Automated Reminders Reduce Incarceration for Missed Court Dates: Evidence from a Text Message Experiment

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Abstract

Millions of Americans must attend mandatory court dates every year. To boost appearance rates, jurisdictions nationwide are increasingly turning to automated reminders, but previous research offers mixed evidence on their effectiveness. In partnership with the Santa Clara County Public Defender Office, we randomly assigned 5,706 public defender clients to either receive automated text message reminders (treatment) or not receive reminders (control). We found the reminders reduced warrants issued for missed court dates by approximately 20%, with 12.1% of clients in the control condition issued a warrant compared to 9.7% of clients in the treatment condition. We further found that incarceration from missed court dates dropped by a similar amount, from 6.2% in the control condition to 4.8% in the treatment condition. Our results illustrate the promise of automated reminders to reduce the negative consequences of missing court.

1 Introduction

In the United States, after a person is arrested and charged with a crime, they are either held in jail as their case proceeds, or they are released and asked to attend court of their own accord. While many released defendants do indeed attend court—as is legally required—some fail to do so. Non-appearance rates vary depending on jurisdiction and offense type, ranging from less than 10% to as high as 50% (Bornstein et al., 2013; Owens and Sloan, 2022). Failing to appear (FTA) at a required court date is a crime in 46 states (National Conference of State Legislatures, 2018), and non-appearance can prompt judges to issue a warrant mandating the defendant's arrest (hereafter called a "bench warrant") at their next encounter with law enforcement. Once arrested, punishment can include time in jail (e.g., California Code, PEN §§1320, 1320.5). This incarceration comes at a high cost to individuals and the communities they live in. People in jail experience social and economic hardship, including job loss, housing loss, family strain, and social stigma (The Sentencing Project, 2019). These consequences may fall particularly hard on marginalized communities: McDonough et al. (2022) show that pretrial incarceration is associated with reduced civic engagement (e.g., voting), especially for Black people, and Finlay et al. (2023) estimate that 62% of Black children in the U.S. have lived with an adult facing criminal charges—nearly twice the rate observed for white children.

Past studies suggest that many individuals miss their court dates due to forgetfulness or confusion about the court system (Kofman, 2019). As a result, court date reminders are increasingly used to help people remember and plan for their upcoming court obligations. Nearly half of counties nationwide have either implemented or are planning to implement court date reminders via text message, phone call, mail, or some other method (Lattimore et al., 2020). Yet research on the effects of automated text message reminders—one of the newest and most cost-effective options, now gaining popularity—is limited.[1] The literature that does exist paints an incomplete picture on the efficacy of text message reminders to increase court appearance and decrease the negative consequences of missing court (Table 1). Two recent randomized controlled trials (RCTs) found significant and meaningful reductions

[1]There is a larger literature on the effectiveness of court date reminders by mail or telephone call (Crozier, 2000; Goldkamp and White, 2006; Howat et al., 2016; Schnacke et al., 2012; Ferri, 2020; Nice, 2006; Foudray et al., 2022; White, 2006; Tomkins et al., 2012), and on the effectiveness of text message reminders to other participants in the criminal legal system (Cumberbatch and Barnes, 2018; Hastings et al., 2021). For example, in an experiment in Arkansas, Hastings et al. (2021) found that text message reminders reduced missed probation and parole appointments by over 40%, and Tomkins et al. (2012) found that postcard reminders reduced non-appearance rates by up to 34% in an experiment with misdemeanor defendants in Nebraska. See Bechtel et al. (2017) and Zottola et al. (2023) for reviews of the relevant literature.

