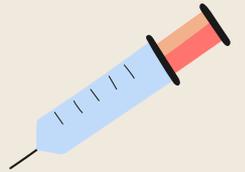# Assignment 2

Additional Needfinding, POVs, HMWs, and Experience Prototyping

Siddhartha J, Douglas K, Nash Y

Medi-Pal

Siddhartha J

Computer Science + Design

Douglas K

Computer Science

Nash Y

Biomedical Computation

Revisiting Last Week

Lack of transparency in medical insurance

Patients feel deceived by health insurance companies. They demand immediate justifications and 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.

Chosen Focus

Emotional needs of patients with severe disease

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

Problem Domain

Original

Navigating insurance, medical billing, and healthcare resources for patients and caretakers from various financial backgrounds

Updated

Simplifying how low/no-income individuals discover, understand, and access healthcare resources and insurance options.

Additional Needfinding

Locations

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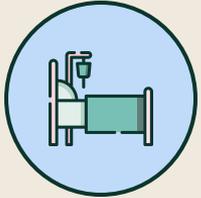
Community health center for unhoused individuals.
Exposes us to patients from different financial background (i.e., low-income).

East Palo Alto Library

A community hub that attracts residents from diverse backgrounds, particularly low-income and underrepresented groups.
Exposes us to perspectives beyond unhoused populations.

Interviewees

Gordon

70-year-old unhoused individual with **mobility issues**

Extreme by situation: mobility issues + no phone

Harry

48-year-old PHC resident **sustaining brain damage** from an axe attack

Extreme by situation: brain damage

Ivan

28-year-old **unemployed** man who **recently moved** from Texas to California

Extreme by situation: new to California

Jane*

50-year-old PHC resident with **anxiety**

* Remark: We decided not to include Jane's interview in the analysis because the session was quite brief and did not yield sufficient information relevant to our research focus. She appeared to be under the influence of alcohol during the interview, which made it difficult to have a detailed conversation as she only gave one-worded answers. As this was also our first interview with all three team members present, she may have felt uncomfortable. We would have preferred to include all participants, but were unable to gather meaningful insights from Jane's healthcare experiences. Our main observations from the interview were that her insurance (Anthem) covers her healthcare needs and that she sees medical commercials on MTV during her free time.

Needfinding Interview: Gordon

70-year-old homeless male who has been paralyzed for 30 years

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

"I'm trying to get housing or quality for housing. They haven't even gone to anything for a couple of months... That was where we usually go, and actually we never found there. We could not find anything, you could not find it."

"I've lived in Palo Alto for a long time... My main goal was I just wanted to stay in Palo Alto... I'd rather be in an area where I know people, I don't want to be somewhere where I don't know nobody."

"I haven't really moved late, this Medi-Cal [something] ... You either go to go to the hills or the habitat got to come to you. I can't get help because I don't have transportation now or anything like that."

"You don't want to use a bus line unless you're strong enough to get on the bus and out."

"The healthcare system not hire to garbage, chief. The first time my life okay, but then they're gonna discharge you from there, like you have a home or you have a wife to go home to... They're a f*cking place of sh*t."

"I'm gonna go back over here and see if [the staff from the housing placement program] are checking on us."

"I probably have to go back on the exercise bicycles or something like that. But I've had doctors come before and say it I don't want you or nothing for like three months, I might not want you on any exercise you, so on."

"They have before to walk me around here with somebody to walk with... You got to have the stuff that you drive, and it's for the best. But it's expensive, kind I would have to ride the [illegible]."

"I want look on the phy that all I know nix up. The setup, round after month after Andit, I could have stuck up at nix... This is a disaster because the guys who looked at I told you were about $4,000, $5,000 for the city."

"I know to go somewhere for whatever reason, depending on what I'm a couple friends are living, somebody might cut whether no, push me now in the bus, put me on there, and go with me."

"I had a phone, but I don't have one now. I'd have to go back to T-Mobile, and you still need about a hundred bucks, and maybe more."

"I can't even fit out at the players over through the athletic... I got these meds day or hand a now cured up to eat his plate their bit bel. I'm now, it down store and it been maybe a half hour... I took all 6 light in the doctor."

"The bottom line is I would rather be back in my own homeless, have people working, doing the work that is needed, and then I could afford to pay for what I want."

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

| Hopes that help will come to him when he waits and makes himself visible at a fixed location everyday. | Believes that the healthcare system does not consider the needs of elderly single individuals. | Only trusts people that he personally knows. | Believes that life is difficult financially for anyone without a partner. |

| Views his friends as an essential resource for food, information, and transportation. | Believes that sitting outside in a known location is the best way to get help. | Believes that he should have increased right now if he had sufficient support from social services. |

| Believes that he does not have access to resources due to his disability and physical constraints. | Believes that the housing placement program would keep their promise and provide housing. | Believes that getting and maintaining a phone is expensive. | Understands that he needs to seek help and information, but believes he lacks the ability and resources to do so. |

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

Previously worked as a painter.

Was waiting alone outside the Peninsula Healthcare Clinic (which is part of an Opportunity Center that houses some homeless people) on the multiple days we've visited.

Sitting on a wheelchair.

Struggles with maintaining personal hygiene.

Reads two different newspapers daily for 30 minutes.

Used to visit a center/facility with exercise bicycles, but stopped after the doctor told him to stop visiting.

Chose not to live in support housing in San Jose (i.e., outside of Palo Alto)

Spends most of his day waiting for friends and social workers to help him.

Tried getting on a public bus by himself and struggled.

Painted part of the Opportunity Center when the building was built.

Regularly visits the local food bank

Spent several months at Ack-Kare (private elderly care center) after being hospitalized.

Meets his friends spontaneously, without a regular meeting date/schedule.

Gordon
70-year-old homeless male who has been paralyzed for 30 years

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

| Resentful about his own disability. | Strong desire for familiarity and certainty. | Fears being forgotten by his personal contacts (i.e., his only resource) | Feels betrayed that he is not allowed to use exercise bikes. |

| Grateful for all the help received from friends. | Has a strong sense of pride and wants to be self-sufficient. | Feels powerless that he cannot change his own situation. | Feels a sense of belonging at Palo Alto. |

| Feels left behind by society and the healthcare system due to his age, family situation, and physical condition. | Feels helpless that he cannot seek help himself due to physical constraints, and can only rely on help from others. | Desire to [illegible] who he [illegible] but just does not have the money to do so. | Sad that he cannot enjoy a simple, normal life due to his financial situation. |

Takeaway: Has access to resources, but feels disempowered

Observation: Gordon has access to and is a **frequent** (albeit sporadic) **user** of healthcare benefits from social services, but still **feels disempowered and helpless** due to his **inability to access these resources on his own.**

Need: Patients like Gordon needs a way to **manage and gain continued access** to relevant healthcare resources that help him maintain his health.

