

THE IMPACT OF USING AD HOC INTERPRETERS AND PROFESSIONAL INTERPRETERS ON HOSPITAL COSTS AND PATIENT SATISFACTION RATES OF LIMITED-ENGLISH-PROFICIENT PATIENTS IN THE EMERGENCY DEPARTMENT

Xixi Wang

Wake Forest University, United States of America
wangx215@wfu.edu

Abstract

Linguistic barriers have been identified as important factors that are closely linked with declining patient satisfaction rates and increasing hospital costs. Although vast amount of studies have focused on researching the consequences of utilizing interpreter services in health care settings, few have compared the distinctions of using professional healthcare interpreters versus ad hoc interpreters and their influence on hospital costs and patient satisfaction rates. The emergency department will be the backdrop of this paper. To compare the effects of utilizing professional healthcare interpreters and ad hoc interpreters in a healthcare setting, this paper adopted a literature review approach by searching all available relevant articles related to the topic, and then extracted and analyzed useful data from nine representative articles. The results of the study shows that the utilization of professional healthcare interpreter services will minimize negative clinical consequences. Thus it will diminish long-term hospital costs in the emergency department and enhance limited-English-proficient patients' satisfaction rates compared to ad hoc interpreters. Although this paper has limitations such as less accurate data in terms of hospital costs, it has potential implications in showing that utilizing professional healthcare interpreter services in health care settings will, in the long term, be more cost-effective and improve patients' satisfaction rate when compared to ad hoc interpreters. This study will hopefully encourage health care organizations to utilize professional interpreter services to guarantee limited-English-proficient patients' quality of care.

Keywords: Professional interpreters, hospital costs, ad hoc interpreters, patient satisfaction, emergency department setting

INTRODUCTION

It has been found that the ineffective exchange of information between patients and providers will decrease the chances of patients adhering to medical advice from providers, and as such this can imply that the language factor, an important component in the process of information exchange, may adversely affect hospital costs, patients' length of hospital stays, and resource utilization (Nápoles, et al., 2010, p. 303). Hospitals have been concerned about the high costs of training professional interpreters and utilizing professional interpreter services, and have been hesitant to utilize these services (Jacobs, et al., 2004, p. 866). Hospitals may neglect to take into account potential increased hospital costs and visit satisfaction rates of limited-English-proficient patients if they do not provide any professional interpreter services.

The term 'ad hoc interpreter' can be defined as "an untrained person who is called upon to interpret, such as a family member interpreting for her parents, a bilingual staff member pulled away from other duties to interpret, or a self-declared bilingual in a hospital waiting-room who volunteers to interpret"(CHIA, p.64, 2002). There is high likelihood that ad hoc interpreters are largely utilized in an emergency department setting because nurses, physicians and family members are constantly present in this setting. Professional interpreters are usually employed by the healthcare organizations where they perform their interpreting duties, which ensures that they "have been trained and tested, and adhere to a code of professional ethics and standard protocols and are paid to interpret" (CHIA, p.73, 2002). Professional interpreters have received systematic skill training and are more capable of facilitating positive, helpful interactions between providers and patients with limited English language proficiency.

Garcia and her colleagues (2004, p.373) found that nonnative English-speaking patients are less satisfied with their emergency care experiences compared to native English-speaking patients. As can be expected, patient satisfaction rates were found to be linked with the quality of care they received. The emergency department is an 'entry point into the U.S health care system' (Ramirez, et al., 2008, p.352) for many patients, including limited-English-proficient patients. As such, patient visit satisfaction rates in the emergency department can serve as an important overall indicator when examining limited-English-proficient patients' visit satisfaction rates in other healthcare settings.

