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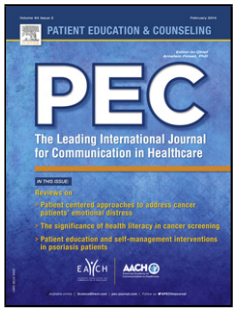

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Using patient companions as interpreters in the Emergency Department: an interdisciplinary quantitative and qualitative assessment

Using patient companions as interpreters in the Emergency Department: an interdisciplinary quantitative and qualitative assessment

by

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Highlights:

- Language interpretation services provided by patient companions are seldom accurate
- A gap can emerge between the perceived and the actual quality of the communication
- At the same time, patient companions often provide useful patient information
- ED clinicians should be aware of the risks of overly relying on ad hoc interpreters

- EDs should increase utilization of on-site and remote professional interpreters

Abstract

Objectives *– To explore the perceived and actual quality of communication and the conversational mechanisms through which misunderstandings arise in linguistically diverse Emergency Department consultations.*

Methods – *A mixed method approach was used, based on audio-records of consultations which rely on patient companions for linguistic support, and ethnographic contextual data. Interpreting errors and their potential impact on the clinical reasoning process and doctor-patient relationships were quantitatively assessed. Complementary qualitative ethnographic research provided a richer understanding of the context. The study involved interdisciplinary collaboration with specialists in applied linguistics, medicine, and psychology.*

Results *– Accurate interpretation occurred in as few as 19% of interpreter speech turns. Answering for the patient and omitting information were the most frequent errors. The nature and severity of the impact of the errors varied. Answering for the patient had the greatest clinical impact. The omission of messages from the doctor to the patient negatively affected doctor-patient relationships.*

Conclusion *– Gaps were observed between the perceived and the actual quality of communication, although patient companions often provided useful information.*

Practice implications *–In addition to raising awareness among doctors on the potential risks of using AHIs, EDs should adjust their management to increase the utilization of onsite and remote PIs.*

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Conflicts of interest

The authors declare no conflicts of interest.

1 Introduction

1.1 Background

Language barriers between patients and doctors in the Emergency Department (ED) are associated with lower quality health care and poorer outcomes along several dimensions [1–9]. Professional interpreters (PIs) can improve quality of care and health outcomes [10].[1] However, they are underutilized even in countries which require the use of PIs (US where 25% of ED foreign speaking patients received professional services) [14] or provide them at no cost to doctors or institutions (New Zealand). Doctors often rely on (untrained) patient companions as ad hoc interpreters (AHIs) providing language support, particularly during unscheduled clinic [11] and ED visits [12–15].

1.2 Importance

The incidence of language barriers in health care services is surging as global migration has been increasing over the last two decades [16]. Foreign-born made up 16.7% of the Belgian population in 2017, up from 13.4% in 2009 [17]. Migrants tend to be concentrated in large cities: in 2017, 57% of the population of Brussels, Belgium's capital, held a foreign nationality at birth [18]. Many newly arrived immigrants do not speak Dutch or French and are unfamiliar with the Belgian institutional context.

1.3 Goals of this investigation

Most studies of language barriers in the ED focus on outcomes in bilingual settings (e.g. Spanish-English). To our knowledge, research with a focus on what can be done to overcome communication problems in linguistically diverse EDs remains scarce. Studies in other healthcare settings provide some relevant insights [1,19–22]; but the ED context is very particular and calls for context-specific investigation [23–25]. The difficulty to gain access to the ED as a research setting constitutes an important hurdle [26]. A notable exception is the transcript based quantitative study by Flores and co-authors on the impact of interpretation inaccuracies on errors of clinical consequence in ED interactions with Spanish-speaking patients [20].

This paper explores the conversational mechanisms through which misunderstandings arise and lead to unfavorable outcomes in the presence of language barriers [7]. It focuses on linguistically diverse ED consultations where doctors rely on AHIs rather than PIs to provide language support. It considers the errors made by AHIs in interpretation and discusses the impact of these errors and broader conversational dynamics on the clinical and relationship outcomes of the consultations.

[1] PIs may be available on site, or via a remote (phone or video) connection.

2 Methods

This study takes a pragmatic approach, so all available research methods can be used to gather relevant insights and find "practical and usable solutions" [27]. This results in a mixed method approach [28,29]. Interpreting errors and their potential impact on the clinical reasoning process and doctor-patient relationships were quantitatively assessed. Qualitative ethnographic research provided a richer understanding of the context in which this occurred. The study involved interdisciplinary collaboration between specialists in applied linguistics, medicine, and psychology.

2.1 Data

This paper is based on 10 audio recorded language discordant ED consultations collected within the framework of a larger project on language discordance in the ED [3]. All 10 consultations involved a patient companion who acted as AHIs for at least part of the interaction. Sixteen audio-recorded AHI-mediated consultations were transcribed and translated. Native speakers of the patient's (and the AHI's, if different) language who were familiar with the medical repertoire were consulted to translate and contextualize the audio-recorded utterances and their meanings [3].

