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# Deaf Women's Health Vocabulary: Challenges for Interpreters Working in a Language of Limited Diffusion

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## Abstract

Interpreters are aware that signed languages often do not have 'established' vocabulary for specialized topic domains, including topics that may occur regularly in situations that require interpreting. Healthcare is one such domain where interpreters are often challenged for equivalent signed language vocabulary or ways to communicate about the details of physical conditions, processes and treatments. Motivated by this practice reality, this study analyzed a corpus of deaf New Zealand Sign Language users' accounts of women's health-related experiences, to examine the language forms they used to communicate such topics. In this article, we present an analysis of how deaf women express women's health-related issues, with the aim of determining shared vocabulary that exists in the corpus, and variation among these forms. As predicted, we found that the use of depicting signs (classifier constructions) and constructed action feature strongly in their accounts. The extent and limits of 'frozen' lexicon, and key productive strategies for talking about women's healthcare concepts must be made explicit in interpreter training and practice.

Keywords: women's health, lexicon, NZSL, variation, depiction.

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# Deaf Women's Health Vocabulary: Challenges for Interpreters Working in a Language of Limited Diffusion

## 1. Introduction

In this article we present an analysis of deaf women's narratives about healthcare experiences to identify how deaf women express women's health-related concepts in New Zealand Sign Language (NZSL), and discuss implications of this for interpreters and interpreter educators. In our experience as interpreters, there is much variation amongst deaf women in the signs they use for women's health concepts in NZSL. Interpreters are often challenged for equivalent signed language vocabulary or ways to communicate about the details of physical conditions, processes and treatments. Interpreters know that signed languages often do not have 'established' vocabulary for specialised topic domains, and healthcare, specifically, women's healthcare, is one such domain (Major, Napier, Ferrara, & Johnston, 2012). There are relatively few women's health signs recorded in the NZSL dictionary to date. The aim of this study was to take a step back from examining interpreting directly to explore and describe how women's health topics are discussed by deaf women themselves, which allows us to then consider implications for interpreters and interpreter education.

## 2. Background

Interpreting is critical to achieve equitable health access in general, and particularly so for users of signed languages and speakers of other languages of limited diffusion in medical settings. The following review of literature indicates that signed languages in general are under-described and are known to have limited health-related lexicons. Moreover, deaf people, in parallel with some other migrant groups, often have lower health literacy due to systemic issues of access to education and comprehensible health information.

### 2.1. *Health terminology and health literacy*

Clear communication is vital to accessing healthcare, so that patients can understand the information, ask questions, and make decisions about their own health. However, studies have shown that non-English-speaking patients tend to face greater barriers to communication and less satisfaction in health appointments generally (Gray, Stanley, Stubbe, & Hilder, 2011; Jacobs, Shepard, Suaya, & Stone, 2004; Jones, Renger, & Firestone, 2005; Kushalnagar, Holcomb, & Sadler, 2019). One crucial part of this issue is the complexity of health terminology, which can be a barrier to understanding and accessing information even in a monolingual health interaction (e.g., Morgan, 2013; Slade et al., 2008; Zeng & Tse, 2006). Differing levels of understanding between patients and health practitioners can sometimes lead to misunderstandings within the same language (Koch-Weser, Dejong, & Rudd, 2009; Zeng & Tse 2006). When differing languages and health knowledge disparities are involved in clinical encounters, deaf patients may not achieve clear understanding and thus cannot comply with instructions (Davis, Crouch, Wills, Miller, & Abdehou, 1990; Harmer 1999; Napier, Major, & Ferrara 2011).

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Provision of professional interpreters for non-English-speaking patients seems to be an obvious solution to ensuring understanding and treatment compliance and patient safety in general (Crezee & Roat 2019; Jacobs et al., 2004). Indeed, in New Zealand, as in many countries, interpreting in health settings is government funded. But even when skilled interpreters are provided, that does not guarantee clear understanding: Standard medical questions and terminology can prove challenging to interpret (Swabey, Nicodemus, & Moreland, 2014), and even where signs do exist for certain concepts, not all deaf patients are familiar with those signs or concepts (Pollard & Barnett, 2009). Interpreters in general should exercise a high level of caution when it comes to explaining or expanding upon technical concepts (Crezee & Roat, 2019; Major et al., 2012). For example, an interpreter may not be aware that 'complex cysts' and 'complicated cysts' are different, and therefore they may not accurately convey the differences between them (Mendelson, Berg, & Merritt, 2001). Training programs will ideally cover healthcare interpreting, given that this is such a high consequence yet prevalent area for work; however, introductory level healthcare interpreting is not equivalent to medical training. In addition, interpreters are not always provided or available, especially in emergency settings, and medical staff may use written communication instead, which may not be accessible for all deaf patients (Major, Pivac, & Ovens, 2017; Ubido, Huntington, & Warburton, 2002).

