

# **An Examination of Medical Interview Questions Rendered in American Sign Language by Deaf Physicians and Interpreters**

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## **ABSTRACT**

In the healthcare system of the United States, signed language interpreters frequently facilitate communication between deaf individuals who use American Sign Language (ASL) and their nonsigning physicians. A small but growing number of deaf individuals are pursuing medical training and becoming physicians, creating an opportunity for some deaf patients to communicate directly with their doctors in ASL. In addition to providing direct access for deaf patients, this also creates a situation in which it is possible to examine the linguistic features used by deaf bilingual physicians. We analyzed 18 ASL translations of three common medical interview questions as produced by both deaf physicians ( $n = 3$ ) and experienced ASL-English interpreters ( $n = 3$ ). Results indicate that the physicians and the interpreters consistently utilized *contextualization*, *contrasting*, and *specification* in their translations but showed variability in the production of these discourse features. We provide an overview of the current state of ASL-English healthcare interpreting, examine challenges in creating ASL translations of common medical interview questions, provide descriptions and samples of the ASL translations, and discuss patterns in the data. Our aim in this investigation is to better describe and understand how typical medical questions are translated into ASL as a step toward the ultimate goal of improving healthcare communication for deaf patients.



Medical interviews often entail a conventionalized protocol in which a physician or other healthcare professional poses a series of

questions about the patient's health status, use of medications, and family medical history. The interview may be structured in a branching format, in which clusters of diagnoses can either be pursued or ruled out as information is gathered. In this manner, the physician begins the hypothesis-testing procedure immediately upon patient intake. Effective communication during the medical interview may facilitate the identification of patients' needs, perceptions, and expectations (Ha, Anat, & Longnecker, 2010). Patients who report good communication with their doctor are more likely to share relevant information, adhere to the prescribed treatment, and be satisfied with their care (Williams, Weinman, & Dale, 1998). It is not surprising that the medical interview is regarded as a critical component of both diagnosing illness and developing an effective treatment plan (Lichstein, 1990; Ong, de Haes, Hoos, & Lammes, 1995). In fact, clinicians have rated the information gathered during medical interviews as having greater diagnostic value than either the physical examination or laboratory results (Rich, Crowson, & Harris, 1987). Therefore, the medical interview has become an institutionalized practice in the U.S. healthcare system and may be regarded as a routine practice by both physicians and patients.

When a patient and a physician use different languages, the process of information exchange may be compromised (Angelelli, this volume). For deaf patients who use American Sign Language (ASL), communicating directly with a physician has rarely been an option since so few physicians know ASL. Historically, deaf people have attempted to exchange information with their physicians through a variety of means, including lipreading, writing notes, or enlisting the assistance of a family member, all of which result in less than effective communication (Steinberg, Wiggins, Barmada, & Sullivan, 2002; Steinberg, Barnett, Meador, Wiggins, & Zazove, 2006). Thus, although native speakers of English may experience medical interviews as routine, deaf patients have reported that communication in the healthcare setting is challenging and has the potential for serious misunderstandings (Barnett, 2002; McKee, Barnett, Block, & Pearson, 2011).

With passage of federal legislation, most recently the Americans with Disabilities Act of 1990, healthcare facilities became legally mandated to provide signed language interpretation for deaf patients. The intent of the federal mandates is to ensure communication access for deaf patients; however, the provision of interpreters has not fully resolved the communicative challenges that arise between deaf patients and English-speaking (nonsign-

ing) healthcare providers. Numerous studies have documented deaf patients' health disparities in comparison to the general population. For example, deaf signing adults are less likely to see a physician (Barnett & Franks, 2002), report more frequent use of emergency departments than primary care offices (Harmer, 1999), and are more likely to be dissatisfied with physician-patient communication (Witte & Kuzel, 2000). Compounding the problem, many deaf adults also disproportionately have low health literacy (i.e., ability to seek, process, and use health-related information for decision making and health management), which may be the result of a lifetime of limited access to information that is readily accessed by people who can hear (Hedding & Kaufman, 2012; Pollard, 1998).

These challenges are exacerbated further by a lack of training for signed language interpreters who work in healthcare settings. Fueled by civil rights legislation passed in the 1960s and 1970s, the nascent interpreting profession was under pressure to create a critical mass of generalist practitioners who could meet the communication needs of deaf people across a wide range of settings (Swabey & Nicodemus, 2011). Interpreters with no specialized training or knowledge were called upon to work in almost every type of environment (e.g., legal, educational, vocational, and medical). The first certificate and degree program in ASL-English healthcare interpreting in the United States was established in 1983 at St. Catherine University,<sup>1</sup> and it was nearly 20 years before a second healthcare interpreting certificate program (at the National Technical Institute of the Deaf) was offered.

