

THE IMPACT OF LANGUAGE BARRIERS ON PATIENT SAFETY AND QUALITY OF CARE



Final Report

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IMPACT OF LANGUAGE BARRIERS ON QUALITY AND SAFETY OF HEALTHCARE

KEY POINTS

1. Significant research has been conducted on the impact of language barriers on health and healthcare, particularly over the past two decades. This research, (and several systematic and critical reviews) has provided compelling evidence of the negative impact of language barriers on healthcare access, patient satisfaction and experience, as well as disparities in receipt of care between English (dominant language) proficient patients and those facing language barriers.
2. Those facing language barriers also face increased risk of medication errors and complications, and adverse events. The rights of limited English proficient patients to informed consent and confidentiality are often not protected.
3. The research on language access does not align that well with the healthcare quality and safety literature; and not all applicable research is published in commonly-cited medical journals. This may contribute to low awareness of the risks of language barriers among providers and managers.
4. Due to data limitations, limited research on impacts of language barriers has been conducted in the Canadian setting. However, a review of the pathways through which language barriers impact quality of care and safety indicates that much of the international research is applicable in the Canadian context.
5. In contrast to the evidence of negative impacts of language barriers on quality of care (including risk of adverse events), there is not evidence of disparities in mortality between English proficient patients and those facing language barriers. This finding is not unexpected, given what is known about the pathways by which language barriers affect care quality, and limitations of methods used to investigate the impact of language barriers on health outcomes.
6. There are several barriers to action in addressing the risks of language barriers to quality of care and patient safety: lack of awareness of current research; gaps in Canadian research; lack of language coding in Canadian data; historical framing of linguistic access as an issue of cultural sensitivity (rather than patient safety); and failure to adequately “translate” available evidence into healthcare action.
7. Recent research has begun to outline the complexity of pathways by which language, culture, race/ethnicity and health literacy may affect patient care.
8. Current approaches to addressing the risks of language barriers rely on the dedication and insight of individual providers rather than implementation of effective, evidence-informed strategies at the system level. This is not acceptable in light of current knowledge of effective approaches to patient safety.
9. Implications of available evidence for future research, for the SSF, and for the patient safety movement are discussed.

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IMPACT OF LANGUAGE BARRIERS ON PATIENT SAFETY AND QUALITY OF CARE

INTRODUCTION

PURPOSE OF REPORT

The purpose of this report is to provide a *critical* review (Grant & Booth, 2009) of the literature as it relates to the impact of language barriers on patient safety within the context of quality of care. It is not intended to be an exhaustive review; rather the aim is to summarize the current evidence and provide a framework for further investigation.

The report has been commissioned by the Société Santé en français (SSF): findings from this review will inform the SSF of current research in this critical area. However, the review provides a summary of the evidence related to language barriers *in general*: findings are not specific to francophones in Canada.

The research on language access is broad and multi-faceted. It is, therefore, useful to note that this report will not attempt to review all impacts of language barriers related to health care (e.g. impacts on service utilization, health care cost, or research participation). Nor will this review address other important related topics such as a) evidence on effective strategies to address language barriers, b) legal issues related to provision of language access, or c) standards or recommended best practice for service provision.

HOW THIS REPORT IS ORGANIZED

Following this brief introduction (which also includes a glossary of terms used in the report), **Part 1** (Background) will provide a short overview of issues related to evaluating the evidence on language barriers, patient safety and quality of care. **Part 2** will focus on the evidence related to impact of language barriers on healthcare quality, with an emphasis on safety. Explanations for findings will also be explored. **Part 3** will provide a short commentary on implications for the SSF and other health service and research organizations. Finally, **Part 4** (Conclusion), is followed by a list of references.

SELECTION OF ARTICLES FOR REVIEW

Thorough searches were first conducted using two data bases: Medline and Scopus. Terms used included: language barriers/linguistic barriers/language disparities/limited English proficient in combination with patient safety/quality of care/adverse events/health disparities, subsequent to 2000 (A number systematic reviews summarized key findings from the literature up to the early/mid 2000s). Titles and abstracts were reviewed, and those that did not differentiate between language barriers and ethnic/racial minorities excluded. This initial list was supplemented by a large number of additional studies identified through reference list screening of key articles. This strategy also led to inclusion of some influential studies undertaken prior to 2000.

GLOSSARY OF TERMS

This section presents definitions of some of the common terms used in the report.

Adjustment: Minimizing differences between population groups using statistical methods, to ensure that comparisons between groups are appropriate. Adjustments may be made for patient characteristics (e.g. age, sex, SES), or for severity of disease conditions/intensity of service utilization (e.g. case-mix groupings).

Adverse events: An event which results in unintended harm to the patient, and is related to the care and/or services provided to the patient rather than to the patient's underlying medical condition (Canadian Patient Safety Institute, 2008).

Bilingual provider: A health provider who is able to provide fluent, effective service in both the majority, and minority language.