Signed languages themselves present inherent constraints in a medical context. They are often referred to as 'languages of limited diffusion' in that they are unwritten, nonstandardized languages used by small communities, in a relatively limited set of domains (Johnston & Napier, 2010; Major et al., 2012; Mikkelsen, 1999). Johnston (2012) observes that the established lexicons of signed languages are typically small in size and that published dictionaries generally do not exceed about 4,000 entries. Many signed languages have underdeveloped healthcare lexicons because they have been less used by patients or professionals in healthcare settings, compared to English, which has a long history of specialized use in this domain and an extensive technical vocabulary, most of which has been developed historically from Latin or Latinized Greek words (Džuganová, 2013). However, as Johnston observes,

whatever it is that signers are using in meaning production, their [signed languages] obviously "do the job" that all languages are asked to do in face-to-face interaction. There is no expressive "limit" in this regard whatsoever for users of [a signed language]. (2012, p.185)

Similarly, Major et al. (2012) point out that "deaf people can communicate about health issues and interpreters can convey health information" (p. 38). In a study of healthcare vocabulary in Australian Sign Language (Auslan), Major et al. found that in the absence of established signs for certain concepts, deaf people deployed a range of strategies including fingerspelling English terms, creating nonce (one-off) signs, asking interpreters to paraphrase information, and using depicting signs and strategies. Depicting signs are partly conventional and partly gestural, and are used to describe referents in an analogue manner, often with constructed action or enactment which 'demonstrates' meaning (Liddell, 2003). Depiction is a common way in which signers supplement the established lexicon, and we expected to see its use in the data in this study. Fingerspelling is less frequent in NZSL discourse than in Auslan (Johnston, 2012; Pivac Alexander, 2008) and some other signed languages, but is another resource through which NZSL signers can transfer healthcare terms.

Internationally, deaf people tend to have a lower 'health literacy', that being "the degree to which individuals can obtain, process, understand, and communicate about health-related information needed to make informed health decisions" (Berkman, Davis, & McCormack 2010, p. 16). Regardless of education level, deaf people throughout their lives have often had much less opportunity to build health literacy through incidental learning, such as overhearing health information in conversations and the media (Harmer, 1999; McKee & Paasche-Orlow, 2012; Pollard & Barnett, 2009). In New Zealand, Witko, Boyles, Smiler, and McKee (2017) reported negative outcomes of low health literacy, such as deaf patients discontinuing medication or follow-up tests because they did not understand their purpose as part of treatment. The 2017 Deaf Health Stories resource<sup>2</sup> includes many such accounts in NZSL, such as a deaf man explaining that he did not understand his diagnosis of diabetes, nor did he know that there was a history of diabetes in his family (Major et al., 2017). Health staff and practitioners may not realize that deaf people are unfamiliar with even relatively common terms such as 'smear test' or 'bowel', and therefore fail to explain the information sufficiently (Ubido et al., 2002). Outcomes are further complicated by the fact that people

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<sup>2</sup> The Deaf Health Stories YouTube resource is a compilation of illustrative excerpts from a larger NZSL health corpus, focusing on deaf people's experiences of accessing healthcare. It is captioned and can be accessed at [https://www.youtube.com/watch?v=bZ\\_mQWB64bk](https://www.youtube.com/watch?v=bZ_mQWB64bk)

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## Women's Health Vocabulary in NZSL

with lower health literacy often do not understand consequences of healthcare decisions and treatments (McKee & Paasche-Orlow, 2012), or the level of personal responsibility needed in making healthcare decisions (Harmer, 1999).