Since the establishment of the first generalist degree programs for interpreters in the late 1970s, more than 125 postsecondary interpreter education programs have become available. However, many of these degree programs offer only a single course in interpreting in "specialized settings" with a few weeks dedicated to healthcare interpreting. Thus, despite increased opportunities for education, specialization in healthcare interpreting has not been systematically instituted within the educational system (Witter-Merithew & Nicodemus, 2010). Further, a national credentialing system for ASL-English healthcare interpreters does not exist, although certification is in place for interpreters who specialize in legal and educational settings (Swabey & Nicodemus, 2011). In fact, it was only in 2012 that the Registry of Interpreters for the Deaf, the national organization of signed language interpreters in the United States, established a special members section on healthcare interpreting, whereas other such sections have been available for educational and legal interpreters for many years.

Another challenge is the dearth of research on signed language interpreting in healthcare settings. Swabey and Nicodemus (2011) note that linguistic examination of the work of ASL-English interpreters in healthcare settings is necessary to advance the current literature. However, this type of examination is not often seen in the literature. A small number of studies report the attitudes of deaf patients who use interpreters in healthcare settings (e.g., Harmer, 1999; MacKinney, Walters, Bird, & Nattinger, 1995); however, these studies focused on language attitudes of deaf patients rather than linguistic analyses of interpretation in healthcare settings. Given that effective communication influences patient compliance and lowers medical costs (Ha et al., 2010; Mitchell & Selmes, 2007; Williams et al., 1998), the absence of research in ASL-English interpretation in health care is surprising.<sup>2</sup>

Despite the lack of specialized education, credentialing, and research specific to signed language interpreting in medical settings, there have been encouraging developments in healthcare provision for deaf patients. Among the most positive changes is the small but growing number of deaf healthcare professionals who use ASL. The benefits of having deaf bilingual physicians are suggested by research findings on bilingual physicians who use spoken languages. For example, in studies of language-concordant provider-patient pairs, results indicate higher rates of patient satisfaction (Freeman et al., 2002; McKee et al., 2011), better overall well-being and functioning of patients (Perez-Stable, Napoles-Springer, & Miramontes, 1997), closer adherence to treatment (Manson, 1988), and better recall of communication during the patient visit (Seijo, Gomez, & Freidenburg, 1991). In a related study, physicians with greater Spanish-language proficiency received higher interpersonal care ratings from their Spanish-speaking patients (Fernandez et al., 2004).

In our study we examined the language production of three physicians who are deaf ASL-English bilinguals (hereafter identified as deaf bilingual physicians) and three nationally certified ASL-English interpreters recognized for their expertise in the healthcare setting. Each of the participants translated common medical questions and statements consecutively from English into ASL. We address the following question: What are the linguistic challenges and discourse features used by deaf bilingual physicians and interpreters when rendering medical questions from English into ASL?

We pursue this question through a descriptive analysis of the translations and note the variation and similarities that emerge in the data. Although it is tempting to attribute any variation between the two

groups to their respective roles as either physicians or interpreters, the small sample size (three physicians and three interpreters) does not allow for such generalizations that can be derived from a larger numbers of participants. It is worth noting that the design of the study controls for many of the variables that occur in medical interviews, including that of patient variability; however, we acknowledge that these controls may also influence the authenticity of the data. That is, we recognize that the translations provided by the participants may have been different had we incorporated actual deaf patients or deaf actors. Large-scale studies and observational research are clearly needed. Our aim with this initial investigation is to better describe and understand how typical medical questions are translated into ASL as a step toward the ultimate goal of improving healthcare communication for deaf patients.

## **METHODOLOGY**

### ***Participants***

Two groups participated in this study. The first group comprised three deaf bilingual physicians who had experience working with deaf signing patients. These physicians were all fluent users of American Sign Language and regarded ASL as one of their primary languages. Two of the physicians in the study were male. The second participant group comprised three ASL-English interpreters. The practitioners each had 22 or more years of professional interpreting experience and were recognized for their expertise in healthcare interpreting. All held national certification from the Registry of Interpreters for the Deaf and had completed bachelor's degrees (one held a master's degree). All three had learned ASL as adults and reported that English was their native language. All three were female.

### ***Materials and Task***

In a pilot study, a broad sampling of medical questions and statements was presented to a deaf bilingual physician who first created translations that followed the protocol designed for the study. The physician then made recommendations for the final subset of questions and statements to be used. The eight questions and statements selected as stimuli were identified as being frequently used in medical interviews involving both gender groups (table 1). Three of the statements relate to medication dosages

(2, 3, and 4), and these translations have been analyzed (Nicodemus & Swabey, 2014). The remaining five items consisted of medical questions. After analysis of the full dataset, we selected the translations of three questions (1, 5, and 8, in bold in table 1) to present in this chapter. These three questions were identified as occurring frequently in medical interviews and represented the linguistic features used in the full dataset.