Insight: **Physical constraints and systemic barriers** prevent patients like Gordon from **proactively seeking and sustaining** their healthcare benefits, thereby leaving them **feeling without dignity**.

Gordon expresses frustration and rants about the healthcare system and he could not navigate it himself.

Says		**Does**	**Thinks**	**Feels**
"The healthcare system out here is garbage, okay? The hospital may be okay, but then they're gonna discharge you from there like you have a family or you have a wife to go home to. … They're a f*cking piece of sh*t."	"If I have to go somewhere for whatever reason, depending on what my couple friends are doing, somebody might just entertain me, push me over to the bus, put me on there, and go with me"	Used to visit a center/facility with exercise bicycles, but stopped after the doctor told him to stop visiting.	Understands that he needs to seek help and information, but believes he lacks the ability and resources to do so.	Feels left behind by society and the healthcare system due to his age, family situation, and physical condition.

Empathy Map — Harry

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

- "I live up here. I got housing after so many years of being on the streets."
- "I haven't been back [to the doctor] since I got out of the hospital that one time."
- "It was terrible, man. I was in a coma for like 60 hours."
- "They didn't spell my name right... I'm not putting money into it."
- "The healthcare system... you're lucky to make it."
- "I got housing after so many years of being on the streets."
- "It's my home up there — not a ward or anything."
- [illegible note]
- "It's better than being in the shelter, especially with winter coming."
- "I haven't been back [to the doctor] since I got out of the hospital."
- "I just paid the insurance... now I've got to call my family, get my teeth done."
- [illegible note]
- [illegible note]

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

- Grateful to finally have stable housing, but skeptical about healthcare institutions.
- Believes the system is chaotic, confusing, and impersonal: "like a cult."
- Thinks that even when you need care, errors (like a misspelled name) make it feel not worth the effort.
- Reflects often on survival both from homelessness and from trauma.
- Hospitals treat me like a case, not a person.
- Small administrative mistakes can have big consequences, so it's safer not to engage.
- Having a home helps, but it doesn't erase the feeling of instability from past trauma.
- It's easier to live with pain than to reenter a system that made him feel powerless.
- Believes that he does not have access to resources due to his disability and physical constraints.
- He has to stay alert, because help can disappear as quickly as it appears.
- Stability and trust are more healing than medicine.

Harry
48-year-old PHC resident who survived a violent assault, endured hospitalization, and continues to struggle with inconsistent healthcare, and mistrust of medical systems.

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

- Manages pain and medications on his own (aspirin, ibuprofen).
- Cleans and maintains his apartment diligently.
- Occasionally asks for help (aspirin, pest control) but stays independent.
- Avoids hospitals and doctor visits unless absolutely necessary.
- Reads two different newspapers daily for 30 minutes.
- Keeps mental notes about his health instead of written records.
- Shares stories of survival to connect with Keeps mental notes about his health instead of written records.
- Tries to find his girlfriend who is still struggling with instability.
- Avoids returning to doctors after a traumatic hospital stay.
- Reflects deeply on his attack and recovery process.

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

- thankful for housing, but disillusioned by healthcare experiences.
- emotionally and physically worn from repeated trauma and self-reliance.
- limited social and medical support, still feels on his own.
- Takes pride in surviving violence, homelessness, and rebuilding a home.
- Angry at the healthcare system's incompetence and bureaucracy.
- Tired physically, emotionally, and spiritually.
- Disappointed that care still feels impersonal.
- Distrustful of doctors and institutions.
- Proud of surviving violence and homelessness.
- Sad about his girlfriend's situation and distance.

Takeaway: Trauma-Driven Mistrust in Healthcare

Observation: Harry survived a violent assault and hospitalization but now avoids doctors entirely. Administrative errors, impersonal care, and chaotic hospital experiences reinforced his belief that the healthcare system is unreliable and dehumanizing.

Need: Patients like Harry need consistent, care and human-centered communication that rebuilds trust. This includes help navigating insurance, paperwork, and follow-up care without fear of being ignored or mistreated.

Insight: When people experience the healthcare system as cold, confusing, or unsafe, trust becomes the barrier to access.

Does

Shares stories of survival to connect with Keeps mental notes about his health instead of written records..

Tries to find his girlfriend who is still struggling with instability.

Feels

emotionally and physically worn from repeated trauma and self-reliance.

Angry at the healthcare system's incompetence and bureaucracy.

"It was terrible, man. I was in a coma for like 60 hours or something like that. They put back together my head and my shoulder, my back, and over my heart."

"The healthcare system? Well, at that point, you're in an emergency and you're stuck in a hospital. You're lucky to make it. I made it... They're more like a cult than doctors"

Needfinding Interview: Ivan

28-year old low-income male who is unemployed and recently moved from TX to CA

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

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

- "They give us MediCal and stuff... I don't know what that does, but I got it."
- "I probably go to the doctor like once or twice [a year]... checkups and major issues."
- "I'd go to the doctor when the stuff I've found online and learned isn't working — that's where I would go."
- "I usually Google for medical advice but they go straight to the point where it just says 'oh you're going to die' — they want to be the worst of the worst."

- "I also go to the hospital websites... they got all the right people to talk to."
- "People don't go to the doctor because that billing is ridiculous. I once paid $2,500 out of pocket, which is crazy."
- "California healthcare takes care of its people much better than anywhere else."
- "They keep trying to make you pay the bill... but they don't rush you to pay it, it'll be there forever."

- "Recently when people are hurting, money is the last thing they think about. What will I do with all the money if I'm dead? Don't bother, but that's any you you whatever the bill was"
- "I would never contest a medical bill if it was life-saving - like I could've been dead. Anything else though and I got something crazy, then maybe"
- "The food bank and shelters give me information on MediCal so that's pretty helpful. But I still haven't done much research at all"
- "If you're telling me that there are free gym memberships and stuff with MediCal, then I gotta check that out."

