

An Exploratory Analysis of Patient-Provider Language-Concordant Home Health Care Visit Patterns

Home Health Care Management & Practice
1-7

© The Author(s) 2017

Reprints and permissions:

sagepub.com/journalsPermissions.nav

DOI: 10.1177/1084822317696706

journals.sagepub.com/home/hhc



Allison Squires, PhD, RN, FAAN¹, Timothy R. Peng, PhD²,
Yolanda Barrón-Vaya, MS², and Penny Feldman, PhD²

Abstract

Approximately one in five households in the United States speaks a language other than English at home. This exploratory, descriptive study sought to examine language-concordant visit patterns in an urban home health care agency serving a diverse and multilingual population. Patient care record data combined with administrative data facilitated the exploratory work. In a 2-year period, results showed that among the 238,513 visits with 18,132 limited English proficiency patients, only 20% of visits were language concordant. The study suggests that home health care services may not be meeting the demand for language services, but more research is needed to determine the right “dose” of bilingual home care visits to optimize home care outcomes and establish a standard for care.

Keywords

limited English proficiency, nurses, nursing, physical therapists, home health care, immigrants, migration, home health care

Introduction

In the United States, one in every five households speaks a language other than English at home.¹ According to the Agency for Healthcare Research and Quality, a limited English proficiency (LEP) individual speaks English less than “very well.”²

From an outcomes perspective, LEP patients are at higher risk of 30-day readmissions, longer length of stay in both the in-patient and emergency room settings, and adverse events.³⁻⁸ Interpreter services can help improve outcomes, but their implementation across sites is inconsistent and thus, so is their impact on patient outcomes.^{2,9-11} One factor impeding effective implementation may be the lack of third-party reimbursement for interpreter services.¹²⁻¹⁴ Language-concordant providers (those who speak the same language as the patient with proven sociolinguistic competence in the language) are an alternative solution.¹⁵⁻²⁰ Their availability, however, may be limited as no U.S. health care profession tracks language skills of its members and employing organizations often do a poor job tracking this kind of employee information. Nursing assistants or home health aides may often speak the language of their patients, but the scope of their skills and knowledge may be insufficient to affect patient outcomes.

The lack of research about the impact of language barriers on patient outcomes in home health care represents a point of vulnerability for LEP patients as they transition through the health care system. A recent review of research

on language barriers in health care shows that as U.S. policy changed to support more research studies on the subject, research output has increased but is notably lacking in randomized controlled trials, studies of professionals other than physicians, and analyses of sites outside of primary care or the hospital.²¹ In the case of home health care services, only one study, which focused on referral rates and service utilization of children in home care, has captured the negative impact language barriers have on children and families through delays and decreased access.⁶ Because quality of care transition management is critical for preventing hospital readmission from home health services^{22,23} and LEP patients are at higher risk of readmissions, this represents a significant gap in the literature.

The purpose of this descriptive study is to explore a potential vulnerability in home health care service delivery by examining the frequency of language-concordant visit patterns among home health patients as captured in electronic health record and organizational administrative datasets. The study limits its focus to registered nurses (RNs) and physical

¹New York University, New York City, NY, USA

²Visiting Nurse Service of New York, New York City, NY, USA

Corresponding Author:

Allison Squires, Associate Professor, Rory Meyers College of Nursing,
New York University, 433 First Avenue, New York, NY 10010, USA.

Email: aps6@nyu.edu

therapists (PTs) who provide the majority of skilled services in home health care.

Methods

The descriptive study took place at the Visiting Nurse Service of New York (VNSNY), the largest home health care agency in the United States. Institutional review board (IRB) approval for the study was obtained from the lead researcher's home institution and VNSNY.

VNSNY provides services in the most linguistically diverse region of the country. The organization, therefore, has extensive experience providing services to LEP patients. New York City has long served as a first stop for many immigrants moving to live in the United States and local health care service organizations have had to respond to both the legal requirements and demand for language-concordant health care services.