The physicians and the interpreters had similar but not identical tasks to perform. The physicians were individually given instructions in ASL by one researcher, a deaf bilingual physician. The questions and statements were presented in written English on individual 8½ × 11 papers placed face down in front of the physician. Each physician was instructed to turn over a paper one at a time, review the question, and translate its meaning into ASL. The researchers and a professional videographer were present in the testing room during the study.

The three interpreters were also given the same eight questions and statements individually but in a slightly different format. On a laptop computer, they viewed a video-recorded simulation of a doctor, who asked each question or statement separately in English. The interpreters were instructed to interpret consecutively, that is, to provide an ASL translation after hearing the entire statement. The two hearing researchers for this study were in the room with the interpreters. One of the researchers provided instructions in English while the other video-recorded the translations.

The physicians and the interpreters were recruited by the researchers and were video-recorded at four separate locations in the North, Southwest, Midwest, and Eastern regions of the United States. Before beginning the

TABLE 1. *Medical Questions and Statements in the Order Presented to the Participants*

<b>1. Are you allergic to any medications?</b> <sup>3</sup>
2. Take this liquid medication four times a day—once after every meal and once before bedtime.
3. Take one tablet twice a day with food or as needed for pain.
4. Take one teaspoon three times a day for 10 days. You should finish this medicine even if your symptoms disappear.
<b>5. Are you sexually active?</b>
6. Do you have a history of glaucoma in your family?
7. On a scale of 1 to 10, how would you rate your pain right now?
<b>8. Do you take any over-the-counter medications?</b>

task, each participant was informed that the study was being conducted to examine ASL translations of typical medical interview questions, specifically to learn more about the linguistic features used in the translations. The participants were given an opportunity to ask questions at any point during the study. Prior to creating their translations, the participants were provided with an identical patient profile (i.e., an adult deaf patient with a high school education and who uses ASL). The participants were instructed to create their translations to match the needs of the patient profile. No time or length constraints were imposed for translating the questions.

### ***Transcription and Analysis***

The video data were transcribed by three individuals: a deaf native signer with more than 15 years of signed language research experience and two doctoral students in an interpreting program. The ASL was transcribed using standardized glossing techniques that included indexing, that is, pointing to a concept established in space (e.g., INDEX), fingerspelling (e.g., M-O-T-R-I-N), lexicalized fingerspelling (e.g., #PHMCY for “pharmacy”), and classifier constructions (e.g., CL: C indicating a classifier with a C handshake). By convention, ASL signs are glossed in small capital letters. The transcriptions were compiled in an Excel spreadsheet and reviewed for accuracy by the researchers. Both the transcription and the video-recorded translations were used in the analysis. The data were examined for patterns of linguistic features within and between the participant groups.

We first present each medical question in English and discuss potential challenges in creating an ASL translation. We then provide a linguistic analysis of the ASL translation, with attention to the participants’ use of contextualization, contrasting, and specification. In total, we provide an analysis of 18 translations (three medical questions by six participants) and present two sample translations (one physician and one interpreter) for each question (Appendices A–C).

## **ANALYSIS OF MEDICAL QUESTIONS**

### **“Do You Take Any Over-the-Counter Medications?”**

Most native English speakers are familiar with the phrase “over-the-counter” and understand it to mean medications that do not require a prescription, such as minor pain remedies, sleep aids, cold medicines,

vitamins, and herbal supplements. However, the phrase “over-the-counter” is not transparent in meaning, and nonnative English speakers may not understand it during a medical interview. Specifically, for deaf patients who use ASL, there is no standard sign or phrase that conveys “over-the-counter” (although some deaf people use the abbreviation O-T-C), thus the phrase may pose a challenge to translate from English into ASL.

Similarly, the English verb “take” has a broad semantic range and is used in a wide array of contexts (e.g., take a walk, take a test, take a drink, take medication). Furthermore, in English, the way in which medicine is “taken” (e.g., inhaler, injection, pill, salve) is not obligatory, although information may be added to the verb (e.g., take orally, take by mouth). Conversely, in ASL, verbs can express a high degree of specificity by the simultaneous use of multiple articulators (the hands, face, and body) to indicate specific information about where a medication is taken (e.g., INJECTION-in-arm, INJECTION-in-hip), the manner in which the medication is taken (e.g., INHALE-slowly, INHALE-quickly), and the amount of medication that is taken (e.g., TAKE-PILL-1-time, TAKE-PILL-2-times). A challenge with this question, then, is how to translate the unspecified English form of “take” to the specified form in ASL. In the following sections we examine the use of three linguistic devices—contextualization, contrasting, and specification—used in translating this question.

