

# Test, optimize and repeat

How revenue cycle managers can efficiently drive next-level patient engagement through focused consumer testing and optimization



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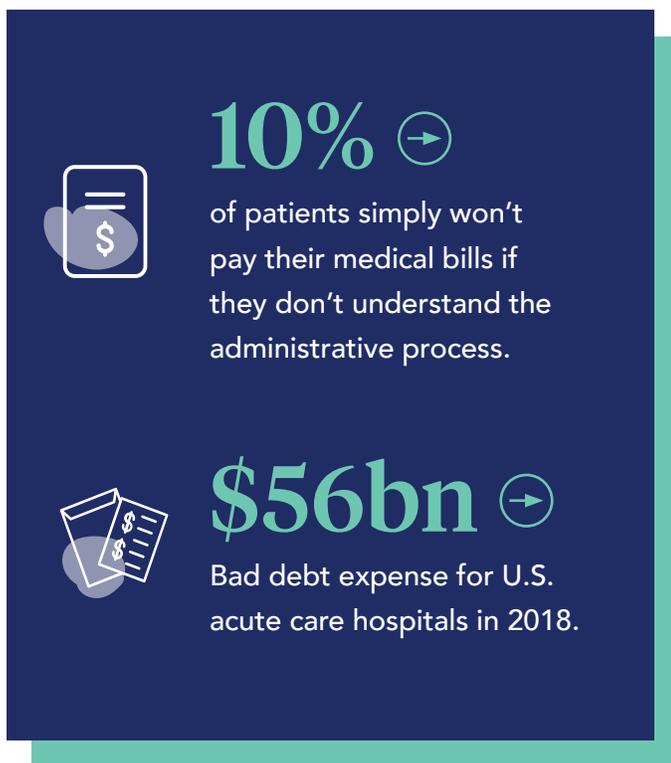
## About Cedar

Cedar's mission is to empower us all to easily and affordably pursue the care we need. As the only complete solution to address the challenges consumers face when paying for healthcare, Cedar enables a better and more transparent financial experience. To learn more, visit [www.cedar.com](http://www.cedar.com).



# 1. Taking patient engagement to a new level requires a new process, not features.

Revenue cycle managers (RCMs) around the country are turning to patient engagement solutions to drive financial performance and efficiency in the face of **growing consumer demands, rising patient financial responsibility** and increasing margin pressures. That's because when patients aren't empowered to pay, health systems do:



**10%** →  
of patients simply won't pay their medical bills if they don't understand the administrative process.

**\$56bn** →  
Bad debt expense for U.S. acute care hospitals in 2018.

The pain also extends to the business office. RCMs are saddled with the burden of managing inefficient billing and collection processes, which are a costly drain on human capital and chip away at net revenue. It costs **4X** more to collect from self-pay accounts than insurance companies.

The truth is, even when health systems have the core technology and processes in place to engage patients about the financial aspects of their healthcare, most struggle to foster the level of engagement required to move the needle. The root cause? Failing to deliver patient financial experiences that meet modern consumer expectations and needs.

To achieve next-level patient engagement and improve collection outcomes, RCMs must develop a deep understanding of consumer behavior through constant testing, so they can ultimately let patients define the optimal financial experience. By taking an outside-in, incremental approach to improving the patient financial experience, RCMs can:

- Increase self-pay collections without compromising the patient experience
- Lower administrative costs by accelerating resolution of accounts receivable
- Improve staff productivity by freeing up business office representatives for higher-value tasks and processes

This whitepaper outlines the importance of focused consumer testing for innovative organizations, and gives RCMs an inside look at how Cedar's testing and optimization programs deliver compounding improvements that create ongoing business value for health systems.



## 2. Testing and optimization: harnessing the power of human behavior

Ever wonder why most consumers are more compelled to use Google over Yahoo? Or drawn to click one step deeper while shopping on Amazon? Look to the teams of data scientists, designers and engineers, who figure out exactly what consumers want and then give them just that.

Leading consumer companies uncover consumer preferences and requirements through focused testing. They're not guessing, relying on intuition or leveraging opinions. Nor are they randomly testing variations in their products. These companies strategically and systematically use data and testing to determine what drives optimal engagement and desired outcomes.

Take Google. In 2020, they ran **600,000 consumer testing programs**, which resulted in 4,500 improvements to Search alone. Or Netflix, which saw **20-30 percent video viewing increases** by using A/B testing to identify the best images to pair with their titles on the app homepage.

Each of these companies follow a similar process—they analyze, hypothesize, test and then iterate. They don't try for moon shots. They make tiny bets, leading to incremental improvements that compound over time to deliver real business value.



To illustrate this concept, let's say an ecommerce company tested a new variation of copy in a digital advertising campaign to help boost sales of an existing product, and saw a 5 percent increase in clickthrough to the product landing page. On its own, this small gain doesn't amount to much. But what if the company also achieved the same 5 percent improvement in add-to-cart rate, completed sales and increased lifetime value?

This is the power of compounding micro-gains. Continuously layering in small, data-driven optimizations along the entire consumer pathway can lead to outsized results today and ongoing improvements in the future.

