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### ¿Cómo se dice...? An analysis of patient-provider communication through bilingual providers, blue phones and live translators (Poster)

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**¿Cómo se dice...? An analysis of patient-provider communication through bilingual providers, blue phones and live translators**

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Project Type: Performance/Process/Quality Improvement

Scholar's Domain: Data Collection and Analysis/Biostatistics, Disparities, Performance/Quality Improvement, Patient Safety

## **Abstract**

Introduction: The ability to effectively and efficiently communicate with patients is a fundamental aspect of medical care. However, the ability to communicate with a patient who does not speak English creates an unfortunate roadblock for providers. Currently, a provider must either be bilingual, utilize a live translator or call into a translation service in order to communicate with low-English proficient patients.

Methods: This process improvement cross-sectional investigation looked to elucidate the similarities and differences among the three modes of translation from the patient's perspective. Seventy-five low-English proficient patients in the outpatient Internal Medicine and Family Medicine settings were issued surveys that examined eleven domains of the patient-physician relationship when these modes of translation were utilized. Utilizing a likert scale, the eleven domains analyzed were: physician understanding, patient question understanding, patient comfort, patient honesty, patient connection, patient treatment understanding, patient question asking, patient trust, patient compliance, patient return and patient recommendation.

Results: Overall, statistical analyses showed that bilingual physicians have statistically significant higher likert scores across many domains when compared to live translators or translation services. When the study population was grouped by age (<45 vs >45) or gender (male vs female), minimal statistically significant differences were found between the two groups.

Discussion: The analysis in this investigation shows that overall patient satisfaction, when taken as the sum of eleven domains, is most likely highest when physicians are bilingual.

Conclusion: This finding suggests that in order to maximize patient outcomes and, subsequently, physician compensation in today's healthcare model, physicians should be or at least provided the means to become poly-lingual.

## Introduction

As western medicine continues to evolve and uncover novel ways to treat disease, one foundational aspect of the patient-physician relationship remains largely unmanaged: communication. For a monolingual physician, the assignment of communicating with a low-English proficient patient the nuances of their illness and treatment details is a daunting one. Despite the use of live interpreters and blue translator phones, monolingual providers in the inpatient or outpatient setting often times walk away at the end of these encounters wondering whether the patient had 100% understanding of what was explained. In this context, multiple questions arise: which communication method is preferred by patients in the Cooper University Hospital system? Which method maximizes patient understanding of their illness and satisfaction with their care? What should monolingual and bilingual providers change in order to communicate with low-English proficient patients optimally?

Miscommunicating a patient's illness or treatment plan has many implications. A patient could take a medication incorrectly and develop adverse side effects. One could believe that their illness is much more severe than it is bringing about unnecessary stress. On the other hand, an individual may underestimate the morbidity and mortality associated with their significant untreated chronic illness and suffer from long term complications. Unfortunately, these potential "patient management" consequences do not begin to address the interpersonal blows that miscommunication can have in the patient-physician relationship. By using blue translator phones or a live interpreter, patients may be hesitant to share intricate details of their personal lives, may not completely trust the information they are being told or may feel as if their story is not being completely articulated to their healthcare team. As such, miscommunication could ultimately result in sub-optimal and dissatisfactory care. It is not hard to believe that this potential sub-optimal and dissatisfactory care could result in worse outcomes across multiple healthcare settings.

After conducting a thorough literature review, this study found no previously published process-improvement investigations that examined the patient-physician relationship with respect to all three translation mediums from the user's perspective. Most recently, a meta-analysis of 76 studies completed in 2003 found that although bilingual physicians and trained medical interpreters have higher patient satisfaction when the data from all 76 investigations were pooled, no study has ever asked patients to compare bilingual physicians, live interpreters and over-the-phone translation services at the same time<sup>1</sup>. In this context, this study looks to fill this gap. By asking investigation participants to analyze all three mediums simultaneously, this study looks to eliminate the bias introduced when multiple studies are pooled together as in a meta-analysis.

