PATHWAYS TO “A BILL YOU CAN UNDERSTAND”: LESSONS LEARNED FROM A DESIGN AND INNOVATION CHALLENGE

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Abstract
This paper shares the lessons learned from the “A Bill You Can Understand” Design and Innovation Challenge, an open design competition dedicated to helping patients in the U.S. health care system understand their medical bills and the financial aspect of health. We describe what we found while preparing these materials related to pain points for patients associated with the current medical billing process and opportunities for improvement. We summarize the common features in the entries, with special focus on the Published Set of two prize winners and ten honorable mentions. Finally, we share insights into what members of the health care industry can learn from these innovative designs. Patients today are expected to integrate, verify and prioritize cost and billing information flowing to them from multiple sources. The best designs integrate these into one or fewer sources before reaching the patient. We propose three pathways that align the flow of information with current consumer expectations:

- Healthcare Network as Source
- Insurer as Source
- Third-Party Service as Source

All three pathways address a common theme: alleviate the fragmentation of the patient’s financial relationships.
Creating a Design Challenge to Improve Medical Billing

The true origin of the “A Bill You Can Understand” Design and Innovation Challenge is our collective experience with medical bills in the United States. The medical bill is an integral part of the healthcare system and a patient’s most common interface with healthcare organizations. The way the cost of medical care is communicated directly affects our health (Rosenthal 2014 & 2015). Medical bills are a common source of confusion for American patients and families. A patient’s experience of these bills is capable of invoking illness, rage, confusion as well as bankruptcy (Austin 2014). We all ask ourselves, “Why are medical bills so different from all the other bills I get?” and, “Why are they so confusing?”

The design challenge began in February 2016 as a discussion between the U.S. Department of Health and Human Services (HHS) and Mad*Pow around how we could collaborate to improve the consumer experience of healthcare. One of HHS’ priorities under the Obama administration was to put patients at the center of their health care as the department works to transform the health care system into one that works better for everyone. HHS had previously developed open design challenges to promote and accelerate problem solving, and was interested in leveraging a design challenge to address the issue of medical billing, a common consumer pain point. Mad*Pow had also collaborated with Health 2.0 for several years to sponsor design challenges addressing important patient-facing issues in healthcare. We wanted to combine our resources to address the current state of medical billing.

From the start, we were searching for a way to structure a design challenge that would have the greatest impact on solving the problem at hand. How could we encourage people from around the United States to design a way out of the current situation? We know from our personal and professional experiences that medical bills and explanations of benefits are a source of consumer dissatisfaction. We could also refer to a number of news stories and one peer-reviewed study (Semigran 2006) that were a call to action. We recognized that if we encouraged people to improve the bill produced by the current business process, the results could be immediately useful but would not address problems with the billing process itself. If we encouraged people to redesign the business process, the results could have far-reaching impact but would be more difficult for healthcare systems to implement.

It was this conundrum that led to the two-prize structure of this challenge. We wanted to create an opportunity to improve the bill quickly in a way that would be acceptable to healthcare institutions. But we also wanted to encourage participants to rethink the processes behind the bill and to reconfigure the workflow needed to support a patient-facing product that best serves patient and caregiver needs. A phased approach supported both of these goals. In the first phase, participants would be asked to redesign the bill itself within the context of the current system. The second phase would involve redesigning the entire billing process.

When sponsorship from AARP fell into place, we were faced with a timeline too short to accomplish the challenge in phases. Instead, we chose to offer two prizes in parallel, giving participants the option to design for either or both prizes. **Prize One: Easiest Bill to Understand** focused on improving the presentation of the bill itself. **Prize Two: Transformational Approach** focused on changing the process behind the bill.