The selection of the 10 cases was based on convenience sampling according to the language specialists we found to translate and contextualize the foreign language utterances. Although the observed patient companions took up much broader roles during the consultations, they are henceforth referred to as AHIs. Ethnographic data were collected through participant observation and on-the-spot unstructured interviews with involved staff [26,30]. The resulting transcript was shown to and discussed with some of the involved doctors.

2.2 Study setting

The ED treats on average 55,000 patients per year, of which about 40% hold a foreign passport [16]. In 2013, AC's 3-month survey of 1360 patients found that 31% of the patients had a mother tongue other than French, Dutch, or English. In the ED's hospital onsite intercultural mediators (who also provide interpreter services) and phone interpreting services were available during offices hours. However, in fewer than 2% of the consultations with foreign speakers, a PI was called in. In 28% of the consultations with non-native patients, patient companions (such as family or friends) acted as AHIs.

Several challenges associated with the use of PIs in the ED imply that doctors often revert to using AHIs[2] and that PIs remain largely underutilised [31–33] despite the fact that they have been found to improve care and both patient and doctor satisfaction [5,32,34]. PIs are often not called in

[2] Ad hoc interpreters are persons who accompany the patient (such as family members, friends or bystanders) and are more proficient in the hospital's working language than the patient is.

because of perceived financial and time constraints, while AHIs are often readily and freely available [13,31,35]. A major reason for medical staff not to call in PIs, even if they were present on-site, was that the process of calling and locating them was perceived as too time consuming and cumbersome [8,12,13,32,36]. The lack of prior information on the patient's language skills complicates this process [8,37,38].

2.3 Ethics approval

Ethics approval for data collection was obtained as per the requirements of the hospital ethics board of the hospital under study (Comité Local d'Ethique Hospitalier – O.M. 007; Centre Hospitalier Universitaire CHU Saint-Pierre, Rue Haute 322, 1000 Bruxelles; approval number AK/12-10-81/4181). An oral informed consent procedure was designed in compliance with the World Medical Association Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects. Especially for this research project an oral informed consent system was created that consisted of pre-recorded spoken explanations on the consent procedure in different languages which were played to the patient and companion [39].

INSERT TABLE 1

2.4 Quantitative analysis

Two family doctors (ER and ASTC) both coded each of the 10 consultation transcripts separately. Differences were resolved by discussion until consensus. First, the transcripts were coded for the quality of interpretation as accurate or inaccurate. This was done using the 8-category scheme developed by Nápoles et al. [19]. These categories are 1) accurate interpretation, 2) asking for clarification to ensure accurate interpretation, 3) addition, 4) substitution, 5) answering for the patient or doctor, 6) omission, 7) editorializing and 8) false fluency. This represents a slight extension of Flores' categories [20]. As only one instance of asking for clarification was observed; and no instances of editorializing or false fluency; these categories were ignored. Omissions of patient utterances were coded separately from omissions of doctor utterances.

Second, the clinical impact of each inaccurate interpretation was assessed. The four categories described by Nápoles [19] were applied: 1) clinically insignificant, 2) mildly clinically significant, 3) moderately clinically significant, 4) highly clinically significant. Nápoles' categories are identical to those of Gany [40], excluding the 'possibly life-threatening' category. These are more refined than Flores et al.'s framework [20] which considers only whether an interpreter error is "of potential clinical consequence" or not. Differentiating instances of mild from moderate consequences proved difficult. Therefore, these categories were collapsed into one ('mildly to moderately significant'). When the AHI answered for the patient or the doctor, the clinical significance was determined based on a worst-case scenario: What if the interpreter's answer was inaccurate?

Because the papers reporting clinical impacts of inaccuracies address biomedical issues but not the doctor-patient relationship, we created a new category to report the impact of interpretation inaccuracies on the doctor-patient relationship. We were guided by definitions of communication tasks (e.g. rapport building and patient-appropriate information provision) as described by Silverman, Kurtz and Draper [41]. These relationship impacts have implications for the quality of care.

2.5 Qualitative analysis

The quantitative error-coding analysis was complemented with a qualitative one, to provide an in-depth ethnographic description of the communication behaviors. For reasons of brevity, such a description is provided for three of the ten cases studied. The selected excerpts present "apt illustrations" in view of this paper's research question [42]. They are illustrative in the sense that they manifest the same types of communication problems, repair, and accommodation that were encountered in the whole of the consultation in question and other consultations with similar contextual features regarding language skills, role dynamics, and miscommunication.

For each case, a summary of the clinical context from the perspective of a practicing doctor (ER) is given. It is followed by a discussion of the communicative behaviors of the doctor and the AHI. Then, the doctor's communication tasks are discussed in relation to those described in the Calgary Cambridge model of doctor-patient communication [41]. Next, the AHI's communication behavior is discussed in line with the classifications above. Where available, the analysis considers feedback from the involved doctor on the perceived quality of the communication process.

