

# **The CAHPS Hospital, CAHPS Hospice, and MA/PDP CAHPS Surveys: Lessons Learned from Recent Mode Experiments**

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# CAHPS Hospital, CAHPS Hospice, and MA/PDP CAHPS Randomized Experiments



- The CAHPS Hospital (HCAHPS), CAHPS Hospice, and MA/PDP (Medicare Advantage and Prescription Drug Plan) CAHPS projects all recently conducted randomized experiments evaluating Web-first protocols with the hope of increasing response rates (RRs) and representativeness
- HCAHPS and CAHPS Hospice also examined extending 42-day field periods to 49 days
- CAHPS Hospice tested use of a prenotification letter

# HCAHPS Background: Many Patient Groups Have Lower Survey Response Rates



- HCAHPS is the first national, standardized, publicly reported survey of patient experience with hospital care
- Surveys in general, including HCAHPS, often have lower response rates (RRs) for adults who are Asian American and Native Hawaiian/Pacific Islander (AA & NHPI), Black, Hispanic, and younger
- Methods that improve RRs for these groups are important to ensure that patient experiences surveys:
  - ▶ Fully capture the experiences of all patients
  - ▶ Adequately measure health equity and equity-targeted quality improvement efforts
- Because these groups tend to have lower RRs, any effort that improves their RR is likely to improve overall representativeness

# We Investigated Two Approaches to Increasing Representation of Groups with Lower Response Rates

- Sequential multimode approaches increase RRs and representativeness
  - ▶ Different patients have different preferred modes of response
  - ▶ Providing 2 or more modes sequentially allows patients to respond in their preferred mode
  - ▶ Here we evaluate one 3-mode protocol, three 2-mode protocols, and two single-mode protocols
- Longer data collection periods have several potential benefits
  - ▶ They facilitate multimode protocols
  - ▶ They may increase RR
  - ▶ They may increase representativeness
  - ▶ Here we test a 49-day data collection period and compare respondents in the last week to those in the first 42 days

# 2021 HCAHPS Mode Experiment Design

- 46 participating hospitals
  - ▶ Sampled 36,001 patient discharges from April 1 to September 30, 2021
  - ▶ Patients Age 18+, overnight stay, surgical/maternity/medical service lines, etc.
  - ▶ 63% of patients provided email addresses
  - ▶ Patients randomized within each hospital to 1 of 6 modes
  - ▶ As in previous HCAHPS mode experiments, survey administration was in English
- Used a 49-day, rather than 42-day field period
- Randomized experiments help compare the representativeness of survey modes
  - ▶ HCAHPS collects self-reported race/ethnicity, but only from respondents
  - ▶ A randomized experiment can show relative differences in RRs by race/ethnicity de-identified data such as HCAHPS

# Mode Experiment Schedule of Contacts

Mode Day	Mail Only	Phone Only	Mixed Mode	Web-Mail	Web-Phone	Web-Mail-Phone
1	Mail 1 <sup>st</sup> survey	Begin phone calls	Mail survey	Email 1 <sup>st</sup> invitation	Email 1 <sup>st</sup> invitation	Email 1 <sup>st</sup> invitation
3				Email 2 <sup>nd</sup> invitation		
4					Email 2 <sup>nd</sup> invitation	Email 2 <sup>nd</sup> invitation
6				Email 3 <sup>rd</sup> invitation		Mail survey
7					Email 3 <sup>rd</sup> invitation	
8				Mail 1 <sup>st</sup> survey		
10					Begin phone calls	
21	Mail 2 <sup>nd</sup> survey					
28			Begin phone calls			Begin phone calls
30				Mail 2 <sup>nd</sup> survey		
49	End data collection	End data collection	End data collection	End data collection	End data collection	End data collection

# 2021 HCAHPS Mode Experiment Response Rates

Survey Administration Protocol	Response Rate
<b>Current HCAHPS Modes</b>	
Mail Only	22%
Phone Only	23%
Mail-Phone	31%
<b>Web-first Modes</b>	
Web-Mail	29%
Web-Phone	30%
Web-Mail-Phone	36%

