



ELSEVIER



Featured Article

Integrating Health Care Interpreters Into Simulation Education

Beth Latimer, DNP, GNP-BC, CHSE^{a,*}, Gina Robertiello, MSN, RN, CEN, CHSE^b,
Allison Squires, PhD, RN, FAAN^c

^aClinical Assistant Professor, Rory Meyers College of Nursing, New York University, New York, NY, USA

^bAssistant Director of Simulation Learning, Undergraduate Nursing Program, Rory Meyers College of Nursing, New York University, New York, NY, USA

^cAssociate Professor, Rory Meyers College of Nursing, Research Associate Professor, Langone School of Medicine, New York University, New York, NY, USA

KEYWORDS

cultural competency;
health care interpreters;
interprofessional;
language barriers;
limited English
proficiency;
nursing students;
simulation;
nursing education

Abstract: Patients with limited English proficiency skills are accessing health care services more frequently around the world. Language barriers increase patient vulnerability for adverse events, and health care interpreters may mitigate this risk. Nursing education regarding the effective and appropriate use of health care interpreters has been limited. Interpreters are natural partners for nurses as a strategy to bridge language barriers with patients and could be integrated more regularly into nursing education using clinical simulation strategies. This article offers an overview of the different types of interpreters in health care, proposes recommendations for integrating them into simulation education, and provides a case example to illustrate implementation.

Cite this article:

Latimer, B., Robertiello, G., & Squires, A. (2019, July). Integrating health care interpreters into simulation education. *Clinical Simulation in Nursing*, 32(C), 20-26. <https://doi.org/10.1016/j.ecns.2019.04.001>.

© 2019 International Nursing Association for Clinical Simulation and Learning. Published by Elsevier Inc. All rights reserved.

In the United States and many other countries, health care professionals are more likely than ever to encounter patients with language barriers in their clinical practice, thanks to significant growth in the immigrant population over the last 30 years (Ryan, 2013). Regardless of when they have migrated, many immigrant and refugee communities maintain their first language. Although children learn languages quickly, adults and older adults may not, which means that they may never have learned enough English

to communicate effectively with a health care provider (Beck, Corak, & Tienda, 2012).

People with the inability to communicate clearly and effectively in English with their health care provider are classified as limited English proficiency (LEP) (LEP: A federal Interagency Website, 2019). When a patient has a language barrier, their vulnerability for adverse outcomes and health disparities increases significantly (Hyun et al., 2017). In the hospital, for example, both adult and pediatric LEP patients are at higher risk for readmission, longer lengths of stay, adverse events, and medication errors (Bailey, Sarkar, Chen, Schillinger, & Wolf, 2012; Ju, Luna, & Park, 2017;

* Corresponding author: bl11@nyu.edu (B. Latimer).

Karliner, Pérez-Stable, & Gregorich, 2017; Lindholm, Hargraves, Ferguson, & Reed, 2012; López, Rodríguez, Huerta, Soukup, & Hicks, 2015; Wu & Rawal, 2017). Another home care—based study found that patients with a language preference other than English may only receive

one in every five visits with a nurse who speaks their language (Squires, Peng, Barrón-Vaya, & Feldman, 2017).

With the risks to these patients so high, preparing health care providers such as nurses to appropriately bridge language barriers has become a critical component of their preparation, regardless of their level of clinical practice. Medical education research highlights the efficacy of different types of interventions to train medical students, interns, and residents in the appropriate use of language access services and suggests that medical students and residents overestimate their language skills (Hull, 2016; Moreno,

Walker, Morales, & Grumbach, 2011; Omoruyi, Dunkle, Dendy, McHugh, & Barratt, 2018; Parker, Steyn, Levitt, & Lombard, 2011; Rodríguez, Cohen, Betancourt, & Green, 2011; Vargas Pelaez et al., 2018). In nursing, we know only anecdotally that students who speak another language besides English are frequently pulled in to interpret for their classmates and other health care providers, regardless of whether or not their language skills were formally assessed or if they have any knowledge of medical vocabulary in their other language. All these scenarios place patients, students, and schools at risk for errors occurring due to miscommunication.

