

Translating Discharge Instructions for Limited English–Proficient Families: Strategies and Barriers

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ABSTRACT



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BACKGROUND: Access to written hospital discharge instructions improves caregiver understanding and patient outcomes. However, nearly half of hospitals do not translate discharge instructions, and little is known about why.

OBJECTIVES: To identify barriers to and potential strategies for translating children's hospital discharge instructions.

METHODS: We conducted a mixed-methods, multimodal analysis. Data comprised closed- and open-ended responses to an online survey sent to Children's Hospital Association language services contacts ($n = 31$), an online environmental scan of Children's Hospital Association translation policies ($n = 22$), and county-level census data. We examined quantitative data using descriptive statistics and analyzed open-ended survey responses and written policies using inductive qualitative content analysis.

RESULTS: Most survey respondents (81%) reported having a written translation policy at their hospital, and all reported translating a subset of hospital documents, for example, consent forms. Most but not all reported translating discharge instructions (74%). When asked how inpatient staff typically provide translated discharge instructions, most reported use of pretranslated documents (87%) or staff interpreters (81%). Reported barriers included difficulty translating uncommon languages, mismatched discharge and translation time frames, and inconsistent clinical staff use of translation services. Strategies to address barriers included document libraries, pretranslated electronic health record templates, staff-edited machine translations, and sight translation. Institutional policies differed regarding the appropriateness of allowing interpreters to assist with translation. Respondents agreed that machine translation should not be used alone.

CONCLUSIONS: Children's hospitals experience similar operational and organizational barriers in providing language-concordant discharge instructions. Current strategies focus on translating standardized documents; collaboration and innovation may encourage provision of personalized documents.

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Ms Davis developed the survey instrument, contacted participant institutions, conducted the online environmental scan, performed the analyses, and drafted and revised the manuscript; Dr Rosenberg piloted the survey instrument, contacted participant institutions, conducted the online environmental scan, and reviewed and revised the manuscript; Ms Nguyen contacted participant institutions, conducted the online environmental scan, and reviewed and revised the manuscript; Drs Jimenez and Yun conceptualized and designed the study, piloted the survey instrument, performed the analyses, and reviewed and revised the manuscript; Dr Lion provided critical input on study design and analyses, piloted the survey instrument, and reviewed and revised the manuscript; Ms Jenicek and Mr Dallmann piloted the survey instrument, reviewed preliminary analyses, and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

Many pediatric health care disparities in the United States can be traced in part to language barriers.^{1–3} Access to language services influences quality of care^{4–7} and readmission rates.⁸ As the proportion of US children with a parent or caregiver with limited English proficiency (LEP) rises to over 15%,⁹ it becomes more urgent to direct attention toward language services in pediatric health care settings. There is robust literature on the effective provision of spoken language services for patients while they are in the hospital, through in-person, phone, or video interpreters.^{10–12} However, little is known about the provision of written language services for patients with LEP, for example, translation.

Clear written communication is particularly important when children are leaving the hospital.¹³ In a recent systematic literature review, researchers focused on parental management of pediatric inpatient and emergency department discharge instructions and found that common postdischarge errors include not picking up prescriptions, not adhering to medication regimens, liquid medication dosing errors, and missing follow-up appointments.¹⁴ Although research on discharge instructions for LEP families is limited, there is evidence that they are more vulnerable to postdischarge errors than English-proficient families.^{14–16} For example, low-income Spanish-speaking parents are more likely to make liquid medication dosing errors than non-LEP peers,^{17,18} and LEP individuals are more likely to miss follow-up appointments.^{19,20} Interventions that have been shown to reduce postdischarge errors for LEP and non-LEP families include provider and/or caregiver demonstrations (eg, “show back”), use of video or pictograms, and pairing verbal instructions with standardized written instructions in the families’ preferred languages.^{14,21}

Existing federal policy supports the translation of discharge instructions. Hospitals funded by the Department of Health and Human Services are required to take “reasonable steps to provide meaningful access to their programs and activities by LEP persons.”²² This includes

translations of “vital documents,” meaning documents vital to a specific program or service and without which an LEP person might suffer adverse consequences.²³ Nonetheless, nearly half of hospitals do not translate discharge instructions.^{24–26}

Given these findings, it is critical to understand both why institutions are not providing translated discharge instructions and how institutions providing translations are able to do so. In this study, we use mixed methods to explore challenges and opportunities related to the translation of written discharge instructions for patients leaving children’s hospital inpatient units. In the project, we focused on the inpatient setting because challenges are believed to be different in ambulatory settings with higher and more rapid patient turnover.