We know from our own design work that a clear problem statement is crucial to a successful outcome. Before launching the challenge, we needed to explain the problem to ourselves from multiple points of view so that we could communicate it clearly to the challenge participants. HHS assembled an Advisory Panel of pioneering healthcare providers and insurers already committed to improving the billing experience for their own customers. These “Pilot Partners” – Cambia Health Solutions, Geisinger Health System, Integris Health, MetroHealth, Providence Health & Services, and University of Utah Health Care – committed to test or implement aspects of the winning challenge.
solutions at their organizations. Representatives from the Pilot Partners participated in the planning discussions and contributed to the research phase, which both shaped and scoped the challenge. We also engaged a broad range of additional stakeholders, ranging from academics and industry experts who could explain the revenue management issues facing providers and insurers, health literacy specialists, patient-advocates, as well as patients themselves.

![Double Diamond Model of the Design Challenge](image)

**Figure 1. Double Diamond Model of the Design Challenge**

**Doing the Research**

In April 2016, Mad*Pow soft launched the challenge at the Healthcare Experience Refactored (HxR) conference. In collaboration with our Pilot Partners and other stakeholders, we also produced a research report before U.S. Secretary of Health & Human Services, Sylvia Mathews Burwell, officially announced the launch of the challenge at Health Datapalooza in May 2016. Our goal was to provide original research on the state of medical billing today to jumpstart the teams entering the competition.

Our report compiled insights and quotes from phone interviews complemented by an online survey. We interviewed representatives from the Pilot Partner healthcare systems, insurance companies, and other experts in medical billing and health literacy. We also conducted interviews with patients chosen for their experience dealing with medical bills in the recent past. Based on the insights gained from these interviews, we designed and executed an online survey that attracted responses from 355 additional people.

The results of the interviews and survey identified seven concerns or problem areas.

1. **Patients Don’t Know What They Don’t Know**: Providers don’t inform patients about how their medical care, and related costs are distributed among providers. Patients don’t know when and where to ask questions about decisions that affect their medical care and related costs. Patients don’t know when a denied claim will be resubmitted, processed, and accepted.
2. **Volume of Communication**: Patients typically receive a large number of documents from payers, multiple providers, and third-party benefits managers for a single medical event. “Going paperless” can result in a large volume of emails from multiple sources. These emails often contain PDF copies of the same documents that arrived in the mail or links to multiple patient portals, each requiring its own credentials.
3. **Understandability**: These diverse documents do not provide a clear indication of how they relate to one another or how they define the patient’s healthcare costs. The same charge may be described differently in a bill and in a corresponding explanation of benefits (EOB) statement. The name of the physician that treated the patient may not appear on the bill, while the names of other physicians unknown to the patient do appear. Hospitalization charges are divided into categories incomprehensible to the patient, defined by the provider’s contract with the payer.

4. **Terminology**: Treatments are described in terms unfamiliar to the patient. Payment options are difficult to find and written in legal jargon.

5. **Timing**: Payers and providers need time to reconcile claims for actual patient charges and reimbursement. This additional time separates the patients’ experience of care from their experience of cost. The unpredictable amount of time before documents arrive can add confusion to the process.

6. **Financial Planning**: The lack of awareness of cost before and during care means patients are unprepared for managing the final cost of care. Faced with bills that far exceed their available resources to pay, patients don’t know their options for managing payments long term.

7. **Trust**: The relationship between providers and payers can result in denial and resubmission of claims, which often undermines patient trust in the accuracy of charges included on the bill. Patients don’t often know the full cost of care given the significant differences between the charges appearing on the bill (reflecting the charge master price that would apply to an uninsured patient) and the amounts their insurance covers (allowable charges). A lack of trust is exacerbated when patients experience charges they simply don’t recognize as associated with their care, or duplicate bills.

The joke about real estate is that price is based on three things: Location, Location, and Location. Today, the patient’s experience of medical costs are based on Surprise, Confusion, and Delay. Patients are surprised by the cost when they receive the bill. They are confused by the language the bill contains. They experience unpredictable delays resolving bills that are far removed from their interactions with healthcare providers. The volume of paperwork directed at a patient, as well as the terminology found on the benefits statements and bills combine to undermine understandability and trust. The absence of cost information at the time of care combined with the long gaps between the patient’s encounter with providers and receipt of the bill makes financial planning difficult.