In the end, the implications of not effectively communicating with patients who have low-English proficiency adversely affect a healthcare system in two ways: outcomes and compensation. A healthcare system that does not employ the optimal communication means is bound to have poorer outcomes either as a result of poor patient understanding, lack of follow-up, more emergency department visits secondary to unmanaged chronic disease, etc. In this manner, from the patient's perspective, the quality of the services provided will be low and, as a result, compensation will not be as high in today's healthcare climate. In this manner, communication can be seen as the foundation on which medicine is practiced currently and will be practiced in the future. Even though care-providers may have all the tools to treat disease, without 100% partnership with the patient, health outcomes will not be optimal and total healthcare costs will be higher. Overall, this study looks to examine patient communication preferences and which communication style (blue translator phones, live interpreters or bilingual physicians) optimizes the patient-physician relationship. The fact of the matter is that health outcomes cannot be 100% controlled. Therefore, the least we can do as healthcare providers is to try and maximize all aspects of patient care in order to leave the smallest amount up to chance.

## Methods

This investigation developed and utilized a 33-question survey (Figure 1). The survey was developed in order to elucidate eleven different domains of the physician-patient relationship when a specific translation medium (i.e. bilingual physician vs blue phone vs live translator) was utilized. The eleven domains of the physician-patient relationship that were examined were:

1. Physician understanding
2. Patient question understanding
3. Patient comfort
4. Patient honesty
5. Patient connection
6. Patient treatment understanding
7. Patient question asking
8. Patient trust
9. Patient compliance
10. Patient return
11. Patient recommendation

The survey was written at a 5th-grade Spanish reading level and utilized a likert scale for each question. Each question presented patients with five options: completely disagree, disagree, neutral, agree and completely agree. Along with the core 33-question survey, patient's age and gender were collected in order to see if the statistical analysis of this investigation changed when these factors were controlled for.

In order to collect reliable data, a specific study population was identified. The denominator in this investigation consisted of all the patients within Dr. Adolfo Prettel's Cooper Internal Medicine practice and The Kroc Center Cooper Family Medicine practice. Within this group of potential study participants, the following inclusion criteria were utilized: patient was Spanish-speaking only, patient was a member of the practice for at least three years and patient had utilized translation services in at least two distinct Cooper Healthcare settings (e.g. outpatient, inpatient, emergency department, etc.). Possible

survey participants were identified by any member of the office staff (front office staff, medical assistants, physicians, etc.) as patients were roomed prior to the physician seeing the patient. Patients were asked whether they would like to participate in the survey and were given the survey to complete prior to their examination if they expressed interest. The survey was collected from the patient after completion and placed in a folder to be collected every two weeks.

This study began survey administration on 12/1/2016 and terminated survey administration on 6/1/2017. During this seven month timeframe, a total of 75 patients were surveyed between the two offices. One obstacle was encountered during survey administration. Throughout the seven month timeline, many patients found the survey difficult to complete in a timely manner. Specifically, though the survey was written for individuals with a 5th-grade reading level, patients who did not know how to read or write were not able to complete the survey by themselves. They required the assistance of office staff in order to complete all 33 questions. In order to allow these patients to also participate in the study, survey administration was changed on 3/1/2016. On this day, patients who opted to participate in this investigation were given the survey at the end of their visit and were requested to complete the survey in the waiting room prior to leaving the office with the help of available office staff. Once the survey was submitted to front office staff and filed in the proper location, a short note was completed in the patient's medical record as so that the patient did not complete the survey twice.

Once survey administration was completed on 6/1/2017, the surveys were collected and transcribed into Microsoft Excel. The likert scale of the survey and gender of the survey participants were mapped as follows:

- ▶ Completely disagree —> 1
- ▶ Disagree —> 2
- ▶ Neutral —> 3
- ▶ Agree —> 4
- ▶ Completely agree —> 5
- ▶ Male —> 1

- ▶ Female —> 2

The completed data set was then sent to Dr. John Gaughan of Cooper University Hospital for data analysis.