Descriptive study: A study designed only to describe the existing distribution of variables, without regard to causal or other hypotheses.

Experimental study: A study in which conditions are under the direct control of the investigator.

False fluency: A situation where providers believe that they are understanding the patient and communicating questions and instructions clearly, but may be making serious errors. False fluency often occurs when the speaker has limited competence in the additional language.

Face validity: Whether a test or indicator appears (at face value) to measure what it claims to measure.

Interpretation: Interpretation refers to the process by which a spoken or signed message in one language is relayed, *with the same meaning*, into another language. **Health interpretation or medical interpretation** refers to interpretation for health issues or within the health system. **Trained health interpreters** are those who have appropriate training in the profession of health interpreting, including knowledge of health system organization, medical vocabulary in both languages, and ethical standards and codes of conduct related to health care. **Ad hoc or volunteer interpreters** are family members, friends or others who act as interpreters for the client.

Language access: An umbrella term that describes strategies to enable clients to communicate effectively with those in the health care system, and for providers to communicate effectively with them. Language access can be provided in many different ways: interpretation (in person or remote); availability of health information in a variety of formats and languages; signage; or direct service by bilingual service providers.

Language attrition: The loss of ability to speak a language previously learned.

Language concordant encounters: Health care interactions where both provider and client are fluent in the same language. In **language discordant** encounters, provider and client do not speak the same language.

Limited English proficiency (LEP): A term commonly used in U.S. research to designate those who have limited ability to speak and/or understand English. This is often contrasted with EP (**English proficient**). LEP is often used to mean “*those who are not proficient in the dominant language of healthcare delivery*”. In this report the term “English proficient” is most often used, as it is reflective of current research. However, a more accurate term may be “proficient in the dominant language”. For Canadian readers, it is important to recognize that, in Quebec, the “dominant” language is French, so non-proficient French speakers are the population of interest.

Medical error: An act of commission or omission that substantively increases the risk for a medical adverse event. An error may result from the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. A medical error may, or may not, result in an adverse event.

Mother tongue: First language learned in childhood that is still understood (Statistics Canada). A more useful measure of those who may face language barriers in official language minority situations, is ***speaking a language other than English most often at home***.

Observational study: An epidemiologic study that does not involve any intervention by the researcher.

Official language minorities: French or English speakers in Canada who are a numerical minority in the province or area in which they live.

Patient safety: The pursuit of the reduction and mitigation of unsafe acts within the healthcare system, as well as the use of best practices shown to lead to optimal patient outcomes.

Quality: The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Canadian Patient Safety Institute)

Root cause analysis: A process for identifying the most basic or casual factor or factors that underlie variation in performance, including the occurrence of an adverse sentinel event.

Sentinel event: An unexpected occurrence involving death or serious physical or psychological injury. Such events are called ‘sentinel’ because they signal the need for immediate investigation and response (Canadian Patient Safety Institute).

Translation: The *written* conversion of one language into another.

Up-triaging: Triaging refers the sorting of patients (e.g. in an emergency room) according to the urgency of their need for care. Placing a patient into a “higher” risk category than would be expected based on knowledge about his/her condition alone, because of uncertainty, is referred to as “up-triaging”.

PART 1: BACKGROUND

CONSTITUENCIES FACING BARRIERS TO HEALTH CARE IN CANADA

In Canada there are four constituencies that may face linguistic barriers to health care: First Nations and Inuit communities; immigrants and refugees to Canada; Deaf and Deaf-Blind persons, and (depending on location of residence) speakers of one of Canada's two official languages (official language minorities). Rights to access in one's preferred language vary between these constituencies and between individual provinces and territories, as do preferences for strategies to provide language access. However, an earlier review (Bowen, 2001) determined that the impact of language barriers on health and healthcare is similar across constituencies.

DEVELOPMENT OF RESEARCH ON LANGUAGE BARRIERS AND ACCESS

Research on language barriers is relatively recent but is maturing. Until the 1980's, the small literature available emphasized case studies (which, while dramatically illustrating the potential harm of failing to address language barriers, did not provide the "numbers" to drive policy change). Since that time, many different research methods have been used: surveys, qualitative methods such as interviews and focus groups, secondary data analysis (analysis of data collected for another purpose), and (less frequently) chart review, or methods of economic evaluation.

There has been a significant increase in research conducted on language barriers since the 1990's. Areas of language barrier research that can be most appropriately addressed through descriptive research (such as access and patient satisfaction) have been more developed. Most research has focused on access, interpreting practices, and "outcomes", particularly patient satisfaction (Schwei et al., 2015). The negative impact of language barriers on the two care dimensions of "access" and "patient satisfaction" have been so well established (including through systematic reviews), that there is firm expert consensus of the impacts in this area. Two additional areas that have received increased research attention in recent years include a) provider perspectives and experiences, and b) evidence related to risk, patient safety and appropriateness of care.