Patients are not the only ones who struggle with medical billing. Providers and payers face their own billing issues. Providers struggle to manage their revenue flow. Negotiating payment contracts with a variety of payers makes it challenging to estimate the cost for a patient at the point of care. Large payers operating in multiple states face enormous variations in provider data reporting practices. Communication between providers, payers and pharmacies is one of the last bastions of non-digital communication. Faxing information on hand-written forms and re-entering these images into data processing systems leads data entry errors and delays in processing claims.

**Hearing from Patients, Providers, and Payers**

The following are statements selected from the interviews with patients, providers and payers, conducted during the research effort that preceded the design challenge.

**Patients**:

*No, I did not really [research the costs prior to the visit]. I was pretty concerned about the actual diagnosis of melanoma vs. looking into my insurance.*
The point of a bill is to easily understand what I’m being charged for. If it’s correct, I give you money and get on with my life.

There is no correlation between what’s shown on the bill and the way the insurance company talks about billing.

I won’t bother trying to make sense of something that is designed never to make sense. I have resigned myself to accept that I will have to make minimum payments for the next one hundred years or so.

Providers:
Patients don’t know who they will get bills from. From our computers, we can’t tell who has seen the patient. A hospital is like a shopping mall, with all kinds of independent stores in the mall and we don’t know which store they visited.

I think patients want their medical bills to look like a credit card statement, without line after line of detailed information. They don’t need all the detail.

We are giving people very complex information. It is unfair, confusing and anxiety producing. They may think, ‘I’m not sure what I paid for. Did I pay for the right thing?’

If we can figure out how to sync timing and capturing cash, we would have a happy patient and happy revenue.

Payers:
For us [the insurer], we don’t see those bills. We don’t know what the providers are billing to the member. If someone calls us and it’s not clear from the EOB where the gap is, then we have to call the provider. There is a lack of visibility.

Medical Billing Services:
It comes down to: Can you engage someone? Can you build trust, through something they can use and digest? Can the communication be useful details rather than a billing statement that is just made up of weird-looking codes?

Mapping the Patient’s Journey
We asked each challenge entrant to describe their solutions in four parts: a design brief, a video describing the concept, a journey map, and visual compositions. The design brief was an opportunity to describe the thought process and design research that led to the visual composition. The short video was an opportunity to “tell the story” of the solution. We requested that the journey map for each entry illustrate the medical care and billing process from the patient’s perspective. The customer journey map, which illustrates a person’s interactions with a product or service, is a common tool in Experience and Service Design practice. Designers use this tool to visualize a current process, identify touch points where improvements should be made, and then reuse that structure to visualize an improved future state. We wanted to create an example journey map that was rich enough to illustrate common pain points, but not so complex as to be a special case. Our intent was to provide a model that would inspire and illuminate solutions.

To inform participants, Mad*Pow created a patient journey map that illustrated a typical current medical care and medical billing experience and published it along with the full research report. The medical billing journey we chose to represent was based on an actual episode of care captured during a patient interview. We chose to map this patient journey — diagnosing and treating skin cancer — because it lent itself well to narrative presentation. **Who Does The Work** (row 1) generates the **Billing Process** (row 4), which breaks down into six separate streams. The sequence of **Medical**
Events (row 2) contrasts sharply with the Billing Process. The Patient Experience (row 3) shows how the Billing Process and the Medical Events appear unrelated, even though they are triggered by Who Does The Work.

