

# Utilizing text message technology in a pragmatic clinical trial: The experience of the Nudge Study

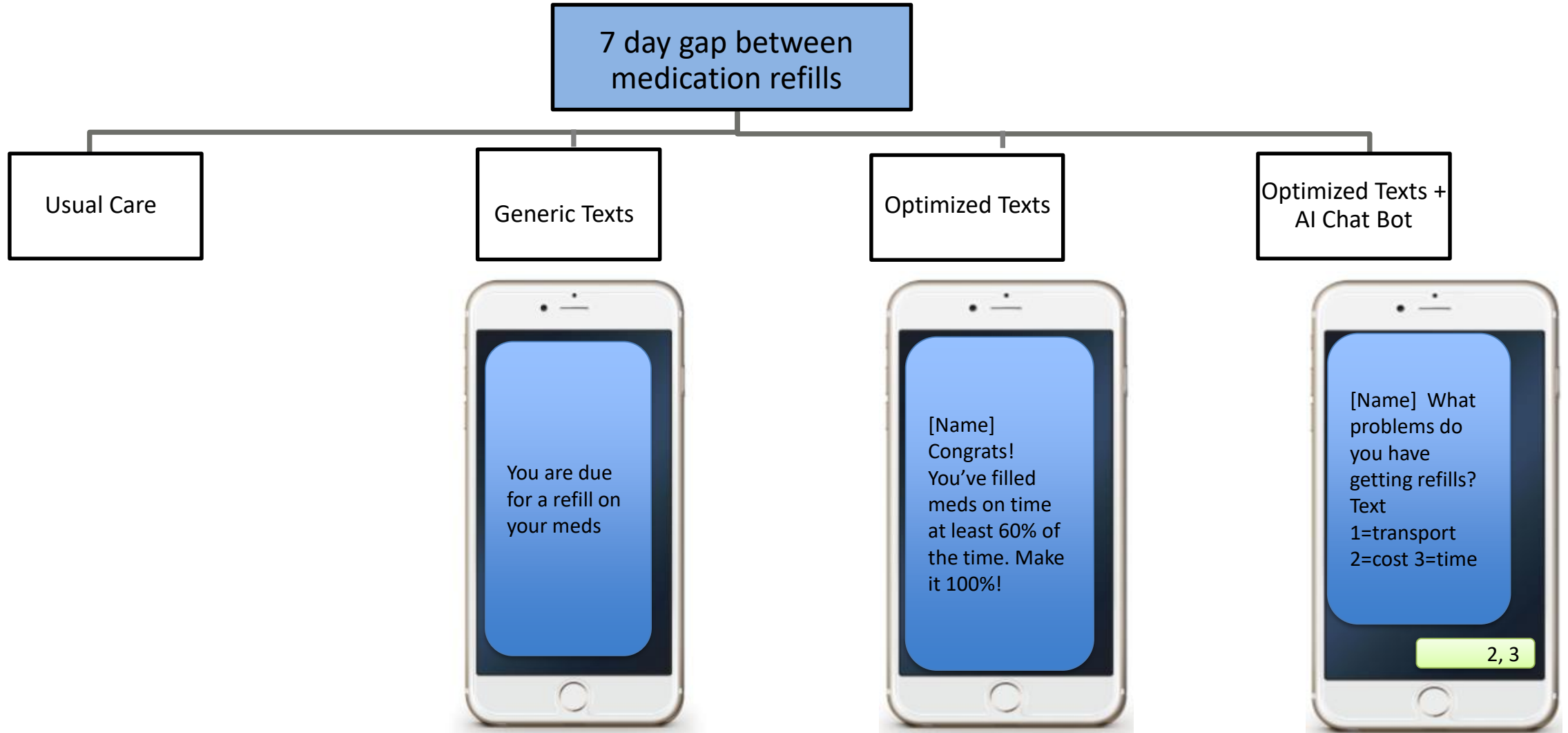
Michael Ho, MD, PhD & Sheana Bull, PhD, MPH  
University of Colorado Anschutz Medical Campus

