

Applying a patient-provider communication framework to assess cardiac arrest calls
between 911 telecommunicators and limited English proficient (LEP) callers

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Abstract

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Background: Effective communication between 911 telecommunicators and limited English proficient (LEP) callers is critical to ensure an appropriate and timely response to a reported crisis. LEP communities experience disparities in cardiac arrest outcomes such as lower likelihood of receiving bystander CPR and longer call times for telecommunicator-assisted CPR to begin. Improving emergency communication between telecommunicator and LEP callers can facilitate clearer understanding and achievement of goals during cardiac arrest calls.

Objective: This qualitative, exploratory study examined the communication between 911 telecommunicators and LEP callers based on communication factors that affect the goals of both parties and the outcome of the cardiac arrest calls.

Methods: 24 language barrier-identified audio recorded cardiac arrest calls collected by the UW Northwest Center for Public Health Practice were reviewed. Six calls were excluded due to certain study criteria (e.g. language line, no communication challenges, unclear voice). Of the 18 remaining calls, 5 calls were identified as negative outcome and analyzed using a patient-provider communication framework to examine and identify the communication factors most

influential to goal attainment during calls. A qualitative, inductive analysis of the 5 LEP calls was conducted using conversation analysis (CA), which identified how speech behaviors (e.g. tone of voice, interruptions, raised pitch) during the call corresponded to the components of the communication framework and affected the goals.

Results: The patient-provider framework components of skills, emotions and environment were represented most in the communicative process between telecommunicators and LEP callers in the cardiac arrest calls studied. The skills of both parties in handling the conversation, their emotional state and the emergency environment in which communication took place affected whether their defined goals were attained. The interaction of these framework components also influenced call's outcome on multiple occasions.

Conclusion: The findings increased understanding of aspects of communication that affect 911 cardiac arrest call outcomes and contribute to the limited research on improving emergency communication with LEP callers to inform best practices. Future interventions could benefit from addressing framework components that most influenced communication in this study; these can include improving emotional management training for telecommunicators or educating LEP communities on basic information to convey in English (e.g. address, type of response needed) during an emergency call to receive a timely response.

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Chapter 1: Introduction

Background

In the wake of an emergency, effective communication is critical to ensure that appropriate and timely support is delivered and a prompt response to the crisis is carried out. Emergency medical services (EMS) are responsible for delivering quality prehospital care and 911 dispatch centers serve largely as a bridge to link the community with an emergency care response. Numerous studies have emphasized the necessity of gathering timely and accurate exchange by 911 telecommunicators in dispatch centers as their communicative skills are a strong determinant in relaying sufficient information to EMS responders and sending appropriate responses.¹ 911 telecommunicators must work diligently to identify the location of the caller and assess the exact state of the emergency while being conscious of their behaviors to avoid potential breakdowns in communication. This is particularly critical in medical emergencies such as a cardiac arrest where pre-arrival instructions such as bystander telephone-assisted CPR (T-CPR) is necessary to improve the chances of survival.²

Out of the hospital cardiac arrest is a major health problem that is experienced by 350,000 people per year and less than 10% of victims survive.³ Following a cardiac arrest, the likelihood of survival is affected by the time in which cardiac arrest is recognized by the telecommunicator and bystander CPR can be performed on the patient.² To assist bystanders 9-1-1 telecommunicator provide “just in time” CPR instructions over the phone. Telecommunicator identification of cardiac arrest and provision of T- CPR to the caller necessitates strong communication between both parties whose interaction largely affects the outcome of the call.⁴ This is particularly true for CPR-related emergencies in which telecommunicators must communicate clearly with callers who are non-English speaking or limited English proficient

(LEP) to recognize a cardiac arrest has occurred and provide pre-arrival instructions such as telephone CPR (T-CPR) if necessary.

Among LEP populations, health disparities exist that can result in adverse but preventable outcomes in accessing emergency services.⁴ Racial and ethnic disparities in delivery of bystander CPR and cardiac arrest survival outcomes exist.⁵ Literature has shown that demographic traits that coincide with LEP populations such as low socioeconomic status and race/ethnicity have been linked with delays in accessing medical care in the event of an emergency.⁵⁻⁷ Hence, the likelihood of cardiac arrest survival for lower SES neighborhoods and non-Hispanic White individuals is less compared to that of higher income and White populations.^{5,7}

One study discovered that LEP populations are less likely to receive bystander CPR and delivery of telecommunicator-assisted CPR takes longer to begin.⁴ In another study in Denver, Colorado, researchers learned from focus group discussions that Latinos residing in neighborhoods with high rates of out-of-hospital cardiac arrest and low rates of bystander CPR cited language challenges as a main barrier to calling 911.⁸ Language barriers were also reported as a reason for not performing CPR as participants worried there would not be back-and-forth communication with the telecommunicator.⁸ These findings indicate that despite experiencing generally low survival rates, LEP communities are particularly vulnerable to adverse outcomes in a medical emergency.⁹

The importance of the role of the bystander calling 911 cannot be understated as they are tasked with providing sufficient information to the telecommunicator to receive the appropriate help. Study estimates reveal that the odds of surviving a cardiac arrest can be doubled when bystander CPR is promptly delivered.² It is an important step in the chain of survival in addition

to conveying information about the nature of the emergency, who needs aid, their current location and what type of emergency response is needed.¹⁰ Unfortunately, disparities in bystander CPR during a cardiac arrest are prevalent among LEP immigrant communities and LEP has been associated with fewer cases of bystander CPR delivery and delays in recognition of cardiac arrest and provision of telephone CPR.⁴ This reinforces the challenges of health communication in a multicultural environment and the impact of language barriers on delivery of pre-hospital care.

Emergency telecommunicators receive institutional training and follow an interrogative protocol to assess the emergency and send an appropriate response.¹¹ In a cardiac arrest emergency, telecommunicators provide “just in time” telephone CPR instructions (T-CPR) to facilitate bystander CPR. Due to increased practice of T-CPR provision, the rates of bystander CPR rates and likelihood of survival overall have improved.¹² Although emergency call-takers are trained to follow a specific protocol or set of guidelines, it may not be conducive to effective and timely communication with all callers. Communication breakdowns can occur if the dialogue and interchange of information is not handled effectively by 911 telecommunicators.

Clear two-way communication in an emergency call is required to facilitate an exchange of information that allows the caller and telecommunicator to address each other’s goals in the situation. Both parties possess goals that they aim to achieve that drive the purpose of communication and affect the outcome of the call. When callers reach out to EMS, they typically call for assistance and in a true emergency, their request is to receive an immediate and adequate response. The role of the telecommunicator is to address the caller’s needs and identify the nature of emergency in a timely manner and send the appropriate help. Achieving these goals

requires that they are shared and expressed by both sides which this study will assess by examining communication factors that affected goal attainment.

Goals of 911 Telecommunicator and Caller

The primary goals of telecommunicators observed in this study are as follows:

- 1.) Identifying what type of emergency response to send out (e.g. medical, police, fire) and
- 2.) Recognizing the need to begin T-CPR to assist victim until EMS services arrive.

Enabling goals, or subgoals that are helpful in achieving the primary goals, are conceptualized for telecommunicators as identifying:

- 1.) The chief complaint and type of emergency occurring (e.g. cardiac arrest)
- 2.) Patient's address and location
- 3.) Cardiac arrest victim's status: whether he or she is conscious and/or breathing normally.

Gathering this necessary information will inform telecommunicators of what type of emergency response is needed and whether T-CPR should be initiated for the victim- two primary goals they aim to achieve in a timely manner during emergency communication. For callers, primary goals include:

- 1.) Reporting sufficient information regarding the nature of emergency to receive the appropriate medical response

Communication Framework

In order to capture the important features of communication and emergency discourse between LEP callers and 911 telecommunicators, a conceptual framework will be used to assess communication patterns that occur during the interactions. Theory-guided studies allow for a

systematic approach to identifying important components of communication and making explicit the relationships between these components that ultimately affecting the nature of conversation.

The theoretical framework describes communication between a physician and patient and highlights important components that shape the progression of communication to achieve both person’s goals.¹³ The framework was designed to evaluate in-person communication, but may be equally useful in guiding research concerned with over-the-phone, 911 communication.

Therefore, the framework will be applied in this study to evaluate emergency communication between 911 telecommunicators and LEP callers.

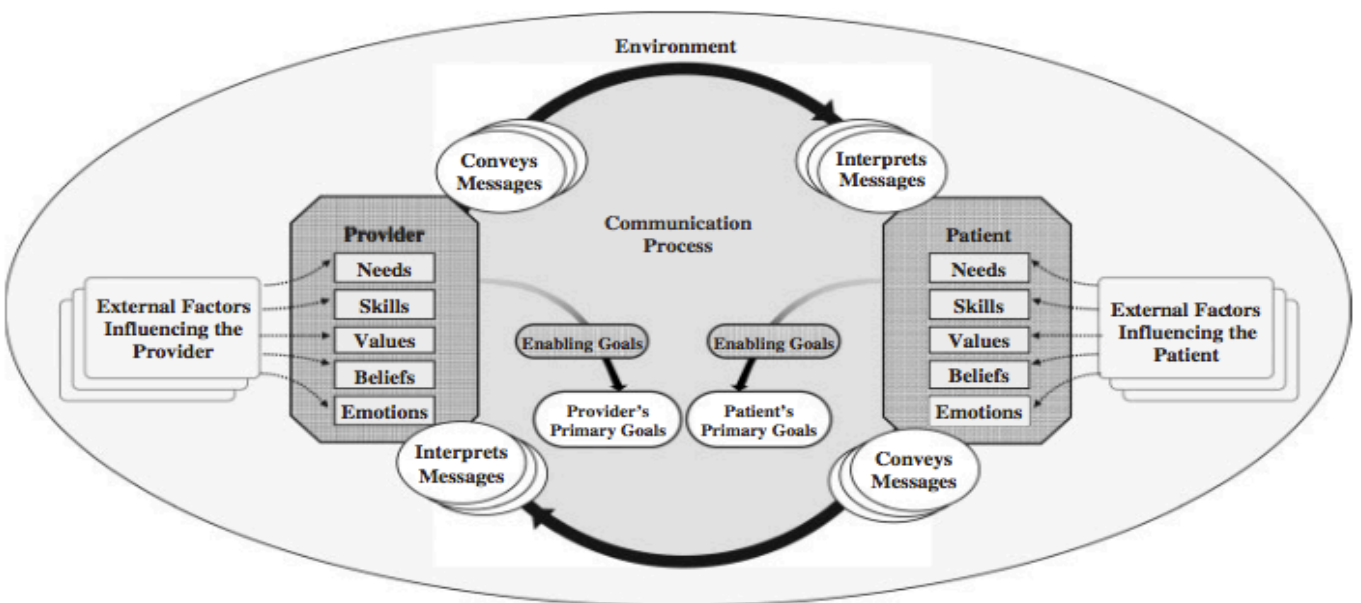


Figure 1. Patient-provider communication framework

The framework developed by Feldman-Stewart et al. (2005) suggests that communication is a multidimensional process that entails a relationship and content component and which is affected by the environment in which it occurs.¹⁴ The framework considers important components that shape the course of communication and how they relate to each other. The

framework is presented in **Figure 1**. It is comprised of four main components theorized to underlie the communication process. The first component involves the communication goals of both participants. The purpose of communication lies greatly in addressing the main goals of everyone and what they aim to achieve in the process.¹⁵ Goals can be defined as the objective behind a person's actions during communication and resemble his or her needs during a visit or specific encounter.¹³ In emergency communication, the goal of the 911 telecommunicator, for example, is to identify the nature of emergency promptly and send the appropriate help. As mentioned, these goals can be conceptualized as primary goals of the call which are often met by achieving several enabling goals. Enabling goals can include the telecommunicator gathering responses to questions quickly to identify the true nature of the emergency. Without fully understanding the caller's situation, the telecommunicator would not know immediately whether it is medical or police-related or to initiate T-CPR in the case of a cardiac arrest.

