



# Use of Text Messaging to Increase Response Rates

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# Introduction

- Survey response rates have greatly declined in the past decade, causing researchers to seek new ways to increase participation.
- The Connecticut Department of Health (CT DPH) and ICF International conducted two pilot studies in 2012 using text messages to
  1. Increase response rates to the Behavioral Risk Factor Surveillance System (BRFSS) Cell phone Survey, and
  2. Increase participation in the BRFSS Non-Response Web Follow-up Survey.

# Behavioral Risk Factor Surveillance System (BRFSS)



- The Centers for Disease Control and Prevention (CDC) established the state-level BRFSS in 1984. By 1994, all states and US territories are participating.
  - In order to increase response to the landline survey, many states have adopted the use of advance letters to notify landline respondents whose phone numbers have been matched to an address of the upcoming BRFSS call.
  - Cell Phone numbers are unlisted and therefore cannot be matched to addresses. As a result, cell phone respondents do not receive advance letters, nor do they receive the mailed invitation to participate in the BRFSS Web Survey.

# Research Questions

- Does sending a text message to cell phone sample in advance of upcoming calls increase response to the cell phone survey?
- Does sending a text message to cell phone non-responders inviting them to complete the Web Survey increase web survey participation?
- Are respondents who participate after receiving a text message different from other respondents?

# Methods – Using Text Messages as Advance Notification to Cell Survey

# Advance Text Messages to Cell Phone Sample



- Divided Cell Phone sample from October 2012-March 2013 into 3 groups:
  - *Group 1: text invitation + \$10 incentive.*
    - Group 1 Text Message (269 Characters): *You have been selected to participate in an important survey sponsored by the CT Dept. of Public Health and CDC. Please answer a call from 802-264-3580. As a thank you, we will give you a \$10 Amazon.com gift code or \$10 in cash by mail after you complete an interview.*
  - *Group 2: text invitation, no incentive.*
    - Group 2 Text Message (152 Characters): *You have been selected to participate in an important survey sponsored by the CT Dept. of Public Health and CDC. Please answer a call from 802-264-3580.*
  - *Group 3, the control group, did not receive a text message.*

# Advance Text Messages to Cell Phone Sample



## Questions added to CATI survey for Groups 1 and 2:

1. Prior to our call today, we sent a text message to potential cell phone survey participants. Did you receive a text message about this interview?

- 1 Yes
- 2 No
- 7 Don't Know
- 9 Refused

# Advance Text Messages to Cell Phone Sample



## Questions added to CATI survey:

- If Group = 1 (incentive) and Q1 = 1 (recall text), Q2 was asked.

Q2. In appreciation for the time you have spent answering our questions, we would like to provide you with \$10 in compensation. Would you like to give us your address so that we can mail you the payment, or would you rather I give you a \$10 Amazon.com gift code now?

01 Agree to give address information

02 Amazon.com gift code

99 Refused \$10



# **Results - Using Text Messages as Advance Notification to Cell Survey**

# Advance Text Message to Cell Phone Sample



- Sample Size: A total of 35,460 text messages were sent
- Of the 35,460 texts sent, 73 replied to opt out of the survey, or 0.2%
- The method of incentive preferred was the gift code.

Pilot Group	Sample	Incentive Mode	Percent
1. Advance text with Incentive	11,492	Preferred Cash Incentive	44%
2. Advance text without Incentive	11,666	Preferred Gift Code	53%
3. No advance text	12,302	Refused Incentive	3%

# Advance Text Message to Cell Phone Sample



Pilot Group	Cooperation Rate	Refusal Rate	CASRO Rate
1. Advance text with Incentive	63.0%	9.1%	23.4%
2. Advance text without Incentive	61.8%	8.6%	23.0%
3. No advance text	59.4%	10.4%	22.5%

- While Group 1 had the highest response and cooperation rates, none of the differences were significant.



# Advance Text Message to Cell Phone Sample



Text Group	Recall Getting the Text Message	Did Not Recall Getting Text Message	DK if Received Text Message	Refused
Advance text with Incentive	35%	55%	9%	1%
Advance text without Incentive	31%	58%	10%	1%
Total	33%	56%	10%	1%

These differences were not significant, (P=.7377).

# Methods – Using Text Messages as an Invitation to Web Survey

# Text Message Invitation to Web Survey



- In 2012, CDC conducted a Web Pilot for the BRFSS Survey, in which landline survey non-responders received a letter inviting them to complete the Web survey.
- During August and September of 2012, ICF conducted a pilot in which we sent a text message to non-responders of the CT BRFSS Cell Phone Survey, asking them to complete the Web-based BRFSS survey.
- Individuals were also given the option to opt out of future messages.
- Approximately one week after the first text message was sent, a reminder text was sent, excluding any respondents who opted out.

