RESEARCH

Challenges and opportunities caring for neurology outpatients across language differences

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Abstract

Background

With over 66 million Americans who speak over 350 languages other than English at home, we sought to examine attitudes and behaviors of neurology clinicians and staff when communicating across language differences.

Methods

We conducted an electronic-enabled cross-sectional survey of clinicians and patient services coordinators working at an academic neurology outpatient clinic. Questions focused on professional medical interpreter (PMI) services usage, satisfaction, and perceived barriers to utilization.

Results

A total of 82/235 (35%) neurology clinicians and 24/52 (46%) coordinators met the study eligibility criteria. Most clinicians (96%) reported seeing at least 1 non–English-speaking patient and using PMI services (85%) in the last month. Most commonly self-reported interpretation modalities were face-to-face PMI services (39%) and patients' family members or friends (28%). Perceived barriers to using PMI included time constraints (60%) and lack of available face-to-face PMI (51%). Among patient services coordinators, 33% reported consistently asking patients their preferred language and 50% if they needed a PMI for appointments. Most respondents (77% clinicians and 71% coordinators) were satisfied with PMI services. Recommendations included having more available face-to-face PMI, greater coordinated efforts to preschedule PMI, and more education on the effective use of PMI.

Conclusions

More than 70% of outpatient neurology clinicians and patient services coordinators were satisfied with PMI. However, their perceived barriers and reported practices suggest a need for updated policies and education to improve the use of PMI services.

More than 66 million Americans, or approximately 22% of the US population, speak at least 1 of over 350 languages other than English at home.[1,2] Among them, a subset of 26 million Americans self-identify as speaking English "less than very well" and are therefore considered to have limited English proficiency (LEP).[1] To provide equitable high-quality patient care, health care systems must be well equipped to address patients' needs and preferences

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To provide equitable high-quality patient care, health care systems must be well equipped to address patients' needs and preferences including as it pertains to language.

including as it pertains to language.[3] Professional medical interpreter (PMI) services can facilitate effective communication across language differences yet remain underutilized in health care despite federal regulations aiming to assure meaningful access to language services.[4–9] This is troublesome because patients who need but do not receive PMI services tend to experience worse health outcomes and greater medical risks.[10,11] Meanwhile, PMI can contribute to greater patient satisfaction, improved health care utilization, and increased patient engagement.[12–15]

In contrast to other disciplines, little is known about the weight of language barriers on the care of neurology patients.[16,17] Recognizing that neurology relies heavily on patients' histories, it is crucial to understand whether neurology practices are prepared to care for patients across language differences.[18] To identify potential gaps and opportunities, this cross-sectional survey study sought to examine self-reported behaviors and attitudes of neurology clinicians and nonclinical neurology staff when serving outpatients across language difference.

Methods

Participants

A total of 235 neurology clinicians and 52 patient services coordinators at a large academic neurology outpatient clinic were invited to participate in a brief anonymous electronic-enabled survey regarding PMI services. Clinicians were defined as clinically qualified personnel involved in outpatient care including attending neurologists, clinical fellows, resident physicians, neurodiagnostic specialists, and nurses. Patient services coordinators were defined as neurology staff who assisted patients with tasks such as scheduling appointments. Clinicians and patient services coordinators invited to this study were included in analyses if they provided informed consent and answered the study survey and excluded if they opened but exited the survey or if they did not confirm caring for at least 1 outpatient per week.

Site

A large academic medical center located in Boston, MA. During registration, patients are asked to self-identify, "In what language do you prefer to discuss health-related concerns?" and, if the response includes a language other than English, are asked, "Do you need an interpreter?" (yes/no answer). Patients' information is verified annually for accuracy and completeness through patient registration services or via the hospital's online patient portal. Patient services coordinators and clinicians have access to patients' language preferences within their electronic medical records and are expected per hospital policy to choose a hospital-approved interpretation modality when communicating across language differences.[19] At the time of this study, 5% of patients preferred discussing health-related concerns in Spanish and 4% in other non-English languages.[20] Our group previously identified over 25 languages preferred by patients with acute ischemic stroke at the hospital.[16,17] PMI services are accessible anytime, at all points of patient contact, at no cost to patients. At the time of this study, the hospital's preferred methods of interpretation were the following: (1) in person by one of the 33 hospital-employed PMIs who collectively spoke 11 languages, had at least 1-year of experience interpreting in health care settings, obtained national certification when available (in the United States, certification exists for Spanish, Arabic, Mandarin, Cantonese, Russian, Vietnamese, and Korean), and underwent a competency assessment every 3 years; (2) video-enabled Spanish or Portuguese interpretation by in-house PMI; or (3) if the above options were not feasible, phone interpretation by a PMI service outsourced to a national provider of health care PMI services. Federal regulations and hospital policies prohibited the use of minors and strongly discouraged the use of patients' adult family members or friends as interpreters. For in-person PMI encounters, employees were encouraged to book ahead and call to confirm patient arrival to avoid the possibility that the PMI left if the wait time was greater than 10 minutes.[19] Phone and video PMI requests did not require booking or confirmation; the outpatient neurology clinic had phones in all patient rooms and 1 video-interpreting device. In the fiscal year of this study, the hospital provided 57,337 in-person, 67,731 telephone, and 7,607 video interpretations.[20]

