

Telephonic Interpretation During Field Surveys in Multilingual Communities

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EMBARC

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OVERVIEW

More than one in five people residing in the U.S. speak a language other than English in their homes, a proportion that has doubled since the 1980s (U.S. Census Bureau, 2022). The increasing linguistic diversity in the U.S. means that ensuring language access during public health data collection projects, interventions, and programs are critical for building health equity and improving the health and wellbeing of all people living in the U.S. Interpretation services are just one component in building language access for populations that speak languages other than English, but interpretation is the focus for this toolkit. Providing interpretation services is one important step in ensuring that the experiences of diverse populations are heard and documented and can then be addressed through public health programs. We examine how interpretation, and especially remote interpretation, is experienced, perceived, and utilized by diverse communities to provide public health practitioners with actionable knowledge about incorporating high-quality interpretation services in their research and data collection efforts.

This toolkit was developed using information available in academic journals and gray literature about utilizing in-person and telephonic interpreters for multilingual ethnic groups. It also includes input from individuals who work in academia with diverse communities, and community leaders with extensive experience collecting data in multicultural communities inside and outside the U.S. Considerations on two types of interpretation delivery methods and different types of interpreters are provided, as well as on-the-ground findings and recommendations based on a pilot test conducted with meatpacking workers and farmworkers in two locations in the U.S.

Information in this toolkit will be most helpful for public health practitioners engaged in community-based data collection efforts, such as rapid community assessments, field disease investigations, community surveys, and program evaluation, and their project partners.



BACKGROUND: TYPES OF INTERPRETATION FOR DATA COLLECTION

Most existing publications about interpretation are focused on giving information to persons who speak languages other than English in clinical settings rather than collecting information from individuals, but some of this information is still applicable in the context of data collection. We conducted a literature review on the topic of evaluating interpretation methods for people who speak languages other than English, resulting in an abstract review of over 900 articles and a review of 63 full-length academic articles and gray literature publications (not all articles are reflected in the information below in order to keep this section concise). We also interviewed seven experts in the field of interpretation or data collection with multilingual communities to record their insights and lessons learned on different interpretation methods (see Appendix A for more detailed methods). Below we summarize key findings and considerations on how interpretation is delivered (in-person or virtually/by phone) and on types of interpreters (trained professional, trained non-professional, and untrained non-professional) and how this may impact data collection.

Types of Interpretation Delivery Methods

In-person interpretation

Most of the reviewed studies utilized in-person interpretation to collect data through focus groups or semi-structured interviews with individuals or groups of people who speak a low-frequency language (Ruppenthal, L., et al., 2005; Hadziabdic, E., et al., 2014; Zurca, A. D., et al., 2017; Fryer, C. E., et al., 2013). In the studies where data collection approaches were assessed, participants that used in-person interpretation expressed a preference for this method over others, such as telephonic interpretation, since this approach made participants more comfortable during the discussions, and it was associated with greater user satisfaction (Hadziabdic, E., et al., 2014; Zurca, A. D., et al., 2017; Fryer, C. E., et al., 2013). Using an in-person interpreter is generally recommended for semi-structured interviews (Resch & Enzenhofer, 2018).

The key experts we interviewed also expressed that in-person interpretation is preferable. For example, one of the key experts interviewed for this project mentioned that for the communities he works with, “seeing is believing,” which means that people often feel more satisfied with an interpreter who is physically present during a process that requires interpretation. Other key experts agree that in-person interpretation might be the best approach when working with diverse ethnic groups, including during public health emergencies, as many Indigenous peoples and other peoples place a very high value on personal relationships and trust.

Despite the success of in-person interpretation, it is not always feasible during public health data collection efforts, especially among very diverse workforces, such as in meat processing and agriculture. Phone interpreters may be more widely available, which is why we implemented a pilot data collection project with phone interpreters with four ethnic peoples from Mexico and Burma. Key findings and considerations from this pilot are described in the pilot test section.



Telephonic/virtual interpreters

According to the literature, telephonic interpretation can be a practical method to bridge language access gaps when in-person interpretation is not available to engage with participants in their native languages or when their languages are uncommon and require specific virtual or telephonic interpretation services (DeCamp, L.R., et.al, 2015). However, this method may bring additional technical problems including speakerphone malfunction, volume issues, and background noise that may interfere with the overall quality of communication (J.E. Murphy, 2018). In a study with Arabic-speaking immigrants, most participants preferred in-person interpretation for most scenarios, but phone interpretation was preferred when individuals needed to discuss sensitive matters as it may provide more anonymity (Hadziabdic, E., et al., 2014).