Hypothesis

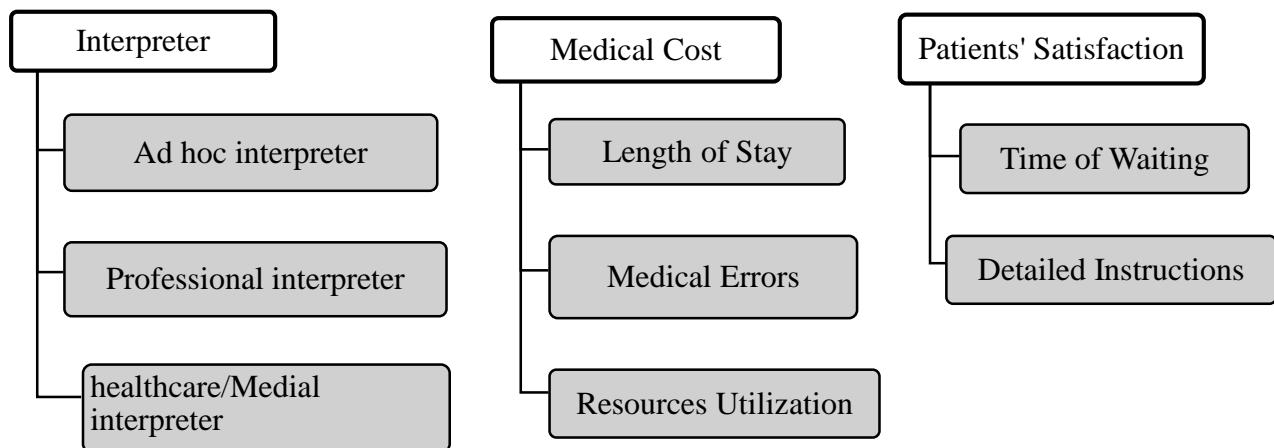
It is generally accepted that the utilization of professional interpreters contributes to better health outcomes for patients with limited English proficiency. However, the use of ad hoc interpreters and professional interpreters will have different impacts on the functioning of hospitals and the

health outcome of patients who have limited English proficiency. Therefore, this paper hypothesizes that the utilization of professional interpreter services will contribute to decreased hospital costs and improve patient satisfaction levels in an emergency department setting while ad hoc interpreters will be less reliable, resulting in increased hospital costs and patient visit dissatisfaction in the long run.

RESEARCH METHOD

To better understand the costs and the patient satisfaction rates between ad hoc interpreters and professional interpreters, it is necessary to adopt a literature review approach and explore these issues from various disciplines. The literature search that formed this paper is based on online databases such as ProQuest, Medline and PubMed. The key terms used to search different publications and scholarly articles, showing in Figure 1, include ad hoc interpreter, professional interpreter, emergency department, cost (length of stay, resource utilization, etc.), and patient satisfaction. The scholarly articles are selected and compared in a lateral, cross-sectional level in order to discover the different impacts of ad hoc interpreters and professional interpreters on hospital costs and patient satisfaction. Non-English-language publications have been excluded, and the report is limited to on-site professional interpreters and ad hoc interpreters.

Figure 1. Key search terms/words for literature review



DATA EXTRACTION AND ANALYSIS

In the survey conducted by Carrasquillo and his colleagues (1999, p.82), among 2333 participants who have received medical treatment in an emergency department setting, 14% patients who have limited English proficiency state they would not choose to go back to the same emergency department if they have any other emergency medical needs, measuring against 9.5% English-speaking patients.

As can be seen, a large gap exists between native English speakers and nonnative English speakers when it comes to patient satisfaction. In Table 1, it shows that native English speakers are reported to have overall higher patient satisfaction rates than patients with limited English proficiency. The satisfaction rate of English-speaking patients is higher than nonnative English-speaking patients by more than 7% among the indexes which include time with staff/doctor, promptness, and explanation of tests and procedures. Based on low patient satisfaction rates the non-native-English speakers report, professional interpreter services need to be seriously considered by hospitals to help these special patients seek effective medical treatment.

Table 1. Unadjusted satisfaction rates among ESB and NESB patients

	Satisfied ESB, n (95% CI) (n = 597)	Satisfied NESB, n (95% CI) (n = 231)	P-value
Staff skills	96.8 (95.1–98.8)	96.1 (92.7–98.0)	0.603
Nursing staff interest	96.0 (94.1–97.3)	94.4 (90.6–96.7)	0.315
Time with staff	92.3 (89.9–94.2)	84.9 (79.7–88.9)	0.001
Spiritual/emotional needs	91.1 (88.6–93.2)	76.6 (70.8–81.6)	<0.001
Encouragement to talk	95.0 (92.9–96.5)	90.0 (85.5–93.3)	0.009
Response in managing pain	94.5 (92.3–96.0)	85.3 (80.1–89.3)	<0.001
Concern for well-being	95.6 (93.7–97.0)	90.9 (86.5–94.0)	0.008
Respect for privacy	97.7 (96.1–98.6)	96.1 (92.8–97.9)	0.223
Courtesy and friendliness	98.8 (97.6–99.4)	97.0 (93.9–98.5)	0.063
Promptness	85.4 (82.4–88.0)	74.5 (68.5–79.7)	<0.001
Communication	96.2 (94.3–97.4)	87.9 (83.0–91.5)	<0.001
Time with doctor	94.6 (92.5–96.2)	87.9 (83.0–91.5)	0.001
Explanation of tests and procedures	95.6 (93.7–97.0)	89.6 (85.0–92.9)	0.001
Care quality	96.3 (94.5–97.6)	92.6 (88.5–95.4)	0.025
Expectation	96.0 (94.1–97.3)	89.2 (84.5–92.6)	<0.001
Overall satisfaction	95.1 (93.1–96.6)	90.5 (86.0–93.7)	0.012