Survey

We designed a 12-question survey for clinicians and a 9-question survey for patient services coordinators pertaining to their outpatient neurology language-related experiences over the previous 12 months (tables 1 and 2). The survey instruments used yes/no, multiple-choice, Likert scale, and short answer formats. Data were anonymously collected through a secure web-based survey program, Research Electronic Data Capture.[21] Electronic informed consent preceded the survey questions. Potential participants were identified through staff rosters. A unique link was emailed to potential participants asking to "complete a brief 5-minute online survey regarding opinions and usage of Medical Interpreter Services" and informing that those who completed the survey would enter a raffle to receive a $5 gift certificate to a local coffee shop. Five reminder emails were sent over 7 weeks, and 10 gift certificates were distributed. To reduce potential bias, survey responses could not be linked to a participant because no identifiers were solicited in the electronic consent form or survey.

Table 1 Clinician questionnaire

Please answer the following 12 questions truthfully, thinking of your experiences only in [study site] outpatient areas. Answers will remain confidential. Thank you for your time and honesty.	
1. How many patients do you see in clinic?	• 0 patients/wk • 1–4 patients/wk • 5–9 patients/wk • 10–14 patients/wk • 15+ patients/wk
2. How many clinic patients do you see who do not speak English well enough to give an adequate history?	• 0 patients/mo • 1–4 patients/mo • 5–9 patients/mo • 10–14 patients/mo • 15+ patients/mo
3. Please select the languages—including English—you can speak at a professional level (e.g., to care for patients or deliver scientific talks).	• English • Arabic • Creole • Cantonese • French • German • Italian • Mandarin • Portuguese • Spanish • Other: Please specify __.
4. For the clinic patients who do not speak the language(s) you selected in question 3, how frequently do you use interpreter services (by phone, video, or in person) during your appointments?	• 0 times/mo • 1–4 times/mo • 5–9 times/mo • 10–14 times/mo • 15+ times/mo
5. Please select all modalities of interpretation you have used in the past 12 mo during clinic.	• Video Phone On a Pole (VPOP) • Telephone • In-person trained interpreter • Family member and/or friend of patient • Other: Please specify __.
6. In the past 12 mos, what modality of interpretation did you use most often?	• Video Phone On a Pole (VPOP) • Telephone • In-person trained interpreter • Family member and/or friend of patient • Other: Please specify __.
7. Recalling your most recent clinic experience using interpreter services (by phone, video, in person), how satisfied were you with the interpreter?	• Very satisfied • Satisfied • Neither satisfied nor dissatisfied • Dissatisfied • Very dissatisfied • Not applicable. I have not used interpreter services during clinic.
8. Please briefly explain your answer to the previous question.	[Open-ended]
9. What challenge(s) prevent you from using interpreter services? Select all that apply.	• Procedural difficulties when contacting interpreter services • Video interpretation (VPOP) is unavailable when needed • In-person interpreter is unavailable when needed • Time constraints during patient encounters • Limited knowledge and training by department about interpreter services • Other: Please explain __. • There are no challenges
10. Please indicate the level of encouragement by [study site] (through senior role models, training, and/or visible information on signs, etc.) to use interpreter services.	• I am frequently encouraged to use an interpreter • I am consistently encouraged to use an interpreter • I am rarely, if ever, encouraged to use an interpreter
11. When using interpreter services, do you explain the clinical situation to the interpreter at the start of the patient encounter?	• Yes • No
12. Have you used interpreter services (by phone, video, or in person) even when you were able to speak the same language as the limited English proficiency patient?	• Yes • No • Not applicable. I speak English only.
13. Please select your role at [study site].	• Attending physician • Resident physician • Clinical fellow • Nurse practitioner

Continued

Table 1 Clinician questionnaire *(continued)*

	• Registered nurse • EMG/EEG/Sleep specialist or Technician • Medical Assistant
14. Please provide us comments and/or recommendations on using medical interpreter services at [study site].	[Open-ended]

Statistical analyses

Descriptive statistics were performed using Microsoft Excel. A grounded theory approach was used for qualitative analyses of open-ended questions to identify emerging themes.[22]

Standard protocol approvals, registrations, and patient consents

The Massachusetts General Hospital Institutional Review Board reviewed and approved this study. Written informed consent was obtained electronically from all study participants.