Now, what does this mean for RCMs?



# Cedar testing & optimization: Six examples of compounding micro-optimizations that enable consumer-centric experiences.

For RCMs looking to deliver more impactful patient experiences, increase engagement and improve collection outcomes, focused consumer testing and optimization is a must. To give RCMs a taste of how this process can be applied to the patient financial experience, the Cedar team compiled examples of the small optimizations we make across the patient financial journey to enable health systems to deliver exceptional patient experiences and see material business value.



## Optimization #1

# Initial communication timing matters (a lot).

Timing is everything, right? Well it may not be everything, but it matters, especially when it comes to getting patients to engage with bills and resolve their financial liabilities.

At Cedar, we've learned that capturing the attention of patients during the first few days after bills drop is critical. If patients don't interact within 10 days, the probability of digital adoption decreases by 50 percent and payment by 18 percent. That means RCMs have to work harder to follow up with patients later in the billing cycle, or worse, run accounts through expensive vendors that quickly erode the return on cash collected, as well as the patient experience. It's a lose-lose for all.

**If patients don't interact with a bill within 10 days, the probability of digital adoption decreases by 50% and payment by 18%.**

Given the steep drop off in patient engagement, we set out to understand when patients wanted to receive initial bill notifications from their healthcare providers. Our hypothesis was that by increasing the likelihood of patients engaging at those first touchpoints, we may see higher rates of self-service.

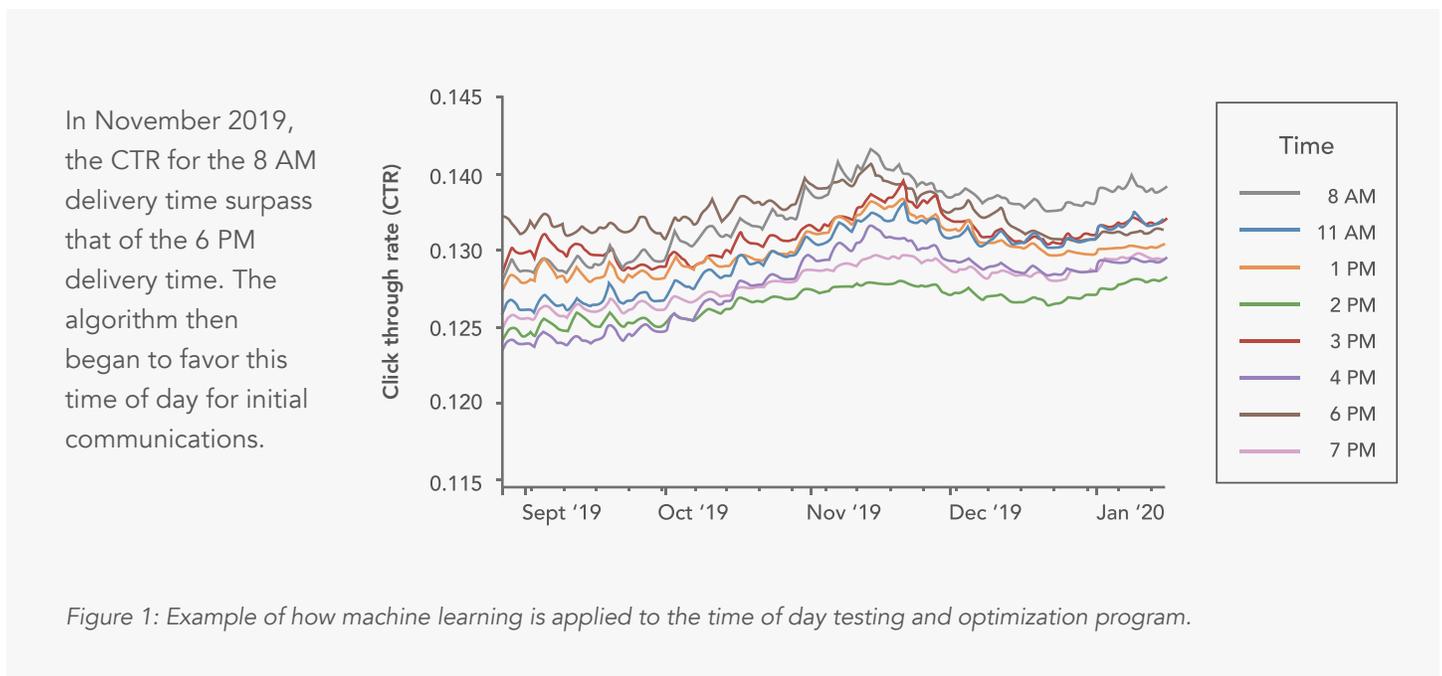


(Approximately **70 percent** of patients who click through to the Cedar app make payments.) In turn, this would help mitigate downstream inefficiencies and free up business office representatives to focus efforts elsewhere, such as helping high-need patients resolve large balances.

Taking a page from the **digital marketer's playbook**, we launched several testing and optimization programs to uncover the best time to initiate dunning communications. If you scan the timestamps on all the promotional emails you've gotten within the past day, you might notice that most were sent between 9-10 AM or 5-6 PM. That's no coincidence. For years, marketers have been studying consumer behavior to identify the best moments to send communications and ensure the highest number of customers engage digitally.