Addressing the issue of language barriers more systematically during entry level and advanced practice education is in its infancy in most health profession fields. Beyond just using an interpreter phone correctly, health care interpreters are an important part of the health care team for an LEP patient and their family members (Diamond, Tuot, & Karliner, 2012; Nailon, 2006; Pendergrass, Nemeth, Newman, Jenkins, & Jones, 2017; Propp et al., 2010; Radwin, Cabral, & Woodworth, 2013). Creating a patient case for simulation also adds another layer of complexity to the education scenario, thereby allowing instructors to see how well their students can adapt. More complex simulation cases mean students enter the professional practice world better prepared to manage the realities of complex patients, families, and systems. The purpose of this article is to provide simulation educators in health care

with an overview of the different types of interpreting modalities and examples of integrating interpreters into learning simulations.

An Overview of Health Care Interpreter Training and Interpreting Modalities

Safe communication when a language barrier is present is part of good patient safety practices (Hull, 2016). In the United States, health care organizations are required by Civil Rights laws to provide interpreters for anyone who does not speak English well enough to communicate their health care needs to a provider or for deaf individuals (Cyracom, 2016). Section 1557 of the Affordable Care Act changed how health care organizations are required to provide interpreting services to LEP patients and families, as well as placed new regulations that require health care professionals who have indicated they speak another language to get formal language skills testing if they are going to be able to work without an interpreter (Cyracom, 2016). There are also new health literacy questions developed by the Agency for Health Care Research and Quality that will become part of the national patient satisfaction surveys, like the Hospital Consumer Assessment of Healthcare Providers and Systems (McFarland, Johnson Shen, & Holcombe, 2017). Included in the health literacy questions are if and how providers used interpreters when communicating with LEP patients as well as quality ratings for the interpreter encounter (Agency for Healthcare Research and Quality, 2018). Integrating medical interpreters into simulation-based education, therefore, is a critical evolutionary step in all health profession education.

Health Care Interpreter Training

Health care interpreters have no required minimum standard for training or minimum level of education to become an interpreter. The National Council for Interpreting in Health Care, however, recommends training programs be at least 40 hours and include some clinical practicum time (NCIHC, 2011). There is a national code of ethics for health care—interpreting practice that guides interpreters with how to handle challenging situations while interpreting (National Council on Interpreting in Health Care, 2018). A voluntary national certification examination also allows interpreters to become certified in their field as well.

Because health care interpreters are an emerging profession, there is little good-quality data on the health care interpreting workforce. At present, the educational stratification of interpreters is not known. There are also no minimum salaries for interpreters, regardless of where they work, and many interpreters' income is based on multiple

Key Points

- Health care interpreters are needed to decrease adverse events for patients with limited English proficiency.
- Nursing students would benefit from experiences collaborating with health care interpreters and acceptable forms of interpretation.
- Simulation is an innovative and supportive way to provide nursing students experiences with limited English proficiency patients and means of interpretation.