# Text Message Invitation to Web Survey



- Group 1 was sent a text invitation that offered a \$10 Amazon.com gift code for completing the survey.
- **Text 1** (160 characters): Participate in the CT Dept. of Public Health & CDC Study, receive \$10 gift code  
<https://www.healthdepartmentsurvey.org/> Login ID CT8xxxxx Reply STOP to opt out.
- **Text 2** (132 characters): As a thank you, we will send you a text containing a \$10 Amazon.com gift code approximately 4-8 weeks after you complete the survey.



# Text Message Invitation to Web Survey



- Group 2 received the text invitation with no incentive offer.
- **No Incentive Group (136 characters):** Participate in the CT Dept. of Public Health & CDC Study <https://www.healthdepartmentsurvey.org/>  
Login ID CT7xxxxx Reply STOP to opt out
- One week later, the same text was sent as a reminder to all who had not opted out.
- **Incentive delivery text:** Thank you for participating in the CT Dept. of Health and CDC study. Your \$10 Amazon.com gift code is: xxx-xxxxxx-XXXX.

# Results - Using Text Messages as an Invitation to Web Survey

# Text Message Invitation to Web Survey

	Text Invitations Sent	Web Surveys Completed	Percent Completed
<b>Group 1: With Incentive</b>	<b>2,424</b>	<b>26</b>	<b>1.1%</b>
<b>Group 2: Without Incentive</b>	<b>2,423</b>	<b>10</b>	<b>0.4%</b>
<b>Total</b>	<b>4,847</b>	<b>36</b>	<b>0.7%</b>

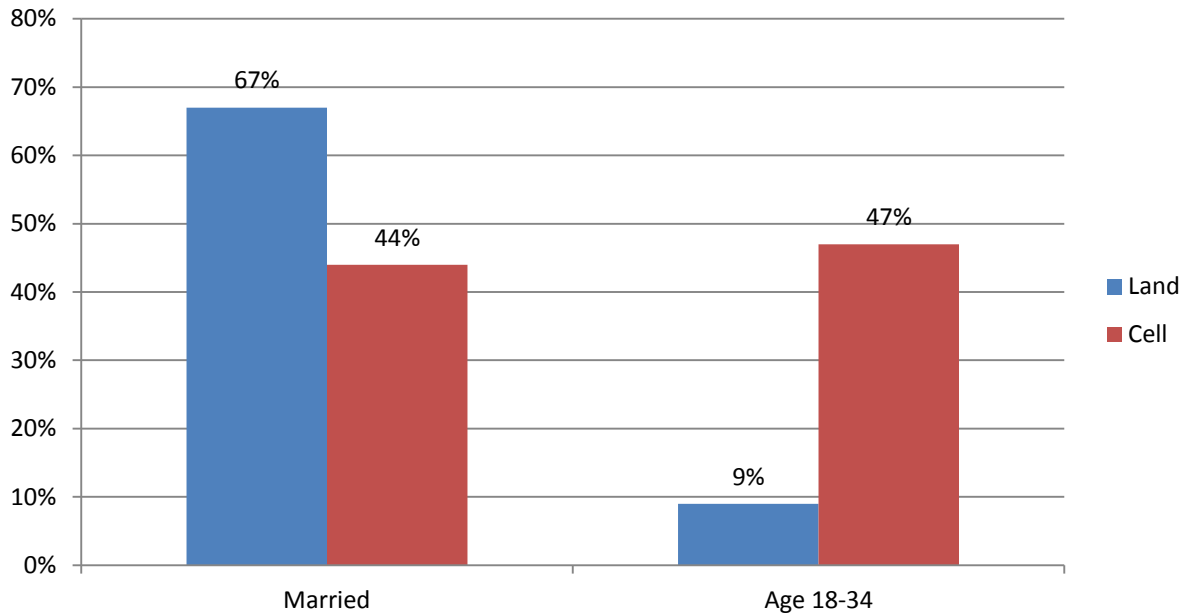
Mail Invitations Sent	Web Surveys Completed	Percent Completed
3,208	263	8.2%

# Text Message Invitation to Web Survey

- Demographic data was then compared between web respondents recruited by mail (landline non-respondents), and those recruited via text messages (cell phone non-respondents).
- Marital status and age had significant associations between the mail and text recruitment modes.
  - 31% more non-married completes came from the group recruited by text with incentive, then text without incentive or mailing groups. However, only the mail vs. text recruitment groups had a significant difference ( $P=0.0091$ ). The text recruitment group did not show significance ( $P=0.1121$ ) however this is likely due to having such a small sample size in the text group.
  - The groups recruited via text had 38% more 18-34 year olds as compared to the group recruited by mail. ( $P<0.001$ )