- Adding web increased RRs
- Single mode-protocols had the lowest RRs

# 2021 HCAHPS Mode Experiment Response Rates by Email Availability

Survey Administration Protocol	RR, no available email address	RR, email address available
<b>HCAHPS Legacy Modes</b>		
Mail Only	21%	24%
Phone Only	20%	23%
Mail-Phone	26%	34%
<b>Web-first Modes</b>		
Web-Mail	20%	34%
Web-Phone	19%	37%
Web-Mail-Phone	29%	40%

- Email availability is associated with higher RRs, even for non-web survey modes
- Email availability increases RRs especially for web-first survey modes



# Multimode Protocols Improve RR and Representativeness: Race and Ethnicity

- Web-Mail-Phone had the highest yield for 3 of 5 racial and ethnic groups (and the second highest for another) because of its high representativeness and overall RR
- Otherwise, the highest or second-highest yield was almost always a 2-mode protocol
- Mail Only was the lowest-yield mode for Black, Hispanic, and Multiracial patients; Phone Only was lowest-yield for White patients, and these modes tie as lowest-yield for AA&NHPI patients
- The gains from multimode approaches are often 2-3x as large for AA&NHPI, Black, Hispanic, and Multiracial patients as for White patients

# Multimode Protocols Improve RR and Representativeness: Age

- Web-Mail-Phone had the highest yield for 6 of 8 age groups and the second highest yield for the other two age groups
- Otherwise, the highest or second-highest yield was almost always a 2-mode protocol
  - ▶ Web-Phone was especially successful for ages 18-64
  - ▶ Web-Mail was especially successful for ages 65-84
- Mail Only had the lowest yield for ages 18-54
- Phone Only had the lowest yield for ages 55+

# Multimode Protocols Improve RR and Representativeness: Service Line and Sex

- Web-Mail-Phone had the highest yield for 4 of 5 combinations of service line and sex and the second highest yield for the other group
- Otherwise, the highest or second-highest yield was always a 2-mode protocol
  - ▶ Web-Mail did especially well for surgical patients
  - ▶ Web-Phone did especially well for maternity patients
  - ▶ Mail-Phone did especially well for medical patients
- Mail Only had the lowest yield for maternity patients
- Phone Only had the lowest yield for medical and surgical patients

# Best and Worst RRs by Patient Characteristics

Characteristic	Lowest RR/Yield	Highest RR/Yield
<b>Age</b>		
18 - 24	Mail Only	Web-Phone
25 - 54	Mail Only	Web-Mail-Phone
55 - 84	Phone Only	Web-Mail-Phone
85+	Phone Only	Web-Mail
<b>Race and Ethnicity</b>		
AA&NHPI	Mail Only & Phone Only	Mail-Phone & Web-Mail
Black, Hispanic	Mail Only	Web-Mail-Phone
White	Phone Only	Web-Mail-Phone
<b>Service Line x Sex</b>		
Maternity	Mail Only	Web-Mail-Phone
Medical, Surgical (Both Female & Male)	Phone Only	Web-Mail-Phone

# Extending HCAHPS Data Collection Period from 42 to 49 Days Improves Representation of Underrepresented Groups



- HCAHPS currently allows patients 42 days after first contact to respond
- We tested a 49-day data collection period and compared the final week (days 43-49) to the first 42 days
  - ▶ All modes showed meaningful gains in RR in the last week (average +3 pp)
  - ▶ Largest gains were for underrepresented groups
    - Racial and ethnic minority respondents were 51% of last-week respondents vs. 40% of earlier respondents
    - Those preferring another language to English were 13% of last-week respondents vs. 10% of earlier respondents.
    - Later responses to patient experience surveys are also known to capture poorer care experiences than earlier responses

# HCAHPS Summary

- For HCAHPS, the gains from multimode approaches were often 2-3x as large for AA&NHPI, Black, Hispanic, and Multiracial people as for White people
- Mail Only mode had the lowest yield for Black, Hispanic, Multiracial, age 18-54, and maternity patients
- Phone Only mode had the lowest yield for White, age 55+, medical, and surgical patients
- Web-Mail-Phone had the highest yield for most groups
- Among two-mode protocols:
  - ▶ Web-Phone was especially successful for maternity and age 18-64 patients
  - ▶ Web-Mail was especially successful for surgical and age 65-84 patients
  - ▶ Mail-Phone was especially successful for medical patients
- While multimode approaches consistently outperform single mode approaches, the most effective survey modes for a given hospital will depend upon its patient population