Study	Year	Outcome	Sample	Control	Est. effect	CI	Estimated rel. effect	P-val
Chivers & Barnes, 2018	2017	Warrant at court date	946 defendants	22.5%	+1.8pp	N/A	+ 8%	0.51
Lowenkamp et al., 2018	N/A	FTA at court date	10,228 defendants	13%	-2pp	N/A	-18%	0.07
Fishbane et al., 2019	2016–17	FTA/warrant at summons hearing	20,234 defendants	37.9%	-9.9pp	[-12 – -7.8pp]	-26%	<0.01
Emanuel & Ho, 2022	2018–19	FTA at arraignment	30,870 defendants	21%	-8.2pp	N/A	-39%	<0.01
Owens & Sloan, 2022	2021	FTA at court date	1,096 housed defendants	50%	-6pp	[-11.2 – +0.6pp]	-12%	0.08

Table 1: *Past experiments have yielded mixed results on the effectiveness of text message court date reminders for improving appearance rates.*

in FTA rates from text message reminders (Fishbane et al., 2020; Emanuel and Ho, 2023); two other RCTs found reductions in non-appearance rates, though the estimates were not statistically significant (Lowenkamp et al., 2018; Owens and Sloan, 2022); and one RCT estimated *higher*—but not statistically significant—warrant rates among people who received a text message reminder (Chivers and Barnes, 2018). A study by Emanuel and Ho (2023) is one of the few to examine the impact of automated reminders on incarceration, finding no statistically significant effect of reminders on jail bookings.

To help resolve this ambiguity in the extent to which, if any, text message reminders increase court appearance and reduce incarceration, we ran a pre-registered RCT with 5,706 clients of the Santa Clara County Public Defender Office (SCCPDO), headquartered in San Jose, California.[2] In addition to bolstering the general literature on text message court date reminders, our study is the first to specifically examine the effect of reminders for clients of a public defender. Understanding the efficacy of reminders for this subpopulation is particularly important for ongoing policy debates, as some have argued that mere representation by a public defender should be sufficient to ensure court appearance, obviating the need for reminders sent at additional cost to taxpayers. Indeed, SCCPDO clients appear at their court appointments the vast majority of the time. Yet there is still room for improvement, with about 10–15% of scheduled court dates for SCCPDO clients ending in a bench warrant for non-appearance. Given that individuals are often required to attend multiple court dates,

[2]Our pre-registration is available at `https://aspredicted.org/SMY_N1R`. Our original design included a second treatment arm, with alternative reminder text, but we later concluded that the two message variants were not meaningfully comparable and so shifted to showing participants only a single message type in our treatment condition. We are currently running a new experiment that we believe is better designed to compare differing message templates, pre-registered at `https://aspredicted.org/FKC_XYY`.

nearly one-third of SCCPDO clients received at least one bench warrant for missing court over the course of 2022. Over half of these clients were only facing misdemeanor charges, and one out of every four had no history of prior charges on file with SCCPDO. A single bench warrant for these clients thus has the potential to quickly ramp up an otherwise minimal brush with the criminal legal system, and underscores the importance of increasing appearance rates.

2 Experiment Design

Our experiment consists of 5,706 SCCPDO clients who had court dates during two timespans in 2022 and 2023: 2,384 clients between May 17, 2022 and September 21, 2022, and 3,322 clients between October 14, 2022 and August 24, 2023. To be eligible for inclusion in the experiment, clients must have had at least one court date in the timespans mentioned above, had a cellphone number available in SCCPDO's case management system, and had never previously received an automated reminder from SCCPDO.[3]

We focus on two outcome metrics: (1) issuance of a bench warrant for failure-to-appear (FTA) at a client's first scheduled court date after assignment to treatment or control; and (2) whether a client was remanded to custody on a bench warrant at any point between assignment and the end of the experiment. Judges often issue a bench warrant when a defendant does not attend a mandatory court date, though they can decline to do so if they believe the client has sufficient justification for not being present (e.g., being sick with COVID). Though we consider whether a bench warrant was issued at a client's first scheduled court date, our findings are qualitatively similar if we look at other related outcomes (e.g., bench warrant rates within 28 days of the first court date). After a bench warrant has been issued, a client may either voluntarily or involuntarily appear for a bench warrant hearing, at which point a judge may choose to remand them to custody—i.e., hold them in jail for some time, pending bail, later release, or case resolution. For our second metric, we code the outcome as "1" for clients who were remanded at a bench warrant hearing where no new charges were brought, and code the outcome as "0" for all other clients. This metric directly corresponds to the target of our intervention—incarceration attributable to missed court dates. However, our findings are qualitatively similar if we redefine the outcome to

[3]We briefly paused our experiment in between the two time periods while we updated our text message delivery system, as discussed in the Appendix. Prior to the start of the experiment, as we developed our messaging system, we sent court date reminders to some SCCPDO clients; these clients were not eligible for inclusion in our experiment.