- MediCal exists but is opaque— "I got it" but he doesn't know what it actually covers.
- Hospital websites = trustworthy entry points (they'll connect him to the "right people")
- In emergencies, life > money: bills don't matter if care saves you
- Billing is punitive and deterrent— high bills explain why people avoid care.

- Google is sensationalist / fear-driven: search results often focus on worst-case scenarios.
- Medical bills can be deferred - belief that collections don't force immediate payment.
- California is comparatively generous with social and medical resources
- Some MediCal benefits may be hidden or under-advertised

- There's little payoff contesting life-saving charges— moral or emotional reasons to accept them.
- Non-life-saving charges are negotiable or contestable - he might challenge those.
- Community organizations are effective information conduits (food bank/shelter role).
- Practical knowledge (when to go) is learned through trial and community, not from policy documents.

Ivan
28-year old low-income male who is unemployed and recently moved from TX to CA.

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?

- Enrolls in and keeps MediCal when offered
- Searches online— Google and hospital sites — as first step for health questions.
- Relies on self-care / home remedies until personal knowledge is exhausted.
- Avoids routine checkups unless necessary; seeks care mostly for emergencies or big issues.

- Paid $2,500 out of pocket for emergency care in the past (before MediCal).
- Would use free preventive services if he knows they exist (e.g., free checkups, gym memberships).
- Asks hospital hotlines / calls hospital websites to find the right clinician or service.
- Learns through doing - practices exercises/diet, studies anatomy videos and textbooks to self-educate.

- Relies on shelters, neighbors, government assistance for help when newly arrived in CA.
- Navigates resource systems by trial (food stamps → MediCal, discovers benefits through intake).
- Chooses in-person care/go straight to ER/clinic when urgency or inability to get help online.
- Keeps looking for information about what his coverage includes (treasure box metaphor).

- Believes MediCal exists but is unclear / partly hidden
- Thinks online information is sensationalist (Google shows worst-case scenarios), so professionals/textbooks are the real authority
- Assumes emergency care is expensive and that cost is a major barrier for many people
- Believes people avoid care because of fear of unaffordable bills and long-term debt.

- Expects hospital websites/hotlines to be helpful but doubts consistency depends on busyness / staff mood.
- Thinks resource access improves in CA compared to other places — more programs and classes are available.
- Believes advertising/ accessibility matters - if benefits were visible, more people would use them.
- Assumes billing can be deferred/handed slowly (bills "will be there forever"), which reduces immediate panic but can cause prolonged debt.

- Thinks learning medical language (anatomy) increases agency in encounters with clinicians.
- Came to know that some services or perks (gym memberships, community resources) are available through MediCal but isn't sure how to find them.
- Skepticism over how medical billing is done and if it even adds up, but won't contest bill he thinks fully that it's wrong.

Takeaway: Unaware of Provided Resources

Observation: Ivan has Medi-Cal but doesn't understand what it covers or how to use it. He relies on Google for medical advice and only reaches out to official sources when they need quick answers.

Need: Patients like Ivan need clear, simple guidance on how to actually use their healthcare benefits and where to find trustworthy medical information.

Insight: Even when patients have access to care, uncertainty about how to navigate it leads them to default to the most familiar sources, like Google, instead of using the support systems available to them.

"The food bank and shelters gave me information on Medi-Cal, so I have Medi-Cal right now. But I still haven't done any research at all, so I have no clue what it does."

"I usually use Google for medical advice but I also call the medical hotlines if I want to get immediate answers"

Does

Would use free preventive services if he knows they exist (e.g., free checkups, gym memberships).

Relies on shelters, neighbors, government assistance for help when newly arrived in CA.

Feels

Believes advertising/ accessibility matters - if benefits were visible, more people would use them.

Came to know that some services or perks (gym memberships, community resources) are available through MedCal but isn't sure how to find them.

POVs and HMWs

We chose to focus on these POVs...

Adam

Bella

Carl

Dan

Eric

Frank

Gordon

Harry

Ivan

Jane

POV Development (Initial)

- *We met:* Eric, a homeless person who suffers from Type 2 diabetes and its complications

- *We were surprised to realise:* how motivated he was to learn about his health but quickly manipulated by online resources that were unverified (ie. not take insulin for years because some so-called doctor on YouTube said so)

- *We wondered if this means:* he lacks the ability to evaluate which information sources are credible

- *It would be game-changing if:* we can provide helpful resources that are made digestible for audiences with various levels of media literacy

POV #1: Eric

- _We met:_ Eric, a 62-year-old homeless senior citizen living with diabetes,
  - who, despite having full Medicaid coverage, struggles to navigate and trust medical information.

- _We were surprised to realise:_ that even with complete healthcare coverage and positive relationships with doctors, Eric once refused life-saving insulin for years because of misleading advice from online "experts." He now recognizes the harm but still finds it difficult to evaluate credible medical information on his own.

- _We wondered if this means:_ Eric values relatability and emotional understanding over clinical accuracy when seeking health information, because online voices make him feel heard in ways the formal healthcare system has not.

- _It would be game-changing if:_ Eric could feel the same sense of trust, relatability, and belonging with credible medical guidance that he currently finds in online communities.

POV #2: Gordon

- _We met:_ Gordon, a paralyzed homeless senior citizen living in Palo Alto
  - who is waiting and signalling for help outside a homeless services center every day.

- _We were surprised to realise:_ that despite having frequent, albeit sporadic, access to healthcare benefits provided by social services (Medi-Cal), Gordon still feels disempowered and helpless due to his inability to access these resources independently and the lack of continuity in his care.

- _We wondered if this means:_ for patients like Gordon, access to healthcare benefits is not just about eligibility, but also about dignity and the autonomy to act on their own behalf.

- _It would be game-changing if:_ we can empower low-income patients to navigate and manage their healthcare benefits, and help them regain a sense of control and self-worth.

POV #3: Ivan

- <u>*We met*</u>*:* Ivan, a 28-year old unemployed man in California (recently
  ○ moved from Texas) who recently obtained Medi-Cal through local
    shelters but admits, "I don't know what that does, but I got it."

- <u>*We were surprised to realise:*</u> that even though he has free public
  health coverage, he has virtually no idea what it actually provides —
  and still feels financially at risk for future emergencies, so he uses
  Google and hospital websites to navigate health questions but rarely
  visits the doctor.