METHODS

Participants and Recruitment

From February 2017 through August 2017, we contacted the 200 Children’s Hospital Association (CHA) acute care member hospitals (Supplemental Information) to obtain e-mail addresses for language services directors. Consistent with previous research on hospital language access resources and policies, we believed language services directors to be the individuals most familiar with translation resources and practices.^{24,25,27} We obtained e-mail addresses for 68 individuals who were e-mailed an online survey with up to 2 reminders. The remaining 132 institutions did not have a designated language services contact person or declined to provide contact information. Study data were collected by using Research Electronic Data Capture.²⁸

Survey Instrument and Data Collection

Respondents ($n = 31$) completed a deidentified online survey with 25 questions regarding translation services for pediatric inpatients, including a request for copies of extant translation policies. We considered policies and practices related to translation overall and for discharge instructions, more specifically, given that discharge instructions are a special subset of translatable documents and the overarching policies and barriers apply. Open- and closed-ended questions were focused on both the institution’s overall organization of language services and, more specifically, on the translation of inpatient discharge instructions into languages other than English (Supplemental Information). The survey was developed by the project team, who adapted questions from previous surveys and piloted the instrument with language services professionals.^{24,27,29}

Additional Data

In November 2017, we conducted an online environmental scan of the 200 acute CHA hospital language services landing pages to find publicly available interpretation and translation policies. Only dated, downloadable files were included in an effort to identify the hospitals’ standard, current policies ($n = 22$, 7 of which were obtained through the survey).

Additionally, we documented CHA member information (hospital size and health system membership), county-level census data (2015 American Community Survey, 5-year estimates), and metro-level census data (2014 American Community Survey, 2-year estimates) for all hospitals ($n = 44$) for which we had survey responses or for which an interpretation or translation policy was obtained via environmental scan (Fig 1).^{9,30} These data were collected to



FIGURE 1 Data collection. ^a 15 from environmental scan, 7 from survey.

contextualize our sample and to better understand the communities that the respondent institutions serve.

Data Analysis

Survey and census data were examined by using descriptive statistics. Open-ended survey responses and translation policies were coded and analyzed by the project team using inductive content analysis.^{31,32} The project team independently examined open-ended responses for themes and then discussed themes together. Three members of the project team read the interpretation and translation policies independently and developed a coding scheme. One team member coded each policy, and 2 additional members reviewed the coding. Disagreements were resolved by consensus.

This project was determined not to be human subjects research by the Children's Hospital of Philadelphia Institutional Review Board.

RESULTS

Survey

Respondent and hospital characteristics are described in Table 1. All but one respondent (97%) reported that their hospital has a mechanism to ensure that information about a patient's preferred language is available to hospital staff throughout the continuum of care (eg, a flag in the electronic medical record). The majority of respondents (81%) said that their hospital has a written policy pertaining to translation. Others reported having an established procedure but not a written policy (16%). All respondents reported that their institution translates handouts pertaining to patient rights, nearly all reported translating consent documents (97%), and three-quarters (74%) reported translating hospital discharge instructions (Table 2).

When asked about clinicians' approaches for translating hospital discharge instructions, respondents reported that pretranslated materials (87%), professional interpreters (84%), and professional translators (71%) are all used "sometimes" or "frequently" (Table 3). When asked about "adequate training to translate for patients," respondents described translation-specific

TABLE 1 Characteristics of Surveyed Hospitals and the Surrounding Regions (*N* = 31)