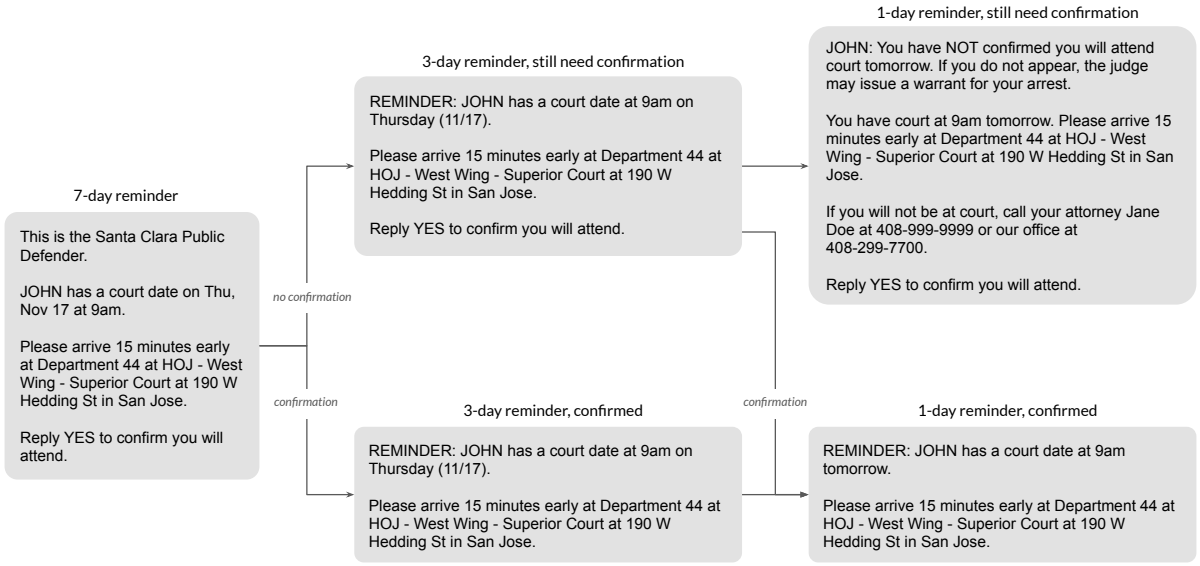

Figure 1: *Message flow for clients in the treatment condition. Clients are asked to confirm their attendance at each court date, with the timing of their confirmation determining their path through this flow. For example, a client who confirms immediately after the first reminder would follow the bottom path. Other clients who withhold any confirmation would follow the top path.*

indicate whether a client was remanded at any type of bench warrant hearing, regardless of whether they were arrested on new charges.

The 5,706 SCCPDO clients in our experiment were randomly assigned to treatment or control conditions with equal probability. 2,809 clients were assigned to the control condition, which meant they did not receive any automated reminders; and 2,897 clients were assigned to the treatment condition, which meant they received a series of automated reminders before their court date. The covariate distribution was nearly identical across experiment arms, indicating that the randomization scheme worked as intended (Figure A1). Prior to the first reminder, we sent an introductory text message to clients in the treatment condition explaining the reminder program and explaining how to opt out, if desired. Of the 2,897 clients in the treatment arm, 107 opted out of receiving text message reminders. Reminders began seven days before each upcoming court date, with another reminder three days before, and a final reminder the day before the court date. (See Figure 1 for a diagram of these reminders.) Clients were prompted to confirm their attendance by responding with "yes" or similar affirmations. For example, our application recognized many possible confirmations,