# THE NUDGE STUDY

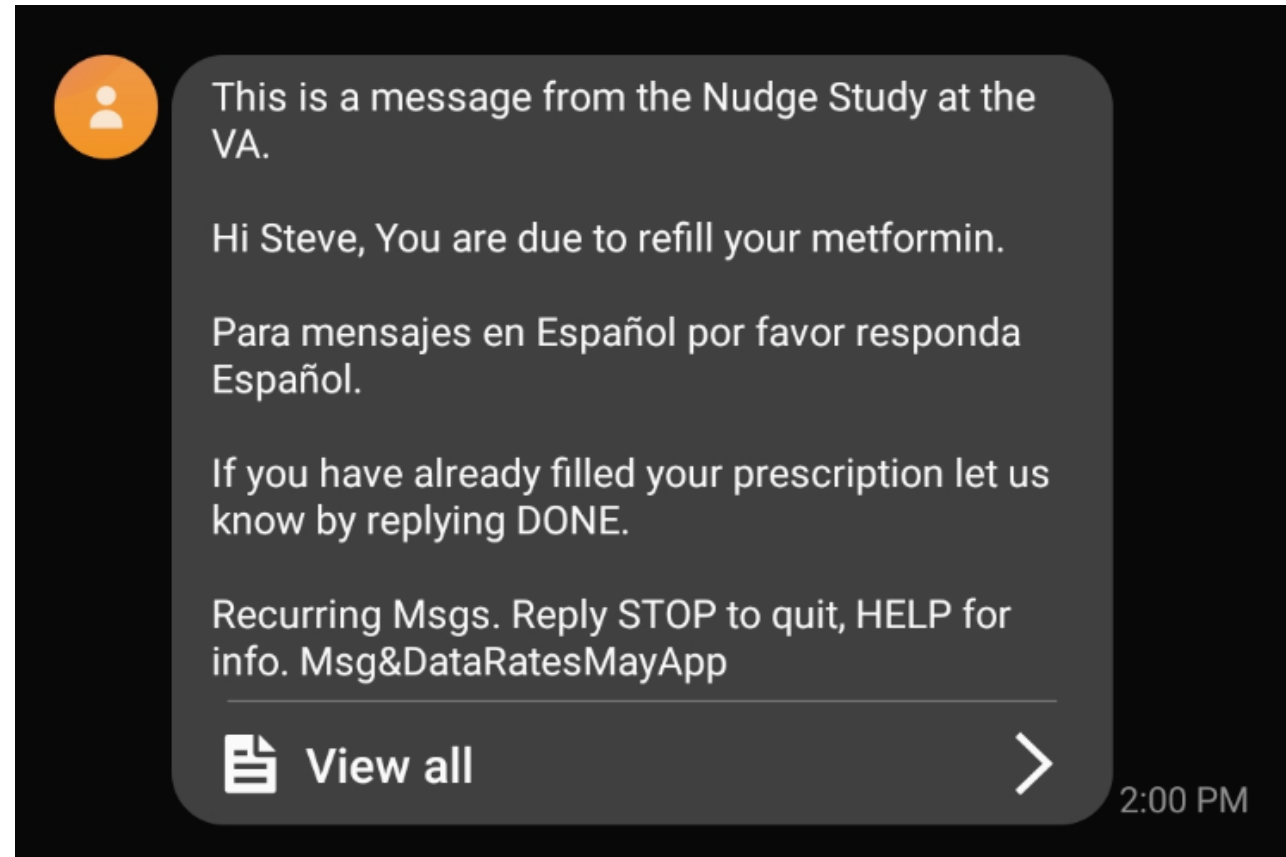
**Objective:** To conduct a pragmatic patient-level randomized intervention across 3 HCS to improve adherence to chronic CV medications through the use of text message technology.

