**Design Document and Analysis Plan**

Project Name: Outreach and Maintenance of Medicaid Enrollment: Evidence from Wisconsin’s Navigator Program

Date of Pre-Analysis Plan: May 15, 2023

This document serves as a basis for distinguishing between planned (confirmatory) analysis and any unplanned (exploratory) analysis that might be conducted on project data. Documenting these planned analyses is crucial to ensuring that the results of statistical tests will be properly interpreted and reported. For the Analysis Plan to fulfill this purpose, it is essential that it be finalized and date-stamped before we begin looking at outcome data.

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**1. Project Objective and Research Questions**

***Overview and Project Objective.*** After three years in effect, Medicaid’s continuous enrollment provision—along with other pandemic-era policies—has come to an end, with widespread effects on individuals, governments, and the health care sector. Using evidence-informed approaches will be crucial to help keep eligible people enrolled. When building this evidence base it is important to consider scalable and customizable methods, given that millions of people facing a variety of potential barriers to coverage will be affected by this policy change.3,15,16

The objective of this field experiment is to identify the effect of outreach strategy on beneficiaries’ maintenance of Medicaid enrollment. The experimental population includes an estimated 168,000 cases (members of a household who applied for Medicaid together) in Wisconsin enrolled in fee-for-service Medicaid who must renew or lose their coverage after the end of the continuous enrollment provision. The implementing organization is Covering Wisconsin, the navigator organization contracted by the Wisconsin Department of Health Services to conduct outreach to these beneficiaries. Experimental arms will vary the modality of outreach, content of the outreach, and number of outreach messages.

This research will identify novel, scalable outreach methods to help low-income people maintain access to benefits. We evaluate the impact of linking Medicaid beneficiaries with an existing program providing one-on-one assistance that is already staffed and funded on a large scale—the navigator program has nearly $100 million in funding in 2022-2023 across more than 30 states. (Similar assister programs also exist nationwide.)28,29 Thus, connecting beneficiaries with their local navigators is an intervention that could be readily scaled up across other states if results show it is effective.30

***Research Questions.*** The main research questions are as follows:

1. What are the enrollment and application impacts of sending Medicaid enrollees text messages, postcards, or outbound calls to connect them with assistance? What impact does this have on the composition of enrollees, and the proportion of people who receive the messages?
2. How does modality of assistance offered (connecting with a chatbot via text vs. speaking with an assister by telephone) impact application rates, enrollment rates, and the composition of enrollees?
3. How does a second reminder message impact enrollment and application rates and the composition of enrollees?
4. While these interventions are designed to increase continuity of Medicaid enrollment, are there spillover impacts on secondary outcomes such as workforce participation and SNAP enrollment?

**2. Evaluation Design**

**2.1 Overview**

This field experiment will test methods to increase maintenance of Medicaid enrollment by connecting beneficiaries with navigators, a group of professionals publicly funded since 2014 to help consumers enroll in coverage.1 The intervention will be implemented by Covering Wisconsin, a navigator grantee with a staff of more than a dozen professional assisters. Covering Wisconsin was contracted by the Wisconsin Department of Health Services (DHS) to conduct outreach to fee-for-service Medicaid beneficiaries after the end of the Medicaid continuous enrollment policy.

As detailed further below in section 2.4, the intervention arms will vary the modality of outreach, number of outreach messages, and content of the outreach. These interventions will be repeated after the renewal window closes for people who lost their coverage. All beneficiaries will also be sent standard outreach messages by Wisconsin DHS.

Wisconsin administrative data will be used to measure the application rates and maintenance of Medicaid enrollment over the 12 months following each case group’s redetermination deadline, as well as changes in the composition of Medicaid enrollees after the redetermination deadlines have passed. See section 3.1 for a detailed description of the data.

**2.2 Background on Medicaid redetermination**

Each year, millions of low-income individuals must demonstrate their eligibility for safety net programs to avoid losing their benefits.2,3While the goal of this requirement is to restrict benefit receipt to those who are eligible, the associated time and hassle costs mean many eligible individuals do not complete the required processes. Compliance costs reduce benefit receipt across a range of safety net programs.4–10 Data from Illinois suggest that 80% of people disenrolled from Medicaid lost their coverage because they did not return the requested information.11

After three years in effect, Medicaid’s continuous enrollment provision—along with other pandemic-era policies—has come to an end, with widespread effects on individuals, governments, and the health care sector. Medicaid’s continuous enrollment provision, part of March 2020’s Families First Coronavirus Response Act, required Medicaid programs to keep people continuously enrolled, instead of regularly reviewing eligibility and disenrolling those who were no longer eligible or failed to renew. As a result of this requirement, Medicaid enrollment increased to unprecedented levels and uninsurance decreased, despite a major recession and record unemployment.12

Between February 2020 and December 2022, Medicaid enrollment nationwide increased by 21.2 million, or 29.8 percent.13 These increases in Medicaid enrollment were largely due to the continuous enrollment provision rather than new enrollment after employment shocks.14 Since encouraging people to take up subsidized health insurance remains an ongoing challenge in the United States, these historic gains in coverage present a clear window of opportunity to help people remain enrolled in health insurance, either through the renewal of Medicaid coverage or transitions to other types of health insurance.

Estimates suggest that up to 16 million people are predicted to lose their Medicaid coverage between the ending of the provision on March 31 and the end of each state’s redetermination process.3,15,16 Those who lose Medicaid coverage because of genuine ineligibility (e.g., because of a change in income, age, or family structure) face a high risk of remaining uninsured. Only one third of people who are disenrolled from Medicaid may take up private coverage, and many could experience gaps in coverage.17 While some people are expected to lose Medicaid coverage because of genuine ineligibility, seven million others are expected to experience coverage termination because of procedural reasons, such as not submitting their renewal forms on time.16

Barriers to enrollment are also disproportionately concentrated among certain populations. For example, one multi-state survey of patients in community health centers found that individuals with greater health-related challenges, individuals with lower education levels, and Black individuals were less likely to be aware of Medicaid program rules and more likely to report barriers to enrollment, presenting concerns for equity.18 High rates of address churn may also contribute to coverage losses. A 2010 study found that 18% of SNAP cases experienced a change of address, and only 3% of those with an address change successfully recertified.19 Contact information was disrupted more often among SNAP recipients without stable housing, contributing to missed recertification.19 It is not known whether contacting individuals by phone rather than by postal mail would be more successful in terms of encouraging successful recertification.

To avoid loss of coverage among eligible individuals, it is crucial to identify strategies to help enrollees complete redetermination. The majority of people disenrolled from Medicaid do not transition to another identified insurance and become uninsured.17,20 Losing Medicaid reduces access to care and raises the risk of impoverishment due to medical debt.21–25 Despite evidence on the impacts of outreach on new Medicaid enrollment, little is known on how to support maintenance of enrollment.26,27

**2.3 Study Sample**

The study population includes all fee-for-service Medicaid beneficiaries in Wisconsin with a mailing address and phone number, and who do not prefer a language other than English or Spanish. (People whose language status is blank or undetermined will be included in the study sample, as outreach would be sent to them in English regardless.)

***Total Number of Observations.*** According to data from Wisconsin DHS and Covering Wisconsin, phone numbers are missing for only 4% of the fee-for-service Medicaid population and the experimental population will include 224,000 beneficiaries, about 25% of whom prefer Spanish. Our analysis of data from Wisconsin fee-for-service Medicaid enrollees found a case to individual ratio of 0.75, suggesting there will be 168,000 cases (members of a household who applied for Medicaid together).

