



# A1: Needfinding for Patient Healthcare

Siddhartha Javvaji, Douglas Kwok, Nash Young  
*Stanford CS147*

# Team



**Siddhartha  
Javvaji**

Computer Science + Design



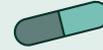
**Douglas  
Kwok**

Computer Science



**Nash  
Young**

Biomedical Computation



# Domain Selection





# Problem Domain



- **Universal Problem:** Healthcare finances and medical insurance are the most opaque systems
- **Domain:** Navigating insurance, medical billing, and healthcare resources access for patients and caretakers from various financial backgrounds
- **Inspiration:** Personal experience with medical upcoding → resulted in significantly higher out-of-pocket payout

INVEST IN YOU: READY, SET, GROW.  
**Yes, you can negotiate your medical bills. Here's how to lower your costs**  
PUBLISHED WED, OCT 28 2020-10:00 AM EST

SHOTS - HEALTH NEWS  
**'Bill of the Month': The series that dissects and slashes medical bills**  
DECEMBER 20, 2024 - 5:00 AM ET

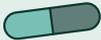
Surprise! It's a \$164,000 Bill for Your Heart Attack

EXPLAINERS  
**How to fight an outrageous medical bill, explained**  
Five patients tell us how they pushed back — and won.

**Yes, you should challenge that medical bill**  
When people reached out about a billing error, almost 75% had the mistake corrected.

LIFE / EVEN BETTER  
**Never pay a medical bill without asking these questions first**  
If you think you're being overcharged on medical bills, you probably are.

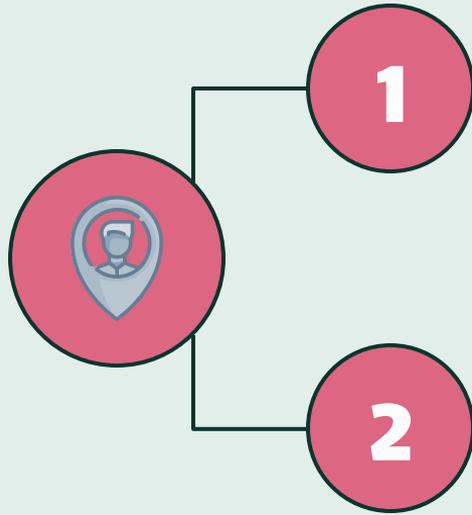
PBS NEWS WEEKEND  
**Why patients are getting hit with surprise hospital fees for routine medical care**  
Apr 12, 2025 5:40 PM EDT





# Needfinding Methodology

# Participant Selection



## Financial Background

- Varying financial circumstances to understand diverse experiences and results with healthcare
- Different forms of insurance and coverage
- Participants ranged from homeless individuals to corporate leaders/CEOs to clinic directors

## Role & Experience

- Highlight direct experience (patients receiving care) and secondary experiences (navigating healthcare for loved one)
- Help uncover tensions between patients' needs and what the system delivers, along with firsthand stories



# Interview Plan

- **WHO:** Patients, caretakers, and clinic directors from diverse financial backgrounds
- **WHERE:** Conducted 6 in-person interviews
- **WHEN:** Sunday, Monday, and Tuesday in the late afternoon
- **ETHICS:** Consent form, no obligations, no compensation provided
- **LENGTH:** 25-40 minutes, subject to participant's availability
- **PROCEDURE:** One interviewer and one note taker/recorder
- **APPARATUS:** Audio / Video recordings, written notes/consent form, and tools for transcribing (i.e., Whisper)



# Interview Locations



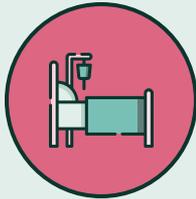
## Stanford Hospital

Proximity and willingness to speak to us.



## Lucile Packard Children's Hospital

Learn from perspectives of caretakers and parents.



## Peninsula Healthcare Connection

Community health center for unhoused individuals.  
Exposes us to patients from different financial background (i.e., low-income).



# Interviewees



**Adam**

54-year-old retired male who's caring for his mother fighting pancreatic cancer



**Bella**

45-year-old female analyst at healthcare organization who's been suffering from autoimmune disease for 10 years



**Carl**

48-year-old male tech CEO who's caring for his daughter with paediatric disease.



**Dan**

32-year-old Immigrant from Colombia who lives and works 2 jobs in Palo Alto



**Eric**

62-year-old homeless male who suffers from Type 2 diabetes and its complications



**Frank**

42-year-old director of a community health center that cares for unhoused populations (EXPERT)





# Interviewees + Extreme User

## Financial Status



Low/No Income



High Income

## Extreme User:

- Eric
  - Far end of financial spectrum
  - Relies on informal systems
  - Excluded from digital-only systems





# Interviewees + Extreme User



## Frequency of Doctor Visits



Very Infrequent

Very Frequent

### Extreme User:

- Adam
  - Visits the hospital everyday
  - Intense exposure to healthcare





# Interviewees + Extreme User



## Severity of Sickness



Mild/Routine

Severe/Critical

### Extreme User:

- Bella
  - Suffers from Autoimmune disease
  - Disease management
  - Ongoing interaction





# Missing Perspectives



**Interview  
Area**



**Technology /  
Knowledge  
gap**



**Unwillingness  
to participate**



**Perspective  
missing from  
frontline staff**



# Roles in each interview

| Interviewee    | Interviewer | Notetaker    |
|----------------|-------------|--------------|
| Adam           | Sid         | Nash         |
| Bella          | Douglas     | Sid          |
| Carl           | Douglas     | Sid          |
| Dan            | Nash        | Douglas      |
| Eric           | Douglas     | Nash         |
| Frank (Expert) | Nash        | Sid, Douglas |



# We asked about...



## Procedures

Walk me through this time when you visit the doctor or hospital. What's the whole procedure like?