CI, confidence interval; ESB, English-speaking background; NESB, non-English-speaking background.

Source: Mahmoud, p. 258, 2014

Table 2 Clinician-reported Patient Characteristics of 283 interpreters by interpreting model

	Interpretation mode ^a				p-value ^b	Total (%)		
	Video conferencing		Ad hoc	N=114 (%)				
	In-person	N=107 (%)	N=62 (%)					
Quality of interpretation								
Good/very good/excellent	101 (89)	99 (93)	50 (81)		.13	250 (88)		
Poor/fair	13 (11)	8 (7)	12 (19)			33 (12)		
Degree of patient engagement								
Fairly well/well/very well	108 (95)	104 (97)	58 (94)		.50	270 (95)		
Not at all/poorly	6 (5)	3 (3)	4 (6)			13 (5)		
Quality of communication								
Good/very good/excellent	88 (77)	93 (89)	41 (66)		<.01	222 (79)		
Poor/fair	26 (23)	12 (11)	21 (34)			59 (21)		
Satisfaction with visit								
Somewhat/very/extremely satisfied	98 (86)	102 (95)	53 (88)		<.01	253 (90)		
Not at all/a little satisfied	16 (14)	5 (5)	7 (12)			28 (10)		

Source: Nápoles, et al. 2010, p.310

As indicated in Table 2 (Napoles, et al., 2010, p. 310), in-person professional interpreters can guarantee a better quality of interpreting and ensure a higher degree of patient engagement than ad hoc interpreters. They are more capable of facilitating proper communication between providers and limited-English-proficient patients than ad hoc interpreters. As a result, professional interpreters are able to get higher satisfaction ratings from patient feedback, which finds that limited-English-proficient patients are more satisfied with their visits to the emergency room.

Table 3(Jacobs, et al., p.867) shows that the costs of interpreter services provided for limited-English-proficient patients in a two-year period in an emergency department actually declined when compared to the increasing costs of interpreter services in patients' preventive and primary care departments. Preventive and primary costs consists mainly of follow-up appointments and medications (Jacobs, et al., 2004, p.868). This will, undoubtedly, result in patients' increased utilization of professional interpreter services. However, in the long term, limited-English-proficient patients will obtain better health outcomes with preventive and primary care, and the demands of obtaining emergency care for patients with limited English proficiency will definitely be reduced and the costs of interpreter services in the emergency department will decrease.

Table 3. Costs of Clinical Service during Year 1 and Change in Cost from Year 1 to Year 2

Service	Interpreter Services Group (n = 380)		Comparison Group (n = 4119)		Net Difference ^b
	Year 1, \$	Year 2 - Year 1, \$	Year 1, \$	Year 2 - Year 1, \$	
Preventive	14	1	11	1	0
Primary care	405	99	387	43	56**
Emergency department	31	-6	38	5	-11
Total costs	450	94	436	49	45*

^aReported as total cost per person per year in each category of service use.

^b(Year 2 - Year 1 in the interpreter service group) - (Year 2 - Year 1 in the comparison group).

*P<.05; P<.01**.

Source: Jacobs, et al., 2004, p.868

It was also found that medical errors committed by ad hoc interpreters tended to cause more clinical consequences than those committed by professional interpreters among 474 participants, which accounts for 77% and 53% respectively (Flores, 2003, p.6). Clinical consequences include, among other things, failing to give correct medication instructions to patients with limited English proficiency.

Medical errors related to misinterpreting directly bring clinical consequences (Flores, et al., 2003, p.7) as well as an increase in hospital costs. Table 4 shows that among 396 interpreting errors interpreters make in a healthcare setting, the amount of errors that ad hoc interpreters make has a 77% chance of leading to potential clinical consequences, while 53% of errors that hospital-based professional interpreters make will cause potential clinical consequences. The potential clinical consequences caused by misinterpreting will be to the enormous detriment of hospital costs and patient satisfaction rates.