# MA/PDP CAHPS Field Test Schedule of Contacts



Field Day	Arm 1 (Web+Mail+Phone) (Experimental Arm)	Arm 2 (Mail+Phone) (Standard Arm)
1	Pre-notification letter (includes URL and PIN code)	Pre-notification letter
5	Web invitation letter (email & paper)	W1 Survey Packet
9	Web reminder letter (email only)	N/A
14	W1 Survey Packet	N/A
34	W2 Survey Packet	W2 Survey Packet
57	Begin Outbound CATI	Begin Outbound CATI
95	End Data Collection	End Data Collection

25 contracts, 5712 enrollees,  
33% email address availability

# Web-First Protocol Improved RR Only Among Those for Whom an Email Address Was Available

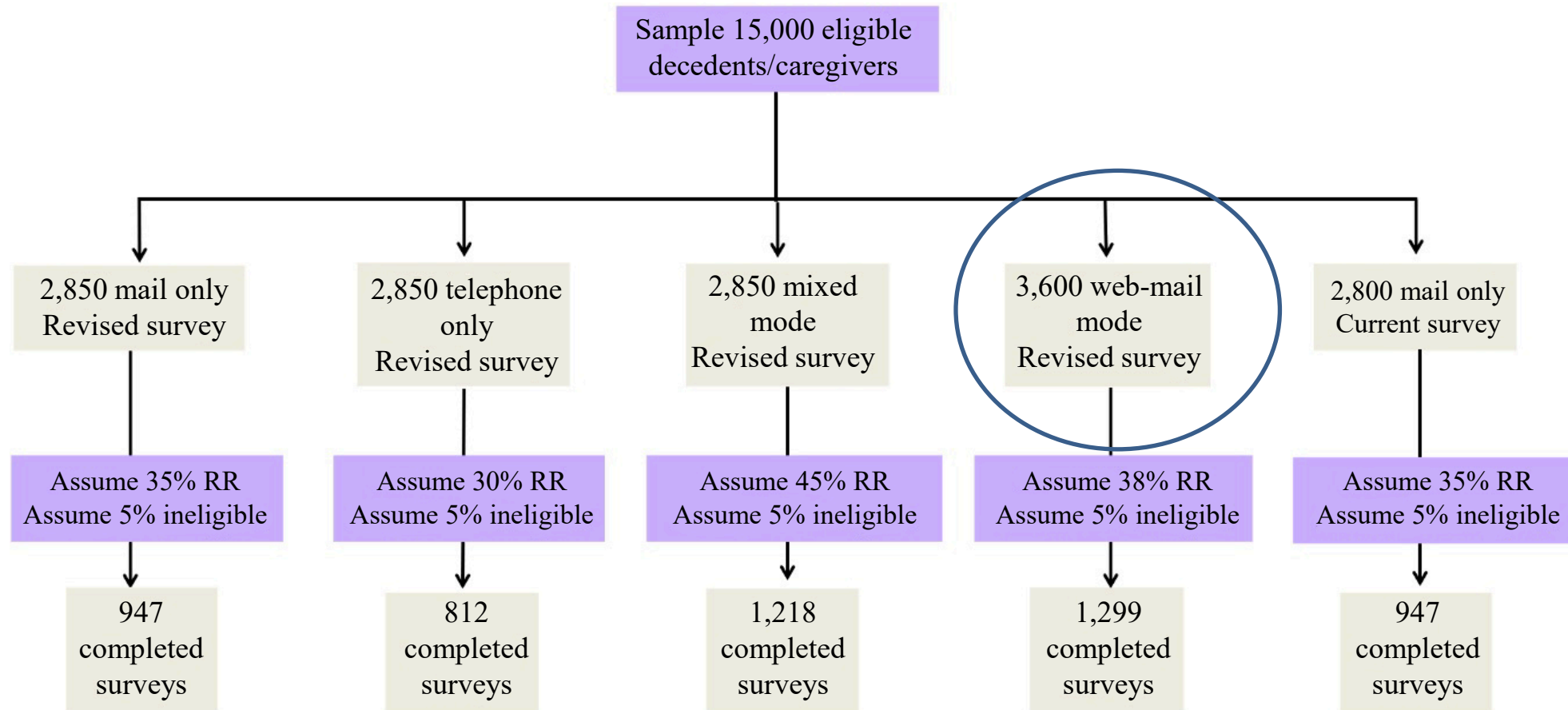
- Web-Mail-Phone provided similar overall RR
  - MA Mail-Phone 39.4%; MA Web-Mail-Phone 40.5%,  $p=0.434$ ;
  - PDP Mail-Phone 41.5%, PDP Web-Mail-Phone 42.0%,  $p=0.73$ .
- **However, RRs increased significantly ( $p<0.05$ ), by 4.3 percentage points, among those for whom email addresses were available**
- There was a 5% reduction in the Wave 1 survey mailing volume in the Web-Mail-Phone arm due to completes received via web.
  - ▶ Subsequent web completes removed 1% of the sample from the Wave 2 mailing.
- The proportion of the sample requiring phone follow up was similar for both arms (72% for Web-Mail-Phone, 73% for Mail-Phone).



