

Interpreter Use in an Academic Pediatric Hospital

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ABSTRACT

A lack of proper medical interpretation has been shown to worsen quality of care, patient outcomes, and patient satisfaction. This study aimed to describe how faculty and residents communicate with patients who prefer a language other than English across inpatient and outpatient settings at an academic children's hospital, as well as describe the barriers to interpretation. A survey of pediatric faculty and residents was conducted to assess interpreter use and barriers to use within this hospital. Seventy faculty and 21 residents responded. Providers and trainees across a variety of settings reported high positive attitudes toward interpreters and high use of interpreters to perform most job tasks. Most providers in all groups (75–95%) reported interpreter availability as a barrier. These findings highlight the need for increased access to interpreters in all settings to ensure proper communication with patients and families.

KEYWORDS: Pediatrics; interpreters; barriers; healthcare accessibility

BACKGROUND

An increasing number of people, around 21.5%, speak a language other than English in the United States.¹ Studies have shown that lack of access to proper interpretation is a barrier to accessing pediatric care, with effects including, but not limited to, increased non-urgent hospital and emergency department (ED) visits, longer hospital stays, as well as feelings of burden, stigma and discrimination for families.^{2–5} When proper interpretation is used, families experience higher quality of care, improved outcomes and higher patient satisfaction.^{6,7} There is also a legal obligation for healthcare providers who receive any federal funding to ensure access to proper interpretation for all patients.⁸

Interpretation technology, including live interpretation via phone and video, has improved, leading to an increase in interpreter usage.⁹ Despite this increase, proper sources of interpretation are still not used often enough regardless of known legal or ethical obligation.^{9,10} Healthcare workers have cited many barriers to use of proper interpretation, including time, access, improper training and attitudes such as “getting by” without interpreters.^{11,12}

Although studies have looked at interpreter use among healthcare providers, less is known about how interpreter use may change based on role and setting. Our objectives were to describe how different healthcare worker groups communicate with patients who prefer a language other than English across inpatient and outpatient settings. Additionally, we sought to identify barriers to using interpretation and how these barriers may differ between groups and across settings. We hypothesized that there are differences in patterns of interpreter use and barriers to proper interpreter use across provider level and different hospital settings, with particular interest in comparing residents and faculty. Specifically, our focus was comparing residents and faculty in terms of improper service use.

METHODS

Setting

Academic children's hospital in New England with multiple settings including an intensive care unit (ICU), emergency department (ED), inpatient unit, primary care clinic, and subspecialty clinics. It is the primary source of pediatric care for the state as well as parts of surrounding New England states; 22.4% of the state's population speaks a language other than English.¹³

Sample

Pediatric faculty, residents and nurses who work in the children's hospital system. There are 80 residents in the categorical pediatrics, medicine-pediatrics and triple-board (pediatrics, general psychiatry and child psychiatry) programs, along with around 130 faculty and 335 nursing staff. The study included all pediatric faculty, residents, and nursing staff affiliated with the children's hospital. Fellows, as well as anyone who only works outside of the hospital and affiliated outpatient clinics, were excluded.

Survey

An email was sent to listservs, including pediatric faculty, residents and nursing staff. Staff were asked to complete an anonymous electronic survey delivered via REDCap, a secure web application.^{14,15} Participants were asked about their role (nurse, resident, faculty), level of training, and the hospital settings where they primarily work (ICU, ED,

inpatient unit, subspecialty clinics, primary care). They were also asked questions about interpreter use and barriers in their primary work setting (residents were asked to complete these questions for each setting because they spend time in all locations), as well as physician burnout. Questions were adapted from the COLQ-B survey and a validated standalone burnout measure.^{16,17}

Data Analysis

Prior to analysis, raw scores were converted into Z scores. For each question, the individual score from 1 to 5 was subtracted from the average of the question and divided by the standard deviation. This was done to improve interpretability, changing the scoring to represent how far above or below the overall average each individual response was scaled to the variation in scores. Because responses were self-reported, it is difficult to validate the direct interpretation of the scaling (e.g., scores of 1 representing “never” may not actually be true). Preprocessing data to represent differences above and below the average can help to ensure proper interpretation as a relative comparison in attitudes, and enabled the validity analysis performed.^{1,2}

Generalized, linear, mixed-effects modeling was used to estimate average endorsement and infer differences between residents and faculty. Random effects modeled the associations between responses to each individual question by the same individual. Additionally, each resident provided three responses, rating interpreter use in each clinical setting. To address this, random effects by individuals were included to model the associations between average response levels by setting for residents.

