Examining the Effectiveness of Push-To-Web Mixed Mode Approaches on Response Rates in an Emergency Department Setting – A Randomized Study

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Disclosure

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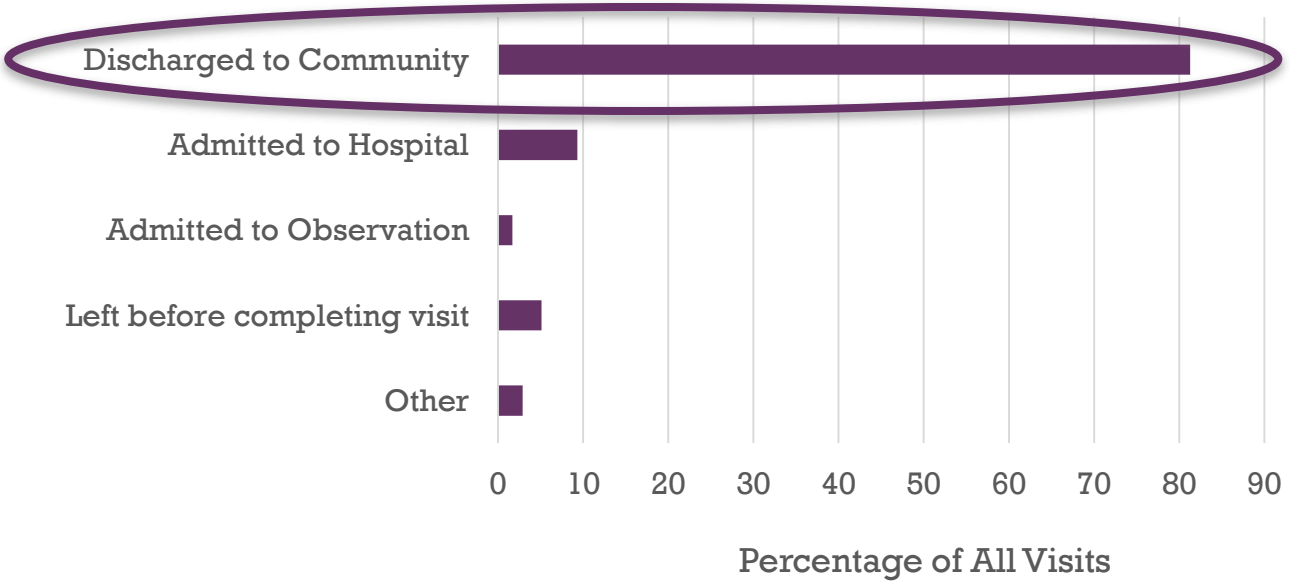
Emergency Department Visits Are Common

- Nationwide >130 million ED visits annually
  - ~ 42 visits per 100 persons per year
- Most patients walk in
  - ~ 15% arrive by ambulance
- Common reasons for visit:
  - Stomach/abdominal pain, Chest pain, Cough
  - Fever, Headache, Back symptoms
  - Shortness of breath, Pain, Vomiting
  - Throat symptoms

Majority of ED Patients are Discharged Home



EDPEC Survey Development

- Emergency Department Patient Experience of Care (EDPEC) Discharged to Community (DTC) Survey
  - Under development by the Centers for Medicare & Medicaid Services (CMS)
  - Designed to measure the experiences of patients who visit the emergency room and are subsequently discharged (as opposed to admitted to the hospital)

EDPEC Survey Development (Cont.)

- Development began in 2012
  - Call for Topics, Literature Review, Technical Expert Panel
  - Ongoing meetings with the CAHPS® Instrument Team
  - Cognitive testing of potential survey items
- Current survey instrument has 34 items
  - Domains: Going to the Emergency Room, During this Emergency Room Visit, People Who Took Care of You, Leaving the Emergency Room, Overall Experience, Your Health Care, About You

EDPEC Survey History

- Field test conducted in 2013-2014 with 12 hospitals
  - Response rate 19.8%
  - Contact information for ED DTC patients less accurate and less complete vs. admitted patients
- Mode experiment conducted in 2016 with 50 hospitals
  - Purpose: Examine effect of survey mode on who responds, and how
  - Response rate 20.3%

EDPEC Survey History (Cont.)