3 Results

3.1 Quality of interpretations

The 10 clinical encounters contained 704 AHI speech turns. Accurate interpretation occurred in 20% (138/704) of AHI acts. Answering for the patient (34%, 237/704) and omitting information (24%, 167/704) were the most frequent interpretation failures (see Table 2).

INSERT TABLE 2

3.2 Impact of inaccurate interpretations

The nature and severity of the impact varied with the category of behavior. In total, 62% (352/566, see Table 2) of the interpretation inaccuracies were found to be of some clinical significance. Answering for the patient was the behavior with the greatest clinical impact. In this category, only 23% (55/237) of the instances were deemed insignificant and 33% (79/237) were judged to be

highly clinically significant. More than half of the additions (51%, 63/124) and omissions (53%, 88/167) had some clinical impact. Rapport building between doctor and patient was mostly affected by incomplete interpretations: 90% (70/78) of inaccuracies having a negative effect on the doctor-patient relationship were omissions (see Table 2). Other inaccuracies had very little impact at this level.

3.3 Description of the illustrative case studies

Case 1: Elderly Iraqi woman who has fallen

Clinical context

An elderly woman has fallen and come to the ED with her adult daughter and a female neighbor. Her own mother tongue is Arabic. Her neighbor speaks French and acts as the AHI. Previously, an ED internist assessed the patient, found no fractures, and referred her to the doctor in the recording, a consulting surgeon. The surgeon makes several attempts to establish where and how the fall occurred and what parts of the patient's body hit the ground. She also tries to establish the circumstances of the fall, by asking about the patient's mobility and pain before the fall. The surgeon expresses admiration for the patient's physical capacities as well as concern for her safety and comfort as she asks the patient to walk. However, her statements are not transmitted to the patient. The doctor makes a diagnosis (a sprain and bruises) based on the physical exam and proposes treatment (pain medication).

The neighbor does not convey the diagnosis to the patient. At the end of the visit the doctor and the neighbor engage in the following exchange [originally in French], excluding the patient.

AHI *She's always afraid*
Doctor *Afraid of …?*
AHI *Afraid when she has pain. She's always afraid. 'I have a headache. My knee hurts.'*
Doctor *That's what happens when one gets a little bit older. Maybe we will be like that too.*

Physician communication tasks

Establishing rapport and identifying the reason(s) for the consultation - The surgeon does not establish the identity or role of those present. The doctor speaks in French to the AHI without knowing her relation to the patient, assuming she is the patient's daughter. The AHI clarifies later during the visit that she is the neighbor. The patient's actual daughter speaks briefly in Dutch. The doctor demonstrates interest, concern, and respect for the patient through her actions and words. However, her words and questions are not conveyed to the patient. The AHI volunteers the patient's symptoms.

Gathering information on symptoms and illness experience - When the doctor asks an open-ended question the AHI often asks the patient a closed question. For example, the doctor's '*She tripped? She had some discomfort? Or how did it happen?'* is rendered in Arabic to the patient as '*Where*

did you fall down?' The ensuing conversation about where the patient was when she fell sidetracks the doctor's original question with respect to the cause of the fall. The AHI further distracts the flow of the doctor's interview by volunteering information about the mechanism of injury (*'she fell on her back'),* her symptoms (*'she has a headache and pain in her thumb')* and her past medical history (*'she had an operation on her legs before, prostheses').* The doctor fails to obtain answers to specific questions as the AHI rapidly shifts focus. The doctor does not ask about the patient's experience since the fall. She asks about the patient's mobility and pain before the fall. It is the AHI who answers. The doctor assesses the impact of the fall on her mobility by observing her as she walks. The doctor does not ask the patient what she expects from the visit. The AHI volunteers that the patient wants medication for pain.

Explanation and planning - The doctor provides an explanation and proposes a treatment for the presenting problem. Despite her use of easily understood statements, the information does not reach the patient.

Interpreter's speech behaviors & their impact

Only 18% (15/85) of the AHI's speech turns reflect accurate interpretation. The most frequent interpreter inaccuracies are answering for the patient (44%, 31/70), and omitting information during interpretation (31%, 22/70). Answering for the patient has a negative clinical impact in 74% (23/31) of the cases. The doctor-patient relationship is most likely to be negatively impacted by omissions, especially in relation to messages from the doctor to the patient.

Feedback from the involved doctor indicated that she was rather satisfied with the quality of the communication process. She had noticed that the AHI was answering for the patient rather than interpreting her questions to the patient. However, she reasoned that the internist might have asked similar questions before, and that the interpreter therefore knew the correct answers. She also found it useful that the AHI had informed her about the patient's anxiety.

Case 2: A young Pakistani man with a kidney stone

Clinical context

As the Dutch-speaking doctor enters the room, a patient is sitting on the bed in an inclined position typical for having a kidney stone. The patient's companion provides the doctor with a candidate diagnosis, namely that the patient is having "a kidney problem". The patient does not seem to share a common language with the doctor. The companion communicates with the doctor in English as a lingua franca, and now and then he interprets to and from Urdu and Punjabi into English.