Data availability

Data not provided in this article may be shared at the request of other investigators for the purpose of replicating procedures or results.

Results

Among invited clinicians, 93/235 (40%) consented to participate, and 83/235 (35%) remained eligible to participate after excluding 8 who opened but exited the survey and 2 who reported not seeing outpatients. In turn, 24/52 (46%) invited patient service coordinators consented and were eligible to participate.

Most clinicians reported caring for patients who "could not speak English well enough to give an adequate history" (Table 3). Although satisfied with existing PMI services, clinicians reported an underuse and voiced perceived time constraints and other barriers (Table 4). Patient service coordinators also noted satisfaction with yet inconsistent practices engaging PMI services

Table 2 Patient services coordinators questionnaire

Please answer the following 9 questions truthfully, thinking of your experiences only in [study site] outpatient areas. Answers will remain confidential. Thank you for your time and honesty.	
1. Have you used medical interpreter services (by video, phone, or in person) while speaking to a patient?	• Yes • No
2. Recalling your most recent experience using interpreter services (by phone, video, or in person) to speak to a patient, how satisfied were you with the interpreter?	• Very satisfied • Satisfied • Neither satisfied nor dissatisfied • Dissatisfied • Very dissatisfied • Not applicable. I have not used interpreter services during clinic.
3. Please briefly explain your answer to the previous question.	[Open-ended]
4. What challenge(s) prevent you from using interpreter services? Please select all that apply.	• Procedural difficulties when contacting interpreter services • Video interpretation (VPOP) is unavailable when needed • In-person interpreter is unavailable when needed • Time constraints during patient interactions (e.g., scheduling/checkout) • Limited knowledge and training about existing interpreter services • Other: Please explain ___. • There are no challenges
In the past 12 mo…	
5. How often did you ask patients about their preferred spoken language for receiving medical care?	• Always • Very frequently • Occasionally • Rarely • Very rarely • Never
6. For patients who speak English less than very well, how often did you ask patients if they would like an interpreter?	
7. For patients who speak English less than very well, how often did you tell patients that interpreter services is a free of cost service?	
8. For patients who speak English less than very well, how often did you ask patients during checkout if they needed an interpreter for their next appointment?	
9. When patients requested an interpreter, how often did you call interpreter services to schedule an interpreter?	
10. Please provide us comments and/or recommendations on using medical interpreter services at [study site].	[Open-ended]

Table 3 Clinician characteristics (N = 83)

	n	%
Clinical role[a]		
Attending physician	51	61
Physician in training[b]	19	23
Other[c]	10	12
Languages spoken at a professional level[d]		
English only	58	70
Other[e]	25	30
Non–English-speaking clinic volume		
0 patients/mo	3	4
1–4 patients/mo	60	72
5–9 patients/mo	18	22
10–14 patients/mo	1	1
15+ patients/mo	1	1
Frequency using professional medical interpreter in clinic services		
0 times/mo	12	14
1–4 times/mo	55	66
5–9 times/mo	15	18
10+ times/mo	1	1

[a] Three individuals did not respond to question.
[b] Physician in training included 16 resident physicians and 3 clinical fellows.
[c] Other included 4 nurse practitioners, 2 registered nurses, and 4 neuro-diagnostic specialists.
[d] Twenty-five clinicians total spoke a language other than English, with a few speaking more than 1 (14 clinicians reported speaking 1 language other than English, 7 spoke 2, 3 spoke 3, and 1 spoke 4). Therefore, the total of percentages exceeds 100%.
[e] Other languages included Spanish (12), Portuguese (4), French (4), Arabic (4), German (3), Hindi (3), Italian (2), Cantonese (1), Creole (1), Gujarati (1), Hg (1), Japanese (1), Malayalam (1), Mandarin (1), Marathi (1), Tamil (1), and Telugu (1).

(Table 5). The quotes below are most representative of the themes that emerged when respondents were asked to justify their satisfaction ratings. Appendix e-1 (links.lww.com/CPJ/A84) provides additional quotes to further illustrate each domain:

A need to improve systems to arrange PMI services

Clinicians unanimously emphasized the importance of identifying and preparing to address patients' language needs ahead of appointments, "Patients [with language assistance needs] identified via [electronic medical records] should have in-person [interpreters set up] before appointment. Coordinators [should] ensure language-specific [interpreters] are there before appointment. Interpreters should also be [engaged] for diagnostic testing and should be automatically [involved] if a patient is scheduled for radiologic examination."