## Costs and insurance



How confident do you feel that your bills accurately reflect what happened during the visit?

## Patient-doctor communications

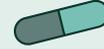
After a visit, how do you usually keep track of what was discussed or what you need to follow up on, like prescriptions, health conditions, etc?

## ... and we were open to new topics brought up

E.g., Media Literacy: What would be your usual source of medical and health information?



# Results & Analysis





# Interview #1: Adam Allen

54-year-old retired male who's caring for his mother fighting pancreatic cancer



### Says

What have we heard them say?  
What can we imagine them saying?

"The only concern is getting better and getting out of here."

"One's life is the most important at all times, sometimes that results in forgetting about the financial implications."

"Her stays, MRI scans, and treatments mean I'm in the hospital system a lot now, even though it's not for me directly."

"Coming to Stanford Hospital is exciting. The energy here is amazing because the facility is so advanced and great."

"There is no feeling of transparency in any hospital in America since (private) insurance always rears its ugly head behind walls."

"I can let insurance handle it, and whatever bill they give me is what I pay - but keep in mind that it never truly fully understood all the things underneath."

"I have insurance with the VA, but my mother has killer, killer health insurance."

"The notion that you're responsible for it is already overwhelming - it doesn't make sense sometimes why it's so expensive, but hey it's healthcare."

"I've had many friends where they received ridiculous charges."

"I've learned recently that you can get an itemized bill if you specifically ask the hospital for one since they're legally obligated to do so."

"There is no feeling of transparency in any hospital in America. Insurance always rears its ugly head behind walls."

"I just record the doctor appointments so I can remember later."



### Thinks

What are their wants, needs, hopes, and dreams?  
What other thoughts might influence their behavior?

Believes life and health take priority over financial considerations during critical care.

Thinks financial transparency in healthcare is fundamentally broken.

Believes insurance companies operate behind walls, intentionally obscuring costs.

Thinks patients have little to no power in billing/coding processes.

Wonders why costs are so high and nonsensical, but resigns to "that's just healthcare."

Believes VA coverage is adequate for him, but not nearly as strong as his mother's private "killer" insurance.

Thinks recording visits is necessary to manage memory and details in stressful moments.

Wonders how accurate hospital bills really are and doesn't trust them fully.

Thinks contacting bills is possible but difficult (learned from colleagues' successes).

Sees billing as reactive rather than proactive (you only learn costs afterward).

Believes systemic opacity is intentional, not just accidental complexity.

Thinks healthcare tech for billing/insurance clarity is underdeveloped or absent.



**Adam Allen**  
54-year-old retired male  
who's caring for his mother  
fighting pancreatic cancer

Accompanies his mother frequently to Stanford Hospital for her pancreatic cancer treatment.

Attends specialist visits, MRI scans, and extended hospital stays (as a support role).

Personally goes for minimal care; only routine needs.

Records doctor visits with permission so he can replay and remember details.

Relief that his mother has excellent insurance (safety net for her care).

Resignation to the fact that healthcare billing is confusing and opaque.

Overwhelmed by complexity of medical bills.

Frustrated with lack of transparency in costs and insurance systems.

Pays bills without deeply questioning them, defaults to "insurance handles it."

Occasionally asks for itemized bills (learned about this recently).

Observes billing discrepancies happening to others (friends, colleagues).

Accepts financial paperwork as part of the process but doesn't actively challenge it.

Helpless in the face of financial opacity.

Trustful of clinical care quality at Stanford Hospital.

Anxious/stressed about his mother's health condition and hospital stays.

Detached from his own billing issues, since they are minimal compared to mother's.

Engages positively with the hospital environment ("uplifting energy").

Relies heavily on healthcare professionals for explanations and coordination.

Shares anecdotes of billing issues but's witnessed but necessarily personal (not from network).

Contrasts his own VA insurance with his mother's premium private insurance.

Curious about medical processes (asks for itemized bills since he learns it's possible).

Supportive in his role as caregiver/companion to his mother.

Skeptical about whether bills actually reflect services rendered.

Appreciative of recording as a coping mechanism for managing overwhelming information.



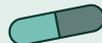
### Does

What behavior have we observed?  
What can we imagine them doing?



### Feels

What are their fears, frustrations, and anxieties?  
What other feelings might influence their behavior?