Figure 2. Example Current State Patient Journey

Identifying the Pain Points and Opportunities
Our research report, journey and ecosystem maps, and additional resources posted on the challenge website were offered as open-ended resources. We did not want to share any analysis that looked like “answers.” We hoped this would encourage challenge entrants to do their own further research along with usability testing of their solutions.
The hardest part of running design challenges is not being able to enter it ourselves. During the challenge period, we developed a second layer of the journey map in which we identified the touchpoints causing confusion and discomfort to the patient, then aligned potential solutions. We discussed the issues identified in the research report in an internal seminar, where we enumerated the pain points associated with each concern and identified opportunities to address them.
The ideas captured during these internal discussions proved prescient for anticipating the kinds of solutions we would see in the final entries.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pain Points</th>
<th>Opportunities</th>
</tr>
</thead>
</table>
| Patients don’t know what they don’t know | • Patients don’t know what to expect from a recommended procedure  
 • Patients don’t know if the specialist is acting in their best interest  
 • Patients don’t expect bills from providers they haven’t met | • Providers could explain who will bill for a procedure or test, setting patients’ expectation |
| Volume of communications   | • Maintaining accounts on multiple patient portals for access to and payment of bills from different providers  
 • Lack of connection between insurance portal, patient portals, benefits statements, and bills  
 • Multiple bills and payment portals make it difficult to keep track of what has been paid | • Coordinated statements or a unified portal to review provider claims to insurers; bills from all providers; the patient’s HSA, HRA, or FSA; deductible and OOP status would reduce concern |
| Understandability          | • Explanation of claim denials between provider and payer are opaque to the patient  
 • Introducing third party payers complicates the process  
 • Patients are presented with charges/payments/adjustments that represent fragments of B2B contractual agreements between providers and payers | • Payers could estimate the potential cost of a denied claim to patient, if and when the claim is approved  
 • Bill could be part of a clearly identified “episode of care” statement associated with the relevant specialist, lab, medical services, and facilities fees |
| Terminology                | • Inconsistent language on the bill and on the EOB  
 • Separation of charges for services, facilities, and labs are incomprehensible to patients  
 • Neither diagnostic codes (provider language) or billing codes (payer language) correspond to plain language (everyday words, phrases, and numbers that the reader can understand patient language) | • Plain language could be used in the bill  
 • Hospital could use plain language for doctor/professional, facility, and lab services |
### Timing

| | - Lengthy claims processing timeline separates patient receipt of bill/cost information from time of encounter  
| | - Timing delays for medical bills are unlike any other retail or service experience  |
| | - Bill patients for all charges on a monthly basis, with clear descriptions and reliable answers to questions.  
| | - Process claims for a single episode of care together rather than in separate streams |

### Financial planning

| | - Inability of insurer and/or provider to present reliable cost estimates in a timely manner undermines patient’s ability to do financial planning  |
| | - Simplify claim processing to avoid claim denials and delayed billing  
| | - Insurer could estimate the total cost of procedure at the time the provider recommends it, setting the patient’s expectation for total cost  
| | - Hospital could include payment due date and payment plan options with estimates |

### Trust

| | - Patients don’t trust bills received from providers they haven’t met  
| | - Introducing third party benefit manager payers further undermines patients’ trust in payers  
| | - Incomplete or inaccurate cost estimates undermine trust in both payers and providers  
| | - Surprisingly expensive bills arriving long after time of service make financial planning difficult  
| | - Presenting the patient with enormous differences between charge master amount and allowable charge undermines provider credibility  |
| | - Provider could review costs of treatment options with patient at point of care  
| | - Patient could be assured that specialist and hospital surgeon are recommended by payer  
| | - Patient could review quality rank of hospital department for procedure preceding care  
| | - Providers and payers could eliminate charge master amount and only display allowable charge |

### Learning from the Results

By the time we reached the August 10 challenge submission deadline, 565 teams had pre-registered on the challenge website. About 15% of these teams completed the enormous task of completing a submission for entry. The competition attracted 41 entries for Prize 1 and 43 entries for Prize 2. The teams themselves came from healthcare organizations or companies, nonprofit organizations working in the healthcare sector, individual doctors and healthcare workers, interaction design companies, software companies managing health information and financial services, graduate student teams from public health and design schools, and ad hoc groups of professionals from various industries.
Each entry was independently evaluated and scored by members of the Advisory Panel, comprised of representatives from the Pilot Partners, AARP, Mad*Pow, healthcare policy specialists, and representatives from patient advocacy groups. Five finalists were chosen for each prize from those entries that received the highest scores. These 10 entries were presented to a patient focus group organized by Partners for Better Care, a coalition of patient advocacy groups. The scoring and feedback from the Advisory Panel, as well as the responses from the patient focus group, were provided as additional resources to the Federal Panel of judges from HHS. The Federal Panel leveraged these additional resources in its selection of the challenge winners.