The second component focuses on the key attributes of participants that influence the nature of their goals in communication and how they address them. The five attributes conceptualized in the framework are needs, beliefs, values, skills and emotions. These traits shape the content of a person's message and how he or she communicates it as well as their understanding of the messages they receive.¹³ The needs involve those that are essential for human functioning such as the need for survival as well as those related to basic physiology and safety for people.¹³ In a cardiac arrest the caller's needs are likely driven by their desire to help the victim which may affect what and how messages are conveyed.

Beliefs characterize how an individual understands their world and makes sense of their current situation and what is true to them.¹³ For example, a telecommunicator may believe that their protocol to gather caller information is effective but it may cause conflict and frustration for

both sides if they do not adapt it to assist an LEP caller and neither person can communicate well with each other. The caller might also believe that the only role of the telecommunicator is to dispatch help which may affect their willingness or cooperation to respond to all the questions a telecommunicator will ask.

Values include principles or attitudes that are central to the participants and can manifest themselves in their actions and decision-making. Next, skills involve the abilities of a provider and patient- or, in this study, telecommunicator and caller- to communicate effectively with each other. In a language barrier call, the lack of English communication skills is likely to challenge the interrogative sequence between telecommunicator and caller. Similarly, telecommunicators do not generally know or can use a second language, which hinders the communicative process with the LEP caller. In the framework, the act of delivering and receiving a message are separated since the skills required for each process essentially differ.¹⁶ A 911 telecommunicator's skills largely influence the quality of a language-barrier call and their ability to collect information and make timely decisions regarding the appropriate emergency response to send.¹

Finally, emotions involve those that are both positive (e.g. joy) and negative (e.g. anger) and include short-term emotions and those that are more stable and dispositional of a person (e.g. generally calm).¹³ Accessing emergency services for a cardiac arrest is an urgent and emotional experience for the caller which can largely shape the manner and tone in which they communicate. On the other hand, the telecommunicator is trained to maintain an even temperament and speak calmly to guide the call although this can be affected by the stressful nature of language-barrier calls.¹

The third component refers to the communication process that involves both parties in act of conveying and receiving messages. Messages conveyed can be verbal, non-verbal or silent with each type of communication influencing the nature of the conversation.¹³ Whereas verbal messages include the use of words, instances of non-verbal communication include non-language based properties, such as tone of voice and body language. In particular, tone of voice will be assessed when examining 911 emergency calls between telecommunicators and LEP callers to understand its impact on the progression of calls. This framework views communication as an iterative process and which is largely shaped by the effects one act has on the following acts.²

Lastly, the fourth component is the environment in which communication between both parties takes place. In patient-provider interaction, this includes the direct physical context as well as broader social, cultural and legal influences.¹⁴ Although the physical element is absent in the context of a 911 call, the call outcome is influenced by the immediate emergency and high-stress nature of the given situation. The emergency and phone-based nature of 911 calls provides a unique context that likely affects communication in a cardiac arrest call. The additional stress experienced by both callers and telecommunicators in a language barrier call within an emergency context can be observed in the emotions, speaking patterns and behaviors, such as tone of voice or loud speech, of both sides. Emergency communication occurs within a complex environment whose effects on both sides' behavior will be examined in this study through a conversation analysis of sampled language barrier 911 calls.

The framework will guide this study's analysis of communication between 911 telecommunicators and LEP callers to determine how the four described components are addressed through conversation exchange in calls that result in good or bad outcomes. Using this framework will help to understand how speaking behaviors, expressions of emotions and speech

delivery traits in 911 calls illustrate the described components of the communication process, such as caller/telecommunicator goals, and how it may avoid or cause a communication breakdown. Understanding emergency talk at this level might guide development of best practices to improve communication between telecommunicators and LEP callers that incorporate components of the framework and their impact on call outcomes.

Conversation analysis will be used as a tool to assess the dialogue in language barrier calls to explore how telecommunicators and LEP callers both contribute to shaping the outcome of the encounter and whether their goals were achieved. Conversation analysis is a method of studying “verbal communicative practices recurrently used by people in interacting with one another” and focuses on language use in social contexts.¹⁶ It also aims to identify and explain interactional consequences of verbal exchanges¹⁶ which is a component that will be assessed in the context of 911 calls for this study. This approach has been used to explore the organization of emergency calls and how elements such as turn taking unfold in conversation to address social and institutional concerns of seeking and delivering aid.¹⁷ Emergency calls are unique in their goal-oriented and focused nature and are a highly specialized form of institutional talk.¹⁷ They are also an example of naturally occurring social interaction from which conversation analysis of audio recorded data can help understand how both sides interact and its impact on the outcome of emergency calls.¹⁸ Similar to a healthcare provider-patient interaction, communicative choices made by the telecommunicator significantly influence the quality of interaction with the caller and vice versa.

For this study, conversation analysis will assist in identifying speaking behaviors, expressed emotions and other speech delivery traits that occur in the dialogue that illustrate components described in the communication framework. Characteristics of phone calls such as

tone of voice, interruption frequency, loudness, etc. may be triggered by interaction of framework components such as the telecommunicator's communication skills with LEP caller or poor expression of each person's goals during the call. In turn, these factors can affect the overall outcome of the call and whether sufficient help is provided to the cardiac arrest victim prior to EMS arrival. Effective calls include those that result in accurate and timely identification of the nature of emergency and provision of necessary aid to the victim until responses arrive. This positive outcome often cannot be reached without clear communication and support of each side in addressing the other's communicative goals. Assessing the conversation dialogue will help to reveal the processes behind how goals are reached for both telecommunicator and caller and what framework components facilitate meeting their primary and enabling goals.

Purpose of Study

The purpose of this study is to investigate how the goals of 911 telecommunicators and limited English proficient (LEP) callers are achieved in cardiac arrest calls and what may affect this effort during communication. The patient-provider communication framework described will guide the analysis of how communication takes place between these two parties and what types of components shape how their goals are achieved. Conversation patterns and dialogue between callers and telecommunicators are examined using a conversation analysis approach to determine what types of behaviors and speech traits (e.g. tone, loud voice) correspond to components of the framework and how they improve or break down the communication between both sides.

It is important to acknowledge that communication practices that "work" for the telecommunicator may not mutually benefit the caller and their experience during an emergency call. The findings from this study will inform both parties on what can be practiced or avoided to

ensure successful communication in an emergency context. This would improve the experience of limited English proficient individuals and families seeking access to emergency services as well as increase telecommunicator's ability to communicate effectively with them.

Chapter 2: Methods

Data Collection

Sample of Language Barrier Calls

The data used for this study was comprised of 24 9-1-1 cardiac arrest phone calls identified as “language barrier” calls from a larger dataset of 463 cardiac arrest phone calls collected for use in a previous study conducted by the Northwest Center for Public Health Practice at University of Washington. These 463 phone calls were collected for primary analysis in a study titled STAT-911¹⁹ which tested a phone-based simulation training that aimed to improve telecommunicators’ ability to identify the need for T-CPR and reduce time to initiate T-CPR. Six emergency call centers in the Pacific Northwest provided audio recordings of phone calls from out of hospital cardiac arrest (OHCA) cases that were reviewed and utilized for the STAT911 project. Of the 463 calls, 24 were identified as “language barrier” calls based on selective criteria on a standard form developed by the research staff. Calls identified with language barriers were marked as possessing one of the following criteria traits: “Obvious accent,” “Speaks some English,” and “Speaks no English.” Of the total 463 calls reviewed by the STAT911 team, 24 calls had notation for identification of language barrier calls. These 24 audio recordings of cardiac arrest, language barrier calls to 911 served as the sample of calls assessed for this study.

The following diagram (**Figure 2**) reveals the call selection methods performed to narrow these 24 cardiac arrest calls down to 5 limited English proficient calls used for analysis in this study.