# Main Takeaway: Billing Codes

## ARTIFACT



*Adam displays emotions of powerlessness and frustration when discussing billing codes.*

### DOES

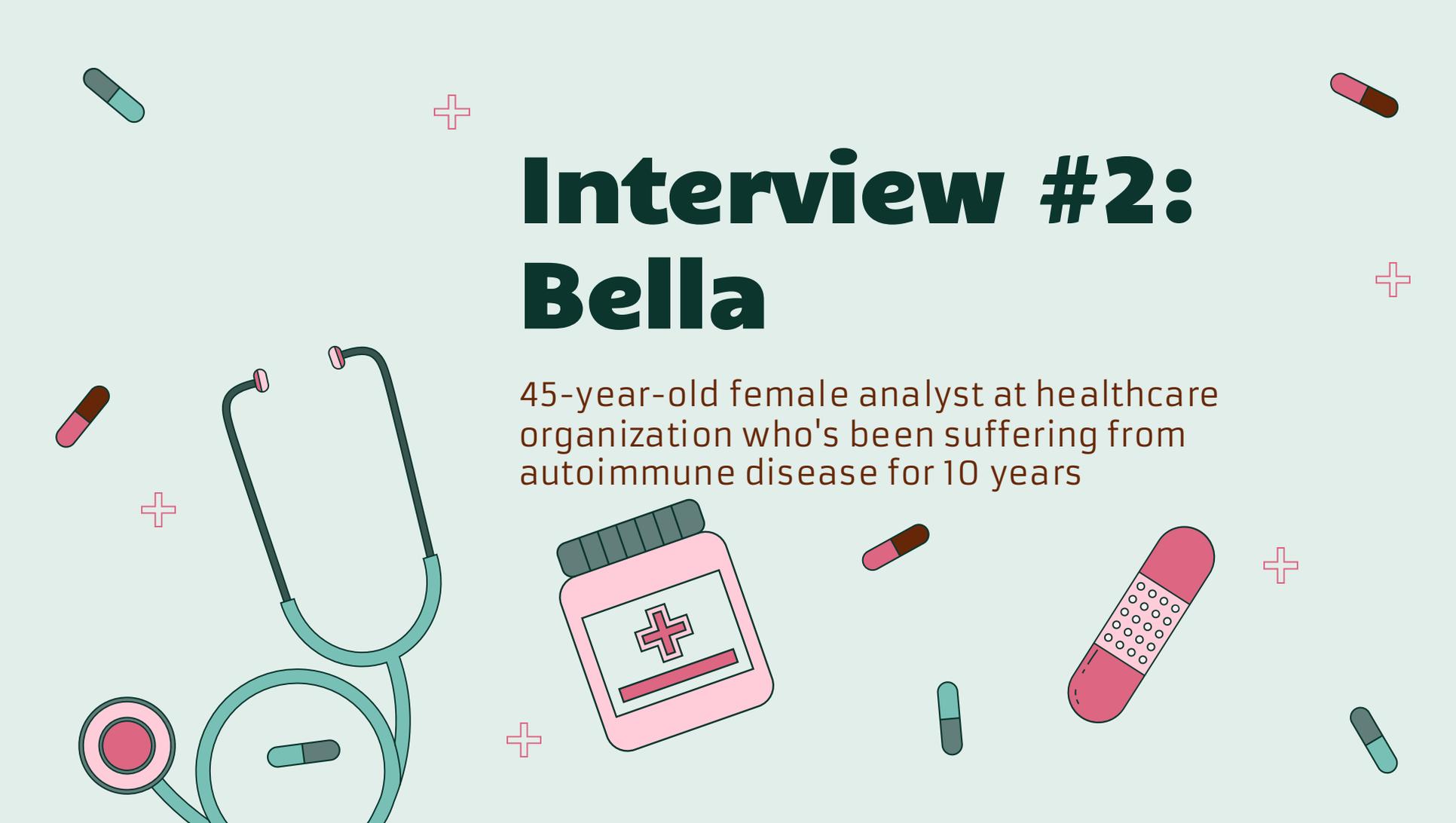
Records doctor visits with permission so he can replay and remember details.

### FEELS

Appreciative of recording as a mechanism for managing overwhelming information.

- “The medical bills I’ve received show the main bucket charges, so me personally, I have no idea where and what I was specifically charged for. You can get an itemized bill, I’ve learned recently, if you specifically ask the hospital for one since they’re legally obligated to do so. This itemized bill shows all the codes and everything for my visit.”

- Regarding his mother: “Expenses for room stays, MRI scans, etc. came out to \$88k.”

The background features several medical-themed icons: a teal and grey pill at the top left, a pink and brown pill at the top right, a teal and grey pill at the bottom left, a pink and brown pill at the bottom right, a teal and grey pill at the bottom center, a pink and brown pill at the middle left, a pink and brown pill at the middle right, a teal and grey pill at the bottom right, and a teal and grey pill at the bottom right. There are also several pink plus signs scattered throughout the background.

# Interview #2: Bella

45-year-old female analyst at healthcare organization who's been suffering from autoimmune disease for 10 years



### Says

What have we heard them say?  
What can we imagine them saying?

"I'm really disappointed. They thought I'd have a lot more time, given all the testing I've had. Why is this happening?"

"It was confusing. I didn't know why the doctor was happening. The doctor didn't know why the knee was happening."

"The worst part was the pain, and not getting the new stage of living in pain."

"We changed how they do things, but we still have the same things. I feel angry and frustrated. I don't know how to do it."

"There were lots of new language and I had to learn how the doctor works. Some of the technology can be very confusing."

"You're a doctor, so you're supposed to know what you're doing. I don't know why you're not knowing what you're doing."

"I had to go to a lot of different doctors, and I had to go to a lot of different doctors. I had to go to a lot of different doctors. I had to go to a lot of different doctors."

"I know how to do it, but I don't know how to do it. I don't know how to do it. I don't know how to do it. I don't know how to do it."

"My insurance is very expensive, but it's not as good as it used to be. I don't know how to do it. I don't know how to do it. I don't know how to do it."

"I don't know how to do it. I don't know how to do it."