- Primary outcome: Medication adherence defined by the proportion of days covered (PDC) using pharmacy refill data.
- Secondary outcomes:
  - Intermediate clinical measures (e.g., BP control)
  - CV clinical events (e.g., hospitalizations)
  - Healthcare utilization
  - Costs

# INTERVENTION ARMS

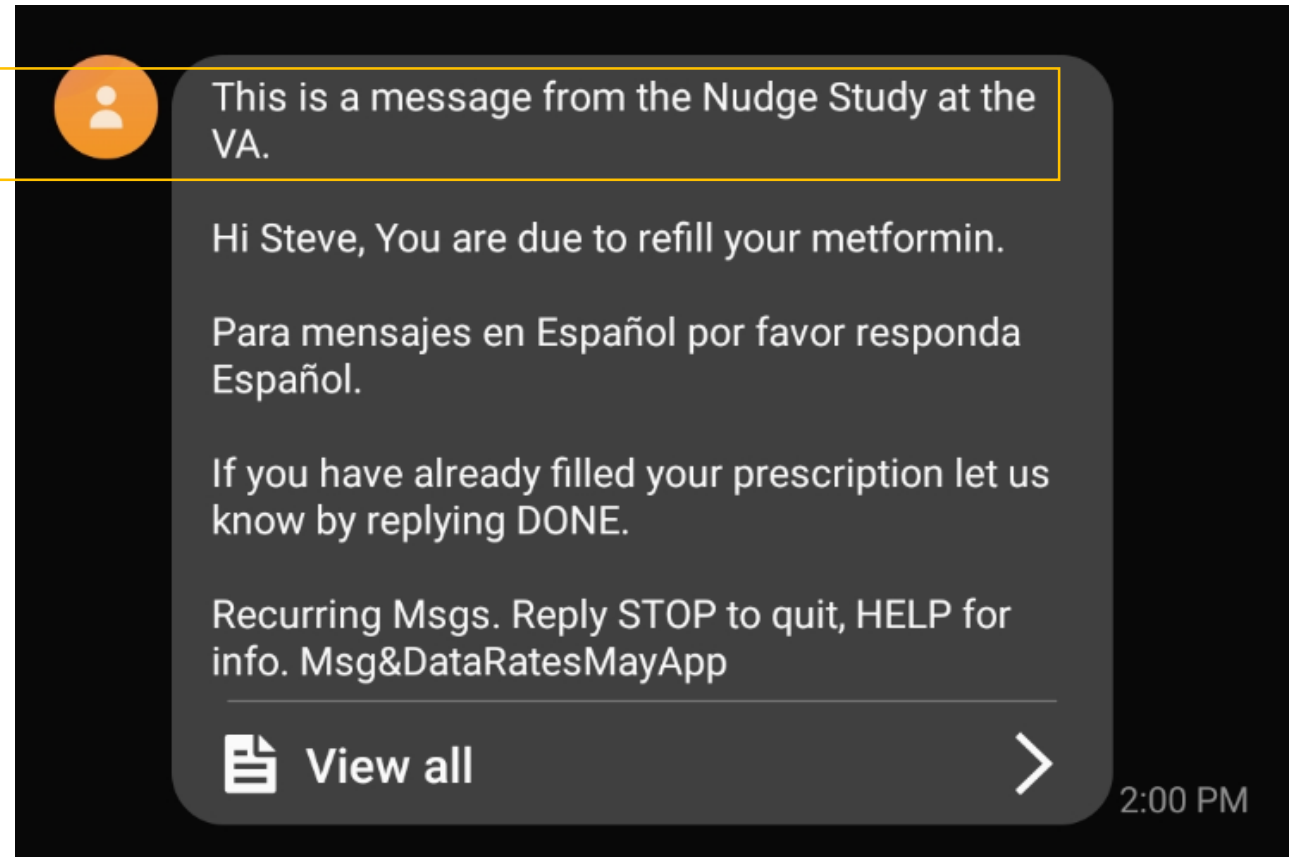


# SAMPLE MESSAGES SENT: INTRODUCTION MESSAGE



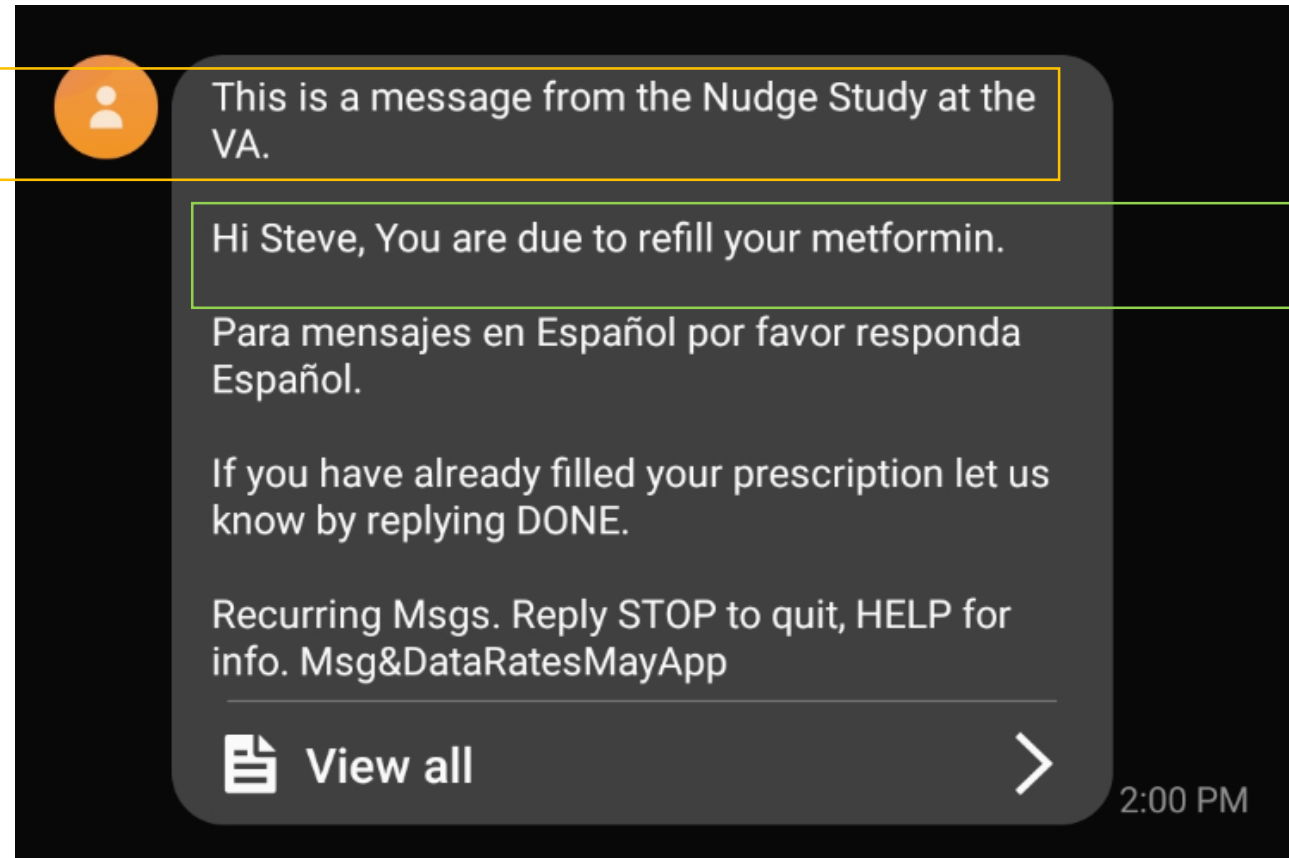
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Generic Nudge

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This is a message from the Nudge Study at the VA.

Hi Steve, You are due to refill your metformin.

Para mensajes en Español por favor responde Español.

If you have already filled your prescription let us know by replying DONE.

Recurring Msgs. Reply STOP to quit, HELP for info. Msg&DataRatesMayApp

 View all



2:00 PM

Generic Nudge

Temporary opt-out

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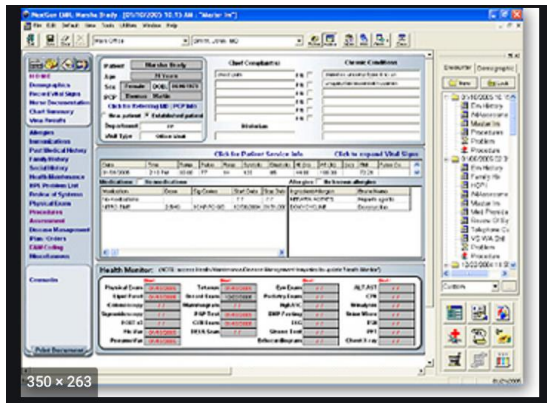