However, many research gaps remain: most studies are descriptive, and few have evaluated the effectiveness of interventions (Schwei et al., 2015). There are a number of limitations to using experimental designs (such as randomized controlled trials) in studying language barriers in health, as there is an ethical requirement that such trials may not include options for which there is already evidence of inferiority. For example, it would be considered unethical to randomly assign non-official language speakers to a) trained interpreter services, vs. b) no interpreter service, as there is sufficient evidence on negative effects of failing to provide language access.

While increasing attention has been directed to exploring the impact of language barriers on patient safety, the literature on impacts of language barriers on patient safety is still limited. Language access research is not limited to the impact of language barriers on patients. It may also address impacts on health providers (and students); the acceptability and effec-

tiveness of various strategies for addressing language barriers to various stakeholders; organizational factors related to effective interventions; impact of language barriers on research quality; and the impact of language on the broad determinants of health (e.g. health status).

CHALLENGES IN ASSESSING IMPACT OF LANGUAGE BARRIERS

Research on language barriers is limited by the available data. In Canada, with the exception of some data collected on First Nations peoples, data on ethnicity/race or language (ethnicity indicators) is not routinely collected, presenting a number of challenges to research in this area (e.g. using the rich resources of provincial health data to compare utilization and outcomes). National surveys, such as the Canadian Community Health Survey (CCHS), the National Population Health Survey (NPHS), and Longitudinal Survey of Immigrants to Canada (LSIC), provide some data. The CCHS is a cross-sectional survey that collects information related to health status, health care utilization, and health determinants. It includes some questions related to language (e.g. *In what languages can you conduct a conversation? What languages do you speak most often at home? What is the language that you first learned at home in childhood and can still understand?*). The NPHS is a longitudinal survey that includes many of the same questions, while the LSIC is focused on immigrant adjustment to Canada. In addition to the limitations of surveys in general, research using these national surveys is limited to the information collected.

There has been limited Canadian research undertaken on the impact of language barriers in health, although the research that has been conducted is consistent with international findings. Much Canadian research has focused on immigrant populations, and on differences between ethnic groups. A 2001 review of the research literature related to language access in health analyzed research evidence from a Canadian perspective, and assessed implications for the provision of health care in Canada. There was solid evidence that Canadian patients who spoke a minority language often did not receive the same standard of ethical health care as other Canadians, and that much (though not all) of the international research could be appropriately generalized to the Canadian context (Bowen, 2001).

Most of the research on language barriers has been conducted in the United States, and much of this research has focused on the Hispanic/Latino population. This has a number of implications that must be kept in mind when reviewing the research:

- The health care system in Canada is significantly different from that of the U.S. As U.S. health services have not been publicly funded, readers must ensure that any study account for insurance status in its design (i.e. ensure that only those with similar insurance coverage are compared); a requirement met in almost all of the recent research.
- The terms “ethnicity” and “race” have clearly defined meanings and categories in the U.S.: these categories must be used by federally funded health programs. There are two ethnic categories in the U.S.: Hispanic and non-Hispanic; ethnicity does not have the same meaning as in Canada. Nor do the “racial” categories correspond to census Canada categories (e.g. of visible minorities).
- Because of the large numbers and demographic importance of Hispanics in the U.S., much research has compared English proficient and limited English proficient Hispanics, sometimes in combination with racial categories (e.g. Black, White). This allows for a more specific focus on the independent impact of language compared to cultural factors.

However, because Spanish (like French) is a European language, barriers faced by speakers of other languages cannot be assumed to be equivalent. Indeed, some recent research has found quite different patterns of impacts on a number of outcomes by specific language/ethno-racial category.

- Much of the non-English speaking Hispanic population is less educated than are language minorities in Canada; this is of particular interest as it relates to health literacy research.

COMPARING LANGUAGE ACCESS AND QUALITY/SAFETY RESEARCH

Until recently, language access research has been conducted independently of research on patient safety and quality. The literature on language barriers and health is not organized around (nor does it generally use) the language of patient safety and quality of care, with the result that this literature does not use headings that correlate well with the dimensions of quality identified by Accreditation Canada. There is, however, some equivalence, as indicated in the table below.

Table 1: Comparing Language Access Literature to Quality Dimensions

| Research Category | Commonly Researched Subtopics | Related to Quality Dimension | Comments |
|--|--|------------------------------|---|
| Patient Safety | <ul style="list-style-type: none"> • Health outcomes • Readmission • Medication prescribing, adherence, complications | Safety | |
| Patient Satisfaction | <ul style="list-style-type: none"> • Patient experience • Service satisfaction • Intent to return • Confidence in provider • Satisfaction with communication | Client - Centred Services | These two categories overlap but are not equivalent |
| Provider Satisfaction | <ul style="list-style-type: none"> • Provider identified risks • Provider satisfaction and confidence • Malpractice concerns • Student learning | Worklife | Some similarities with work life category |
| Service Utilization (not addressed in this review) | <ul style="list-style-type: none"> • Patterns of service utilization (e.g. primary care vs. ED) • Length of stay (LOS) • Laboratory and imaging test ordering • Wait times • Provider time • Costs | Efficiency | Relates to “efficiency” to some degree |