Table 4. Summary of Errors of Medical Interpreting in Clinical Encounter

Interpreter Type	No. (%) Errors by Error Category					No. (%) Errors of Potential Clinical Consequence	Total Errors
	Omission	Substitution	Addition	Editorialization	False Fluency		
Hospital (N = 6)	117 (51%)	27 (12%)	17 (7%)	20 (9%)	50 (22%*)	123 (53%†)	231
Ad hoc (N = 7)	90 (55%)	26 (16%)	15 (9%)	19 (12%)	15 (9%*)	127 (77%†)	165
Totals	207 (52%)	53 (13%)	32 (8%)	39 (10%)	65 (16%)	250 (63%)	396

Source: Flores, et al. 2003, p.9

All too often, bilingual providers and patients' family members are unfortunately performing interpreting activities during medical practices due to their convenience and location to the medical setting (Carrasquillo, et al., 1999, p.86). In a study with 767 Spanish-English patients interviewed by Parker and his colleagues (1996, p. 785), it was found that physicians (22%) or nurses (28%) are more likely to serve as interpreters for limited-English-proficient patients than professional interpreters (12%) in an emergency department setting. This shows a tendency that limited-English-proficient patients prefer to use ad hoc interpreters to facilitate their interaction with providers, such as their family members, and even use the providers themselves as interpreters.

Table 5. Patients' Perceived Knowledge of Their Diagnosis and Treatment According to
Whether an Interpreter Was Needed and Used

Patients' Assessment	No Need for Interpreter, % (n=240)	Interpreter Used, % (n=121)	Interpreter Not Used, % (n=102)
Self-reported understanding of discharge diagnosis*			
Good-excellent	67	57	38
Fair-poor	34	43	62
Self-reported understanding of treatment plan†			
Good-excellent	86	82	58
Fair-poor	14	19	42
Wish that examiner had explained better?‡			
Yes	34	63	90
No	66	37	10

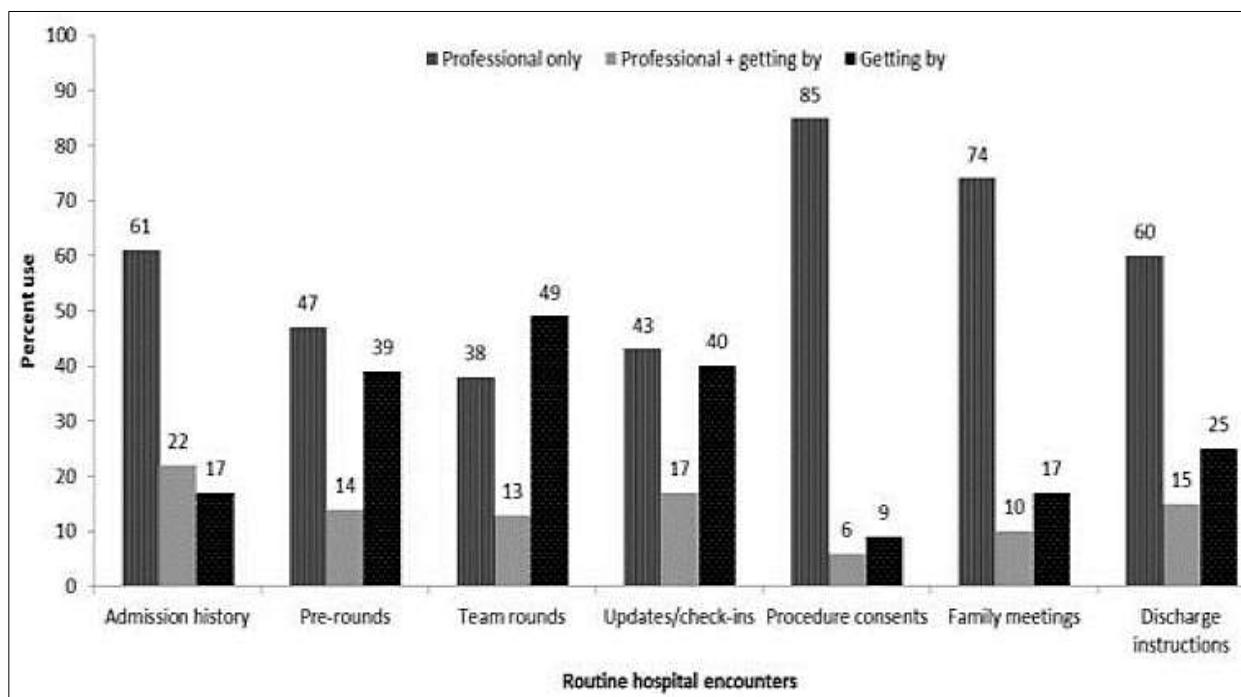
* $P=.09$ for "no need for interpreter" vs "interpreter used"; $P<.001$ for "interpreter not used" compared with other groups.