#### CONTEXTUALIZATION

Contextualization is an inherent part of the interpretation process that been linked to the intersubjectivity of the interpreter (Janzen & Shaffer, 2008). *Contextualization* is any linguistic feature that contributes to the signaling of certain presuppositions (Gumperz, 1982). Gumperz (ibid.) observed that contextualization may have a number of linguistic realizations “depending on the historically given linguistic repertoire of the participants” (p. 131). Further, linguistic expressions frequently underspecify meaning; thus a lexical item or construction may be understood only when it is linked to some specific context (Fox, 1994). Contextualization adds specificity in language, an aspect of communication that is critical in the healthcare setting. It is especially salient to this analysis because of the 18 ASL translations examined, 17 included some form of contextualization.

For the question “Do you take any over-the-counter medications?” half of the participants contextualized the phrase “over-the-counter medications” by providing examples in fingerspelling (e.g., A-S-P-I-R-



I-N, T-Y-L-E-N-O-L) or as a lexical item (VITAMIN). Of note is the variety of examples the participants used (T-Y-L-E-N-O-L was the only one expressed by more than one participant) (table 2). The use of contextualization by listing real-world examples is interesting in light of an ASL phonological process in which multiple signs are compounded to create a categorical referent. For example, in ASL, compounding the three signs RING, BRACELET, and NECKLACE is taken to mean “jewelry,” and FORK, KNIFE, and SPOON is understood to mean “silverware.” These instantiations occur through the compounding of individual lexical items that are selected as best examples, or prototypes, of the superordinate category (Klima & Bellugi, 1979).

A second instance of contextualization occurred in the description of the type of store in which medications can be purchased. Although the location is not overtly stated in the English version, all six participants framed the question using one or more examples (e.g., PHARMACY, STORE, C-V-S). Their translations included a variety of contextualizations from general (STORE) to specific (PHARMACY) to highly specific (C-V-S, W-A-L GREEN). Thus, all of the participants framed the phrase by adding information about the place of purchase, but a variety of examples were utilized across the participants (table 2).

TABLE 2. *Contextualization for Medication Types and Place of Purchase*

	Contextualization for Medication Types	Contextualization for Place of Purchase
DP1*	PAIN (medicine) VITAMINS M-O-T-R-I-N T-Y-L-E-N-O-L	STORE PHARMACY
DP2	--	STORE
DP3[	--	DRUG-STORE
INT1	(not) PRESCRIPTION A-D-V-I-L T-Y-L-E-N-O-L	PHARMACY
INT2	--	C-V-S W-A-L GREEN DRUG-STORE
INT3	A-S-P-I-R-I-N I-B-U-P-R-O-F-E-N COUGH (medicine)	PHARMACY

\*DP = Deaf physician, INT = interpreter

As mentioned earlier, the English term “over-the-counter” does not have a ready ASL correspondent. Although “over-the-counter” could be a candidate for compounding, these participants did not express medication names or types that fit into an overarching category, a condition necessary for creating a compound. Another means of mitigating the lack of a corresponding term in ASL for “over-the-counter” is seen in the participants’ addition of information about the place of purchase, although this information was not present in the original question. The store names were not uniform, however; the examples varied across the participants (table 2).

CONTRASTING

A second linguistic feature the participants used was *contrasting*. Four of the six participants emphasized the difference between over-the-counter medications and prescription medications by describing and comparing the way in which each type of medication is obtained.

By creating contrast, participants bring focus to the topic (over-the-counter medications) and away from a related topic (prescription medications). It is interesting to note that when contrasting was absent, the duration of each translation was markedly shorter (table 3).

SPECIFICATION OF THE ENGLISH VERB “TAKE”

In ASL, *specification* is often used to express the type and manner of the action for the concept “take.” Although ASL has a citation form of TAKE (figure 1), the form was not used by any of the participants as its semantic range does not include the taking of medication. Rather, the specified form for TAKE-PILL in ASL (figure 2) was used by all of the participants.

TABLE 3. *Contrasting (OTC and Prescription Medications) and Length of Translations*

	Contrasting OTC and Prescription Medications	Length of Translation (in seconds)
DP1*	Yes	40
DP2	No	6
DP3	No	5
INT1	Yes	27
INT2	Yes	40
INT3	Yes	41

\*DP = Deaf physician, INT = interpreter



FIGURE 1. TAKE (ASL).