	Bench warrant issued		Remanded to custody	
Treatment effect	0.752**	0.774**	0.748*	0.774*
	(0.068)	(0.066)	(0.096)	(0.090)
Outcome rate (control)	12.1%		6.2%	
Adjusts for observables	Yes	No	Yes	No
Observations	5,706 clients		5,706 clients	

Table 2: *The effect of text message reminders on the issuance of bench warrants for non-appearance, and on remanding to custody on a bench warrant, estimated using logistic regression as discussed in Section 3. Reported estimates are odds ratios (i.e., exponentiated logistic regression coefficients), with standard errors in parentheses calculated using the delta method. The single star indicates that the corresponding logistic regression coefficient estimates (on the log-odds scale) have a p-value between 0.01 and 0.05, and the double star indicates a p-value between 0.001 and 0.01.*

including "OK", "Confirmed", "I'll be there", a thumbs-up emoji, and confirmations in Spanish (like Sí or Gracias) and Vietnamese (like Đi or Được). If they confirmed, we did not prompt for confirmation on subsequent reminders. Translated versions of these reminders were provided in Spanish and Vietnamese for the 22% of clients who had previously indicated a need for a translator in one of these languages (Figures B2 and B3). Ultimately, 51% of clients in the treatment arm confirmed their attendance, and among these clients, 2.9% received a bench warrant at their first court date; in comparison, a bench warrant was issued for 16.8% of clients who did not confirm their attendance. This difference could be explained by the act of confirming, self-selection, or a combination thereof.

3 Results

In the control condition, 12.1% of clients received a bench warrant at their first scheduled court date during our experiment window, compared to 9.7% for clients in the treatment condition. This difference (2.5pp, 95% CI 0.9pp–4.1pp) corresponds to a 20.4% reduction in bench warrant rates. Similarly, 6.2% of clients in the control condition were remanded on a bench warrant at least once after assignment to our experiment, compared to 4.8% of clients in the treatment condition, a difference (1.3pp, 95% CI 0.1pp–2.5pp) corresponding to a relative reduction of 21.5%.

To improve the precision of our results, we also estimate the impact of text message reminders

via two logistic regression models—corresponding to each of our two outcomes of interest:

$$\Pr(Y_i = 1) = \text{logit}^{-1}(\alpha + \beta T_i + \gamma^T X_i), \tag{1}$$

where Y_i indicates one of our two outcomes (issuance of a bench warrant or remand to custody), T_i indicates whether the client was in the treatment condition, and X_i is a vector representing a variety of observable features of the client, case, and first scheduled court date. In particular, X_i includes: demographic information (the client's age, race, whether the client identifies as male, whether the client prefers a language interpreter, whether the client's attorney indicated a possible mental health issue for the client, and the distance between the client's home address and the courthouse where their appearance is scheduled); client history (the number of bench warrants for non-appearance known to SCCPDO in the previous five years, the inverse number of court dates known to SCCPDO in the previous five years, the product of these two covariates, representing the client's bench warrant rate for failing to appear over the last five years, whether the client was "new", i.e., whether the earliest court date known to the public defender was in the preceding year, the number of previous cases with the public defender's office, the number of previous convictions or guilty pleas with the public defender office (including nolo contendere pleas), and the number of years since the client's phone records were updated); case information (whether the most serious charge was classified as a misdemeanor or felony, and indicators for which of 31 high-level charge categories were present, e.g., burglary or robbery); and court date information (the courthouse where the court date was scheduled, the day of week, the month, and a number indicating the court date was the n-th scheduled appointment on a case).

Under this model, the fitted coefficient $\hat{\beta}$ is the estimated treatment effect. Exponentiating $\hat{\beta}$, we estimate that the odds ratio of being issued a bench warrant in treatment compared to control is 0.752 (SE 0.068, 95% CI: 0.63–0.90) (Table 2). Based on a bench warrant rate of 12.1% in the control condition, this estimate corresponds to a 2.7pp decrease and a 22.5% relative reduction in bench warrant rates attributable to receiving text message reminders. Similarly, we estimate the odds ratio of being remanded to custody on a bench warrant in treatment versus control is 0.748 (SE 0.096, 95% CI: 0.58–0.96). With a bench warrant incarceration rate of 6.2% among clients in control, this estimate corresponds to a 1.5pp decrease and a 24.0% relative reduction in bench warrant incarceration attributable to receiving text message reminders.

