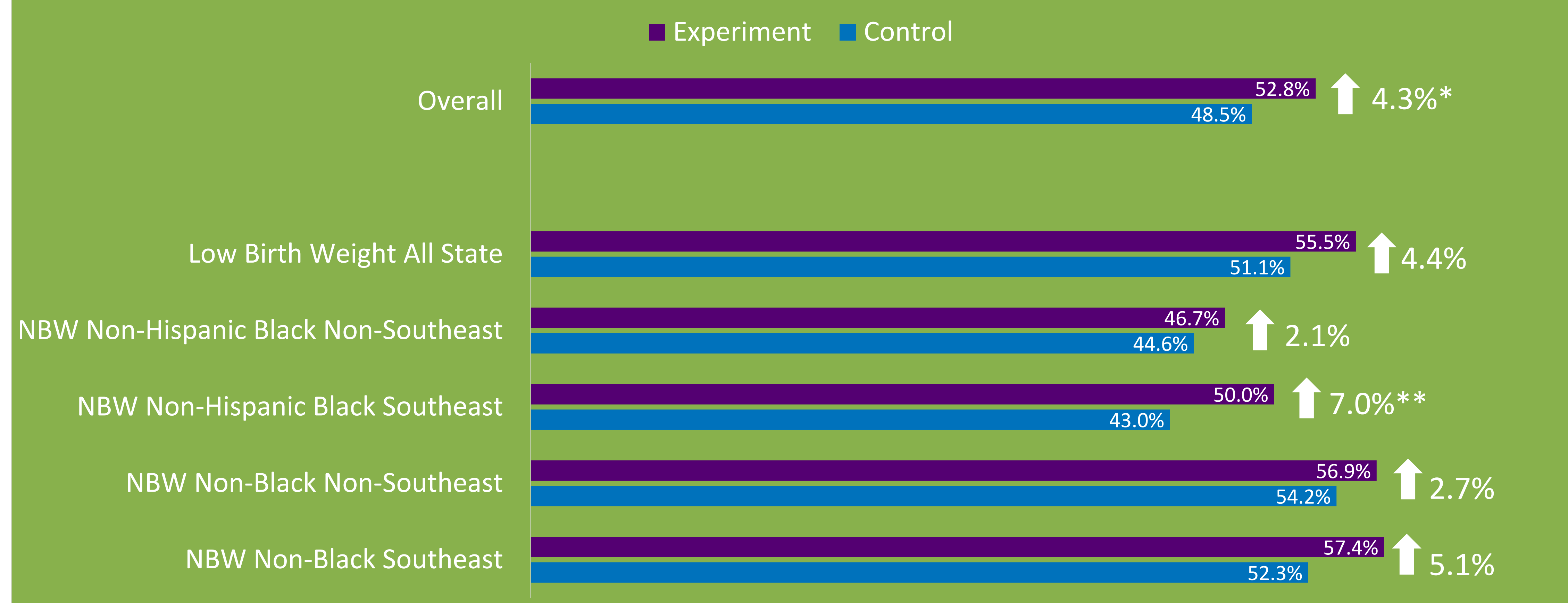
COMPRESSED TIMELINE

Day between notification preletter, Mail 1 and Tickler postcard was reduced or moved forward

↑ 1.9%

### COMBINED TREATMENTS

Response Rates by Stratum



N=2,583 \*p<0.05 \*\*p<0.10

- Mothers were offered a \$10 gift card reward to their choice or Walmart, Family Dollar or Amazon.

Additional experiment details include:

- Mothers were randomly assigned to a control (n=1290) or experimental (n=1293) group.
- Mothers of infants who were deceased were excluded.
- PRAMS Integrated Data Collection System (PIDS) was used to track the experiment.
- PIDS ad hoc reports function was used to generate analytic datasets.
- We measured change in unweighted response rate, effect size and z-test.

### RESULTS

The combined treatment increased overall response rate by 4.3% (effect size=-8.6%, 95% CI: -0.4% to +8.1%; p=0.03). Although power calculations to determine sample size were not performed for subgroups as part of our methodology, non-Hispanic black mothers residing in southeast Michigan with normal birthweight infants showed a significant increase in response rate (+7.0%, effect size=13.9%, 95% CI: -0.8% to +14.8%; p=0.08). All other strata showed increased response rates, but the increases did not reach statistical significance.

### CONCLUSIONS

#### HOW THE COMBINATION OF TREATMENTS INTERACTS TO INCREASE RESPONSE RATES IS UNCLEAR

The combined treatment did not match or exceed the response rate increases observed in the bib incentive experiments as hypothesized. It is important to note that the sample sizes for the bib incentive experiments were small, thus the combined treatment's response rate fell well within both of the two bib incentive experiment's margins of error.

- The effect of the treatment on response rate was neither additive nor synergistic.
- However, it appears there was a combined effect from applying all treatments.
- The combined effect acted to increase response rates.

#### INCREASES BY STRATUM WERE ATYPICAL

Historically, it has always been the case for Michigan PRAMS response rates that strata made up exclusively of non-black mothers have higher response rates than strata made up exclusively of non-Hispanic black mothers. So, it was interesting to see that geography (Southeast Michigan vs. the rest of the Michigan) seemed to play a larger role in the results of this experiment than did race.

#### MICHIGAN IMPLEMENTED CHANGES

Currently, Michigan PRAMS

- Uses the compressed mailing schedule
- Offers a choice of gift card reward to 3 department stores
- Offers a \$20 gift card reward for all mothers.

Based on final results and budget, Michigan is currently evaluating the sustainability of the \$20 gift card reward and is exploring tiered incentive and reward combinations.

#### THE REASONS MOMS RESPOND TO PRAMS IS COMPLEX

As noted above, some of the patterns of response to the experiment were unexpected. Beyond incentives and rewards, mothers may respond to PRAMS for many different reasons. This research reinforces the concept that varied and multiple features of a survey may either encourage or discourage an individual to participate. Beyond additional attempts to tinker with monetary rewards and incentives, further research could identify and investigate methods and messaging to address other possible variables such as scarcity, sponsor trust, helping tendencies, topic interest, or privacy concerns.

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### METHODS

Between October 2016 and June 2017, Michigan PRAMS conducted a 9-batch operational experiment combining modified versions of previously tested treatments

- The days between sending the notification preletter and Mail 1 was decreased from seven to four.
- The tickler was mailed earlier to keep the time between mail 1 and the tickler equal to one week.
- All other mailings and phone phase remained unchanged.
- A silicone baby bib incentive was mailed with the notification preletter.