### 2.2. *Lexical variation in NZSL*

Studies have shown that systematic sociolinguistic variation occurs in Deaf communities internationally, driven by factors such as region, age, gender, and ethnicity (Schembri et al., 2010; Schembri & Johnston 2013). Deaf education policy plays a role in signed language variation. In New Zealand, for example, the NZSL lexicon changed with the introduction of Australasian Signed English in 1979, and furthermore, transmission of NZSL has changed across generations due to a change from residential schooling in two main regions to mainstream school enrolment which disperses child signed language users (McKee & McKee, 2011). Many deaf signers have late exposure to NZSL acquisition, which also contributes to idiosyncratic variation in language use (McKee & Kennedy, 2005).

Whereas spoken languages exhibit systematic variation, often at sublexical and grammatical levels, NZSL has a striking degree of lexical variation, with even high frequency words such as 'father' and numerals having multiple variants (McKee, Major, & McKee, 2008; McKee & McKee, 2011). We might expect even more variation in vocabulary that is less commonly discussed within the Deaf community and in specialized domains, such as women's health topics.

Lexical variation can be a challenge for interpreters, and particularly so for novice interpreters (Crasborn & Bloem, 2009; Leeson 2005; McKee et al., 2008). Most NZSL interpreters are nonnative signers; they do not have the same exposure that deaf people do to different variants and language styles that may exist among various subgroups within the Deaf community, yet they must be able to work with deaf people of various ages and language backgrounds (McKee et al., 2008; Napier, McKee, & Goswell, 2018). Interpreters may attempt to predict which signs will be used by particular clients and which variants would be more appropriate based on audience social characteristics of age group, region, or school background; however, variant selection can be difficult to attend to while interpreting, especially if the assignment proves demanding in other ways. If the deaf client shares their variant with the interpreter, they may assume it is intentional if the interpreter does not adopt the variant shown to them, perhaps being unaware of the challenge of monitoring sign choices on the spot (Leeson, 2005; McKee et al., 2008). Juggling the cognitive demands of interpreting as well as lexical variation, and the pressure of potential criticism for their own variant choices, it is understandable that interpreters view variation as a challenging aspect of their job (Leeson 2005; McKee et al. 2008).

As mentioned above, the use of productive, depicting signs to supplement established signs is another source of variability that interpreters and deaf individuals deal with in medical contexts. Productive, depicting strategies for explaining physical referents and processes can be highly effective, but the resulting signs are not necessarily conventionalized (predictable) nor transparent.

### 2.3. *Vocabulary for women's health in signed languages*

Medline<sup>3</sup> defines women's health as "the branch of medicine that focuses on the treatment and diagnosis of diseases and conditions that affect a woman's physical and emotional well-being". Examples of women's health topics therefore include pregnancy and childbirth and gynecology and breast screening, among many others. Having access to women's healthcare terminology can allow patients to directly describe their health issues effectively, as well as to gain a better understanding of the information given by their healthcare provider (Mendelson et al., 2001).

Our review of literature has revealed that the topic of women's health vocabulary is scarcely addressed in the context of signed languages, reflecting Ubido et al.'s (2002) observation that little research addresses the healthcare needs of deaf women generally. In their UK/British Sign Language-based study, they conducted discussion groups and a questionnaire with deaf and hard of hearing women focused on their access to healthcare. Participants reported that the medical language used by medical professions was often unfamiliar to them and they often did not understand what was being said. The internet has proved to be a powerful tool in bridging the information and

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<sup>3</sup> <https://medlineplus.gov/>

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language gap, allowing women to be informed and to gain more control over their health decisions (Pandey, Hart, & Tiwary, 2003). However, this tool is not equally accessible to all deaf women due to literacy barriers that are common in deaf populations (Diaz et al., 2002; Jones et al., 2005; Kushalnagar et al., 2019).