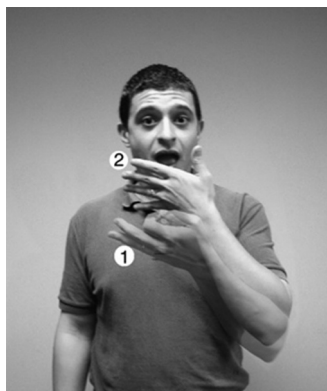


FIGURE 2. TAKE-PILL (ASL).

In addition to the lexical sign TAKE-PILL, two interpreters also specified another form of taking medicine. One interpreter included the lexical item TAKE-LIQUID-from-cup. Another interpreter included the lexical item TAKE-LIQUID-from-spoon. This is a common linguistic feature in ASL, that is, providing the topic followed by signs or gestures that specify the information.

Since ASL can indicate a high degree of specificity in place, manner, and amount, the choice of TAKE-PILL by the majority of the participants might suggest that this sign has undergone semantic broadening.

#### SUMMARY

We have described how contextualization, contrasting, and specification are used to translate the question “Are you taking any over-the-counter medications” from English into ASL. Even though similar approaches are taken, the physicians and interpreters demonstrated variation in their productions, both in the specific lexical choices and the amount of information they included. In Appendix A, we provide a full transcription of one of the physician’s (DP1) ASL translation of the question (Example 1) and a full transcription of one of the interpreter’s (INT1) ASL translation of the question (Example 2). In Example 1, contextualization of the type of medication is found in line 8 (M-O-T-R-I-N, T-Y-L-E-N-O-I) and the location for purchasing the medication in lines 1, 2, and 7 (STORE); contrasting is expressed in lines 1–6; and specification of “take” is found in line 8 (TAKE-PILL). In Example 2, contextualization of the type of medication is found in line 3 (A-D-V-I-L,

T-Y-L-E-N-O-L, ASPIRIN), and contextualization of location is present in line 2 in a lexicalized form of “pharmacy” (#PHMCY); specification of “take” is present in line 1 (TAKE-PILL, TAKE-LIQUID-from-cup) and line 4 (TAKE-PILL).

**“Are You Allergic to Any Medications?”**

“Are you allergic to any medications” is a critical question in the medical interview. If misconstrued or misunderstood, it could have life-threatening implications for a patient. In translating this question from English into ASL, a challenge arises with the word “allergic.” In English, “allergic” is understood as a reaction to a number of possible triggers such as foods, pollen, animal dander, dust, as well as to certain medications. Thus the concept of “allergies” in English has a fairly broad semantic range. In ASL, ALLERGY may be perceived with a more limited semantic range than in English since its perception is driven by its production. That is, ALLERGY is constructed in a two-morpheme blend: first, indexing the nose, followed by a sign that could be glossed as OPPOSED-TO (figure 3). Thus the first morpheme in ALLERGY immediately implies nasal symptoms, which typically occur in response to airborne allergens.

In the next two sections we examine the contextualization of “allergic” and the specification of “take.” Note that the concept of “take” is implied in this example, unlike in the earlier question discussed (i.e., “Do you take any over-the-counter medications?”), where “take” is overtly stated.



FIGURE 3. ALLERGY (ASL).

## CONTEXTUALIZATION AND SPECIFICATION

As table 4 shows, the participants chose to contextualize “allergic” by incorporating a range of allergic reactions in their translations. One physician (DP1) contextualized “allergic” by incorporating two verbs (REACT, NOT-AGREE); another (DP3) provided examples of symptoms (NAUSEA, FLUSH, RASH); and one physician (DP2) chose not to contextualize the term in either manner. All three interpreters contextualized “allergic” by providing a variety of symptoms as examples.

Regarding specification, as in the earlier question (“Do you take any over-the-counter medications?”), all of the participants used TAKE-PILL as the generic equivalent of taking medication. This pattern occurs again with this question, as illustrated in table 4. Note that one physician (DP1) specified two examples in addition to TAKE-PILL (INJECTION-in-arm and INHALER).

It is notable that each interpreter included RASH as a symptom, as did the physician who provided a symptom example. This suggests that RASH may be regarded as the prototypical allergic reaction among the possible types. Further, in ASL it is common to add specificity, such as incorporating the location of the rash (e.g., RASH-on-arm, RASH-on-chest), as shown in table 4.