The doctor proceeds with a series of closed questions: standard questions about pain that are appropriate independent of the organ involved, and specific questions focusing on the possible

presence of a kidney stone. Despite major flaws in the communication process, an accurate diagnosis is made. The doctor leaves the patient to inquire about the possible timing of surgery. When he gets back to the patient, he explains that the patient will need to stay in the hospital overnight and that the kidney stone will be removed the next morning. However, the patient is afraid of surgery and insists on talking to his family before deciding.

Physician communication tasks

Establishing rapport and identifying the reason(s) for the consultation - The doctor does not establish rapport explicitly. When the doctor asks why the patient has consulted him, it is the AHI who replies.

Gathering information on symptoms and illness experience - The history-taking consists of closed questions by the doctor. The AHI often answers for the patient. In response, the doctor frequently insists that the AHI ask the patient. In the instances that the AHI abides by the doctor's request to act as an actual interpreter, he often alters the doctor's questions as well as the patient's replies. The patient volunteers a symptom that the AHI does not interpret to the doctor.

Doctor	*Is it continuously or once a lot and then afterwards almost no pain?*
AHI	*No, continuous*
Doctor	*Ask him*
AHI	*Yes*
Doctor	*Is it continuously also at night or is it [snaps fingers] sometimes heavy pain and afterwards no pain?*
AHI	*Is it continuous or intervals? [original in Urdu]*
Patient	*Little. I am seeing stars: I was feeling a little dizzy dizzy [original in Urdu]*
AHI	*Ahh. Now he has no pain. After some time has a big pain.*
Doctor	*Yes. My question is, the past four days…*
AHI	*Yes*
Doctor	*…was the pain continuously…*
AHI	*Continuously*
Doctor	*… or was it sometimes big pain after which no pain...*
AHI	*Sometimes big pain sometimes, sometimes small pain. Sometimes big pain, but sometimes big pain.*

The doctor does not explore the illness experience. The patient hesitates to accept surgery to remove his kidney stone. The AHI mediates between the patient's world and the doctor's. First, he tells the doctor that the patient wants to consult his family in Pakistan by telephone. When the doctor remains puzzled, the AHI provides relevant contextual information on the patient:

AHI	*Sir, listen to me. First time he stays [in hospital]. He is afraid.*

Explanation and planning - The doctor provides an explanation of the operation:

Doctor	*First he sleeps. Afterwards they put a little wire in the penis. And they go upward to seek for the little stone.*

The AHI makes a substitution when he interprets this utterance to the patient in Urdu:

AHI *First they will make you unconscious; then, from the urine way, they will operate and through camera they will watch where the problem is and afterwards they take it out.*

Interpreter's speech behaviors & their impact

The AHI provides accurate interpretation in merely 21% (15/72) of speech turns. Interpreter inaccuracies consist of answering for the patient (29%, 17/57), substituting (25%, 14/57), adding (25%, 14/57), and omitting information during interpretation (21%, 12/57). Additions are the inaccuracies with the least clinical impact. The doctor-patient relationship is most likely to be negatively impacted by omissions, especially in relation to messages from the doctor to the patient.

The AHI is likely to answer for the patient, but also to substitute the information with other information during transmission. Answering for the patient and substituting often has a negative clinical impact. Some substitutions also have positive effects: in the final exchanges, the AHI plays a very active role as a cultural broker and advocate. He tries to endorse the doctor's assurances that the operation is not dangerous. The AHI also explains the basis of the patient's hesitancy to the doctor.

Afterwards, the doctor was reasonably confident about the diagnosis, partially helped by the strong semantic value of the patient's inclined position. Nevertheless, once he saw the translated transcript, he expressed surprise as to the extent of information loss that had occurred.

Case 3: A young Moroccan woman with mastitis

Clinical context

At 2 am a tired male internist finds a young woman and her male companion in the examination room. Most of the encounter occurs between the doctor and the companion in Spanish as a lingua franca, which presents a challenge to both. The AHI indicates the woman has a painful breast. He also says that she has had the same problem in the past and that she was cured with a pill. The doctor does not ask how the 2 people are related.

A physical examination enables the doctor to identify the cause (an infection). He knows the patient needs antibiotics. He first considers administering them intravenously, but is uncertain and consults a colleague, a female gynecologist. Together they decide that oral antibiotics will be a safe choice if the woman sees an doctor again in a few days.

Physician communication tasks

Establishing rapport and identifying the reason(s) for the consultation - The companion begins to talk to the doctor, thus indicating that he will be speaking for the patient. The doctor checks with the man to confirm this role as AHI. He does not try to address the patient nor to establish the relationship between the two people. The doctor demonstrates respect for the patient mostly non-

verbally as he approaches her and examines her breast. The companion states the reason for the visit and his expectation about treatment (pills).

