

# Targeting Behavioral Interventions Based on Baseline Motivation Increases Vaccine Uptake



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## Intervention efficacy depended on participants' baseline motivation.

If baseline motivation to get vaccinated (proxied by prior year flu vaccination) was...

Low

High

**Providing information increased vaccination intentions and behavior**

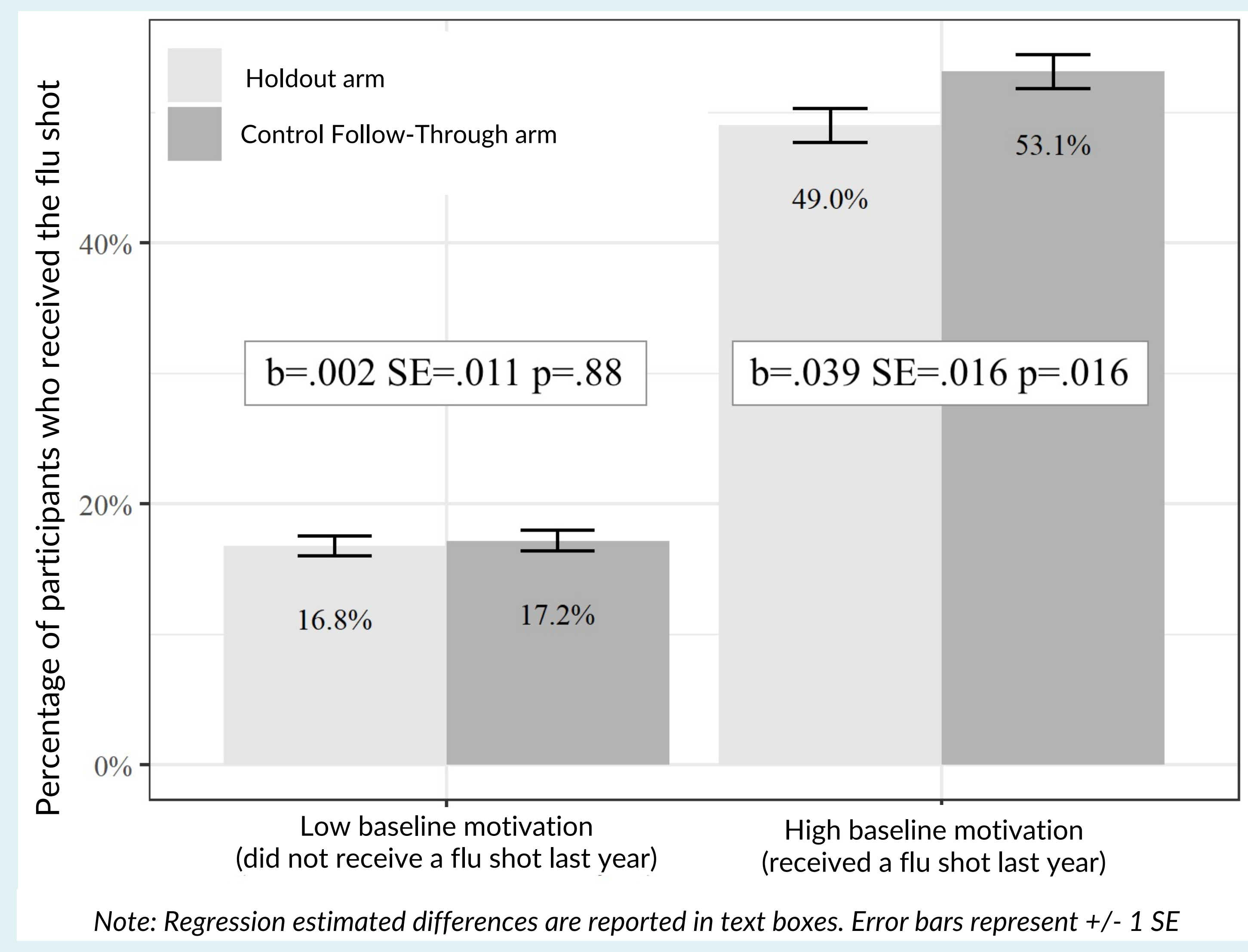
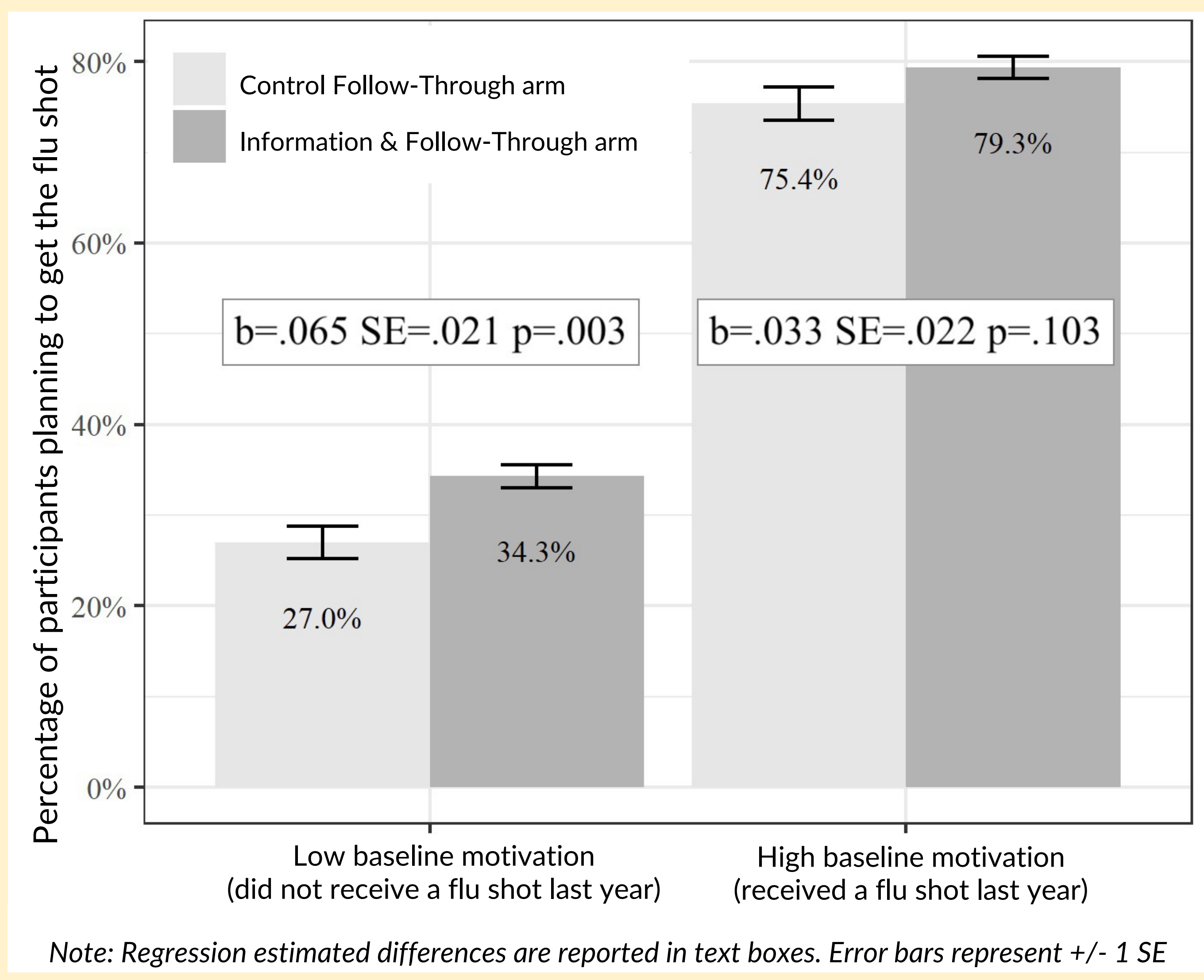
**Encouraging follow-through increased vaccination behavior**