A language-concordant visit is defined as a visit where the provider speaks the same language as the patient or a human interpreter accompanies the provider on the visit. Use of telephone or family interpreters is not included in this analysis because it is documented in narrative notes in the electronic health record and therefore, not categorizable for a quantitative analysis. Only natural language processing software could capture that information and that was beyond the scope and resources of this study.

Home health care data can include the Outcome and Assessment Information Set (OASIS)—the standard and mandatory home health care documentation system²⁴—patient-focused administrative data captured by the agency to supplement OASIS data, and human resources (HR) records. To capture language-concordant encounter frequency, the researchers linked OASIS with organizational HR data, specifically the provider's self-reported language skills. Language skills self-report is a common way to measure perceived language skills and is used by the U.S. Census to capture English language skills among non-English-speaking populations.¹ In the case of patients, nurses document or confirm documentation of the patient's preferred language in the administrative data system. Preferred language is documented even if the patient speaks some English to address potential variations from self-reported language competency. No formal assessment of patient or provider language competence is conducted, largely for cost reasons.

Patient data for this exploratory work were limited to those referred from a hospital to home care. The analysis includes data for all cases admitted to the Adult Acute Care programs between January 1, 2012, and December 31, 2012, and discharged by April 1, 2013, regardless of the payor or service region (there are seven service regions in New York City). All cases were required to have at least one skilled nursing or PT visit in calendar year 2012. For the purpose of this analysis, a "case" was defined using the VNSNY definition: an admission to and discharge from home health

services. The units of analysis were the "cases," RN or PT visits associated with those cases, and home health staff (nurses or physical therapists) providing those visits. Reflecting normal home health care service delivery, more than one RN and/or PT may provide care (visits) to a given patient during a case and only RNs and PTs were included in the analysis.

To analyze the data, first we identified all adult cases that met the inclusion criteria. Then we identified all unique RNs and PTs providing care at any point during 2012 to those cases and extracted their data from the VNSNY's HR systems to produce the provider denominator. RN and PT language skills were obtained as structured text from HR, optionally volunteered by the RN/PT under the (not mutually exclusive) categories of "speaks," "read/writes," and "understands." For the purposes of this analysis, an RN/PT is considered to speak the language if the "speaks" and "understands" categories were identified in the HR record. Staff can have multiple language categories in their records (e.g., speak and understand more than one language).

Patient language is drawn from agency administrative systems and represents a prepopulated list of language fields including English, Blank (presumed English), Chinese, Italian, Greek, Korean, Patois, Russian, Spanish, Yiddish, Other. These data reflect the dominant immigrant demographics in the New York metro area. The Chinese language classification does not differentiate between Mandarin and Cantonese, a limitation of the data classification system. The differentiation is important as the socioeconomic profiles of Mandarin- and Cantonese-speaking Chinese immigrants is different and differs sufficiently that it may affect health outcomes.²⁵⁻²⁸ Provider languages are then mapped into the aforementioned VNSNY patient language categories. The use of an interpreter escort during a home visit is identified in administrative systems at the visit level. Visits are then categorized as "language concordant" or "not language concordant" through a binary classification in the dataset.

Descriptive statistics were then calculated to capture visit patterns with LEP patients and the frequency of language-concordant visits. RN and PT results are separated as each profession faces different workforce development challenges with regard to meeting the needs of LEP patients. No inferential analyses were conducted for this study but are planned for future work.

Results

From an overall dataset of 86,942 New York metro area patient cases who met the inclusion criteria for the period of study, 18,132 (21%) were identified as LEP and received a combined total of 238,513 visits by RNs and/or PTs (Table 1). The 21% LEP speakers align with U.S. census data.

After English-speaking patients, Spanish speakers were the largest group receiving home care services. Russian, Chinese, and Korean speakers rounded out the top languages.

Table 1. Cases and Visits.

	English-speaking patient		Non-English-speaking patient		Total <i>n</i>
	<i>n</i>	%	<i>n</i>	%	
Patients	56,295	80.2	13,884	19.8	70,179
Cases	68,810	79.1	18,132	20.9	86,942
RN visits	628,569	78.5	172,518	21.5	801,087
PT visits	287,227	81.3	65,995	18.7	353,222
RN and PT visits	915,796	79.3	238,513	20.7	1,154,309

Note. RN = registered nurse; PT = physical therapist.