"I don't know how to do it. I don't know how to do it."

"I don't know how to do it. I don't know how to do it."

### Thinks

What are their wants, needs, hopes, and dreams?  
What other thoughts might influence their behavior?



Believes that doctors should do more than just treating disease and should communicate directly to patients.

Believes that doctors need to communicate clearly about medical procedures.

Cautious about building relationships and trust with new people.

Understands that doctors may not always know the right answer.

Believes the importance of maintaining healthy habits (e.g., fitness).

Views medical experiences of family and friends as strong influences for her own.

Believes that visiting the hospital is a seamless process regardless of her own.

Values spending time with family.

Thinks highly of the healthcare organization that works at (and its affiliated medical partners).

Believes that the health insurance system is flawed and that she is a fortunate exception.

Needs to gain knowledge about disease before being comfortable about living with it.

Considers of other's needs and expects others to be considerate of her's.



### Bella

45-year-old female analyst at healthcare organization who's been suffering from autoimmune disease for 10 years.

Seeked confirmation from husband for several instances during the interview.

Visits the hospital 5 times a year to visit a rheumatology specialist.

During each visit, gets Cortisone shots for knees.

Logs into her medical provider's app (version of Epic's product suite) after each visit to read lab reports and doctor recommendations.

Maintains a folder of health-related apps including her medical provider's app and other fitness tracking apps (e.g., Fitbit, MyFitnessPal).

Asks doctors about what medications to use and side effects of medications.

Researches and reads about her disease and discusses it with family members and friends who have the same condition.

Did not provide consent to video and audio recording.

Refuses to engage in online communities with people who have the same disease.

Visits a medical center in San Leandro that is owned by the healthcare organization she works at.

Visiting a relative at the Stanford Hospital with her family.

Overwhelmed by her pain and the information load during early stage of disease.

Fear of death due to severity of disease.

Confused by her initial misdiagnosis.

Exhausted by constant testing during early stage of disease.

Grateful for having current doctor that responds to her psychological needs.

Fear of uncertainty and adapting to new circumstances.

Frustrated by constant turnover of doctors and having to re-educate just with new doctors.

Relieved and grateful for her generous health insurance.

Grateful for support from family, friends, and medical staff during her sickness.

Curious to learn more about her disease.

Empathetic towards doctors and nurses and their hardships.

Calm about having the disease after getting used to it.



### Does

What behavior have we observed?  
What can we imagine them doing?

### Feels

What are their fears, frustrations, and anxieties?  
What other feelings might influence their behavior?





# Overwhelmed by information overload

SAYS

"We changed from pills, to shots, to infusions, until we had the normal dosage. I felt angry and exhausted ... directed towards the disease"

"There were lots of new language and I had to learn how the disease works. Some of the terminology can be very confusing."

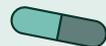
DOES

Researches and reads about her disease and discusses it with family members and friends who have the same condition.

FEELS

Curious to learn more about her disease.

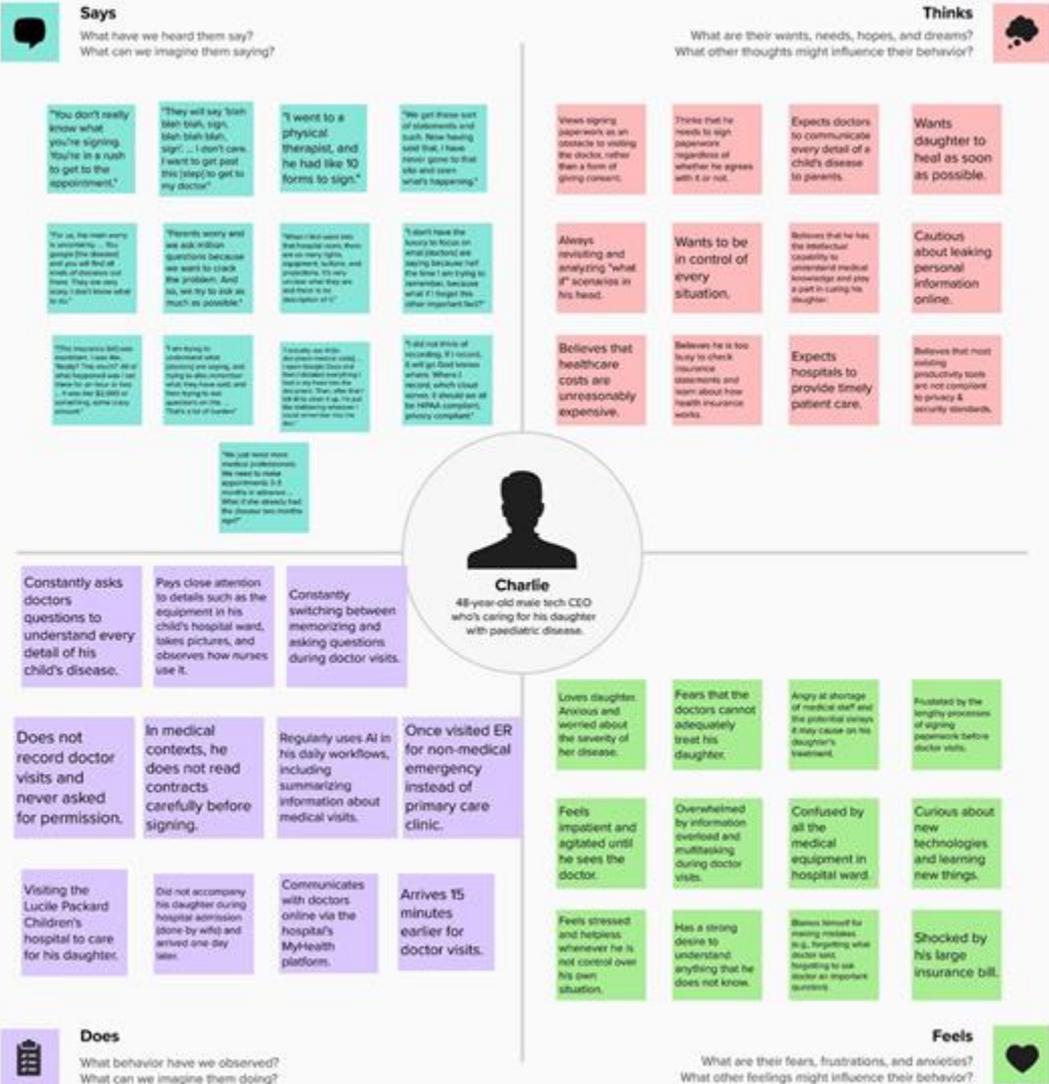
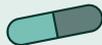
- **Observation:** Bella did not just fear the severity of her disease, but also felt **overwhelmed with learning all the new information** about the disease.
- **Need:** Patients with severe diseases needs a way to **quickly learn about how their disease worked**.
- **Insight:** Knowing about the disease helps these patients gain a **sense of control and predictability** (i.e., knowing what to expect).