An information intervention increased flu vaccination intentions among those with low baseline motivation by 6.5 percentage points (pp) in the field (by 12.8 pp online).

In the field, a text message designed to encourage follow-through increased flu vaccination uptake among those with high baseline motivation by 3.9 pp.

In the field, the information intervention further produced a 3.88 pp increase in vaccination uptake (not pictured) among those with low baseline motivation.

There was no effect on vaccination uptake for those with low baseline motivation.



**KEY INSIGHTS**  
Interventions are not one-size-fits-all. We show that tailoring interventions to an individual's source of inaction by estimating their baseline motivation to act can effectively motivate behavior change.

**METHODS**  
**ONLINE EXPERIMENTS** (N=2,602) on MTurk and Prolific from Sept. 2020 – Oct. 2020 tested the effect of an **information intervention** on flu vaccination intentions and beliefs about the flu and flu vaccine.

**FIELD EXPERIMENT** (N=14,760) with 2 large healthcare systems from Sept. 2020 – March 2021 tested the effect of an **information intervention** on flu vaccination intentions and behavior, and a **text-message follow-through intervention** on vaccination behavior among patients with an upcoming routine doctor appointment.

**Follow-Through Intervention arms**  
N=11,018 received text messages from their health care provider that encouraged them to watch a short wellness video and to get a flu shot at their upcoming doctor's visit

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

It's flu season. Consider watching this 2-minute wellness video & answering 2 questions before your appt w/ Dr. Dai on 12/16 @ 11:00 AM.

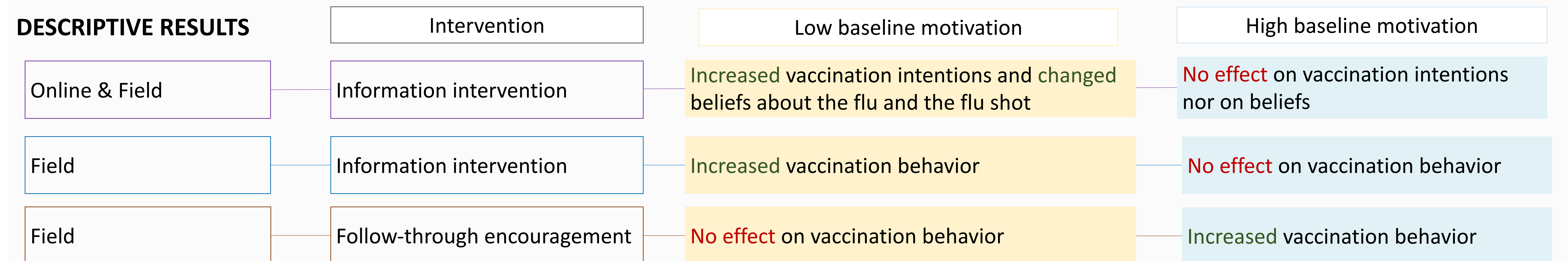
Link to the video: <http://w2h.us/abc12>. You're also encouraged to get a flu shot at your appt.

**Holdout arm**  
N=3,742

Information & Follow-Through arm	Control Follow-Through arm
N=7,333 received a link to a video about the flu and flu shot	N=3,685 received a link to a control video about chronic illness and exercise
N=3,095 (42.2%) clicked on the link	N=1,487 (40.4%) clicked on the link
N=2,396 (32.6%) reported their intention to get a flu shot and perceived vulnerability to the flu	N=1,165 (31.6%) reported their intention to get a flu shot and perceived vulnerability to the flu

**Predicting vaccination intentions:**  
Field: High motivation\*Information intervention  $b=-.034$  SE=.030  $p=.25$   
Online: High motivation\*Information intervention  $b=-.134$  SE=.029  $p<.001$

**Predicting vaccine uptake in the field:**  
High motivation\*Follow-through intervention  $b=.043$  SE=.019  $p=.027$



**Effect of Information Intervention on flu-related beliefs**

The flu video intended to convey the risk of getting the flu (problem) and the efficacy of getting the flu shot (solution). Online, the video effectively increased perceived vulnerability to the flu ( $p<.001$ ) and perceived effectiveness of the flu shot ( $p<.001$ ), particularly among those with low baseline motivation (interaction:  $p=.06$  and  $.002$ , respectively).

In the field, the video also changed perceived vulnerability to the flu ( $p<.001$ ), particularly among patients with low baseline motivation (interaction:  $p=.02$ ).

In sum, beliefs shifted most among those with relatively low baseline motivation to get vaccinated.

**Pre-registered controls**

- Field study**
- Age: M=50.6 SD=16.1
  - Race: 70% white
  - Gender: 45% male
  - Provider: 53.5% Penn Medicine
  - Past vaccination: 40% in prior year
  - Days separating appointment and intervention start (linear and squared)
  - Provider type
- Online studies**
- Age: M=38.4 SD=12.5
  - Race: 71% white
  - Gender: 48% male
  - Past vaccination: 37% in prior year