Table 4 Clinician self-reported practices, satisfaction, and barriers to using professional medical interpreters (N = 83)

	n	%
Interpretation modalities used in the past 12 mo[a]		
In-person trained interpreter	67	81
Family member or friend	62	75
Telephone interpreter	43	52
Video interpreter	41	49
Most frequent type of interpretation in the past 12 mo[b]		
In-person trained interpreter	32	39
Family member or friend of patient	23	28
Phone interpreter	10	12
Video interpreter	13	16
Satisfaction with interpreter services		
Very satisfied	28	34
Satisfied	35	42
Neither	6	7
Dissatisfied	6	7
Very dissatisfied	2	2
Have not used interpreter services	6	7
Perceived barriers preventing the use of interpreter services[c]		
Time constraints during patient interactions (e.g., scheduling/checkout)	50	60
In-person interpreter is unavailable when needed	42	51
Procedural difficulties when contacting interpreter services	16	19
Limited knowledge and training about existing interpreter services	6	7
Video interpretation (VPOP) is unavailable when needed	5	6
There are no challenges	12	14
Other[d]	14	17

[a] Two individuals did not respond to question.
[b] Four individuals did not respond to question.
[c] The sum of percentages exceeded 100% because respondents were asked to select all that apply.
[d] Respondents who answered "other" were asked to provide open-ended responses.

Preference for in-house in-person interpretation

There was a general perception that the quality of in-house in-person PMI seemed better than that of outsourced phone interpreters. The language interpreted seemed to influence responses, "Very happy with all in-person services. I would

Table 5 Patient services coordinators' self-reported practices and experiences working across language differences (N = 24)

	n	%	n	%
Practices	Always/frequently		Occasionally/never	
Asked patients what language they preferred to receive medical information	8	33	16	68
Asked patients who spoke English less than very well if they needed an interpreter	17	71	7	29
Informed patients that interpreter services were a free-of-cost service	8	33	16	67
Asked patients if they needed an interpreter for follow-up appointments[a]	12	50	11	46
Scheduled an interpreter when an interpreter was requested	18	75	6	25
Satisfaction with interpreter services				
Very satisfied	5	21		
Satisfied	12	50		
Neither	2	8		
Dissatisfied	1	4		
Very dissatisfied	0	0		
Have not used	4	17		
Perceived barriers preventing the use of interpreter services				
Time constraints during patient interactions (e.g., scheduling/checkout)	7	29		
In-person interpreter is unavailable when needed	11	46		
Procedural difficulties when contacting interpreter services	2	8		
Limited knowledge and training about existing interpreter services	4	17		
Video interpretation (VPOP) is unavailable when needed	2	8		
There are no challenges	8	33		
Other[b]	2	8		

[a] This was the only item where there was a nonresponder, n = 1.
[b] Respondents who answered "other" were asked to provide qualitative responses.

say about 70% of the time I'm happy with the phone services. Typically, it is non-Spanish that we have the most trouble with over the phone. Recently had an Arabic [interpreter] that was very hard to use and I was very concerned that information was not being translated fully. We brought in a family member that knew both languages to try and confirm that the full message was being given."

PMI as cultural allies

Respondents appreciated PMI professionalism and their role in facilitating interactions across cultural differences, "Sophisticated interpreter added extra cultural [information] and had discussed this particular patient with other interpreters."

Variable quality of PMI services

Respondents perceived problems of misinterpretation, omission, and unfaithful interpretation, "Because I speak Spanish, I have been able to test the effectiveness of the interpreter services when they are being used by the residents. I find that while the [interpretation] is literal, it is not adequate. For example, 'dizziness' is frequently misinterpreted."

Time challenges

There was general agreement of workflow problems with using in-person PMI services, and a perception of long wait times as a barrier to working with PMI, "In-person [interpreters] seem to be on tight schedules—difficult to coordinate with highly variable outpatient appointments with doctors or patients sometimes running late."

The complexity of including clinical trainees

Teaching residents and medical students is an integral part of the hospital's mission. However, respondents found involving PMI in a teaching setting complex, "I feel bad that the interpreters in person are made to wait in the clinic when we see patients in the Resident clinic because I have to wait [un]till the Residents present the case and to have some discussion

before we go and see the patient. Understandably some of our Interpreter colleagues get a bit upset by the delay."

Using phone and video interpretation

Many survey respondents recommended improved access to phone and video equipment. Several also recommended improved technical quality of and support for phone and video interpretation, "I use interpreter services quite often by phone to call a patient to set up an appointment or to confirm appointment."

Constraints to technology usage

Respondents identified disability-related considerations favoring in-person over other interpretation modalities, "The [video] interpreters are also generally high quality, but this method of communication can be challenging for patients with altered mental status or impaired hearing."

Use of ad hoc interpretation

Clinicians associated turning to patients' family members or friends to assist with interpretation with time, quality, and preference considerations, "Dissatisfied that [interpretation] took so much more time than using a loved one as an interpreter and was difficult to coordinate with clinic schedule."