TABLE 4. *Contextualization for “Allergic Reactions” and Specification of “Take”*

	Contextualization for “Allergic Reactions”	Specification of “Take”
DP1 *	REACT NOT-AGREE	TAKE-PILL INJECTION-in-arm INHALER
DP2	—	TAKE-PILL
DP3	NAUSEA FLUSH RASH-on-arm R-A-S-H	TAKE-PILL
INT1	RASH-on-chest RASH-on-cheeks THROAT-SWELL CAN’T BREATHE	TAKE-PILL
INT2	MAKE SICK RASH-on-arm	TAKE-PILL
INT3	THROAT-SWELL RASH-on-face-and-body	TAKE-PILL

\*DP = Deaf physician, INT = interpreter

One option in translating this question into ASL is to contextualize “medications” by providing specific examples (e.g., penicillin, insulin, and sulfa drugs). However, in this question, no participant contextualized “medications.” Because allergic reactions are highly variable and hold high-risk implications for patients’ health, we speculate that this lack of contextualization reflects a judicious decision to avoid influencing the patients’ response.

#### SUMMARY

In the ASL translations of “Are you allergic to any medications?” we identified instances of contextualization and specification. Appendix B provides two examples. In Examples 1 (DP2) and 2 (INT1), TAKE-PILL is specified. In Example 2, contextualization of allergic reaction appears in lines 2 and 3 (RED RASH-on-chest, RASH-on-face, THROAT-SWELL, CAN’T BREATHE).

### **“Are You Sexually Active?”**

This question, only four words in length, raises linguistic challenges that may be further influenced by the interlocutors’ social and cultural status. The question is commonly asked during medical interviews in which pregnancy, sexually transmitted diseases, or other conditions relating to the genitourinary system are discussed. This is a potentially sensitive question, particularly when the physician or interpreter and the patient are of the opposite sex. In English, the phrase “sexually active” is understood to include a variety of unspecified sexual activities. As previously described in the “over-the-counter” analysis, several examples representing a single category are frequently used in ASL to provide contextualization. With this question the main challenge is to determine how to select examples that will represent the meaning of “sexually active” while being sensitive to the social and cultural taboos that underlie the phrase.

#### CONTEXTUALIZATION

The ASL translations varied among the participants, although similarities were also evident. All of the participants expressed the overarching topic of “sex” with either the conventional signs INTERCOURSE or SLEEP-TOGETHER, followed by examples. However, the physicians and interpreters diverged in their use of specific examples of sexual activity.

All three physicians used the example of ORAL INTERCOURSE; in addition, one added the example of ANAL INTERCOURSE. By using continuers (e.g., ALL-LIST, AND-SO-ON), all three indicated that there might be a number of additional but unspecified behaviors. In contrast, the interpreters used what may be argued as more conservative, less explicit selections for their contextualization examples (see table 5).

This question also implies that the physician is asking about sexual activity with any partner. Although this implicit meaning may be understood in English, again, ASL users tend to provide specific examples. Three of the participants (one physician, two interpreters) included different types of partners, as illustrated by INT2's translation, which included HUSBAND, GIRLFRIEND, and ANYONE. In contrast, DP3's translation does not specify any information about partners but does provide two specific sexual activities as examples (see table 5). Overall, the interpreters provided more information about partners, while the doctors provided more information about sexual activity.

Once again we see different renderings of an English phrase that does not have an correspondent in ASL. Both the physicians and the interpreters

TABLE 5. *Contextualization for "Sexually Active" and "Partner"*

	Contextualization for "Sexually Active"	Contextualization of (Implied) "Partners"
DP1	INTERCOURSE, SLEEP, INTERCOURSE, SEX ANY KIND	MAN, WOMAN
DP2	INTERCOURSE, ORAL- INTERCOURSE, SEX ETCETERA	OTHER PERSON
DP3	SEX ACTIVE, INTERCOURSE, ANAL-INTERCOURSE, ORAL-INTERCOURSE, ACTIVE	—
INT1	SEX, INTERCOURSE, ANAL-INTERCOURSE, AND-SO-ON	—
INT2	SLEEP TOGETHER, SEX	PARTNER, HUSBAND, GIRL-FRIEND, ANYONE
INT3	INTERCOURSE, ACTIVE, MASTURBATION	PARTNER, MAN, WOMAN, OTHER PERSON

\*DP = Deaf physician; INT = interpreter

provide examples of sexual activity and partner types, but again the number and the type of examples vary.

In the ASL translations of the question “Are you sexually active?” we identified instances of contextualization. Full transcriptions of one of the physician’s (DP3) translations and one of the interpreter’s (INT2) translations are provided in Appendix C. In Example 1, two instances of contextualizing “sexual activity” are evident in lines 2 and 3. In Example 2, contextualization is evident for the concept of “partners” in line 2.

## **CONCLUSION**

We have previously argued that healthcare interpreting between ASL and English needs to be recognized as a type of interpreting that requires specialized education and credentialing (Swabey & Nicodemus, 2011). Across age, gender, education, socioeconomic status, ethnicity, and health conditions, all deaf citizens need quality access to communication in healthcare settings. Further, education and professional development are critical for interpreters who work in health care as this type of work is often physically and cognitively demanding, which taxes the practitioner’s linguistic, ethical, and emotional capacities. Without national standards, underqualified interpreters will continue to work in this setting, potentially compromising the health and well-being of deaf patients.