**2.4 Treatment Arms**

The experimental arms will vary the modality of the outreach (postcard or text message, in some cases supplemented with an outbound call), content of the outreach (encouraging a call to a hotline vs. encouraging a text message that connects them with a chatbot), and the number of outreach messages (1 vs. 2) to beneficiaries whose redetermination window begins each month. To reduce the load of potential calls to the navigator hotline on any given day, each text message will be staggered over a 7-day period. Timing of day will also be randomly assigned as either afternoon (1pm) or evening (7pm); all messages sent on a Friday or Saturday will be sent in the afternoon. Appendix B includes more information on the content of all outreach messages.

The outreach treatment arms will be as follows:

*Postcard Arms:*

*Arm A:*These consumers will be sent a postcard inviting them to speak with an assister by calling a hotline.

*Arm B:*These consumers will be sent the same postcard as arm A. They will also be sent an outbound call in the form of a recorded voice message one to two weeks after the postcard lists are sent to the mail vendor,[[1]](#footnote-1) dependent upon to which day they are randomly assigned.

*Text Message Arms with Hotline Call to Action:*

*Arm C:*These consumers will be sent a text message inviting them to speak with an assister by calling a hotline. The Call-to-Action text will be “call ###.”

*Arm D:* These consumers will be sent the same text message as in arm C. They will also be sent a second reminder message two to three weeks after the initial message, depending upon to which day they are randomly assigned.

*Arm E:* These consumers will be sent the same text message as in arm C. They will also be sent an outbound call in the form of a recorded voice message one to two weeks after the initial message.

*Arm F:* These consumers will be sent the same text message as in arm C. They will also be sent an outbound call and a reminder message after the initial message.

*Text Message Arms with Text Call to Action:*

*Arm G:* These consumers will be sent a text message inviting them to send a reply by text, which will connect them with a chatbot. The Call-to-Action text will be “text COVER to 920-###-####.”

*Arm H:* These consumers will be sent the same text message as in arm G. They will also receive a second reminder message two to three weeks after the initial message.

*Arm I:*These consumers will be sent the same text message as in arm G. They will also receive an outbound call one to two weeks after the initial message.

*Arm J:* These consumers will be sent the same text message as in arm G. They will also receive a second reminder message *and* receive an outbound call.

*Second Round of Outreach.* There will be a second round of randomization for people who lost their Medicaid coverage because of the redetermination process. As in the first round of outreach, these consumers will be randomly assigned into treatment arms that vary modality of the outreach (postcard or text message, in some cases supplemented with an outbound call), content of the outreach (encouraging a call to a hotline vs. encouraging a text message that connects them with a chatbot) offered, the number of outreach messages (1 vs. 2).

***Assignment Process.*** Assignment to treatment arms will occur monthly over the 12-month period after the conclusion of the Medicaid continuous enrollment policy, to ensure each beneficiary receives outreach at the beginning of their two-month redetermination window assigned by the state. Each month, Wisconsin DHS will provide Covering Wisconsin a list of the beneficiaries whose redetermination window begins. Randomization for people in each group of monthly renewals will be clustered by case (e.g., members of a household who applied for Medicaid together) to address potential spillovers.

40% of cases will be assigned to be sent a postcard, and the remaining 60% of cases will be assigned to the text message arms, with 30% receiving a message with a text message call to action and 30% receiving a message with a hotline call to action. In addition, half of the full sample will receive an outbound call.

Randomization will be stratified by the following factors: the preferred language of the primary person on the case, key Medicaid eligibility categories particularly relevant to ease of renewal, defined at the case level at baseline (being aged or disabled, being part of the “transitional medical assistance” population, or having eligibility due to pregnancy),[[2]](#footnote-2) whether there are enrolled children in the case at baseline, whether there are enrolled people over age 50 in the case at baseline, rural/urban residency of the primary person on the case,[[3]](#footnote-3) Black race and tribal membership of the primary person on the case.

Outreach messages will be sent to the primary individual on each case. If no primary individual is noted on the record, we will choose the oldest individual aged between 18 and 75; if there are multiple people of the same age who were the oldest in the household, we will then choose the person with more complete contact information, and then randomly break any remaining ties.

Tables 1 and 2 show the proportion of the sample in each outreach arm.

**Table 1. Cross-Randomization and Percentages in Each Group**

|  |  |  |
| --- | --- | --- |
| Outreach Method | No Outbound Call | Outbound Call |
| Postcard | Arm A (20%) | Arm B (20%) |
| Text message encouraging the recipient to connect with an assister by calling a hotline. (Call to Action: “call ###”) | Arm C: (7.5%) | Arm E: (7.5%) |
| Text message encouraging the recipient to connect with an assister by calling a hotline. (Call to Action: “call ###”) + reminder text message | Arm D: (7.5%) | Arm F: (7.5%) |
| Text message encouraging the recipient to send a text message, which leads to a chatbot. (Call to Action: “text ###”) | Arm G: (7.5%) | Arm I: (7.5%) |
| Text message encouraging the recipient to send a text message, which leads to a chatbot. (Call to Action: “text ###”) + reminder text message | Arm H: (7.5%) | Arm J: (7.5%) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2: Randomization Groups** | | | |
| Postcard (40%)  A & B | |  |  | | --- | --- | | No outbound call (20%)  B | Outbound call (20%)  A | | | |
| Text (60%)  C, D, E, F, G, H, I, J | |  | | --- | | Chatbot (30%)  G, H, I, J | | Hotline (30%)  C, D, E, F | | |  | | --- | | Reminder text (30%)  D, F, H, J | | No reminder text (30%)  C, E, G, I | | |  | | --- | | Outbound call (30%)  E, F, I, J | | No outbound call (30%)  C, D, G, H | |

As noted above, a second round of randomization will be conducted to determine outreach strategy for people who lost their Medicaid coverage during the redetermination process. Cases in this group will be assigned different outreach modalities, frequencies, and content using the same allocation process described above.

***Receipt of the Messages.*** We anticipate that randomization to a treatment group will not perfectly determine which outreach a household ultimately receives, for several reasons. First, people in the postcard arm may not receive a postcard because the address is invalid, because the address is no longer theirs, or the mail is returned for another reason. Second, people in the text message arms might not receive a message because the number was a landline, because the text message bounced, or because the number is no longer theirs. We will track this information to the extent possible via vendor feedback (i.e., invalid addresses, text bouncebacks) and will use an address and phone number search service to determine whether the phone number and address are no longer attributed to the person listed. In the statistical analysis described below, we will plan to analyze not only the impact of randomization to specific treatment arms (intent to treat) but also the impact of *receiving* a certain form of outreach, to the best of our knowledge (treatment on the treated).

If the mismatch between individuals and contact information is larger than we can detect – in other words, if more of the intended recipients of the outreach messages have moved or changed phone numbers than we are able to detect – then our treatment on the treated estimates will be biased towards the null. This means our analysis is conservative. The power calculations below are based on intent to treat analysis, which has lower power; this is also a conservative choice.

**2.5 Power and Effect Size**

Power analysis suggests the study is powered to detect reasonable and decision-relevant impacts on Medicaid enrollment and the composition of enrollees.