Discussion

This cross-sectional survey of neurology clinicians and patient services coordinators working at a large academic medical center characterizes the challenges and opportunities to engage with PMI in neurology outpatient settings. Respondents' appreciation for, yet perception of a complexity of barriers that influenced their satisfaction and consistent engagement with PMI services aligns with reports from other medical specialties.

Clinicians in this and other studies reported satisfaction when engaging with PMI services. Similar to this study, a cross-sectional survey of clinicians working at 3 academic outpatient clinics in San Francisco suggested that most (78%) respondents were "very satisfied" or "satisfied" with the medical care they provided when engaging with PMI services.[23] An important theme captured in our qualitative analyses was that of clinicians appreciating PMI's contributions to improving cross-cultural understanding. Although PMI practice under codes of ethics and regulations that emphasize neutrality, they have also been characterized and proposed as "brokers" or "facilitators" of trust, cultural context, and continuity of care.[24,25]

Nonetheless, the underuse of PMI services reported in this study is pervasive across the continuum of health care. A survey of Spanish- and Chinese-speaking patients hospitalized at 2 urban medical centers captured that they often "got by" without an interpreter or "barely spoke" to clinicians, as physicians and nurses seemed to infrequently engage PMI services (14%–17% and 4% of the time, respectively).[6] These patient perceptions have been further characterized by retrospective analyses of administrative health care data quantifying gaps in the provision of PMI services (as low as 3.7% of the times required) in emergency department and inpatient settings.[26–28] Although less is known about the use of PMI services in outpatient clinics, similar patterns of underuse seem to exist in these environments.[29,30] As documented in our previous study of hospitalized patients with acute ischemic stroke, not engaging PMI services can negatively influence patients' quality of care.[4,17] Furthermore, the use of ad hoc interpreters carries the risk of greater clinically significant communication errors that can result in patient morbidity and even death.[31]

Neurology clinicians in this study are not alone in their attempts to maximize time. A survey of South Carolina health service providers documented having to wait for a PMI was an important factor for clinicians to "cut corners" and use ad hoc interpreters.[32] Surgical specialists providing preoperative consent for patients with LEP have volunteered relying on bilingual hospital staff, family members, or minors when the wait time for PMI services was greater than 15 minutes.[33] Certainly, there is variability in wait times after calling PMI services (for example, 19 minutes with a 17.5 SD in a busy surgical and procedural practice), yet technology-enabled PMI services have been proven to increase time efficiency (for example, the average wait time for PMI services reduced from 37 to 17 minutes after an academic medical center transitioned from face-to-face to video PMI services).[34,35]

Clinicians in this and other studies seem to prefer face-to-face interpretation despite the growing availability of technology-enabled PMI services that promise to improve efficiency. We suspect that a combination of clinical, logistical, and education factors shape this preference and its associated behaviors. As perceived in this study, speech or cognitive impairments may interfere with the effectiveness of using phone or video technology.[36] The literature also offers examples of clinically complex encounters that require intricate conversations (such as for discharge planning and education or end-of-life care) and may be perceived as more appropriate for face-to-face interpretation.[37,38] This and other studies also raise technology-related challenges with device connectivity, audio or video quality, and access to technical support when using phone or video PMI services.[39] Clinicians' perceived lack of education and workflow supports to effectively use technology-enabled PMI services pose further barriers.[23] Despite these challenges, technology-enabled PMI services are expanding and can be an excellent tool to reduce the use of ad hoc interpreters, decrease time delays, and maintain patients' satisfaction.[36,40–42]

Clinicians in this study voiced concerns about variability in the accuracy of interpretation by PMI. Although studies of transcribed clinical encounters have demonstrated gaps in the accuracy of interpretation by PMI, this problem decreases with greater hours of PMI training. Importantly, the greatest risk of misinterpretation with potential consequences remains when using ad hoc or no interpreters.[43,44] As neurology-specific terms

As neurology-specific terms or situations could pose unique challenges, there may be opportunities to enhance PMI training with neurology-specific content.

or situations could pose unique challenges, there may be opportunities to enhance PMI training with neurology-specific content.

Neurology outpatient clinics offer valuable opportunities for students, residents, and fellows to learn about the practice of neurology and refine their cross-cultural care abilities. Clinicians in this study perceived logistical challenges engaging PMI services when trainees were involved in encounters. At the same time, other studies have shown that lack of time and lack of role models can interfere with trainees' cross-cultural care preparedness and delivery.[45] Interventions to maximize outpatient clinic efficiency should consider these challenges.