As one of the key experts interviewed explains, phone interpretation can bring multiple challenges such as not correctly understanding the information provided by the interpreter on the phone because of technical issues or the interpreter's training level in using telephonic methods. These issues can cause more personal dissatisfaction to the individual using this form of interpretation.

In-person interpretation or telephonic/virtual interpretation can rely on professional interpreters, trained non-professional interpreters, and untrained non-professional interpreters. The advantages and disadvantages of each are discussed below.

Types of Interpreters

Trained professional interpreters

Many articles in the literature that discussed the use of professional interpretation in healthcare settings mentioned that interpreters who are well-trained with language skills in the field and promote sound communication are highly trusted among patients and healthcare providers, because their communication needs to be reliable and extremely accurate (Hadziabdic, E., et al., 2014). Professional interpreters are preferred to decrease confidentiality problems as they follow a code of ethics and improve the overall experience of patients and medical staff in primary care (Murphy, J.E. et.al, 2018; Zurca, A. D., et al., 2017). Medical staff also express having a better experience with a professional in-person interpreter as they feel they are providing high-quality services to people with low English proficiency (LEP) (Murphy, J.E. et.al, 2018; Hadziabdic, E., et al., 2014). However, there are instances in which patients who use a professional interpreter often respond that they do not understand what the provider's instructions are after having a meeting with the medical provider (Zurca, A. D., et al., 2017). This might be associated with low cultural competency of the interpreter or, in other cases, the use of elevated technical vocabulary that is poorly explained by the interpreter (Murphy, J.E. et.al, 2018; Zurca, A. D., et al., 2017).

Trained non-professional interpreters

Several studies suggest that non-professional interpreters identified in the community and trained in basic aspects of interpretation, can be critical to facilitate communication in a more culturally competent and sensitive way (Webb, M. F., et.al 2015; Mitchell-Brown, F., et.al 2016). Interpreters should not be selected only by their language skills but also by their cultural competence and ability to navigate the local context, communication, and cultural approaches (Resch & Enzenhofer, 2018). However, it is important to understand relationships and tensions that might be present in the community when choosing a local interpreter because choosing certain individuals may hinder the participation of some groups of interest and bring additional challenges related to data collection quality (Nieblas-Bedolla, et.al 2019). Local leaders may be preferred in many instances as they work not only as interpreters but as system navigators (Nepal, V. et.al., 2010; & Rojas, J. G. and Herrero, R., 2020).

Trained non-professional interpreters (continued)

Key experts mentioned that community non-professional interpreters can be ideal because they are also experts in navigating the local culture and can support researchers in learning about specific dynamics within the community. Key experts mentioned that in their experience, local or religious leaders may have the trust of community members and they could be good allies when outsiders want to conduct studies in difficult-to-reach communities. Regardless of the interpreter's role in the community, the literature and the key experts emphasize the need to prepare and train interpreters on some basics of interpretation such as their role in the interviews, how to do quality interpretation, and review confidentiality expectations. It is essential to explain the objectives and key methods of the project and debrief with them prior to and after each interview to review notes and ensure quality data.

Untrained non-professional interpreters

Untrained non-professional interpreters are commonly used during research studies as they communicate in ways that promote trust and familiarity to people (Fryer, C. E., et al. 2013). In healthcare settings, family members are sometimes preferred over unknown interpreters even though there are many risks, especially of confidentiality issues when utilizing family members as interpreters (Hadziabdic, E., et al., 2014). Other authors describe that when the complexity of the conversation is low in healthcare settings, untrained non-professional interpreters may be more successful than professional interpreters since they can provide more comfortable interactions and create trust with people in need of interpretation (Fryer, C. E., et al., 2013).

One of the key experts interviewed mentioned that for certain ethnic groups, having children as interpreters for older adults who do not speak a dominant language can be beneficial for preserving both the culture and the family's native language. Children who usually learn the dominant language through school may find themselves motivated to learn the family's native language to help their family members. However, other key experts think that having children as interpreters to adult family members may be harmful for them since these situations force them to participate in difficult adult conversations that may be the source of future traumas.