4 Conclusion

Prisons and jails in the United States are overcrowded and underresourced (Pohl and Gabrielson, 2019), and arrests stemming from missed court dates are a significant contributor to incarceration. As states attempt to reduce the number of people they incarcerate[4], many are looking to court reminders as a way to increase court appearances and reduce jail time. With an average marginal cost of roughly 60¢ per defendant per case, our results suggest that a text message reminder program can be an effective and relatively inexpensive way to increase appearances and decrease incarceration.

Much remains unanswered about how to design behavioral nudges to be most effective at preventing bench warrants. For example, the optimal timing and frequency of text message reminders is unclear. It may be more effective to remind clients about court obligations more than a week in advance or to do so more frequently in the week before. The reminders we used also only briefly mentioned the possible consequences of missing court. Perhaps other content—a stronger focus on the consequences, or a focus on possible supports—may be more effective at preventing bench warrants. In addition, court date reminders may not help clients who are struggling with more fundamental barriers to court attendance, such as lack of transportation or childcare, or inability to take time off from work. Other behavioral nudges, like transportation or financial assistance (Brough et al., 2022), might further address these barriers and could complement court date reminders.

In addition to behavioral nudges, policymakers might consider alternate pathways to reducing pretrial incarceration. For example, judges could issue a bench warrant for non-appearance only in the most egregious circumstances, such as when there is clear evidence a defendant is unwilling to cooperate with the judicial process. Some counties in California are working to improve appearance rates and other outcomes by pairing defendants with case managers that help to address underlying challenges, like housing instability and substance use, that their clients may be facing. Ultimately, while our work demonstrates the promise of behavioral nudges for reducing incarceration, this approach is but one step in more broadly reforming the criminal legal system.

[4]For example, the Supreme Court of the United States ordered California to reduce the size of its prison population because overcrowding rendered prison conditions unconstitutional (see Brown v. Plata 2011, no. 09-12330).

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Appendix

A Treatment Assignment

In the first phase of the experiment (i.e., for clients with initial court dates between May 17, 2022 and September 21, 2022), clients in the treatment condition received an introductory text message up to seven days before their first court date reminder. Occasionally, however, court dates once eligible for reminders may have become ineligible in this interim period after the introductory message was sent (e.g., because the attorney indicated they would appear on the client's behalf, or because the recipient may have opted out of text message reminders immediately after their introductory message). As a result, 85 of the 2,897 clients in the treatment condition did not receive a reminder for their initially scheduled court date. Nevertheless, we include in the treatment condition all clients who received an introductory message, regardless of whether or not a reminder was actually sent, as the introductory text message could itself impact behavior. In the second phase of the experiment (i.e., for clients with initial court dates between October 14, 2022 and August 24, 2023), we adjusted our protocol to address this issue, sending the introductory message and the first court date reminder at the same time. This change ensures that all clients in the treatment condition did in fact receive at least one reminder.

At the end of the first phase of the experiment, all clients in the first phase were transitioned to receive text messages reminders for any future court dates, regardless of whether they were initially assigned to treatment or control. As a result, our estimate of the effect of reminders on incarceration is likely conservative, since some clients in the control condition received reminders for part of the observation window. This spillover does not affect our estimate of reminders on the issuance of bench warrants, since that outcome is measured at a client's first court date, before any transitioning occurred. No clients in the second phase of the experiment were transitioned, i.e., clients in the control condition in the second phase did not receive reminders during the observation period.

To confirm that our assignment procedure indeed randomly assigned clients to treatment or control, we examined balance plots (Figure A1). Across a wide range of covariates, we see that the distributions are nearly identical between the two conditions, as expected.