- Feasibility Test I conducted in 2016 with 8 hospitals
  - Purpose: To explore novel administration modes
  - Key findings:
    - Within-ED survey distribution
      - Logistically infeasible
      - Response rate 9.3%
  - Web-only survey administrations
    - Response rates < 5%

Feasibility Test II (2018): Objectives

- Test novel approaches to improve response rates to the EDPEC Survey
- Improve representativeness of respondents
- Decrease lag time (time from ED discharge to survey completion)
- Examine different push-to-web strategies
- Explore challenges associated with collection of contact information needed for a web-first approach

Feasibility Test II Design

- 16 participating hospitals
- January 1 to March 30, 2018 discharges
- Sampled ~ 1,600 DTC patients per hospital
- Patients randomized within hospital to 1 of 9 survey arms

Push-to-Web Strategies

- 8 of 9 experimental arms involved some form of push-to-web
  - Email invitations/reminders
  - Text message invitations/reminders
  - Mailed survey invitations containing login URL + PIN code and scannable QR code
- Timing of contact
  - 48 hours to 42 days after ED discharge
  - Timing of first contact varied depending on mode (mail, email, text)
- Web materials were all 508 compliant

Feasibility Test II Design

		Arm 1	Arm 2	Arm 3	Arm 4	Arm 5	Arm 6 (SMM)	Arm 7	Arm 8	Arm 9
		Email (x4) + Mail (x2)	Paper Invite + Email (x2) + Mail (x2)	Paper Invite + Email (x3) + Mail	Email (x4) + Phone	Email (x4) + Mail + Phone	Mail + Phone	Text + Email + Text + Email + Mail (x2)	Paper Invite + Text + Email (x2) + Mail	Paper Invite (URL only) + Email (x2) + Mail (x2)
Push-to-Web	Web Invite	Email	Mail with QR	Mail with QR	Email	Email	-	Text	Mail with QR	Mail Non-QR
	Web reminder	Email Day 2,4,6	Email Day 6,8	Email Day 6,8,10	Email Day 2,4,6	Email Day 2,4,6	-	Email Day 2 Text Day 4 Email Day 6	Text Day 6 Email Day 8,10	Email Day 6,8
Other Modes		Survey mailing Day 8, 22	Survey mailing Day 8, 22	Survey mailing Day 14	Phone Day 8	Survey mailing Day 8 Phone Day 22	Survey mailing Day 1 Phone Day 22	Survey mailing Day 8, 22	Survey mailing Day 14	Survey mailing Day 8, 22

Feasibility Test II Results: Response Rates

- Overall response rate (across all 9 arms): 18.6%
- Highest overall response rate (Arm 5: email+mail+phone): 27.3%
  - Among patients with email, response rate in this arm was 34.7%
  - Compared to standard mixed-mode (Arm 6) response rate among patients with email of 27.5%
- Higher percentage of web completions in text arms (Arm 7 & Arm 8)
  - However, number of completions in text arms still lower than in standard mixed-mode (Arm 6)

Response Rates by Arm

	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5	Arm 6 (SMM)	Arm 7	Arm 8	Arm 9	Overall
	Email (x4) + Mail (x2)	Paper Invite + Email (x2) + Mail (x2)	Paper Invite + Email (x3) + Mail	Email (x4) + Phone	Email (x4) + Mail + Phone	Mail + Phone	Text + Email + Text + Email + Mail (x2)	Paper Invite + Text + Email (x2) + Mail	Paper Invite (URL only) + Email (x2) + Mail (x2)	
N Sampled	3195	2848	2846	3193	3192	2844	3191	2841	2841	26991
N Ineligible	45 (1.4%)	49 (1.7%)	26 (0.9%)	152 (4.8%)	172 (5.4%)	137 (4.8%)	38 (1.2%)	36 (1.3%)	49 (1.7%)	704 (2.6%)
N Respondents	482	433	378	697	824	690	555	405	429	4893
Response Rate among Eligible	15.3%***	15.5%***	13.4%***	22.9%*	27.3%	25.5% (ref)	17.6%***	14.4%***	15.4%***	18.6%

*p<0.05,**0.05≦p<0.01,*** 0.01≦p<0.001

Protocol Comparisons

- The following protocol variations resulted in a significant increase in response rate ($p<.05$):
  - The use of text (x2) in place of two emails
  - Adding a second mailing instead of a third reminder email
  - The use of phone in place of the second mailing
  - The addition of a mailing on top of email and phone
- We saw no significant increase in response rate from these protocol variations:
  - A paper invitation instead of 2 additional email reminders
  - The addition of a QR code to the paper invitation
  - The addition of a mailing on top of email and phone
  - The addition of web to the standard mixed mode protocol