| Research Category | Commonly Researched Subtopics | Related to Quality Dimension | Comments |
|--|---|-------------------------------|---|
| Quality of Care | <ul style="list-style-type: none"> • Patient understanding of condition, prescribed treatment • Informed consent • Patient confidentiality • Receipt of recommended services • Differences in prescribed treatment between LEP and EP patients • Medication adherence • Chronic disease management | Appropriateness Continuity | Quality is broadly defined in language access literature, and often refers to disparities between English proficient and limited English proficient groups. This category may overlap with appropriateness and safety |
| Access | <ul style="list-style-type: none"> • Knowledge of conditions and risks • Awareness of health promotion and screening programs • Likelihood of having a regular provider • Access to health promotion, prevention programs • Mental health access • Receipt of screening programs • Patterns of referral • Use of specialized services | Accessibility | Language access literature may not differentiate between utilization and access |
| Organizational Access (not addressed in this review) | <ul style="list-style-type: none"> • Informed consent • Organizational policy and standards • Organizational and program structure and processes • Provision of language access services • Research (including clinical trial participation) | Population Focus | |

SCOPE OF RELATED LITERATURE

It is important to place language barrier research within a broader conceptual framework. There are a number of related and overlapping areas of research: while it is important to recognize the relationships with other research areas, it is also necessary to ensure conceptual clarity, and to note differences. Some of the related research areas, and their relationship to language access research, are noted below.

Healthcare Communication

The importance of good communication between providers and patients has long been recognized: language has been described as medicine's most essential technology - the principal instrument for conducting its work (Jackson, 1998). It has been observed that without language, the work of a physician (or other health provider) and a veterinarian would be nearly identical (Clark, 1983). The U.S. Joint Commission states that communication is a *core component*, not simply an adjunct or facilitator of health care (Schyve, 2007). Reviews of the literature on patient-provider communication indicate that, in addition to effects on patient satisfaction, there is a relationship between the quality of communication and specific patient health outcomes (e.g. pain, recovery from symptoms, anxiety, and physiological measure of blood pressure and blood glucose) (Kaplan et al., 1989; Stewart, 1995; Stewart et al., 1999; Stewart et al., 2000; Teutch, 2003; Williams et al., 1998). Three basic communication processes have been identified as associated with improved health outcomes: a) amount of information exchanged, b) patient's control of the dialogue, and c) rapport established (Kaplan et al., 1989). All of these processes are jeopardized in language discordant encounters.

Patients who are not proficient in the language of their provider are subject to the same risks of poor communication as all other patients. However, language barriers present other, additional risks: simply improving provider general communication skills is not sufficient to address the risks faced by patients who do not speak the same language. Poor communication also poses risks to providers, increasing the likelihood of malpractice claims and complaints (Domino et al., 2014; Lussier & Richard, 2005).

Much of the patient safety literature related to communication has not focused on miscommunication between patient and provider, but has rather focused on communication between medical personnel, including patient handovers. This latter area has not been addressed in the language barrier research.

Health Literacy

Health literacy is a related topic that is currently of much interest within healthcare. However, it is important to note that while language barriers may result in reduced health literacy (and also interact with health literacy (Sorlie & Lopez, 2011; Sentell et al., 2013), they are also an independent factor affecting patient safety and quality of care. Those who face language barriers often do not demonstrate many of the characteristics associated with low health literacy, such as lower education or learning disabilities (for example, we know that the average education of immigrants to Canada is higher than that of the Canadian born). Nor are the strategies for addressing health literacy necessarily adequate for addressing language barriers.

Researchers are only recently beginning to explore the relationships between literacy and language proficiency in patient-provider communication: most health literacy models do not address English language competency (Yip, 2012). There is evidence that language barriers are more important than limited health literacy in impeding communication. Where provider and patient speak the same language, adequate health literacy may act as a buffer against poor communication. However, in a language discordant encounter, this buffering effect does not appear to occur. There is evidence that language barriers are more important than limited health literacy in impeding communication (Sudore et al., 2009).