A unique aspect of this study was involvement of patient services coordinators. Like their clinical colleagues, these frontline staff volunteered appreciation for but inconsistent use of PMI services. Gaps in the collection and confirmation of language data and PMI service needs also emerged. In-depth interviews of patients with LEP have certainly highlighted problems communicating with "front desk" staff across language differences, with negative influences on care coordination and patient satisfaction.[46] As important clinical allies, patient services coordinators must be included in education and system redesign interventions that seek to improve the collection and use of language data and PMI services. Federal and state bodies offer guidance to advance and sustain culturally and linguistically appropriate services in health care settings.[47,48]

The neurology community must be cognizant of the federal regulations to assure access to language services. Title VI of the Civil Rights Act first detailed that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." Executive Order 13166 Improving Access to Services for Persons with LEP subsequently clarified that "each Federal agency shall also work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP beneficiaries." It is important to emphasize that the Office of Civil Rights considers all the following entities as recipients of federal assistance from Health and Human Services and therefore subject to nondiscrimination requirements under Title VI and its implementing regulations: health care providers participating in the Children's Health Insurance Program and Medicaid programs, hospitals and nursing homes (recipients under Medicare Part A), Medicare Advantage Plans (such as health maintenance organizations and preferred provider organizations, recipients under Medicare Part C), prescription drug plan sponsors and Medicare Advantage Drug Plans (recipients under Medicare Part D), human or social service agencies, and insurers who are participating in the Marketplaces and receiving premium tax credits. Most recently, Section 1557 of the Affordable Care Act explicitly (1) prohibits discrimination on the grounds of race, color, national origin, sex, age, or disability in health programs and activities; (2) requires taking reasonable steps to provide meaningful access to language services and notifying individuals of their rights; (3) encourages developing and implementing a language access plan; and (4) prohibits low-quality interpreting services or relying on unqualified staff.[9] As with other Affordable Care Act requirements, the language service–related regulations apply to public and private neurology practices. The cost of PMI services can range from $45–$150/h for in-person to $1.25–$3.49/min for technology-enabled PMI services and may be reimbursed by a patient's Medicaid or other federally funded medical insurance.[9] Although automated translation services such as "Google Translate" remain free of cost and readily available, we strongly advise against the use of these services because they have been found to have serious errors.[49]

This study occurred at an outpatient neurology clinic set in a large urban academic medical center with robust PMI services, which may limit generalizability. Nonetheless, there are striking similarities between these data and an analysis of the state of affairs at 8 health care centers across the United States by the Centers for Medicare & Medicaid Services.[50] Despite every outpatient neurology clinician in the institution being invited to participate, the 40% consent and 35% response rates align with the expected survey participation rates among physicians who often cite lack of time and survey burden as barriers to engagement.[51] The voluntary and self-report aspects of this cross-sectional survey raise the potential for selection and recall bias. Although participants were informed that answers would remain anonymous, they may have been wary to respond honestly as some questions pertained to compliance with hospital procedures and policies. Future studies of PMI service use in neurology settings should capture the perspectives of patients and PMI; analyze actual PMI service utilization data; consider the role of language concordance; explore the gaps related to translation of documents; and most importantly test interventions to assure adequate access to language services for the growingly diverse population needing neurology care.

Neurology practices must strive to provide safe, effective, patient-centered, timely, efficient, and equitable patient care.[3] We have an opportunity to advance equity by assuring adequate access to language services despite challenges such as those captured in this survey.

TAKE-HOME POINTS

- More than 20% of Americans speak at least 1 of over 350 languages other than English at home.
- Neurology practices must be well equipped to address patients' needs and preferences including as it pertains to language.
- PMIs can facilitate effective communication across language differences yet remain underutilized in health care.
- Participants in this cross-sectional survey voiced appreciation for, yet perception of a complexity of barriers that influenced their satisfaction and consistent engagement with PMI services in neurology outpatient clinic settings.
- The neurology community must be aware of Federal regulations, including Section 1557 of the Affordable Care Act, that exist to assure appropriate access to language services.

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Betty M. Luan Erfe, MD	Massachusetts General Hospital, Boston, MA	Author	Interpreted the data and revised the manuscript for intellectual content
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References