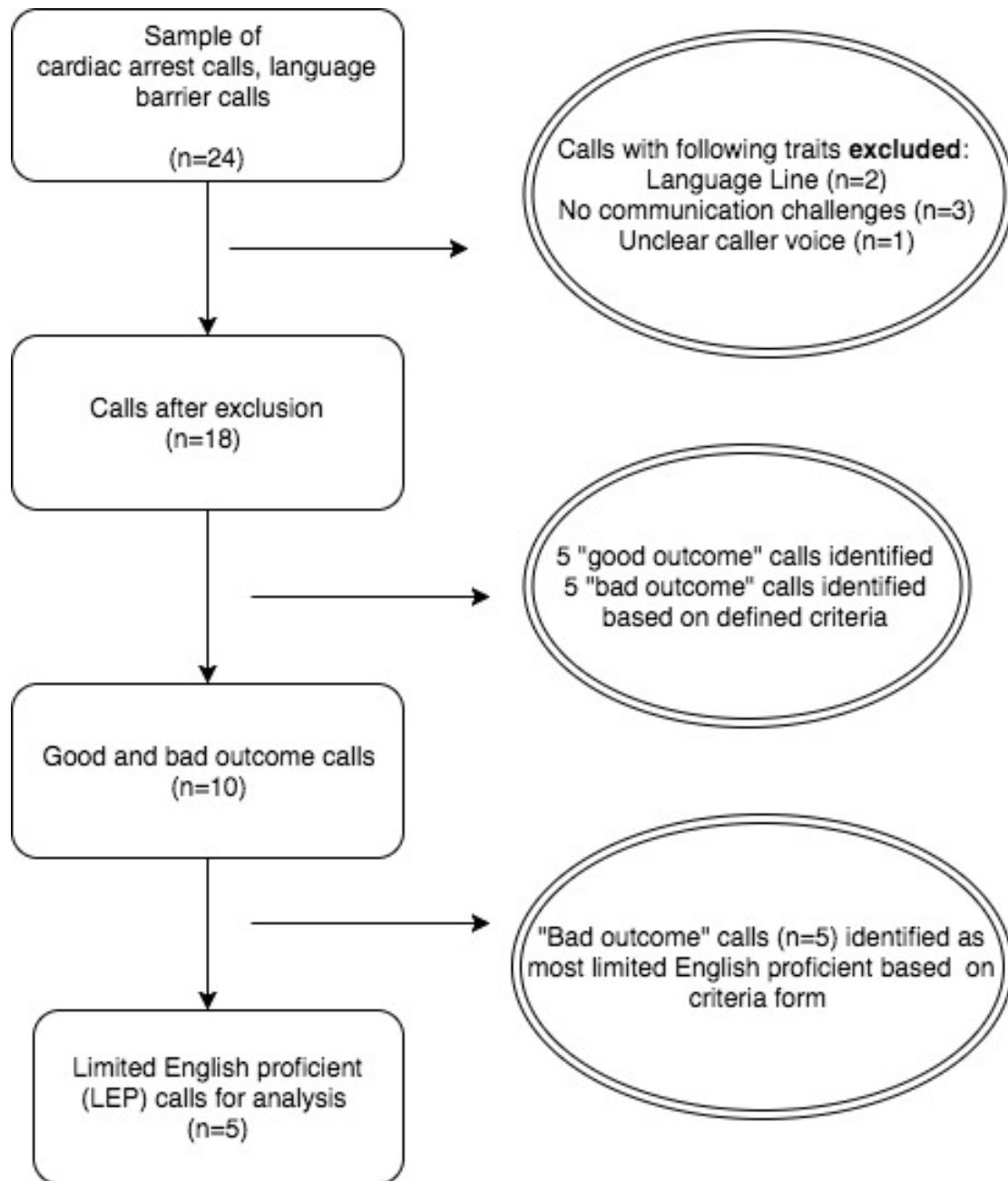


Figure 2. Call selection methods

Exclusion Criteria for Calls

To clearly understand the effect of caller and telecommunicator behaviors on call outcomes, the audio recordings of language barrier calls were downloaded and listened to. Calls were excluded based on several criteria variables to narrow down a more appropriate set of calls for analysis.

- 1.) Telecommunicator connected to a language line or over-the-phone interpreter (OPI)
(n=2)
- 2.) Call was “straightforward” in that no communication challenges occurred because of high English proficiency of caller (n=3)
- 3.) Call was too difficult to comprehend or hear due to unclear voice of caller (n=1)

Out of the 24 language barrier calls, two calls that connected with a language line were excluded, three calls did not have apparent communication challenges due to caller’s high English language proficiency and one was excluded for comprehension difficulty. This left a remainder of 18 calls.

Identification of Good and Bad Outcome Calls

Of these 18 calls, 5 good outcome calls and 5 bad outcome calls were identified based on the defined criteria below. The purpose of this step was to recognize calls in which communication practices and barriers most affected the exchange between telecommunicator and caller and overall outcome of the calls. The criteria for good and bad outcome calls were as follows:

- 1.) Long or short duration of call (from onset to disconnection)

Good outcome calls: No unnecessary delay of call; sufficient and appropriate time taken to identify nature of emergency

- Bad outcome calls:* Call duration unreasonably long; telecommunicator or caller hung up suddenly or call ended abruptly due to communication challenges
- 2.) Need for T-CPR recognized and instructions provided, if necessary
- Good outcome calls:* Telecommunicator identified need to begin T-CPR promptly and caller able to follow instructions
- Bad outcome calls:* Telecommunicator unable to identify and provide T-CPR or do so in a reasonable time to caller
- 3.) Information exchanged in a timely manner, such as caller's chief complaint and address

Identification of Limited English Proficient (LEP) Calls for Analysis

The 10 good and bad outcome calls total calls were categorized as either "Speaks some English" or "Accent only" using the selective criteria form from the STAT-911 study to identify the level of limited English proficiency in these calls. All 5 bad outcome calls were marked as "Speaks some English" and identified as being most limited English proficient while the 5 good outcome were all marked as "Obvious accent." Communication breakdowns seemed to also be more prevalent in calls marked as "Speaks some English" than in those labeled as "Obvious accent." This was due largely to the lower English proficiency level of callers in "Speaks some English" calls which challenged communication more than in calls where callers spoke English well but with an obvious accent. For this reason, the 5 bad outcome calls marked as "Speaks some English" were used for analysis.

Prior to analysis, these 5 calls were transcribed using symbols and annotations based on a previously developed transcription system for conversation analysis.¹⁶ A key for this

transcription system can be seen in **Figure 3**. These annotations enabled me to identify instances of overlapping speech, interruption frequency, pauses between turns, tone and speaking volume and other language traits. Capturing these aspects of communication reflected how they may be attributed to components of the communication framework and influenced the outcome of the emergency call.

<p><u>Characteristics of speech delivery</u></p> <p>Sound stress of words is shown by <i>italics</i></p> <p>Emphatic speech, often heard with raised pitch, is indicated by capital letters</p> <p>If what is said is unclear or inaudible, this is shown as: (<i>inaudible speech</i>)</p> <p>Speech traits and how turns are communicated (e.g. tone, sound of voice) are described in more detail in parenthesis and italicized e.g. (<i>caller speaks firmly</i>)</p>

Figure 3. Transcription key

Data Analysis

For this study, communication behaviors in dialogue between telecommunicators and callers in cardiac arrest, limited English proficient calls was examined to understand how components of the communication framework described are illustrated and affect how goals of both parties are achieved. An inductive, qualitative data analysis of the 5 audio recorded calls was conducted using a conversation analysis approach. Conversation analysis was applied to capture the speaking behaviors, displayed emotions and speech delivery traits that are informed by important components of the framework (e.g. skills, beliefs, environment) and their influence on communication and attainment of each person's goals. The five 911 calls were listened to individually and repeatedly to identify verbal practices recurrently used by both sides that could be described and explained in context of the framework.

Chapter 3: Results

As will be observed in the following excerpts taken from the 5 audio recorded calls, the framework guided the analysis of communication between both individuals to determine how important components of communication are illustrated in their exchange and affect how goals are ultimately achieved. All components of the framework were sought out in the dialogue with a focus on identifying those that most influenced achieving goals and outcome of the call. For instance, skills included observations on speech traits such as tone of voice, pitch, interruption frequency and use of telecommunicator communication strategies such as rephrasing questions or slow speech. Emotions were noticed by observing tone of voice and expressions such as crying sounds and signs of frustration or stress in someone's voice. The environment included observations on background noises or sounds on the caller's side and how they and other distractions related to the emergency affected their responsiveness and both side's ability to communicate. The following sections provide an analysis of communication behaviors that are representative of components described in the patient-provider communication framework such as communicators' skills and emotions, and where appropriate the interaction between these factors.

Excerpt #1 was extracted from a call (Call 1 in Appendix) in which the caller's address and several details related to the nature of the emergency have been gathered by an emergency operator prior to being transferred to a local telecommunicator for further assistance. At only 30 seconds long, this call was the shortest in duration in the entire, original dataset of 24 cardiac arrest, language barrier calls and seemed to largely be a result of a break in communication due to the language barrier. Speaking to the telecommunicator in line 4, the operator communicated

that she was only able to gather from the caller there is an emergency and it is asthma-related. Unable to fully convey the exact nature of the emergency due to the language barrier, she repeated that she was in an emergency and in need of help as operator and telecommunicator relay information. Once the address is confirmed by the telecommunicator, he addressed the caller for the first time and requested for her attention and to listen to him. The caller was speaking in the background as the telecommunicator attempted to gather her attention and gain control of the call (Lines 7, 8).

Excerpt #1:

04 [00:00:11.02] Operator: *(Speaking to telecommunicator)* The only thing I heard is asthma and emergency.

05 [00:00:10.12] Caller: Yes, emergency emergency *(inaudible speech)*

06 [00:00:14.00] Dispatcher: *[Address provided]*

07 [00:00:16.00] Dispatcher: Listen.

08 [00:00:16.00] Dispatcher: *[In response to caller speaking over dispatcher]* Listen to me, ma'am. *(Speaks in a firm and angry-sounding tone)* How old is the- *[Interrupted]*

09 [00:00:18.02] Caller: What?

10 [00:00:19.00] Dispatcher: How old is the person having trouble breathing?

11 [00:00:22.07] Caller: *(Caller speaks in different language)* Can you go immediately now please? Please...please, please.

12 [00:00:28.16] Dispatcher: I have help on the way- we'll be there in a few minutes.

-- End of call --

Skills

He asked the caller to listen to him in a firm and angry-sounding tone likely out of frustration that he needed to talk over the caller but also to gain her attention to answer his subsequent questions. It is primarily the task of the telecommunicator to steer the call in their

direction to complete questioning and, in the lens of this study, gather information to meet their primary goal of sending the appropriate response and identifying if T-CPR is needed in the case of a cardiac arrest. To learn more about the victim's status (enabling goal), the telecommunicator asked the age of the person having trouble breathing (Line 10) to which the caller responded in a different language and then expressed her request for him to send help immediately. As in most cardiac arrest calls, the caller's needs for survival of the victim underlie their goals in emergency communication and how those goals are expressed which will be observed more in the following excerpts. The caller communicated her goal to receive help and for a response to be sent right away although was not able to provide other information on the situation that could assist the telecommunicator due to her limited English proficiency. In response, the telecommunicator mentioned that "help is on the way" (line 12) and that a response should arrive shortly; performing this action addressed the caller's goal and request to receive timely help.

Although the telecommunicator confirmed help is en route and reassured the caller that her goal was being met, the call was poorly handled in that no attempt was made to elicit more information from the caller and to identify what the true nature of the emergency was. Once he recognized the call is one with a language barrier, there wasn't any effort to accommodate or communicate differently with the caller to learn further details about the emergency and address unmet needs of the caller until help arrived. Therefore, it is never identified that the victim was in a cardiac arrest which has now been established since the emergency call was classified as a cardiac arrest, language barrier call in the original dataset. The call was short in duration and ended abruptly. It is unclear whether more information could have been elicited or gathered had the questions been rephrased or framed differently, if the telecommunicator spoke in a calmer tone or practiced other communication strategies to assess the emergency being reported. The

lack of further interaction forgoes any opportunity to facilitate information exchange. It can be acknowledged that communication was strained and there was discordance in either side's ability to help each other meet their needs and goals in communication. The caller's ability to achieve her goal of receiving emergency aid was challenged by the language barrier and limited her ability to help the telecommunicator achieve his goal to gather sufficient information on the emergency and send the appropriate response. Although the caller was not able to provide further information and could only express her request for emergency assistance, the skills of the telecommunicator could be addressed to communicate differently so to potentially learn about the victim's health status and meet the primary goal of identifying whether T-CPR was needed. The call was not connected to a language line either to facilitate communication once it became evident the caller had a language barrier. This strategy may have provided reassurance to the caller as emergency response was coming and prevented the call from ending on a quick, abrupt note.