Gathering information on symptoms and illness experience - The AHI answers all the doctor's questions without conveying them to the woman. The doctor accepts this although he is unable to establish the relationship between the pain and breastfeeding in the present or past episodes.

Explanation and planning - The two doctors explain the diagnosis and treatment. They go to great lengths to make sure that the AHI understands the treatment and follow-up. They try to speak with the woman but do not ask the AHI to interpret to her. The companion receives what he expected: pills. He asks whether the woman can/should continue to breastfeed her baby. He needs to ask more than once. It is the gynecologist who finally answers.

Interpreter's speech behaviors & their impact

Out of the 112 AHI speech turns, no more than 8 represent accurate interpretations (7%). In 41% (43/104) of the inaccuracies, the AHI answers instead of the patient. In most remaining turns, he makes important omissions (particularly in messages from the doctor to the patient) and additions. The clinical impact of answering for the patient is in most cases significant (65%, 28/43). Omissions are again found to have a negative impact on the doctor-patient relationship.

Out of the three cases described here, this was the case where the exchange of information seemed to be the least distorted based on the transcript analysis (with interpretation inaccuracies of high clinical significance only occurring in 18% of the speech turns; as compared to 25% and 31% for case 1 and case 2 respectively). However, this was not reflected in the doctor's perception of the quality of communication: he was concerned about the high degree of uncertainty about important symptoms because he had the impression that the companion did not understand him.

4 Discussion

This study has found, in accordance with earlier studies, that AHIs provide more often than not inaccurate interpretation (in around 80% of their speech turns in our study). This risk is considerably higher than for PIs [19–21], and is likely to give rise to more medical errors and lower patient satisfaction [20,40,43]. Also in line with previous findings, we found that the most frequently occurring inaccuracies consisted of omissions and instances where the AHI spoke for the patient [19,20]. As in Flores et al. [20], in more than half of the cases, these interpreter errors were of clinical significance.

The descriptive analyses (particularly case 1 and 2) illustrate that doctors often overestimate the quality and underestimate the risks of information exchanged across AHIs. This is one of the

factors contributing to the vast underuse of PIs. Whereas in some cases, depending on the patient's conditions and the available non-verbal resources, accurate diagnoses can be established, similar communication flaws could be problematic for other types of conditions that are more demanding in terms of communicative resources [8]. A language barrier can also, often invisibly, vary over the course of a single consultation [3,8]. An illustration was provided of a case where the perceived quality of communication was lower than the actual quality (case 3). The impact of AHI inaccuracies on diagnostic insecurity is one of the channels through which language barriers increase test ordering.

Additions made by AHIs were sometimes found to provide useful and relevant information on the context of patients' conditions or feelings. Earlier research already highlighted that patient companions view the facilitation of understanding as one of their main roles [22]. They do not necessarily consider themselves as "interpreters" in the strict sense of the word [44] and they have not been trained as interpreters [35], which partly explains the high occurrence of interpreter inaccuracies.

5 Conclusion

There are potential discrepancies between doctors' perception of the efficacy of information exchange, and the actual efficacy [3]. Raising awareness on the existence of such discrepancies can encourage doctors to request additional language support when needed, and to strengthen their cross-linguistic communication skills [8,32,45]. This is crucial as the use of PIs has been found to improve care and reduce the readmission rates of foreign speaking patients with a potential to save hospital expenditures [10,34]. Hence doctors should allow the use of an AHI only if the patient prefers this or if the emergency situation is so extreme that a PI is impractical [32,45].

The highest risk of clinical consequence occurred when AHIs were answering for the patient as opposed to engaging in interpretation. This behavior is more visible and easy to detect by doctors than other inaccuracies in interpretation. Omissions seem to increase the clinical risks and the risk of harming the doctor-patient relationship. The latter has implications for patient-centeredness and the quality of information exchange. Unaddressed language barriers also reinforce uncertainty and anxiety [46].[3]

[3] Some have argued that due to difficult working conditions, the achievement of proper doctor-patient relationships in the ED is elusive, encouraging doctors to prioritize medical aspects. Patients, on the other hand, are typically anxious and expect doctors to be empathic. This often leads to a discrepancy at the level of expectations between doctors and patients [47,48].

6 Practice implications

Doctors should be adequately informed about the (dis)advantages of relying on AHIs for language intermediation and the advantages of calling in a PI, be it on site or remotely. They should also be trained on how to recognize communication risks [8,45,49] and engage in role negotiation with AHIs when they occur. For instance, omissions can be reduced by insisting that information be conveyed to the patient, since omissions occur primarily in the doctor-to-patient direction. In addition to raising awareness among doctors on the potential risks of using AHIs, EDs should adjust their management to increase the utilization of on site and remote PIs [13,38,45,50].

