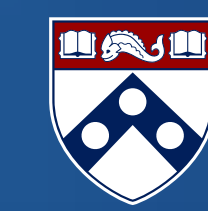


# Designing Seamless Telehealth Patient Engagement Through Innovative Patient-Centric Messaging



Penn Medicine

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## Learning Objectives

- Discuss the unique challenges health systems face preparing patients for telehealth visits, as well as which information and messaging features are most helpful for patients and their families to prepare for telehealth visits.
- Describe principles from design thinking and behavioral science that can be applied to the development of visit information messaging systems to drive patient engagement.

## Background

For telehealth, patients' ability to independently prepare for visits is a prerequisite for the provision of effective care. Yet, at the onset of the COVID-19 pandemic, Penn Medicine had no structured way to prepare patients for telehealth visits. We found that pre- and post-visit tasks, were either not being completed or falling on practice staff, which was a dissatisfier for patients, clinicians, and practice staff alike, often leading to no-shows.

## Goal

In response to expansive telehealth adoption during the COVID-19 pandemic, Penn Medicine developed a custom application to automatically distribute telehealth visit information and guidance to patients at scale.

## Intervention

We developed Visit Guide (Figure A): a no-login web application designed to bring all relevant visit information together in a seamless, intuitive pre-telehealth visit experience for patients across the health system. Key to our design methodology were behavioral science principles such as sludge reduction, salience, and reduction of choice overload.

## KEY FEATURES

- Patients automatically receive a text or email "tickler" at the time of appointment scheduling directing them to a unique link to their personalized Visit Guide (Figures B and C).
- Contains basic visit information, "add to calendar" functionality, and anticipatory guidance for steps they would need to take in the future to prepare for their visit.
- Three days pre-visit, patients then receive ticklers to a "reminder" Visit Guide walking them through necessary preparatory steps for their visit, such as testing their visit link, checking in, and submitting visit payments.
- Ten minutes pre-visit, patients receive a text or email containing just the link to their telehealth visit, providing them with just-in-time access to their visit.

## Outcomes

Between the Visit Guide application's go-live in April 2020 and March 2022, texts or emails linking patients to Visit Guide were sent for a total of 1,362,270 telehealth visits (Figure C). Messages were confirmed as delivered for 85.6% (1,166,583) visits. Of these, patients opened Visit Guide for 63.7% (742,951) visits. Patients who opened Visit Guide had a median age of 55 and were 63.4% female; patients who did not open Visit Guide had a median age of 55 and were 65.0% female.

Before Visit Guide go-live, the telehealth visit no-show rate was 4.5% (9,168/203,733 visits). After Visit Guide go-live, the telehealth visit no-show rate was 3.9% (44,903/1,151,361 visits). Although small in magnitude, this 0.6 percentage-point decrease may have salvaged upward of 6,448 that otherwise would have no-showed.

There was a statistically significant difference in no-show rate between patients who opened Visit Guide and those who did not (Table A) —1.9% and 2.8%, respectively ( $X^2(2, N = 1,362,270) = 2707.6, p < .00001$ ). There was also a statistically significant difference in visit cancellation rate between patients who opened Visit Guide and those who did not—9.5% and 26.2%, respectively ( $X^2(2, N = 1,362,270) = 129,544.7, p < .00001$ ).

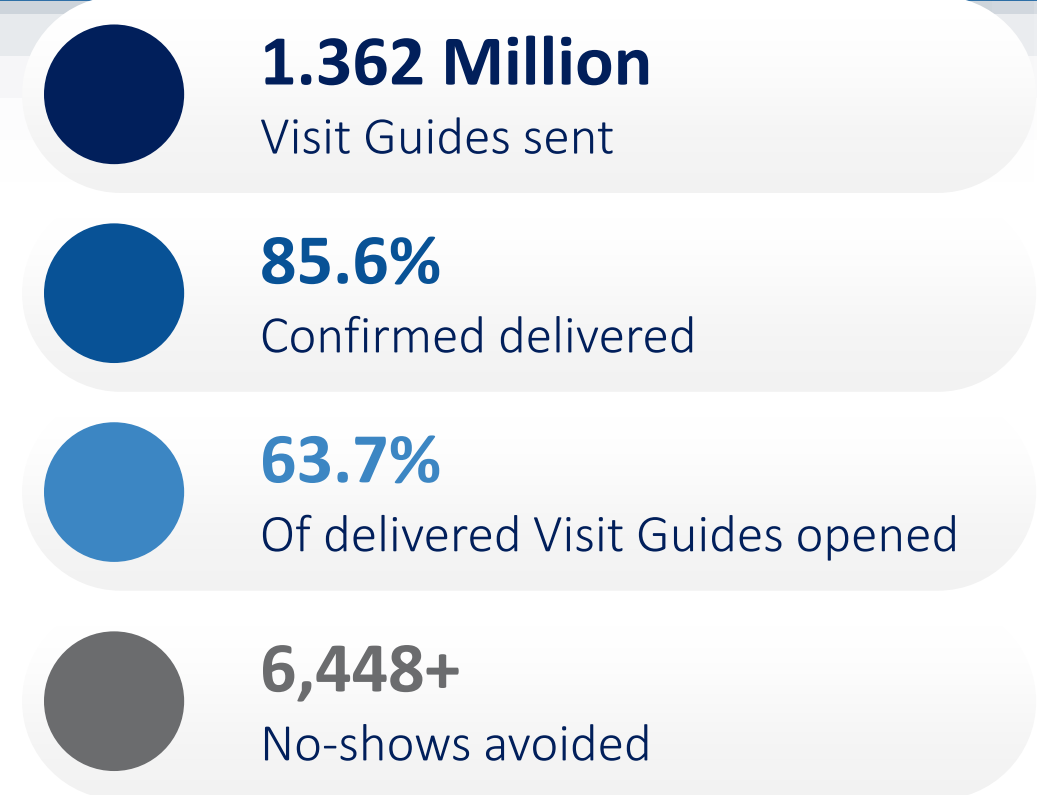


Figure D: Telehealth Visit Guide Go-Live By The Numbers (April 2020-March 2022)