## So what's the best time to send initial bill notifications? Here's what we found out:

- Overwhelmingly, Wednesday and Thursday outperform, based on clickthrough rate (i.e., percentage of opened emails and texts clicked).
- Digging deeper, we see higher engagement when initial email and text communications are sent early in the morning, likely before patients leave for work or start their day. And this wasn't always the case. In late 2019, we noticed that the optimal time of day shifted from being early evening to morning (see figure 1), which we attributed to a growing population of younger patients. By leveraging machine learning-based decision models, we were able to dynamically evolve our engagement strategy in real-time to accommodate the needs of this cohort.





## Optimization #2

# Notification frequency needs to be just right.

Beyond the initial timing of bill notifications, it's crucial to get the cadence of communications dialed in throughout the billing cycle. When it comes to communication frequency, there can be a bit of a "Goldilocks conundrum:" too many notifications will likely lead to opt-outs, which may impact payment of future invoices; not enough means RCMs have to apply more effort and costly resources (e.g., full-time equivalent staff making outbound calls) to engage patients.

To drive optimal patient collection outcomes, communication frequency needs to be just right. And Cedar has come to learn that "just right" varies, depending on the patient and their communication preferences.

When Cedar began exploring communication frequency, we suspected a higher frequency of electronic pushes via text and email would lead to better outcomes, rather than simply aligning with 30-day statement runs. Unlike traditional outreach methods, such as paper-based and voice communications, electronic nudges tend to be less intrusive for the modern consumer.

We were right: more frequent reminders resulted in improved engagement and cash collections. We even uncovered the optimal duration in days between text and email sends (see figure 2) to make sure we were balancing financial results (e.g., collections) with patient experience (e.g., unsubscribes).

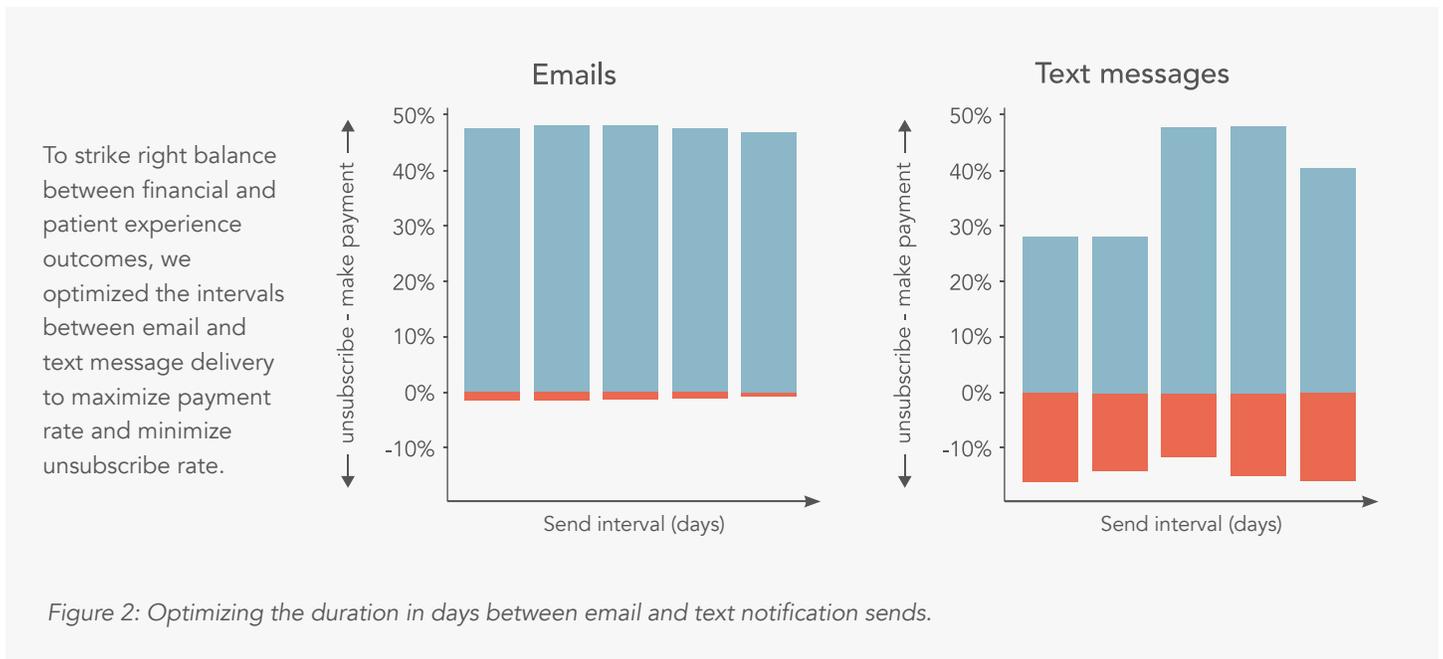


Figure 2: Optimizing the duration in days between email and text notification sends.