### 2.4. *What do we know so far about women's health vocabulary in NZSL?*

A search by the topic 'health' in the NZSL Online Dictionary<sup>4</sup> reveals 247 entries, with 155 entries under the topic 'body', some of which overlap. These comprise mainly concepts relating to common illnesses and conditions, and terms that might arise in routine health checks, such as 'blood pressure', 'prescription', 'stethoscope', 'stroke', 'x-ray'. This represents a rather restricted set of vocabulary identified through ongoing lexicography research. From within both of these topic areas in the dictionary, there are signs for 28 women's health concepts. Deliberate creation of new signs is unlikely to resolve the current challenges in women's healthcare interpreting and is not the direct purpose of this study. Purposeful attempts to standardize sign languages are limited in effectiveness (Crasborn & de Wit, 2005; Johnston, 2003; Johnston & Napier, 2010), and health literacy issues are systemic and go far beyond issues associated with small health vocabularies. Nonetheless, exploring vocabulary and strategies used by deaf people within a health field will help to identify shared vocabulary already in use, variation among these forms, and the extent to which such forms are or could be represented in a dictionary of NZSL. It will also illuminate strategies to share with interpreting students, to better equip them to convey women's health information, as well as raise awareness in the interpreting field of the extent and limits of 'frozen' lexicon within interpreted interaction in this context.

## 3. Method

The data set used in this study was extracted from Deaf Health Stories, a corpus of videos created to illustrate the barriers deaf people in New Zealand face in accessing healthcare (Major et al., 2017). The corpus includes health-related narratives from 40 deaf NZSL users who were asked to share their experiences accessing healthcare in a wide range of settings. There were no further prompts from the (deaf) interviewer other than to clarify details or to steer participants back to the topic where necessary. In the videos, participants share recent experiences as well as reflect on childhood and young adult experiences in the healthcare system; many participants recount trying to access the healthcare system prior to the availability of professional interpreting services in the early 1990s. Story recordings average 31 minutes in length, with approximately 20 hours of data in total.

Stories told by women most commonly address pregnancy and childbirth. Women also describe experiences related to breast cancer, screening procedures such as mammograms and cervical smears, and pathologies of reproductive organs. Because the stories describe individuals' subjective experiences, they contain relatively little technical detail or medical jargon; in fact, many participants mention having lacked access to technical details about their health condition or treatment.

As we composed an initial description of the Deaf Health Stories corpus for publication (Major, Pivac, Ovens, & Terraschke, submitted), we noticed that women use quite different signs for even common concepts (such as 'midwife') and sometimes even use different variants within their own narratives. We also observed that depiction plays an important role in circumnavigating lexical gaps, aligning with our experience as interpreters and educators and, in addition to identifying lexical signs, we wanted to systematically describe this phenomenon. Our observations thus inspired us to document and more closely analyze the sign choices women made in retelling their stories.

We created the participant set for the study by identifying those women who spoke specifically about women's health topics (not all women did), resulting in a subset of 14 of the 27 female participants in the larger corpus. These 14 participants range in age from 18 to over 60 and represent a variety of social, ethnic and regional backgrounds. All are fluent users of NZSL, and all had attended deaf education settings of various kinds.

Our data set therefore comprised 14 narratives of women's healthcare-related experiences (a total of 104 minutes). Data excerpts were glossed and annotated using ELAN (see <https://archive.mpi.nl/tla/elan>).

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<sup>4</sup> <https://www.nzsl.nz>

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## Women’s Health Vocabulary in NZSL

Glossing conventions followed the main glosses for signs in the Online NZSL Dictionary. This was partly to ensure consistency of glosses amongst the research team, but also to make it easier to contribute variants from this study to the dictionary in future. In addition to lexical gloss and translation, we also captured descriptive information about the signs, such as the type of depiction, which hand it was made with, and relevant nonmanual details. Following initial glossing and annotation, files were checked to ensure translation and glossing were correct, before identifying instances of signs related to women’s health, and comparing these across participants.

### 4. Findings and discussion

The overall number of health-specific tokens (instances of signs) in the women’s health data set was 567, which includes many depicting constructions and also many concepts that are not restricted to women’s health only (e.g., ‘bleeding’, ‘injection’). Due to the data comprising diverse personal stories, some participants used a wide range of health-specific signs in describing their experiences whereas others used a more limited range of signs. Therefore, some participants, topics and thus specific signs are overrepresented in this data set. From all the health-related signs, we focused our attention on those specific to women’s health. Table 1 below shows the subset of women’s health-specific vocabulary extracted for further analysis, their frequency of use, and the number of variants, or differing forms, observed for each one.