- <u>*We wondered if this means:*</u> that low-income patients like Ivan see
  health insurance as an bureaucratic formality rather than a beneficial
  resource because the benefits are hidden behind confusing language
  and unadvertised perks.

- <u>*It would be game-changing if:*</u> healthcare resources that were available
  to low/no income people felt like a real, visible safety net instead of
  invisible paperwork – if people like Ivan could see and understand their
  benefits as clearly as they see a Google search or food bank schedule

Top 3 HMWs

1) HMW...
make credible medical advice as engaging and accessible as misleading online content?

- High frequency problem.
- Misinformation causes harm.

2) HMW...
ensure that Medi-Cal feels like a visible life-enhancing membership, with perks people actually enjoy discovering, using, and benefiting from?

- Range of impact: Universal among all Medi-Cal holders
- Novelty: "redefining" Medi-Cal

3) HMW...
make healthcare guidance comforting and human instead of clinical or fear-inducing like Google results?

- Even wider range of impact: beyond just Medi-Cal holders
- Strong emotional pain point.

Solution Ideas and Experience Prototype
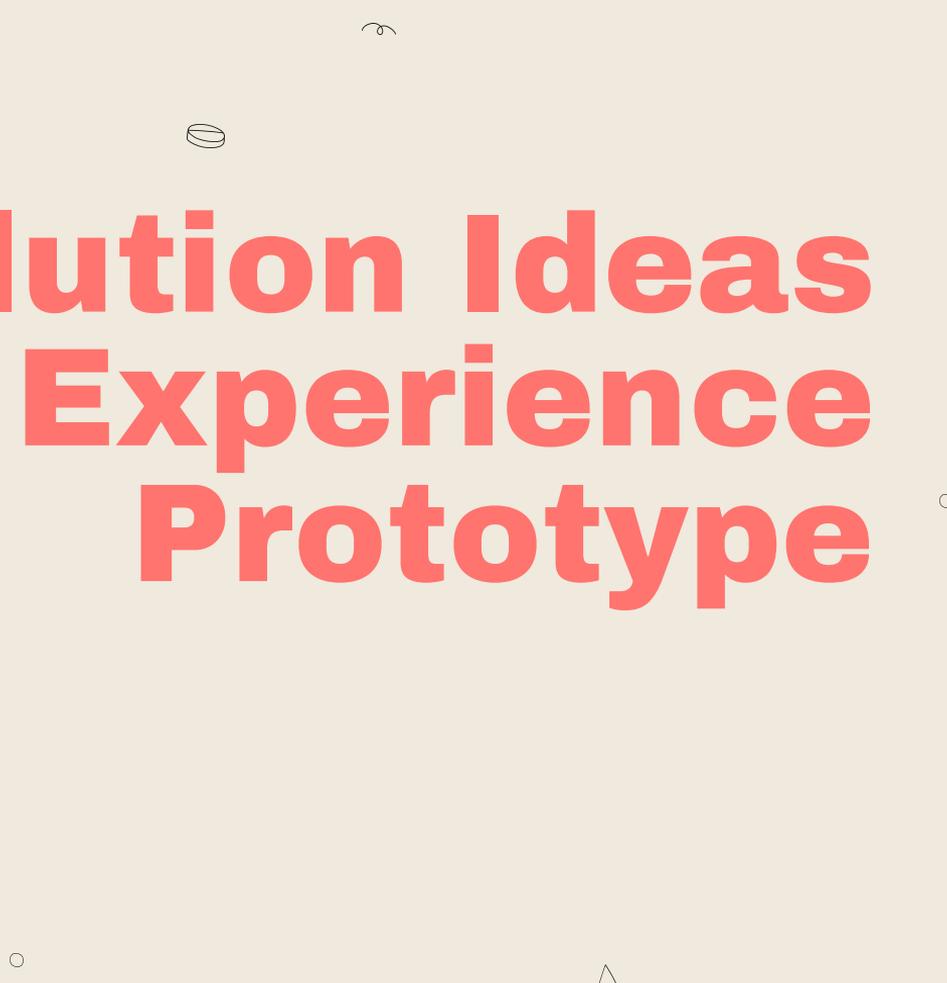
Solution Overview

Clarity

A fact checker that comments on sources and intentions behind each information source, as well makes complicated information more accessible. Every source referenced by fact checker can be accessed by user.

Medi-Pal

Your guide to Medi-Cal. Lists all centers that provide healthcare benefits and what they provide on a treasure map. Allows for direct search and also guided discovery of new benefits with a simple swipe.

Medic-aid

A trusted voice AI that delivers Medi-Cal information through recorded community ambassadors to embody trust and closeness. Users can ask any query and the voice AI will provide a comprehensive response.

1) HMW make credible medical advice as **engaging and accessible** as misleading online content?

Solution 1

Clarity

A fact checker that comments on sources and intentions behind each information source, as well makes complicated information more accessible. Every source referenced by fact checker can be accessed by user.

Ethical Considerations: Who decides what is truthful and what is not? How do we ensure our system is fully transparent and interpretable? Can we truly make an unbiased judgment about a source's intentions?

Participants

Liam

64-year-old unhoused veteran

Miguel

37-year-old security guard working at PHC (low-income, on Medi-Cal)

Nancy

43-year-old hairdresser working at PHC (low-income, on Medi-Cal), has diabetes

Assumptions

★ **Crucial**: If this assumption does not hold, Clarity does not need to exist.
★ **Non-obvious** across different age groups - younger people also have access to public schooling.

"Low-income patients lack the media literacy to evaluate the validity of healthcare information and its sources."

CLARITY
Fact Checker

WHY should it exist? (Existential)

HOW does it work? (Implementation)

"Patients do not react negatively to being fact checked"

"Patients will change their judgment and behavior after being fact-checked"

Prototype Description

- Gathered playlist of several YT shorts, some having truthful information and others misinformation. (Prop)

- Had users identify how truthful the information was and what they thought about it. (Scene, Role)

- How it tests our assumption: If our assumption holds, participants would perform poorly (i.e., <50%) in this activity.

How it went!

Participant watching a video short stating that chiropractors were real medical doctors. (He spotted the **fake!**)

Participant watching a video short that Eric watched of so-called doctors claiming that insulin was bad for diabetics.
(He did not spot the fake.)