**Although we generally saw high performance across our client base, there were a few problems with the approach:**

1. It didn't make sense to optimize email and text intervals independently; we needed to jointly optimize the frequency of communications across all available channels.
2. We weren't taking into account the impact of unsubscribes, which required us to evaluate performance in terms of long-term collection rate (e.g., collection rate over an extended period of time in which patients receive multiple invoices).

To address these issues, we launched a new testing and optimization program to test different sets of intervals across different combinations of communication channels, with the primary metric being long-term collection rate. This program is ongoing, but there have been a few early takeaways that create opportunities for personalization:

- For patients who opt in only to receive statements by mail, lower frequencies of paper bills increase collections when the balance is small (<\$100); however, this is not the case for larger bills.
- For patients subscribed to both email and paper-based communications, as well as those who are more likely to return for future visits (e.g., primary care patients), collections are higher when we send less frequent communications across both channels.
- Finally, when patients opt in to receive email, text and paper-based communications, a relatively lower frequency of text reminders leads to higher collections, lower unsubscribes and more satisfied patients.





## Optimization #3

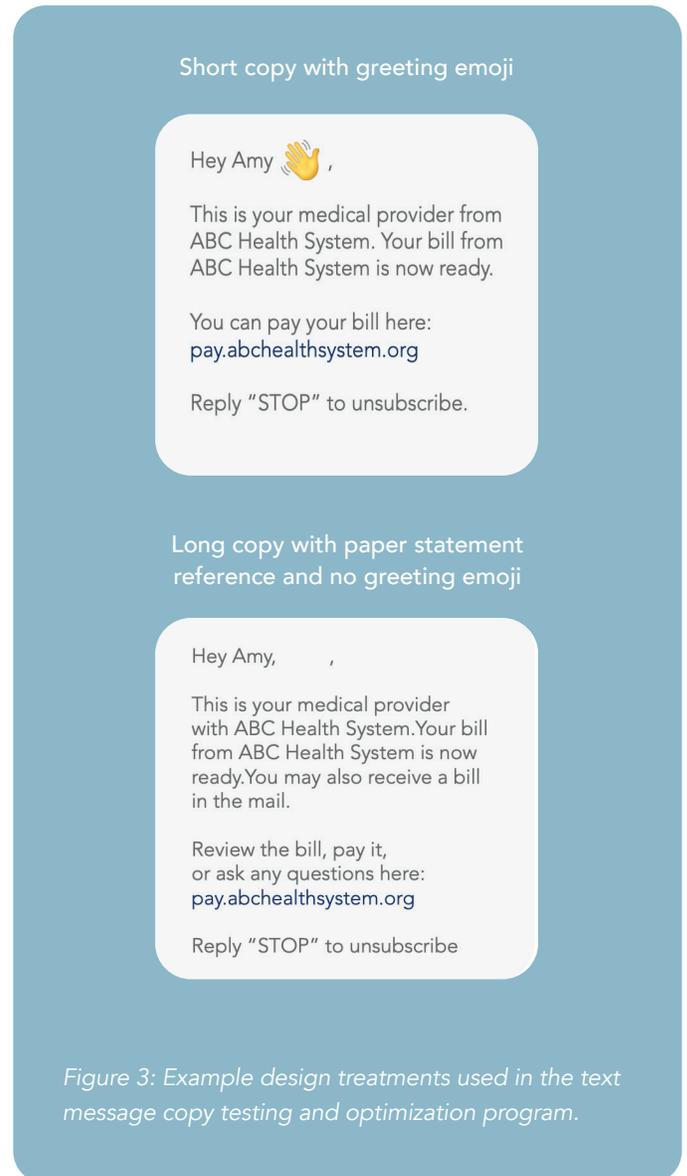
# Emojis don't establish trust at first contact.

Cedar takes qualitative feedback captured in patient **satisfaction surveys** very seriously, and often uses this data to improve our products. When we noticed that some patients were weary of engaging with our initial text notifications (due to the prevalence of spam texts and phishing schemes), we gathered a cross-functional team to look at copy modifications that could establish trust and minimize opt-outs.

We conceived several design treatments (see figure 3) to test the following copy variables:

- **Emojis:** Given the growing popularity of emoji use in electronic written communications, we hypothesized that including a hand-waving emoji in initial text notifications would give the message a friendly, personal touch. We believed it would especially resonate with **millennials**, a patient cohort that we found were less likely to pay medical bills.
- **Details:** We also wanted to better understand how the level of detail impacted perceptions of legitimacy.

Additionally, we used our default text copy as the control.