# Interview #3: Charlie

48-year-old male tech CEO who's caring for his daughter with paediatric disease.





# Cautious yet uninformed parent navigating complex medical care

## SAYS

"You don't really know what you're signing. You're in a rush to get to the appointment."

"[The insurance bill] was exorbitant. I was like, 'Really? This much?' All of what happened was I sat there for an hour or two. ... It was like \$2,000 or something, some crazy amount."



## DOES

Once visited ER for non-medical emergency instead of primary care clinic.

## THINKS

Cautious about leaking personal information online.

Believes he is too busy to check insurance statements and learn about how health insurance works.

- **Observation:** Despite being cautious by nature, Charlie **does not pay attention to what he is signing** and was **unaware** that visiting the ER for non-medical emergencies would result in high costs.
- **Need:** Patients and caretakers need to be **explicitly informed** about the terms of financial contracts (e.g., insurance) **and its implications**.
- **Insight:** Patients and caretakers are **too busy and impatient** to read the fine print diligently.

# Do parents fully trust doctors to treat their children?

## SAYS

"Parents worry and we ask million questions because we want to crack the problem. And so, we try to ask as much as possible."

"When I first went into that hospital room, there are so many lights, equipment, buttons, and projections. It's very unclear what they are and there is no description of it."

## FEELS

Fears that the doctors cannot adequately treat his daughter.

## THINKS

Expects doctors to communicate every detail of a child's disease to parents.

## ARTIFACT



*Charlie felt so puzzled and overwhelmed by the equipment that he took a photo to analyze it.*

- **Observation:** Charlie views doctors as experts and asks many questions. But, he is **constantly worried** about the progress of his child's treatment and expects clear communication from doctors.
- **Need:** Caretakers need **reassurance** by **learning about what to expect** from the patient's disease.
- **Insight:** Caretakers **fear the worst case** and may be **skeptical** of whether the patient can be properly treated. Predictability **addresses the emotions of fear** and gives caretakers a sense of relief.

The background features several medical-themed icons: a stethoscope on the left, a pink pill bottle with a red cross on the front in the center, a pink bandage on the right, and various pills (teal, brown, and pink) scattered around. Small pink plus signs are also placed throughout the design.

# Interview #4: Dan

32-year-old Immigrant from Colombia who  
lives and works 2 jobs in Palo Alto



### Says

What have we heard them say?  
What can we imagine them saying?

"One time I got an X-ray... a little issue... saw the price was incredible"

"I was so happy because I was paying insurance"

"One hour... \$5000"

"It's so difficult to decide what's the right [insurance] plan for you"

"It's easy to take a bad decision"

"Average people are not good readers so it's a little difficult to make a choice"

"If you are less you can take the wrong one and you are going to have to pay too much money"

"Once you decide your insurance, you can't change it for a year"

"When I arrived in America I wasn't able to afford the kind of insurance I need to pay for [the cheapest one]"

"If you don't have a license to filter and organize... you can miss some a bad decision... when the worst choice"

"Try using experience was losing 30% of my lungs to COVID"



### Thinks

What are their wants, needs, hopes, and dreams?  
What other thoughts might influence their behavior?

Thinks that insurance plans are the contracts in the sense that they protect the customer when trying to change plans.

Believes that depending on insurance, it directly correlates to your quality of life, especially due to insurance plans.