*Table 1: Range of women’s health vocabulary in the data set.<sup>5</sup>*

Concepts	Tokens (uses) per concept	Number of lexical variants
Birth	54	2
Midwife	41	6
Ovaries	37	1
Labor	27	1
Pregnancy	19	2
Cesarean	13	1
Mammogram	12	1
Cervical smear	8	1
Breast	7	2
Cyst	5	2
Period	5	2
Scan	5	2
Epidural	4	2
Labor breathing	4	3
Breech baby	3	1
Water break	3	1
Baby	2	1
Miscarriage	2	1

From this set of 251 women’s health-specific tokens, the seven most frequent signs (i.e., those that occurred more than 10 times in the data set) were extracted for more detailed description and analysis. These were: ‘birth’, ‘midwife’, ‘ovaries’, ‘labor’, ‘pregnancy’, ‘cesarean’, and ‘mammogram’ (Table 1 above). These seven lexical items represent 166 of the total 251 tokens.

Close analysis of this subset of data revealed variation in lexicalized signs and strong use of depicting strategies. Many concepts exhibited phonological variation, that is, signs that are similar in form but differing in one

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<sup>5</sup> Table 1 does not include concepts with fewer than two tokens in the dataset, because we do not have enough evidence to comment on their variability.

## Women's Health Vocabulary in NZSL

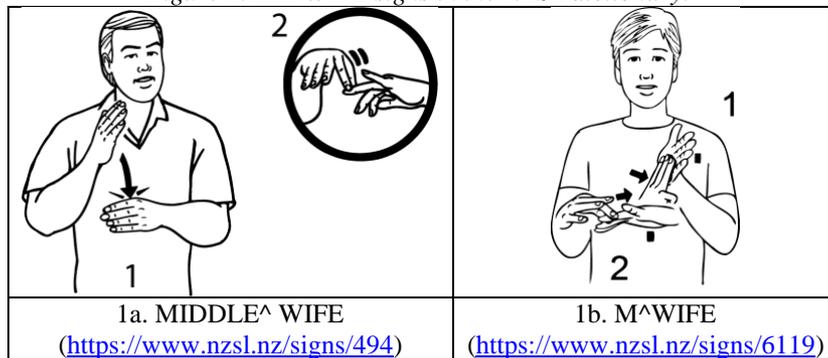
phonological parameter such as handshape or orientation. In the sign for 'cesarean,' for example, the handshape can have either the index finger or the thumb extended (representing the cutting instrument). In this article we focus on lexical variants and do not report details of phonological variation, because these have relatively less impact for interpreters. We also found evidence of language contact in the form of English elements incorporated into signs.

### 4.1. Contact: English elements in signs

Many of the signs used by the deaf women show language contact with English. Examples of English elements within signs include 'waters breaking' (WATER ^ BREAK) and 'cesarean section' using a 'C' as one component (see Figure 7a below). It is important to note that for many of these signs, other variants exist; for example, a depicting sign that shows liquid expelling from the body can be used for 'waters breaking'. It is likely that some signers favour one form over others, or use alternate forms in different contexts; a larger data set would be needed to explore usage patterns in more detail.

A particularly interesting example from the data set is 'midwife' (41 tokens in total), which revealed a high number of variants (6) as well as a strong influence from the English word for the concept. Figure 1 shows forms of 'midwife' that are recorded in the Online NZSL dictionary. These are both calques of the English term.

Figure 1. MIDWIFE signs in the NZSL dictionary.<sup>6</sup>



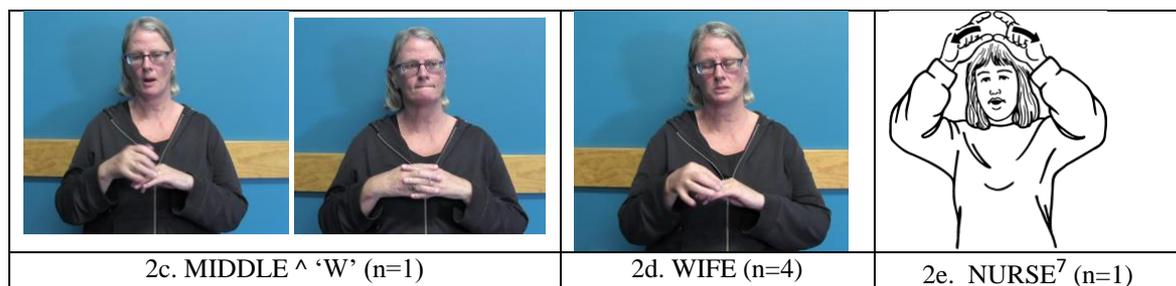
The sign shown in Figure 1a above did not occur in our subset of data, whereas Figure 1b occurred 24 times. Additional variants in our data are shown in Figure 2 below.