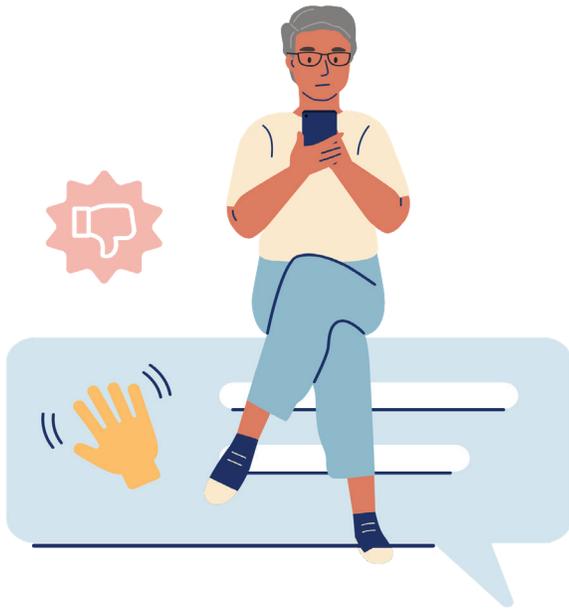


Shortly after launching, the new designs triggered some unexpected reactions. It became clear that emojis had the opposite effect to what we intended, so we quickly mobilized to suppress this variant.



Also, across client partners, patient age groups and bill sizes, the shorter variant underperformed—both in terms of clickthrough rate and opt-outs—compared with the longer, more descriptive variant. However, the default message that alluded to the paper statements outperformed all (see figure 4). (We still use it today.)

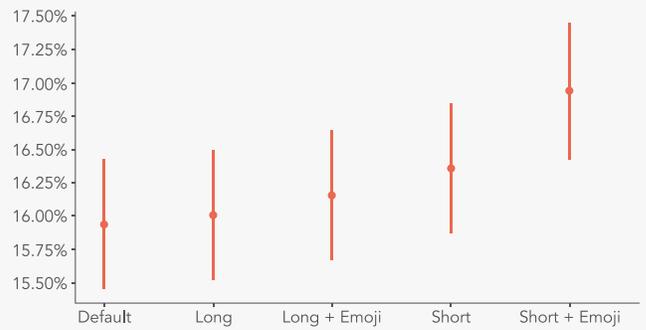
Although this optimization program taught us how patients prefer to be communicated with via text, perhaps the biggest lesson was to embrace failure. In working to improve the patient experience, you won't always get it right the first time.



**Understanding the kinds of experiences patients don't want during the financial journey is critical for achieving next-level patient engagement.**



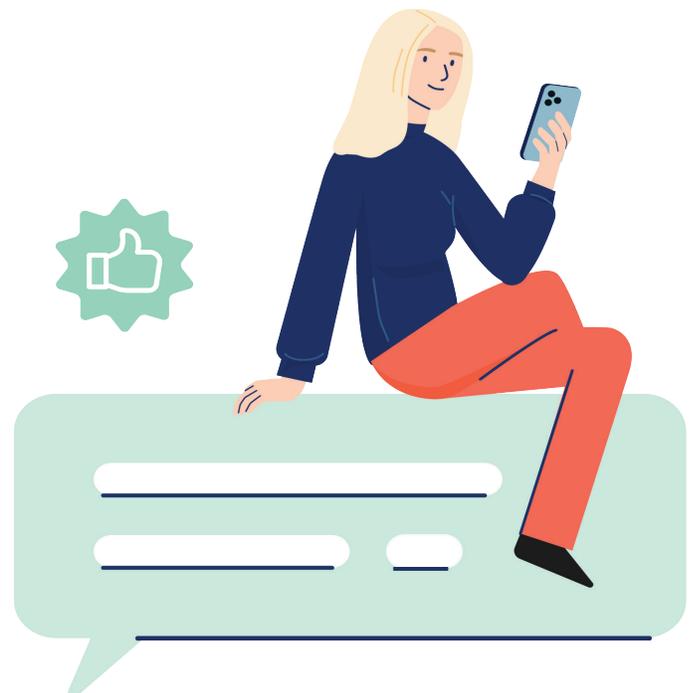
% Users who unsubscribe from text messages



Text messages click through rates



Figure 4: Results of the text message copy testing and optimization program.





## Optimization #4

# A little empathy can go a long way.

Traditionally, dunning involves escalating degrees of communication intensity in an attempt to collect money owed, and to notify patients about the negative consequences of inaction (such as credit score impact). Even though this methodology has been standard practice for the collection of accounts receivable since the eighteenth century, that doesn't mean it's effective for every consumer—especially for medical debt.

### Enter the Hustler.

The Hustler is one of four millennial behavior archetypes that Cedar developed as part of a user research study we conducted in partnership with IDEO (see figure 5). The purpose of the study was to understand the different behavioral patterns of millennials—as we mentioned in the last example, we discovered this age cohort was least likely to pay medical bills. And we believed Hustlers had high potential for behavioral change.

## The four millennial archetypes



Figure 5: Behavioral archetypes uncovered by Cedar's "Cracking the Millennial Mindset" user research study.



Although Hustlers have lower financial literacy and security compared with the other archetypes, they tend to want to do the right thing, and ultimately try to pay their bills. That becomes challenging, however, when Hustlers' natural response to crisis is "flight or freeze," which often leads to disengagement.

We began to think: how might we decrease the stress that accompanies the billing cycle? How can we empower this archetype to engage with their medical bills, while subsequently helping RCMs avoid expensive billing and collection activities?

Cedar's solution was to reimagine how we communicate bills to Hustlers and change the narrative of dunning. It was inspired partly by an earlier testing and optimization program, which proved that compassionate communications can drive significant results.