***Key Assumptions.*** Our analysis of recent Medicaid claims suggest about 90% will be eligible, so we characterize the study population as a “likely eligible” population similar to Wright et al.’s study of likely Medicaid-eligible adults.14,27 Based on findings from Wright et al.’s sample with low-touch outreach, we assume that between 38 and 41% of the sample will remain enrolled in Medicaid after receiving a text message reminder.27 We also assessed power to detect changes in the composition of the enrollee population, including language preference (our baseline data suggest 25% prefer Spanish) and a binary outcome that is unitary for 50% of the population and zero otherwise (e.g., above vs. below median income, or above vs. below median baseline Medicaid health care costs as a measure of health care need).

***Minimum Detectable Effect Size.*** The study has 80% power to detect a 0.69 percentage point change in enrollment rates, a 0.59 percentage point change in the proportion of enrollees preferring Spanish and a 0.68 percentage point change in the health care needs of enrollees due to variation in the content, modality or frequency of outreach. For comparison, prior studies found a 2 percentage point increase in SNAP recertification after receipt of a text message;32 a 3 percentage point increase in Medicaid take-up among a likely eligible group and 14.3 percentage point increase in take-up among a waitlist group after enhanced outreach;27 a 18 percentage point increase in SNAP take-up after receiving a postcard with an assistance hotline number;33 a 2.7 percentage point increase in Covered California enrollment after receiving an outbound call;34 and a 22 percentage point increase in EITC take-up after a second reminder message.35

We will consider the intervention to have a meaningful effect if we detect a statistically significant difference in our key outcomes (e.g. application and enrollment increases) between the treatment arms of the RCT. Other measures of the success of the intervention will include whether the dollarized benefit from the increases in take-up exceeds the cost of implementing the intervention, and whether the intervention is particularly effective for harder-to-reach segments of the population.

**3. Data and Key Variables**

This section describes data and variables that will be analyzed.

**3.1 Data Sources**

We will combine multiple data files for the project to measure treatment assignment, the timing of each beneficiary’s enrollment window, Medicaid application and enrollment outcomes, likely accuracy of the phone and address information used for outreach, SNAP enrollment, and employment outcomes.

***Data File 1: Medicaid claims and CARES enrollment files***

**Summary of Information**: This is a comprehensive extract that includes every beneficiary that had Medicaid coverage in Wisconsin at the end of the Medicaid continuous enrollment policy, along with attributes such as:

* + Start date of Medicaid coverage and end date of Medicaid coverage, if applicable
  + Demographic factors (gender, age, race/ethnicity)
  + Household income at the time of first application to Medicaid (measured as of March 2020 or the first month of this Medicaid enrollment spell, whichever is later)
  + Reason for Medicaid eligibility at baseline (children; aged/disabled; pregnant; parents; adults without dependent children; extensions; or other group)
  + Health care costs paid by Medicaid during the continuous coverage period
  + Any visits and number of visits (overall and for the following visit types: emergency, outpatient, inpatient, dental, mental health, or psychiatric)
  + Number of chronic conditions according to Chronic Conditions Warehouse algorithm during the continuous coverage period
  + End date of Medicaid coverage, if applicable

**Universe of File and Record Granularity:** One record for each person with fee-for-service Medicaid coverage in Wisconsin at the end of the Medicaid continuous enrollment policy.

***Data File 2: Access Tables***

**Summary of Information:** An extract of application data:

* Application date to redetermine/renew coverage
* Outcome from the application, if available (denied because of lack of eligibility, denied for administrative reasons, accepted)

**Universe of File and Record Granularity:** One record for each application received during the redetermination period.

***Data File 3: DHS reports to Covering Wisconsin***

**Summary of Information:** This data provides information on the characteristics of beneficiaries whose Medicaid redetermination window has just begun in the current calendar month. These characteristics include:

* Location (address, county of residence, county of administration)
* Phone numbers for each individual on the case
* Medicaid eligibility category at baseline in the case
* Age of each individual in the case
* Tribal membership for each individual in the case
* Case information (case number)
* Language preference for each individual in the case
* Which individual is considered the primary individual on the case

**Universe of File and Record Granularity:** Fee-for-service Medicaid beneficiaries whose Medicaid redetermination window has just begun in the current calendar month.

***Data File 4: SNAP enrollment***

**Summary of Information*:*** Administrative data on SNAP enrollment in Wisconsin:

* Enrollment in SNAP at baseline and throughout the study period

**Universe of File and Record Granularity:** One record for each household who filed for SNAP throughout the duration of the study period.

***Data File 5: Employment and quarterly wages***

**Summary of Information*:*** Administrative data from unemployment insurance files in Wisconsin:

* Employed vs. unemployed at baseline and throughout the study period
* Log of quarterly wages (+$1, to avoid dropping people with no wages) at baseline
* Quarterly income at baseline

**Universe of File and Unit of Analysis / Record Granularity:** One record for each person reflected in state unemployment insurance records throughout the study period.

***Data File 6: Covering Wisconsin Outbound Call Feedback***

**Summary of Information*:*** Feedback on outbound call, including:

* Validity of phone number

**Universe of File and Unit of Analysis / Record Granularity:** One record for each person (i.e., primary person on a case) who was assigned to receive an outbound call.

***Data File 6: Text Message Vendor Feedback***

**Summary of Information*:*** Feedback from text message vendors, including indicators for:

* Whether the phone number provided is a landline vs. not
* Bounced text message

**Universe of File and Unit of Analysis / Record Granularity:** One record for each person (i.e., primary person on a case) who was assigned to text message outreach arm.

***Data File 7: United States Postal Service Data***

**Summary of Information*:*** Data from USPS, indicating:

* Non-existent addresses

**Universe of File and Unit of Analysis / Record Granularity:** One record for each primary person on a case assigned to a postcard arm.

***Data File 8: Address and Phone Number Search Service Feedback***

**Summary of Information*:*** Data from search service, indicating:

* Whether the mailing address used (based on DHS’s list) is not the most updated for the individual
* Whether the phone number used (based on DHS’s list) is not among the list of most updated phone numbers for the individual

**Universe of File and Unit of Analysis / Record Granularity:** One record for each primary person on a case.

**3.2 Key Variables**

***Outcomes of Interest***

The primary outcome ismaintenance of Medicaid enrollment, measured on the individual level over the 12 months following each person’s redetermination deadline (measured at 1, 3, 6, 9, and 12 months following each person’s redetermination deadline).

The first set of secondary outcomes are proxies for whether the outreach was received. These measures include vendor data on text bouncebacks, invalid addresses, and feedback from an address and phone number validation service on whether the intended recipient was no longer reachable at the address or phone number provided by DHS. We will measure whether individuals who were sent a text message replied STOP, or DONE, the latter being a self-reported indicator of having taken action to renew their coverage. We will also measure whether recipients sent any reply message to the text, as a measure of engagement with the intervention.

The second set of secondary outcomes focus on application activities and outcomes, measured using administrative data. We will use the following categories: no application on record; application started but not filed; application filed but denied due to lack of eligibility; application filed but denied due to administrative reasons; application accepted. These will be measured 15, 30, and 45 days after the information was sent to vendors, and 15, 30, and 45 days after the vendor sent the messages to recipients.

Exploratory outcomes include SNAP enrollment, employment, and logged quarterly wages (+$1, to avoid taking the log of zero for those who are unemployed). These outcomes will also be measured at 1, 3, 6, 9, and 12 months after each person’s redetermination deadline.

When analyzing data from the second round of outreach (i.e., for people who had already lost their coverage), outcomes will be measured at 1, 3, 6, 9, and 12 months after the outreach messages were sent.

***Exposures of Interest***

Exposures of interest include the treatment group assigned (including nature of outreach, number of messages, and, for text messages, whether they were sent on a weekend or weekday and in the afternoon or evening).