† $P<.001$ for "interpreter not used" compared with other groups.

‡ $P<.001$ for all pairwise comparisons.

Source: Parker, et al. 1996, p.786

Table 6. Patterns of Professional Interpreter Use among Resident Physicians for Routine Hospital Encounter



*: "getting by"=use of ad hoc interpreters or not talking to patients due to time constraints

Source: Tang, et al., p.1971, 2014

More than 50 percent of patients who use professional interpreter services report that their ability of understanding providers' discharge instructions ranges from good to excellent, while less than 40 percent of limited-English-proficient patients who do not use professional interpreter services report that they can understand provider's discharge instructions from good to excellent. However, 63% of interviewed patients with limited English proficiency would have preferred that their examiner directly explain discharge instructions in comparison to 90% of those patients who do not use any interpreter at all (refers to Table 5). In a survey conducted in 2014 (Tang et al., p.1971), 49% of interviewed 149 resident physicians provided "getting by" services to limited-English-proficient patients in updates/check-ins, which is shown in Table 6. The less likely limited-English-proficient are to understand providers adequately without professional interpreter services, the more time the examiner will need to spend in helping patients check in, update their medical records, and explain patients' discharge instructions and treatment plans. This will ultimately result in a longer time other patients will have to wait for medical treatment. As a consequence, patients with limited English proficiency are less likely to receive quality medical care and show dissatisfaction with their emergency care experience.

Table 7. Characteristics of Patients with Limited English Proficiency Who Were Admitted for One or More Days

Patient Characteristic	% (n)
Length of Stay in Days	
1	17.7 (554)
2	23.7 (729)
3	15.2 (468)
4	11.0 (38)
5	8.1 (250)
6 or more	24.2 (742)

Source: Lindholm, et al. (2012), pp 1296

As is shown in Table 7, in the survey conducted by Lindholm and his colleagues (2012, p.1296) among 3071 limited-English-proficient patients, 24% of the patients with limited English proficiency are reported to have stayed in the hospital for more than 6 days. This can conclude that limited-English-proficient patients have an overall extended length of stay in any healthcare setting.

RESULTS

Hospital costs caused by linguistic barriers between limited-English-proficient patients and providers are particularly reflected by the economic resource utilization in an emergency department, length of patients' stays in hospitals, and costs associated with patient medical errors. For example, patients with limited English proficiency are more likely to receive diagnostic testing from the emergency department (Nápoles et al., 2010, p.301) than native English-speaking patients.

In order to discover the consequences elicited by utilizing ad hoc interpreters and professional interpreters in an emergency department setting, the cost benefits and drawbacks of using ad hoc interpreters and professional interpreters will be compared in both short-term and long-term levels.

Hospital costs

Hospital costs of implementing interpreter services can be categorized into direct costs and indirect costs. The direct costs that hospitals spend in utilizing professional interpreters in an emergency department setting consist of interpreters' salary, professional interpreters' skill training and other kinds of fringe benefits (Jacobs, et al., 2004, p. 866). The indirect costs include medical errors made by interpreters' misinterpreting, resource utilization, etc.

Hospitals largely rely on ad hoc interpreters instead of professional interpreters in medical practices because professional interpreter services are 'more costly' (Napoles, et al.,

p312). In terms of direct costs, the expenses of ad hoc interpreters are much less than those of professional interpreters. The direct costs spent on utilizing professional interpreters averages 17 dollars per hour, including bonus and wages (McNulty & Hampers, 2002, p.1109), whereas the utilization of ad hoc interpreters sometimes does not require any economic costs from the hospital or other healthcare setting. Therefore, using ad hoc interpreters can reduce the expenses of hospitals in a short period compared to the use of professional interpreters.