## **Results**

The statistical analysis of this study was completed by John Gaughan, MS, PhD, MBA of Cooper University Hospital. The data was translated from the surveys into Microsoft Excel as delineated in the Methods section of this paper. The data was then sent to Dr. John Gaughan for a one-way ANOVA analysis (Kruskal-Wallis test). The results of Dr. Gaughan's analysis are represented in Table 1, Table 2, Table 3 and Table 4. Table 1 shows the distribution of the baseline characteristics collected concerning this investigation's study participants. The baseline characteristics used for further statistical analysis were participant age and participant gender. Table 2 shows the results of the one-way ANOVA analysis of the entire study population broken down into three pairings (bilingual physician vs live interpreter, bilingual physician vs blue translator phone, live interpreter vs blue translator phone) for each of the eleven domains analyzed. Table 3 and Table 4 delineate the statistical analysis completed when the study population was stratified by their baseline characteristics. Specifically, Table 3 shows any statistically significant differences in the survey responses between males and females within each domain of each medium of translation. In a similar fashion, Table 4 shows any statistically significant differences in the survey responses between participants age < 45 and participants age > 45 within each domain of each medium of translation.

## **Discussion**

The results of this study offer us great insight into the patient's perspective on the translation services used within Cooper University Healthcare system. Although the number of females to males



surveyed in this study was disproportionate, this investigation did survey an equal number of individuals aged > 45 and individuals aged < 45. As such, the results of this investigation must be interpreted keeping in mind that 60% of the participants were female and 40% were male.

In this context, when bilingual physicians were compared to live interpreters, bilingual physicians outperformed with statistical significance live interpreters in the following domains of the patient-physician relationship: physician understanding, patient question understanding, patient comfort, patient honesty, patient connection, patient treatment understanding, patient trust, patient compliance, patient return and patient recommendation. Further, bilingual physicians outperformed with statistical significance blue translator phones in the following domains of the patient-physician relationship: physician understanding, patient comfort, patient return and patient recommendation. Moreover, live interpreters outperformed with statistical significance blue translator phones in the following domains of the patient-physician relationship: patient question understanding, patient comfort, patient honesty, patient connection, patient treatment understanding and patient question asking. Of note, blue translator phones did not outperform with statistical significance bilingual physicians or live interpreters in any domain of the patient-physician relationship.

When controlled for gender, only 2 of out 33 possible total domains showed a statistically significant difference in the responses between males and females: patient question understanding with live interpreters and patient compliance with live interpreters. Specifically, females had higher patient question understanding with live interpreters and females had higher patient compliance with live interpreters. Similarly, when controlled for age, only 2 out of 33 possible total domains showed a statistically significant difference in the responses between participants age < 45 and participants age > 45: patient comfort with blue translator phones and patient trust with live interpreters. Specifically, participants age < 45 had higher patient comfort with blue translator phones and age < 45 had higher patient trust with live interpreters.

This investigation uses the sum of all the domains in which there were statistically significant findings as a model for total patient satisfaction. As such, bilingual translators have the highest patient satisfaction as they outperformed live interpreters (10 vs 0) and blue translator phones (4 vs 0). Live interpreters have the second highest patient satisfaction within the Cooper University Healthcare system as they outperformed blue translator phones (6 vs 0). Therefore, among the three forms of translation, blue translator phones have the lowest patient satisfaction as they did not outperform bilingual physicians or live interpreters in any domain of the patient-physician relationship. This study interprets these results as saying that when in a patient encounter with a patient who is low-English proficient, one should attempt to communicate with the patient through a bilingual physician first, a live interpreter second and the blue translator phone last.