7 References

[1] R.J. Schwei, S. Del Pozo, N. Agger-Gupta, W. Alvarado-Little, A. Bagchi, A.H. Chen, L. Diamond, F. Gany, D. Wong, E.A. Jacobs, Changes in Research on Language Barriers in Health Care Since 2003: A Cross-Sectional Review Study, Int. J. Nurs. Stud. (2015). doi:10.1016/j.ijnurstu.2015.03.001.

[2] L.C. Diamond, E.A. Jacobs, Let's Not Contribute to Disparities: The Best Methods for Teaching Clinicians How to Overcome Language Barriers to Health Care, J. Gen. Intern. Med. 25 (2010) 189–193. doi:10.1007/s11606-009-1201-8.

[3] A. Cox, The Dynamics of (mis)communication in language-discordant multi-party consultations in the Emergency Department, PhD dissertation, Vrije Universiteit Brussel. Zelzate: University Press, 2017.

[4] M.N. Levas, J.D. Cowden, M.D. Dowd, 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. 165 (2011) 831–836. doi:10.1001/archpediatrics.2011.61.

[5] Mahmoud I., Hou X.-Y., Chu K., Clark M., Language affects length of stay in emergency departments in Queensland public hospitals, World J. Emerg. Med. 4 (2013) 5–9. http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L368459025.

[6] G. Flores, The Impact of Medical Interpreter Services on the Quality of Health Care: A Systematic Review, Med. Care Res. Rev. 62 (2005) 255–299. doi:10.1177/1077558705275416.

[7] L. Schulson, V. Novack, P.B. Smulowitz, T. Dechen, B.E. Landon, Emergency Department Care for Patients with Limited English Proficiency: a Retrospective Cohort Study, J. Gen. Intern. Med. (2018). doi:10.1007/s11606-018-4493-8.

[8] K.M. Würth, S. Reiter-Theil, W. Langewitz, S. Schuster, "Getting by" in a Swiss Tertiary Hospital: the Inconspicuous Complexity of Decision-making Around Patients' Limited Language Proficiency, J. Gen. Intern. Med. 33 (2018) 1885–1891. doi:10.1007/s11606-018-4618-0.

[9] A. Fields, M. Abraham, J. Gaughan, C. Haines, K.S. Hoehn, Language Matters: Race, Trust, and Outcomes in the Pediatric Emergency Department, Pediatr. Emerg. Care. 32 (2016) 222–226. doi:10.1097/PEC.0000000000000453.

[10] L.S. Karliner, E.A. Jacobs, A.H. Chen, S. Mutha, Do Professional Interpreters Improve Clinical Care for Patients with Limited English Proficiency? A Systematic Review of the

Literature, Health Serv. Res. 42 (2007) 727–754. http://doi.wiley.com/10.1111/j.1475-6773.2006.00629.x (accessed January 12, 2012).
[11] B. Gray, J. Hilder, H. Donaldson, Why do we not use trained interpreters for all patients with limited English proficiency? Is there a place for using family members?, Aust. J. Prim. Health. 17 (2011) 240. doi:10.1071/PY10075.
[12] S. Abbato, J. Ryan, C. Skelly, P. Good, The other side of 'getting by': A case study of interpreting provision decision making and consequences for patients, Cogent Med. 0 (2018). doi:10.1080/2331205X.2018.1483096.
[13] C. Lundin, E. Hadziabdic, K. Hjelm, Language interpretation conditions and boundaries in multilingual and multicultural emergency healthcare, BMC Int. Health Hum. Rights. 18 (2018). doi:10.1186/s12914-018-0157-3.
[14] J. Ryan, S. Abbato, R. Greer, P. Vayne-Bossert, P. Good, Rates and Predictors of Professional Interpreting Provision for Patients With Limited English Proficiency in the Emergency Department and Inpatient Ward, Inq. J. Health Care Organ. Provis. Financ. 54 (2017) 004695801773998. doi:10.1177/0046958017739981.
[15] A.A. Ginde, A.F. Sullivan, B. Corel, J.A. Caceres, C.A. Camargo Jr, Reevaluation of the effect of mandatory interpreter legislation on use of professional interpreters for ED patients with language barriers, Patient Educ. Couns. 81 (2010) 204–206. doi:10.1016/j.pec.2010.01.023.
[16] D. Cerf, Le Bon Usage du Service des Urgences. Presented at the Séminaires des Services d'Urgences IRIS, Séminaires des Services d'Urgences IRIS, (2012).
[17] Eurostat, Population on 1 January by age group, sex and country of birth [migr_pop3ctb]. Extracted on 02.04.2018., (2017).
[18] BISA, Bevolking: Nationaliteiten, Brussels Instituut voor Statistiek en Analyse, Brussel, 2018.
[19] A.M. Nápoles, J. Santoyo-Olsson, L.S. Karliner, S.E. Gregorich, E.J. Pérez-Stable, Inaccurate Language Interpretation and Its Clinical Significance in the Medical Encounters of Spanish-speaking Latinos, Med. Care. 53 (2015) 940–947. doi:10.1097/MLR.0000000000000422.
[20] G. Flores, M. Abreu, C.P. Barone, R. Bachur, H. Lin, Errors of Medical Interpretation and Their Potential Clinical Consequences: A Comparison of Professional Versus Ad Hoc Versus No Interpreters, Ann. Emerg. Med. 60 (2012) 545–553. doi:https://doi.org/10.1016/j.annemergmed.2012.01.025.
[21] J.C. Jackson, D. Nguyen, N. Hu, R. Harris, G.S. Terasaki, Alterations in Medical Interpretation During Routine Primary Care, J. Gen. Intern. Med. 26 (2011) 259–264. doi:10.1007/s11606-010-1519-2.
[22] Rosenberg, R. Seller, Y. Leanza, Through interpreters' eyes: Comparing roles of professional and family interpreters, Patient Educ. Couns. 70 (2008) 87–93. doi:10.1016/j.pec.2007.09.015.
[23] C. Paltved, P. Musaeus, Qualitative Research on Emergency Medicine Physicians: A Literature Review, Int. J. Clin. Med. 03 (2012) 772–789. doi:10.4236/ijcm.2012.37A136.
[24] M. Dean, J. Oetzel, D.P. Sklar, Communication in Acute Ambulatory Care:, Acad. Med. 89 (2014) 1617–1622. doi:10.1097/ACM.0000000000000396.
[25] H. Roh, K.H. Park, A Scoping Review: Communication Between Emergency Physicians and Patients in the Emergency Department, J. Emerg. Med. 50 (2016) 734–743. doi:10.1016/j.jemermed.2015.11.002.