1. U.S. Census Bureau. Language spoken at home: 2017 American Community Survey 1-year estimates. Available at: factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_1YR_S1601&prodType=table. Accessed December 3, 2018.
2. U.S. Census Bureau. Census Bureau reports at least 350 languages spoken in U.S. Homes. In: U.S. census [online]. Available at: census.gov/newsroom/press-releases/2015/cb15-185.html. Accessed December 3, 2018.
3. Institute of Medicine (US) Committee on Quality of Health Care in America. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press; 2001.
4. Karliner LS, Jacobs EA, Chen AH, Mutha S. Do professional interpreters improve clinical care for patients with limited English proficiency? A systematic review of the literature. Health Serv Res 2007;42:727–754.
5. Tate RC, Hodkinson PW, Meehan-Coussee K, Cooperstein N. Strategies used by prehospital providers to overcome language barriers. Prehosp Emerg Care 2016;20:404–414.
6. Schenker Y, Pérez-Stable EJ, Nickleach D, Karliner LS. Patterns of interpreter use for hospitalized patients with limited English proficiency. J Gen Intern Med 2011;26:712–717.
7. Karliner AS, Kruger JF, Quan J, Fernandez A. From admission to discharge: patterns of interpreter use among resident physicians caring for hospitalized patients with limited english proficiency. J Health Care Poor Underserved 2014;25:1784–1798.
8. Chen AH, Youdelman MK, Brooks J. The legal framework for language access in healthcare settings: title VI and beyond. J Gen Intern Med 2007;22(suppl 2):362–367.
9. Jacobs B, Ryan AM, Henrichs KS, Weiss BD. Medical interpreters in outpatient practice. Ann Fam Med 2018;16:70–76.
10. Flores G. The impact of medical interpreter services on the quality of health care: a systematic review. Med Care Res Rev 2005;62:255–299.
11. Lindholm M, Hargraves JL, Ferguson WJ, Reed G. Professional language interpretation and inpatient length of stay and readmission rates. J Gen Intern Med 2012;27:1294–1299.
12. Bagchi AD, Dale S, Verbitsky-Savitz N, Andrecheck S, Zavotsky K, Eisenstein R. Examining effectiveness of medical interpreters in emergency departments for Spanish-speaking patients with limited English proficiency: results of a randomized controlled trial. Ann Emerg Med 2011;57:248–254.
13. Karliner LS, Pérez-Stable EJ, Gregorich SE. Convenient access to professional interpreters in the hospital decreases readmission rates and estimated hospital expenditures for patients with limited English proficiency. Med Care 2017;55:199–206.
14. Njeru JW, Boehm DH, Jacobson DJ, et al. Diabetes outcome and process measures among patients who require language interpreter services in Minnesota primary care practices. J Community Health 2017;42:819–825.
15. Ngo-Metzger Q, Sorkin DH, Phillips RS, et al. Providing high-quality care for limited English proficient patients: the importance of language concordance and interpreter use. J Gen Intern Med 2007;22:324–330.
16. Luan Erfe B, Siddiqui KA, Schwamm LH, Mejia NI. Relationship between Language Preference and intravenous thrombolysis among acute ischemic stroke patients. J Am Heart Assoc 2016;5:e003782.
17. Luan Erfe BM, Siddiqui KA, Schwamm LH, Kirwan C, Nunes A, Mejia NI. Professional medical interpreters influence the quality of acute ischemic stroke care for patients who speak languages other than English. J Am Heart Assoc 2017;6:e006175.
18. Nicholl DJ, Appleton JP. Clinical neurology: why this still matters in the 21st Century. J Neurol Neurosurg Psychiatry 2015;86:229–233.
19. Massachusetts General Hospital Administrative Manual: Interpreter Services. Boston, MA: Massachusetts General Hospital; 2013:1–3.
20. Betancourt JR, Tan-McGrory A, Kenst K, et al. Annual Report on Health Care Quality 2014. Boston, MA: MGH Disparities Solution Center and MGH/MGPO Center for Quality and Safety; 2015.
21. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform 2009;42:377–381.
22. Glaser BG, Strauss AL. The Discovery of Grounded Research: Strategies for Qualitative Research. New York: Aldine De Gruyter; 1967.
23. Karliner LS, Pérez-Stable EJ, Gildengorin G. The language divide. The importance of training in the use of interpreters for outpatient practice. J Gen Intern Med 2004;19:175–183.
24. Kaufert JM, Putsch RW. Communication through interpreters in healthcare: ethical dilemmas arising from differences in class, culture, language, and power. J Clin Ethics 1997;8:71–87.