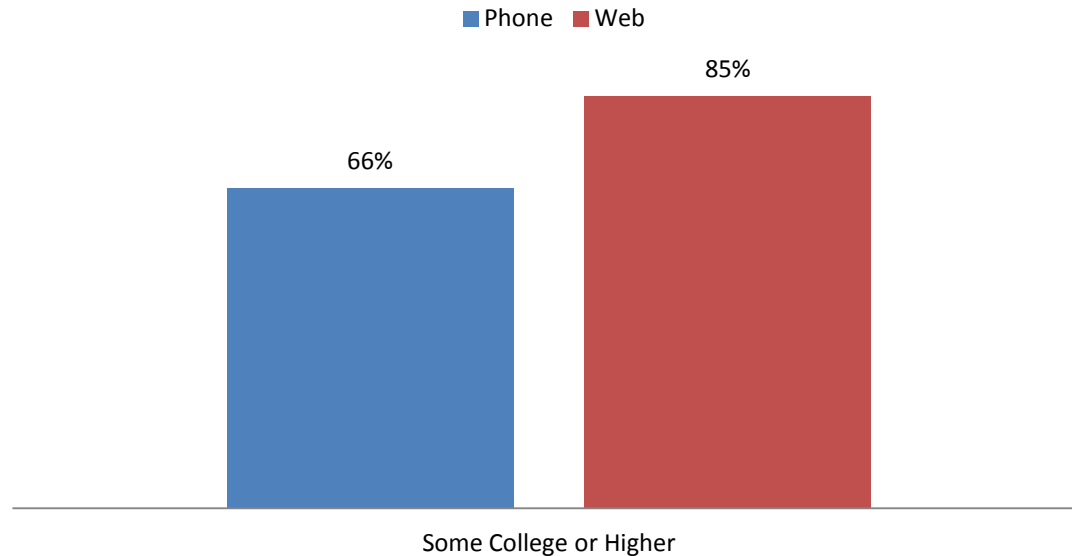
### Web Survey Demographics by Land and Cell Recruitment Mode



# Analysis of Demographics of Cell Sample by Mode of Completion



### Education Level of Cell Phone Sample by Mode of Completion – Phone vs. Web



Education was the only category that showed a significant difference between phone and web survey modes.

# Results – Costs of Text Messages

- Cost of sending text messages is high.
  - Cost per complete to send advance text messages =  $1.038\%X$ , if  $X$ = the current cost of a BRFSS cell phone complete.
  - Cost per complete to send text message invitations to the web survey =  $1.277\%X$ , if  $X$ = the current cost of a BRFSS web survey complete using a mail invitation.

# Conclusions



# Conclusion - Summary

- Advance Text Message and Cell Survey Response
  - None of the increases in response were statistically significant.
  - Text messages with and without incentives are an option for improving cell response, but alone may not provide a significant increase. It may be worthwhile to consider text message notification and incentives, combined with other efforts to increase cell response.
  - There were some between group differences on income. Texts with and without incentives may be considered if specific income groups are being targeted.

# Conclusion - Summary

- Text Invites to Web Survey
  - A small number of completes were obtained through the text invitation, resulting in a total increase in Web participation of 13.7%. Using text message invitations means participation from people who otherwise would not have been reached. The additional cost required to send the text messages is considerable compared to the low number of completes that were obtained.
  - There was a between group difference on marital status. Invitations by text message with incentives may be used to increase response from unmarried respondents. Also, recruiting Web respondents via cell phone produced a higher number of respondents with at least some college education.

# Limitations

# Limitations of the Text Pilots



- Did the text go through? Some carriers can block our outgoing number without us knowing.
- For the invitation to the Web survey, the survey itself was not created to be viewed on smartphones. We may have lost some participation from respondents that could not view the survey directly on their phone.
- Sending the advance text messages to cell phones had an effect on the CATI center schedule, as we had to delay the start of calling monthly sample while we sent text messages and gave 24 hours to remove any who replied “stop” to opt out of the survey.

# Additional Study/Next Steps

- ICF and the Centers for Disease Control and Prevention conducted a Feasibility Pilot of Smartphone data collection in 2013.
- The study was designed to explore whether and how smartphones can be used to collect population-based public health and behavior data . Findings from this pilot study will be presented to1) provide insights into the feasibility of using mobile devices in public health surveillance; 2) address methodological issues such as response bias, coverage bias, data quality, and costs; and 3) present preliminary outcomes.
- Piloting additional studies with more data collection time points and the possibility of a larger overall incentive would be helpful in determining how best to implement this type of data collection effort and retain respondents over time.