As highlighted in the communication framework, the skills of both parties involved in an encounter are vital in ensuring that their goals are communicated and reached. In a 911 communication context, the outcome of an emergency call is shaped by the quality of interaction between both individuals as they share a mutual responsibility in assisting the victim. In **Excerpt #2** taken from a different audio cardiac arrest call (Call 2 in Appendix), the telecommunicator was heard attempting to meet his enabling goals of identifying the victim's health status by asking if they are conscious and awake (Line 17).

Excerpt #2:

- 17 [00:00:45.13] Dispatcher:** Is he conscious and awake, is he awake? Talking to you? *(Speaks in a gentle tone)*
- 18 [00:00:48.09] Caller:** I don't hear you.
- 19 [00:00:50.14] Dispatcher:** Is he awake and talking to you? *(Speaks slightly louder but in calm tone)*
- 20 [00:00:53.10] Caller:** What?
- 21 [00:00:53.28] Dispatcher:** Is the person on the floor, is he awake- [Interrupted]
- 22 [00:00:55.28] Caller:** Just a moment.
[Caller steps away from call]
- 23 [00:01:00.02] Dispatcher:** What?
- 24 [00:01:00.09] Dispatcher:** The person on the floor, is he awake?...Conscious?
- 25 [00:01:06.00] Caller:** *(inaudible speech)* Uh, no *(inaudible speech)*...I don't know what help...
(Tone of caller's voice is panicked and very emotional. Begins crying)
- 26 [00:01:12.18] Dispatcher:** Is he talking to you?
- 27 [00:01:14.18] Caller:** *(Crying sounds from caller) Call disconnected sound.*
- 28 [00:01:17.08] Dispatcher:** Ma'am?

Skills

The tone in which he questioned the caller was gentle and steady which typically helps to calm the caller and lessen the stress of the environment in which communication takes place. Telecommunicators are trained to convey empathy and a sense of calm through the tone of their voice²⁴ although this is often challenged by stressors associated with handling language barrier calls. In line 18, the caller responded by saying “I don’t hear you” but it was uncertain whether the woman was conveying whether she did not understand what the telecommunicator was asking her or if she couldn’t audibly hear him due to the volume or sound of his voice. This left it unclear to the telecommunicator whether to continue repeating the question without variation or speak louder and clearer to assist her in answering his questions. The telecommunicator

repeated the same question in the next turn without reframing it but spoke slightly louder for the caller to hear him (Line 19). The same turn design led to a similar consequence in which the caller said “What” and was unable to provide a response to help him meet his enabling goal of identifying the victim’s status and begin T-CPR in the event of a cardiac arrest (primary goal). Although she was limited English proficient, it may have been helpful if the caller explicitly said she did not understand the question or what was being asked to save the telecommunicator from repeating it and employ different strategies to clarify the question. It was well understood this was challenging due to the language barrier as well as the stressful nature of the environment which could affect the caller’s ability to communicate. The telecommunicator reframed the question in the following turn by asking if the person on the floor (caller revealed location of victim earlier in the call) could breathe (Line 21) in an attempt to reshape the question, but was interrupted by the caller who left the call momentarily. By stepping away from the call, the flow of communication was disrupted and no advance could be made in the conversation. The caller was distracted by the emergency and not fully present with the telecommunicator which slowed the amount of information that could be shared in order to address both side’s goals in the situation.

Role of Environment on Emotions

To redirect the caller’s attention to his interrogative protocol, the telecommunicator reiterated the question of whether the victim was conscious and awake (Line 24) in a firm and now frustrated tone. The caller’s distracted nature and nonresponse to the question built frustration for the telecommunicator and affected the emotional context of the call. In addition, the emergency heightened the urgency and stress of the environment in which the call took place, affecting the caller’s ability to remain calm and responsive with the telecommunicator who was

struggling to advance the call. In line 25, the caller responded in English “I don’t know what help” in a panicked voice and expressed her misunderstanding of the questions and what to do to assist the victim.

As past research has revealed, the language barrier itself acts as a main source of stress for both the caller and telecommunicator.²⁰ In this call, this main stressor coupled with the effects of the emergency, tense environment on the caller and telecommunicator’s emotional state influenced what and how messages were communicated. Being unable to respond to the telecommunicator’s questions after being asked several times increased the burden of the call and she was likely overwhelmed at this point as she began crying. Although the telecommunicator reformed the question once more by asking “Is he talking to you?”, he failed to help the caller respond as she left the call again and a call disconnected sound was heard (Line 27). The conversation ended before any concrete or enough information was collected by the telecommunicator and neither his or the callers’ goals were fully met. The caller was very emotional due to the emergency and stressful environment in which communication must take place particularly as the call progressed. For this reason, she was unable to provide much assistance to the situation as communication broke down and emotional context of the situation intensified. Although the telecommunicator’s attempt to reform his question multiple times exemplified his skills in handling the language barrier call, the impact of the immediate environment on communication affected his ability to achieve his goal of identifying the nature of the emergency and whether T-CPR was needed for the victim. The caller was unable to provide much assistance to the situation due to the communication breakdown and emotional context of situation.

Role of Skills on Emotions

As can be seen in the full transcript of the call located in the **Appendix**, the caller didn't hang up but may have put the call on hold as she stepped away. She rejoined the call about 20 seconds later and instances of communication breakdown persisted as the caller could not answer the telecommunicator's series of questions and was overwhelmed by this stressor and the increased tension of the situation. In response to being asked if there was someone the telecommunicator could talk to (Line 44), the caller said "I don't understand, excuse me. Please, send people." The caller verbalized her goal to receive help and for emergency services to come in which the telecommunicator responded "I've already dispatched help" (Line 45).

Telecommunicators often manage callers' emotions by addressing that the ambulance has been dispatched and help is en route while both parties keep speaking.²⁴ If the telecommunicator had mentioned this towards the beginning of the call or as the caller started to speak in a panicked voice, it may have reassured the caller and reduced the emotional tension of the call. Addressing the caller's desire for ambulance request before or during the questioning phase would have addressed the caller's goal earlier and may have helped her to focus on communicating with the telecommunicator so his goal of identifying the nature of emergency could be met.

In **Excerpt #3**, similar instances of how the communication framework attributes of emotion, needs and skills- combined with the emergency environment of the call- influence goal attainment were exhibited.

Excerpt #3:

14 [00:00:43.16] Dispatcher: Okay go to the restroom where he's at.

15 [00:00:46.06] Caller: Oh, he's in restroom (*inaudible speech*). Please help me... (*Speaks in a very panicked and frightened voice*)

- 16 [00:00:50.00] Dispatcher:** Okay, I'm trying to help you. I need you to calm *down*.
(Dispatcher speaks firmly but not angrily)
- 17 [00:00:53.23] Dispatcher:** Is he unconscious?
- 18 [00:00:56.09] Caller:** Yes, yes.
- 19 [00:00:57] Dispatcher:** Okay, is he *breathing*? (Speaks articulately and firmly)
- 20 [00:01:00.00] Caller:** No, he's not breathing.
- 21 [00:01:01.14] Dispatcher:** Okay, go and...take the phone to bathroom where he's at. RIGHT NOW. (Speaks in a very firm and direct tone)
- 22 [00:01:05.09] Caller:** Okay. (Caller panting and sounding panicked) I can't, I can't...(inaudible speech) Hello, (inaudible speech)?
- 23 [00:01:11.11] Dispatcher:** I'm still here. Ma'am...CALM DOWN.
- 24 [00:01:15.17] Caller:** (Crying sounds from caller)

Emotions

During the beginning of this cardiac arrest call (Call 3 in Appendix), the emotional state of the caller was quickly affected by the firm and forceful voice in which the telecommunicator spoke to direct her attention towards her instructions. In line 16, the caller, who was heard to be in a clear state of panic and stress due to the urgent nature of the emergency, vocalized her goal to receive help and an emergency response (“Please help me”) to which the telecommunicator responded by acknowledging her request for help and expressed her need for the caller to calm down so she could learn how to assist her. Although the goal of the telecommunicator in assisting the caller was expressed and the caller was reassured her needs were being heard, the firmness in the telecommunicator’s responses throughout this excerpt may have been a source of stress to the already urgent and pressing situation. The caller was heard crying at the end of this excerpt possibly due to the emotional stressors of the call.

Role of Skills on Emotions

As evident in the following turns between both parties (Lines 18-21), the caller responded promptly to the series of questions being asked which helped the telecommunicator to achieve her enabling goals of learning whether the victim was conscious and breathing normally to identify if T-CPR was necessary. The caller's ability to respond clearly to the telecommunicator could be attributed to her higher English proficiency as well as the effectiveness of the telecommunicator's firm and articulate tone to steer her attention to the questions in a stressful environment. Research on emergency communication systems and training programs have emphasized the use of appropriate voice, tone and other speech delivery techniques to allow the telecommunicator to gain control of the call and facilitate communication in a stressful, emergency context.

Although these strategies are often effective in steering the direction of the call towards the telecommunicator and advancing the conversation, the use of a stern and firm voice may also negatively affect the emotional state of the caller and induce stress to the nature of the call. In line 22, the telecommunicator instructed the caller to head into the restroom where the victim was located and to do so "RIGHT NOW." The emphatic tone and raised pitch of her voice reflected the telecommunicator's urgent need for the caller to follow her instruction and attend to the victim promptly. Although this motivated the caller to comply, it could also affect the caller's emotional state and add more panic as observed in the caller's response. The caller acknowledged the instruction ("Okay") but sounded very panicked and tense as she spoke in a different language and uttered in English, "I can't, I can't" and even asked if the telecommunicator was still present (Line 23). The telecommunicator responded that she is there but again reiterated for the caller to "CALM DOWN" (Line 24). The firm reiteration to calm down was followed by hearing the caller cry. This suggests that repeating that phrase and the

forceful tone may have increased the tension resulting in an elevated emotional response. Although she could communicate clearly with the telecommunicator as observed earlier, her weakened emotional state affected her ability to continue speaking and respond quickly to meet the goals of the telecommunicator.

Employing call management strategies such as using a firm and raised voice can benefit a call but also worsen the emotional context that largely affects a call outcome. Both aspects of this were observed in this excerpt. Although the caller responded promptly to the telecommunicator's questions, the escalating tension of the call made it difficult to be responsive and prolonged the information exchange that must occur to assist the cardiac arrest victim. Not what but *how* the telecommunicator's messages were conveyed to the caller shaped the nature of communication and the time it took for either side's goals and needs to be met.

The transcript for **Excerpt #4** began nearly 2.5 minutes after the start of this different call (Call 4 in Appendix) as the telecommunicator was observed asking the caller if the victim was breathing normally (Line 45). Due to the language barrier, the caller could not answer the question while speaking inaudible words in a hesitant and uncertain voice (Line 46).

Excerpt #4:

45 [00:02:26.01] Dispatcher: Is- Look at her chest. Sir, look at her chest and if it's going up and down and she's breathing in a normal fashion.

[Short pause]

46 [00:02:34.03] Caller: I don't...I *(inaudible speech)*. *(Caller's voice is hesitant and timid)*

47 [00:02:40.25] Dispatcher: Is she breathing normally, sir?