In treatment on the treated analyses, we will also incorporate measures of whether the outreach was likely received by the intended recipient. An individual will be considered to have likely received the outreach if there is no evidence of an invalid address, bounced text message, or feedback from an address and phone number search vendor or mailing vendor suggesting that the person of interest is no longer linked with the address or phone number that was used.

***Variables Used in Heterogeneity Checks***

We will conduct two types of heterogeneity analyses: a) stratifying the data into pre-specified groups, and b) assessing changes in the composition of Medicaid enrollees after the redetermination deadlines have passed, described further in section 6 below. The goal of these analyses is to assess whether the impact of the intervention varies for consumers who may face different barriers to enrollment or differ in other observable characteristics, to support improved targeting of the intervention in the future. These groups include:

* Specific racial/ethnic groups that have been historically under-served (Black, Hispanic, Asian or Pacific Islander, tribal members)
* People whose preferred language is Spanish
* Age category (<18, 18-25, 26-49, 50-64, 65+), and average age for the composition analysis
* People living in rural areas, defined as a county with rating 8 or 9 in the US Department of Agriculture 2013 Rural-Urban Continuum Codes
* Reason for Medicaid eligibility at baseline (children; aged/disabled; pregnant; parents; adults without dependent children; extensions; or other group)
* Employed vs. unemployed at baseline
* On SNAP vs. not at baseline
* People with below median baseline household income
* Other household characteristics: number of enrolled childless adults with baseline household income over 50% of FPL; number of enrolled children with baseline household income over 200% of FPL; whether or not there were children in the case at baseline; average baseline household income of enrollees, for the composition analysis
* People with above-median Medicaid-covered baseline health care costs (e.g., total costs during the continuous coverage period); average baseline health care costs (raw and logged), for the composition analysis
* People with longer vs. shorter duration of prior Medicaid enrollment (quartiles of enrollment duration at the end of the Medicaid continuous enrollment policy, and people who had vs had not been enrolled long enough to have been required to do a prior redetermination)
* People with Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period
* People with Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period
* People with chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period
* People lacking a phone number
* People who prefer a language other than English or Spanish

***Covariates Used in Multivariable Modeling***

Due to the randomization, adjustment for confounders is not required for our statistical models to obtain unbiased treatment effects. To improve power, however, we will include covariates in multivariable modeling that are predictive of our outcomes of interest. We propose to include location (county of residence) fixed effects, eligibility category at baseline, gender of the primary person on the case, preferred language, income at baseline (under 50% FPL, 50-100% FPL, 100-200% FPL, over 200% FPL, missing), SNAP enrollment at baseline (enrolled, not enrolled, missing), whether or not there were any children or any adults age 50 or older in the case at baseline, tribal membership of the primary person on the case, whether or not members of the case had been in Medicaid long enough at baseline to have been required to a prior redetermination, and age of the primary individual on the case at baseline (<18, 18-25, 26-49, 50-64, 65+, missing). We will drop covariates in robustness checks.

**3.3 Treatment of Missing Data**

In the baseline model, we will model missingness using an indicator variable to avoid listwise deletion. In a robustness check, we will use listwise deletion to eliminate missing data on covariates of interest.

**4. Balance Checks**

Since random assignment is a key feature of our study, we will take great care in verifying the random assignment. We will check balance across all observable variables included in the Covering Wisconsin data at the time of randomization, and again check balance on the covariates and stratification variables used in the model that we subsequently obtain from the administrative data. Any unbalanced variables in the administrative data will be included as covariates in the model in robustness checks.

**5. Risks and Mitigation**

The sample size could be smaller than anticipated, but the study will have sufficient power to detect a 1.5 percentage point impact on Medicaid enrollment if the sample is as small as 20% of our anticipated size. For ethical reasons, all randomized participants will be sent outreach. Despite the absence of a pure control group, we can analyze the impact of outreach using a treatment on the treated method, leveraging non-receipt of messages due to addresses or phone numbers that are not up to date. While spillovers are possible, our plan to randomize by cases mitigates spillover risk within households. Finally, some beneficiaries will not be eligible for Medicaid; those rejected from Medicaid will receive additional messages from Covering Wisconsin that may affect enrollment in marketplace insurance as well. If data on marketplace enrollment become available for our population, we will also analyze impacts on marketplace enrollment.

**6. Statistical Models & Hypothesis Tests**

**a. Intent to Treat Analysis**

We will first examine the effects of assignment to each intervention arm on each outcome using an intent-to-treat (ITT) analysis. Our basic estimating equation will be of the form:

Where:

* represents an outcome of interest (e.g., whether the individual filed their redetermination paperwork; continued enrollment in Medicaid, SNAP receipt, or employment);
* captures the average outcomes associated with randomization to the postcard arm, a proxy for the status quo for locations where text messages are not used for outreach;

* represents a vector of pre-specified covariates measured at baseline, listed in section 3.2;
* is a binary variable that takes the value 1 if individual *i* (or the primary person on their case) was assigned to a treatment group that is sent any text messages;
* is a binary variable that takes the value 1 if individual *i* (or the primary person on their case) was assigned to a treatment group that is sent any text messages that invite them to send a reply text (triggering a chatbot);
* is a binary variable that takes the value 1 if individual *i* (or the primary person on their case) was assigned to a treatment group being sent an additional reminder message two weeks after the first;

* is a binary variable that takes the value 1 if individual *i* (or the primary person on their case) was assigned to a treatment group that receives an outbound call;

The will be the estimate of the causal effect of being randomized to a given treatment group, compared to Arm A, on our outcomes of interest, .

The research questions will be tested using hypothesis tests about combinations of the coefficients on these treatment arm indicators, as follows:

* To test the null hypothesis of no impact of being sent a text message rather than a postcard, we will test whether .
* To test the null hypothesis of no impact of being sent an offer to connect with a chatbot rather than an offer to speak with an assister by telephone, we will test whether .
* To test the null hypothesis that being sent a second message makes no impact on our outcomes of interest, we will test whether .
* To test the null hypothesis that receiving an outbound call makes no impact on our outcomes of interest, we will test whether .

Because the exact timing of outbound calls and text messages will be randomized over a one-week period, we will add interaction terms to test for differential effects of being sent a message on a weekday vs. weekend and in the afternoon vs. evening in secondary analyses. In exploratory analyses, we will additionally examine the effect of being assigned to receive a message on each given day of the week (e.g., on a Monday).

**b. Treatment on the Treated Analysis**

Randomization to a treatment group is not a perfect determinant of which treatment is received; as noted above, some consumers have invalid addresses or phone numbers. Therefore, we will also estimate the treatment on the treated effect, i.e., a local average treatment effect (LATE) of receiving a text, call, etc. on our outcomes of interest.

We will construct variables for postcard delivery, text message receipt, and outbound call receipt. If consumer in the treatment group received their assigned method of outreach, the respective indicator variable equals 1 and 0 otherwise.