Figure 2. Other forms of MIDWIFE.



<sup>6</sup> Images are from the NZSL Online Dictionary (<https://nzsl.nz>) by the Deaf Studies Research Unit, Victoria University of Wellington, and are licenced under Creative Commons BY-NC-SA 3.0.

## Women’s Health Vocabulary in NZSL



It might be surprising to readers that such a high frequency concept has so many variant forms, but this may suggest that its use in NZSL is relatively recent. The ‘independent midwife’ model of care came into being in NZ only in the early 1990s<sup>8</sup> and may not yet be a common part of NZSL discourse across all generations. An older signer referred to this role using the general sign NURSE (mouthing ‘midwife’; Figure 2e), which in the past was the professional designation for a midwife working within the hospital system, and thus would have been referred to in this way by older deaf women. All other forms for ‘midwife’ are loan translations, with much variation in the way that signers construct these. One signer used three different calques within one narrative (Figures 2b, 2c and 2d). We are aware of some community discussion in recent years on social media about a more ‘conceptually accurate’ (i.e., less English influenced) NZSL sign for ‘midwife’, but in practice it appears that a variety of loan translations remain in common use. It appears that reference to this concept is most easily recognised by deaf women when the English form is transferred, possibly because this term is also commonly encountered in written form throughout a pregnancy.

### 4.2. Lexicalized and productive signs

For some concepts, signers produced varying forms on a spectrum from lexicalized (‘frozen’) signs to productive, depicting signs which combine both conventional handshapes and gestural elements to map entities and events onto the hands (Emmorey, 2003; Liddell, 2003). Most of the productive instances in this data depict parts and actions of the body (such as labor contractions), or an instrument acting on a body part (such as ‘mammogram’, represented by the machine parts pressing the breast, or ‘cervical smear’, represented by a long, thin instrument brushing a handshape that represents the cervix).

In using some lexical verbs, the signer adopts character perspective (Perniss, 2007) to depict specific path, manner, and location features. An example is ‘give birth’ (Figures 3 and 4 below), which occurred 54 times in the data, in the form of two different lexical variants and sequences of depicting signs. In Figure 3b, the signer uses BIRTH-1 in its citation form (as listed in the NZSL dictionary; Figure 3a); this variant was not usually modified to add information about manner of birth. This sign occurred the most frequently (48 tokens, used by 12 participants), to refer to the whole event of childbirth or delivery.

Figure 3. BIRTH-1.



<sup>7</sup> A clear photo from the video was not available for this sign.

<sup>8</sup> See [www.midwiferycouncil.health.nz](http://www.midwiferycouncil.health.nz).

## Women's Health Vocabulary in NZSL

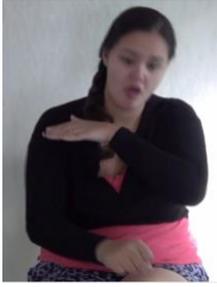
Figures 4 and 5 show a second variant, BIRTH-2, which also has a citation form in the dictionary; however these two signers both use it productively to depict a baby's passage down the birth canal. In Figure 4, the signer's right hand represents the baby's head descending (crowning) and then receding, while the nondominant hand represents the end of the birth canal.

Figure 4. BIRTH-2, depicting crowning.

			
<p>4a. (give) birth  <a href="https://www.nzsl.nz/signs/3542">https://www.nzsl.nz/signs/3542</a></p>	<p>4b. BPCL-baby's-head-emerging-receding-descending</p>		

In Figure 5, the signer fully deploys the productive potential of the sign to depict the baby's head crowning, emerging, and then the whole body exiting, represented by the 'head' (body-part) classifier on the dominant hand landing below the nondominant hand that represents the vaginal opening, which has now receded into the background. The signer in Figure 4b also adopts first-person character perspective (Perniss, 2007) as she recounts her experience as the mother watching the baby's exit from above. This type of character perspective is typical with depicting constructions (Cormier, Quinto-Pozos, Sevcikova, & Schembri, 2012; Quinto-Pozos 2007).