Public health workers often encounter very diverse communities and being familiar with the advantages and disadvantages of different interpretation methods can help plan more successful data collection efforts that are more inclusive of diverse ethnic groups. NCFH and EMBARC tested a COVID-19 questionnaire using telephonic interpretation with trained professional interpreters with four ethnic people groups to evaluate their experience using this type of interpretation method. Insights and lessons learned from this pilot test are described in the pilot test section below.



RECOMMENDATIONS FOR TELEPHONIC INTERPRETATION IN FIELD DATA COLLECTION

The following are recommendations for working with interpreters during data collection projects. They are based on recommendations from interpretation experts and are focused on recommendations relevant for data collection (Migrant Clinicians Network, Tala, Argo, Washington State Office of the Insurance Commissioner, 2022; and the National Immigrant Justice Center, 2013). The recommendations include guidelines on identifying languages spoken by assessment participants, selecting interpreters, training interpreters, and collaborating with interpreters during data collection. Some of these recommendations may not apply if you select a professional interpretation company (see Resources section), but you should still consider these factors and ensure that the company can provide interpreters who will meet necessary qualifications. The recommendations include information on:

- How to identify languages and language varieties
- How to select interpreters
- How to onboard selected interpreters
- How to work with interpreters

Note on instrument design: These recommendations do not cover the complexity of creating, translating, and testing data collection instruments. We advise readers to seek the input of both interpreters and community members during the design and testing of the instrument to identify issues prior to data collection. You may want to consider translating the survey instrument after testing it to standardize how data are collected, but this can be a significant financial cost.



How to Identify Languages and Language Varieties

- To identify what languages are spoken by assessment participants, ideally you will be able to speak with bilingual or multilingual informants from the community who can tell you the language(s) and language varieties spoken. These individuals may be assessment participants, employers, or community leaders.
- You can also conduct background research before visiting the community by reviewing published literature about the community or [using U.S. Census data](#).
- If no informants are available, you can use “[I Speak](#)” cards or electronic translation applications to detect the language with potential participants.
- For most languages, you will need to identify the variety they speak. Language varieties of the same language can vary in their mutual intelligibility, or how well a speaker of one language variety can understand a speaker of a different variety. Mesoamerican Indigenous languages can have anywhere from 1 to over 100 varieties that are mutually unintelligible (CIELO, 2022). Latin American Indigenous language varieties can be determined by providing the full name of the town and/or municipality (*pueblo and/or municipio*) the person is from (CIELO, 2022). Language varieties with low mutual intelligibility can also occur in more widely spoken languages, such as Arabic and Italian (Zaidan, Callison-Burch, 2013).

How to Select Interpreters

To identify and select qualified interpreters, it is important to have a clear statement regarding the interpretation needs, including the topics that will be covered, the needed languages and language varieties, the length of the engagement, and the best medium to conduct the interpretation (in-person, over the phone, etc.). Second, it is important to consider the characteristics of the interpreters. A list of characteristics to consider when selecting interpreters are suggested as follows:

- **Language proficiency**

Determine the interpreter’s ability to speak the primary language and the target language and the degree to which they speak both (high proficiency or native speaker). Determine their familiarity with content-specific terminology, such as medical terms, by reviewing their resume and asking questions about their experience when you are interviewing interpreters.

- **Cultural awareness**

Define whether interpreter’s feedback on assessment instruments will be needed to ensure cultural sensitivity and to what extent the interpreter will help with instrument design and testing, if needed. Bicultural or multicultural interpreters can be important cultural navigators when working with diverse populations.

- **Certification or training**

Define whether a certification or formal training in interpretation is needed. If so, certified or trained interpreters should be recruited, or certified training could be provided. Otherwise, consider the interpreter’s references and prior experience in conducting interpretation. Trained interpreters who have been certified through a program that involves testing and assessment is recommended.

- **Flexibility and availability**

Ensure that the interpreter will be available for the dates and times you need the interpretation services. Identify a back-up interpreter in case the primary interpreter becomes ill or is unable to provide services.

- **Ties to the community network**

In most situations it is best to avoid using family members or friends to interpret, especially when you are asking about personal information or discussing sensitive topics. In close-knit communities, such as communities of refugees or rural Indigenous persons, bilingual or multilingual interpreters may be very familiar to everyone in the community, and people may be hesitant to disclose information through someone they know. If you must ask about sensitive personal information, it may be best to bring in an interpreter from outside the community to avoid concerns about confidentiality.