	Hospitals Surveyed, <i>n</i> (%)
Regional characteristics	
Census regions and divisions represented ^a	
New England	4 (13)
Middle Atlantic	0 (0)
South Atlantic	3 (10)
East North Central	7 (23)
West North Central	1 (3)
East South Central	3 (10)
West South Central	5 (16)
Mountain	3 (10)
Pacific	5 (16)
County-level characteristics ^b	
Child (<18 y) poverty rates ^c , %	
<10	0 (0)
10–19	7 (23)
20–29	19 (63)
≥30	4 (13)
Uninsured rates among children (<18 y), %	
<5	16 (52)
5–10	11 (36)
≥10	4 (13)
Residents speak English less than "very well", %	
<5	9 (30)
5–9	10 (33)
10–14	6 (20)
15–19	2 (7)
≥20	3 (10)
Hospital-level characteristics	
No. patient beds, median	248
Member of a larger health system ^d	19 (61)
Teaching hospital ^e	22 (71)
Interpretation policy	
Has written policy	30 (97)
Has established procedure but no written policy	1 (3)
Has no established procedure or written policy	0 (0)
Translation policy	
Has written policy	25 (81)
Has established procedure but no written policy	5 (16)
Has no established procedure or written policy	1 (3)
Mechanisms used to ensure that information about a patient's preferred language is available to hospital staff throughout the continuum of care	
Flagged in patient record	28 (91)
Coordinated by specific department or unit	11 (36)
Other ^f	5 (16)
Coordinated by patient advocate	2 (7)

TABLE 1 Continued

	Hospitals Surveyed, <i>n</i> (%)
Coded bracelet or other form of identification	1 (3)
None	1 (3)
Mechanisms used to create policies and procedures to provide language services ^a	
Language services department	24 (80)
Language services manager	22 (73)
Hospital management	18 (60)
Designated staff person	6 (20)
Internal committee	6 (20)
Combined internal and external committee	4 (13)
Other	2 (7)
Respondent characteristics	
Language or interpreter services director	28 (91)

^a The following states are included in the US census regions and divisions: New England (ME, VT, NH, MA, CT, RI), Middle Atlantic (NY, NJ, PA), South Atlantic (WV, MD, DE, VA, NC, SC, GA, FL), East North Central (WI, IL, IN, OH, MI), West North Central (ND, SD, NE, KS, MN, IA, MO), East South Central (KY, TN, MS, AL), West South Central (OK, AR, LA, TX), Mountain (MT, ID, WY, NV, UT, CO, AZ, NM), and Pacific (WA, OR, CA).

^b 2011–2015 American Community Survey 5-y estimates.

^c *N* = 30.

^d As defined by the CHA.

^e Defined as membership in the Council of Teaching Hospitals and Health Systems.

^f For example, patient door signage.

noted that awareness varied by clinical department or unit. Other challenges included high clinical staff turnover, use of Google Translate rather than the institution's official translation process, and difficulty promoting understanding of the translation process for less-common languages. As one respondent wrote, "They are aware of our process for Spanish translation. I find myself having to remind staff to also access our process for non-Spanish translation discharge needs."

Most, although not all, respondents described 1 or more strategies that they felt had been successful in providing translation services at the time of hospital discharge (Table 4). Most strategies involved streamlining processes for translating standardized documents. Some respondents cited progress in developing libraries of translated standardized documents (eg, care instructions), and some institutions maintain these documents in a library disseminated via institutional intranet. Other respondents described incorporating translated standardized templates into the EHR. Often, however, translated standardized documents are only available in Spanish or other common languages.

Other strategies included involving interpreters in translation and/or sight translation (defined as in-the-moment verbal communication of a written document in another language³³), mailing translated personalized instructions to the patient's home, using (unspecified) technology to allow language services team members to translate documents across the hospital network rather than only within a single hospital, and using unspecified software for machine translation "maintained" by a staff translator using an unspecified quality assurance process. A few respondents reported establishing target time frames for translating discharge instructions, and these ranged from 30 minutes to 24 hours. Many respondents noted that these protocols are only used for the most common local non-English language, generally Spanish.

Translation Policies

We collected policies from 22 different institutions, 7 of which also completed

qualifications, including American Translators' Association or university certifications. Some respondents also noted that their institutions permit professional interpreters to translate simple discharge instructions, for example, "For most simple discharge instructions, staff interpreters who have been tested on their ability to read and write both English and the target language coupled with their medical knowledge are able to do a good job."

Only 2 institutions reported that providers "sometimes" or "frequently" use medical translation software to translate hospital discharge instructions (Table 3). No institutions reported making audio recordings of hospital discharge instructions for LEP patients and families.