Figure A: Two-day pre-visit reminder Visit Guide web application at April 2020 go-live

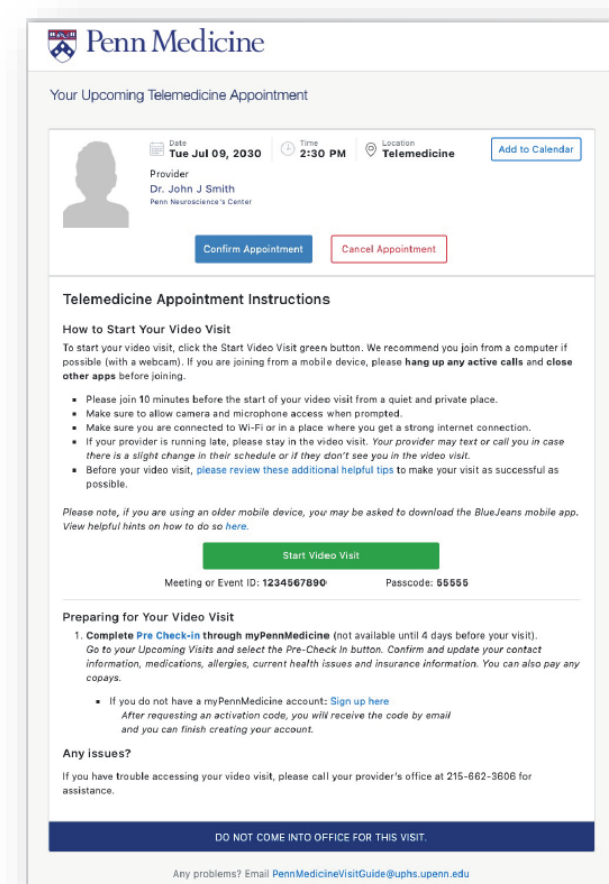


Figure B: From left, Visit Guide text tickler at April 2020 go-live and after redesign in September 2021.

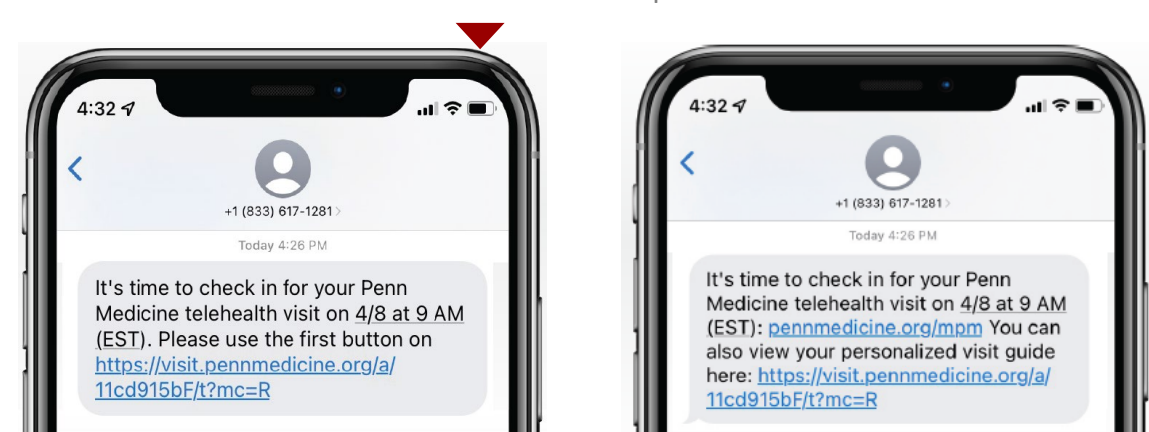


Table A: Comparison of no-show and cancellation rates for telehealth patients who opened the Visit Guide and patients who did not open the Visit Guide between April 2020 and March 2022.

	Opened Visit Guide	Did Not Open Visit Guide
Telehealth Visit No-Show Rate	1.9%	2.8%
Telehealth Visit Cancellation Rate	9.5%	26.2%

## Lessons Learned

Although health systems tend to center health information technology solutions around out-of-the-box EHR vendor modules, we felt our vendor's pre-visit messaging solution lacked functionality that would make the telehealth experience seamless and intuitive for our patients, such as dynamic message information population based on the time remaining before a patient's visit.

## Key Takeaways

Through developing our own telehealth visit messaging application, we have been able to flexibly introduce features, experiment, and iteratively improve messaging content and design around key metrics. Thinking outside of the box through our homegrown application has allowed us to enhance our patients' experience in a uniquely innovative way.

Figure C: Two-day pre-visit reminder Visit Guide web application after redesign in September 2021.

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TO VIEW THE FULL SERIES OF PRE-TELEHEALTH VISIT MESSAGING, PLEASE SCAN THE QR CODE WITH YOUR MOBILE DEVICE.