How to Onboard Selected Interpreters

Once the interpreter is identified, the next step is to establish a meeting to discuss details including your expectations, the scope of work, timelines, their roles, and payment. Ask the interpreter to sign a confidentiality agreement. During this meeting, it is also important to get to know the interpreter's experience and work style.

It is important to train interpreters on the project prior to data collection. In the training, the selected interpreters should become familiar with the data collection instrument and be given time to ask questions or bring up potential cultural or interpretation issues. The training should also include your expectations for how they conduct interpretation, which should include the following points:

- The interpreter should introduce him or herself using a first name to participants.
- The interpreter should refrain from having a side conversation with the interviewer or the participant.
- The interpreter must relay everything that is said back to the interviewer or the participant without adding, deleting, or changing the meaning of the conversation.
- The interpreter must only discuss content related to the interpretation assignment.
- The interpreter should have minimal background noise or distractions for phone interpretation.
- The interpreter should maintain their voice tone at an appropriate volume, and they should be always culturally responsive, especially when discussing sensitive topics.
- The interpreter must keep the conversation confidential.
- The interpreter should avoid making assumptions and ask for clarification when needed.
- Encourage the interpreter to take notes to support the interpretation.
- The interpreter should know they can ask the interviewer for a break when needed.
- Discuss any physical or verbal cues that the interpreter will utilize to signal that you may be speaking too quickly, too slowly, or other communication issues.
- At least a week before the interpretation takes place, provide a written copy of the interview instruments to be utilized during the assessment. This way, the interpreter can have enough time to become familiar with the content and technical vocabulary and provide feedback to ensure that the questions are culturally appropriate.

How to Work with Interpreters

The following is a list of key steps to consider when interviewing a participant through an interpreter:

- Data collection through an interpreter may take 2-3 times longer than without an interpreter, so plan your time accordingly.
- Provide an area that is private and free of background noise during the interview.
- Introduce yourself and the participant to the interpreter, and the interpreter should introduce themselves to the participant.
- Inform the participant that the conversation will remain confidential.
- Speak directly to the participant, not the interpreter.
- If an interpreter has a side conversation with the participant to explain a term, provide context, or for some other reason, ensure that the interpreter provides this information to you as well.
- Use short sentences and avoid using complex vocabulary, jargon, acronyms, or slang terms.
- Pause after two or three sentences to allow the interpreter to interpret. Look and listen for cues from the interpreter that you are speaking too slow or too quickly.
- Ensure that the participant understands the questions and the interpretation by checking with him or her periodically during the interview.
- Thank the participant and the interpreter and clarify any further questions.
- Debrief with the interpreter once the participant has left to identify and problem-solve any communication issues.



PILOT TEST: EVALUATING PHONE INTERPRETATION DURING FIELD DATA COLLECTION IN MULTILINGUAL COMMUNITIES

NCFH and EMBARC tested telephonic interpretation for public health data collection with professional interpreters in a workplace setting and a community organization setting with four different ethnic groups (see [Appendix B](#) for the details of the methodology). In this section, we provide key tips and considerations for using this type of interpretation when collecting data with speakers of low-frequency languages.

Pilot Participants

Pilot participants included 39 people from two ethnic groups from Burma (n = 20) and two ethnic groups from Mexico (n = 19). These groups were selected as they both represent important worker populations in agriculture and in meat processing industries that experienced widespread COVID-19 transmission during the pandemic. These industries have a very diverse labor force that can pose a challenge in data collection if public health officials are not adequately prepared to engage linguistically and culturally diverse audiences. Pilot participants from Burma spoke Karen and Burmese, and participants from Mexico identified as Tsotsil and Tzeltal peoples, speaking Tsotsil and Tzeltal as native languages and Spanish as a second language.

Pilot Insights

Participants reported both advantages and disadvantages of using an interpreter over the phone. The table below describes a few key themes from participant interviews, and we provide practical considerations for conducting data collection through interpreters with speakers of ethnic languages in the following section.