When asked "What obstacles does your children's hospital face in providing discharge translation services in the inpatient setting?" the most commonly cited barrier was "operational complexity" (69%; Table 3). However, when asked to name the "greatest" obstacle, an equal number of respondents selected "operational complexity," "too few translation services staff," and "funding" (Table 3). When asked to

describe their greatest challenge in more detail, respondents described "operational complexity" as a problem with timing (Table 4): "Instructions aren't finalized until the last minute, and we do not want to delay discharge for hours while we wait for them to be professionally translated." Respondents who selected "too few translation services staff" reported funding cuts leading to staff cuts as well as reliance on interpreters as translators rather than having dedicated translators. Respondents who selected "funding" described diverse challenges, including insufficient funding to hire needed staff and high costs of providing translation in a wide range of languages and translating long English-language documents.

When asked "To what extent do you feel that inpatient clinical staff understand how to access services to translate or audio record inpatient discharge instructions?" responses ranged from "very little awareness" to "Very well. It is ingrained in hospital culture and education." One respondent who reported high awareness specifically noted that the translation process had been built into their electronic health record (EHR). Some respondents

TABLE 2 Translation Services in Surveyed Hospitals (*N* = 31)

	Hospitals Surveyed, <i>N</i> (%)
Satisfaction with translation services ^a	
Very satisfied	10 (34)
Somewhat satisfied	16 (55)
Somewhat dissatisfied	2 (7)
Very dissatisfied	1 (3)
Translated materials available to patients and families	
Information about patient rights	31 (100)
Informed consent documents	30 (97)
Illness-related education	28 (90)
Wellness-related education	28 (90)
Advanced directives	26 (84)
Discharge instructions	23 (74)
Financial documents	23 (74)
Patient signage	23 (74)
Information about community resources	18 (58)
Other	10 (32)
Has a quality assurance process for auditing translations	25 (81)
Receives direct reimbursement for translation services ^a	0 (0)

^a *N* = 29.

the survey. Most policies included guidance on both interpretation and translation, and among these documents, only 9% of text in the policies focused on translation. Only 1 policy focused exclusively on translation. We identified several themes.

Vital Documents

Most institutions prioritized the translation of “vital documents,” the definition of which varied between institutions. One policy defined a vital document as “any document that would be provided to an English-proficient patient and is necessary for the patient’s health and well-being.” Guiding questions were then suggested for clinical staff to determine if something was a “vital document,” including, “What is the consequence to the LEP person if the information is not provided accurately or in a timely manner?” Other organizations listed types of vital documents, most commonly, consent forms and advance directives, in lieu of a definition.

Sight Translation

Institutional policies that sanctioned sight translation (verbal communication of a written document in another language) generally noted that having a translated written document is preferred when feasible. Some also noted that sight translations should be limited to short texts that cannot be translated because of “practical or time considerations,” explaining that interpreters should not be asked to translate longer or more-complex documents. One institution also required interpreters engaging in sight translation have “active interaction with the [health care] provider” but did not define the nature of that interaction. Another institution specifically forbade sight translation altogether, instead asking that a health care provider “explain the document in layman terms” with the assistance of the interpreter if translation is not feasible.

Interpreters as Translators

As noted above, some institutional protocols allowed interpreters (who specialize in facilitating verbal communication between

2 individuals who do not speak the same language) to serve as translators or sight translators of written materials, although interpreters and translators generally have different training and certification. Many constraints for sight translation also applied for interpreters providing written translations. Several institutions permitted interpreters to prepare written translations of only short, individualized documents and prohibited interpreters from translating more-complex materials. An example of an appropriate document at one institution included individualized discharge instructions that are “handwritten,” for example, instructions for medication administration. One institution noted that only certain interpreters, presumably with a certain level of training or language experience, can translate documents, but other institutions did not specify whether additional training was required.

Translated Document Libraries

Almost every institutional policy that mentioned translation services described maintaining a library of translated, standardized documents that could be used multiple times. Examples included patient education materials, legal documents (eg, consent forms), “routine hospital documents,” and “vital documents.” One hospital described a hospital brochure with maps and hospital information as part of this standardized translated document collection with the rationale that the brochure facilitated equitable access to care. Although many hospital policies noted that document libraries or other centralized collections were available, several also noted that these materials were only available in a few languages, usually the most commonly spoken languages locally.

Machine Translation

Every policy that mentioned machine translation or translation software (*n* = 5 out of 22) forbade its use alone. Typically, these policies explained that such translation mechanisms were “inaccurate,” “unreliable,” and “unsafe.”