[26] A. Cox, Ethnographic research on ad hoc interpreting in a linguistically diverse emergency department: The challenges of data collection., New Voices Transl. Stud. (2015) 30–49.
[27] M.L. McCaslin, Pragmatism, in: L.M. Given (Ed.), SAGE Encycl. Qual. Res. Methods, SAGE Publications, Los Angeles, Calif, 2008: pp. 671–675.
[28] J.W. Creswell, Research design: Qualitative, Quantitative, and Mixed Methods Approaches, 4th ed., Thousand Oaks, CA: Sage, 2014.
[29] J.M. Morse, L. Niehaus, Mixed method design: principles and procedures, Left Coast Press, Walnut Creek, Calif, 2009.
[30] L. Given, Unstructured Interview, in: SAGE Encycl. Qual. Res. Methods, SAGE Publications, Los Angeles, California, 2008. doi:10.4135/9781412963909.n475.
[31] D. Ramirez, K.G. Engel, T.S. Tang, Language interpreter utilization in the emergency department setting: a clinical review, J. Health Care Poor Underserved. 19 (2008) 352–362. doi:https://doi.org/10.1353/hpu.0.0019.
[32] J.M. Brenner, E.F. Baker, K.V. Iserson, N.H. Kluesner, K.D. Marshall, L. Vearrier, Use of Interpreter Services in the Emergency Department, Ann. Emerg. Med. 72 (2018) 432–437. doi:10.1016/j.annemergmed.2018.05.009.
[33] Y. Schenker, E.J. Pérez-Stable, D. Nickleach, L.S. Karliner, Patterns of Interpreter Use for Hospitalized Patients with Limited English Proficiency, J. Gen. Intern. Med. 26 (2011) 712–717. doi:10.1007/s11606-010-1619-z.
[34] L.S. Karliner, E.J. Pérez-stable, S.E. Gregorich, Convenient Access to Professional Interpreters in the Hospital Decreases Readmission Rates and Estimated Hospital Expenditures for Patients With Limited English Proficiency, Med. Care. 55 (2017) 199–206. doi:10.1097/MLR.0000000000000643.
[35] E. Hsieh, Not Just "Getting by": Factors Influencing Providers' Choice of Interpreters, J. Gen. Intern. Med. 30 (2015) 75–82. doi:10.1007/s11606-014-3066-8.
[36] S.C.B. O'Leary, S. Federico, L.C. Hampers, The truth about language barriers: One residency program's experience, Pediatrics. 111 (2003) e569–e573. doi:https://doi.org/10.1542/peds.111.5.e569.
[37] L.S. Karliner, E.J. Pérez-Stable, G. Gildengorin, The language divide, J. Gen. Intern. Med. 19 (2004) 175–183. doi:https://dx-doi-org.kuleuven.ezproxy.kuleuven.be/10.1111%2Fj.1525-1497.2004.30268.x.
[38] M.I. Ragavan, J.D. Cowden, The Complexities of Assessing Language and Interpreter Preferences in Pediatrics, Health Equity. 2 (2018) 70–73. doi:10.1089/heq.2017.0057.
[39] A. Cox, N. Dauby, The challenge of obtaining informed consent in a highly multilingual hospital emergency department, in: Re Considerando Ética E Ideol. En Situaciones Confl. Re Visit. Ethics Ideol. Situat. Confl., Universidad de Alcalá, Servicio de Publicaciones, 2014: pp. 114–119.
[40] F. Gany, L. Kapelusznik, K. Prakash, J. Gonzalez, L.Y. Orta, C. Tseng, J. Changrani, The Impact of Medical Interpretation Method on Time and Errors, J. Gen. Intern. Med. 22 (2007) 319–323. doi:10.1007/s11606-007-0361-7.
[41] J. Silverman, S. Kurtz, J. Draper, Skills for Communicating with Patients, 3rd Edition, CRC Press, 2016. doi:https://doi.org/10.1201/9781910227268.
[42] M. Gluckman, Ethnographic Data in British Social Anthropology*, Sociol. Rev. 9 (1961) 5–17. doi:10.1111/j.1467-954X.1961.tb01082.x.
[43] F. Gany, J. Leng, E. Shapiro, D. Abramson, I. Motola, D.C. Shield, J. Changrani, Patient Satisfaction with Different Interpreting Methods: A Randomized Controlled Trial, J. Gen.