	Advantages	Disadvantages
Participants from Burma (n = 20)	<ul style="list-style-type: none"> Some felt that using an interpreter over the phone was more comfortable than in-person, especially when discussing sensitive or personal topics. Phone interpretation was convenient, and participants understood it may be hard to find in-person interpreters. 	<ul style="list-style-type: none"> Some participants reported that the phone interpreter needed to have very high level of fluency since they could not use body language or non-verbal cues. Sound quality issues can cause communication issues and frustration.
Participants from Mexico (n = 19)	<ul style="list-style-type: none"> Many participants were very enthusiastic and appreciative about having an interpreter who spoke their native language. Participants who also spoke Spanish expressed that they were able to express more complex ideas because they were able to speak in their native language. 	<ul style="list-style-type: none"> Several participants were uncomfortable with the phone, and especially with recording devices. Sound quality issues, such as the audio breaking up during the call, were also noted by these participants.

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"With an in-person interpreter, I get so nervous and forget.... [Meanwhile,] on the phone, it is very comfortable... because I don't need to see the face of the person"

(Participant from Burma)

"I like in-person interpretation because it is easier to communicate and talk to each other using body languages"

(Participant from Burma)

”



“

"I understand everything in the Tsotsil language and almost 15 percent in Spanish. When they ask me something sometimes, I understand it, but no, I can't answer it in Spanish".

(Participant from Mexico)

"To be honest, it seems to me quite... quite... it seems very excellent to me because journalists can even come to interview me."

(Participant from Mexico)

”

Recommendations Based on Pilot Test

Based on our experience during the pilot, several important considerations emerged for public health field staff working with interpreters and diverse populations during data collection projects around instrument design, interpretation staff, and technology.

- **Instrument design:**
 - Certain standard ideas and concepts in the U.S. will not translate into other languages because those concepts do not exist in the culture that produced the language. For all four ethnic groups, participants expressed confusion about race and ethnicity questions. One Mesoamerican Indigenous participant reported that their race was “normal” after the interviewer and interpreter explained the question, highlighting how some concepts from our culture will not be understood in other cultures.
 - Some types of response categories can also be difficult to translate, such as subjective quantities, like “a little” or “somewhat”.
 - Interpreters can and should play a critical role in instrument design to help anticipate these types of issues and potentially identify solutions prior to data collection.
- **Interpreters:**
 - Professional interpreters for some ethnic languages may be extremely difficult to find. Despite extensive connections to Indigenous interpretation professionals, NCFH was only able to identify one trained professional English-Tsotsil interpreter in the U.S. Keep in mind that it may require a significant amount of time to identify qualified interpreters. Information on selected interpretation companies is listed in the Resources section.
 - Participant preferences for being able to see or not see the interpreter were mixed. If using a remote interpreter, it may be best to ask participants in advance if they would prefer to see the interpreter via video or if they would prefer an audio-only call.
 - Interviewers and interpreters noted it was important to allow for time for warm introductions prior to beginning the interview, and it was especially important for interpreters to greet and introduce themselves to the participant in their native language.
- **Technology:**
 - Some participants who have experienced institutional discrimination, racism, or violence, may have concerns about using phones, computers, or recording devices during data collection. Take time to explain what the devices you’re using are for, how the data will be used, and how the participant’s privacy will be protected in simple language.
 - Using virtual interpretation services, such as on Zoom virtual meetings, may require that both interpreters and participants receive training beforehand, and virtual interpretation functions may not work on all platforms, such as smart phones.



RESOURCES

LANGUAGE ACCESS RESOURCES

- [CDC Culture and Language Resources](#)
- [Coalition Against Sexual Assault sample language access plan](#)
- [Creating Effective Translations](#)
- [Cultural Validation and Translation Review Toolkit](#)
- [Refugee Health Technical Assistance Center](#)
- [Toolkit for Written Translation](#)
- [Yamhill Community Care Language Access Toolkit](#)

INTERPRETATION COMPANIES

- [Burma Center, Language Access](#)
- [Comunidades Indígenas en Liderazgo](#)
- [EMBARC Interpretation & Translation Services](#)
- [INGCO International](#)
- [Interpreter and Translation Associations in the U.S.](#)
- [Language Access Florida](#)
- [Language Access Resource Center \(LARC\)](#)

WORKING WITH INTERPRETERS

- [*Community-Based Interpretation and the Road to Language Access – Migrant Clinicians Network*](#)
 - [Session 1](#)
 - [Session 2](#)
- [*Switchboard E-Learning – International Rescue Committee*](#)
 - [Introduction to Working with Interpreters](#)
 - [Overcoming Challenges in Interpretation](#)
- [*International Rescue Committee and NRC-RIM*](#)
 - [Working With Interpreters During Case Investigation and Contact Tracing](#)