Responses by Completion Mode within Arm

	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5	Arm 6 (SMM)	Arm 7	Arm 8	Arm 9
	Email (x4) + Mail (x2)	Paper Invite + Email (x2) + Mail (x2)	Paper Invite + Email (x3) + Mail	Email (x4) + Phone	Email (x4) + Mail + Phone	Mail + Phone	Text + Email + Text + Email + Mail (x2)	Paper Invite + Text + Email (x2) + Mail	Paper Invite (URL only) + Email (x2) + Mail (x2)
Web	173 (35.9%)	140 (32.3%)	181 (47.9%)	146 (21.0%)	163 (19.8%)	--	237 (42.7%)	209 (51.6%)	155 (36.1%)
Mail	309 (64.1%)	293 (67.7%)	197 (52.1%)	--	236 (28.6%)	280 (40.6%)	318 (57.3%)	196 (48.4%)	274 (63.9%)
Phone	--	--	--	551 (79.1%)	425 (51.6%)	410 (59.4%)	--	--	--
Total Response (RR)	482 (15.3%)	433 (15.5%)	378 (13.4%)	697 (22.9%)	824 (27.3%)	690 (25.5%)	555 (17.6%)	405 (14.4%)	429 (15.4%)

Characteristics of Survey Respondents

- **Web respondents were more likely:**
  - Female
  - More highly educated
  - Visiting the ED for a new health problem
  - But less likely to arrive to the ED in an ambulance
- Mail respondents were more likely:
  - Older
  - Use more proxy assistance
  - Arrive to the ED in an ambulance

Respondent Characteristics (Cont.)

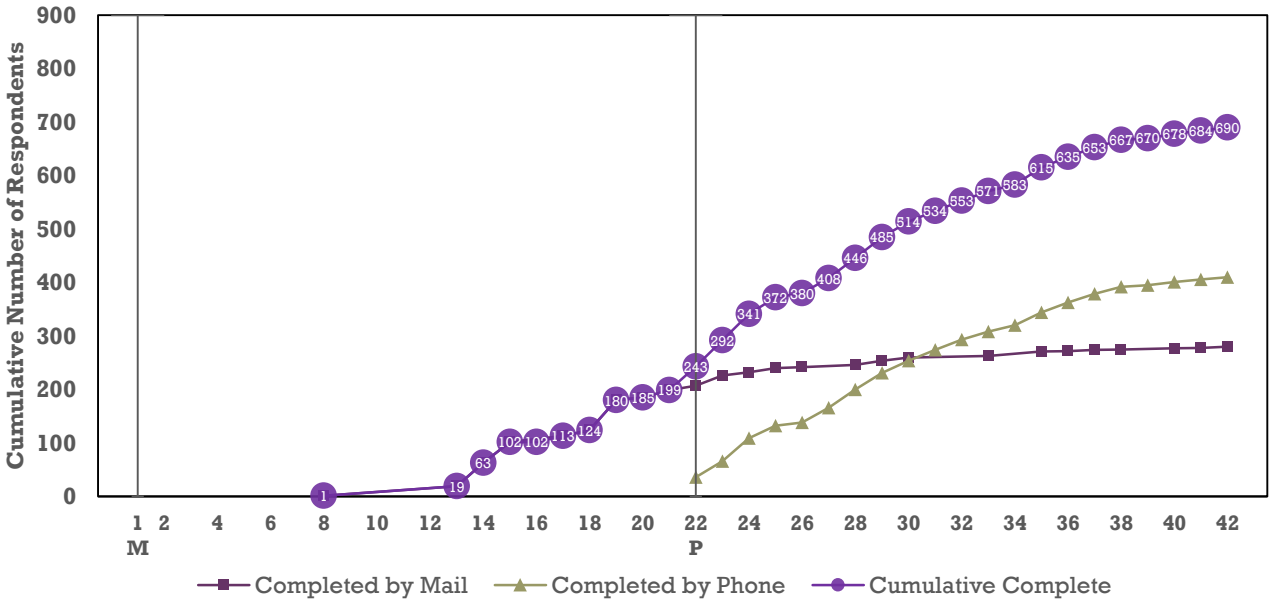
- Telephone respondents were more likely to be:
  - Somewhat younger than mail respondents
  - Hispanic, Black, or Multiracial
  - Primary Spanish speakers
  - In somewhat poorer mental and overall health
  - More frequent visitors to the ER in the last 6 months
  - But less likely to have a primary care doctor
- Inclusion of a phone component in a protocol (Arms 4, 5 and 6) increases representation of younger, minority, and less healthy respondents