The use of random effects afforded two benefits. First, it enabled a validity analysis, to provide information about whether or not attitudes about interpreter use were unique to each form of communication, or represented an underlying trait of using proper or improper service usage. While we wanted to examine conceptual groups of interpreter service usage (i.e., proper and improper, across specific behaviors), it was unclear whether or not this was justifiable, or if individual behaviors were more relevant than the patterns across subgroups of behaviors. Examining the results of the random effects provided information on whether or not this was justifiable. Specifically, we modeled associations as a factor analytic model, which provide loadings as output. Interpretation of loadings represent common associations between an individual item and all other items, providing information on internal structure validity assessing whether or not each question represents aspects on an underlying attitude about interpreter services usage. Secondly, the random effects analytically incorporate information about the individual, addressing what would otherwise violate the assumption of independence when providing multiple ratings.

Descriptive data were reported as means and 95% confidence intervals based on 400 bootstrap resamples to

empirically estimate the distributions. Data on interpreter service usage were also reported in terms of averages and 95% confidence intervals, in this case as implied by the regression model. Inferences were based on linear combinations of model coefficients representing differences in group averages. While multiple comparisons were made, the focus was on the difference in number of improper interpreter services participants reported between residents and faculty members in different settings. Taking this comparison as our primary hypothesis helped mitigate the risk of type one error inflation due to repeat testing. Additional comparisons were examined to provide context, but were not viewed as the primary hypothesis.

RESULTS

Sample Characteristics

The survey was sent to 192 faculty, 80 residents, and 335 nurses; 70 faculty and 21 residents responded, for a response rate of 36.4% and 26.3% respectively. Nursing responses were excluded due to the low number of responses (5). Response rates for nurses and for faculty by setting were unable to be calculated because the exact number of nurses on email lists and setting type for faculty on the lists are not known. **Table 1** provides descriptive statistics.

Table 1. Sample Characteristics

	Faculty			Residents (n = 21)
	Outpatient (n = 38)	Inpatient (n = 20)	Emergency Department (n = 13)	
Female Gender N (%)	26 (71)	15 (75)	9 (69)	17 (81)
Bilingual N (%)	7 (18)	4 (20)	3 (23)	4 (19)
Trained on Using Interpreters N (%)	27 (71)	12 (60)	6 (46)	15 (71)
PGY Level (Residents)	N/A	N/A	N/A	
PGY 1				5 (24)
PGY 2				7 (33)
PGY 3				9 (43)
PGY 4+				0
Years Post-Training (Faculty) Mean (SD)	17 (11)	11 (8)	12 (9)	N/A

Interpreter Use

Table 2 shows mean scores for questions regarding types of interpreter use for all respondents. Respondents reported using an interpreter via video most frequently (mean 3.99 out of 5). **Table 3** shows mean scores for questions asked (i.e., attitudes, barriers, need, and use of interpreters) comparing

between residents and each faculty subgroup (outpatient, inpatient, ED). Overall, respondents across all settings reported using interpreters to perform most job tasks (mean >4 out of 5 for most job tasks). However, reported use of interpreters for engaging in small talk was low across all settings. Respondents endorsed positive attitudes about interpreters

across all settings (mean >3 out of 4). Also across all settings, respondents endorsed availability of interpreters as a major barrier to interpreter use: 85% [74, 95] in outpatient settings, 85% [66, 100] in inpatient settings, 75% [50, 100] in the ED, and 95% [89, 100] among residents.