INTERPRETATION TRAINING RESOURCES

- [ALTA Medical Interpreter Training](#)
- [Community Interpreter Training](#)
- [LARC's Interpreter Training Resources](#)
- [NCIHC Working Group for Languages of Limited Diffusion](#)
- [Training Programs for Interpreters and Service Providers](#)

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APPENDIX A: LITERATURE SCAN AND KEY EXPERT INTERVIEW METHODOLOGY

Project staff collaborated with a CDC Librarian to search peer-reviewed literature on data collection with linguistically diverse populations. Key search terms included combinations of: culturally appropriate data collection, data collection tools or strategies for linguistically diverse population, language access, data collection tools or strategies for limited-English proficient, linguistic minority communities, interpretation or interpreters in surveys, interviews, focus groups, research, indigenous peoples research, Mixtec, Zapotec, Mayan, Burmese peoples research, ethnic groups from Burma, Burma refugees, Burmese, refugees. The project team also conducted a web search of grey literature, including reports and research produced by community-based organizations, government agencies, and academic institutions. The literature was analyzed for patterns and themes on tools and approaches for data collection in linguistically diverse communities, focusing on ethnic populations from Burma and Indigenous Mesoamerican populations.

Articles that met the inclusion and exclusion criteria (see table below) and were “Very likely relevant” were included in a literature review table. Four project staff from NCFH identified and recommended articles for inclusion, and CDC staff and EMBARC staff provided input on other articles to include or exclude. Information abstracted from the included articles was analyzed using a narrative synthesis to identify key types of interpretation and multilingual data collection methods as well as the key advantages or disadvantages of each type.

Inclusion and Exclusion Criteria:

	Inclusion Criteria	Exclusion Criteria
Document Type	<ul style="list-style-type: none"> Peer-reviewed journals Books Published or unpublished reports from government agencies, academic institutions or non-profit organizations Academic dissertations 	<ul style="list-style-type: none"> Editorials Drafts or work-in-progress documents Presentations
Dates	No limits on dates if it matches inclusion criteria.	N/A
Population	Non-English and non-Spanish speaking populations in any country	Articles or resources solely focused on English or the official or majority language in the country
Languages	Articles or studies published in English or Spanish	Articles or studies published in languages other than English or Spanish.
Areas of Study	Publications that describe language access strategies (questionnaire translation, use of interpreters) for data collection in surveys, community assessments, or research approaches with linguistically diverse populations preferably in health-related topics. Other areas of study that may be considered include topics related to agriculture, education, anthropology, or social and economic development.	Publications that do not include any discussion about the efficacy or acceptability of the language access method. Only discusses sharing of information and not data collection.

Project staff also incorporated insights from key experts from different backgrounds in the U.S. The criteria to select key experts for this interview included residing in the U.S. and a minimum of five years in data collection with multilingual communities who do not speak English. The seven key experts selected were from different backgrounds including academia, non-profits, and religious and community leadership. They were interviewed on best practices for language access during data collection, including relevant personal experiences with different approaches. Each interview lasted from 45 to 60 minutes. The data was analyzed using thematic areas. All participants were read the verbal consent script and provided consent verbally.

APPENDIX B: PILOT STUDY METHODOLOGY

The purpose of this pilot study was to explore data collection methods, targeting low-frequency language speakers. NCFH and EMBARC selected a phone interpretation to develop a toolkit. In this study, we defined professional interpreters as individuals who have undergone a formal training program and were employed, either part-time or full-time, at the time of the pilot study being conducted. Target populations were ethnic peoples with limited English proficiency (LEP). To be specific, the populations of this study were those whose primary languages were Indigenous Mesoamerican languages and ethnic languages from Burma.

Pilot Study: Data

This pilot study recruited a total of 39 participants: 19 Mesoamerican Indigenous language speakers — 10 Tzeltal and 9 Tsotsil — and 20 Burma ethnic language speakers—10 Burmese and 10 Karen. All participants were 18 years of age or older who spoke the language since childhood. The participants resided in Hidalgo County, Texas, or Polk County, Iowa. Considering the hard-to-reach characteristics of the populations, we employed a convenience sampling technique to recruit the participants, utilizing existing connections between project staff and members from these communities. The participants were primarily recruited at their workplaces and walk-in sites for social services supporting refugees and immigrants. All participants consented to participate, and they received a \$40 gift card incentive.