The structural equation estimated will be:

And the first stage will be:

Where:

* represents our best measure of receipt of assigned treatment (e.g., whether the text message was received by the person of interest). This will equal 1 for everyone assigned to treatment except in cases where vendor data suggests treatment was not received, as follows:
  + **Receipt of Text:** would take the value 0 for a person assigned to text message if the number was a landline, if the text message bounced, or the contact information search service found evidence the phone number was no longer associated with the person of interest.
  + **Receipt of Postcard:**  would take the value 0 for a person assigned to a postcard if the mail vendor found the address to be invalid or the contact information search service suggested that the address was no longer associated with the person of interest.
  + **Receipt of Outbound Call:** would take the value 0 for a person assigned to receive an outbound call if the call could not be successfully placed, or if the contact information search service found evidence the phone number was no longer associated with the person of interest.
* is a binary variable that takes the value 1 if individual *i* was randomized to a treatment arm that offered as a treatment (e.g., randomized to a treatment arm where a text message was sent)
* represents the outcome of interest
* represents a vector of pre-specified covariates measured at baseline, listed in section 3.2.

the coefficient of interest, will capture the impact of outreach on outcomes for people who received their assigned treatment due to random assignment. We will repeat this model for each of the key exposures of interest including delivery of outbound calls, postcards, text messages, and repeated messages. In additional analyses, we will re-estimate our model comparing results for (1) those receiving a text message encouraging a call to a hotline vs. a postcard and (2) those receiving a text message connecting to a chatbot vs. a postcard. We will add interaction terms to test for differential effects of being sent an outbound call or text message on a weekday vs. weekend and in the afternoon vs. evening in secondary analyses.

**c. Robustness Checks**

In robustness checks, we will use logit or probit models to model binary outcomes. We will not perform any corrections for multiple hypothesis tests, and we will use two-tailed tests with p-values <.05 to denote statistically significant effects. Standard errors will be clustered by case for all models.

**d. Composition Analysis**

In addition to the impact of the interventions on maintenance of enrollment, we are also interested in the effect of assignment to given treatment group on the characteristics of the marginal enrollee who applies for coverage or receives continued coverage because of the intervention. This analysis will repeat the models above but define the outcome variable to be a baseline characteristic of an individual (for example, a baseline measure of their household’s income). This approach to analyzing the characteristics of the marginal person affected by an intervention has been used in prior work.33

**e. Impact of Outreach to Those who Lost Coverage**

We will re-estimate the models using data only from the second round of outreach, e.g., outreach targeting people who lost their Medicaid coverage during the redetermination process. The primary analysis will focus on the same hypothesis tests listed above but reframing the follow-up time horizon to start after the second round of outreach occurred. In a secondary analysis, we will use interaction terms between first-round and second-round treatment arms to assess whether, e.g., randomization to the chatbot outreach arm in the second round was disproportionately effective for people who had been randomized to the call outreach arm in the first arm or vice versa.

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**Appendix A: Sample Table Shells**

**Appendix Table 1: Balance Tests Across All Treatment Arms**

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| Treatment Arm Randomly Assigned | Arm A | Arm B | Arm C | Arm D | Arm E | Arm F | Arm G | Arm H | Arm I | Arm J | F-test p-value |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| *Panel A: Variables in the Covering Wisconsin data* | | | | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |  |  |  |
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| **Age**  <18  18-25  26-49  50-64  65+ |  |  |  |  |  |  |  |  |  |  |  |
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| Live in a rural area |  |  |  |  |  |  |  |  |  |  |  |
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| **Race/ethnicity**  Any racial/ethnic minority group  Non-Hispanic White  Hispanic  Black  Asian or Pacific Islander |  |  |  |  |  |  |  |  |  |  |  |
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| **Reason for Medicaid eligibility at baseline**  Children  Aged/Disabled  Pregnant  Parents  Adult without dependent children  Extensions  Other |  |  |  |  |  |  |  |  |  |  |  |
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| *Panel B: Variables in the administrative data* | | | | | | | | | | | |
| **Duration of coverage at baseline**  Q1 (shortest duration)  Q2  Q3  Q4 (longest duration)  Enrolled long enough to have been required to do a prior redetermination  Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |
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| Employed at baseline |  |  |  |  |  |  |  |  |  |  |  |
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| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |  |  |  |
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| **Income at baseline**  Below median household income  Enrolled childless adults with baseline household income > 50% FPL  Enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |  |  |  |
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| **Health care costs**  Health care costs paid by Medicaid, 2020-2022  Above median Medicaid-covered healthcare costs, 2020-2022 |  |  |  |  |  |  |  |  |  |  |  |
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| **Any Medicaid Visits During 2020-2022**  Overall  Emergency  Outpatient  Inpatient  Dental  Mental  Psychiatric |  |  |  |  |  |  |  |  |  |  |  |
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| **Number of Medicaid Visits During 2020-2022**  Overall  Emergency  Outpatient  Inpatient  Dental  Mental  Psychiatric |  |  |  |  |  |  |  |  |  |  |  |
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| Number of chronic conditions according to Chronic Conditions Warehouse algorithm, 2020-2022 |  |  |  |  |  |  |  |  |  |  |  |
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| **Pooled F – stat** | . |  |  |  |  |  |  |  |  |  |  |
| ***p-value*** | *.* |  |  |  |  |  |  |  |  |  |  |
| ***N*** | *.* |  |  |  |  |  |  |  |  |  |  |

**Appendix Table 2: Balance Tests for Pairwise Comparisons, by Randomly Assigned Treatment Arm**

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| --- | --- | --- | --- | --- | --- | --- |
|  | Difference in means and *p-*values for test of no difference in means | | | | | |
| Treatment Arm Randomly Assigned | Text message vs. postcard | Invited to connect with chatbot vs. hotline | Reminder message vs. no reminder message | Outbound call vs. no outbound call | First outreach sent on weekday vs. weekend | First outreach sent in the afternoon vs. evening |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| *Panel A: Variables in the Covering Wisconsin data* | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |
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| **Age**  <18  18-25  26-49  50-64  65+ |  |  |  |  |  |  |
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| Live in a rural area |  |  |  |  |  |  |
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| Female |  |  |  |  |  |  |
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| Tribal Member |  |  |  |  |  |  |
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| **Race/ethnicity**  Any racial/ethnicity minority group  Non-Hispanic White  Hispanic  Black  Asian or Pacific Islander |  |  |  |  |  |  |
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| **Reason for Medicaid eligibility at baseline**  Children  Aged/Disabled  Pregnant  Parents  Adult without dependent children  Extensions  Other |  |  |  |  |  |  |
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| *Panel B: Variables in the administrative data* | | | | | | |
| **Duration of coverage at baseline**  Q1 (shortest duration)  Q2  Q3  Q4 (longest duration)  Enrolled long enough to have been required to do a prior redetermination  Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |
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| Employed at baseline |  |  |  |  |  |  |
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| Enrolled in SNAP at baseline |  |  |  |  |  |  |
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| **Income at baseline**  Below median household income  Enrolled childless adults with baseline household income > 50% FPL  Enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |
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| **Health care costs**  Health care costs paid by Medicaid, 2020-2022  Above median Medicaid-covered healthcare costs, 2020-2022 |  |  |  |  |  |  |
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| **Any Medicaid Visits During 2020-2022**  Overall  Emergency  Outpatient  Inpatient  Dental  Mental  Psychiatric |  |  |  |  |  |  |
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| **Number of Medicaid Visits During 2020-2022**  Overall  Emergency  Outpatient  Inpatient  Dental  Mental  Psychiatric |  |  |  |  |  |  |
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| Number of chronic conditions according to Chronic Conditions Warehouse algorithm, 2020-2022 |  |  |  |  |  |  |
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|  |  |  |  |  |  |
| **Pooled F – stat** |  |  |  |  |  |  |
| ***p-value*** |  |  |  |  |  |  |
| ***N*** |  |  |  |  |  |  |

