Text Reminders to Increase Vaccine Uptake
Research Update

Katherine L. Milkman
The Wharton School of the University of Pennsylvania

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Intention doesn’t always equal action

(DiBonaventura and Chapman, 2005; Rogers and Aida, 2014; Sheeran 2002)
Intention doesn’t always equal action

Follow-through on Intentions

- Condom use: 43%
- Cancer screening: 70%
- Exercise: 46%
- Voting (NJ 2009): 46%
- Flu vaccination: 78%

*(DiBonaventura and Chapman, 2005; Rogers and Aida, 2014; Sheeran 2002)*
Intention doesn’t always equal action

Follow-through on Intentions

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- Exercise: 46%
- Voting (NJ 2009): 46%
- Flu vaccination: 78%

(DiBonaventura and Chapman, 2005; Rogers and Aida, 2014; Sheeran 2002)
3 Megastudies to Test What Messages Promote Vaccination
A Megastudy with Penn Medicine & Geisinger  (Including 47,306 patients with healthy check ups)

Experimental Design
We tested 19 different text-messaging strategies

A Sample of What We Tested
• “Dedicate your shot to a loved one”
• “Here’s a joke about the flu”
• “Get a shot to protect other people”
• “A shot has been reserved for you”

Did we increase vaccination rates?
Did we increase vaccination rates?

Regression Estimated % of Patients Vaccinated

Usual Care (41.8% vaccinated)
Did we increase vaccination rates?

A flu vaccine has been reserved for you.

Dedicate your flu shot to a loved one.

Protect others by getting a flu shot.

Share a joke about the flu.

whiskers depict +/-95% CIs

Usual Care (41.8% vaccinated)

Regression Estimated % of Patients Vaccinated

32% of interventions outperformed usual care control at p < 0.05

Regression-Estimated % of Patients Vaccinated
Top Performing Intervention: Vaccine Reserved For You

72 Hours Before Appointment

John, this is a message from Penn Medicine about your upcoming appointment. Text & data rates apply. Reply stop to opt out at any time.

You have an appt w/ Dr. Smith on 10/01 @ 11:00am & it’s flu season. A flu vaccine is available for you. Protect yourself & your family’s health!

Look out for a vaccine reminder message before your appt. You can opt out of a reminder by texting back OPT OUT.

24 Hours Before Appointment

PENNMED: John, this is a reminder that a flu vaccine has been reserved for your appt with Dr. Smith.

Please ask your doctor for the shot to make sure you receive it.

(PIs: Jon Bogard, Craig Fox, Matt Hilchey, Dilip Soman, Jehan Sparks, Megan Weber, Renante Rondina, Melanie Kim)
Takeaways

• Text reminders increased flu vaccinations by 5% on average

Milkman et al. (2021). *Proceedings of the National Academy of Sciences.*
Takeaways

• Text reminders increased flu vaccinations by 5% on average

• The top-performing reminder increasing vaccinations by 11%
Takeaways

• Text reminders increased flu vaccinations by 5% on average

• The top-performing reminder increasing vaccinations by 11%

• Two factors drove reminder success:
  1. Conveying the vaccine was “reserved for you”
  2. Messages were congruent with the sort of communications patients expected to receive from their healthcare provider (i.e., not surprising, casual, or interactive)

A Megastudy with Walmart Pharmacies
(Including 689,693 Walmart Pharmacy patients)

Experimental Design
We tested 22 different text messaging strategies

A Sample of What We Tested
• “Commit to getting a flu shot”
• “Get a shot to protect family & friends”
• “A shot is waiting for you”
• “More Americans are getting a flu shot than in the past”
• “People who get the flu shot are healthier, wealthier, and better educated”

Did we increase vaccination rates?

Regression - Estimated % of Patients Vaccinated

whiskers depict +/-95% CIs
Did we increase vaccination rates?

A flu shot is waiting for you at Walmart.

More Americans are getting flu shots than in the past.

Commit to getting a flu shot.

Do others a favor by getting the flu shot.

More Americans are getting flu shots than in the past.

A flu shot is waiting for you at Walmart.

whiskers depict +/-95% CIs

Regression - Estimated % of Patients Vaccinated

Control (29.4% vaccinated)
Did we increase vaccination rates?

- A flu shot is waiting for you at Walmart.
- More Americans are getting flu shots than in the past.
- Commit to getting a flu shot.
- Do others a favor by getting the flu shot.

**Regression**

Estimated % of Patients Vaccinated

Whiskers depict +/-95% CIs

A flu shot is waiting for you at Walmart. More Americans are getting flu shots than in the past. Commit to getting a flu shot. Do others a favor by getting the flu shot.

Control (29.4% vaccinated)

100% outperform control at p < 0.05
Top Performing Intervention: Flu Shot Waiting For You (2 Texts)

Initial Text

WalmartRx - Hi Katherine! It’s flu season & you can get a flu shot at Walmart. To help you remember, you’ll receive another text in a few days. INFO = info, STOP = opt out. Flu vaccines prevent getting or spreading the flu.

3 Days Later

WalmartRx - Remember a flu shot is waiting for you at Walmart.

(PIs: Noah Goldstein, Jon Bogard)
Takeaways

• Text reminders increased flu vaccinations by 7% on average
Takeaways

• Text reminders increased flu vaccinations by 7% on average

• The top-performing reminder increasing vaccinations by 10%
Takeaways

• Text reminders increased flu vaccinations by 7% on average

• The top-performing reminder increasing vaccinations by 10%

• Two factors drove reminder success:
  1. Conveying the vaccine was “waiting for you”
  2. Sending repeated reminders
The...[text] reminder had a greater effect when it was designed to make participants feel ownership of the vaccine dose.


Behaviours nudges increase COVID-19 vaccinations

Enhancing vaccine uptake is a critical public health challenge. Overcoming vaccine hesitancy and failure to follow through on vaccination intentions requires effective communication strategies. Here we present two sequential randomized controlled trials to test the effect of behavioural interventions on the uptake of COVID-19 vaccines. We designed text-based reminders that make vaccination salient and easy, and delivered them to participants drawn from a healthcare system one day (first randomized controlled trial) or eight days (second randomized controlled trial) after they received a notification of vaccine eligibility. The first reminder boosted appointment and vaccination rates within the healthcare system by 6.07 (84%) and 3.57 (26%) percentage points, respectively; the second reminder increased those outcomes by 1.65 and 1.06 percentage points, respectively. The first reminder had a greater effect when it was designed to make participants feel ownership of the vaccine dose. However, we found no evidence that combining the first reminder with a video-based intervention designed to address vaccine hesitancy heightened its effect. We performed online studies to examine vaccination intentions, which revealed patterns that diverged from those of the first randomized controlled trial; this underscores the importance of pilot-testing interventions in the field. Our findings inform the design of behavioural nudges for promoting health decisions, and highlight the value of making vaccination easy and inducing feelings of ownership over vaccines.
This Also Boosts COVID-19 Vax Take-Up

Patel et al. (2022). *JAMA Network Open*.

"a text message intervention that stated a vaccine had been reserved for the participant"
Thank You

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