Table 1 Types of Health Care Interpreters

Description	Benefits	Key Issues/Limitations
<p>In-person interpreter Someone either employed by the health care organization or contracted through an agency to be physically present to interpret between a patient and a provider.</p>	Patient and provider preference.	<ul style="list-style-type: none"> • Pose challenges in smaller communities or with less commonly spoken languages—languages of lesser diffusion (NCIHC, 2011). • Although interpreters are bound by Health Insurance Portability and Accountability Act, the patient may not have confidence that the information would not get out into their community.
<p>Dual-role interpreter This person is a health care provider who fluently speaks another language and is able to communicate safely and effectively with LEP patients who speak the same language. These providers may have grown up speaking another language, have migrated to the United States to work, or learned another language through years of study or living and working abroad.</p>	Language concordance between providers and patients may reduce barriers and improve quality of care for LEP patients (Moreno et al., 2011)	<ul style="list-style-type: none"> • Organizations need to assess any employees' language skills to ensure safe and effective communication for patients with language concordant provider (NCIHC, 2011). • Health care vocabulary may be limited even with employees who speak other languages. • Bilingual or multilingual students may be classified as dual-role interpreters, pulled in to interpret for their peers or even clinical site staff members, despite absent or limited training in best practices for health care interpreting. • Simulation can help students develop best practices to help them manage what could be complex situations that place both students and instructors at risk.
<p>Telephone interpreters</p>	Commonly used service across the United States to bridge language barriers in health care settings. Telephone interpreting services can be used effectively as an intervention to improve patient outcomes if they are organized in a way that suits the organization (López et al., 2015). When telephone interpreting implementation works well, it can be an efficient option to bridge a language barrier.	<ul style="list-style-type: none"> • Industry is not regulated—no minimum service quality standards; thus, trust issues about interpreting quality are common among health care providers. • Least liked by both patients and providers. Both report that the telephone creates a sense of depersonalization with the health care encounter. • In the case of elderly clients, they may have difficulty hearing the interpretation via the phone, depending on the available equipment. • Staff report dissatisfaction when it takes too long to obtain an interpreter on the phone or when there are problems with the connection.
<p>Video-based interpreters New and emerging service that can become an alternative to telephone interpreting.</p>	The ability for both patient and provider to be able to see the face of the interpreter increases overall satisfaction with the interpreting encounter.	<ul style="list-style-type: none"> • Requires a significant investment in capital and infrastructure to get the right technology installed. • Internet connections within a hospital need to be strong with sufficient bandwidth to handle the video-based transmission (Pendergrass et al., 2017). • Will become more commonplace over the next decade but may not be widely available at this time.
<p>Internet-based translation apps</p>	Translation apps convenience.	<ul style="list-style-type: none"> • Limited accuracy when used for medical phrase translations (Patil and Davies, 2014) • Use cautiously because of risk for error.

Note. LEP = limited English proficiency.

Table 2 Suggested Elements for LEP Simulation

Concept	Elements
Revised High-fidelity simulator scenario Goal: Communicate effectively with patient	<ul style="list-style-type: none"> • Preparation materials such as “National Standards of Practice for Interpreters in Health Care” • Fluent instructor to play voice of patient or prerecorded phrases on manikin software • Revise existing scenario to make patient LEP • Health care interpreter <ul style="list-style-type: none"> • Instructor plays phone interpreter (requires ability to phone into control room) • Additional instructor/teaching assistant plays in-person interpreter
Standardized patient scenario Goal: Communicate effectively with patient	<ul style="list-style-type: none"> • Preparation materials such as “National Standards of Practice for Interpreters in Health Care” • Develop scenario using INACSL Standards of Best Practice (2016a) making patient LEP • SP script with possible questions/responses • Fluent SP. Recommend training/practice session before running scenario • Health care interpreter <ul style="list-style-type: none"> • Instructor/teaching assistant plays in-person interpreter
High-fidelity simulator scenario Goal: Communicate effectively with patient using appropriate/available modes of translation	<ul style="list-style-type: none"> • Preparation materials such as “National Standards of Practice for Interpreters in Health Care” • Develop scenario using INACSL Standards of Best Practice (2016a) making patient LEP • Fluent instructor to play voice of patient or prerecorded phrases on manikin software • Health care interpreter <ul style="list-style-type: none"> • Partner with hospital-based interpreter agency • Instructor plays phone interpreter (requires ability to phone into control room) • Additional instructor/teaching assistant plays in-person interpreter • Use telephone or video-based interpreter or use Skype/FaceTime with fluent instructor
Standardized patient or high-fidelity patient simulator Goal: Interprofessional collaboration between health care interpreter and RN student	<ul style="list-style-type: none"> • Preparation materials such as “National Standards of Practice for Interpreters in Health Care” and “Interprofessional Collaborative Practice Core Competencies” (2016) • Develop scenario using INACSL Standards of Best Practice: Simulation-Enhanced Interprofessional Education (2016b) making patient LEP • Fluent instructor/SP to play role of patient • Partner with hospital-based interpreter agency for in-person interpreter • Optional: Include other disciplines for stronger interprofessional team building (e.g. medicine, social work, etc.)
Standardized patient or high-fidelity patient simulator Goal: Avoid misplaced reliance on family member to interpret (and/or staff member not authorized to translate)	<ul style="list-style-type: none"> • Preparation materials such as “National Standards of Practice for Interpreters in Health Care” • Develop scenario using INACSL Standards of Best Practice (2016a,b) making patient LEP • Fluent instructor/SP to play role of patient and fluent SP to play role of family member. • SP script with possible questions/responses. Family member should be scripted as an unreliable interpreter. Recommend training/practice session before running scenario • Health care interpreter <ul style="list-style-type: none"> • Partner with hospital-based interpreter agency • Fluent instructor/teaching assistant plays interpreter • Use telephone or video-based interpreter or use Skype/FaceTime with fluent instructor

Note. INACSL = International Nursing Association for Clinical Simulation and Learning; LEP = limited English proficiency; SP = standardized patient.