Previously, Cedar tested a series of emails that centered on helpful messages such as "Pay less upfront with payment plans," and notes of encouragement such as, "Stay on track with your bill." We found that collections were unchanged for patients we presumed to have a higher propensity to pay, yet we saw an absolute increase of three percent in collections for patients with a lower propensity to pay.

Encouraged by these results, we've launched a set of testing and optimization programs to target the Hustler archetype, and will test the effectiveness of communicating in a progressive, empathetic way via email and text throughout the billing cycle (see figure 6). Rather than sending communications that could be perceived by this archetype as threatening, we're aiming to de-escalate triggering moments, foster meaningful engagement and drive better payment outcomes.

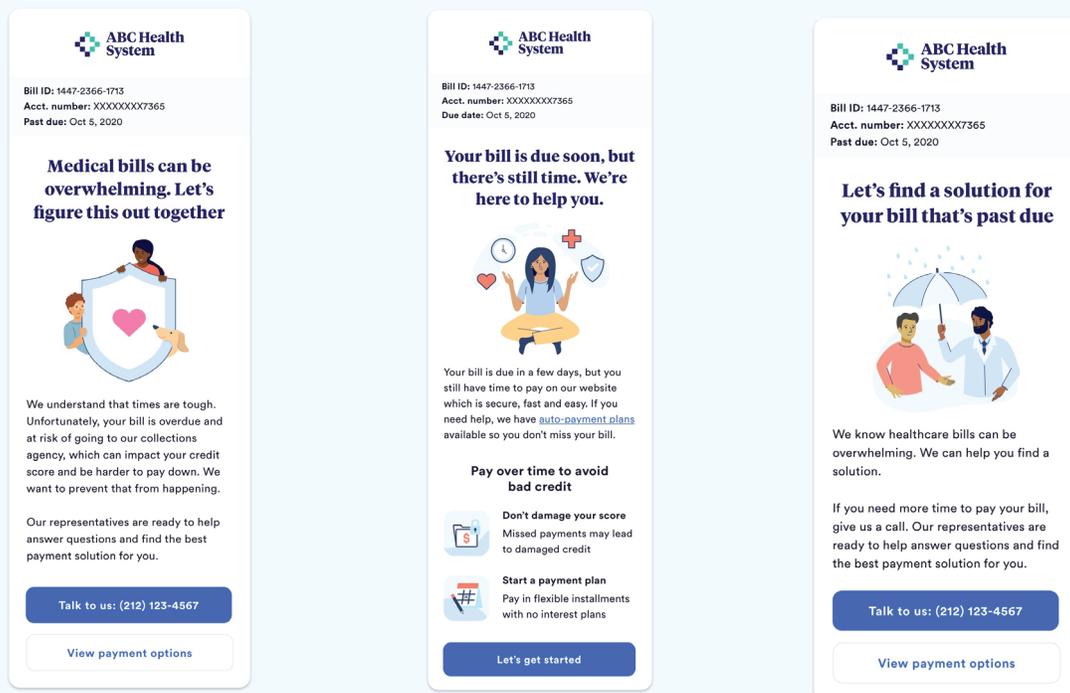


Figure 6: Example design treatments from empathetic messaging testing and optimization program.





## Optimization #5

# Good design is good for cash flow.

Although patients might respond differently to empathetic communications, we've found that an intuitive UI is universally appreciated—no matter how high or low the patient's propensity to pay.

At Cedar, we've learned that no-interest payment plans are useful for patients of all kinds, giving them flexibility in paying their bills to suit their monthly budget. They're a win for RCMs, too. Payment plans provide predictable cash flow for health systems, and across Cedar's client partners, we see more than **20 percent** of cash collected on a weekly basis associated with a plan—with default rates less than **15 percent**.

Based on our data, however, we noticed that many patients who might benefit most from a payment plan—those with a low propensity to pay—weren't opting in. We decided to design a testing and optimization program to see whether we could help more patients pay on their own terms.

To self-enroll in a payment plan using Cedar's online portal from the homepage, patients had to click on a "call to action" (CTA), which would bring them to a new page to engage in a step-by-step workflow to customize payment plan parameters.

We hypothesized that this created unnecessary friction, preventing more patients (such as Hustlers) from understanding how much flexibility they had to meet their obligations.



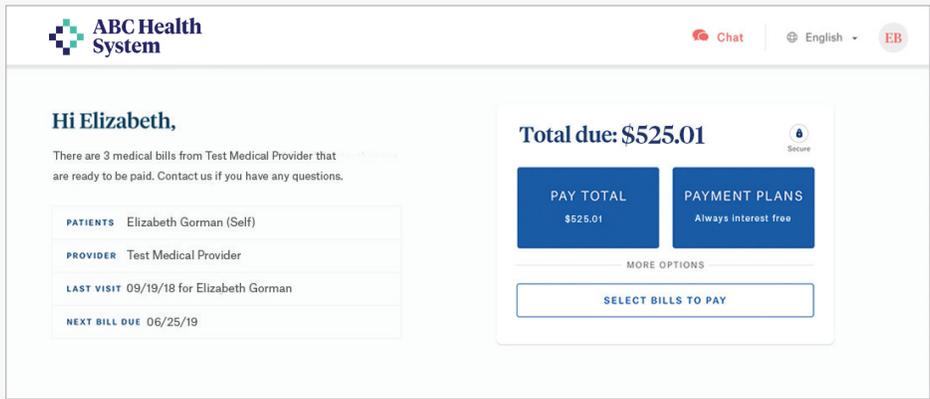
Our proposed solution? Improve visual communication on the homepage, so patients could understand payment plan terms before they dropped off. We designed a consumer-friendly, interactive slider that enabled patients to toggle different payment plan configurations and view potential installment amounts, without having to click twice, and A/B tested this against the default UI (see figure 7).