48 [00:02:43.06] Caller: *[Short pause]* Huh?

49 [00:02:44.21] Dispatcher: Is she breathing *normally?* *(Asks in a firm and direct tone)*

[Distracting, loud noises in background]

50 [00:02:47.23] Dispatcher: You, you need to listen to my instructions sir. Listen to my questions. Is she breathing normally?

[No response from caller as he attends to voices and sounds in background]

51 [00:03:01.04] Dispatcher: Sir, sir...you need to talk to me?

52 [00:03:04.00] Caller: YES! I- I- I'm not medical, I- [Interrupted]

53 [00:03:06.29] Dispatcher: Is she breathing normally?

54 [00:03:09.02] Caller: No! I don't, she...*(inaudible speech)*

55 [00:03:13.06] Dispatcher: She's not breathing?...Yes or no, is she breathing?

56 [00:03:15.40] Caller: NO! I don't- [Interrupted]

57 [00:03:18.00] Dispatcher: Okay, I need you to do CPR. Get her out of the bed, flat on her back on the floor

Skills

The telecommunicator repeated the question in a shorter form in the next turn, but the caller was unable to answer it directly. As can be viewed in the full transcript of the call, there were multiple earlier instances of the caller not being able to respond to the telecommunicator's interrogative sequence due to language difficulties but similar questions about the victim's status (with slight variations) continued to be asked 2.5 minutes into the call. In a cardiac arrest emergency, the duration of the time that had passed in this call was alarming and was likely to reduce the chances of survival of the victim. Although the caller could not respond to the telecommunicator's questions to achieve the primary goal of identifying the nature of emergency and need to begin T-CPR, the telecommunicator persisted in repeating them which had not been successful. Distracting, loud noises from the emergency could be heard in the background of the call which the caller left the call to attend to, suspending any communication from occurring with the telecommunicator. His inability to answer the telecommunicator's questions after

several occasions and not having his needs or goals met couple minutes into the call may have influenced his decision to leave the call momentarily and attend to the ongoing emergency. This raises the importance of skills of the telecommunicator in using strategies to communicate with LEP callers such as rephrasing and less repetition of questions or using simpler words, which were both rarely observed in this call. Despite this, the caller stepping away from the conversation delayed any information from being exchanged and prolonged any help the telecommunicator could provide to address both person's immediate goals in the situation.

Role of Skills on Emotions

Nearly 15 seconds passed before the caller responded to the telecommunicator and spoke loudly "I'm not medical" (Line 52) to express he was unable to assess the victim's physical state since he was not a medical provider or expert. The caller sounded panicked and, after leaving the call momentarily, did not sound fully present with the telecommunicator due to the stressful nature of the ongoing emergency and environment he was in. Although this was the case, the call may have benefited if the caller remained attentive to the telecommunicator and listened to any further instructions he could follow. In line 53, the telecommunicator interrupted the caller's response and repeated to ask, "Is she breathing normally?" The repeated questioning was not effective and, in addition, raised the stress and emotional state of the caller who became increasingly frustrated as observed in the pitch and tone of his voice. The skills of the telecommunicator in handling the language barrier call could be improved to avoid emotional or communication breakdown and delay gathering of necessary information due to those reasons. Perhaps recognizing the call to a language line earlier would have also allowed him to gather information in a shorter time. In line 57, the telecommunicator reached his primary goal by identifying the need for T-CPR after the caller affirmed that the victim was not breathing.

Although this goal had been reached, communication issues continued to persist as T-CPR instructions were provided to the caller for the remainder of the call and the length of it was extended as a result.

The findings revealed through examination of these five calls illustrated which components of the patient-provider communication framework most affected goal attainment but also the interactive effects of these factors on the communicative process. The effects that the framework components of communication skills, emotions and the environment had on call outcomes were not always due to them individually but because of their interaction with each other. Instances arose in several calls where the emotional tension of the call was heightened as a result of repetition of questions that the caller didn't understand. This redundant effort by the telecommunicator to elicit information worsened the callers' emotional state which is already affected by the stressful environment. The influence of the skills of telecommunicator or caller on both parties' emotions and the environment in which they are communicating was one example of how framework components interacted to shape the experience of the call. The results highlighted what components stood out the most as well as the relationships between them that affected the nature of conversation.

Chapter 4: Discussion

At the heart of effective 911 calls is strong communication between the emergency telecommunicator and caller. Although communication is challenged in language barrier calls, both individuals are mutually responsible in helping each other achieve their goals in an emergency. This study aimed to assess how communication factors and interactive practices between both parties affect how their goals are achieved in cardiac arrest calls. A communication framework developed for patient-provider interaction was used to guide the analysis of communication between the 911 telecommunicator and limited English proficient (LEP) caller to determine how important components of communication were illustrated in discourse and affect how goals were reached.

Description of Results

The findings showed how components of the communication framework largely influenced the nature of conversation and outcome of the emergency calls studied. In particular, attributes addressed in the framework such as the skills of 911 telecommunicators and callers and their emotions combined with the emergency environment in which calls took place affected strength of communication and whether goals could be met in a timely manner. Communication skills of both telecommunicators and callers largely affected the nature of the call as well as the emotional context and environment in which it occurred. Instances of telecommunicator repeating questions with little or no rephrasing, having a frustrated tone early in the call and not attempting to elicit more information from the caller possibly due to language challenges lead to poor information exchange and longer call times. Loss of the caller's presence and attention towards telecommunicator occurred in a couple calls which also caused delay and reduced

productivity of the call. The effects of these poor communication skills influenced the emotional state of both telecommunicator and caller and added stress to the emergency environment of these calls. In regard to the framework attribute of emotions, the emotional tension of several calls was also observed to be raised by little or poor use of emotional management strategies by the telecommunicator (see Excerpts 2, 3). The emotional context of the call largely affected callers' ability to communicate in addition to challenges caused by the language barrier. Concerning the environment in which communication took place, the high-intensity and emergency environment of the calls affected callers' attention with telecommunicators and distracted them from responding to questions on several occasions. The interactive effects of the environment and both party's skills in handling the conversation largely influenced the emotional context of the call and ability for each person to address their goals in communication. As the patient-provider communication framework expresses, these findings from emergency calls reinforce that goals are largely a function of each individual's attributes (e.g. needs, skills, emotions) and the environment in which they communicate.¹⁷

Due to the time-sensitive nature of cardiac arrest calls, the individual attributes of beliefs and values from framework were also more difficult to observe than they would be in a patient-provider relationship. Telecommunicator are tasked to follow a strict, institutional protocol to gather information quickly¹⁷ while callers should communicate necessary information in a timely manner. The relevance of the beliefs and values of each individual may not be as prominent to the situation as they would be for a provider and patient attempting to establish a relationship to facilitate better care. Therefore, the attributes of beliefs and values did not affect goal attainment or call outcome as much as the individual's skills, emotion and the environment in which they communicate did. Despite these contextual differences, the importance of quality of interactions

in patient-provider settings remains the same for the encounter between telecommunicator and caller in emergency communication.

Value of Communication Framework

Similar to a patient-provider interaction, communication goals between 911 telecommunicators and callers are significantly affected by the skills and behaviors of both parties. As medical providers' communication skills influence the quality of care given and patient health outcomes,²¹ the ways telecommunicators speak with callers and vice versa affect both individuals' experiences in the encounter and flow of information that can be exchanged. This is shown in this study's findings as applying the communication framework to a 911 call context guided my analysis of what important factors in communication to observe and how they would impact the interactive nature and outcome of cardiac arrest calls. Emergency calls are a specialized form of goal-driven and institutional talk and outcomes rely on whether the concerns of caller and telecommunicator can be early aligned.¹⁷ The communication framework was very useful in discovering what components most impacted the communicative process and whether goals could be achieved within cardiac arrest, language barrier calls. From the study, there were instances in Excerpt #4 of the telecommunicator repeating questions without rephrasing them to achieve his primary goal of identifying the need for T-CPR for the victim, which lead to longer call times and increased frustration for the LEP caller. The frustration and redundant experience for the caller may have influenced his decision to leave the call for several seconds, which also prolonged the call duration and halted communication. The poor skills of both the telecommunicator and caller in handling the conversation added to the emotional context of the situation and their ability to communicate in a high-stress environment, resulting in little progress to assist the cardiac arrest victim and a longer call duration. Applying the

communication framework to an emergency communication context helped to conduct a more focused study of the role different communication factors play in shaping whether goals of both parties are reached and how the emergency is addressed. Understanding how these components of the framework interact to facilitate communication in cardiac arrest calls can help to identify ways both the telecommunicator and limited English proficient caller can interact to avoid communication breakdowns in their encounter.

Application of a patient-provider communication framework to assess communication in the context of emergency phone calls highlighted differences between these two contexts. While the framework was developed to study a patient-provider interaction, its main principles were applied to examine the encounter between 911 telecommunicators and LEP callers. In both a medical setting and emergency communication context, both parties have goals and convey and receive messages in ways that are rooted in their attributes and the environment in which communication takes place. Although communication serves to achieve individual goals, the goals in an emergency call are often more restricted particularly when examining cardiac arrest-related calls. This differs from the wide range of goals that could exist between a provider and patient in a medical visit setting. Specific to a cardiac arrest call, the telecommunicator must follow an interrogative protocol to collect enough information to identify what type of response to send out and identify the need to initiate T-CPR once a cardiac arrest emergency is recognized. Also, only verbal communication is used in the context of emergency calls as they do not occur in a physical or in-person setting. Characteristics such as body conduct or facial expressions cannot be observed in an over-the-phone encounter which raises the importance of speaking styles and that “how” one speaks is equally if not more important than “what” is said. The results from the study reinforced this concept since communication could only be examined

by observing verbal speech traits, such as tone of voice and pitch, to consider how they reflect the components of the framework.

Limitations

The qualitative findings gained from conversation analysis of the calls revealed important themes in communication with LEP callers, although limitations of the study still exist. Due to the focus on cardiac arrest calls identified as language barrier, the findings cannot be generalized or applied as closely to other types of emergency calls. The initial data set comprised of 24 cardiac arrest, language barrier calls of which 5 were identified as most limited English proficient based on developed criteria and used for analysis. Future efforts can benefit from applying the communication framework to a wider range of 911 calls to delineate how communication factors affect goal attainment and outcomes of these calls that fall outside of cardiac arrest and are affected by communication barriers other than language.

A second limitation is the challenge of assessing these calls without preconceived notion or bias towards telecommunicator and caller and their responsibilities in handling communication. Perceptions related to how the researcher views the responsibilities of both parties may lead them to be more empathetic towards the telecommunicator or caller and prevent a neutral assessment of the communicative process between them. Although limited English proficient callers may face greater challenges in facilitating communication than the trained telecommunicator, both individuals share a mutual responsibility in handling the call and ensuring their goals are aligned. Occurrences in the dialogue or behaviors that are observed may trigger different emotions or feelings in whoever is listening or analyzing these calls. Although this is a qualitative, inductive study, findings would be more applicable with a balanced view of

both side's responsibilities to assess the communicative process between them and its effects on shaping call outcomes.