Culture, Race/ethnicity and Immigration Status

There is an extensive literature on ethnicity / culture and health. One of the challenges in reviewing the literature on language barriers and health is that much research has not clearly differentiated between language proficiency and other ethnicity related factors (e.g. ethnicity/race, culture, or immigration status). Until recently, Canadian research tended to focus almost specifically on “culture” or ethnicity, and this is still a dominant theme. There are, however, sophisticated studies that have “disentangled” the variables of ethnicity and immigration status from language proficiency. These studies have confirmed that the primary factor associated with poorer health outcomes appears to be language, not ethnicity. For example, several U.S. studies have found greater disparities between Hispanics and Whites than between Blacks and Whites in access and treatment received, even when other potentially confounding variables are accounted for. When language is included as a variable, English-speaking Hispanics have outcomes similar to Whites, while Spanish-speaking Hispanics continue to have the poorest outcomes (Fiscal et al., 2002; Jenkins et al., 1996; Weech-Maldano et.al., 2003; Weinick & Krauss, 2000; Yu et al., 2004). Weech-Mondalado et al., (2003) found not only that linguistic minorities tended to report worse care than did whites, but also worse care than racial and ethnic minorities. As Fiscella et al. (2002) conclude “*Ethnic (hispanic, non-hispanic) disparities in care are largely explained by differences in English fluency.*” While caution is required in generalizing these findings to other racial/ethnic groups, this research has contributed to greater attention on the importance of language barriers in contributing to health disparities. In spite of the importance of language barriers, however, it is necessary to recognize that there is also evidence (that for some ethnic groups, and for some services) culture may also be an important factor (Chen et al., 2009).

Because this review has excluded a thorough review of the research on ethnic disparities, it is likely that much evidence related to impact of language barriers has also been omitted. This limits the Canadian research available review because so many Canadian studies compare utilization, prescribed treatment, and outcomes among different ethnic groups (rather than compare official language proficient with non proficient patients).

Cultural “Competence”

Similarly, issues of linguistic and cultural responsiveness or competence have often been conflated, even though these are different concepts. There are many different approaches to addressing cultural differences between healthcare providers and patients: “cultural awareness”, “cultural sensitivity”, “cultural appropriateness” or “congruence”, “cultural proficiency”, and “cultural competence”. Each of these approaches is based on different assumptions. The potential pitfalls of the cultural competence approach (in particular) have been identified, with some authors suggesting “cultural humility” (Tervelon & Murray-Garcia, 1998) or “cultural safety” (Coup, 1996) as alternatives. In contrast with the strong evidence related to impacts of language barriers and failing to provide effective language access, there is insufficient evidence for specific cultural competence interventions (Anderson et al., 2003), likely due to the diversity of underlying philosophies underlying the many different approaches.

Risks of a “cultural competence” approach include oversimplifying the concept of culture, with the result that providers are inadvertently taught to stereotype; and directing resources to encouraging providers to become experts on patients’ culture, rather than increasing op-

portunities for patients to participate in their health care and to ‘speak for themselves’ (Bowen, 2004; Epner & Baile, 2012). Patient-centred care is proposed as the preferred strategy for quality care in a culturally diverse society (Epner & Baile, 2012).

Many experts in the field have concluded that if racial and ethnic disparities are to be addressed, it is necessary to target language barriers: not only because they are the best-documented source of disparities, but because communication is a basic requirement for truly patient-centred care (Saha & Fernandez, 2007). Research focused on patient/community experiences with care (including Canadian research) has identified that addressing language barriers is also a priority to minority communities themselves (Stevens, 1993; Ngwakongnwi et al., 2012).

Summary

The literature related to the impact of language barriers on health and provision of health services is diverse, spanning many different fields. In reviewing the literature it is important to be aware of the relationships between many diverse concepts, and to critically analyze the strengths and limitations of available evidence.

SECTION 2: EVIDENCE SUMMARY

IMPACT OF LANGUAGE BARRIERS ON PATIENT SAFETY AND QUALITY OF CARE

INTRODUCTION

This section summarizes the evidence on impact of language barriers on patient safety and quality of care. It will focus on the literature subsequent to 2000, as a number of systemic and general reviews of the literature assessed the literature up until the early/mid-2000s (e.g., Bauer et al., 2010; Bowen, 2001; Bowen, 2004; Flores, 2005; Jacobs et al., 2006; Karliner et al., 2007). In addition, the extensive literature on racial and ethnic disparities in quality and safety of care provides additional evidence that is not discussed in this report, as much of this research does not differentiate between culture, ethnicity, racialization, language, and/or immigration status as contributors to disparities. It should be noted, however, that language barriers have been identified as a major factor in explaining many ethnic/racial disparities (Flores & Ngui, 2006; Smedley et. al., 2003).

How is Quality Defined?

“Quality” of care is defined somewhat differently in the language access literature than in the quality/safety literature. The Canadian Patient Safety Institute defines quality as the *degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge*. However, in the literature related to language barriers the assumption of “quality care” is care that is equivalent for those that are, and are not, English proficient. In other words, the focus is on *disparities* in access and care between two population groups.

In some cases, these two definitions coincide (e.g., evidence of lower likelihood of informed consent among those facing language barriers provides clear evidence of lower quality). In other cases, it is not so clear whether differences in care provided to patients results in lower quality care for an individual patient. For example, reliance on increased testing may indicate greater provider caution, and even result in greater likelihood of a positive health outcome. While it is a concern to the health system if some patients have additional (potentially unnecessary) laboratory tests conducted, it may not be a risk to the patient. On the other hand, there is a clearly an individual risk if language barriers lead to unnecessary procedures, such as preventable endotracheal intubation (Bard et al., 2004).