The quality of the entries impressed everyone and the scoring among the finalists was close. Like an Olympic event, tenths of a point separated the winners from the honorable mentions. The winning announcement was made at the Health 2.0 Annual Fall Conference in September 2016, and a gallery of winners and honorable mentions went live on www.ABillYouCanUnderstand.com, the challenge website. The gallery includes links to the videos and documents for the two winning entries, and ten honorable mentions. These complete entries are available on the website and we will refer to this set of twelve winners and honorable mentions as the Published Set.

The RadNet team was awarded Prize 1 for Easiest Bill to Understand. Their design provides adaptable bills that line up with the patient’s current experience, including options for the uninsured or for collecting past due payments. Their clear use of color segments the page or screen, making it easy to locate and read specific information. The bill includes a strong presentation of payment due, payment options, and insurance details. QR code links to an online presentation for further information to reveal charge details as needed. Their use of plain language explanations is concise and puts charges in context. The judges also commended this entry for providing “a clear depiction of how insurance is factored into a patient’s cost of care.”

The RadNet team identified four principles that guided their work
- Using plain language
- Eliminating unnecessary verbiage, paring it down to the essentials
- Hiding the complexity, but offering detail on demand
- Consistent use of color to identify critical elements

The Prize 2 winner for Transformational Approach was a team from Sequence for their design of Clarify, a new online- and mobile-based service that extends a retail model of consumer behavior to medical billing. It presents healthcare services in new ways that allow people to search, browse,
weigh their options, compare prices, and decide how they will pay. By modernizing, automating, and personalizing the transactional aspect of healthcare services, Clarify can enable better relationships among consumers, providers, and payers.

Some of the outstanding features of this entry include:
- Establishing a consumer-centric information and payment service
- Integrating search for services, cost comparisons, and scheduling appointments
- Consolidating all communication from multiple insurers and providers
- Innovative features for consumers to pre-pay for medical services

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**Figure 5. Prize 2 Winner, Sequence “Clarify” - Visual Compositions**

**The Explanation of Benefits That Doesn’t Explain Anything**

Patients currently receive medical bills from many providers. These bills contain information about what the insurer has paid, and that information should correspond to amount shown in the insurer’s Explanation of Benefits statements (EOB). A single episode of care often generates multiple billing streams from multiple providers, as illustrated by the journey map (Figure 1). Each provider engages in his or her own claims dialogue with the insurer. The patient is left with the challenge of matching up charges and payments found in the EOB with charges, payments and balances due found on bills from multiple providers.

The challenge guidelines did not ask for the EOB to be included in the entry. Most of the Published Set entries chose to integrate the patient’s insurance payment and status information into the bill, as described below. The online versions of the RadNet and iVinci entries went so far as to provide links between the charge on a patient’s bill and the corresponding EOB from the insurer. iVinci also alerted the patient if the charge on the bill and the corresponding numbers on the EOB do not match. None of the Published Set and very few of the total entries redesigned the EOB itself. One example that did offer an EOB redesign was a strong entry that did not make the cut for honorable mention sent by Charlotte UX. This team proposed a coordinated design for the EOB and bill to make it easier for patients to match up the two documents.
What to Include and Not Include on the Bill

When we limit our focus to the Published Set, we observe a few trends that apply across both prizes. These trends are indicated in the common features found in at least 5 of the Published Set solutions.