Validity Analysis

Table 4 provides raw average responses to each question, as well as the loadings which represent the common association between response to one question and all other questions by the same individual. Loadings for improper services were all negative and significant (all improper services loadings, $p < 0.05$), suggesting across specific actions, respondents who reported using one improper service tended to report using all improper services. The loadings were positive and significant for questions about telephone and video ($p = 0.0019$), but the loading for in-person interpreters was smaller, negative, and nonsignificant ($p = 0.1850$). This may reflect how in person interpreters are less available than phone or video interpreters. There was a nonsignificant association between greater need for interpreter services and reported use of other interpreter service (loading = 0.08, $p = 0.5982$). There was

Table 2. Proper and Improper Interpreter Use by All Respondents

Means of Communication	Mean (1 = Never, 5 = Always)
Proper Interpreter Use	
In-person interpreter	2.84
Interpreter via telephone	2.90
Interpreter via video technology	3.99
Improper Interpreter Use	
An adult family member/close relative translates	2.21
A child translates (ex. the patient or a sibling)	1.51
An additional staff member translates	2.00

Table 3. Interpreter Utilization, Attitudes, and Barriers

Mean [95% CI]	Outpatient Faculty	Inpatient Faculty	ED Faculty	Residents
Job Tasks (1 = Never, 5 = Always)				
Collect medical history	4.4 [4.1, 4.7]	4.5 [4.1, 4.9]	4.5 [4.1, 4.8]	4.6 [4.4, 4.8]
Provide updates to family about care plan	4.4 [4.1, 4.6]	4.8 [4.5, 4.9]	3.9 [3.7, 4.2]	4.3 [4, 4.6]
Explain diagnosis and treatment plans	4.5 [4.2, 4.7]	4.8 [4.5, 4.9]	4.5 [4.1, 4.9]	4.6 [4.3, 4.8]
Provide discharge instructions and return precautions	4.4 [4, 4.6]	4.6 [4.2, 4.9]	4.3 [3.9, 4.6]	4.3 [4, 4.7]
Provide patient/parent education	4.5 [4.2, 4.7]	4.5 [4, 4.8]	4.1 [3.8, 4.4]	4.4 [4.1, 4.7]
Have supportive conversations	4.2 [3.9, 4.4]	4.4 [4, 4.8]	3.8 [3.5, 4.2]	4.1 [3.7, 4.5]
Small talk	3.2 [2.7, 3.6]	2.8 [2.2, 3.3]	2.5 [2.2, 3]	2.9 [2.6, 3.3]
Attitudes About Interpreters (1 = Not at All, 4 = To a High Degree)				
Interpreters increase involvement in care	3.9 [3.8, 4]	4 [4.0, 4.0]	4 [4.0, 4.0]	4 [4.0, 4.0]
Interpreters improve safety	3.9 [3.8, 4]	4 [4.0, 4.0]	4 [4.0, 4.0]	3.9 [3.8, 4]
Interpreters improve patient/provider relationship	3.8 [3.6, 3.9]	3.9 [3.7, 4]	4 [4.0, 4.0]	3.9 [3.7, 4]
Barriers				
Interpreter availability (%)	85 [74, 95]	84 [66, 100]	75 [50, 100]	95 [89, 100]
It takes too long to find an interpreter (%)	45 [29, 60]	55 [32, 78]	69 [42, 91]	70 [54, 84]
Visit takes too long with an interpreter (%)	38 [25, 53]	16 [0, 36]	8 [0, 21]	25 [12, 42]
I am not sure how to use the interpreter service (%)	0 [0, 0]	0 [0, 0]	0 [0, 0]	3 [0, 9]
Family declined (%)	55 [40, 68]	50 [25, 75]	83 [64, 100]	73 [60, 86]
Frequency of Patients with LEP (1=Never, 4=Often)				
How often do you care for patients/families who have LEP in this setting?	3.7 [3.5, 3.8]	3.8 [3.5, 4]	3.9 [3.7, 4.0]	3.8 [3.7, 3.9]
Types of Interpreter Use (1=Never, 5=Always)				
Use in-person interpreter	3.0 [2.7, 3.4]	2.5 [2.2, 2.8]	3.6 [3.2, 3.9]	2.7 [2.5, 3]
Telephone	3.0 [2.7, 3.3]	2.8 [2.3, 3.3]	2.2 [1.8, 2.5]	3.1 [2.9, 3.4]
Video technology	3.9 [3.7, 4.1]	4.2 [3.8, 4.5]	3.8 [3.6, 4.1]	4.1 [3.9, 4.2]