Organization of Section

This review of the literature is organized according to four main categories, reflecting the literature in the area:

- Accessibility of service
- Patient and provider satisfaction/experience
- Quality and appropriateness of care
- Patient safety.

As previously mentioned, there is not close alignment between these dimensions and categories used language access researchers. It is also important to note that many individual studies explore aspects of quality across many dimensions.

ACCESSIBILITY OF SERVICE

Defining “Access”

Access refers not only to the *availability* of services, but to service characteristics that make it possible or comfortable for persons in need to utilize such services. In the literature related to language access, however, there is often a failure to differentiate between “access” and “utilization”. As a result, many studies on access report on *disparities in service utilization*.

Problems with access may be experienced at all points of the health maintenance and health seeking process: access to health information (e.g. benefits of immunization); knowledge of available health services (e.g. where and when one can receive such immunizations); participation in health promotion or prevention services (e.g. receiving immunization); participation in screening (e.g. cancer screening); first contact for non-urgent care; access to specialist care or specialized services; access to emergency and hospital care; and access to support services after discharge from hospital.

Impact of Language Barriers on Access

• **Awareness of health conditions and services**

For those not fluent in an official language, the process of determining what services are available and making an appointment can present challenges. Telephone, print, or internet resources are often only available in English (or French in Quebec). Language barriers prevent access to ambient health information (information that most of us “pick up” through everyday activities such as reading the newspaper, viewing a bus advertisement, or listening to the radio). For example, lack of English proficiency is strongly associated with lack of heart attack and stroke knowledge (Chow et al., 2008; DuBard et al., 2006), and knowledge of cancer signs and symptoms (Fitch et al., 1997).

• **Finding a regular provider**

Patients with language barriers may be less likely to have a regular medical provider (De-Camp et al., 2011, Weinick & Krauss, 2000), even in Canada where universal healthcare coverage removes many barriers to care. French-speaking language minorities are also more likely to experience difficulties in finding family doctors, whether immigrant or non-immigrant (Ngwakongnwi et al., 2012).

• **Participation in health promotion and prevention activities**

Language barriers are associated with less use of health promotion and health education resources (Brar et al., 2009; Stevens, 1993), and lower participation in almost every form of preventive care. One study found that infants of parents whose primary language was not English were half as likely to receive all recommended preventive care visits compared with infants of parents whose primary language was English (Cohen & Christakis, 2006); underuse of preventive services is also reported by Deaf patients (McKee et al., 2011). In contrast, a Canadian study found that immigrants with diabetes were likely to have a greater number of outpatient visits if a language barrier was present (Wang et al., 2012).

• **Participation in cancer screening**

Language barriers have been demonstrated to result in lower participation in cancer screening programs: breast cancer screening (Alexandraki & Mooradian, 2010; Jacobs et al.,

2005); cervical cancer screening (Fang & Baker, 2013; Ji et al, 2010; Lofters et al., 2007); and colorectal cancer screening (Ayanian et al, 2005; Diaz et al., 2008; Diaz et al., 2013; Javanparast et al, 2012; Jerant et al., 2008; Johnson-Kozlow et al., 2009; Wang et al., 2013). This is also true in Canada (some of the best Canadian evidence of barriers to preventive programs is found in the area of cancer screening programs) (Gentleman & Lee, 1997; Maxwell et al., 2001; McDonald & Kennedy, 2007; Woloshin et al., 1997). One study found similar rates of screening for patients of Chinese background in both the U.S. and Canada (Tu et al., 2005). While it is often believed that “cultural differences” are the major factor in lower participation in these programs, this is not confirmed by either the Canadian (Choudry et al., 1998) or international research.

- ***Receiving recommended preventive care.***

After accounting for individuals' health and socioeconomic status, those with limited English proficiency are significantly more likely to have fewer health care visits (Fiscella et al, 2002; Shi et al., 2009). A language barrier is associated with lower frequency of general check-ups, fewer visits for non-urgent medical problems (Derose et al., 2000; Pearson et al. 2008), and less likelihood of a physician visit, flu shot or mammogram (Fiscella et al., 2002; Pearson et al., 2011). Non-English speaking mothers were significantly less likely to have received pertussis vaccination prior to pregnancy or postnatally (Wong et al., 2015).

Canadian research also determined that, after adjusting for covariates, immigrants with limited language proficiency had lower odds of having an eye doctor consultation and a flu shot in the past year relative to those who were language-proficient (Lebrun, 2012).

- ***Access to mental health services***

There are additional and specific barriers to access to mental health services (Bauer et al., 2010; Kim et al., 2011; Ohtani et al., 2015). There is perhaps no other health area where diagnosis and treatment is as dependent on language and culture. Older immigrants with limited English proficiency have been found to have higher psychological distress than groups that were English proficient, and less likely to use mental health services (Kim et al., 2011). In one U.S. study, not only were non-English speaking individuals less likely to receive needed mental health services when other factors were controlled, but these differences were also found between English and non-English speakers in the same ethnic/racial groups (Sentell et al., 2007). In another study, those with a mental health diagnosis who had better English language proficiency were more inclined to use mental health services (Kang et al., 2010).