Observations

True or false: Low-income patients lack the media literacy to evaluate the validity of healthcare information and its sources.

Partially true

What worked

- We discovered participants were susceptible to several kinds of biases.
  - Blindly trusts "so-called experts"
  - Anchors judgment on past experience
  - Wishful thinking
- None of the participants tried searching up the author of the information source.

What didn't work

- Participants were aware that they need to **consult more sources** to **fact-check** their information before believing it.
- They were usually **more skeptical** when healthcare information is provided by **non-professionals.**
- They may **refuse to comment** when they were not familiar with the video content.
- Average participant score: ~64%.

Key Insights and Analysis

Blindly trusts "so-called experts"

Context: We showed participants the video Eric watched, in which doctors claimed insulin was bad for diabetics
Reaction: Participants immediately treated the video as truth because it was presented by a "professional", even though the professional did not provide any evidence for their claims.
Insight: People understand that they are not health experts and are not confident in making their own judgments. So, they delegate their judgment to perceived professionals.

Over Reliance on personal experience

Observation: Most common reason for wrong answers. Personal experience overrides expert opinion as most important factor for source evaluation.
Example: Participant denies expert's claim that longevity supplements do not exist, claiming that "every herb has a cure for everything" because his friend stopped having kidney stones after eating herbs.
Insight: Some people equate personal experiences as "truth" because they have experienced it first-hand. Whereas, expert authority is less relatable to them.

Wishful Thinking

Observation: Some participants believed false information because they wanted it to be true.
Example: When presented with a misleading advertisement for a "bunion corrector", the participant mentioned that they would prefer purchasing the corrector over seeing the doctor because of lower costs and the idea that the corrector "might work".
Insight: People may believe in misinformation due to emotion (i.e., to reduce discomfort), rather than lack of knowledge.

Key Takeaways:

- ❖ We will need to probe the user's experiences about a topic before providing information, as the user may react negatively if the information contradicts their past experiences.
- ❖ The fact checker will need to know how to anticipate the user's emotional reaction.
- ❖ Ethical Consideration: fact checker may need to provide additional sources and empower user to make their own judgment.
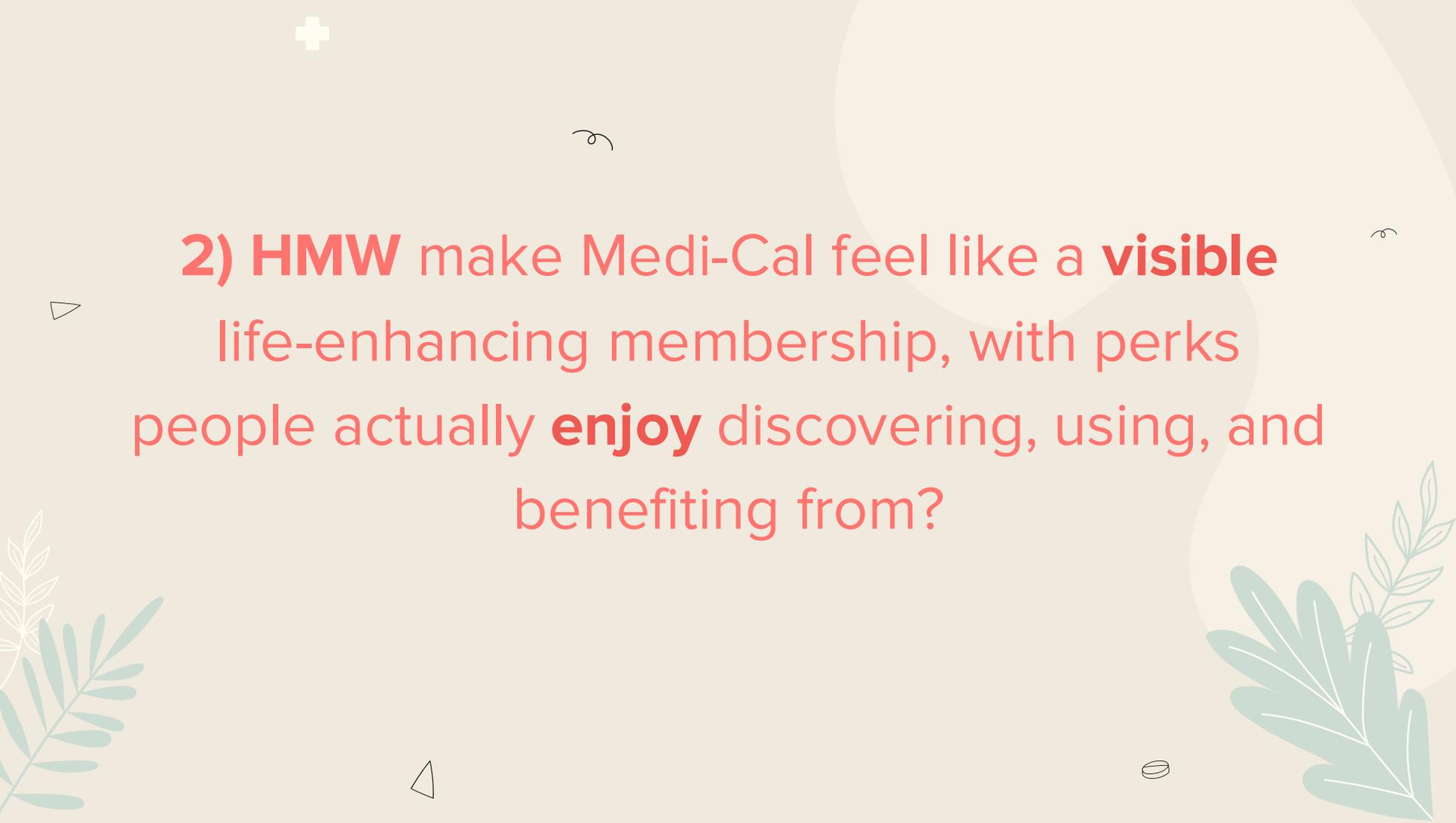
2) HMW make Medi-Cal feel like a **visible** life-enhancing membership, with perks people actually **enjoy** discovering, using, and benefiting from?

Solution 2

Medi-Pal

Your guide to Medi-Cal. Lists all centers that provide healthcare benefits and what they provide on a treasure map. Allows for direct search and also guided discovery of new benefits with a simple swipe.