Good insurance makes life way easier

choosing the right insurance is overwhelming - a high decision fatigue

worries about making the wrong choice and being "stuck" about the research

Thinks that follow-up notes and messages are helpful once some of the language doctor uses may be hard to understand

wonders if someone fully understood his symptoms during his visit with them. "but they don't explain enough during visit [he is in the pain themselves]"

Believes that insurance feels like a "gamble." He could end up locked at the wrong provider

Believes that healthcare in the states is faster than in Colombia but also more bureaucratic

Wonders if allergies (from season changing) will keep worsening with age"

Feels as if he has to "translate" medical terms into plain language to make it easier for him to understand



### Dan

32-year-old immigrant from Colombia who lives and works in Palo Alto

takes at least a week to research & decide on insurance plans

uses spreadsheets to organize daily life, including decision making

visits doctors only when necessary (about 1-2 checkups per visit; doctors only when necessary (about 1-2 checkups per year). Puts off doctor visits

compares insurance providers for a long time before deciding

Request's doctor notes and reviews them afterwards to better understand what they said

Uses follow-up messaging (the Kaiser portal) to clarify instructions

Goes through long delays for appointments

Tries to self-manages allergies instead of going to the doctors

Compares experiences between Colombia and the State systems when involving providers

Writes things down (symptoms, insurance details, etc.) to keep track of his condition / doctor visits



### Does

What behavior have we observed?  
What can we imagine them doing?



### Feels

What are their fears, frustrations, and anxieties?  
What other feelings might influence their behavior?

Frustrated by long delays, waiting times, and insurance paperwork

Exhausted/uncertain by decision fatigue when choosing insurance

He is relieved when Kaiser provides comprehensive service and quick follow-ups.

Feels vulnerable after COVID affected his lung capacity (by 20%). His health feels fragile.

Skeptical of medical jargon and whether he fully grasps what doctors say.

Anxious about whether insurance will cover what he needs.

Often times feels overwhelmed by paperwork and having to find doctors who accept his plan.

Feels powerless waiting especially when care takes too long

Grateful for comprehensive service when it works smoothly

Feels as if most medical terminology is confusing

Feels the need to be in control of his life - the need to fully understand what the doctors say or what plan he is purchasing



# Despite working two jobs, he still wants to be thorough in selecting his insurance.



## SAYS

"it's so difficult to decide what's the right [insurance] plan for you"

"if you are lazy you can take the wrong one and you are going to have to pay too much money"

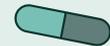
## DOES

Takes at least a week to research & decide on insurance plans. Most of this time is spent on fact-checking research done by AI.

## FEELS

Feels the need to be in control of his life -> the need to fully understand what the doctors say or what plan he is purchasing

- **Observation:** Dan **creates his own spreadsheets and not system** to dissect his visits. He feels both skeptical and grateful for healthcare. Often **mistrusting doctors and insurance plans** yet showing appreciation towards the insurance helping his life move smoother.
- **Need:** Users need a **clear, simplified guidance to reduce decision fatigue**. This includes transparency in coverage/costs, faster access to doctors, easy to understand language, and support tools.
- **Insight:** Some people feel **overwhelmed by the complexity and opacity of the healthcare system**. Choosing the "right" insurance plan feels **high-stakes and confusing**, while long delays and unclear communication make them feel powerless.

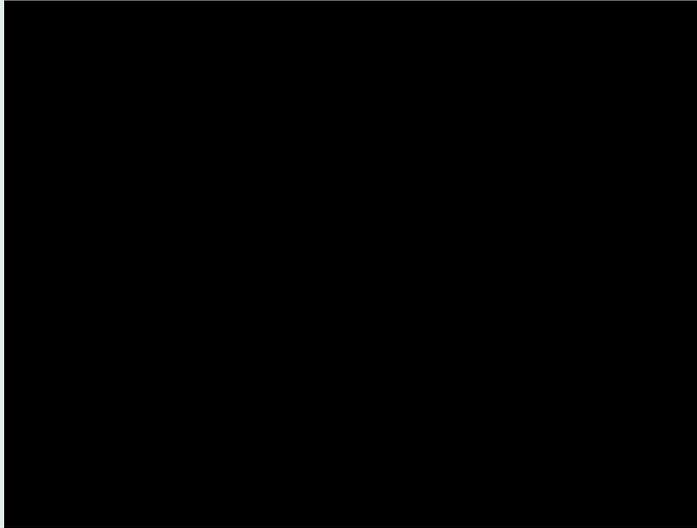




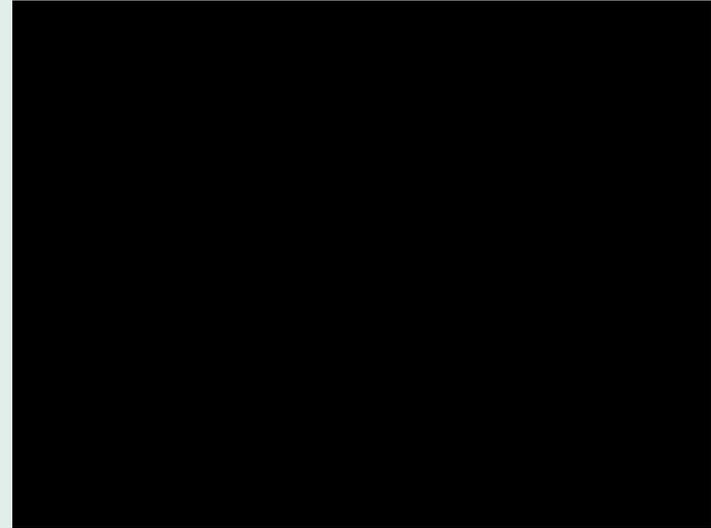
# Despite working two jobs, he still wants to be thorough in selecting his insurance.