It is also interesting to see that female participants expressed higher patient question understanding and patient compliance when compared to males with live interpreters. There is a possibility that these results are due to the fact that more women than men participated in the study. However, these results could also be influenced by cultural dynamics and social factors that this study did not take into account. Similarly, it is not surprising that the older participants in this study expressed less patient comfort with blue translator phones and less patient trust with live interpreters when compared to their younger counterparts. These results suggest that the older population prefers a doctor who speaks their own language and are not fully comfortable when third-party individuals and/or third-party technology services are used as substitutes. These third-party mediums are unable to replicate the traditional medical care setting these patients were accustomed to in their home countries. Nevertheless, as a whole this study shows that when age and gender are taken into account for this investigation's participants, they did not statistically influence the vast majority of total domains (31/33 for each).

## **Conclusion**

In conclusion, communicating with low-English proficient patients is a challenge for all monolingual healthcare providers. The three main mediums of translation used within the Cooper University Healthcare system are bilingual physicians, live interpreters and blue translator phones. As such, the objective of this study was to examine patient satisfaction in the patient-physician relationship from the patient's perspective when these three modes of translation were utilized. The eleven domains of the patient-physician relationship examined in this investigation were: physician understanding, patient question understanding, patient comfort, patient honesty, patient connection, patient treatment understanding, patient question asking, patient trust, patient compliance, patient return and patient recommendation. Overall, patient satisfaction was defined as the total number of domains a translation service was able to outperform the other mediums with statistical significance. After surveying 75 low-English proficient patients in the outpatient Internal Medicine and Family Medicine settings, this investigation found that when entering an encounter with a low-English proficient one should utilize a bilingual physician first, a live interpreter second and a blue translator phone last. Finally, when controlled for gender and age, the results of this study were found to be minimally affected with significance by these possible confounding factors.

The implications of this investigation in the grander picture of healthcare are grand. Currently, the way healthcare is delivered in the United States is evolving rapidly. Physicians are no longer compensated for the quantity of the care they deliver but the quality of the care that is given from the patient's perspective. As such, communication currently is and will become a more important aspect of the patient-physician relationship and this investigation gives us insight into how communication can be optimized with low-English proficient patients. The bottomline is that caregivers and future caregivers whether they are physicians, nurses, medical assistants or technicians should be given the opportunity to learn Spanish or a different dominant language that their patient population speaks. Specifically, Cooper University Hospital could implement medical Spanish training for all residents during their intern orientation so that they begin their time on the wards with a basic ability to break the ice and

communicate with their low-English proficient patient at the most basic level medically. Another thought is to implement medical Spanish classes during ambulatory didactic sessions for medical students who attend Cooper Medical School of Rowan University. Intervening even earlier during their medical education will allow student-doctors to practice their medical Spanish abilities in their student clinics and master their art prior to entering their 3rd-year rotations and long before entering residency. Undoubtedly, the results of this study should advocate for these opportunities to become realities.

Although this investigation provided insight into the Spanish-speaking low-English proficient population that Cooper University Healthcare system serves, future studies should look into low-English proficient populations who speak languages other than Spanish. It is possible that communities who primarily speak Chinese, Hindi or Arabic do not express the same concerns with medical translation services as the Spanish-speaking population does. Furthermore, future studies should look to see whether the interventions outlined earlier are able to raise overall patient satisfaction scores of physicians who were previously monolingual. It is possible that communication is a not significant factor into how patient's review the physicians who serve them and so patient satisfaction scores will not increase. However, in the end, the ability to communicate with low-English proficient patients is a matter of humanism. Physicians should want to be able to optimize communication with all patients to their utmost ability regardless of social, economic or religious factors. That is to say, despite the fact that there are monetary incentives in communicating well with patients who do not speak English in today's healthcare climate, poor communication with no intention for change should be considered a violation of the Hippocratic Oath that all physicians are sworn to. Simply stated, medicine without humanism is not medicine at all.