Ethical Considerations: How do we ensure that the listed healthcare benefits are valid and available? How do we decide which healthcare facilities to show to users?

Participants

Liam

64-year-old unhoused veteran

Miguel

37-year-old security guard working at PHC (low-income, on Medi-Cal)

Nancy

43-year-old hairdresser working at PHC (low-income, on Medi-Cal)

Assumptions

★**Crucial**: If this assumption does not hold, Medi-Pal does not add any value.

★**Non-obvious**: There may be constraints/barriers to accessing a resource (e.g., distance, hidden costs)

"Low-income patients will actually use the free healthcare benefits that are given to them."

MEDI-PAL
Guide to all Medi-Cal Benefits

WHY should it exist? (Existential)

HOW does it work? (Implementation)

"Low-income patients can locate their desired resources on a map."

"Guided discovery would lead patients to discover new resources that they are interested in."

Prototype Description

- We used a PowerPoint to show different free medical resources and the cost (e.g., time, public transport) to get the resource labeled on each slide (Prop)

- Asked participants to draw on a spectrum (printed sheet of paper) about how likely they would travel/spend money in order to get that resource (Scene, Role)

- How it tests our assumption: If our assumption holds, then participants should indicate that they are likely to pursue most resources.

How it went!

Participant indicating his willingness to use a specific resource on our spectrum.

One participant was having a haircut, so gave verbal responses instead of drawing his preferences (as intended).

Observations

True or false: Low-income patients will actually use the free healthcare benefits that are given to them. ✅

What worked

- For most resources, most patients were very intrigued.
- Participants did not view the costs of public transport as a barrier to accessing these resources.

Will not use resource ←——————————→ Will use resource
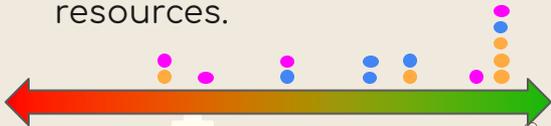
What didn't work

- Time is money: if participants believed that they needed to put too much effort to obtain a health resource (e.g., >30 minutes of public transport), they would be reluctant to use the resource.
- Willingness depends on personal preference: for example, many participants dismissed resources such as mental health and counselling because they "did not need it".

Key Insights and Analysis

They may already be using these benefits (but paying)

Observation: Some participants were paying money for medical benefits they could have gotten for free.

Example: One patient paid thousands of dollars to private insurance companies due to a lack of awareness of existing medical benefits (i.e., veteran health insurance).

Insight: It is evident that some healthcare benefits align with what patients actually want and need. Since these benefits are desirable (and free), low-income patients are likely to take advantage of these benefits if they know about them.

They need to be told which resources are available

Observation: Patients did not seem to know how to articulate what resources they need, but become highly interested when they discover/learn about a resource that they think is needed.

Example: Participant became highly interested when learning about free dental benefits and kept asking about it. He was not able to articulate this need at the start when we asked him about which healthcare benefits he wanted.

Insights: When patients are exposed to new information, they may discover new needs that they were previously not aware of.

Key Takeaways:

- ❖ Knowing that users may not be able to articulate their needs, we will need to make free resources discoverable and feed it to the user. On the other hand, a search bar may not be as effective.
- ❖ Ethical consideration: free benefits that are most commonly used should be listed on the top. This will help more people avoid paying for benefits they can access at no cost.
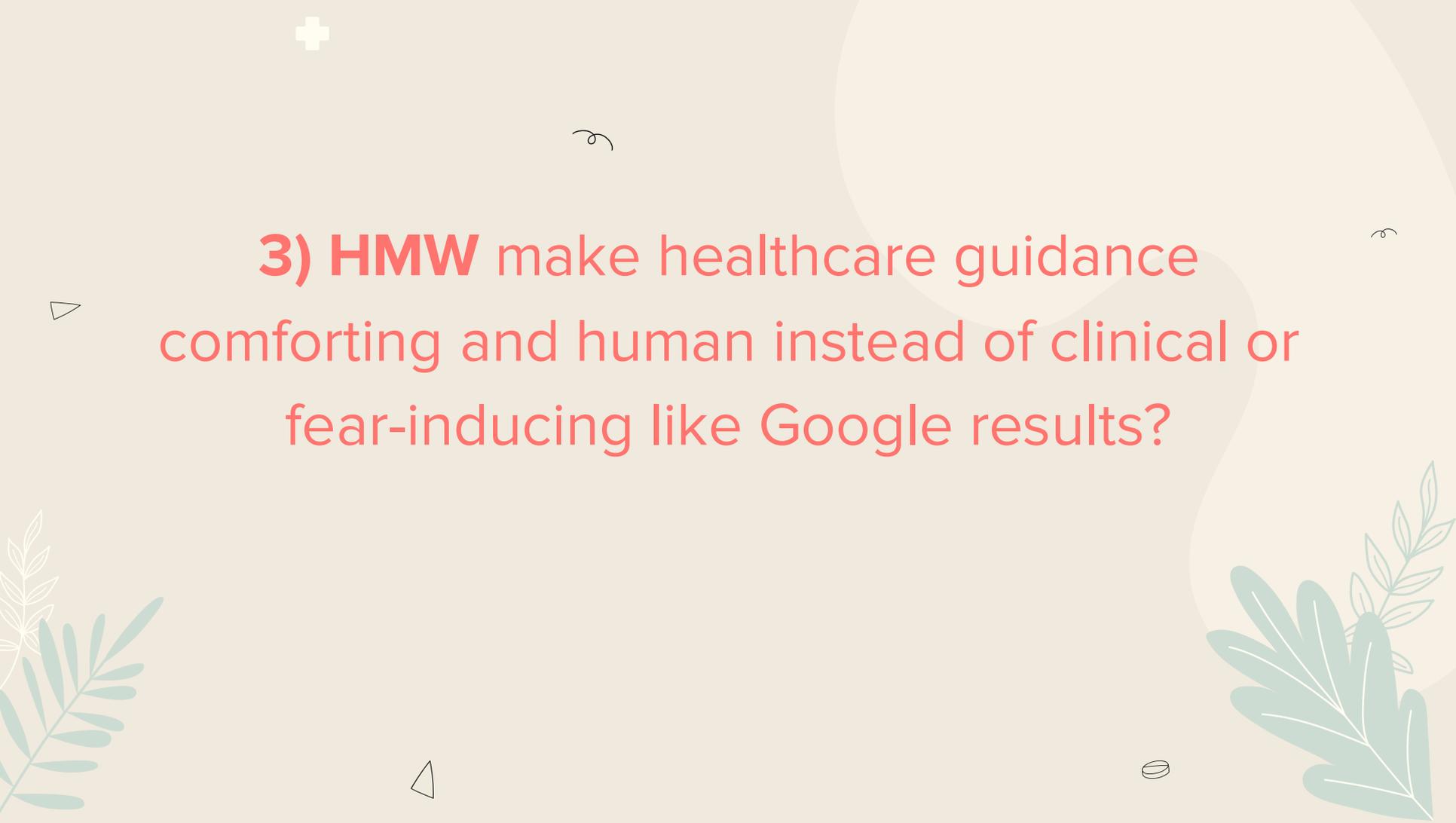
3) HMW make healthcare guidance comforting and human instead of clinical or fear-inducing like Google results?