Table 4. Validity Analysis Results

M	LL	UL	Loading	Question
General				
3.77	3.62	3.88	0.08	How often do you care for patients/families who have a preferred language other than English in this setting? (1 = never, 4 = often)
Proper Services				
2.84	2.51	3.18	-0.20	In person interpreter (1 = never, 5 = always)
2.90	2.56	3.23	0.21	Interpreter via telephone (1 = never, 5 = always)
3.99	3.68	4.26	0.37	Interpreter via video technology (1 = never, 5 = always)
Improper Services				
2.21	1.92	2.54	-0.38	An adult family member/close relative translates (1 = never, 5 = always)
1.51	1.31	1.76	-0.53	A child translates (ex. The patient or a sibling; 1 = never, 5 = always)
2.00	1.72	2.31	-0.25	An additional staff member translates (1 = never, 5 = always)
Unclear				
1.77	1.53	2.06	0.04	I speak my patient's language (other than English; 1 = never, 5 = always)
2.46	2.15	2.79	0.29	I use written materials in the language in question (1 = never, 5 = always)
2.00	1.73	2.31	0.21	I use web-based translation tools on the computer or phone (ex. Google translate, app for translation; 1 = never, 5 = always)
Barriers				
89%	83%	94%	0.34	Availability of interpreters
60%	52%	69%	0.20	It takes too long to find an interpreter
26%	19%	34%	0.12	Visit takes too long with an interpreter
2%	0%	5%	-0.35	I am not sure how to use the interpreter service
64%	56%	72%	-0.13	Family declined interpreter

also minimal association between speaking the patient's language and use of other interpreter service (loading = 0.04, $p = 0.8162$). Reported use of written materials and web-based materials was associated with greater reported use of proper interpreter services usage ($p = 0.0394$). Among barriers, loadings did not demonstrate evidence of much meaningful concordance between barriers (i.e., $p > 0.05$ testing the null hypothesis of no association between barriers). This suggests barriers were more unique to individuals, rather than showing a pattern where some people experience many barriers and others experience few barriers, which could represent a systematic problem with access.

Comparison between Settings and Providers

Table 5 provides estimated, scaled, reported use by respondent type and setting. Residents and faculty differed significantly when reporting use of improper services in an outpatient setting ($p = 0.0156$; **Figure 1**). Faculty in outpatient settings reported below average use of improper services ($M = -0.35$, 95% CI $[-0.56$,

$-0.14]$), whereas residents in outpatient settings reported slightly above average use of improper services ($M = 0.11$ 95% CI $[-0.19, 0.41]$). Additionally, a similar pattern was demonstrated in outpatient settings for the number of reported barriers (faculty: $M = -0.12$ 95% CI $[-0.28, 0.03]$; residents: $M = 0.11$ 95% CI $[-0.10, 0.32]$) but this was not significant ($p = 0.0822$).

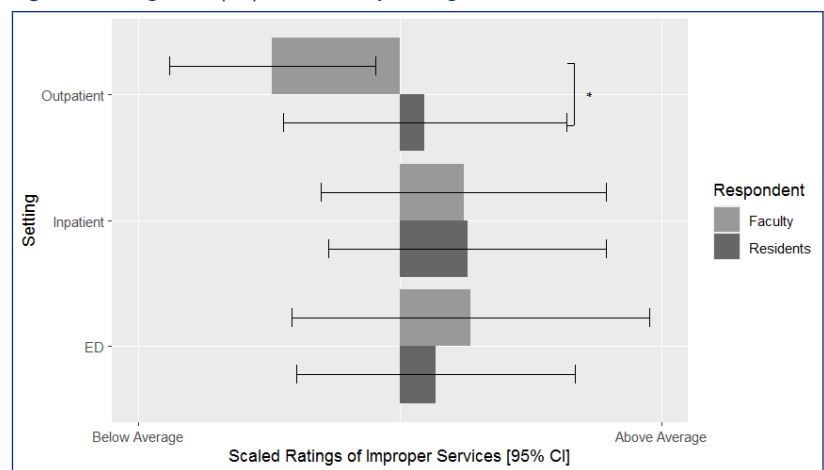
Figure 1. Ratings of Improper Services by Setting