## References

Flores G. The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review. *Medical Care Research and Review*. 2005;62(3):255-299. doi:10.1177/1077558705275416.

# Figures/Tables

33 preguntas de las encuestas cuestionario				
Indice				
Numero	Titulo	Resp	Op	Indicador
<b>1. Datos generales de la encuesta cuestionario</b>				
1	¿Cual es su nombre completo?	Text	De texto	Indicador de nombre
2	¿Cual es su apellido?	Text	De texto	Indicador de apellido
3	¿Cual es su correo electrónico?	Text	De texto	Indicador de correo
4	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
5	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
6	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
7	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
8	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
9	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
10	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
11	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
12	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
13	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
14	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
15	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
16	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
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30	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
31	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo
32	¿Cual es su número de teléfono?	Text	De texto	Indicador de teléfono
33	¿Cual es su dirección de correo electrónico?	Text	De texto	Indicador de correo

¡Gracias!

Figure 1. The 33-question survey utilized in this investigation.

Table 1. Demographics of the participants of this investigation

Characteristic	Number of participants	Total
Male	30	75
Female	45	
Age < 45	37	75
Age > 45	38	

Table 2. P-values derived from statistical analysis of eleven domains of patient-physician relationship

Domain	BP vs LI	BP vs BT	LI vs BT
Physician understanding	<0.0001	<0.0001	0.0947
Patient question understanding	<0.0001	0.0740	<0.0001
Patient comfort	<0.0001	0.0241	0.0170
Patient honesty	0.0272	0.4895	0.0007
Patient connection	0.0008	0.5702	0.0019
Patient treatment understanding	0.0006	0.6272	0.0005
Patient question asking	0.0653	0.9565	0.0106
Patient trust	0.0116	0.1772	0.2008
Patient compliance	0.0012	0.0584	0.1773
Patient return	0.0108	0.0115	0.7174
Patient recommendation	<0.0001	<0.0001	0.0830

BP = Bilingual Physician; LI = Live Interpreter; BT = Blue Translator Phone

Table 3. P-values derived from statistical analysis of female vs male responses of eleven domains of patient-physician relationship

Domain	BP	LI	BT
Physician understanding	0.9368	0.1451	0.1449
Patient question understanding	0.6887	0.0117	0.3824
Patient comfort	0.7213	0.1255	0.3567
Patient honesty	0.6615	0.4349	0.5239
Patient connection	0.4119	0.4851	0.8942

<b>Domain</b>	<b>BP</b>	<b>LI</b>	<b>BT</b>
Patient treatment understanding	0.9523	0.2841	0.6866
Patient question asking	0.4028	0.9336	0.2885
Patient trust	0.7688	0.3082	0.1118
Patient compliance	0.8146	0.0186	0.8167
Patient return	0.5783	0.6047	0.3705
Patient recommendation	0.3297	0.1159	0.1965

*BP = Bilingual Physician; LI = Live Interpreter; BT = Blue Translator Phone*

*Table 4. P-values derived from statistical analysis of age < 45 vs age > 45 responses of eleven domains of patient-physician relationship*

<b>Domain</b>	<b>BP</b>	<b>LI</b>	<b>BT</b>
Physician understanding	0.6974	0.8701	0.7290
Patient question understanding	0.1272	0.2484	0.3932
Patient comfort	0.6047	0.5503	0.0003
Patient honesty	0.4429	0.6289	0.7027
Patient connection	0.7503	0.2713	0.7852
Patient treatment understanding	0.2129	0.4971	0.7455
Patient question asking	0.2987	0.1277	0.5479
Patient trust	0.9911	0.0271	0.2330
Patient compliance	0.0669	0.2840	0.1145
Patient return	0.2176	0.4115	0.7292
Patient recommendation	0.8223	0.2713	0.0967

*BP = Bilingual Physician; LI = Live Interpreter; BT = Blue Translator Phone*