Solution 3

Medic-aid

A trusted voice AI that delivers Medi-Cal information through recorded community ambassadors to embody trust and closeness. Users can ask any query and the voice AI will provide a comprehensive response.

Ethical Considerations: Do community ambassadors give consent to their voices being used by AI? How do we make sure that the voice AI always give accurate responses, as errors may cause harm? How do we prevent users from becoming overly dependent on AI? Can we design systems that build trust without manipulating the user?

Participants

Liam

64-year-old unhoused veteran

Nancy

43-year-old hairdresser working at PHC (low-income, on Medi-Cal)

Olivia

31-year-old staff working at PHC (low-income, on Medi-Cal)

Assumptions

★**Crucial**: If this assumption does not hold, Medic-aid should not exist.
★**Non-obvious**: There may be privacy concerns as health information is highly private. Users may also not be comfortable bonding with a machine.

"Patients are comfortable with talking to an AI voice agent about their health."

MEDIC-AID
Trusted Voice AI

WHY should it exist? (Existential)

HOW does it work? (Implementation)

"Patients are satisfied with the AI voice agent's response."

"Patients feel warmth and rapport when talking to AI systems."

Prototype Description

- Had a GPT bot act as a medical resource tool specifically tasked to answer questions from participants (Prop)

- Had participants verbally ask questions to the bot and after receiving answers, had them give us their thoughts (Scene, Role)

- How it tests our assumption: Based on the participant's interaction with the bot, we can gauge whether they were comfortable with the interaction.
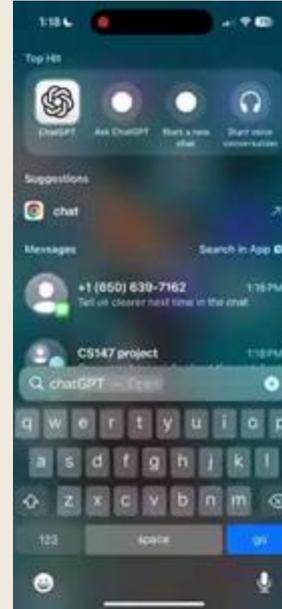
Sample Questions:
- "What can I even do with MediCal?"
- "Does MediCal pay for prescriptions or gym memberships?"
- "I just got a big hospital bill — what should I do?"
- "I don't really go to doctors unless it's serious — what can you do for me?"
- "How do I use MediCal for mental health or dental stuff?"

How it went!

Participant asking the AI voice agent for email addresses and next steps. We noticed that this was a typical interaction pattern - more details in "Key Insights".

Participants came in with their own queries too: e.g., will Medi-Cal transfer to her kids? Participant concentrated when listening to AI and looked convinced, treating it as a legitimate source.

Observations

True or false: Participants are comfortable with talking to an AI voice agent about their health. ✅

What worked

- Most participants agreed that the AI voice agent gave them answers, information, and advice that they wanted.
- Some participants fully trusted the AI voice agent.
  - This may be caused by misunderstanding of how AI works.
  - For example, One participant fully trusted the AI voice agent because they thought AI was created by a professor. He believed that all AI-generated facts originate from human input, and therefore, these facts must be correct.

What didn't work

- Some participants highlighted that they would need to do further fact checks to verify AI-generated information, especially for high-stake scenarios.
  - Though, this is a procedure they would perform for most information sources, not just AI.
- One participant preferred talking to humans.
  - She felt genuine connection and support when talking to humans. When talking to AI, she only feels that AI analyzes what she wants to hear and says it.

Key Insights and Analysis

Asking for hotlines and sources

Observation: When asking about resources, most participants asked AI to leave contact information about how to access the resource: e.g., hotline, email. They would also ask AI to cite their sources.

Insight: Most participants may not fully trust the AI and wish to seek confirmation from an actual person/resource provider.

Advice without Action

Observation: Some participants highlighted that AI only gives advice, but that it does not do anything for you.
Example: One participant was interested in Medi-Cal's dental benefits. She highlighted that although the AI agent gave all the answers she wanted, she had to locate the dental clinic, find their contact person, and book an appointment on her own. So, she felt that AI's help was inadequate.
Insight: Information on its own is not valuable, as patients are already overwhelmed by the complexities of Medi-Cal. What they need is the support that helps them act on the info.

Understood vs Helped

Observation: One participant highlighted that when she gets help from humans, she feels a sense of solidarity and connection because the counterparty truly wanted her to succeed. But when she gets help from AI, she feels that she is navigating the situation alone. She also feels that AI would analyze what she likes and only say what she wants to hear.
Insight: People need more than just answers and help, as they also want to feel that others truly care about their wellbeing. Whilst human connection is authentic, AI help may be seen as calculated and insincere.

Key Takeaways:

❖ It would help to list a contact person (and their contact information) for every healthcare benefit that users learn about.
❖ We can explore streamlining the whole procedure of obtaining a healthcare benefit into a simple task.
❖ The main design challenge will be to make users feel understood and supported - this does not necessarily need to be achieved by AI (e.g., building an online community / support groups)
❖ Ethical consideration: We need to inform users up front that they are interacting with AI.

Next Steps

Chosen Solution

Medi-Pal

Your guide to Medi-Cal. Lists all centers that provide healthcare benefits and what they provide on a treasure map. Allows for direct search and also guided discovery of new benefits with a simple swipe.