# Web Responses Replace Responses from More Expensive Modes

- In Web-first approach, some enrollees who would have completed the survey by mail instead completed the survey by web
  - ▶ No evidence that web responses came from those who would have responded by phone
  - ▶ No statistically significant differences in the characteristics of Web-Mail-Phone vs. Mail-Phone respondents.
- In Arm 1, 4.9% of respondents responded by Web via the paper invitation (all without an email address)
  - ▶ Of those with an email address, 9.6% responded via one of the email invitations; none responded via the URL printed in the pre-notification letter.
  - ▶ Of those without an email address, phone RRs stayed the same, but mail RRs fell by an amount that compensated for the Web responses to the paper invitation, suggesting a substitution of web for mail.
  - ▶ Potential for more impact with more email address availability

# CAHPS Hospice design was composed of five arms



*Half of the cases within each hospice and arm were randomly selected to receive a prenotification letter one week before initiation of survey administration.*

# Survey eligibility and administration followed national implementation protocols for existing modes

- 56 large participating hospices were diverse with regard to census region, profit status, and past performance on the CAHPS Hospice Survey
- Prenotification letters were sent 7 days before data collection for a randomized half of the sample in each hospice/arm
- Web-mail mode consisted of:
  - ▶ Initial email inviting respondents to complete survey by web
  - ▶ After initial email:
    - Email reminder to non-respondents two days later
    - Mail survey to non-respondents four days later
    - Second mail survey to non-respondents 21 days later

With 31.4% email availability, web-mail is +4.6 pp vs. mail only

**Table S.2. Estimated Response Rates by Arm, 42-Day Field Period**

	<b>Arm 1: Mail only; revised survey</b>	<b>Arm 2: Telephone only; revised survey</b>	<b>Arm 3: Mail- telephone; revised survey</b>	<b>Arm 4: Web-mail; revised survey</b>
Estimated Response Rate	35.1%	31.5%	45.3%	39.7%

# Among those with email, Web-Mail adds 13pp to Mail Only

**Table 2.1. Adjusted Response Rates by Arm and by Email Address Availability, 42-Day Field Period**

	<b>Arm 1: Mail only; revised survey</b>	<b>Arm 2: Telephone only; revised survey</b>	<b>Arm 3: Mail- telephone; revised survey</b>	<b>Arm 4: Web- mail; revised survey</b>
No Available Email Address	34.3%	31.1%	45.4%	35.2%
Available Email Address	36.7%	32.3%	44.9%	49.6%

# CAHPS Hospice Summary

- A prenotification letter increased RR by 2.4pp
- Extending the field period from 42 to 49 days added 2.5pp to RR in the mail-only mode
- Web-Mail adds 13pp to those with email addresses relative to mail-only

# Summary

- Multimode approaches outperform single-mode approaches
- Across HCAHPS, CAHPS Hospice, MA CAHPS, Web-first modes add 4-14 pp to RR among those with email addresses
  - ▶ These modes disproportionately benefit groups with lower response rates, improving representativeness and supporting health equity goals
  - ▶ Greater collection of email addresses maximizes the benefit of these modes
  - ▶ Web-first modes have potential for cost savings
- An extra week of field time adds 2.4-3.0pp to RRs
  - ▶ Prenotification letters have similar benefits
- Greater gains expected as more email addresses become available
- **Taken together, these improvements have the potential to substantially counter RR declines, saving money and increasing representativeness as well**