Figure 5. BIRTH-2, depicting crowning and delivery.

			
<p>BPCL-head-crowning</p>	<p>BPCL-head-emerging</p>	<p>BPCL-head-out</p>	<p>BPCL-whole-baby-delivered</p>

### 4.3. Using depiction to name versus to describe

As previously mentioned, signed language vocabularies are supplemented by the expression of meaning in productive ways, including depicting signs. In this data, one sign can do a lot of work, as already seen for the sign BIRTH in Figures 4 and 5 above. Another example is the sign that translates variously in the narratives as 'labor', 'contraction', 'cramp', 'pain' – serving as a noun for the overall process of 'labor' (Figure 6a) or as a predicate describing stages of the process, as in Figures 6b-d.

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Figure 6. LABOR/CONTRACTION.

6a. ‘labor’ (N)	6b. contraction/pain	6c. contraction - sustained	6d. contraction - intense

The sign shown in Figure 6a occurs the most frequently (23 times), as a lexical noun to refer to the event of ‘labor’, indicated by its regular form, consistent mouthing of ‘labor’, and the syntactic context (e.g., “The midwife doesn’t stay for the whole labor”). However, all the women who described their experience of childbirth also used various modifications of this sign (with character perspective) to describe the frequency and intensity of contractions during their labor.

A similar noun-predicate pairing is seen with the depicting sign ‘cesarean’ (also with mouthing of the word) – which is used to name the overall procedure (Figure 7a), and to describe an experience of the procedure, with the addition of adverbial nonmanual modifiers and character perspective (Figure 7b).

Figure 7. CESAREAN – noun/predicate.

7a. CESAREAN (N)	7b. HAVE-A-CESAREAN

Examples like these, in which one sign is used productively to convey much detail and nuance are likely to be very challenging for students and newer interpreters to translate, particularly those who are second-language learners of NZSL and perhaps those who do not have personal or observed experience of childbirth.

## 5. Implications for interpreters and interpreter education

### 5.1. Challenges for interpreters

Examination of natural NZSL data confirms that a relatively small set of conventional signs are used to discuss some common women’s health concepts, and that depicting strategies and mouthing of familiar terms are important to discourse in this topic domain. There are also noticeable challenges for interpreter educators in helping students (mostly second-language learners of NZSL) to develop confidence and accuracy in interpreting about women’s health topics.

Phonological variation identified in the articulation of conventional signs, as well as the amount of lexical variation (even for rather common concepts) reinforces that interpreters should expect and be open to variation.

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## Women's Health Vocabulary in NZSL

That is, regardless of whether a sign is commonly used and in the dictionary, there may still be variation in its use across the community. It is important for interpreters to be aware that although terms for common procedures such as 'mammogram', 'cervical smear', and 'epidural' are conventional (fixed) in English, at this point in NZSL these are expressed using depicting signs that contain some common elements, yet still vary considerably across individuals. The example of 'midwife' reflects the importance of mouthing as a meaningful component in NZSL (McKee, 2007), including with depicting signs (McKee, Safar, & Pivac Alexander, submitted). We know that variation can be a very daunting prospect for interpreting students (McKee et al., 2008; Pivac Alexander & Major 2020).

In addition, our analysis revealed creative and productive use of signs for very specific meanings, which interpreting students need to experience in combination with contextual knowledge of the topic in order to start developing skills to understand and use NZSL in this way. Receptive use of mouthing cues can be challenging for less experienced interpreters – because the pairing of signs with mouthing can be either conventional or idiosyncratic. Interpreting students and interpreters must become familiar with varying signs associated with common healthcare concepts as well as develop an awareness of which English words are more likely to be familiar, and paired as mouthing with these signs. Highly variable forms such as 'midwife' simply need to be learned in all their variants.