Pilot Study: Procedures

The pilot study consisted of two consecutive procedures that proceeded on the same day. The first procedure was a survey with an interviewer-administered questionnaire assisted by a phone interpreter. The second procedure was a semi-structured interview to assess their experience of the first procedure. The first procedure was necessary because not every participant had prior experience with phone interpretation. Each session, consisting of the two procedures, was conducted with one participant at a time, with a team of two professional interpreters, one observer, and the interviewer. To simulate a realistic scenario, the interviewer did not speak the participant's native language, and two professional interpreters and the observer were fluent in participant's native language and either English or Spanish.

The interviewer and observer met participants on the site. The first procedure was a brief ten-minute questionnaire about COVID-19 vaccinations and demographic questions, written in English and Spanish. The second procedure was a semi-structured interview with open-ended questions about the participants' opinions and experience about the first procedure and phone interpretation in general. The observer observed and measured subtle nuances and body languages of the participants to understand cultural and linguistic challenges and barriers that participants encountered during the pilot study, as well as the total time the survey and semi-structured interviews took. The survey took 28 minutes on average to review the consent form and complete responding to questionnaires. The semi-structured interview took 29 minutes on average, and the interviews were audio recorded and transcribed for analysis.

APPENDIX B: PILOT STUDY METHODOLOGY CONTINUED

Interpreter training. NCFH recruited the Mesoamerican language interpreters from Comunidades Indígenas En Liderazgo (CIELO), which is an indigenous-led organization that trains and employs over 300 Mesoamerican language interpreters from indigenous communities, and from the University of California. EMBARC recruited interpreters for the ethnic languages of Burma from its own interpreter program. Responding to the needs of interpreters for Languages of Limited Diffusion (LLD), EMBARC established a professional training in community interpretation in 2021, which has been elaborated in spring 2022. EMBARC employs over 20 interpreters, providing services to seven ethnic languages of Burma and contracts with interpreters for other languages of refugees from Africa, the Middle East, and Europe. The interpretation services at EMBARC include numerous social and medical services.

A one-hour long virtual training was provided to all interpreters and observers. NCFH trained Mesoamerican interpreters and EMBARC trained Burma ethnic language interpreters. The training for interpreters assigned to the survey emphasized the importance of direct interpretation without adding, deleting, and/or changing meanings and encouraged them to relay to the interviewer all the questions that participants have. The training for interpreters assigned to the semi-structured interview emphasized the importance of helping participants feel comfortable sharing their experiences regarding phone interpretation. The training for observers emphasized the importance of not intervening into the study and discussed observing body gestures and facial expressions indicating discomfort or dissatisfaction.

First procedure: COVID-19 vaccination survey. The interpreter was connected via phone and provided interpretation into the participant's native language over the phone. Participants were read the consent form in their native languages, before starting into the interview. Upon consent, all participants responded to the COVID-19 vaccination and demographic questionnaire, administered by the interviewer with phone interpretation.

Second procedure: semi-structured interview. Phone interpreters for the second procedure were different from the interpreters for the first procedure to solicit participant's more authentic responses and to provide a more open and honest assessment. The semi-structured interviews were conducted based on the evaluation questionnaires. The interview encompassed questions about linguistic and cultural barriers using phone interpretation in addition to issues related to phone connection or other general technology and any issues associated with the qualification of interpreters.



APPENDIX B: PILOT STUDY METHODOLOGY CONTINUED

Pilot Study: Data Analysis

A thematic analysis was used to analyze the semi-structured interviews, following Braun and Clarke's (2006) approach. Thematic analysis has been used in many different fields to reveal patterns within the textual data, interpreting them in political, economic, and cultural contexts to understand socially constructed meanings of the issues being studied.

The interview transcripts were transcribed. We used the Otter.AI, a software for transcribing meetings and interviews, and drafted the initial transcriptions of the semi-structured interview. Then we manually cleaned the data, deleting non-English words included in the transcription and correcting the technological errors in the process of auto-transcribing.

The pilot study used the Miro Board to visualize interview themes and key quotes. The Miro Board is a visual collaboration platform, originally designed for mind mapping and white boarding. We used this platform as a supplementary tool for color coding. Using different colors of sticky notes and tags, we identified codes relevant to the participants' opinions about phone interpretation and then clustered them to retrieve relevant topics (themes).