Ethical Considerations: How do we ensure that the listed healthcare benefits are valid and available? How do we decide which healthcare facilities to show to users?

Why Medi-Pal

01 **02** **03** **04**
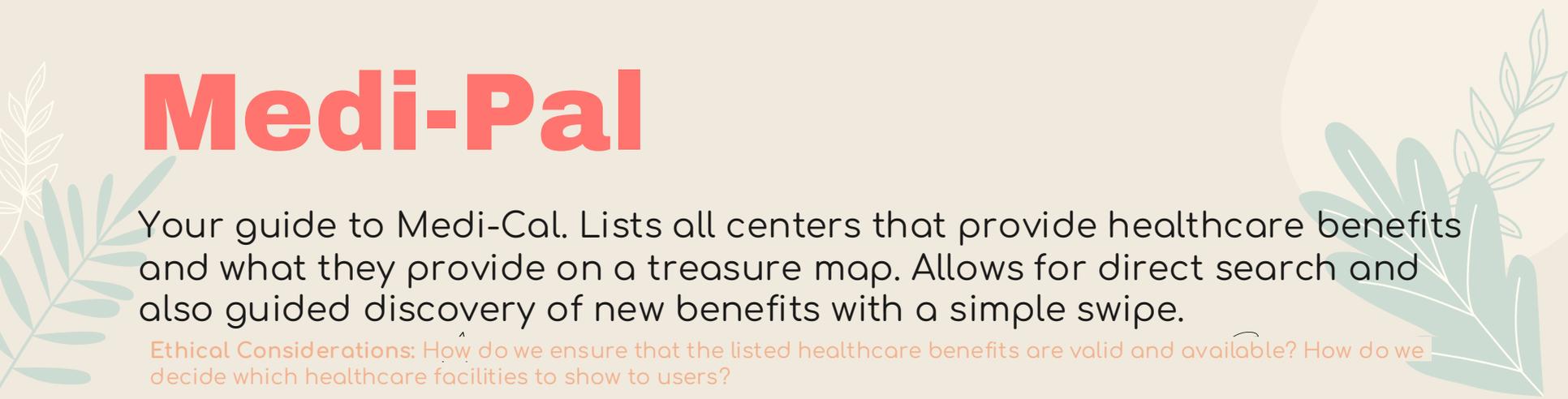
01 Most Universal Issue across User Interviews

02 High Frequency Problem: Large Budget Allocations

03 Magnitude of Impact across Geographies

04 Lowest Barrier for Adoption

Target User and Scope

Out of Scope (by intention)

Not low-income

Different role: clinic admin (though he will be influenced by Medi-Pal)

Not a California resident

Target User Group: low-income patients in California, usually with (but not excluding) Medi-Cal coverage

Unhoused Individuals

Housed, low-income

May be excluded

No personal electronic device / Low digital literacy

→ Support alternatives (e.g., voice interface via hotline at public phone booth)

Low-income patients who are not aware of Medi-Pal (information asymmetry)

→ Ask social workers / outreach teams to help with promotion
→ Use offline promotional material (e.g., flyers) at community centers / public facilities

Ethical Implications

Only in California (left out)

Medical Resource Overburden

Data and Personal Privacy

Assuming People are Technology Forward (leaves out people with no device)

Appendix

Solution Brainstorming

HMW make MediCal feel like a visible life-enhancing membership, with perks people actually enjoy discovering, using, and benefiting from?

Community sharing with friends	Rewards app	Tiered membership program
Milestone events	Everyone has AI agent that is member of MediCal	Community - get more perks if you share
Themed communities - e.g., dental group, fitness group	Personal trainer for all	A MediCal "Perk Passport" a gamified physical or digital system where users collect stamps for every benefit used like checkout → online → reward
Based on data & achievements, give future projections	League tables - more perks used gives you higher rank	Storyboard of progress
Calendar	Neighborhood map - e.g., Snapchat	Pokemon Go like app that encourages patients to explore around and takes patients to locations that provide healthcare resources
Tinder-like app where patients can swipe right on benefits they need and swipe left for benefits they don't need. Algorithm learns preferences.	Yelp-like platform that lists all centers that provide healthcare benefits and what they provide. Users can search for facilities that they need (with map feature).	

HMW make healthcare guidance comforting and human instead of clinical or fear-inducing like Google results?

Voice AI from trusted person	A trusted voice AI that delivers MediCal information through recorded community ambassadors to embody trust and closeness	Voice AI from celebrities
Peer-to-Peer Coaching	Illustrated health comics	System/platform that connects you to actual humans or volunteers
Diary + Journaling of journey	Day in the life stories	Healthcare guidance from "hot female/male"
Clone healthcare provider with AI and use as an interaction	Careful and visual design (graphics)	Compare results to previous and see how much you grow (self help)
AI chat interface that checks in with participant and knows them personally	Comfort coaches	Talk to future self who is doing well
Talk to a real nurse	Talk with peers/ neighborhood	Themed community groups

HMW redefine MediCal from a safety net for emergencies to a proactive wellness toolkit?

share your story to others (platform)	Comfort peers / buddies	Fitness buddies
Preventative care bingo card	ask medical hotline/ text bot	You get points for wellness commitments
Voice journaling that interacts and makes recommendations	Community wellness ambassadors	App where people can give "gifts" that point to resources
Daily check in AI chats	An AI coach that nudges the patients towards preventative actions before actual health issues arise - AI mentors through diet integration and analysis	App that shows body with wont look part being a "maintenance A" (high means well maintained, low means need more work)
Benefits discovery map	Trust circles	Discover page for benefits

HMW make credible medical advice as engaging and accessible as misleading online content?

Cite all sources for all information	Youtube shorts "myth vs truth"	Ask me anything live streams
AI-generated short form videos using Medi-Cal resources	Healthy memes (library of shareable memes)	Replace ads placement placement content about MediCal benefits that have different interest or target efficient demographics - so area factor placed accessing resources - so most have been patience or sound and smart
Daily text nudges from credible sources	Verified by doctors label on content	Games to learn about medical advice
AI fact checker for all health-related information that has been shared with participant	Doctor duets/ stitches on videos	Story sharing where they talk about medical advice
Twitter-like fact checker that comments on sources and intentions behind source	Mythbusters	