- ***Other services affected***

In addition, access to almost every form of supplementary or alternate health service is affected by language barriers. The international research points to less use of poison control centres (Litovitz et al., 2010), emergency services (Meishcke et al., 2013; Ong et al., 2012; Subraniam et al, 2010), rehabilitation services (Chauhan et al., 2010), home support services (Fryer et al., 2012), and infectious disease testing (Guirgis et al., 2012).

PATIENT AND PROVIDER EXPERIENCE

Patient experience

Research on patient experience (often referred to as patient satisfaction) has been one of the most researched areas in language access. Several themes can be identified under the “umbrella” term of patient satisfaction: patient satisfaction with provider, patient satisfaction with services (and specific aspects of services), intent to return, knowledge of condition and treatment, confidence in providers, and patient-centred care. Client satisfaction is the most recognized and widely-used measure of effectiveness of provider-patient communication. It is also an outcome of care, and it has been suggested that it is highly correlated with quality of care. However, those who face language barriers are very often excluded from participation in facility/service based health system satisfaction and evaluation activities (Gayet-Ageron et al., 2011). This prevents comparison of the experience of English proficient patients with those who face language barriers.

Some of the available studies compare English proficient with limited English proficient patients; others compare limited English patients who are not provided with language services with those who are provided with interpreter services, or receive care from a language congruent provider. Some studies focus on only one language group, others include those from several different ethnic backgrounds. These studies have been conducted in many different settings, and around different aspects of care: prehospital care (Cottrell et al., 2014;); emergency care (Mahmoud et al, 2014), pediatrics (Arthur et al., 2014; Dunlap et al., 2014; Flores, 2005), primary care (Martin et al., 2009); chronic care, cancer care (Gulati et al., 2012); pre and peri-natal care (Binder et al., 2012), and special needs (Eneriz-Wierner et al., 2014; Ngui & Flores, 2006).

- ***Satisfaction with the care experience***

The vast majority of studies find less satisfaction and more reported problems with care among those who face language barriers with their providers. The findings of earlier research (see for example Baker et al., 1998; Carrasquillo et al., 1999; David & Rhee, 1998; Hu & Covell, 1986; Morales et al., 1999), captured in systemic reviews, continue to be confirmed in more recent studies. Patients with a language barrier tend to be less satisfied with doctor communication, staff helpfulness, and give lower assessment of psychosocial care (Ayanian et al., 2005; Binder et al., 2012; Dunlap et al., 2014; Eskes et al., 2013; Mahmoud et al, 2014; Moreno & Morales., 2010; Ngo-Metzger et al., 2009; Seid et al., 2003). In a U.S. study of asthma care, Latino children with Spanish parental interview (but not African American or Latino children with English parental interview) reported poorer experiences with care (Inkelas et al., 2008). Satisfaction is improved when language access services are provided (Morales et al., 2006; Moreno & Morales, 2010; Ngo-Metzner et al, 2007).

- ***More than “satisfaction”***

These studies also indicate that more than patient satisfaction is affected: patients are very often not satisfied because they do not understand what is being said. A review of the literature reveals consistent and significant differences in understanding and compliance when a language barrier is present. This may prevent patient understanding and result in lower adherence to prescribed treatment: likely one explanation for reported differences in health outcomes. One study tested patients’ ability to recall their diagnosis, follow-up instructions, and proper use of prescribed medicines. Spanish-speaking patients provided an average of only 46% correct responses, compared to 65% for English-speaking patients (Crane, 1997).

This lack of understanding is associated with issues of informed consent and risks of poorer outcomes.

- ***Research focusing on patient-centred care***

Language barriers present challenges to patient-centred care. For example, in one study, Spanish speaking Latinas diagnosed with ductal carcinoma in situ were less satisfied with the decision-making process and reported more treatment regret than English-speaking Latinas and whites. In contrast, English-speaking Latinas and whites reported levels of satisfaction and regret similar to each other (Lopez et al., 2014). Another study found that where a language barrier was present, patients initiated fewer comments with their provider, and the comments they did make were more likely to be ignored (Rivadeneyra et al., 2000).

Provider Perspectives on Language Barriers

Recent research highlights providers' perspectives on provision of care to patients who are not proficient in the language of care delivery. A high proportion of providers identify language differences as barrier to quality (Abbe et al., 2006; Bernard et al., 2006, Bradshaw et al., 2007; Cleland et al., 2012; Gray et al., 2011; Karliner et al., 2011; Virgo et al., 2013). This is a concern not only for hospital care and specialized services: primary care providers also see language barriers as a high risk (Gaal et al., 2010). In one study, 44% of a sample of Canadian primary care practitioners reported frequent difficulty communication non-English proficient patients, along with difficulty in access to interpreters (Brisset et al., 2014). The challenges involved in treating LEP patients lead to increased provider malpractice concerns (Chen et al., 2011). Most surveyed clinicians felt that communication difficulties with LEP patients have a significant effect on care at least sometimes: however, in spite of these reported difficulties there was a wide variation in reported actual use of interpreters (Gray et al., 2011).