At our large, urban University, over 800 undergraduate students divide clinical time between the simulation and the hospital settings. This translates to scenarios occurring frequently, up to 18 times a semester, facilitated by 9-10 different instructors. Any simulation endeavor needs to be standardized for each section to ensure students have a fair exposure/availability to experiences. Implementing an LEP patient has been a challenge as not all instructors are proficient in another language. In Summer 2018, a scenario was revised and implemented to explore the feasibility of incorporating a Spanish-speaking patient into the curriculum.

The scenario prebriefing included additional facilitated discussion on language access and working with a patient with LEP. Anticipated patient core phrases (e.g. symptom description and requests) were recorded in Spanish and programed into the high fidelity patient simulator software for use by the facilitator during the scenario. Students utilized various strategies throughout the simulation to address language access with this patient. Debriefings explored challenges of ensuring language access, the use of telephone interpreters, dual role interpreters, and often misplaced reliance on family members and coworkers for interpretation during the simulation. Student feedback was positive for heightening awareness of patients' language access needs in their clinical practice, recommendations for the use of live interpreters and video interpreters, and requests for additional experiences with healthcare interpreters in simulation.

Figure Case example. *Note.* LEP, limited English proficiency.

per diem positions or contract work. Interpreter services are not always reimbursed by insurance, and only some states reimburse for interpreter services (Ku & Flores, 2005). This information is important to know for simulation-based education because any of these factors may affect the quality of interpreting services rendered. Addressing quality issues with interpreting, therefore, needs to be part of simulation-based education scenarios with interpreters.

Types of Health Care Interpreters

There are five different ways a health care professional can use an interpreter during a patient encounter: In-person, dual role, telephone, video, and computer. Each has its own pros and cons, as described in Table 1. Their availability will depend on organizational resources.

Proposed Recommendations for Integrating Interpreters into Simulation Scenarios

Outside of physician education, there is limited literature surrounding use of health care interpreters in a simulation scenario. Most examples address social awareness and cultural sensitivity, inclusion of the patient during the consultation when an interpreter is present, and issues regarding how best to use the interpreter (Hsieh, 2010; Hsieh & Kramer, 2012; Hull, 2016; Leanza, Boivin, & Rosenberg, 2010; Propp et al., 2010; Sleptsova, Hofer, Morina, & Langewitz, 2014). Most notably, Marion, Hildebrandt, Davis, Marin, and Crandall (2008)

implemented a simulation for Physician Assistant students aimed at working effectively with interpreters. Students took part in a scenario with a Spanish-speaking standardized patient and collaborated with a trained interpreter. Students were evaluated using an instrument that identified twelve key components of effective use of interpreters, which included both verbal and nonverbal communication. The article addresses the feasibility of training health care professional students compared with the complexity of training for Spanish language fluency.

In Table 2, we propose evidence-based recommendations for different types of simulation scenarios using interpreters. If creating an original scenario(s), using the International Nursing Association for Clinical Simulation and Learning Standards of Best Practice: Simulation Design (INACSL, 2016a) ensures critical elements are present throughout the process. The National Association for the Deaf also has guidelines for the use of video-interpreting services in the medical setting and those can be found on their website and used as a simulation development resource (NAD.org—National Association of the Deaf Website, 2019). Figure offers a case example of implementing the recommendations proposed in Table 2. Fluent faculty/staff who have had their fluency formally verified by an external evaluation or employing a fluent standardized patient brings realism to the scenario.