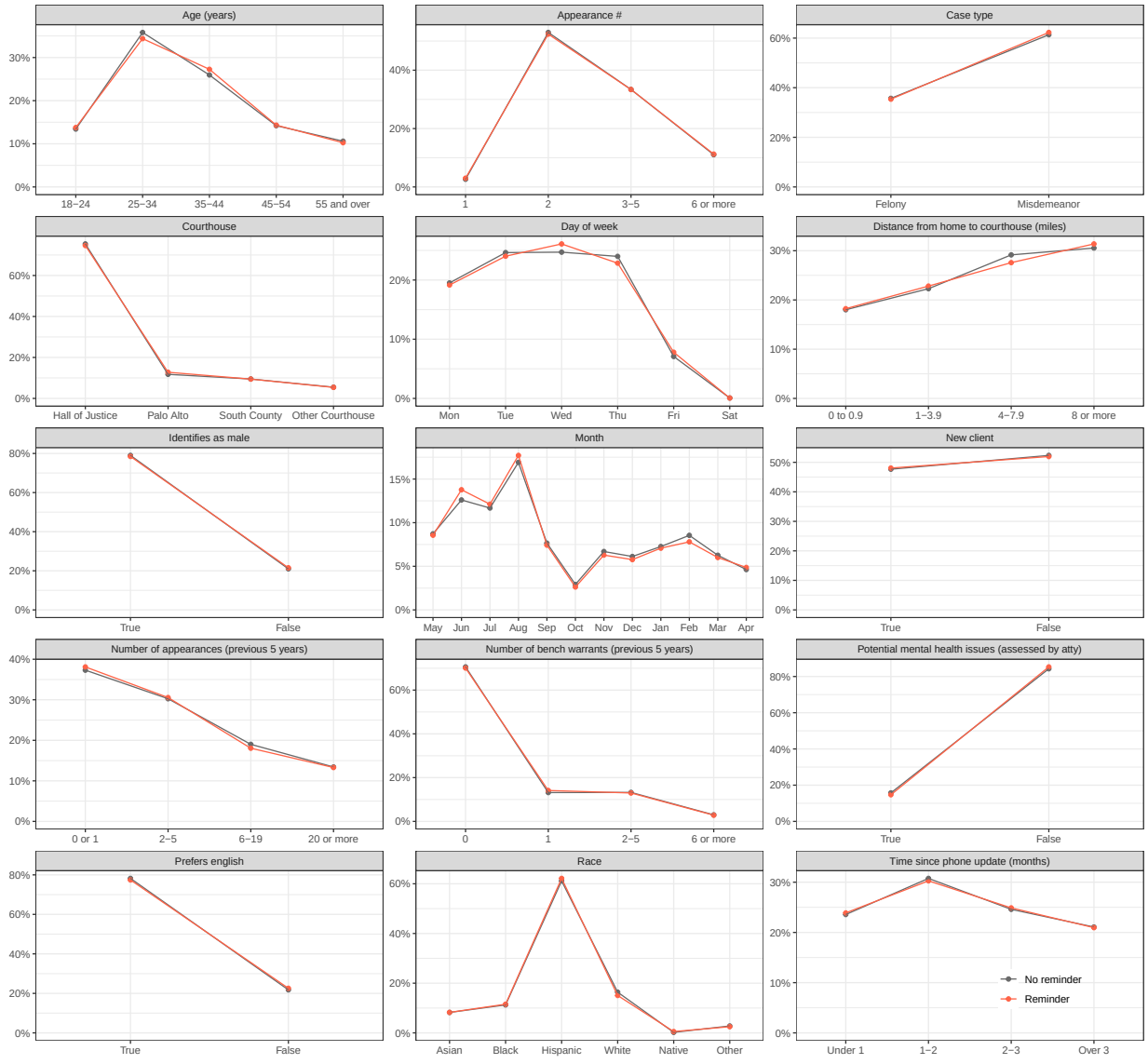

Figure A1: *Covariate distributions for the treatment and control conditions were nearly identical, confirming that our assignment mechanism correctly randomly assigned clients to the two conditions.*