We pursued this study with the aim of informing and improving ASL-English interpretation in the healthcare setting and enhancing the dialogue between interpreters, deaf bilingual healthcare providers, and deaf patients who use ASL. To our knowledge, this is the first study that examines the translations of common medical questions as rendered by deaf bilingual physicians and nationally certified interpreters. The results of this study are based on a small sample size and, although a larger participant group would have led to more conclusive results, the number of deaf bilingual physicians is miniscule compared to the total physician population.

It is noteworthy that no standard translations were observed for these typical medical questions, especially given that each participant was working with the same patient profile. Although similar discourse features were used in these translations, particularly with contextualization, which occurred in 17 of the 18 translations, the translations exhibited considerable variation. One potential explanation for the variation is the lack of standard lexical correspondents in ASL for English phrases such as



“over-the-counter” and “sexually active.” Further, the contextualization of these terms may require the use of additional concepts that also do not have standard ASL equivalents, such as “pharmacy” and “prescription.” Moreover, although ASL has standard lexical equivalents for the English terms “allergic” and “take,” the semantic range of each term appears to be broader in English than in ASL, presenting additional challenges for an accurate translation. Again, we saw similar approaches (specification of the verb “take” and contextualization of “allergic”) and some similar patterns (TAKE-PILL for “take”; R-A-S-H consistently used as one example of “allergic”). These factors may explain the variation in length and detail found in these translations.

This aim of this study was to identify and document linguistic features used by deaf bilingual physicians and expert healthcare interpreters when translating common medical questions. The main findings include the patterned use of contextualization, contrasting, and specification. The results also illustrate the lack of standard ASL lexical correspondents for common terms in the healthcare setting. Further research is needed on this topic to ensure quality communication for deaf patients. We suggest that such investigations be conducted using a community-based participatory research approach, that is, a collaborative process between researchers and community partners, both deaf and hearing (Starr & Graybill, 2012). Although communication that occurs “in the moment” will be based on a variety of linguistic, social, and cultural factors, the investigation of both direct and interpreted medical discourse in ASL is an idea whose time has come.

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## NOTES

1. Formerly St. Mary's campus of the College of St. Catherine.
2. Spoken language interpreters have followed a different trajectory. The need for qualified healthcare interpreters has been recognized and addressed through the establishment of dedicated organizations (e.g., National Council on Interpreting in Health Care, California Healthcare Interpreting Association, International Medical Interpreting Association) and certifying bodies (e.g., Certification Commission for Healthcare Interpreters, National Board of Certification for Medical Interpreters). Further, there is a growing body of literature on healthcare interpreting for spoken language interpreters (e.g., Angelelli, 2004, 2008; Brashers, Goldsmith, & Hsieh, 2002; Hsieh, 2006, 2007; Pöchhacker & Shlesinger, 2007).
3. Data from the questions in boldface type are discussed in this chapter.

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## Appendix A

### “Do You Take Any Over-the-Counter Medications?”

In Appendix A we offer a full transcription of one of the physician’s (DP1) ASL translation of the question. In Example 1, contextualization of the type of medication is found in line 8 (M-O-T-R-I-N, T-Y-L-E-N-O-L), and the location for purchasing the medication in lines 1, 2, and 7 (STORE); contrasting is expressed in lines 1–6; and specification of “take” is found in line 8 (TAKE-PILL). In Example 2 we present a full transcription of one of the interpreter’s (INT1) ASL translation of the question. Here, contextualization of the type of medication is found in line 3 (A-D-V-I-L, T-Y-L-E-N-O-L, ASPIRIN), and contextualization of location is present in line 2 (#PHMCY); specification of “take” is present in line 1 (TAKE-PILL, TAKE-LIQUID-from-cup) and line 4 (TAKE-PILL).

**EXAMPLE 1. *Deaf physician’s (DP1) translation of “Do you take any over-the-counter medications?”***

1. YOU MEDICINE YOU GO-TO STORE INDEX-store?  
*“Have you gone to a store to buy medicine?”*
2. YOU HAVE MEDICINE FROM STORE INDEX-store YOU?  
*“Do you have medicine that you got at a store?”*
3. YOU BUY CL:C (right hand) CL:C (left hand) – “many bottles on shelves” ANY INDEX-bottles YOU?  
*“Have you bought the kind of medicines you get off the shelf?”*
4. FOR PAIN OR VITAMIN ALL-LIST?  
*“such as pain remedies or vitamins or that type of thing?”*
5. YOU (gesture – “no”) MEDICINE DOCTOR WRITE GIVE-TO-YOU (headshake and gesture – “no”).  
*“I’m not referring to prescription medications that you get from a doctor.”*
6. YOU GO-TO PHARMACY MUST GIVE PAPER FROM DOCTOR GIVE EXCHANGE-FOR MEDICINE (headshake and gesture – “no”).  
*“I don’t mean the type of medications that you obtain from a pharmacist.”*