When presented with the intuitive UI, more patients enrolled in payment plans. We saw a one percent increase in cash collections for patients, whether with high or low propensities

to pay. This confirmed our hypothesis that when you present clear, flexible payment options from the outset, patients are more likely to pay.

### Version 1



### Version 2

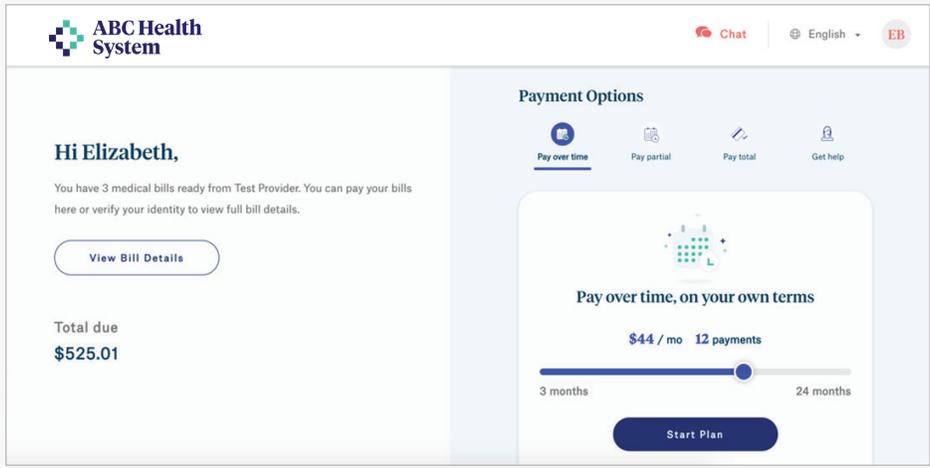


Figure 7: Variants used in the homepage payment plan call to action UI testing and optimization program.





## Optimization #6

# The perfect discount does exist.

A common objection to patient financial engagement platforms is that even though they're great at "pulling cream off the top"—meaning these solutions help collect monies that health systems were likely to collect on their own, albeit faster and cheaper—they fall short in engaging difficult to reach, high-dollar accounts (such as true self-pay). Thus the burden falls on business office representatives assigned to self-pay and expensive outsourcing to reconcile these accounts.

At Cedar, our objective is to design a patient financial experience that every patient can take advantage of, regardless of their personal situation, financial literacy or engagement preferences. That's why we launched a multi-part testing and optimization program to better understand the extent to which discounts can benefit healthcare providers and patients with true self-pay bills.

We knew that true self-pay accounts have a significantly lower propensity to pay when compared with self-pay balance after insurance. Yet we observed that these patients were still engaging digitally by accessing the Cedar portal. We believed that at the point of engagement, there was an opportunity to compel action by making the cost of care more affordable with discounts.

In the initial phase of the testing and optimization program, we measured the effectiveness of different discount sizes, start times and expiration dates. The goal was uncovering the optimal discount offer to strike the right balance between patient engagement and collection yield.

### Here's what we learned:

- The size of the discount matters in incentivizing patients to act, and larger discounts lead to higher collections, speed to collect and balance resolution rates. Interestingly, **30 percent** (the second largest discount size) outperformed other variants for all but one age bracket (see figure 8).

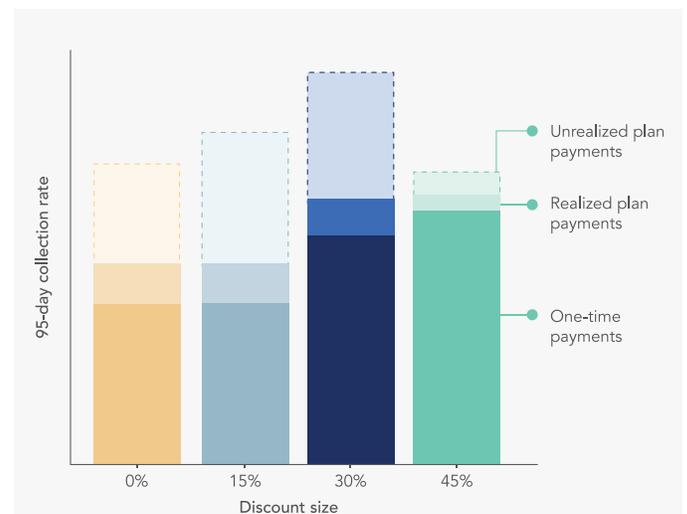


Figure 8: Impact of different discount sizes on true self-pay collections.