DISCUSSION

The children’s hospitals included in this study experience many shared

TABLE 3 Providing Translated Hospital Discharge Instructions: Strategies and Barriers (*N* = 31)

	Hospitals Surveyed, <i>N</i> (%)
Mechanisms thought to be used sometimes or frequently for the provision of translated discharge materials	
Pretranslated discharge materials	27 (87)
Trained staff or contract interpreters ^{a,b}	26 (84)
Trained staff or contract translators	22 (71)
Trained bilingual clinical staff	6 (19)
Untrained bilingual clinical staff	3 (10)
Other translation software, for example, Google Translate ^c	2 (7)
Medical translation software ^d	2 (7)
Obstacles in the provision of translated discharge materials ^c	
Operational complexity (eg, timing mismatch)	20 (69)
Funding	13 (45)
Clinical staff are not aware of how to obtain translation	12 (41)
Too few translation services staff	11 (38)
No awareness of legal requirements	10 (35)
Competing priorities within hospital	9 (31)
Lack of executive support	8 (28)
Staff or physician resistance	7 (24)
Lack of reliable translation software	7 (24)
Other (eg, staff turnover or trouble translating uncommon languages)	6 (21)
Insufficient policies	2 (7)
Greatest obstacle in the provision of translated discharge materials ^d	
Other (eg, culture is slow to change or lack of clinician or staff awareness)	7 (23)
Funding	5 (17)
Operational complexity (eg, timing mismatch)	5 (17)
Too few translation services staff	5 (17)
Staff or physician resistance	3 (10)
Clinical staff are not aware of how to obtain translation	2 (7)
Lack of executive support	1 (3)
Lack of reliable translation software	1 (3)
No awareness of legal requirements	1 (3)

^a Staff interpreter: employed by the hospital, assists with verbal communication; staff translator: employed by the hospital, assists with written communication; contracted interpreter or translator: employed by an agency, used by the hospital as needed.

^b Interpreter involvement in the translation process may refer to written translation and/or sight translation.

^c *N* = 29.

^d *N* = 30.

for a few languages, they do not allow for personalization and may not benefit individuals who speak less-common non-English languages. Notably, LEP individuals in the US speak over 200 different languages.³⁶

We identified variation and even conflicting guidance across institutions (eg, regarding the definition of vital documents or the use of interpreters for document translation), indicating that health systems have not yet reached a consensus regarding preferred translation practices. This may be explained in part by the flexibility, or ambiguity, of current federal regulations. For example, Section 1557 of the Affordable Care Act requires Health and Human Services–funded providers to use “qualified translators.”³⁷ The final rule defining “qualified translator” acknowledges that interpreters may not necessarily have the requisite skills, but it does not bar interpreters with a specified skill set from serving as translators. Thus, institutions are left to decide how to operationalize the definition of qualified translator, which can be a challenge in the face of limited professional credentialing options and high demand for both interpreters and translators. Similarly, federally funded health systems are required to translate “vital documents” necessary to facilitate “meaningful access” to programs and services, but this definition of “vital document” allows for great variation across health systems, and the focus is often on legal documents. Given the myriad of barriers to translating discharge instructions, perhaps explicitly incorporating discharge instructions into hospitals’ definitions of a “vital document” could facilitate better translation of these critical and consequential materials.

In limited previous research, authors describe either innovative or practical strategies for providing translated discharge instructions in a timely manner. Given the variability in interpretation of the regulations and the lack of formal evaluation of the various approaches described in this article, it seems premature to advocate for any particular approach. However, creative strategies are

organizational and operational obstacles to translating inpatient discharge instructions. These include mismatched time frames for translation and patient discharge, staff and funding shortages, and difficulty ensuring clinical staff followed language services policies, especially for languages other than Spanish. Our findings are consistent with previous research in which it was shown that translation is underused,^{24,34,35} and we

add to this literature by elucidating the specific reasons for underuse.