Implications for Practice and Training for Telecommunicators and LEP Callers

The findings from the study can also inform development of best practices and strategies in 911 cardiac arrest calls to improve communication with limited English proficient callers. Understanding how the components of the applied framework (e.g. skills, emotion, environment) were illustrated in communication can assist in identifying ways for both parties to facilitate information exchange and avoid communication breakdowns. For instance, the results highlighted the need to address communication skills of both telecommunicator (e.g. less repetition and clear rephrasing of questions, simplifying words) and caller (e.g. maintain presence with telecommunicator) as well as the need for better emotion management practices that reduce the effect of the stressful environment on caller's ability to communicate. Evidence-based or new strategies that target skill improvement and emotion management can be better incorporated in trainings for telecommunicators and public education for LEP callers so goals of both parties can be met quickly in emergency communication. As mentioned, emergency telecommunicators are guided by an interrogative agenda or protocol when handling calls while being conscious of the caller's behaviors and emergency occurring on their side.¹⁷ Callers are often unfamiliar with the institutional talk procedure that telecommunicators must follow to elicit and gather information related to the emergency¹⁷ and can benefit from a better understanding of how the 911 system works. For LEP communities, stronger familiarity with the 911 system and what necessary information to convey to telecommunicators immediately (e.g. address, type of emergency response needed) would address both side's goals quickly and avoid potential communication breakdowns in gathering this information.

Additional efforts to improve skills can target the telecommunicator's ability to recognize the need to connect to a language line earlier in a language barrier call. Several of the calls analyzed in this study may have resulted in quicker recognition of cardiac arrest had the telecommunicator connected to an interpreter service immediately. This could help to facilitate communication and save the time it took for them to elicit adequate information and meet their goals. In addition, LEP communities could benefit from learning that language line services are available to them so they are prepared to request for an interpreter when calling 911, if necessary. Increasing community knowledge of this accessible resource can improve communication and also increase likelihood of calling 911 in the event of an emergency as research has shown.⁶ Best practices that consider components of the communication framework and their effect on call outcomes can improve telecommunicators' ability to handle language barrier and other types of emergency calls and improve the experiences of individuals and families accessing emergency services.

Chapter 6: Conclusion

Effective communication with limited English proficient callers is crucial to improving survival rates in cardiac arrest calls due to the time-sensitive nature and need for immediate medical response in this type of emergency. This study sought to explore how attainment of telecommunicator and caller goals and outcomes of cardiac arrest calls are affected by important communication factors described in a patient-provider communication framework.

Understanding how outcomes in emergency calls unfold and what can be done to improve interactive practices between telecommunicators and LEP callers is built on identifying communicative goals and what both individuals strive to achieve in the context of the call. The key findings highlight the role that the framework components of communication skills, emotion and the environment of the emergency call play in shaping how goals of both parties are reached. The study also illustrates the relationship between these factors and their interactive effects on telecommunicators' and callers' ability to communicate and follow particular actions to facilitate meeting of their goals. Both sides played essential roles in handling the progression of the call and moving the conversation forward so both their immediate goals and needs could be met promptly.

Interventions designed to improve communication between 911 telecommunicators and LEP callers can be effective by addressing framework components that most affected communication in this study. For instance, emotion management strategies can be emphasized in telecommunicator trainings to reduce tension with callers and basic information such as address and type of response needed (e.g. medical, fire) can be learned in English by LEP callers to improve their communication skills in an emergency. Prompt response to a cardiac arrest emergency community-wide issue and requires collaboration of emergency medical services,

health educators, family members and other stakeholders to improve experience of LEP individuals when accessing emergency services and also telecommunicators' ability to communicate effectively with them.

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Appendix

Transcripts for 5 Cardiac Arrest, Language Barrier Calls

Call 1

01 [00:00:01.28] Telecommunicator: Fire and Medic One. What is the address of the problem?

02 [00:00:03.40] Operator: Just a second caller. The address is *[Address provided]*. I've confirmed that.

03 [00:00:10.12] Caller: Please *(inaudible speech)*

04 [00:00:11.02] Operator: *(Speaking to telecommunicator)* The only thing I heard is asthma and emergency.

05 [00:00:10.12] Caller: Yes, emergency emergency *(inaudible speech)*

06 [00:00:14.00] Telecommunicator: *[Address provided]*

07 [00:00:16.00] Telecommunicator: Listen.

08 [00:00:16.00] Telecommunicator: *[In response to caller speaking over telecommunicator]* Listen to me, ma'am. *(Speaks in a firm and angry-sounding tone)* How old is the- *[Interrupted]*

09 [00:00:18.02] Caller: What?

10 [00:00:19.00] Telecommunicator: How old is the person having trouble breathing?

11 [00:00:22.07] Caller: *(Caller speaks in different language)* Can you go immediately now please? Please...please, please.

12 [00:00:28.16] Telecommunicator: I have help on the way- we'll be there in a few minutes.
-- End of call --

Call 2

- 01 [00:00:03.25] Telecommunicator:** Seattle Fire and Medic One. What's the address of the problem?
- 02 [00:00:06.26] Operator:** Ma'am...tell him the address.
- 03 [00:00:09.18] Caller:** What?
- 04 [00:00:10.19] Telecommunicator:** What's the address?
- 05 [00:00:14.19] Caller:** *[Address provided]. [Speaks address after short pause]*
- 06 [00:00:18.21] Telecommunicator:** Okay *[Address provided]*. Is this a house or an apartment?
- 07 [00:00:23.00] Caller:** What?
- 08 [00:00:24.01] Telecommunicator:** Is this a house or an apartment?
- 09 [00:00:25.23] Caller:** House house house.
- 10 [00:00:27.00] Telecommunicator:** What's going on there? *(Asks gently)*
- 11 [00:00:28.01] Caller:** *[Pause]* What? *(Asks in an uncertain tone)*
- 12 [00:00:30.00] Telecommunicator:** What's the problem there? *(Asks firmly)*
- 13 [00:00:31.10] Caller:** I told you, I told you...he's *(inaudible speech)* he's on the floor *(inaudible speech)*. Very *(inaudible speech)*, very *(inaudible speech)*.
- 14 [00:00:39.14] Telecommunicator:** Okay. This is- he's- this is a person on the floor?
- 15 [00:00:42.09] Telecommunicator:** *[Pause]* Is he-
- 16 [00:00:44.01] Caller:** On the floor.
- 17 [00:00:45.13] Telecommunicator:** Is he conscious and awake, is he awake? Talking to you? *(Speaks in a gentle tone)*
- 18 [00:00:48.09] Caller:** I don't hear you.
- 19 [00:00:50.14] Telecommunicator:** Is he awake and talking to you? *(Speaks slightly louder and in same tone)*
- 20 [00:00:53.10] Caller:** What?
- 21 [00:00:53.28] Telecommunicator:** Is the person on the floor, is he awake- *[Interrupted]*
- 22 [00:00:55.28] Caller:** Just a moment.
[Caller steps away from call]

23 [00:01:00.02] Telecommunicator: What?

24 [00:01:00.09] Telecommunicator: The person on the floor, is he awake?...Conscious?

25 [00:01:06.00] Caller: *(inaudible speech)* Uh, no *(inaudible speech)*...I don't know what help...
(Tone of caller's voice is panicked and very emotional. Begins crying)

26 [00:01:12.18] Telecommunicator: Is he talking to you?

27 [00:01:14.18] Caller: *(Crying sounds from caller)* Call disconnected sound.

28 [00:01:17.08] Telecommunicator: Ma'am?

29 [00:01:31.10] Telecommunicator: *[Caller speaks but speech is inaudible]* Hey, ma'am?

30 [00:01:34.03] Caller: What do you want with me? I ask you, I ask you- [Interrupted]

31 [00:01:35.22] Telecommunicator: Okay

32 [00:01:37.00] Telecommunicator: I understand, what is wrong with the person on the floor, is he awake?...Is he talking to you?

33 [00:01:44.01] Caller: He lay on the floor *(inaudible speech)* by myself...I cannot do anything

34 [00:01:46.17] Telecommunicator: Is he...*(caller interrupts but inaudible)*

35 [00:01:49.09] Telecommunicator: Is he moving?

36 [00:01:51.11] Caller: *[Short pause]* No, no

37 [00:01:52.13] Telecommunicator: Okay. Is he breathing? Is his chest going up and down?

38 [00:01:56.17] Caller: *[Short pause]* No please send...I don't know what to talk to you

39 [00:02:00.21] Telecommunicator: I-I want you to look at his chest and tell me if he is-

40 [00:02:02.15] Caller: *(inaudible speech)* I can not talk to you, I can not, I can not.

41 [00:02:06.12] Telecommunicator: Okay why not? Is there someone else I can talk to?

42 [00:02:09.03] Caller: *(inhales)* What?

43 [00:02:10.17] Telecommunicator: Is there someone else in the house I can talk to?

44 [00:02:13.05] Caller: Yeah I don't understand, excuse me. Please, send people.

45 [00:02:17.14] Telecommunicator: I-I am, I've already dispatched help. I just I just need-

46 [00:02:19.09] *Phone clicks. Disconnection sound*

47 [00:02:20.16] Telecommunicator: Ma'am?...Hello, Ma'am?

48 [00:02:25.14] *Call screech*

49 [00:02:28.20] Telecommunicator: Hello? Ma'am?

-- End of call --

Call 3

- 01 [00:00:00.10] Telecommunicator:** 911. What are you reporting?
- 02 [00:00:01.26] Caller:** Help me, my husband's in bathroom. He don't breathe! He's not breathe!
- 03 [00:00:07.01] Telecommunicator:** Okay what address?
- 04 [00:00:09.14] Caller:** (*Heavily panting*) Hello?!
- 05 [00:00:11.25] Telecommunicator:** What is your address?
- 06 [00:00:14.18] Caller:** Address is (*inaudible speech*)
- 07 [00:00:23.10] Telecommunicator:** Okay what is going on with your husband?
- 08 [00:00:25.07] Caller:** Uh, I take-I take my husband to the bathroom. He's not breathe-
- 09 [00:00:31.01] Telecommunicator:** He's not- Okay, ma'am...I need you to quit screaming and listen to me. (*Telecommunicator speaks firmly*)
- 10 [00:00:34.07] Telecommunicator:** He's not breathing?
- 11 [00:00:36.04] Caller:** He's not breathing. I don't (*inaudible speech*)-
- 12 [00:00:39.09] Telecommunicator:** Okay, so you need medical help?
- 13 [00:00:41.26] Caller:** Oh, yes...hurry up.
- 14 [00:00:43.16] Telecommunicator:** Okay go to the restroom where he's at.
- 15 [00:00:46.06] Caller:** Oh, he's in restroom (*inaudible speech*). Please help me... (*Speaks in a very panicked and frightened voice*)
- 16 [00:00:50.00] Telecommunicator:** Okay, I'm trying to help you. I need you to calm *down*. (*Telecommunicator speaks firmly but not angrily*)
- 17 [00:00:53.23] Telecommunicator:** Is he unconscious?
- 18 [00:00:56.09] Caller:** Yes, yes.
- 19 [00:00:57] Telecommunicator:** Okay, is he *breathing*? (*Speaks articulately and firmly*)
- 20 [00:01:00.00] Caller:** No, he's not breathing.