For the purpose of this article, only the top languages are presented in the table, with the other languages grouped into a single category of "other" due to their comparatively low numbers.

Table 2 illustrates the provider utilization pattern by language group, including English-speaking patients for comparison. Among the LEP patients, Russian speakers had higher nursing service and physical therapy visits per case rates than all other LEP groups and English speakers. Asian language speakers had similar service utilization rates for both RNs and PTs. Spanish and English speakers had similar rates of RN visits but appear to have lower utilization rates of PT services.

Rates of provider-specific language-concordant visits among the language groups incorporated in this study shed light on service utilization patterns and are illustrated in Table 3. Overall, LEP patients had an average of 18.1% of RN visits and 26.7% of PT visits that were language concordant. Korean speakers had the highest percentage of language-concordant visits by nurses, with 31.3% of visits in that category followed by Russian (22.4%) and Chinese speakers (18.7%). Spanish speakers, despite the fact that the language is the second most spoken in the United States, had only 13.1% language-concordant visits by nurses. Among LEP patients receiving PT services, Koreans also had the highest percentage of language-concordant visits at 45.1%, with Chinese (30.1%) and Russian (25.1%) speakers also rounding out the top three. Compared with those groups, Spanish speakers had only 12% of visits with PTs classified as language concordant.

Table 4 illustrates visit patterns with interpreters who accompanied RNs or PTs to the patient's home and comprised 7.1% of visits on average. Spanish speakers had the highest average number of overall visits with a human interpreter (8.9%). Korean and Chinese speakers had 3.0% and 2.5% of visits with interpreters, respectively. When breaking down the visits further, it is notable that for all languages, 9.6% of RN visits and 0.5% of PT visits involved interpreter use. When combining the interpreter visits with the RN and PT language-concordant visits, only 20.2% of all home health care visits were language concordant with most of those visits by nursing personnel.

Finally, Table 5 illustrates the workloads of RNs and PTs with language skills versus English speakers. Workloads are based on provider case loads during the 15-month period. The data show that providers with language skills have higher overall workloads than their monolingual peers. Nurses with language skills saw 20 more patients in the 2-year period than their monolingual counterparts whereas PTs saw 13 more patients. Although this may seem like a small number of cases, the difference could translate into hundreds of more visits per year.

Discussion

This exploratory study highlighted a number of data limitations within the patient records and the HR data. These include inconsistent documentation of other forms of interpreters (e.g., telephone, family members) and the inability to differentiate between Mandarin and Cantonese speakers. As providers tend to overestimate their language skills unless they are a native speaker,^{19,29,30} that makes actual discernment of the impact of language-concordant encounters on patient outcomes more challenging. We also were unable to identify those employees who are not of the same racial or ethnic background as the clients, but who may have developed second-language skills as part of their career development or life experiences. There is also a lack of a formal language skills assessment for employees within the organization. Formal language skills assessment can require up to 4 hours of employee time and cost \$850 to \$1,000 per employee, thereby making language competence assessment cost prohibitive for some organizations. Thus, an accurate assessment of actual provider language skills could not be derived from the data. The estimate of only one in five LEP cases getting language-concordant care, therefore, may be an overestimate.

Nonetheless, it is a beginning and this is one of the first studies in any setting to link HR data with patient data to better understand the frequency of language-concordant encounters. Due to the substantial growth in LEP individuals living in the United States over the last 20 years, understanding how language barriers between patients and providers are captured in different health care contexts and electronic health records is important for understanding differences in patient outcomes and other sources of health disparities. Identifying where functional limitations of documentation of this information are present for health care team members and their supervisors can help organizations improve data capture and understand outcomes differences.

It is important to note that even though the 20% language-concordant visit number seems low, there is little or no evidence to determine what might be an appropriate "dose" of language-concordant visits nor is there a minimum standard of care for how organizations that seek to provide language-concordant care could actually improve their performance or to what effect. Therefore, we caution about interpreting the findings as not meeting the standards of care for LEP patients.