An easy way to integrate the principles of LEP into existing simulation scenarios involves revising the patient demographics to include ethnically diverse populations, such as Spanish-speaking immigrants. Spanish is the most common non-English language in the United States (Ryan, 2013) and useful for most scenarios; however, they can be edited to reflect linguistic populations relevant to the local area.

Nonetheless, it is essential that students are comfortable communicating with patients in English first before attempting to meet the objectives of a simulation with an LEP patient. Therefore, we recommend these scenarios for latter phases of the curriculum.

It is also important to remember that the health care interpreter is a valuable member of the interprofessional team. Simulation-based experiences are recognized as an effective way to promote interprofessional education and teamwork (INACSL, 2016a,b). Collaborating with interpreters helps create a dynamic, interprofessional simulation experience that aims to improve patient outcomes.

Instructors should also consider using different levels of interpretation throughout stages of the simulation or create several short scenarios, for example, three short scenarios in which one uses an in-person interpreter, phone interpreter, and a family member who attempts to act as the interpreter. Using a high-fidelity patient simulator (manikin) allows the same individual to play the voice of the manikin and the phone interpreter if students are able to call into the control room. Placing a tablet on wheels and using video chat services such as FaceTime or Skype simulates a video-based interpreter.

An advanced simulation scenario to address quality issues with interpreters involves scripting the health care interpreter to perform outside their code of ethics. For example, a scenario in which the interpreter answers for the patient as opposed to translating the information or gives the patient their personal opinion.

As with any simulation experience, learners should be briefed as to the expectations and limitations of the simulation environment and may benefit from knowing the learning objectives of the scenario(s). It may be necessary to provide learners materials to review in preparation, such as the National Standards of Practice for Interpreters in Health Care, developed by the National Council for Interpreting in Health Care. After the scenario, time should be allotted for debriefing, in which students identify their areas of strengths and areas for improvement, share observations, and ask questions. Health care interpreters can participate in debriefing and further explore their role, ensuring the professionals learn how to effectively collaborate with this increasingly important member of the interprofessional health care team.

Conclusion

Clinical simulation is a powerful platform for advancing quality and safety in patient care. LEP patients and families are especially vulnerable to gaps and failures in health care settings. Nurse and health profession educators can create rich simulation-based experiences that advance nurses' knowledge and leadership in applying current policy and best practices on work with interpreters for quality language access to ensure care. Integrating health care interpreters into simulation education is an essential next step

as we prepare nurses and teams to manage increasingly complex care, reduce the risk of harm, and improve care for a linguistically diverse population.