2:00 PM



# STEPS TO DELIVERING THE INTERVENTION

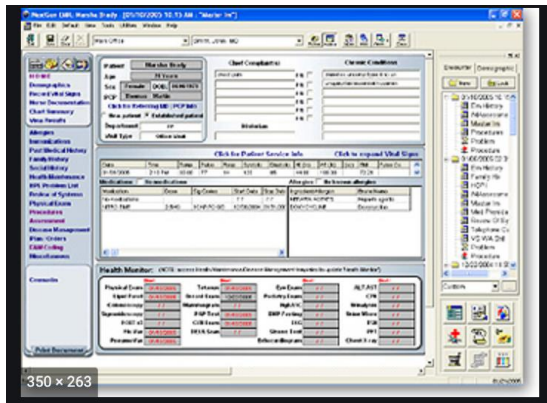
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Electronic Medical Records  
to identify patients

1. Clinic, co-morbidity, medication prescribed
2. Opt-out forms sent
3. Determine if cell versus landline number

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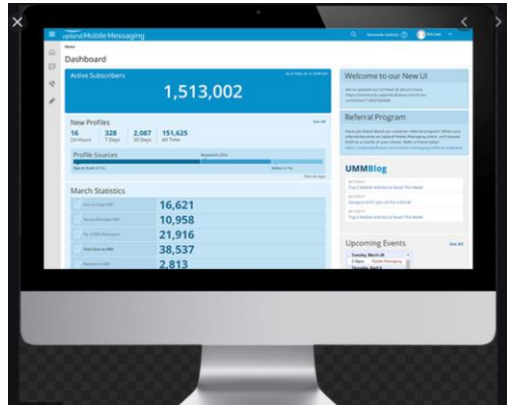


Monitor for 7 day gaps

1. Daily data pull: medication name, fill date, days supply  
Cancel date
2. Other clinical information: inpatient or mortality
3. Merge with patient text message reply data (DONE or STOP)
4. Calculate if there is gap in refills

# STEPS TO DELIVERING THE INTERVENTION II

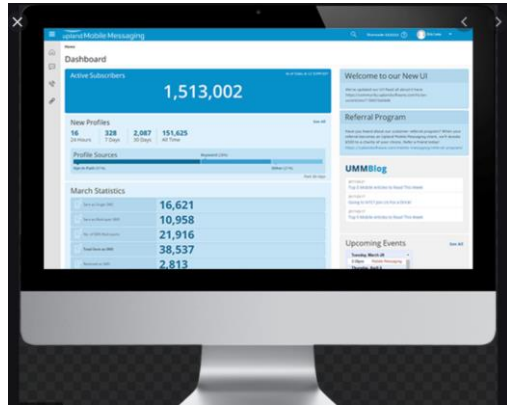
# STEPS TO DELIVERING THE INTERVENTION II



Online platform to send text messages & chat bot

1. Spreadsheet created of new patients with gap and old patients who have not refilled and status
2. Patient name and number uploaded into Mobile Messenger