7. BUT YOU YOURSELF GO-TO STORE YOURSELF BUY WHATEVER YOU WANT INDEX-store YOU (headshake)?  
*"I'm talking about the nonprescription medicines that you buy at the store."*
8. NONE TAKE-PILL YOU NOW UP-TO-NOW ONE-WEEK TWO-WEEKS UP-TO-NOW MONTH TAKE-PILL ANY INDEX-medicine? GIVE-NAME M-O-T-R-I-N ALL-LIST T-Y-N-E-O-L ALL-LIST GIVE-NAME + +(headshake) (nod)/  
*"Have you taken any of those over-the-counter medications, such as Motrin or Tylenol, recently or in the past?"*

EXAMPLE 2. *Interpreter's (INT1) translation of "Do you take any over-the-counter medications?"*

1. WAVE-HAND-GET-ATTENTION YOU DOCTOR WANT KNOW YOU MEDICINE TAKE-PILL++ TAKE-LIQUID-from-cup.  
*"Your doctor wants to know if you are taking any medications."*
2. SO YOU FOLLOW #RX MEDICINE GIVE-YOU GO #PHMCY BUY?  
*"Do you take prescription medication that you purchased at a pharmacy?"*
3. HAND-WAVE-GET-ATTENTION OTHER KIND MEDICINE O-T-C MEANS DON'T NEED DOCTOR WRITE GIVE-YOU/SAME EVERYDAY A-D-V-I-L LIKE LIST T-Y-L-E-N-O-L, ASPIRIN, OTHER  
*"The doctor is asking about over-the-counter medications, such as Advil, Tylenol, or aspirin—other medications that don't require a doctor's prescription."*
4. YOU TAKE-PILL OTHER QUESTION?  
*"Are you taking any of these other types of medications?"*

## Appendix B

### “Are You Allergic to Any Medications?”

Examples 1 (DP2) and 2 (INT1) both illustrate specification: TAKE-PILL. In Example 2, contextualization of allergic reaction is found in lines 2 and 3 (RED RASH-on-chest, RASH-on-face, THROAT-SWELL, CAN’T BREATHE).

EXAMPLE 1. *Deaf physician’s (DP2) translation of “Are you allergic to any medications?”*

1. MEDICINE TAKE-PILL, YOU ALLERGY ANY?  
“Do you take any medications that cause allergic reactions?”

EXAMPLE 2. *Interpreter’s (INT1) translation of “Are you allergic to any medications?”*

1. DOCTOR ASK-YOU YOU ALLERGY MEDICINE  
“Your doctor is asking if you are allergic to medicine.”
2. SAME-ASTAKE-PILL MEDICINE BEFORE RED RASH-on-chest, RASH-on-face?  
“For example, when you take a pill, does it result in a rash on your chest or face?”
3. #OR THROAT-SWELL CAN’T BREATHE?  
“Or does your throat swell and you can’t breathe?”
4. ANY PROBLEM TAKE-PILL MEDICINE FROM-PAST-TO-NOW?  
“Have you had any problems with medications at any time in your life?”

## Appendix C

### “Are You Sexually Active?”

In the ASL translations of the question “Are you sexually active?” we identified instances of contextualization. We have provided full transcriptions of one of the physician’s (DP3) translations and one of the interpreter’s (INT2) translations. In Example 1, two instances of contextualizing “sexual activity” are evident in lines 2 and 3. In Example 2, contextualization is evident for the concept of “partners” in line 2.

#### EXAMPLE 1. *Deaf physician’s (DP3) translation of “Are you sexually active?”*

1. YOU SEX ACTIVE?  
“Are you sexually active?”
2. MEAN INTERCOURSE, ANAL-INTERCOURSE  
“By that I mean vaginal or anal intercourse”
3. SECOND-EXAMPLE ORAL-INTERCOURSE?  
“or fellatio”
4. YOU ACTIVE QUESTION?  
“Are you sexually active?”

#### EXAMPLE 2. *Interpreter’s (INT2) translation of “Are you sexually active?”*

1. YOU PARTNER SLEEP-TOGETHER #SEX YOU?  
“Do you have sex with your partner?”
2. WITH HUSBAND SEX GIRLFRIEND #OR ANY-ONE?  
“With a husband, a girlfriend, or anyone else?”