References

- Agency for Healthcare Research and Quality. (2018). CAHPS Health Literacy Item Sets | Agency for Healthcare Research & Quality. Retrieved from <https://www.ahrq.gov/cahps/surveys-guidance/item-sets/literacy/index.html>.
- Bailey, S. C., Sarkar, U., Chen, A. H., Schillinger, D., & Wolf, M. S. (2012). Evaluation of language concordant, patient-centered drug label instructions. *Journal of General Internal Medicine*, 27(12), 1707-1713. <https://doi.org/10.1007/s11606-012-2035-3>.
- Beck, A., Corak, M., & Tienda, M. (2012). Age at immigration and the adult attainments of child migrants to the United States. *The Annals of the American Academy of Political and Social Science*, 643(1), 134-159. <https://doi.org/10.1177/0002716212442665>.
- Cyrom. (2016). The new law on language access: How will section 1557 of the ACA impact care for LEP patients?. Tucson, AZ. Retrieved from www.cyrom.com.
- Diamond, L. C., Tuot, D. S., & Karliner, L. S. (2012). The use of Spanish language skills by physicians and nurses: Policy implications for teaching and testing. *Journal of General Internal Medicine*, 27(1), 117-123. <https://doi.org/10.1007/s11606-011-1779-5>.
- Hsieh, E. (2010). Provider-interpreter collaboration in bilingual health care: Competitions of control over interpreter-mediated interactions. *Patient Education and Counseling*, 78(2), 154-159. <https://doi.org/10.1016/j.pec.2009.02.017>.
- Hsieh, E., & Kramer, E. M. (2012). Medical interpreters as tools: Dangers and challenges in the utilitarian approach to interpreters' roles and functions. *Patient Education and Counseling*, 89(1), 158-162. <https://doi.org/10.1016/j.pec.2012.07.001>.
- Hull, M. (2016). Medical language proficiency: A discussion of interprofessional language competencies and potential for patient risk. *International Journal of Nursing Studies*, 54, 158-172. <https://doi.org/10.1016/j.ijnurstu.2015.02.015>.
- Hyun, K. K., Redfern, J., Woodward, M., Briffa, T., Chew, D. P., Ellis, C., ..., & Brieger, D. (2017). Is there inequity in hospital care among patients with acute coronary syndrome who are proficient and not proficient in English language?: Analysis of the SNAPSHOT ACS study. *The Journal of Cardiovascular Nursing*, 32(3), 288-295. <https://doi.org/10.1097/JCN.0000000000000342>.
- INACSL Standards Committee. (2016a). INACSL standards of best practice: SimulationSM: Simulation Design. *Clinical Simulation in Nursing*, 12, S5-S12. <https://doi.org/10.1016/j.ecns.2016.09.005>.
- INACSL Standards Committee. (2016b). INACSL standards of best practice: SimulationSM: Simulation-enhanced interprofessional education (Sim-IPE). *Clinical Simulation in Nursing*, 12, S34-S38. <https://doi.org/10.1016/j.ecns.2016.09.011>.
- Ju, M., Luna, N., & Park, K. T. (2017). The effect of limited English proficiency on pediatric hospital readmissions. *Hospital Pediatrics*, 7(1), 1-8. <https://doi.org/10.1542/hpeds.2016-0069>.
- Karliner, L. S., Pérez-Stable, E. J., & Gregorich, S. E. (2017). Convenient access to professional interpreters in the hospital decreases readmission rates and estimated hospital expenditures for patients with limited English proficiency. *Medical Care*, 55(3), 199-206. <https://doi.org/10.1097/MLR.0000000000000643>.
- Ku, L., & Flores, G. (2005). Pay now or pay later: Providing interpreter services in health care. *Health Affairs (Project Hope)*, 24(2), 435-444. <https://doi.org/10.1377/hlthaff.24.2.435>.
- Leanza, Y., Boivin, I., & Rosenberg, E. (2010). Interruptions and resistance: A comparison of medical consultations with family and trained interpreters. *Social Science & Medicine* (1982), 70(12), 1888-1895. <https://doi.org/10.1016/j.socscimed.2010.02.036>.