Table 2. RN and PT Utilization by Patient Language.

Patient language	Cases		RN visits		RN visits/case		PT visits		PT visits/case	
	<i>n</i>	%	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>
English	68,810	79.1	628,569	78.5	9.14	15.74	287,227	81.3	6.54	4.79
Chinese	1,181	1.4	9,615	1.2	8.14	12.42	3,964	1.1	5.82	4.30
Korean	296	0.3	2,355	0.3	7.96	7.69	1,021	0.3	5.87	4.01
Russian	1,336	1.5	15,481	1.9	11.59	17.13	5,816	1.6	7.39	6.37
Spanish	13,570	15.6	130,397	16.3	9.61	14.05	47,645	13.5	5.97	3.99
Other	1,749	2.1	14,670	1.8	7.71	9.30	7,549	2.1	6.17	4.18
Sub-total non-English	18,132	20.8	172,518	21.5	9.00	—	65,995	18.7	6.24	—
Total	86,942	100.0	801,087	100.0	9.03	12.72	353,222	100.0	6.29	4.61

Note. RN = registered nurse; PT = physical therapist.

Table 3. Non-English Cases by Provider Language Concordance—Overall by Visits.

Patient language	Cases	RN visits	Concordant RN visits (%)	PT visits	Concordant PT visits (%)	RN and PT visits	Concordant RN and PT visits (%)
Chinese	1,181	9,615	1,795 (18.7%)	3,964	1,194 (30.1%)	13,579	2,989 (22.0%)
Korean	296	2,355	737 (31.3%)	1,021	460 (45.1%)	3,376	1,197 (35.5%)
Russian	1,336	15,481	3,467 (22.4%)	5,816	1,460 (25.1%)	21,297	4,927 (23.1%)
Spanish	13,570	130,397	17,052 (13.1%)	47,645	5,728 (12.0%)	178,042	22,780 (12.8%)
Other	1,749	14,670	110 (5.0%)	7,549	60 (21.3%)	22,219	170 (12.1%)
Total non-English	18,132	172,518	23,161 (18.1%)	65,995	8,902 (26.72%)	238,513	32,063 (13.4%)

Note. RN = registered nurse; PT = physical therapist.

Table 4. Non-English Cases by Interpreter Use—Overall by Visits.

Patient language	Cases	RN visits	RN visit with interpreters (%)	PT visits	PT visits with interpreters	Combined RN and PT visits	Combined RN and PT visits with interpreters (%)
Chinese	1,181	9,615	273 (2.8%)	3,964	62 (1.6%)	13,579	335 (2.5%)
Korean	296	2,355	94 (4.0%)	1,021	7 (0.7%)	3,376	101 (3.0%)
Russian	1,336	15,481	274 (1.8%)	5,816	13 (0.2%)	21,297	287 (1.3%)
Spanish	13,570	130,397	15,690 (12.0%)	47,645	217 (0.5%)	178,042	15,907 (8.9%)
Other	1,749	14,670	155 (4.7%)	7,549	36 (2.1%)	22,219	191 (3.8%)
Total non-English	18,132	172,518	16,486 (9.6%)	65,995	335 (0.5%)	238,513	16,821 (7.1%)

Note. RN = registered nurse; PT = physical therapist.

The resulting visit patterns represent a complex intersection of both organizational and national workforce factors, as well as the aforementioned limitations of the data. To begin, when a nurse or PT first visits the home, the need for a language-concordant visit may be determined at that time. Hence, even if a patient indicates one's preferred language, if the patient appears comfortable communicating in English, then the provider may determine that language-concordant visits are not necessary.

A second factor to consider, and one that explains some of the variation in language-concordant visits rates, is the presence of culturally and linguistically congruent care teams. It is a strategy often used by home health care agencies to deliver care to minority populations with a language

barrier.³¹ In the case of VNSNY, the organization developed and implemented Korean care teams comprised of largely Korean-speaking nurses and PTs.

Third, the lack of adequate reimbursement for interpreter services or for the increased workloads of providers with language skills will also influence the language-concordant visit rates. We anticipate that the data from our current study will help identify factors like visit timing, length of visit, and other factors that may further influence these patterns.