- 21 [00:01:01.14] Telecommunicator:** Okay, go and...take the phone to bathroom where he's at. RIGHT NOW. (*Speaks in a very firm and direct tone*)
- 22 [00:01:05.09] Caller:** Okay. (*Caller panting and sounding panicked*) I can't, I can't...(inaudible speech) Hello, (inaudible speech)?
- 23 [00:01:11.11] Telecommunicator:** I'm still here. Ma'am...CALM DOWN.
- 24 [00:01:15.17] Caller:** (*Crying sounds from caller*)
- 25 [00:01:17.00] Telecommunicator:** Take the phone to where he's at. Right now.
- 26 [00:01:19.25] Caller:** He's in bathroom. He sit down in bathroom...Poop.
- 27 [00:01:22.26] Telecommunicator:** Okay, can you take the phone to where he is please?
- 28 [00:01:26.07] Caller:** Yes, my bathroom. (*Breathing heavily*)
- 29 [00:01:27.29] Telecommunicator:** Take the phone to him. Right now.
- 30 [00:01:31.02] Caller:** Oh no, he (inaudible speech) (*Caller screaming*)
- 31 [00:01:35.02] Caller:** Ma'am..CALM DOWN.
- 32 [00:01:39.03] Telecommunicator:** Okay listen to me...Get him flat on his back on the floor. (*Speaks firmly*)
- 33 [00:01:45.01] Caller:** I can't do that, he's too heavy (*Caller crying*)
- 34 [00:01:47.00] Telecommunicator:** Okay- I need you to try so we can help him okay? Set the-set the phone down, grab him and pull him off the toilet onto his back.
- 35 [00:01:54.25] Caller:** I can't do it..he's supposed (inaudible speech) in bathroom.. (*Caller screaming frantically*)
- 36 [00:01:59.29] Telecommunicator:** Okay, I need you to-I need you- (*talks over caller screaming*) Ma'am I need you to stop screaming and listen to me.
- 37 [00:02:05.09] Caller:** Yes, he's something wrong I think.
- 38 [00:02:07.15] Telecommunicator:** Okay. I'm getting help but I need you to listen to me so we can help him until they get there okay?
- 39 [00:02:12.05] Caller:** Okay, okay (*Speaks frantically*)
- 40 [00:02:13.00] Telecommunicator:** I want you to-listen to me, you can do it, okay?
- 41 [00:02:17.05] Telecommunicator:** Set the phone down and I want you to get a hold of him under his armpits and pull him off the toilet onto his back.

42 [00:02:22.09] **Caller:** Okay, okay.

43 [00:02:23.00] **Telecommunicator:** Onto the floor.

44 [00:02:24.11] **Caller:** Okay, okay. Hello? I can't do it, he's so heavy

45 [00:02:29.18] **Telecommunicator:** Okay, well we need to try okay? Are you able to get a good hold of him under his armpits?

46 [00:02:33.27] **Caller:** Hello? Okay, okay. Hello, hurry up.

47 [00:02:37.15] **Telecommunicator:** They're getting there as fast as they can but we're going to do this to help him until they get there.

48 [00:02:41.22] **Caller:** Okay...okay, okay. (*Breathing heavily*)

Call progresses but caller is unable to perform T-CPR and telecommunicator stays connected with caller until emergency response arrives near 6-minute mark of call.

[00:06:07:20] -- End of call --

Call 4

- 01 [00:00:01.21] Telecommunicator:** Seattle Fire and Medic One. What is the address of the problem?
- 02 [00:00:05.02] Telecommunicator:** *[No response]* Seattle Fire and Medic One. What is the address?
- 03 [00:00:11.00] Operator:** Sir, *[Address provided]*. I'm trying to get his street? *[Transfer operator speaking with telecommunicator]*
- 04 [00:00:27.20] Operator:** *[Indistinct voice and sound in background]* Hello, sir?
- 05 [00:00:29.26] Caller:** Yes, *[Address provided]*.
- 06 [00:00:32.26] Operator:** *[Address provided]*?
- 07 [00:00:35.27] Operator:** What is happening?
- 08 [00:00:39.16] Caller:** *[Address provided]*
- 09 [00:00:42.06] Operator:** What is happening sir?
- 10 [00:00:43.29] Caller:** Ma'am, this is my mother and she's *(inaudible speech)*. I don't know *(inaudible speech)*. And we need some emergency
- 11 [00:00:53.16] Operator:** Is she sick?
- 12 [00:00:55.17] Caller:** Uh *NO* she's not sick...
- 13 [00:00:57.28] Operator:** Uh what is she doing, I don't understand?
- 14 [00:01:00.02] Caller:** When I hear you, she was screaming in the bed and now she don't talk *(Caller speaks in a frustrated tone)*
- 15 [00:01:04.01] Operator:** She was screaming in the bed? *(Speaks over caller's voice)*
- 16 [00:01:07.03] Caller:** Yes...and we need something...
- 17 [00:01:09.18] Telecommunicator:** Is she injured, is she hurt?
- 18 [00:01:10.40] Caller:** What?
- 19 [00:01:11.22] Telecommunicator:** Is she hurt?
- 20 [00:01:13.21] Caller:** *NO*. She was sleeping in the bed.
- 21 [00:01:17.05] Telecommunicator:** Sleeping-what's wrong with her right now?
- 22 [00:01:18.05] Caller:** That's why she don' talk...yes
- 23 [00:01:20.10] Telecommunicator:** She's not talking right now? Is she conscious and awake?

24 [00:01:22.16] **Caller:** Yes, yes.

25 [00:01:24.19] **Telecommunicator:** Is she conscious?

26 [00:01:26.08] **Caller:** Uh. Yeah..I-I don't know

27 [00:01:28.20] **Telecommunicator:** Is she awake? Can she talk to you?- [Interrupted]

28 [00:01:31.09] **Caller:** NO! She's in the bed. (*Frustrated tone in voice*)

29 [00:01:33.02] **Telecommunicator:** Can she talk to you?

30 [00:01:34.21] **Caller:** No! (*inaudible speech*)

31 [00:01:37.04] **Telecommunicator:** Okay...is she breathing normally?

32 [00:01:38.16] **Caller:** Uh I don't (*inaudible speech*)

33 [00:01:43.25] **Telecommunicator:** Listen is she breathing normally? Is her chest going up and down in a normal fashion?

34 [00:01:48.00] **Caller:** NO!

35 [00:01:48.28] **Telecommunicator:** No? Okay then we need to start CPR.

36 [00:01:51.20] **Caller:** Okay...(*inaudible speech*)

37 [00:01:52.13] **Telecommunicator:** I need you to get her..I need you to get her..Listen to me, listen to my instructions. I need you to get her flat on the floor on her back. (*over caller's voice*)

38 [00:01:59.06] **Caller:** Okay. Just a minute!
[Caller speaking with someone else in background]

39 [00:02:05.20] **Telecommunicator:** Okay, you got her on the floor on her back?

40 [00:02:08.04] **Caller:** Uh, uuh...what?

41 [00:02:10.04] **Telecommunicator:** Do you have her flat on the floor on her back?

42 [00:02:12.19] **Caller:** No! She has (*inaudible speech*) sleeping in the back of the bed.

43 [00:02:16.26] **Telecommunicator:** Is she asleep or is she unconscious?

44 [00:02:19.06] **Caller:** No! I said, I don't know 'cause I'm not medical (*inaudible speech*)
Did...- [Interrupted]

45 [00:02:26.01] **Telecommunicator:** Is- Look at her chest. Sir, look at her chest and if it's going up and down and she's breathing in a normal fashion.
[Short pause]

46 [00:02:34.03] **Caller:** I don't...I (*inaudible speech*). (*Caller's voice is hesitant and timid*)

47 [00:02:40.25] Telecommunicator: Is she breathing normally, sir?

48 [00:02:43.06] Caller: *[Short pause]* Huh?

49 [00:02:44.21] Telecommunicator: Is she breathing normally? *(Asks in a firm and direct tone)*

[Distracting, loud noises in background]

50 [00:02:47.23] Telecommunicator: You, you need to listen to my instructions sir. Listen to my questions. Is she breathing normally?

[No response from caller as he attends to voices and sounds in background]

51 [00:03:01.04] Telecommunicator: Sir, sir...you need to talk to me?

52 [00:03:04.00] Caller: YES! I- I- I'm not medical, I- *[Interrupted]*

53 [00:03:06.29] Telecommunicator: Is she breathing normally?

54 [00:03:09.02] Caller: No! I don't, she...*(inaudible speech)*

55 [00:03:13.06] Telecommunicator: She's not breathing?...Yes or no, is she breathing?

56 [00:03:15.40] Caller: NO! I don't- *[Interrupted]*

57 [00:03:18.00] Telecommunicator: Okay, I need you to do CPR. Get her out of the bed, flat on her back on the floor

[No response]

58 [00:03:24.23] Telecommunicator: Is there anyone there with you?

59 [00:03:27.11] Caller: *(inaudible speech)* We need help.

60 [00:03:29.16] Telecommunicator: Okay, we have help on the way...and what you need to do is you need to follow my instructions because you're going to be the one that helps her until we get there.

61 [00:03:31.16] Caller: Okay- *(Voice sounds distant in background)*

62 [00:03:36.08] Telecommunicator: Get her on the floor, flat on her back...Tell me when you have that done.

[No response. Loud background noise is heard]

63 [00:03:44.01] Telecommunicator: Is she on the floor now?

64 [00:03:47.14] Caller: *[Pause]*...Hello, HELLO?

65 [00:03:47.35] Telecommunicator: Hello?

[Caller speaking in background shortly]

66 [00:03:49.21] **Telecommunicator:** Is she on the floor now?

67 [00:03:53.13] **Telecommunicator:** Caller, you need to talk to me.

68 [00:03:56.13] **Caller:** *[Pause]* YES! *(Speaks in loud voice and raised pitch)*

69 [00:04:00.00] **Telecommunicator:** Caller talk to me

70 [00:04:04.08] **Telecommunicator:** Caller you need to talk to me.

71 [00:04:07.13] **Caller:** *(inaudible speech)* What you say?

72 [00:04:09.29] **Telecommunicator:** I need you to follow my instructions, you're going to do CPR-

73 [00:04:12.02] **Caller:** Okay what's the instruction...?

74 [00:04:14.13] **Telecommunicator:** Okay, get her flat on her back on the floor.