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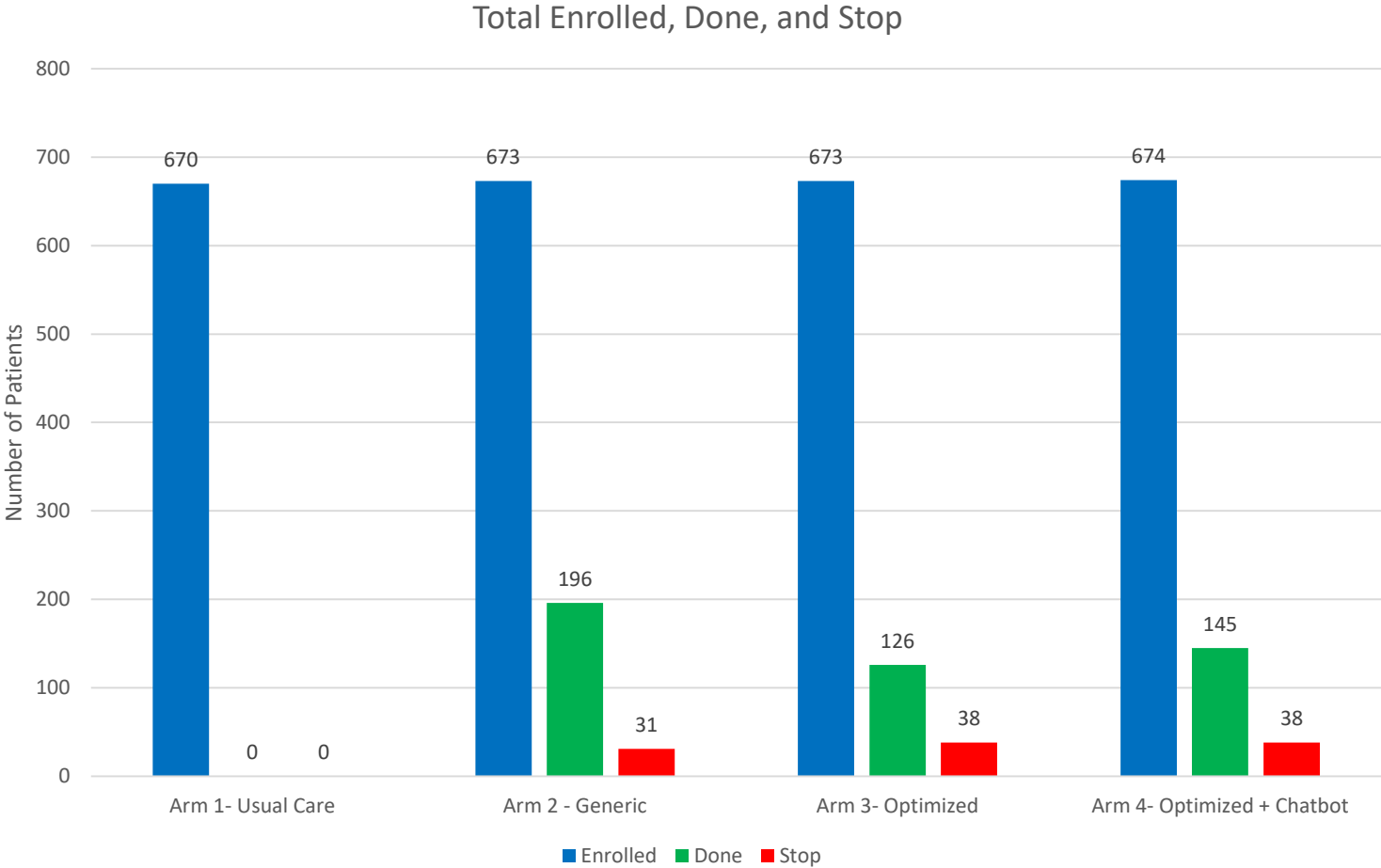