A final factor to consider is the availability of providers with language skills and the links to immigration patterns to the United States. For example, within the "other" languages are Greek- and Italian-speaking patients. For these speakers, there were low rates of language-concordant visits due to a

Table 5. Average Number of Cases Served by Providers Between 2012 and 2013.

Provider type	Providers	All cases		Non-English cases		Non-English concordant cases	
		M	SD	M	SD	M	SD
All nurses	1,374	177.70	158.22	36.60	44.55		
No language skill	1,209	174.93	156.51	35.23	43.42	—	—
Language skill	165	197.96	169.38	46.64	51.09	34.38	48.83
All PTs	404	157.60	91.15	30.81	34.80		
No language skill	344	155.68	92.64	29.87	35.64	—	—
Language skill	60	168.65	81.87	36.20	29.13	25.22	25.94
All providers	1,778	173.13	145.94	35.29	42.59		
No language skill	1,553	170.67	145.00	34.05	41.87	—	—
Language skill	225	190.15	151.45	43.86	46.43	31.93	44.04

Note. PT = physical therapist. The bold text in the table aims to highlight the differences between providers with language skills and those without it.

lack of providers speaking those languages as most Greek and Italian immigrant descendants are now on their second, third, or fourth generation in the United States, and language skills of immigrant children diminish with each generation.³² Yet from the Spanish patient data, we see that there are too few Spanish-speaking nurses working in home care compared with the demand. The Latino population in the United States is now 17.6% of the total U.S. population. Latino nurses, however, comprise only 5% of the U.S. nursing workforce and figures are slightly worse for PTs.³³ Assuming Latino nurses or physical therapists are fluent in Spanish is also problematic. Like Italian speakers, several generations later the likelihood of descendants' language fluency decreases whereas higher education increases. Immigration patterns also vary by Latin American country of origin as do the demographics.^{34,35}

If the language capacity of the U.S. health care workforce was better understood, researchers could better determine the impact of language-concordant encounters in any setting on patient outcomes, while controlling for contextually based role variation. More effective data capturing of patients' preferred language, employee language skills, and training to work effectively with interpreters (of all kinds) will also help address this issue nationally. These efforts may simultaneously help address immigrant and other health disparities. Although efforts are implemented, however, health disparities in LEP patients may worsen unless workforce development strategies are implemented that help to increase the likelihood that these individuals will receive appropriately timed language-concordant encounters designed to optimize outcomes within constrained resources.

The broader significance of these findings is that as societies diversify through immigration, the demand for language-concordant health services will rise. Locations that are "new" to managing the linguistic diversity brought by changing immigration patterns can learn from organizations in

locations with more experience handling the issue and potentially find mutually beneficial solutions to addressing the problem.

The frequency of language-concordant health care encounters also has the potential to serve as a gross measure of cultural competence, unconscious bias, and discrimination in health services. A failure to adequately respond to demand for language-concordant services could, for example, be a reflection of how staff deliver and organize care or an organization's operational philosophy around addressing health disparities in the population it serves. How language barriers are addressed in health care by those involved in its delivery—from the nursing assistant up through the Chief Executive Officer—may reflect broader attitudes within the organization toward racial, ethnic, and linguistic minorities.

Thus, ensuring that language-concordant encounters happen across the care continuum is an important strategy for increasing access to care at earlier stages, reducing readmission risks, and improving care transitions throughout the health care system. By exploring this phenomenon in the home health care setting, this study provides a solid starting point for addressing the problem in an understudied setting and may inform how data related to language are managed in other health care settings. Future analyses evolving from this study will help determine the optimum "dose" of language-concordant visits needed to reduce disparities in outcomes among home health care patients.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received financial support for the research, authorship, and/or publication of this article: Funding for this work was received from the Agency for Healthcare Research and Quality (AHRQ), #R01HS023593.