75 [00:04:17.26] **Caller:** Okay, *(inaudible speech)*

76 [00:04:21.28] **Telecommunicator:** Do you have her on the floor yet?

[Caller speaking in native language in background]

77 [00:04:30.15] **Telecommunicator:** Is she on her back on the floor?

78 [00:04:32.18] **Caller:** *[Another person besides caller responds]* No, we can't. We already, she doesn't move.

79 [00:04:35.27] **Telecommunicator:** Okay we need to get her out of the bed. If she's not breathing we need to do CPR. You need to get her on her back on the floor..flat on her back.

80 [00:04:44.00] **Caller:** Yeah but I think so..*(inaudible speech)*

81 [00:04:47.29] **Telecommunicator:** You need to listen to my instructions...If she's not breathing, get her flat on her back on the floor.

[Caller speaking with someone else and is not responding]

82 [00:04:58.05] **Telecommunicator:** Are you doing that?

83 [00:05:06.02] **Telecommunicator:** Ok caller, listen to me. *[Short pause]* Listen to me.
Caller....caller

84 [00:05:12.21] **Caller:** Yes.

85 [00:05:13.26] **Telecommunicator:** Is she flat on her back on the floor yet?

86 [00:05:16.21] **Caller:** No, she's too heavy. That's why we can't put her on the floor.

87 [00:05:19.12] Telecommunicator: Well, how many people are there. Can you drag her out of the bed and onto the floor?

88 [00:05:24.13] Caller: I don't- I don't think so. She's going to...

89 [00:05:27.10] Telecommunicator: Okay, just grab the sheets of the bed and drag her off the bed and onto the floor. If it takes-if it takes several people to do it, then just do that.

90 [00:05:29.13] Caller: Okay let me do it. *(Speaks quietly)*

91 [00:05:41.00] Caller: Uh, I think she's-she's dead, I think she's dead.

92 [00:05:44.08] Caller: Well, we're going to do CPR until we get there to find out what's going on. If you don't do CPR you're not helping her.

93 [00:05:50.06] Telecommunicator: Get her on the floor on her back.

[Caller distracted and is speaking to someone else in background]

94 [00:05:59.20] Telecommunicator: Okay, have you gotten her on the floor yet?

95 [00:06:02.28] Caller: I can't...

96 [00:06:04.28] Telecommunicator: Is she on the floor yet?

97 [00:06:08.28] Caller: We tried...

98 [00:06:10.27] Telecommunicator: Okay let me know when you get her on the floor, okay? And we'll go on to the next step.

99 [00:06:15.18] Caller: Uh they're coming right now.

100 [00:06:18.12] Telecommunicator: Okay...get her on the floor flat on her back.

[Caller doesn't respond and speaks with someone else in background]

Telecommunicator loses attention of caller who is now speaking with someone else.

Telecommunicator stays connected on phone with caller until emergency response arrives and caller is heard speaking with them.

[00:08:12.20] --End of call--

Call 5

(Excerpts from this call were left out of results since call did not contribute any new information to findings of the study. Recurring practices and observations were examined but no new findings were gathered from this cardiac arrest call.)

- 01 [00:00:01.07] Telecommunicator:** 911. What are you reporting? *(Over caller's panicked voice)*
- 02 [00:00:03.23] Caller:** *(inaudible speech)*, Hello?
- 03 [00:00:05.26] Telecommunicator:** Hi, this is 911.
- 04 [00:00:07.12] Caller:** Yes, *(inaudible speech)*. I think my husband's already passed away.
(Caller crying, has panicked voice)
- 05 [00:00:12.13] Telecommunicator:** Okay, what's the address you're at? *(Speaks calmly and gently)*
- 06 [00:00:15.07] Caller:** *[Address provided]* *(Crying and unable to speak articulately)*
- 07 [00:00:20.27] Telecommunicator:** Okay, is it Southeast or Northeast? Okay...
- 08 [00:00:23.25] Caller:** *(inaudible speech)*
- 09 [00:00:25.29] Telecommunicator:** Okay. Are they conscious right now?
- 10 [00:00:29.05] Caller:** I was *(inaudible speech)* working in garden. And uh, I think he had a stroke. His *(inaudible speech)*
- 11 [00:00:37.19] Telecommunicator:** Okay, ma'am I need you to calm down, we're getting the fire department there...It's your husband you think may have passed away? *(Asks calmly and in a friendly manner)*
- 12 [00:00:44.10] Caller:** *Yeah!*
- 13 [00:00:45.00] Telecommunicator:** Okay. Is he conscious right now?
- 14 [00:00:47.14] Caller:** Yeah he's conscious. Can you hold on, I-I get another phone please.
[Caller Steps away from call momentarily]
- 15 [00:00:53.03] Telecommunicator:** Okay...ma'am?
[No response]
- 16 [00:01:00.01] Caller:** He-hello?
- 17 [00:01:00.17] Telecommunicator:** Okay. *(Speaks in a firm tone)*. Is your husband conscious?

18 [00:01:04.25] **Telecommunicator:** Is he awake? (*Speaks over caller crying*)

19 [00:01:05.13] **Caller:** Yes, yes- [Interrupted] yes yes (*inaudible speech*)

20 [00:01:06.09] **Telecommunicator:** He's awake?

21 [00:01:07.17] **Caller:** Yes (*inaudible speech*)...yes, what did you say?

22 [00:01:11.04] **Telecommunicator:** Okay- Is you husband awake? I need to know that.

23 [00:01:14.25] **Caller:** No, no no, no. (*Speaks in a crying voice*)

24 [00:01:15.18] **Telecommunicator:** Okay, is he breathing?

25 [00:01:19.23] **Telecommunicator:** Ma'am, I need you to answer my questions. Is he breathing?

26 [00:01:23.23] **Caller:** I'm sorry?

27 [00:01:24.15] **Telecommunicator:** Is your husband breathing?

28 [00:01:27.22] **Caller:** I'm a-I think he's gone. Ahhh! (*Crying sounds*)

29 [00:01:30.21] **Telecommunicator:** I need to know if he's breathing cause if he's not we-
[Interrupted]

30 [00:01:34.29] **Caller:** I don't think so, I don't think so. I'm a...I'm a...

31 [00:01:37.25] **Telecommunicator:** Okay, we're going to start CPR. Can you get him flat on the ground, I can help you with that. I need you to get him on the ground.

32 [00:01:44.28] **Caller:** I'm (*inaudible speech*). I'm not

33 [00:01:48.28] **Telecommunicator:** Is there people there so we can get him on the ground so we can start CPR?

34 [00:01:53.06] **Caller:** Noo, no. I think he's gone.

35 [00:01:55.23] **Telecommunicator:** Okay. Well ma'am, let's try CPR in case he's not gone until the fire department gets there.

36 [00:02:01.17] **Caller:** I can not get him there (*inaudible speech*)-

37 [00:02:02.24] **Telecommunicator:** You can't get him on the ground? Okay.

38 [00:02:05.11] **Caller:** Noo, uh no. Let me feel the pulse.

39 [00:02:13.02] **Caller:** He's - his (*inaudible speech*) is still warm.

40 [00:02:16.00] **Telecommunicator:** He's still- okay if he's still warm, we need to get him on the floor. Can you pull him on the ground?...Can you grab his leg and pull him on the ground?

41 [00:02:24.20] **Caller:** *(Panicked voices expressed by caller)*

42 [00:02:26.21] **Telecommunicator:** Okay, we need to get him on the ground ma'am, we need to try to start CPR.

43 [00:02:30.21] **Caller:** Uh *(Panicked, crying sounds expressed by caller who is not responding)*

44 [00:02:34.29] **Telecommunicator:** Can you get him on the ground? Yeah we're getting them started ma'am. Can you get him on the *ground*?

45 [00:02:41.04] **Telecommunicator:** I need you to pull him-

46 [00:02:42.00] **Caller:** I do, I do *(inaudible speech)*

47 [00:02:45.27] **Telecommunicator:** Can you try to get him on the-

48 [00:02:46.13] **Caller:** I do, I do I *(inaudible speech)*

49 [00:02:47.19] **Telecommunicator:** You tried? Okay.

50 [00:02:50.26] **Caller:** *(inaudible speech)* Please?

51 [00:02:52.25] **Telecommunicator:** Okay like-

52 [00:02:54.02] **Caller:** It's my *(inaudible speech)*

53 [00:02:57.01] **Telecommunicator:** No, you need to get him on the ground. It doesn't matter if it's going to injure him. We need to start CPR.

54 [00:03:03.04] **Caller:** Okay, okay okay. Okay, okay...okay okay. *(Loud crying sounds from caller who is very panicked and frightened)*

55 [00:03:11.25] **Telecommunicator:** Okay, pull him on the ground ma'am. *(Speaks gently and in a calm manner)*

56 [00:03:14.01] **Caller:** *(Continues to cry and not responsive to telecommunicator's instructions)*

57 [00:03:23.03] **Telecommunicator:** Okay, can you get him on the ground? Have you got him on the ground?

58 [00:03:25.14] **Caller:** No I can't. He's tall *(inaudible speech)* *(Crying loudly)*

59 [00:03:28.17] **Telecommunicator:** Okay, I need you to just *pull* him on the ground though ma'am, it doesn't matter if he's gonna hit his head or not, we need to start CPR. It doesn't matter if he's gonna-we need to get him on the ground. *(speaks over caller crying)*

60 [00:03:39.13] **Caller:** *(Crying and unresponsive).* You know he has a *(inaudible speech)*

61 [00:03:49.21] Telecommunicator: OKAY, if he's unconscious and not breathing ma'am it doesn't matter, we need to get him on the ground

62 [00:03:56.17] Caller: *(Crying and yelling)* Okay, I have to *(inaudible speech)*

63 [00:04:04.27] Telecommunicator: Okay, ma'am. I need you to pull him, pull his leg and pull him on the ground wherever he's at. I need him flat on the ground. We need to start CPR.

(Speaks in a leveled, steady tone)

[Caller unresponsive and steps away from call as she can be heard crying at a distance in the background]

Long pause in communication occurs as telecommunicator makes no attempt to gather caller's attention back towards her likely out of tiredness and caller not able to follow instruction until this point.

64 [00:04:48.11] Telecommunicator: Ma'am- ma'am did you get him on the floor?

65 [00:04:53.11] Caller: Can you get someone here please?

66 [00:04:56.04] Telecommunicator: We got them started when you gave me the address.

Can you get him on the floor?

67 [00:05:01.01] Caller: I can't *(inaudible speech)*

68 [00:05:03.04] Telecommunicator: Okay is there- you need to pull him down, yes you need to pull him down and get him on the ground.

69 [00:05:09.20] Telecommunicator: Pull him on the ground *(Raised pitch in voice)*

Caller is screaming and not responsive to telecommunicator's instructions as call progresses. An emergency response arrives around **[00:05:30:00]** mark in call and caller is assisted on scene.

Telecommunicator disconnects call once caller is heard speaking with responders.

[00:06:44.10] -- End of call --