Interpreting students should be exposed to as much authentic NZSL interaction in this setting as possible, to become familiar with the variety of ways women's health concepts are conveyed in NZSL. Observing professional interpreters and deaf women interacting in health settings is ideal, although in our experience health observation opportunities can be difficult to obtain for students due to the sensitivity of this setting. Video collections like the Deaf Health Stories resource (Major et al., 2017) provide valuable opportunities for exposure to a wide variety of signers, allowing students to review and analyse the narratives, as well to practice interpreting them. Recorded narratives can also be developed into teaching resources for the interpreting classroom, to help students develop explicit strategies to improve their own comprehension and use of NZSL to convey women's health topics. The use of authentic data encourages students to be observant and curious, and to accept that being responsive to variation is part of communicative competence in the Deaf community. Taking this curiosity into their professional practice as interpreters will help new graduates improve their skills as they are exposed to new settings and a wider variety of signers.

### 5.2. *Less is more sometimes*

In addition to drawing attention to women's common use of depicting strategies to describe their healthcare experiences, we also point out that the potential of a signed language to depict objects and actions in 'iconic' ways (using classifiers and constructed action) might lead interpreters to assume that elaborate visual detail is necessarily informative, especially regarding physical processes. Our data suggest that elaborate or literal depiction is not always what occurs in natural signed language discourse about bodily experiences. For one thing, detailed depiction (and understanding depiction) of bodily parts and processes requires prior knowledge of how those parts look or interact, and signed language users may not necessarily have access to detailed knowledge of anatomy. Secondly, detailed description is not the most efficient way to refer to something if both interlocutors are familiar with a concept or term. Two examples of this in our data were 'breech' and 'epidural'. The English term 'breech' typically evokes a mental image of a baby in utero with its bottom or feet pointing downwards, and we might assume this to be the relevant visual image to translate, using a 'two-legged' classifier sign. However, in the corpus, 'breech' is expressed by inverting a nonspecific two-handed classifier sign ('holding-a-rounded-object'), that translates as '(something) turned upside down', without literal reference to the literal orientation of a baby's body or feet. In the case of 'epidural', in one instance this is referred to by the fingerspelled letter 'e' with mouthing 'epidural' (suggesting the interlocutor's assumed familiarity with the term), and in another case, by indicating the lower back, and then signing 'inject' located in a neutral space – which is a metonymic (abbreviated) description rather than a literal depiction of how an epidural is administered. These examples point to the need for interpreters to know how to use depicting signs to describe physical detail when this needs to be in focus, but also to be familiar with more economical ways in which deaf women might refer to shared knowledge of physical experiences among themselves, and to judge when less literal detail, and more summary level information, may be effective.

### 6. Conclusion

This study investigated women's health-related vocabulary in a language of limited diffusion – NZSL – with the dual aims of identifying any undocumented signs in this domain and informing interpreters how such concepts might be expressed when conventional (frozen) signs are not available. The study was based on the narratives of a small sample of women signers (14), drawn from an existing data set; therefore, our findings are descriptive and exploratory. Based on this sample of corpus data, we confirm that vocabulary specific to women's health experiences is limited in NZSL, as has been reported for health-related terms in other sign languages (Johnston & Napier, 2010). In this corpus, seven frequently occurring signs were examined in closer detail: 'birth', 'cesarean', 'labor', 'mammogram', 'midwife', 'ovaries' and 'pregnancy'. The form of these signs was variable, with lexical alternates, and phonological variants, including intra-individual variation; that is, some signers used varying forms for the same key concept within a single narrative (e.g., labor, midwife) suggesting that these are not highly conventionalized. Unsurprisingly, contact with English terms was evident in a number of signs used by the deaf women, in the form of fingerspelling elements, mouthing, and literal loan translations (such as various forms of 'MID^WIFE'). Depicting (classifier) signs are important in supplementing a relatively small set of established vocabulary in this domain. Terms for common female procedures such as 'mammogram' and 'cervical smear' are expressed in NZSL using depicting signs that contain some common elements, yet vary in use across individuals. Depicting strategies are not necessarily anatomically literal (in terms of detail), but rather assume shared knowledge between interlocutors about the experience or object referred to.

Authentic corpus data is a rich learning resource for interpreting teachers and students, providing direct insight into language use at the levels of lexicon and discourse. The creation of collections like Deaf Health Stories (Major et al., 2017) provides valuable exposure to a wide variety of signers and the variants they use. This exposure encourages students to be alert to the linguistic variation and the translational challenges that they will encounter as interpreters serving a Deaf community that has traditionally experienced barriers to health literacy and healthcare.

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