References

1. Ryan C. *Language Use in the United States: 2011*. Washington, DC: US Department of Commerce - Economics and Statistics Administration. 2013.
2. Betancourt JR, Renfrew MR, Green AR, Lopez L, Wasserman M. *Improving Patient Safety Systems for Patients With Limited English Proficiency: A Guide for Hospitals*. Washington, DC: Agency for Health Care Research and Quality. 2012.
3. 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(10):1294-1299. doi:10.1007/s11606-012-2041-5.
4. Karliner LS, Kim SE, Meltzer DO, Auerbach AD. Influence of language barriers on outcomes of hospital care for general medicine inpatients. *J Hosp Med*. 2010;5(5):276-282. doi:10.1002/jhm.658.
5. Grover A, Deakyn S, Bajaj L, Roosevelt GE. Comparison of throughput times for limited English proficiency patient visits in the emergency department between different interpreter modalities. *J Immigr Minor Health*. 2012;14(4):602-607. doi:10.1007/s10903-011-9532-z.
6. Levas MN. Effects of the limited English proficiency of parents on hospital length of stay and home health care referral for their home health care-eligible children with infections. *Arch Pediatr Adolesc Med*. 2011;165(9):831-836. doi:10.1001/archpediatrics.2011.61.
7. Ginde AA, Clark S, Camargo CA. Language barriers among patients in Boston emergency departments: use of medical interpreters after passage of interpreter legislation. *J Immigr Minor Health*. 2009;11(6):527-530. doi:10.1007/s10903-008-9188-5.
8. Hines AL, Andrews RM, Moy E, Barrett ML, Coffey RM. Disparities in rates of inpatient mortality and adverse events: race/ethnicity and language as independent contributors. *Int J Environ Res Public Health*. 2014;11(12):13017-13034. doi:10.3390/ijerph111213017.
9. Jacobs EA, Sadowski LS, Rathouz PJ. The impact of an enhanced interpreter service intervention on hospital costs and patient satisfaction. *J Gen Intern Med*. 2007;22 (suppl 2):306-311. doi:10.1007/s11606-007-0357-3.
10. Tuot DS, Lopez M, Miller C, Karliner LS. Impact of an easy-access telephonic interpreter program in the acute care setting: an evaluation of a quality improvement intervention. *Jt Comm J Qual Patient Saf*. 2012;38(2):81-88. <http://www.ncbi.nlm.nih.gov/pubmed/22372255>. Accessed February 23, 2017.
11. Lor M, Xiong P, Schwei RJ, Bowers BJ, Jacobs EA. Limited English proficient Hmong- and Spanish-speaking patients' perceptions of the quality of interpreter services. *Int J Nurs Stud*. 2016;54:75-83. doi:10.1016/j.ijnurstu.2015.03.019.
12. Karliner LS, Hwang ES, Nickleach D, Kaplan CP. Language barriers and patient-centered breast cancer care. *Patient Educ Couns*. 2011;84(2):223-228. doi:10.1016/j.pec.2010.07.009.
13. Kravitz RL, Helms LJ, Azari R, Antonius D. Comparing the use of physician time and health care resources among patients speaking English, Spanish, and Russian. *Med Care*. 2000;38(7):728-738.
14. Ku L, Flores G. Pay now or pay later: providing interpreter services in health care. *Health Aff (Millwood)*. 2005;24(2):435-444. doi:10.1377/hlthaff.24.2.435.
15. Schenker Y, Karter AJ, Schillinger D, et al. The impact of limited English proficiency and physician language concordance on reports of clinical interactions among patients with diabetes: the DISTANCE study. *Patient Educ Couns*. 2010;81(2):222-228. doi:10.1016/j.pec.2010.02.005.
16. Eamranond PP, Davis RB, Phillips RS, Wee CC. Patient-physician language concordance and lifestyle counseling among Spanish-speaking patients. *J Immigr Minor Health*. 2009;11(6):494-498. doi:10.1007/s10903-008-9222-7.
17. Wilson E, Chen AHM, Grumbach K, Wang F, Fernandez A. Effects of limited English proficiency and physician language on health care comprehension. *J Gen Intern Med*. 2005;20(9):800-806. doi:10.1111/j.1525-1497.2005.0174.x.
18. 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(suppl 2):324-330. doi:10.1007/s11606-007-0340-z.
19. Diamond LC, Tuot DS, Karliner LS. The use of Spanish language skills by physicians and nurses: policy implications for teaching and testing. *J Gen Intern Med*. 2012;27(1):117-123. doi:10.1007/s11606-011-1779-5.
20. Gonzalez H., Vega WA, Tarraf W. Health care quality perceptions among foreign-born Latinos and the importance of speaking the same language. *J Am Board Fam Med*. 2010;23(6):745-752. doi:10.3122/jabfm.2010.06.090264.
21. Schwei RJ, Del Pozo S, Agger-Gupta N, et al. Changes in research on language barriers in health care since 2003: a cross-sectional review study. *Int J Nurs Stud*. 2016;54:36-44. doi:10.1016/j.ijnurstu.2015.03.001.
22. Naylor MD, Kurtzman ET, Pauly MV. Transitions of elders between long-term care and hospitals. *Policy Polit Nurs Pract*. 2009;10(3):187-194. doi:10.1177/1527154409355710.
23. Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists. *J Hosp Med*. 2007;2(5):314-323. doi:10.1002/jhm.228.
24. O'Connor M, Davitt JK. The Outcome and Assessment Information Set (OASIS): a review of validity and reliability. *Home Health Care Serv Q*. 2012;31(4):267-301. doi:10.1080/01621424.2012.703908.
25. Kosny A, MacEachen E, Lifshen M, Smith P. Another person in the room: using interpreters during interviews with immigrant workers. *Qual Health Res*. 2014;24(6):837-845. doi:10.1177/1049732314535666.
26. Lee C-C, Li D, Arai S, Puntillo K. Ensuring cross-cultural equivalence in translation of research consents and clinical documents: a systematic process for translating English to Chinese. *J Transcult Nurs*. 2009;20(1):77-82. doi:10.1177/1043659608325852.
27. Gulati S, Watt L, Shaw N, et al. Communication and language challenges experienced by Chinese and South Asian immigrant parents of children with cancer in Canada: implications for health services delivery. *Pediatr Blood Cancer*. 2012;58:572-578. doi:10.1002/pbc.
28. Chang E, Chan KS, Han H-R. Effect of acculturation on variations in having a usual source of care among Asian Americans and non-Hispanic whites in California. *Am J Public Health*. 2015;105(2):398-407. doi:10.2105/AJPH.2014.301950.