- LEP.gov - Limited English Proficiency (LEP): A federal Interagency Website (2019). Retrieved from <https://www.lep.gov/>.
- Lindholm, M., Hargraves, J. L., Ferguson, W. J., & Reed, G. (2012). Professional language interpretation and inpatient length of stay and readmission rates. *Journal of General Internal Medicine*, 27(10), 1294-1299. <https://doi.org/10.1007/s11606-012-2041-5>.
- López, L., Rodríguez, F., Huerta, D., Soukup, J., & Hicks, L. (2015). Use of interpreters by physicians for hospitalized limited English proficient patients and its impact on patient outcomes. *Journal of General Internal Medicine*, 30(6), 783-789. <https://doi.org/10.1007/s11606-015-3213-x>.
- Marion, G. S., Hildebrandt, C. a, Davis, S. W., Marín, A. J., & Crandall, S. J. (2008). Working effectively with interpreters: A model curriculum for physician assistant students. *Medical Teacher*, 30(6), 612-617. <https://doi.org/10.1080/01421590801986539>.
- McFarland, D. C., Johnson Shen, M., & Holcombe, R. F. (2017). Predictors of satisfaction with doctor and nurse communication: A national study. *Health Communication*, 32(10), 1217-1224. <https://doi.org/10.1080/10410236.2016.1215001>.
- Moreno, G., Walker, K. O., Morales, L. S., & Grumbach, K. (2011). Do physicians with self-reported non-English fluency practice in linguistically disadvantaged communities? *Journal of General Internal Medicine*, 26(5), 512-517. <https://doi.org/10.1007/s11606-010-1584-6>.
- Nailon, R. E. (2006). Nurses' concerns and practices with using interpreters in the care of Latino patients in the emergency department. *Journal of Transcultural Nursing: Official Journal of the Transcultural Nursing Society/Transcultural Nursing Society*, 17(2), 119-128. <https://doi.org/10.1177/1043659605285414>.
- National Council on Interpreting in Health Care. (2018). Ethics and standards of practice. Retrieved from <https://www.ncihc.org/ethics-and-standards-of-practice>.
- NCIHC. (2011). *National standards for healthcare interpreter training programs*. Washington, DC. Retrieved from http://www.ncihc.org/assets/documents/publications/National_Standards_5-09-11.pdf
- Omoruyi, E. A., Dunkle, J., Dendy, C., McHugh, E., & Barratt, M. S. (2018). Cross talk: Evaluation of a curriculum to teach medical students how to use telephone interpreter services. *Academic Pediatrics*, 18(2), 214-219. <https://doi.org/10.1016/j.acap.2017.11.010>.
- Parker, W.-A., Steyn, N. P., Levitt, N. S., & Lombard, C. J. (2011). They think they know but do they? Misalignment of perceptions of lifestyle modification knowledge among health professionals. *Public Health Nutrition*, 14(8), 1429-1438. <https://doi.org/10.1017/S1368980009993272>.
- Patil, S., & Davies, P. (2014). Use of google translate in medical communication: evaluation of accuracy. *BMJ*, 349, g7392. <https://doi.org/10.1136/bmj.g7392>.
- Pendergrass, K. M., Nemeth, L., Newman, S. D., Jenkins, C. M., & Jones, E. G. (2017). Nurse practitioner perceptions of barriers and facilitators in providing health care for deaf American sign language users: A qualitative socio-ecological approach. *Journal of the American Association of Nurse Practitioners*, 29(6), 316-323. <https://doi.org/10.1002/2327-6924.12461>.
- Propp, K. M., Apker, J., Zabava Ford, W. S., Wallace, N., Serbenski, M., & Hofmeister, N. (2010). Meeting the complex needs of the health care team: Identification of nurse-team communication practices perceived to enhance patient outcomes. *Qualitative Health Research*, 20(1), 15-28. <https://doi.org/10.1177/1049732309355289>.
- Radwin, L. E., Cabral, H. J., & Woodworth, T. S. (2013). Effects of race and language on patient-centered cancer nursing care and patient outcomes. *Journal of Health Care for the Poor and Underserved*, 24(2), 619-632. <https://doi.org/10.1353/hpu.2013.0058>.
- Rodríguez, F., Cohen, A., Betancourt, J. R., & Green, A. R. (2011). Evaluation of medical student self-rated preparedness to care for limited English proficiency patients. *BMC Medical Education*, 11(1), 26. <https://doi.org/10.1186/1472-6920-11-26>.
- Ryan, C. (2013). *Language use in the United States: 2011*. Washington, DC: US Census Bureau. <https://www2.census.gov/library/publications/2013/acs/acs-22/acs-22.pdf>.
- Sleptsova, M., Hofer, G., Morina, N., & Langewitz, W. (2014). The role of the health care interpreter in a clinical setting—a narrative review. *Journal of Community Health Nursing*, 31, 167-184. <https://doi.org/10.1080/07370016.2014.926682>.
- Squires, A., Peng, T. R., Barrón-Vaya, Y., & Feldman, P. (2017). An Exploratory Analysis of Patient-Provider Language-Concordant Home Health Care Visit Patterns. *Home Health Care Management & Practice*, 29(3), 161-167. <https://doi.org/10.1177/1084822317696706>.
- Vargas Pelaez, A. F., Ramirez, S. I., Valdes Sanchez, C., Piedra Abusharar, S., Romeu, J. C., Carmichael, C., ..., & Silveyra, P. (2018). Implementing a medical student interpreter training program as a strategy to developing humanism. *BMC Medical Education*, 18(1), 141. <https://doi.org/10.1186/s12909-018-1254-7>.
- Wu, M. S., & Rawal, S. (2017). "It's the difference between life and death": The views of professional medical interpreters on their role in the delivery of safe care to patients with limited English proficiency. *PLoS One*, 12(10), e0185659. <https://doi.org/10.1371/journal.pone.0185659>.