## ARTIFACTS



*Dan uses spreadsheets to document his research about insurance and compare between different plans. He views choosing insurance plans as an important decision and huge commitment.*



*Dan uses AI tools such as Perplexity to research about insurance plans. He does not have time to do research himself, yet he still needs to spend time on fact-checking.*





# Interview #5: Eric

62-year-old homeless male who suffers from  
Type 2 diabetes and its complications





# Interested to learn about health, but lacks media literacy



## SAYS

"I was resisting taking insulin because some stupid YouTube doctor said, don't give insulin to a type 2 diabetic. ... I resisted for a couple of years. But now, since I see that it's destroying my body, I'm going to take insulin."

"I've read several books and I watch confusing YouTube videos. ... They both have scientists with all sorts of science-y stuff behind them, and so I don't know who to believe. I'm thoroughly confused."

## DOES

Watches health and nutrition related content on YouTube.

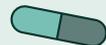
## FEELS

Curious to learn more about his medical condition, and even just health and nutrition in general.

## THINKS

Believes that scientists and doctors are knowledgeable and are a credible source of information

- **Observation:** Eric has the **agency to educate himself** about diabetes by watching YouTube, but is a **victim of misinformation** when so-called doctors made false claims.
  - **Need:** Low-income patients need to have **access to truthful and scientifically correct sources** of medical knowledge.
  - **Insight:** Many low-income individuals **may lack media literacy** and **do not know how to evaluate the credibility** of information sources.
- 





# Assumption Disproved: Medical costs are not the main concern for unhoused populations (in California)

SAYS

"I'm on Medicaid. I just go in and say I got this problem and they take care of it. Occasionally they'll say that this drug or this whatever thing is not covered by Medi-Cal. So I just don't get it."

"[Worried about healthcare costs?] ABSOLUTELY NOT. The good taxpayers of the United States of America and California, thank you very much!"

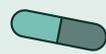
DOES

Does not pay attention to medical costs and mentions he's on Medicaid during visits.

THINKS

Believes that the government does a good job at providing for the homeless population.

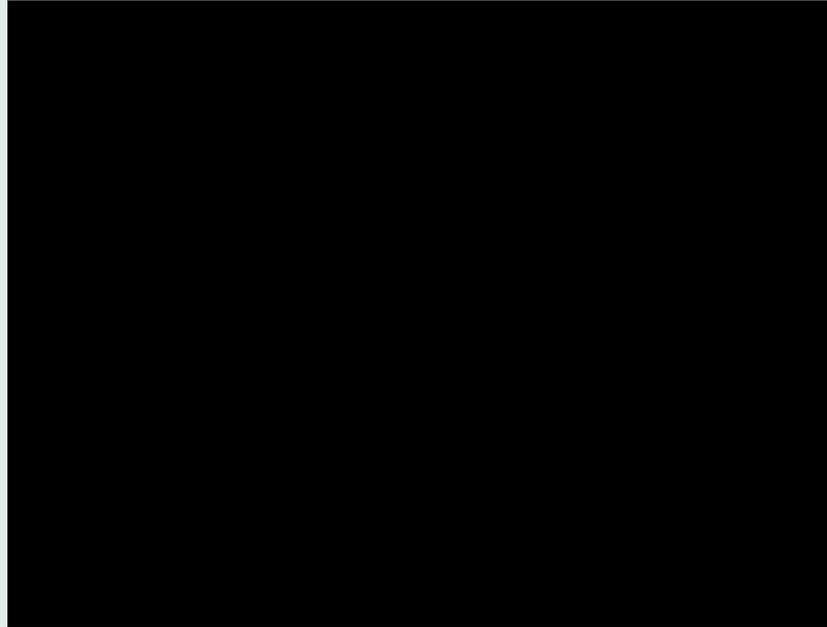
- **Assumption:** Medical insurance bills is a **significant concern** for most **low-income individuals**.
- **Surprise:** Eric was **not worried at all** about his medical bills, due to access to Medicaid and medical services provided by the community.
- **New Thought:** Do other people like Eric know about these resources and benefits?





# Assumption Disproved: Medical costs are not the main concern for unhoused populations (in California)

ARTIFACT



*Eric's lack of concern for medical costs was a huge surprise for us. He thanks taxpayers for helping him access quality healthcare.*



The background features several medical-themed icons: a teal and grey pill at the top left, a pink and brown pill at the top right, a teal and grey pill at the bottom left, a pink and brown pill at the bottom right, a teal and grey pill at the bottom center, a pink and brown pill at the bottom right, a teal and grey pill at the bottom right, a teal stethoscope on the left side, a pink pill bottle with a red cross on the front in the center, and a pink bandage with white dots on the right side. There are also several pink plus signs scattered throughout the background.

# Expert Interview: Frank

42-year-old director of a community health center that cares for unhoused populations

# Why interview an expert?



## Bridging the Empathy Gap

- We are privileged students at a top university.
- We may not fully understand the circumstances of unhoused individuals.
- Frank provides explanation and additional context.



## Different Role in Healthcare

- Macro-level perspective of how unhoused individuals navigate the healthcare system.
- Logistics and issues of sustainably maintaining healthcare services for unhoused populations.



### Says

What have we heard them say?  
What can we imagine them saying?

"Kids describe that time as Miss Alice and there were a lot of homeless (people) living there and people are really surprised to see what that looks like!"

"Kids from our program, the cost of health care is really expensive and we do a lot of education - often financial companies aren't willing to pay for it so it really affects the bottom of the heap!"

"The success of our model comes from capturing patients where they're at."