**Appendix Table 3: Intent to Treat Results: Effects of Randomization to Treatment Groups**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | *p-*values for hypothesis tests | | | |
| Treatment | (Randomized to Text Message)*i* | (Randomized to Chatbot vs. Hotline Text)*i* | (Randomized to Additional Reminder)*i* | (Randomized to Outbound Call Waitlist)*i* | Text Message Sent During Weekend Rather Than Weekday | Outbound Call Sent During Weekend Rather Than Weekday | Text Message Sent In Evening Rather Than Afternoon | Outbound Call Sent In Evening Rather Than Afternoon |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| ***Panel A: Application and Enrollment Outcomes*** | | | | | | | | |
| *Time to application after postcard went out* |  |  |  |  |  |  |  |  |
| *Time to application after texts went out* |  |  |  |  |  |  |  |  |
| *Whether or not a person applied within 15 days after contact* |  |  |  |  |  |  |  |  |
| *Whether or not a person applied within 30 days after contact* |  |  |  |  |  |  |  |  |
| *Whether or not a person applied within 45 days after contact* |  |  |  |  |  |  |  |  |
| *Outreach received by intended recipient* |  |  |  |  |  |  |  |  |
| *Application started but incomplete* *according to contact search vendor* |  |  |  |  |  |  |  |  |
| *No application filed by end of redetermination deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Application filed by end of redetermination deadline but denied due to lack of eligibility* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Application filed by end of redetermination deadline but denied due to administrative reasons* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Application accepted* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Successful redetermination 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Regained coverage 1 month after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Regained coverage 2 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Regained coverage 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Regained coverage 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Regained coverage 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Sample Size |  |  |  |  |  |  |  |  |
| ***Panel B: Engagement with the intervention*** | | | | | | | | |
| *Texted back STOP* |  |  |  |  |  |  |  |  |
| *Texted back DONE* |  |  |  |  |  |  |  |  |
| *Any text back* |  |  |  |  |  |  |  |  |
| Sample size |  |  |  |  |  |  |  |  |
| ***Panel C: SNAP and Employment Outcomes*** | | | | | | | | |
| *Enrolled in SNAP at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 1 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 9 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 1 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 9 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| *Employed (if adult) at 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Sample Size |  |  |  |  |  |  |  |  |

**Appendix Table 4: Impact of Outreach Strategy on Receipt of Messages**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Feedback from Contact Information Search Vendor | | Proxies for Receipt of Postcard | | Proxies for Receipt of Text Message | | | Proxies for Receipt of Outbound Call |
|  | Proportion of addresses likely incorrect | Proportion of phone numbers likely incorrect | Address listed was not a valid address (from mail vendor) | Individual likely did not live at that address (from search vendor) | Listed phone could not receive texts | Text bounced | Likely a wrong number (from search vendor) | Outbound call: Likely a wrong number (from search vendor) |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Overall |  |  |  |  |  |  |  |  |
| Non-Hispanic white |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |
| Tribal member |  |  |  |  |  |  |  |  |
| Prefer Spanish |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |
| Live in rural areas |  |  |  |  |  |  |  |  |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |
| If adult, case had any children |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |
| Children |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |
| Q1 |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| Lacking phone number |  |  |  |  |  |  |  |  |
| Prefer language other than English or Spanish |  |  |  |  |  |  |  |  |

## **Appendix Table 5: Accuracy of Addresses and Phone Numbers by Randomization Eligibility**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Proportion of addresses likely incorrect | | | Proportion of phone numbers likely incorrect | | |
|  | People who received a postcard because they didn’t meet criteria for randomization | People who did meet criteria for randomization | *p-*value | People who received a postcard because they didn’t meet criteria for randomization | People who did meet criteria for randomization | *p-*value |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| Overall |  |  |  |  |  |  |
| Lack Phone Number |  |  |  | N/A |  |  |
| Prefer Language other than English or Spanish |  |  |  |  |  |  |

Note: People who did not meet criteria for randomization include those without a phone number, and those who preferred a language other than English or Spanish. All other tables only include people who meet criteria for randomization and study inclusion.

## **Appendix Table 6: Treatment on the Treated Effects**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Treatment | Impact ofpostcard | Impact of any text | Impact of hotline text | Impact of chatbot text | Impact of additional reminder | Impact of outbound call | Impact of first text sent during the weekend rather than weekday | Impact of reminder text sent during the weekend rather than weekday | Impact of outbound call sent during the weekend rather than weekday | Impact of first text sent in evening rather than afternoon | Impact of reminder text sent in evening rather than afternoon | Impact of outbound call sent in evening rather than afternoon |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| ***Panel A: Application and Enrollment Outcomes*** | | | | | | | | | | | | |
| *No application filed by end of redetermination deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Application filed by end of redetermination deadline but denied due to lack of eligibility* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Application filed by end of redetermination deadline but denied due to administrative reasons* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Application accepted* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Maintenance of Medicaid enrollment at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Successful redetermination after 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Regained coverage 1 month after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Regained coverage 2 months after outreach* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Regained coverage 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Regained coverage 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Regained coverage 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Sample Size |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Panel B: Engagement with the intervention*** | | | | | | | | | | | | |
| *Texted back STOP* |  |  |  |  |  |  |  |  |  |  |  |  |
| *Texted back DONE* |  |  |  |  |  |  |  |  |  |  |  |  |
| *Any text back* |  |  |  |  |  |  |  |  |  |  |  |  |
| Sample size |  |  |  |  |  |  |  |  |  |  |  |  |
| ***Panel C: SNAP and Employment Outcomes*** | | | | | | | | | | | | |
| *Enrolled in SNAP at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 1 month after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 3 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 6 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 9 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 12 months after enrollment deadline* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 1 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 9 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Enrolled in SNAP at 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 1 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 3 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 6 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 9 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| *Employed (if adult) at 12 months after outreach if lost coverage* |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Sample Size |  |  |  |  |  |  |  |  |  |  |  |  |

**Appendix Table 7: Intent to Treat: Effect of Intervention on Characteristics of Enrollees**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | *p-*values for hypothesis tests | | | |
| Treatment | (Randomized to Hotline Text Message)*i* | (Randomized to Chatbot Text Message)*i* | (Randomized to Additional Text Reminder)*i* | (Randomized to Outbound Call)*i* | Text Message Sent During Weekend Rather Than Weekday | Outbound Call Sent During Weekend Rather Than Weekday | Text Message Sent In Evening Rather Than Afternoon | Outbound Call Sent In Evening Rather Than Afternoon |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| **Panel A: Outcome: Applied for coverage by 1 month after redetermination deadline** | | | | | | | | |
| *Race/ethnicity* | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | | | |
| Average |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | | | |
| Live in rural areas |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | | | |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |
| *Healthcare usage (proportion)* | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| **Panel B: Outcome: Enrolled at 6 months after redetermination deadline** | | | | | | | | |
| *Race/ethnicity* | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | |  |  |
| Average |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | |  |  |
| Live in rural areas |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | | | |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |
| *Healthcare usage (proportion)* | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| **Panel C. Outcome: Enrolled at 6 months after outreach, if lost coverage during the redetermination process** | | | | | | | | |
| *Race/ethnicity* | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | | | |
| Average |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | | | |
| Live in rural areas |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | |  |  |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |
| *Healthcare usage (proportion)* | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |

**Appendix Table 8: Treatment on the Treated: Effect of Intervention on Characteristics of Enrollees**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Treatment | Impact ofpostcard | Impact of any text | Impact of hotline text | Impact of chatbot text | Impact of additional reminder | Impact of outbound call | Impact of first text sent during the weekend rather than weekday | Impact of reminder text sent during the weekend rather than weekday | Impact of outbound call sent during the weekend rather than weekday | Impact of first text sent in evening rather than afternoon | Impact of reminder text sent in evening rather than afternoon | Impact of outbound call sent in evening rather than afternoon |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| **Panel A: Outcome: Applied for coverage by 1 month after redetermination deadline** | | | | | | | | | | | | |
| *Race/ethnicity* | | | | | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | | | | | | | |
| Average |  |  |  |  |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | | | | | | | |
| Live in rural areas |  |  |  |  |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | | | | | | | |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare usage ( proportion)* | | | | | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |
| **Panel B: Outcome: Enrolled at 6 months after redetermination deadline** | | | | | | | | | | | | |
| *Race/ethnicity* | | | | | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | | | | | | | |
| Average |  |  |  |  |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | | | | | | | |
| Live in rural areas |  |  |  |  |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | | | | | | | |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare usage (proportion)* | | | | | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |
| **Panel C. Outcome: Enrolled at 6 months after outreach, if lost coverage during the redetermination process** | | | | | | | | | | | | |
| *Race/ethnicity* | | | | | | | | | | | | |
| Non-Hispanic white |  |  |  |  |  |  |  |  |  |  |  |  |
| Any racial/ethnicity minority group |  |  |  |  |  |  |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |  |  |  |  |  |  |
| Hispanic |  |  |  |  |  |  |  |  |  |  |  |  |
| Asian or Pacific Islander |  |  |  |  |  |  |  |  |  |  |  |  |
| *Tribal membership* | | | | | | | | | | | | |
| Tribal member |  |  |  |  |  |  |  |  |  |  |  |  |
| *Language preference* | | | | | | | | | | | | |
| Prefer Spanish |  |  |  |  |  |  |  |  |  |  |  |  |
| *Age in years* | | | | | | | | | | | | |
| Average |  |  |  |  |  |  |  |  |  |  |  |  |
| <18 |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-25 |  |  |  |  |  |  |  |  |  |  |  |  |
| 26-49 |  |  |  |  |  |  |  |  |  |  |  |  |
| 50-64 |  |  |  |  |  |  |  |  |  |  |  |  |
| 65+ |  |  |  |  |  |  |  |  |  |  |  |  |
| *Urban/rural (proportion)* | | | | | | | | | | | | |
| Live in rural areas |  |  |  |  |  |  |  |  |  |  |  |  |
| *Employment* | | | | | | | | | | | | |
| Employed at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| Logged quarterly wages at baseline if adult |  |  |  |  |  |  |  |  |  |  |  |  |
| *SNAP eligibility* | | | | | | | | | | | | |
| Enrolled in SNAP at baseline |  |  |  |  |  |  |  |  |  |  |  |  |
| *Income* | | | | | | | | | | | | |
| Average baseline income of enrollees |  |  |  |  |  |  |  |  |  |  |  |  |
| Below median household income |  |  |  |  |  |  |  |  |  |  |  |  |
| Case had childless adults with baseline household income >50% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| If adult, case had enrolled children with baseline household income >200% FPL |  |  |  |  |  |  |  |  |  |  |  |  |
| *Children in case* | | | | | | | | | | | | |
| If adult, case had any children |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare spending* | | | | | | | | | | | | |
| Average baseline health care costs (raw) |  |  |  |  |  |  |  |  |  |  |  |  |
| Average baseline health care costs (logged) |  |  |  |  |  |  |  |  |  |  |  |  |
| Baseline health care costs above sample median |  |  |  |  |  |  |  |  |  |  |  |  |
| *Healthcare usage (proportion)* | | | | | | | | | | | | |
| Medicaid-covered usage of inpatient care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Medicaid-covered usage of mental health or psychiatric care during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| Chronic conditions, measured using the Chronic Conditions Warehouse algorithm using their claims during the Medicaid continuous enrollment policy period |  |  |  |  |  |  |  |  |  |  |  |  |
| *Reason for Medicaid eligibility at baseline* | | | | | | | | | | | | |
| Children |  |  |  |  |  |  |  |  |  |  |  |  |
| Aged/Disabled |  |  |  |  |  |  |  |  |  |  |  |  |
| Pregnant |  |  |  |  |  |  |  |  |  |  |  |  |
| Parents |  |  |  |  |  |  |  |  |  |  |  |  |
| Adult without dependent children |  |  |  |  |  |  |  |  |  |  |  |  |
| Extensions |  |  |  |  |  |  |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |  |  |  |  |  |  |
| *Duration of coverage at baseline* | | | | | | | | | | | | |
| Q1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Q4 |  |  |  |  |  |  |  |  |  |  |  |  |
| Enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |
| Not enrolled long enough to have been required to do a prior redetermination |  |  |  |  |  |  |  |  |  |  |  |  |

# Appendix B. Details of the Intervention

## **Part A. Text message content**

|  |  |  |
| --- | --- | --- |
|  | **Hotline Group** | **Chatbot Group** |
| Message A Initial Text—iC only | Hi, this is nonprofit Covering WI, for the WI Dept of Health Services. Time to reapply for BadgerCare or Medicaid! To get free help near you, call 877-942-6837 or visit www.coveringwi.org.  Text DONE if you already applied. STOP to end. Msg & Data Rates May Apply. | Hi, this is nonprofit Covering WI, for the WI Dept of Health Services. Time to reapply for BadgerCare or Medicaid! To get free help near you, text COVER to 920-507-5295 or visit www.coveringwi.org.  Text DONE if you already applied. STOP to end. Msg & Data Rates May Apply. |
| Message A Reminder Text—iC only | Don’t forget it’s time to reapply for BadgerCare or Medicaid! Call 877-942-6837 or visit coveringwi.org to get free local help.  Text DONE if you already applied. STOP to end. | Don’t forget it’s time to reapply for BadgerCare or Medicaid! Text COVER to 920-507-5295 or visit coveringwi.org to get free local help.  Text DONE if you already applied. STOP to end. |
| Message A Initial Text—regular monthly renewals | Hi, this is nonprofit Covering WI for the WI Dept of Health Services. Time to renew your BadgerCare or Medicaid! To get free help near you, call 877-942-6837 or visit www.coveringwi.org.  Text DONE if you already renewed. STOP to end. Msg & Data Rates May Apply. | Hi, this is nonprofit Covering WI for the WI Dept of Health Services. Time to renew your BadgerCare or Medicaid! To get free help near you, text COVER to 920-507-5295 or visit www.coveringwi.org.  Text DONE if you already renewed. STOP to end. Msg & Data Rates May Apply. |
| Message A Reminder Text—regular monthly renewals | Don’t forget it’s time to renew your BadgerCare or Medicaid! Call 877-942-6837 or visit coveringwi.org to get free local help.  Text DONE if you already renewed. STOP to end. | Don’t forget it’s time to renew your BadgerCare or Medicaid! Text COVER to 920-507-5295 or visit coveringwi.org to get free local help.  Text DONE if you already renewed. STOP to end. |
| Message B Initial Text | Lost your BadgerCare or Medicaid? Hi, this is nonprofit Covering WI for the WI Dept of Health Services. For free help finding low-cost health insurance, call 877-942-6837 or visit www.coveringwi.org/GetHelp.  Text DONE if you already have health insurance. STOP to end. Msg & Data Rates May Apply. | Lost your BadgerCare or Medicaid? Hi, this is nonprofit Covering WI for the WI Dept of Health Services. For free help finding low-cost health insurance, text COVER to 920-507-5295 or visit www.coveringwi.org/GetHelp.  Text DONE if you already have health insurance. STOP to end. Msg & Data Rates May Apply. |
| Message B Reminder Text | Don’t forget! If you lost BadgerCare or Medicaid, we can help you find other low-cost health insurance. For free local help, call 877-942-6837 or visit www.coveringwi.org.  Text DONE if you already have health insurance. STOP to end. | Don’t forget! If you lost BadgerCare or Medicaid, we can help you find other low-cost health insurance. For free local help, text COVER to 920-507-5295 or visit www.coveringwi.org.  Text DONE if you already have health insurance. STOP to end. |
| Auto-Reply: DONE | Thank you for letting us know! If you have questions or need help with your insurance, call us at 877-942-6837 or visit www.coveringwi.org. | Thank you for letting us know! If you have questions or need help with your insurance, text COVER to 920-507-5295 or visit www.coveringwi.org. |
| Auto-Reply: [Other text] | Thanks for your reply, but we don’t check this inbox. Call us at 877-942-6837 if you want to talk. Or visit www.coveringwi.org. Text STOP to end. | Thanks for your reply, but we don’t check this inbox. Text COVER to 920-507-5295 if you want to talk. Or visit www.coveringwi.org. Text STOP to end. |
| Auto-Reply: [Inbound Voice call to text number] | Thanks for your reply, but this number doesn’t take calls. Call us at 877-942-6837 if you want to talk. Or visit www.coveringwi.org. | Thanks for your reply, but this number doesn’t take calls. Text COVER to 920-507-5295 if you want to talk. Or visit www.coveringwi.org. |
| Auto-Reply: STOP | You have opted out. Covering Wisconsin will stop sending you texts. | |