Among the hospitals included in this study, approaches to overcoming challenges to translating discharge instructions included developing libraries of translated standardized documents and incorporating translated, standardized templates into the EHR. Although these approaches may improve access to standardized instructions

TABLE 4 Selected Quotes Regarding Obstacles and Strategies in Providing Inpatient Discharge Translation Services

	Selected Quotes
Obstacles	
Operational complexity, for example, timing mismatch	<p>"Many clinical staff are unwilling to wait for the translation of the discharge instructions and end up discharging the patient before the translation is complete. We provide on-site interpreters to interpret when the nurse reviews the discharge instructions with the patient, but clinical staff don't want to wait for the written instructions to be complete before sending the patient home."</p> <p>"We really do not have any other [obstacles] than receiving the requests in a timely manner and getting more requests in refugee languages, which we send to a vendor. Vendor requests take several days and may not coincide with discharge time."</p>
Funding	<p>"There are certain resources that we have put together in English that might be a lengthy document or booklet. Getting something like this translated can be extremely expensive, especially if it is updated frequently!"</p> <p>"The entire language budget was stripped from the hospital system and there is little to no support from executive in understand the need to language services [sic]."</p> <p>"[Limited] funding to add additional languages to our electronic record system for languages seen less often. Fiscal year 2016/2017, our facility had [number redacted, ~150] patient encounters (these patients spoke 1 of 20 languages other than English, ASL, Spanish, or Arabic)."</p>
Too few translation services staff	<p>"We need to hired [sic] a dedicated translator. We have interpreters, but not all are good translators. We need to do lots of coaching or create internal memory banks to assure quality."</p> <p>"The largest volume of patients other than English is for Spanish, and our Spanish interpreters who can translate on the spot are in high demand for interpreting, so translating can slow them down somewhat."</p>
Strategies	
Translating standardized documents	<p>"Having ExitWriter integrated into our EHR allows doctors and nurses to provide pretranslated condition information to patients in 5 languages very easily. These are standardized documents, so not specific to each patient, but this allows immediate access for providers and, consequently, patients. A record of the document is created and remains in the patient's EHR."</p> <p>"Our hospital has translated several hundreds of general care instructions and postcare instructions for the most common needs."</p>
Interpreters as translators	<p>"Internal interpreter staff assist, when available, with written instructions in Spanish, but we do not have that option for any other language. . ."</p> <p>"Since we have Spanish language staff interpreters, they translate directly in the electronic medical record for immediate use prior to patient discharge."</p> <p>"Verbal interpretation of [written] discharge orders through qualified staff interpreters."</p>
Other strategies	<p>"Audio record discharge instructions are on an as-needed basis for those who do not read or write and/or who are blind. Staff or interpreters are encouraged to record to a patient's cell phone or to call their home and leave a message on their home phone."</p> <p>"Translating and mailing to the patient [sic]."</p>

ASL, American Sign Language.

being developed, and rigorous evaluation of them is needed. For example, a previous national learning collaborative targeted at interpreter services improved such services on at least 1 measure at every participating hospital; a similar program for translation may facilitate collaboration across institutions and improvement in translation services.²⁶ Innovations in other sectors like the public health arena may inform how health systems approach translating discharge instructions. For example, a network of health departments piloted a 2-step process, beginning with high-quality

machine translation of health promotion materials (eg, HIV testing information and vaccination clinic announcements) followed by human translator review.^{34,38} Similar carefully studied innovation is needed in the clinical realm.

This study had several limitations. First, the majority of CHA institutions did not have contact information available for a language services director. Second, among institutions with available contact information, our survey response rate was low (46%). Although this is typical of modern Internet-based surveys, it is

possible that our sample is biased toward institutions with greater institutional resources directed toward language services or respondents with greater interest in language services. Third, language services directors served as representatives for institutions. Although language services directors are key informants for questions relating to language services policies, resources, and challenges, data regarding clinician use of different translation strategies are subjective and should be interpreted with caution. Fourth, our sample was limited to a

subset of CHA hospitals. CHA hospitals tend to be well resourced and may be larger than other children's hospitals, so these findings may not generalize to other children's hospitals or pediatric units within community or nonchildren's hospitals.

CONCLUSIONS

Providing translated discharge instructions for patients and families with LEP remains challenging, and institutions face similar organizational and operational barriers. Several hospitals reported strategies to address these barriers. Some of these approaches, such as the use of translated document libraries and templates, provide a critical foundation for meaningful written communication with LEP families but may not provide equivalent access, especially for families who do not speak a common non-English language. Institutions should also recognize that these approaches are inherently limited in their ability to provide tailored instructions. In addition, there is not yet agreement regarding the appropriateness of different strategies. Beyond continued characterization of the problem, we urgently need innovative interventions to be developed and tested. Active innovation, collaboration across institutions, and rigorous evaluation of candidate strategies should be considered to address the persistent challenges posed by professional translation in the clinical setting.

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