Offer Multiple Payment Options

Offering multiple payment options on a printed bill is current practice. Many current bills provide a URL and alphanumeric code, both of which are required to give the patient access to an online payment system. Ten of the Published Set went further. Most offered access to payment plans, as
well as online payment by credit card or bank account. The Pay Now button appears on all the online examples. In an effort to simplify the connections between paper and web-based interaction, RadNet included QR codes linking the bill to an online payment system. Online payment was the norm in the winning Sequence Clarify entry, along with a prepayment option. All of these features support patients’ financial planning.

**Integrate Deductible and OOP Status Into the Bill**

![Image of bill and deductible information]

<table>
<thead>
<tr>
<th>INSURANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider: X X X X X X X X X X</td>
</tr>
<tr>
<td>Policy No: X X X X X</td>
</tr>
<tr>
<td>Amount: $300</td>
</tr>
</tbody>
</table>

Why isn’t insurance paying more? You can’t reach your deductible before X. A portion of your health care costs. Review your insurance below:

- **Your Deductible:** $300
- **Total due:** $349.78
- **Total paid:** $299.87
- **Up to $11**

**COST-SHARING SUMMARY**

| Deductible | **500.00** | 0.00 | 5.00 |
| Out of Pocket Maximum** | $3,000.00 | $150.00 | $2,850.00 |

* The amount you pay for covered healthcare services before your insurance starts to pay.
** The total you have to pay for covered services in a plan year. After you, your plan, or both reach the deductible, visit, and enrollment, your health plan pays 100% of the costs covered by the plan.

Most of the Published Set displayed the patient’s deductible and current out of pocket (OOP) status with his or her insurer. A few went farther and integrated the patient’s Health Savings Account (HSA), Health Reimbursement Account (HRA), and Flexible Spending Account (FSA) account status into the billing statement and permitted the patient to designate money from these accounts as payment.

*Figure 8. Including patient’s insurance information in the bill*

The patient’s deductible and out of pocket (OOP) status, information currently held by the insurer, significantly impacts the actual amount that the patient must pay. Bringing this information into the bill supports financial planning and trust. Most of the Published Set displayed the patient’s deductible and current OOP status with his or her insurer. A few went farther and integrated the patient’s Health Savings Account (HSA), Health Reimbursement Account (HRA), and Flexible Spending Account (FSA) account status into the billing statement and permitted the patient to designate money from these accounts as payment.
Omit Charge Master and Use Plain Language

Figure 9. Omitting charges that do not reflect insurer discounts

There are many variations in current medical bills on how the patient’s cost is labeled and displayed. A bill can display many numbers for each charge: the charge master or charge description master (CDM) price, the price allowed by the patient’s insurer, the amount of the allowed price paid by the patient’s insurer, any amount already paid by the patient, and the balance due. The charge master represents a cost proposed by the provider before negotiating an agreed cost with the insurer. The text labels describing these numbers vary tremendously. What the healthcare provider expects to receive is often called “Charges” while the amount allowed by the insurer goes by many names – “Allowed Charge,” “Discount” – and the amount that the insurer pays to the provider may be called “Payment/Credit,” “Adjustments,” or “What Insurance Covered.”

Most entries simplified the bill by limiting this presentation to two numbers. The Published Set applied plain language to label the actual provider charge (Amount That Was Billed), the payment from the insurer to the provider (Your Plan Paid) and the patient’s previous payment (You Paid). Simplification and use of plain language labels improves understandability and trust.

Prepare the Patient with a Cost Estimate

Figure 10. Cost estimates
Several of the Published Set included a method for presenting patients with a cost estimate for a visit or procedure before they would receive the bill.

- The **gravitytank** IRIS service and **Up To 11’s** entry both present this estimate at the end of the provider visit. **Up To 11’s** estimate is a “Maximum Estimated Cost” (the cost before insurance) at the time of a visit.
- **Change Healthcare’s** SmartBill, designed to support an episode of care example, is divided into an estimate and final bill. That estimate is updated throughout the care episode to better prepare the patient for the final bill.
- **Better Health System’s** entry starts with estimated costs associated with a specific provider and continues with Billing Progress Reports that ultimately lead to a Final Bill.
- **In Sequence’s** Clarify service concept, the cost of a service appears to the patient before the service is performed.