29. Andres E, Wynia M, Regenstein M, Maul L. Should I call an interpreter? how do physicians with second language skills decide? *J Health Care Poor Underserved*. 2013;24(2):525-539. doi:10.1353/hpu.2013.0060.
30. Rodriguez F, Cohen A, Betancourt JR, Green AR. Evaluation of medical student self-rated preparedness to care for limited English proficiency patients. *BMC Med Educ*. 2011;11(1):26. doi:10.1186/1472-6920-11-26.
31. Woerner L, Espinosa J, Bourne S, O'Toole M, Ingersoll GL. Project ¡ÉXITO!: success through diversity and universality for outcomes improvement among Hispanic home care patients. *Nurs Outlook*. 2009;57(5):266-273. doi:10.1016/j.outlook.2009.02.001.
32. Hagan J, Lowe N, Quingla C. Skills on the move: rethinking the relationship between human capital and immigrant economic mobility. *Work Occup*. 2011;38(2):149-178. doi:10.1177/0730888410397918.
33. Health Resources and Services Administration (HRSA). *Sex, Race, and Ethnic Diversity of US Health Occupations (2010-2012)*. Washington, DC: United States Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Workforce, National Center for Health Workforce Analysis. 2015.
34. Massey DS, Fischer MJ, Capoferro C. International migration and gender in Latin America: a comparative analysis. *Int Migr*. 2006;44(5):63-91. doi:10.1111/j.1468-2435.2006.00387.x.
35. Donato KM, Hiskey J, Durand J, Massey DS. Migration in the Americas: Mexico and Latin America in comparative context. *Ann Am Acad Pol Soc Sci*. 2010;630(1):6-17. doi:10.1177/0002716210368101.