"I've never seen a case where someone would be able to get care if they didn't have insurance or if they didn't have a doctor."

"We have a problem of not having a lot of staff, but we do have a lot of patients to take care of. We're really trying to figure out how to get more staff and how to get more people to work for us."

"We have to fight for the funding because we don't want our patients to fall through the gaps when they've already been through the gaps so many times."

"We want to know if we have a lot of patients, we have a lot of staff, we have a lot of money, then we get into the state, we see the homeless population, there's a gap to be very different for national."

"So that information is all the biggest of our patients. However, a lot of times they don't know how to get that information."

"We don't have a lot of staff in our office so we're looking for ways to get more staff. We know it's not easy, but we do think it's important to have a lot of staff in our office so we can get more people to work for us."

"There's a lot of people that have a lot of money, but they don't have a lot of money. There are a lot of people that have a lot of money, but they don't have a lot of money. There are a lot of people that have a lot of money, but they don't have a lot of money."

"You probably see a lot of people that have a lot of money, but they don't have a lot of money. There are a lot of people that have a lot of money, but they don't have a lot of money. There are a lot of people that have a lot of money, but they don't have a lot of money."

"That's 50 beds that they could have used for food, and we could have gotten them out of the food."

### Thinks

What are their wants, needs, hopes, and dreams?  
What other thoughts might influence their behavior?

Believes that anyone has the right to obtain quality medical services, and wants to help everyone obtain it.

Believes that high healthcare costs make people less attentive to their health.

Understands that the homeless population would not know about that services if they did not proactively engage.

Believes that homeless patients take the initiative to improve their health.

Believes that most homeless/low-income populations lack sufficient medical literacy.

Believes that homelessness is the outcome of unfortunate circumstances.

Thinks it's more important for homeless populations to learn how to be independent before getting them housed.

Believes that counties in California are less successful by healthcare costs than residents of other states.

Believes that funding is any community health center's biggest issue.

Believes that the more we provide financial, and wants of them to be able to access it.

Wants to make positive social impact and give back to his local community (i.e., Palo Alto).

Thinks that existing healthcare systems, sites, and information are too complicated for homeless.



### Frank

42-year-old director of a community health center that cares for unhoused populations

Runs daily operations at the health center, which also provides medication housing, food, shower, and laundry services to homeless population.

Uses spreadsheets to track homeless population for the outreach team to keep in contact.

Has been working at community health centers and servicing homeless populations for over 20 years.

Provides street medicine services at homeless shelters every month.

Coordinates staffing and outreach efforts at the clinic.

Spends time applying for grants and funding.

Introduces and explains free medical benefits to homeless patients.

Promotes long-term health and educates patients to maintain sustainable healthy habits independently.

Does not pay attention to flyers from insurance companies that are mailed to him.

Maintains relationship with standards to get providers and volunteers from their medical school.

Spent a lot of time on learning about the regulations of running federally qualified health centers (and bookkeepers).

Feels angry at insurance companies for high healthcare costs.

Feels grateful to California's commitment to helping underserved individuals stay healthy.

Proud of his work and contributions to his local community.

Feels proud when a homeless patient he had served can live on their own and stay housed.

Worried about whether the health center has the funds to sustain its operations.

Frustrated by funding cuts.

Feels pity whenever homeless patients make unnecessary spending for things they could have gotten for free.

Feels resentful that homeless patients are locked into signing contracts and losing money.

Frustrated by the lack of visibility of Palo Alto's homelessness issues.

Surprised that we were able to learn about the health center through online sources.

Grateful whenever his work gets recognized by others.



### Does

What behavior have we observed?  
What can we imagine them doing?



### Feels

What are their fears, frustrations, and anxieties?  
What other feelings might influence their behavior?

# Lots of health-related resources for homeless patients, but they struggle to navigate them.

## SAYS

"All that information is at the fingertips of our patients. However, a lot of times they don't know how to access that information."

"That's 50 bucks that they could have used for food and we could have gotten them one for free."

## FEELS

Feels resentful that homeless patients are tricked into signing contracts and losing money.

## THINKS

Believes that homeless patients take the initiative to improve their health.

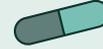
## ARTIFACT



Example of free resources for underprivileged patients, found inside the clinic.

- **Observation:** Homeless patients receive lots of information and want to learn more about health resources and insurance plans. However, their lack of media literacy prevents them from utilizing the available benefits and leaves them susceptible to manipulation.
- **Need:** Homeless patients need to be guided to relevant resources and protected from manipulation tactics.
- **Insight:** Populations without sufficient media literacy have initiative, but do not know which sources to trust. So, they require careful guidance and assistance when navigating information.

# Summary



# Key Takeaways: Themes worth considering



## Lack of transparency in medical insurance



Patients feel deceived by health insurance companies. They view insurance as important and demand immediate justifications, but may find it too tedious to read through long documents.



## Navigating healthcare for low-income groups



Low-income individuals are interested to learn about health, but lack media literacy. They do not know which sources to trust, and require more guidance to prevent scams.



## Emotional needs of patients with severe disease



Patients and caretakers fear the worst case. They want predictability and to know what to expect next.

# Next Steps

Interview individuals who have (un)successfully contested medical bill codes

Interview a patient who is *extremely* strategic with accessing the medical resources (high medial/digital literacy)+ care that's available for them

Further explore how we can create experience prototypes for medical billing codes and resource availabilities



**Thank You!**