## **Part B. Postcard content**

|  |
| --- |
| FRONT  Worried about losing health insurance? [*Second round of outreach cards use instead this text:*Need help with health insurance?]  Get **free local help** to renew, apply for coverage, or find financial help  [CWI logo] (877) 942-6837 |
| BACK  Covering Wisconsin is a nonprofit program of UW Extension that helps people in Wisconsin find and use health insurance.  Our federal and state-licensed Health Insurance Navigators provide free help to:  • Help you apply or renew  • Know your plan options  • Solve billing or coverage questions  • Find financial help available to you  To learn more:  (877) 942-6837  [www.coveringwi.org](http://www.coveringwi.org) [landing page URL tk]  [QR code] Scan with your phone camera |
|  |

## **Part C. Outbound Call Auto-Dial Messages**

|  |  |  |
| --- | --- | --- |
|  | ENGLISH | SPANISH |
| Message IC only | Hi, this is the non-profit Covering Wisconsin for the Wisconsin Department of Health Services **calling to remind you it’s time to reapply for BadgerCare or Medicaid.**  Covering Wisconsin is Wisconsin’s state-license health insurance navigator agency. Navigators provide free help in the community with finding ways to pay for health care. We can help you to renew, find financial help, or solve billing and coverage questions.  Give us a call at 1-877-WI-COVER. That is 1-877-942-6837, if you want more information. You can also visit us online at coveringwi.org. Thank you! | Hola, somos Covering Wisconsin, una organizacion sin fines de lucro para el Departamento de Servicios de Salud de Wisconsin. **Estamos llamando para recordarle que es hora de volver a solicitar BadgerCare o Medicaid.**  Covering Wisconsin es la agencia de navegación de seguros de salud con licencia estatal de Wisconsin. Los navegadores brindan ayuda gratuita en la comunidad para encontrar formas de pagar la atención médica. Podemos ayudarle a renovar, encontrar ayuda financiera o resolver preguntas sobre facturación y cobertura.  Llámenos al 1-877-WI-COVER. Eso es 1-877-942-6837. Si desea obtener más información, también puede visitarnos en línea en www.coveringwi.org. ¡Gracias! |
| Message A (regular monthly renewals) | Hi, this is the non-profit Covering Wisconsin for the Wisconsin Department of Health Services **calling to remind you it’s time to renew your BadgerCare or Medicaid.**  Covering Wisconsin is Wisconsin’s state-licensed health insurance navigator agency. Navigators provide free help in the community with finding ways to pay for health care. We can help you to renew, find financial help, or solve billing and coverage questions.  Give us a call at 1-877-WI-COVER. That is 1-877-942-6837, if you want more information. You can also visit us online at coveringwi.org. Thank you! | Hola, somos Covering Wisconsin, una organizacion sin fines de lucro para el Departamento de Servicios de Salud de Wisconsin. **Estamos llamando para recordarle que es hora de renovar su BadgerCare o Medicaid.**  Covering Wisconsin es la agencia de navegación de seguros de salud con licencia estatal de Wisconsin. Los navegadores brindan ayuda gratuita en la comunidad para encontrar formas de pagar la atención médica. Podemos ayudarle a renovar, encontrar ayuda financiera o resolver preguntas sobre facturación y cobertura.  Llámenos al 1-877-WI-COVER. Eso es 1-877-942-6837. Si desea obtener más información, también puede visitarnos en línea en www.coveringwi.org. ¡Gracias! |
| Message B (transition help) | Hi, this is the non-profit Covering Wisconsin for the Wisconsin Department of Health Services. Covering Wisconsin is Wisconsin’s state-licensed health insurance navigator agency. Navigators provide free help in the community with finding ways to pay for health care. We can help you to renew, find financial help, or solve billing and coverage questions.  **Right now, many people need help finding new health insurance—and we’re here to help.**  Give us a call at 1-877-WI-COVER. That is 1-877-942-6837, if you want more information. You can also visit us online at coveringwi.org. Thank you! | Hola, somos Covering Wisconsin, una organizacion sin fines de lucro para el Departamento de Servicios de Salud de Wisconsin. Covering Wisconsin es la agencia de navegación de seguros de salud con licencia estatal de Wisconsin. Los navegadores brindan ayuda gratuita en la comunidad para encontrar formas de pagar la atención médica. Podemos ayudarle a renovar, encontrar ayuda financiera o resolver preguntas sobre facturación y cobertura  **En este momento, muchas personas necesitan ayuda para encontrar un nuevo seguro de salud, y estamos aquí para ayudar.**  Llámenos al 1-877-WI-COVER. Eso es 1-877-942-6837. Si desea obtener más información, también puede visitarnos en línea en www.coveringwi.org. ¡Gracias! |

1. During May, the first month of study implementation, the timing will be compressed because messages will be sent out closer to the deadline (May 15-29 for an action deadline of May 31). In this case, the postcards are sent to the mail vendor on May 15, the first text messages sent out during days 1-5 (May 15-19), then outbound calls over days 6-10 (May 20-24), and reminder text messages over days 11-15 (May 25-29). [↑](#footnote-ref-1)
2. The full set of Medicaid eligibility categories we track at the household level include whether anyone in the household is eligible for Medicaid through the following pathways: being a child, being aged/disabled, being pregnant, being a parent of a dependent child, or adult without dependent children who meet relevant eligibility criteria. We also separately track the “transitional medical assistance” population, i.e., those with a time-limited extension of Medicaid eligibility for 12 months due to an increase in earned income or a change in family structure that would otherwise make them income-ineligible. [↑](#footnote-ref-2)
3. Rural/urban residency was determined using USDA Rural-Urban Continuum Codes.31 Counties were defined as rural if coded as 8 or 9 and defined as urban if coded 1-7. [↑](#footnote-ref-3)