

**Designing Beyond Language:
Sociotechnical Barriers in AI Health Technologies for Limited English Proficiency**

Interview Protocol

Interview is conducted remotely via Zoom. Researcher screen-shares Google Slides deck.

Preamble & Study Overview:

Hello, my name is [insert researcher's name], and I am a [insert role and affiliation]. Today, I will be conducting an interview as part of a research study. The purpose of this interview is to understand the barriers that Spanish-speaking patients face when receiving medical care, and how AI technologies can or cannot support them in this process. This interview should take about 60 minutes. This interview is not evaluative - we are not assessing the quality of your responses in any way. Our goal is to understand your experiences and perspectives.

No personally identifiable information from this interview or your interest form responses will be included in writings we may produce. You are free to skip any questions with no penalty.

Definitions & Study Scope:

In this interview, we will be using two keywords. First is 'artificial intelligence', or AI, which we define as any computer program that tries to behave like humans by understanding language, answering questions, or giving suggestions. Examples include chatbots, translation apps, or Apple's Siri.

Second, we will be discussing experiences relating to Spanish-speaking patients, which we define as non-native English speakers who speak Spanish or are from a Spanish-speaking country, and who live in the US and receive healthcare or services in the US. These patients may or may not be immigrants.

Consent:

Please take a minute to review the consent form that you signed just before this interview. To reiterate, an audio recording of this conversation will be taken. This recording will only be used to create a transcription of the conversation for data analysis and other research purposes. Do we have your consent to begin an audio recording of this interview?

Researcher begins audio recording of interview.

Part 1: Background Information

- Could you tell me about your role and your experience working with Spanish-speaking patients?
 - What are the biggest challenges that you face in your role?
 - Broadly, what are the main challenges patients face?
- Have you used AI tools before? If so, what tools and for what purposes?
 - What do you like about using AI?
 - Have you encountered any challenges while using AI?

Part 2: Storyboards

I will now be sharing 6 storyboards that relate to a theme in healthcare or AI. Please take a moment to read each storyboard, and let me know when you are finished so we can discuss your thoughts towards the storyboards. All storyboards are purely hypothetical and not based on any real situations.

Some may cover sensitive topics. You are free to skip any storyboards or refuse to answer any questions if you choose to.

Participant reads one storyboard.

- Do you relate to this scenario?
- What are your immediate thoughts?

After the participants finished reading each storyboard, we first asked the above two questions. Then, questions were asked drawing upon the participant responses or from the following question sets as needed. The storyboards were presented in random order for each participant.

Theme: Language & Communication

- How often do patients you work with have access to a professional medical translator/interpreter during their appointments?
- Are there any limitations you've observed with interpreter services?
- Have you ever encountered situations where a literal translation didn't convey the full meaning to the patient?
- Are there particular concepts, phrases, or cultural ideas that may arise in a conversation at an appointment that are especially difficult to translate accurately?
- In your view, what makes a translation culturally sensitive and not just linguistically accurate?
- Have you used AI to translate before? How well does it perform?

Theme: Relationality & Comfort

- What are some of the biggest challenges these patients face during provider conversations?
 - How do you currently help patients overcome these challenges?
- Are there any cultural beliefs or norms you've observed that influence how patients engage with medical providers?
- How do patients tend to react when they don't understand something a provider says?
- How do patients feel towards their healthcare systems and services?
- Do your patients currently use AI or other technologies?
- Do you foresee any potential issues that would cause patients to not feel comfortable interacting with AI?

Theme: Clinical Safety & AI Accuracy

- Based on your experience, how do patients typically prepare for medical appointments?
- How confident do they feel when they arrive at the appointment with regards to expressing their symptoms and asking relevant questions?
- How do patients learn about their health, symptoms, or treatments?
- How do patients evaluate trustworthiness and accuracy of information?
- How would you judge the accuracy of AI information, in your experiences?
- Who is responsible if AI gives wrong medical information and this leads to mistakes?

- How could providers or advocates step in against AI misinformation, mistranslations, or ambiguity?

Theme: Equity & Access

- How would you describe the level of familiarity your patients have with technology?
 - How does access to technology play a role?
- What other invisible privileges do you see baked into technology and AI systems?
- Are there any broader contexts that patients face that might influence the way they interact with technology?
- Thinking ideally, what can AI developers do to help mitigate these barriers? What must be societal developments?

Theme: Clinical Integration & Support

- How would you describe the amount of resources clinics have?
 - Are clinics overburdened or underresourced? In what ways?
 - Do these issues affect patients' willingness to seek medical help?
- How do patients and providers communicate in instances where a translator is not available?
- What are aspects of having human providers, interpreters, or other medical personnel that AI cannot replicate?
- What are advantages or disadvantages of using AI versus human personnel?
- Would clinicians have to be aware of patients using AI to get medical information? How would that change their workflow?
- How might AI bring changes to the existing healthcare ecosystem/workflow?

Theme: Privacy, Transparency, Ethics

- Do national policies and actions affect patients?
- How do patients perceive data privacy, both offline and online?
- To what extent would privacy or data tracking be a concern for patients?
- Could AI or technology aggravate issues patients are already burdened by?

Part 3: Conclusion

- What do you see are the biggest risks or limitations of AI for your patients?
- What do you see are the biggest advantages or benefits of AI for your patients?
- Would you recommend using AI to your patients?
- If you could invent any system to help patients with [relevant challenges mentioned in earlier conversation], what would it look like?
- If you could invent any system to help you in your role, what would that look like?
- Is there anything else you'd like to share that might help us understand the experiences of and how to better support LEP patients through AI & technology?

Researcher ends the audio recording.