Table 5. Comparison between Settings and Providers

Measure	Faculty Mean [95% CI]	Residents Mean [95% CI]	Difference	t (80)	p
Outpatient Settings					
Proper Services	-0.10 [-0.28, 0.08]	0.07 [-0.18, 0.32]	0.17	1.05	0.2969
Improper Services	-0.35 [-0.56, -0.14]	0.11 [-0.19, 0.41]	0.46	2.47	0.0156
Speak Patient Language	-0.16 [-0.46, 0.13]	0.02 [-0.38, 0.43]	0.19	0.72	0.4736
Written Materials	-0.21 [-0.51, 0.10]	-0.15 [-0.58, 0.27]	0.05	0.19	0.8498
Web-Based Translation	-0.55 [-0.85, -0.25]	-0.20 [-0.62, 0.21]	0.35	1.32	0.1906
Barriers	-0.12 [-0.28, 0.03]	0.11 [-0.10, 0.32]	0.23	1.76	0.0822
Inpatient Settings					
Proper Services	-0.05 [-0.31, 0.20]	0.18 [-0.07, 0.43]	0.23	1.30	0.1973
Improper Services	0.27 [-0.02, 0.57]	0.22 [-0.07, 0.50]	0.05	0.26	0.7955
Speak Patient Language	-0.08 [-0.48, 0.33]	0.12 [-0.28, 0.52]	0.20	0.68	0.4985
Written Materials	-0.11 [-0.53, 0.31]	0.19 [-0.22, 0.60]	0.30	0.99	0.3252
Web-Based Translation	-0.02 [-0.43, 0.40]	0.38 [-0.02, 0.79]	0.40	1.34	0.1840
Barriers	-0.11 [-0.33, 0.10]	0.11 [-0.10, 0.32]	0.22	1.46	0.1482
ED					
Proper Services	-0.07 [-0.39, 0.24]	0.03 [-0.22, 0.28]	0.10	0.50	0.6184
Improper Services	0.17 [-0.20, 0.54]	-0.06 [-0.34, 0.23]	0.22	0.94	0.3500
Speak Patient Language	0.16 [-0.36, 0.67]	0.13 [-0.27, 0.53]	0.03	0.08	0.9364
Written Materials	0.16 [-0.37, 0.70]	0.34 [-0.08, 0.75]	0.22	0.51	0.6115
Web-Based Translation	0.58 [0.05, 1.11]	0.48 [0.07, 0.88]	0.10	0.31	0.7574
Barriers	-0.06 [-0.33, 0.20]	0.15 [-0.06, 0.36]	0.22	1.22	0.2260

DISCUSSION

In this study, we assessed interpreter use among residents and faculty in a pediatric academic hospital, across different hospital settings. Overall, we found that both experienced providers and trainees across multiple settings in a pediatric academic hospital understand the importance of proper interpretation in medical settings, as evidenced by high ratings for the benefits of interpreter use in multiple aspects of patient care. However, they continue to face barriers such as availability. Together, these findings suggest that increased provider training alone is not enough, and instead there is a need for increased access to interpreters in all settings to ensure proper communication with patients and families who speak languages other than English.

On average, providers reported using interpreters via video more often than other means of communication. This is consistent with studies that have documented providers' preference for video over phone interpretation.^{18,19} In one study comparing video and phone interpreter use in a pediatric ED, video use was associated with significantly increased professional interpretation for physicians and nurse practitioners.²⁰ Parents who received video interpretation also reported fewer lapses in interpreter use compared to phone.²¹ Caregivers have also reported greater satisfaction with face

to face interpretation, including in person and video interpreters, when compared to telephone interpreters.²²

We also examined the need for interpreters and barriers to using interpreters within these groups. Although we found minor differences in reported training, interpreter use, and barriers, most results were similar across settings and provider level, indicating that improvements in availability of interpreters and addressing common barriers are needed system-wide. This need to improve availability and decrease barriers is consistent with the literature, which describes low rates of professional interpreter use by residents treating patients who are hospitalized.²³ One study examining interpreter use among residents in New Orleans found that interpreter use declined through a patient's hospitalization due to reported barriers of time, availability, and knowledge of interpreter services.²⁴ As there is limited research directly comparing resident and attending use of interpreters, this helps support the idea that interventions to increase interpreter use must be implemented across the board and not solely as an educational intervention for trainees.