Contact Method for Web Invitation

- 19.4% of sampled patients had both an email address and could be texted
- 10.5% of sampled patients had only an email address
- 39.8% of sampled patients could only be texted (not emailed)
- Remaining 30.3% of sampled patients had neither
- Texting dramatically increased the reach of the web survey

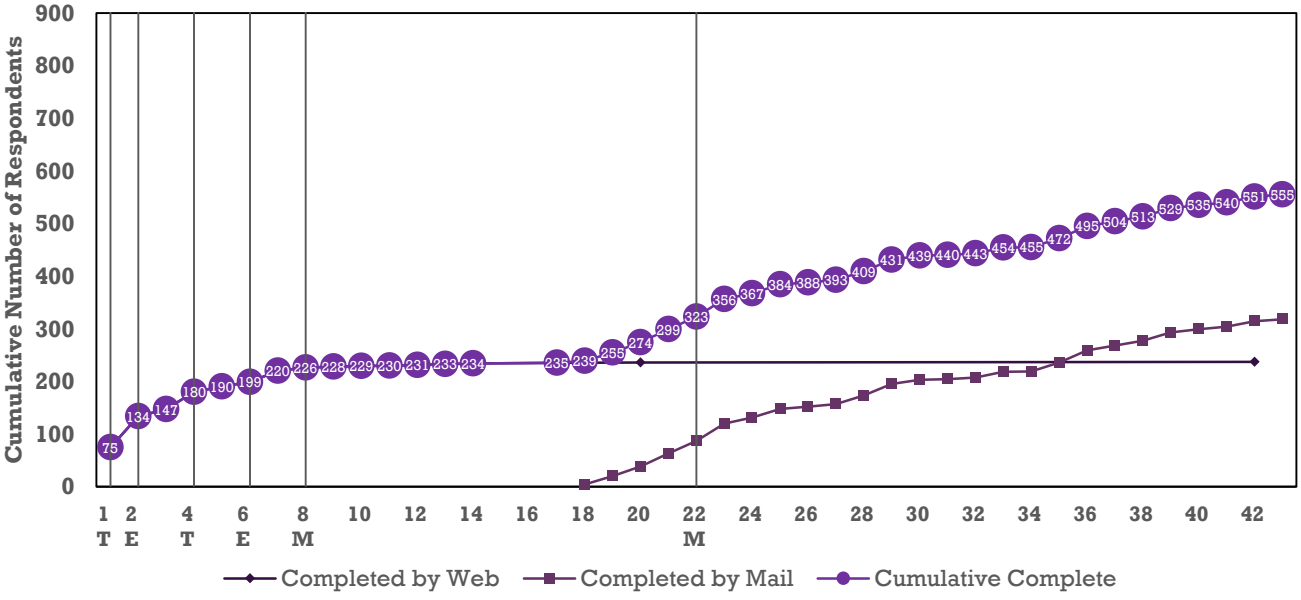
Time from First Attempt to Completed Survey

- Arm 6: Standard Mixed Mode (Mail +Phone)



Time from First Attempt to Completed Survey (Cont.)

- Arm 7: Text, Email, Text, Email, Mail x2



Lessons from Feasibility Test II

CAUTION – Results are not generalizable across all EDs

- Overall, response rates in the ED setting are low regardless of administration protocol. No arm performed significantly better than standard mixed mode.
- Email coverage varies dramatically
  - 31% avg. across 16 hospitals with a range of 6.5%-59.2%
- Using text messages increases the reach of the survey, but hospitals need to consider TCPA regulations and administrative procedures before adding this mode of contact

Feasibility Test II Lessons (Cont.)

- Response rates were improved by offering multiple sequential modes for survey invitations and survey administration
- Although the most expensive mode, phone surveys do capture a segment of the population that may not respond otherwise and increased response rates
- A push-to-web focus did result in respondents using the web survey

Feasibility Test II Lessons (Cont.)

- Web survey respondents are able to and did respond within a short timeframe
- Respondent characteristics differ by mode and access to the web, so multiple modes are needed to ensure a representative sample

Thank you

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  - William Lehrman, william.lehrman@cms.hhs.gov