B Spanish and Vietnamese Reminder Examples

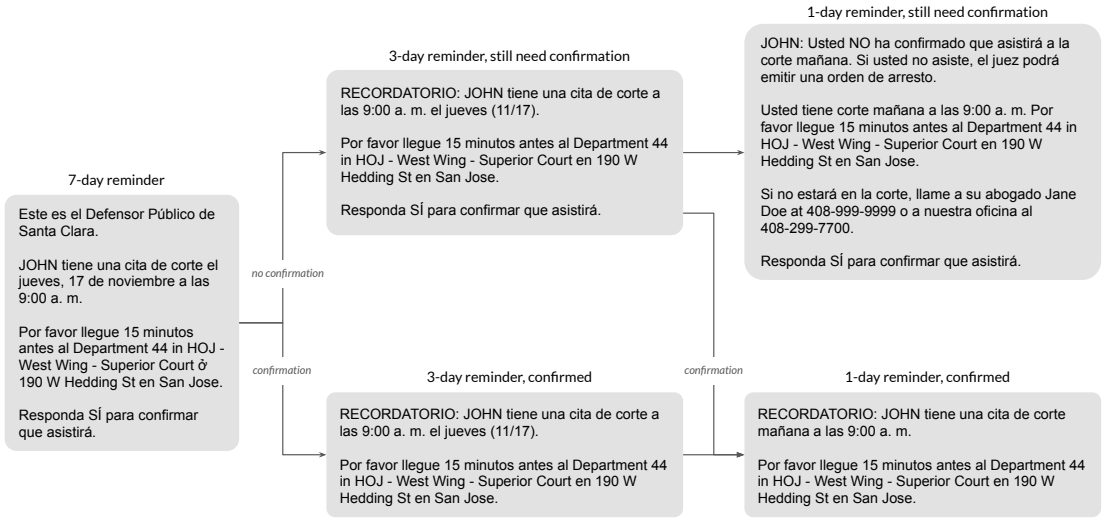

Figure B2: *Example of reminder flow in Spanish.*

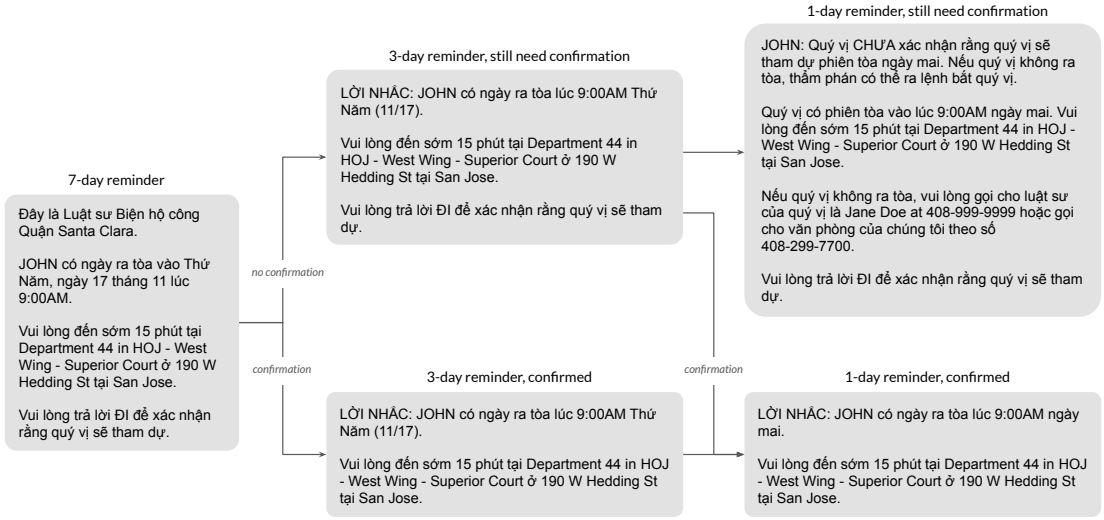

Figure B3: *Example of reminder flow in Vietnamese.*