Finally, we found that residents in the outpatient setting were statistically more likely to report improper means of communication than attendings in the outpatient setting. On

closer review, this seems to be driven by less use of improper means by attendings in the outpatient setting rather than more use by residents in the outpatient clinics as compared to when residents are in other settings. These findings are consistent with the hypothesis that residents face more barriers to proper interpreter service use, but it was unexpected that the only setting where this difference was demonstrated was in the outpatient setting. One explanation may be that outpatient attendings are in their familiar environment where they know what is available; for example, how to find a video device or call an interpreter. Residents, on the other hand, are spread across multiple settings and traditionally spend less time in outpatient settings.

NEXT STEPS

Further work is needed to investigate potential differences across outpatient settings, comparing primary vs. specialty clinics and hospital-based vs. off-site clinics. Prior research suggests that interpreter use in outpatient settings is low (40%)²⁵ and that, compared with English-speaking patients, non-English-speaking patients report inferior care experiences while inpatient.²⁶ However, there is little research comparing differences in interpreter use across different settings.

Identifying specific barriers to interpreter use by setting and provider level can help tailor strategies to improve interpreter use and ultimately improve care. A multidisciplinary quality improvement project in one pediatric ICU was found to be effective at increasing interpreter rate as well as time interpreting on phone and video.²⁷ Researchers employed a series of targeted interventions, including standardizing technology and device access, provider education, and creating accountability for interpreter use by providers, which shows that there is generally no single cause for lack of interpreter use in medical settings.

Our finding that providers rate interpreter use as less important for “small talk” warrants additional investigation. Small talk or social talk is often an important aspect of the medical encounter. In one ED-based study, 22% of provider talk fell into the category of relationship building, which included social talk, jokes, and laughter.²⁸ In a pediatric outpatient study, Wassmer et al found that 3% of provider talk was in the category of social talk, 4% for parents and 19% for child talk.²⁹ Nurses in particular may rely on small talk.³⁰ Although efficiency is important, providers’ inability to use small talk to build rapport with their patients and families may affect provider-patient relationships and, ultimately, trust and adherence to care plans. An exploratory analysis of small talk in interpreted encounters in a hospital showed that small talk helps both patients and providers in similar ways as those reported in visits without an interpreter; namely, supporting interpersonal relationship-building, establishing trust and achieving healthcare goals.³¹

Language concordance between provider and patient can limit the barrier to social talk. However, Daggett et al found that mean trust scores were similar for providers who spoke the patient language and professionally trained interpreters, showing that trust and relationship-building need not be compromised if there is language discordance.³² Further research is needed to identify how to incorporate small talk into interpreted visits in a way that improves rapport while preserving efficiency.

Additionally, it is important to examine why patients or their families decline interpreters. Reasons may include concerns about confidentiality when the interpreter lives in the community, long wait times for interpreter services, stigma surrounding needing an interpreter, or discussion of sensitive topics.³³ A deeper understanding and awareness of these reasons may better support providers in offering different options for interpreter services.

Finally, future research should include other healthcare provider groups such as nurses, medical assistants and secretaries. In a study examining interpreter use among hospitalized patients, Schenker et al reported a significantly lower rate of professional interpreter use in nurse encounters when compared with interpreter use in physician encounters.³⁴ Our attempt to include nurses in our study was unsuccessful as evidenced by the low rate of survey completion. Further work is needed to engage all team members in research to understand unique barriers these groups may face in providing proper interpretation.

Limitations

There are several limitations to this study, including small sample size, single institution, self-report, and lack of distinction between specialty and primary care for outpatient settings. Because the exact number of nurses on email lists and setting type for faculty on the lists are not known, response rates for nurses and for faculty by setting were unable to be calculated. The study only included providers and did not include patient perspectives, which are important to further understand barriers, patient preferences, and reasons for declining an interpreter.

CONCLUSION

In conclusion, this study found that residents and attendings understand the importance of proper interpretation in medical settings but continue to face barriers to using interpreters. These findings highlight the importance of proper interpreter use across all encounters with patients, from residents to attendings, in both outpatient and inpatient settings. Future research is needed to further identify and address these barriers when caring for patients who speak a language other than English.

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Disclosures

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