- Discounts offered to patients mid-billing cycle fail to accelerate collections compared with discounts offered as soon as statements drop. Alternatively, when discounts are offered at the beginning of the billing cycle, collection rate increases (see figure 9).
- When discounts start on day 1 of the billing cycle, expiring offers incentivize patients to act early and expedite collections. Discounts that aren't time-bound have lower collection rates (see figure 10).

In total, during the initial phase of the discount testing and optimization program, Cedar saw a **10 percent** increase in collection rate and a **30 percent** increase in resolved invoices. This proved that discounting true self-pay balances is an effective tactic that can be leveraged by RCMs to drive higher collection yields, while also helping high-risk patients avoid financial toxicity.

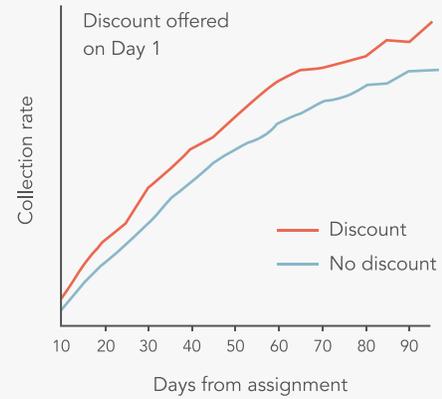


Figure 9: Impact of different discount start times on true self-pay collections.

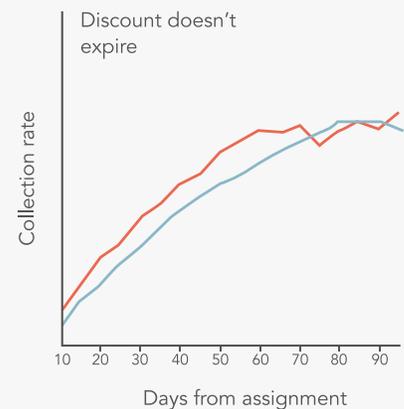
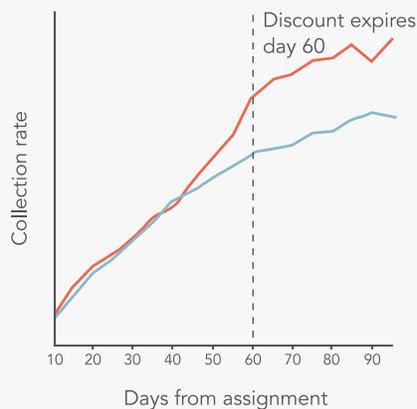
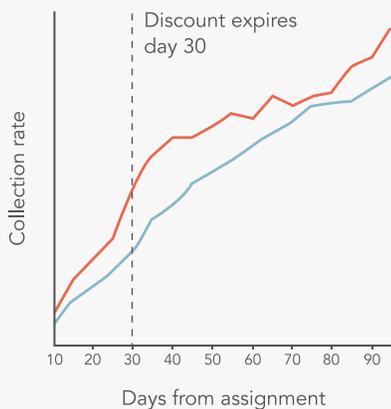


Figure 10: Impact of different discount expiration times on true self-pay collections.



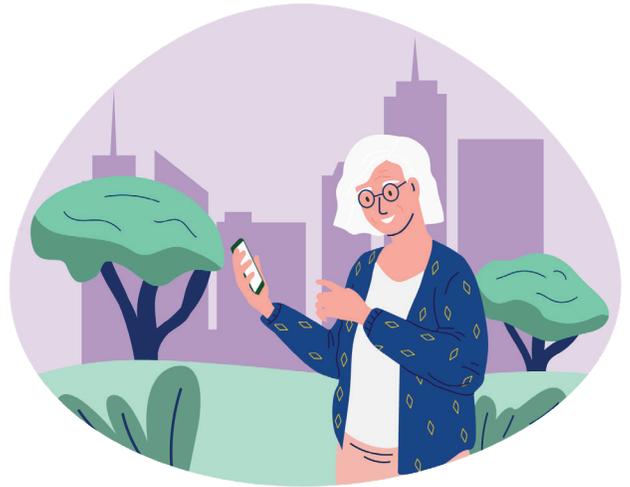
# What's next?

Twenty years ago, most big companies would run just a handful of consumer testing and optimization programs each year. Today, companies can scale testing and optimization quickly, thanks to a combination of new technologies and agile business approaches. For RCMs who want to leverage consumer testing optimization programs to achieve next-level patient engagement, finding the right technology partner is critical. Cedar is here to help.

We provide a modern, cloud-hosted technology platform built to rapidly deploy and support constant testing and optimization.

**That means health systems can increase collections, improve patient satisfaction and lower administrative costs with improved operational efficiency.**

Collaborating closely with our client partners, our teams of data scientists, designers and engineers proactively identify and seize opportunities to improve the patient financial experience, move the needle on patient engagement and deliver real business value to health systems.



**Ready to get started? Get in touch with one of Cedar's experts today.**