Displaying costs for healthcare services in advance of insurer adjudication may seem naïve – we are often reminded how many thousands of ICD codes combined with thousands of billing codes can be involved in the negotiation between providers and payers to determine the cost to the patient. However, a point of care estimate is not impossible to generate and the Published Set solutions illustrate the value of making this effort. The current B2B arrangements between healthcare payers and providers are at odds with modern consumer expectations. Creating awareness of potential costs closer to the point of care adds to patient knowledge and supports financial planning and trust.
Show the Amount Owed, then Show the Details

![Image](image1.png)

![Image](image2.png)

Figure 11. Separate amount owed from detail of charges

The model of a monthly credit card statement inspired half the Published Set to clearly separate the statement of the amount owed from the details of how that number was calculated. This separation often simplified the first page or screen of the bill. There are many fine examples of progressive disclosure, both in print and online formats, among the Published Set. These designs first communicate the amount that should be paid and when payment is due. Then, the designs provide justification for the charges on following pages or through further interactions with the screen.
Show Who the Bill Is From

![Image of the provider]

Figure 12. Image of the provider

Seeing images of the people involved in delivering the medical care received is another current consumer expectation highlighted by the top-scoring entries. The inclusion of provider or institutional images in many of the bill designs is clearly influenced by current practice in social media (Facebook, Slack) and shared-economy applications (AirBnB, Uber). Seeing the face of the person you are paying adds a personal connection, increases trust, and addresses the lack of transparency often experienced in today's billing practices.

Other features were found across the Published Set that, although not as widespread, still introduce novel ideas that have the potential to improve help patients' understanding and management of healthcare costs:

- Billing services that include the ability to search for and compare costs among providers give patients greater control of their expenditures.
- Customizing the message on a bill to reflect the patient’s insurance status and due date demonstrates to the patient that the bill reflects their financial situation, adding confidence of accuracy and building trust.
- Organizing the charge details by provider visit or other category, and presenting charges for all family members in a single billing document gives the patient more control over how to view and understand charges.
- Including a timeline on bill for a specific episode of care sets expectations and supports patients’ understanding of where they are in the billing process and what to expect next.
- Integrating the patient’s HSA, HRA, and FSA information into the bill can demystify these financial features and make payment easier.

Creating a Billing System that Produces a Single Source of Truth for the Patient

The assumption that the patient will succeed in the task of interpreting and resolving multiple sources of truth is the greatest control of patient-centered billing solutions. The most common strategy in the Published Set to fight Surprise, Confusion, and Delay was simplifying and combining information that currently reaches the patient from different sources. To a great or lesser degree, each of the Published Set offers a solution to control the patient’s expectations through estimates, timelines and updates (counteract surprise), resolve ambiguity about what is being charged for, what the patient’s responsibility is, when the payment is due and the patient’s options for paying (resolve confusion) and offer timely resolution to final cost (reduce delay). The solutions follow different pathways to achieve these goals. Their common starting point for making the medical bill easier to understand is to offer the patient a single source of financial truth. The pathway to this
source of truth begins with a healthcare network, insurer or new service taking responsibility for integrating the current flow of cost and billing information.

**The Current State: Patient Resolves What to Pay, When and Why**

![Diagram: Current Medical Billing from the Patient Perspective](image)

*Figure 13. Current Medical Billing from the Patient Perspective*

In the current system, patients receive bills from multiple sources. The burden is on the patient to assess the accuracy of these bills by integrating information from their insurer(s) and benefits manager(s). The patient receives sporadic information about negotiations between providers and payers but is unaware of how claims and payments will be resolved. A common response to this cognitive overload is to pay nothing.
The Healthcare Network Solution

One pathway is for the healthcare network to take over the role of unified medical bill provider and become the source of truth to the patient. In this model, the healthcare network manages communication with the patient, merging the insurer’s information with the charges from in-network and out-of-network providers treating the same patient. The patient faces a single cost information and billing stream and manages resources in benefits accounts (e.g. HSA, HRA, FSA) separately.
The Insurer Solution

The patient’s insurer could also be recast in this larger management role, becoming the single source of payments to be redistributed to all providers. In this case, the insurer resolves both claims and balances due with respective providers. The patient faces a single billing stream from the insurer and manages resources in benefits accounts (e.g. HSA, HRA, FSA) separately.