25. Betancourt JR, Renfrew MR, Green AR, et al. Improving Patient Safety Systems for Patients with Limited English Proficiency: A Guide for Hospitals. (Prepared by the Disparities Solutions Center, Mongan Institute for Health Policy at Massachusetts General Hospital and Abt Associates. Cambridge, MA, under Contract No. HHSA290200600011I). Rockville: Agency for Healthcare Research and Quality; AHRQ Publication No. 12-0041; 2012.
26. Blay N, Ioannou S, Seremetkoska M, et al. Healthcare interpreter utilization: analysis of health administrative data. BMC Health Serv Res 2018;18:348.
27. Ryan J, Abbato S, Greer R, Vayne-Bossert P, Good P. Rates and predictors of professional interpreting provision for patients with limited English proficiency in the emergency department and inpatient ward. Inquiry 2017;54:0046958017739981.
28. López L, Rodriguez F, Huerta D, Soukup J, Hicks L. Use of interpreters by physicians for hospitalized limited English proficient patients and its impact on patient outcomes. J Gen Intern Med 2015;30:783–789.
29. Bischoff A, Tonnerre C, Loutan L, Stalder H. Language difficulties in an outpatient clinic in Switzerland. Soz Praventivmed 1999;44:283–287.
30. Neill T, Irwin G, Owings CS, Cathcart-Rake W. Rural Kansas family physician satisfaction with caring for Spanish-speaking only patients. Kans J Med 2017;10:79–83.
31. Flores G. Language barriers to health care in the United States. N Engl J Med 2006; 355:229–231.
32. Mayo R, Parker VG, Sherrill WW, et al . Cutting corners: provider perceptions of interpretation services and factors related to use of an ad hoc interpreter. Hisp Health Care Int 2016;14:73–80.
33. Patel DN, Wakeam E, Genoff M, Mujawar I, Ashley SW, Diamond LC. Preoperative consent for patients with limited English proficiency. J Surg Res 2016;200:514–522.
34. Burkle CM, Anderson KA, Xiong Y, Guerra AE, Tschida-Reuter DA. Assessment of the efficacy of language interpreter services in a busy surgical and procedural practice. BMC Health Serv Res 2017;17:456.
35. Cisco Systems. Video interpreters cut wait times in half. Cisco Systems, Inc. Available at: cisco.com/c/dam/en_us/solutions/industries/docs/healthcare/ACMC_CS_v3.pdf. Accessed December 10, 2018.
36. Buchholz M, Ferm U, Holmgren K. "That is how I speak nowadays"—experiences of remote communication among persons with communicative and cognitive disabilities. Disabil Rehabil 2018;40:1468–1479.
37. Lee JS, Nápoles A, Mutha S, et al . Hospital discharge preparedness for patients with limited English proficiency: a mixed methods study of bedside interpreter-phones. Patient Educ Couns 2018;101:25–32.
38. Schenker Y, Smith AK, Arnold RM, Fernandez A. "Her husband doesn't speak much English": conducting a family meeting with an interpreter. J Palliat Med 2012;15:494–498.
39. Locatis C, Williamson D, Gould-Kabler C, et al. Comparing in-person, video, and telephonic medical interpretation. J Gen Int Med 2010;25:345–350.
40. Lion KC, Ebel BE, Rafton S, Zhou C, Hencz P, Mangione-Smith R. Evaluation of a quality improvement intervention to increase use of telephonic interpretation. Pediatrics 2015;135:e709–e716.
41. Crossman KL, Wiener E, Roosevelt G, Bajaj L, Hampers LC. Interpreters: telephonic, in-person interpretation and bilingual providers. Pediatrics 2010;125:e631–e638.
42. Anttilla A, Rappaport DI, Tijerino J, Zaman N, Sharif I. Interpretation modalities used on family-centered rounds: perspectives of Spanish-speaking families. Hosp Pediatr 2017;7:492–498.
43. Nápoles AM, Santoyo-Olsson J, Karliner LS, Gregorich SE, Pérez-Stable EJ. Inaccurate language interpretation and its clinical significance in the medical encounters of Spanish-speaking Latinos. Med Care 2015;53:940–947.
44. Flores G, Abreu M, Barone CP, Bachur R, Lin H. Errors of medical interpretation and their potential clinical consequences: a comparison of professional versus ad hoc versus no interpreters. Ann Emerg Med 2012;60:545–553.
45. Weissman JS, Betancourt J, Campbell EG, et al . Resident physicians' preparedness to provide cross-cultural care. JAMA 2005;294:1058–1067.
46. Calo WA, Cubillos L, Breen J, et al . Experiences of Latinos with limited English proficiency with patient registration systems and their interactions with clinic front office staff: an exploratory study to inform community-based translational research in North Carolina. BMC Health Serv Res 2015;15:570–578.
47. National Standards for Culturally and Linguistically Appropriate Services in Health and Health Care: A Blueprint for Advancing and Sustaining CLAS Policy and Practice. Rockville, MD: U.S. Department of Health and Human Services, Office of Minority Health; 2013.
48. Commonwealth of Massachusetts Department of Public Health Office of Minority Health. Best Practice Recommendations for Hospital-Based Interpreter Services (undated).
49. Patil S, Davies P. Use of Google Translate in medical communication: evaluation of accuracy. BMJ 2014;349:g7392.
50. Centers for Medicare & Medicaid Services. Building an organizational response to health disparities. Providing language services to diverse populations: Lessons from the field. Available at: cms.gov/About-CMS/Agency-Information/OMH/Downloads/Lessons-from-the-Field-508.pdf. Accessed January 24, 2019.
51. Cunningham CT, Quan H, Hemmelgarn B, et al . Exploring physician specialist response rates to web-based surveys. BMC Med Res Methodol 2015;15:32.