Intern. Med. 22 (2007) 312–318. http://link.springer.com/10.1007/s11606-007-0360-8 (accessed July 28, 2013).

[44] J. Hlavac, Participation roles of a language broker and the discourse of brokering: An analysis of English–Macedonian interactions, J. Pragmat. 70 (2014) 52–67. doi:10.1016/j.pragma.2014.06.003.

[45] Y. Schenker, B. Lo, K.M. Ettinger, A. Fernandez, Navigating language barriers under difficult circumstances, Ann. Intern. Med. 149 (2008) 264–269. http://annals.org/article.aspx?articleid=742268 (accessed March 19, 2014).

[46] Y.Y. Kim, Synchrony in Intercultural Communication, in: Int. Encycl. Intercult. Commun., American Cancer Society, 2017: pp. 1–10. doi:10.1002/9781118783665.ieicc0072.

[47] C.-S. Lin, M.-Y.F. Hsu, C.-F. Chong, Differences between Emergency Patients and Their Doctors in the Perception of Physician Empathy: Implications for Medical Education, Educ. Health. 21 (2008) 144. http://www.educationforhealth.net/article.asp?issn=1357-6283;year=2008;volume=21;issue=2;spage=144;epage=144;aulast=Lin;type=0 (accessed April 5, 2016).

[48] P.A. Lachance, La communication à l'urgence ou l'urgence de la communication, in: M.T. Lussier, C. Richard (Eds.), Commun. Prof. En Santé, Pearson, Montréal, 2016: pp. 617–642.

[49] A. Cox, S. Li, The medical consultation through the lenses of language and social interaction theory, Adv. Health Sci. Educ. (2019). doi:10.1007/s10459-018-09873-2.

[50] A. Cox, R. Lázaro Gutiérrez, Interpreting in the Emergency Department: How Context Matters for Practice, in: F.M. Federici (Ed.), Mediat. Emergencies Confl., Palgrave Macmillan UK, London, 2016: pp. 33–58. http://link.springer.com/10.1057/978-1-137-55351-5_2 (accessed July 26, 2016).

Table 1: Characteristics of the ten analyzed cases

	Patient	Sex	Problem	Ad hoc interpreter (AHI)
1	**Elderly Iraqi**	F	Fall, leg pain	Neighbor & daughter
2	**Young Pakistani**	M	Kidney stone	Friend
3	**Young Moroccan 1**	F	Mastitis	Husband
4	**Elderly Polish**	F	Coughing blood	Friend
5	**Young Moroccan 2**	F	Many symptoms	Friends
6	**Middle aged Somali**	F	Possible tuberculosis	Friend
7	**Pregnant Moroccan**	F	Skin lesion	Husband
8	**Young American**	M	Inflamed toe	Professor[4]
9	**Elderly Moroccan**	M	Gout, possible sepsis	Sons-in-law
10	**Elderly Italian**	F	Fall, foot pain	Son & friend

[4] The companion who acted as an interpreter was an American professor who was touring with his students in Europe. The patient was one of his students. The professor spoke French as a second language.

Table 2: Quality of interpretations and impacts of inaccuracies, all cases

Interpretations	N	Potential clinical impact			Relation-ship harmed
		Insigni-ficant	Mild to moderate	High	
ACCURATE	138 (19.6%)	-	-	-	-
INACCURATE					
Answer for patient	237 (33.6%)	55	100	79	6
Substitute	38 (5.4%)	16	11	11	0
Add	124 (17.6%)	55	41	22	2
Omit	167 (23.7%)	75	58	30	70
Patient to doctor	*21*	*3*	*13*	*3*	*2*
Doctor to patient	*146*	*72*	*45*	*27*	*68*
Total	**704** (100%)	**201** (28.6%)	**210** (29.8%)	**142** (20.2%)	**78** (11.1%)

Note: For some of the interpretation inaccuracies, it was impossible to assess the potential clinical impact due to the difficulty to understand the exact words of the AHI. This was the case for 3 instances of answering for the patient, 6 additions, and 4 omissions.