However, it has been testified that the unprofessional performance of ad hoc interpreters in the communicative process between patients and providers may result in patient misdiagnosis and numerous medical errors to patients and cause a hospital to suffer financial difficulties due to lawsuits. There is a famous case where the hospital staff of an emergency department misinterpreted a Spanish-speaking man's "intoxicado" (in Spanish) symptom as "intoxicated". The man's family intended to express that he was "nauseated", but he was misdiagnosed and given drugs that led to an overdose which crippled the man. The catastrophic misinterpreting by the hospital staff led to the wrong medical treatment and ultimately caused this man to become quadriplegic. The man and his family decided to sue the hospital and were awarded \$71 million dollars as settlement. This entire situation of medical malpractice was directly caused by misinterpreting (Harsham, p.289-92, 1984). Ad hoc interpreters, like family members and bilingual hospital staffs, may lead to potential increased hospital costs. It has been demonstrated that the use of professional healthcare interpreters in the healthcare system can help reduce limited-English-proficient patients' length of hospital stays by almost one day (Jacobs, et al., p308-309, 2007). Ad hoc interpreters may have difficulty in understanding patients' medical requirements, and thus patients with limited proficiency are more prone to stay in the hospital longer than expected. Clearly, using professional interpreters in an emergency setting is more cost-effective.

Patient satisfaction

Professional interpreters are linked to greater patient satisfaction rates with visits to an emergency department setting (Napoles, et al. 2012, p.312). Although limited-English-proficient patients may feel better trusting family members as interpreters, they are less likely to adhere to medication instructions or other instructions given by their doctor. Patients with limited English proficiency tend to disregard medication advice or orders from their physicians when using ad hoc interpreters.

Conversely, professional interpreters have received skill and ethical training, so limited-English-proficient patients are able to acquire more providers' explanations from professional interpreters, and the time of waiting for medical treatment will shorten therewith, which is crucial

to the functioning of an emergency department. It can be demonstrated that utilizing professional interpreting services will increase limited-English-proficient patients' visit satisfaction levels and will shorten emergency room waiting times and will lead to other positive health outcomes for these patients.

CONCLUSIONS AND PRACTICAL IMPLICATIONS

It is suggested that the costs spent on using professional, trained interpreters needs to be compared with "the value of improving patients' satisfaction rates and perceived quality of care" (Garcia, et al., 2004, p.378). Since cost is one of the main considerations which affects the utilization of professional interpreters in an emergency department, the goal of cutting costs may be achieved by 'avoiding significant errors and unnecessary re-hospitalizations'(Schenker, et al., 2011, p.716). It is realistic for hospitals to take direct costs into account and relieve financial burdens by heavily relying on ad hoc interpreters instead of training professional interpreters and implementing professional interpreter services. Nonetheless, professional interpreters contribute to patients' shortened length of hospital stays, reduced medical errors and better resource utilization (fewer repeated diagnostic testing of patients, etc.), which are beneficial for cutting long-term hospitals costs. Apart from reducing hospital costs, the implementation of professional interpreters will cut down patients' waiting time and help limited-English-proficient patients gain clearer explanations from providers in an emergency department setting, which will invariably lead to positive health outcomes and improved satisfaction rates.

Considering the higher direct economic costs that professional interpreter service may cause, utilizing 3rd party reimbursement for interpreter services is recommended by scholars to help reduce the cost to hospitals of implementing interpreter services (Flores, et al., 2003, p.13).

The goal of examining the estimation of hospital costs and patient satisfaction rates in an emergency department setting by comparing ad hoc interpreter services and professional interpreter services is to give guidance to healthcare systems on how to render quality medical care to patients with limited English proficiency. Instead of utilizing ad hoc interpreters, healthcare organizations will be able to reduce their costs and improve patient satisfaction rates by implementing professional interpreter services, which is cost-effective and can ensure better patient quality of care in the long run.

LIMITATIONS AND

This research has its limitations. On one hand, this paper only studies on-site ad hoc interpreters and professional interpreters, overlooking the study of patient satisfaction rates of telephone interpreters and video interpreters. Some telephone interpreters are professional

interpreters who offer off-site interpreting services, and as such it is necessary to study the effects of telephone interpreters on influencing hospital costs and patient satisfaction rates. On the other hand, more accurate statistical data needs to be found in order to compare the short-term and long-term economic costs of utilizing ad hoc interpreters and professional interpreters in an emergency room setting.

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