Text message to patients

1. Respond to patient text messages

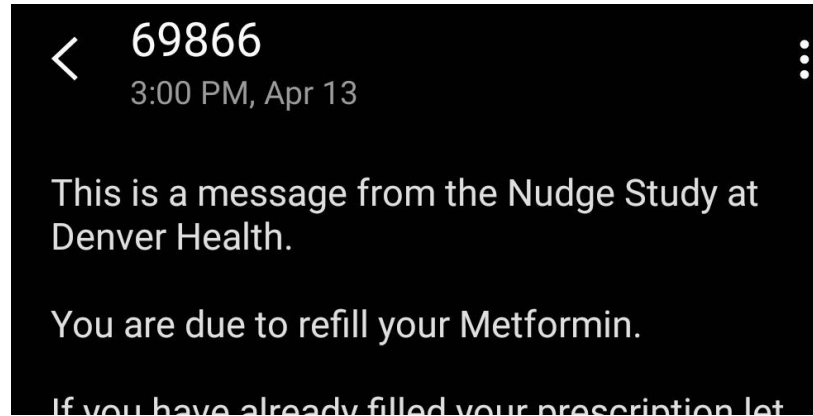
# PATIENT RESPONSE TO TEXTS

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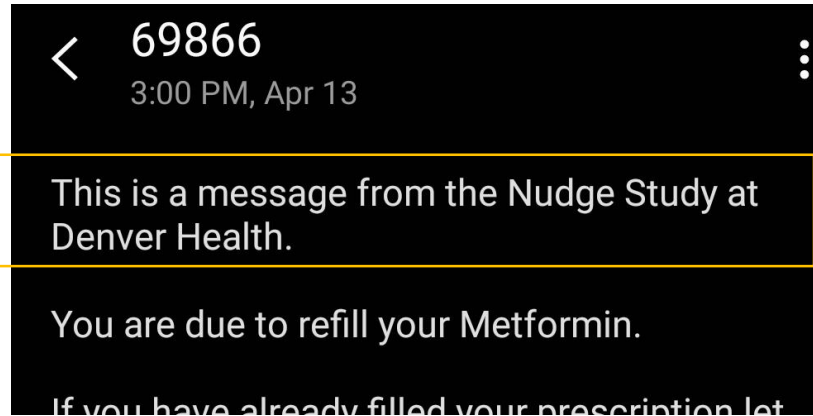


# CHANGES DUE TO STAKEHOLDER PANEL



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Suggested an introductory message



# CHANGES DUE TO STAKEHOLDER PANEL

Suggested an introductory message

< 69866  
3:00 PM, Apr 13

This is a message from the Nudge Study at Denver Health.

You are due to refill your Metformin.

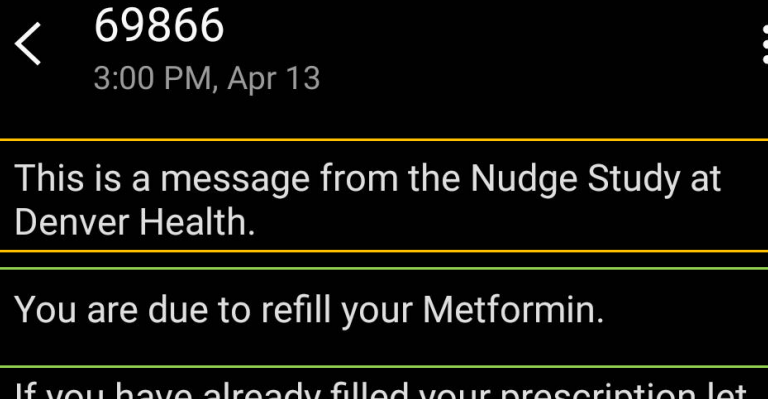
If you have already filled your prescription let

Include drug name in generic messages



# CHANGES DUE TO STAKEHOLDER PANEL

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Include drug name in generic messages

## Other suggestions from the Stakeholder Panel

- Keep messages upbeat
- Avoid emojis or jokes
- Liked text messages more than IVR
- Did not feel comfortable collecting data from those who press STOP is intrusive

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- Created a message triage process to patient inquiries, including enlisting pharmacist to call patients regarding medication or cost questions.
  - Weekly meetings to review patient needs and allow us to optimize approach as needed.
- Identify common questions and create standard responses
  - *What is the Nudge Study?*
  - *What medication do you mean?*
  - *What is the pharmacy number?*
  - *Can you just refill it for me?*



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## Introduction to all text messages

You are considered at high risk for getting the Coronavirus (COVID-19). We suggest you have a family member or friend pick up your medications for you.

If you do not have a family member or friend who can do this, please use the mail order service available to you please call [303-389-1390](tel:303-389-1390) for more information.

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## After every text response

CO-HELP is Colorado's call line for the novel coronavirus (COVID-19). People with general questions about COVID-19 can call at [1-877-462-2911](tel:1-877-462-2911). If you have concerns about your own health please call your doctor. If you are having a life threatening emergency call 911.

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- Disadvantages
  - Unable to confirm patient receipt and/or patient comprehension
  - Patients may switch numbers or loose service, particularly at the end of the month

# LESSONS LEARNED

- Text message campaigns are easy-to-implement and inexpensive to send
- Mobile technologies are adaptable; able to optimize messages as needed in response to patient interactions and needs
- It is possible to utilize mobile health technologies in rapidly changing situations (e.g. COVID-19) as well as sending sustained messages
- Text messages are ubiquitous; patients require no training to receive the messages



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