Figure 15. Insurer as Source
The Third-Party Service Solution

A third pathway is a new service that not only monitors claims and payment between providers and insurers, but also manages payments between providers, benefits managers, and patients. In this case, the patient faces one billing stream from a third party, independent from both the provider and the insurer. Several of the Published Set propose that such a service would provide pre-treatment cost estimates along with cost comparisons for different providers and benefits comparisons for different insurance plans.

In all three cases, the patient is presented with unified information through a single source. The Published Set included bills and other cost communications that featured clear information design enhanced with plain language.

The healthcare network approach is found in the solutions from Prize 1 winner RadNet, Prize 1 honorable mentions Renown Health and Up To 11, and Prize 2 honorable mentions Health Payment Systems and iVinci. The entries from both Health Payment Systems and iVinci are based on existing software products currently adopted by healthcare networks.

The remaining seven of the Published Set chose to design a bill coming from a third-party service. The Prize 2 winner, Sequence, along with honorable mentions Business Innovation Factory, EveryBill, FAIR Health, and gravitytank took this approach. So did Better Health System and Change Healthcare from among the Prize 1 honorable mentions.
Conclusion

We framed the challenge by stating we were looking for designs that “tackle a current consumer pain point to help deliver clearer, less complex, and more understandable medical bills that ultimately improve the patient financial experience.” The top-scoring entries demonstrate how we can transform medical billing from multiple streams of unrelated provider invoices and disconnected payer EOBs into a coherent patient-centric service for managing healthcare providers and their associated costs.

The distinction between paper and digital communication is dissolving. The camera on our mobile device allows us to deposit paper checks into our bank accounts. We must ask ourselves how the healthcare system can leverage consumer advances and conveniences afforded by mobile devices and technology to help patients manage their healthcare and paying for that care. RadNet’s print-oriented letter-size bill design and Sequence’s mobile device-size design occupy two poles of the same world.

The most important lesson to be learned slipped past us in our original analysis. The areas of concern we identified – volume of communication, understandability, timing, etc. – were symptoms caused by a more fundamental problem: the fragmentation of patients’ financial relationships in the healthcare system.

When we shop for groceries, put gas in our car, or buy a plane ticket from New York to California, the cost for each of these products and services is based on a complex network of business arrangements between suppliers, distributors and skilled workers that is in constant flux. We are accustomed to purchasing that product or service from a business that takes responsibility for managing its own internal costs. We do not expect to find out a month later what we have to pay.

The Published Set accomplish their improvements in visual and service design by placing the responsibility for managing costs in the hands of a patient-centered healthcare network or third-party service. Whether the mediator is the healthcare network, the insurer, or a new patient-facing third-party service, the keys to a patient-centered billing system are the same:

- involving patients in their own healthcare choices,
- presenting those choices with cost transparency,
- explaining healthcare costs in plain language before and after those costs are incurred.

Undoing the fragmentation of patient’s financial relationships in healthcare requires payers and providers to rethink their roles and responsibilities. True progress in improvements in customer satisfaction as well as revenue recovery will come from continuing to improve the billing process itself.
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The Center for Health Experience Design (CHXD) serves as a conduit for the delivery of health experiences that help people heal and flourish. CHXD serves as a design and experiential innovation resource to diverse organizations across the health ecosystem, supporting them in forming and growing their design and innovation competency, conducting training and coaching on design thinking and human-centered design, providing the strategic injection of design services, convening and connecting individuals and organizations to solve the complex problems we face.

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