Providers in training also report concerns. An earlier survey of medical residents by Chala-bian & Dunnington (1997) found that 97% of residents believed that language barriers affected quality of care. Respondents also reported that they shifted their focus of care to bedside encounters not requiring patient participation. In another study, 80% of residents surveyed admitted avoiding communication with families when a language barrier was present, and more than half felt that the family didn't understand the diagnosis (Burbano et al., 2003).

QUALITY AND APPROPRIATENESS OF CARE

As discussed in the introduction to this section, "quality" is defined in various ways. This section will focus on the evidence of disparities in care between limited English and English proficient patients and families. Some of the studies reviewed deal directly with the question of appropriateness: It will be assumed that where there are standards of care, appropriate care has been defined.

Patient Assessment

A landmark U.S. Institutes of Medicine publication, "Unequal Treatment" (Smedley et al., 2003), highlighted the importance of linguistic concordance in patient-provider communica-

tion as a means of obtaining an accurate medical/social history. This medical history is crucial to the choice of appropriate examinations and diagnostic tests (Farmer et al., 2006). Communication barriers compromise the power of the medical interview, often resulting in increased reliance on laboratory or imaging tests or incorrect test ordering (David & Rhee, 1998; Garra et al., 2010; Hampers et al., 1999; Ramirez et al., 2008). Parent language is associated with diagnosis of childhood asthma (Mosnaim et al., 2007). Studies in the mental health field have found that patients give different responses to questions depending on the language of the interview (Bauer & Alegria, 2010; Marcos, 1979; Oquendo, 1996). Another study found that patients who required an interpreter were less likely to have received a mental health diagnosis (Flynn et al., 2013).

A prospective survey by Garra et al., (2010), explored the impact of communication barriers on initial diagnosis and ancillary testing in the Emergency Department (ED) setting. This study of 417 ED encounters found that communication barriers resulted in lower diagnostic confidence and greater tendency to order ancillary tests. These challenges are greater when a language barrier is present. Another study investigating history taking of ED patients with possible acute coronary syndrome found that three aspects of provider patient communication compromised the quality of data obtained through the medical interview: use of leading questions, conflict related to poor communication, and frank miscommunication due to language barriers (Farmer et al., 2006).

Poor communication in the medical encounter can result in an incomplete or inaccurate history, misdiagnosis, a treatment plan based on misinformation, and poor understanding on the part of the patient of his condition and the prescribed treatment. There are documented Canadian cases reported in the media where a language barrier resulted in misdiagnosis and serious injury. For example, in one case in B.C., it is reported that a man who was not fluent in English had his leg amputated as the result of medical misdiagnosis resulting from language barriers (Needham & Wolff, 1990). In another case, language barriers were identified as a contributing factor in the death of a pregnant Vietnamese woman (Walton, 1990). Both the peer-reviewed case study literature, and grey literature provide many additional examples of such cases (Bowen, 2004).

Prescribed Treatment

Even if a condition is appropriately diagnosed, language barriers can contribute to poorer disease management, and outcomes. For example, when a language barrier is present, patients are less likely to be counselled on diet and physical activity (Eamanond et al., 2009a; Lopez-Quintero et al., 2010). Fewer patients lacking English language fluency report receiving, health and lifestyle counselling, or – if suffering from hypertension, diabetes or heart disease – having their blood pressure checked regularly (Collins et al., 2002; Kenik et al., 2014). Additional challenges are presented by language barriers in the area of sexuality and reproductive health. LEP individuals may be less likely to receive testing and counselling for STIs/HIV (Coronado et al., 2007; De Bocanegra et al., 2001). Fear of loss of confidentiality is a particular concern in sharing concerns that may be embarrassing or stigmatizing.

Those with limited language fluency may also be less likely to be referred for follow up appointments (Sarver & Baker, 2000).

There is also evidence from recent studies that patients may be more likely to be prescribed, or to choose, different treatment based on English language proficiency. For example, one study found significantly different rates of epilepsy surgery among LEP and EP patients (Betjemann et al., 2013). Follow up of abnormal mammograms differs by language proficiency (Karliner et al, 2012; Molina et al., 2014). Non-English speakers with colorectal cancer reported more problems with coordination of care, psychosocial care, and access to care and information (Ayanian et.al., 2005). As previously discussed, the extensive literature on racial/ethnic disparities also suggests that language barriers are a contributor or cause of many observed differences in care.

Another often-overlooked source of language disparities is the decreased opportunity for language minorities to participate in clinical trials (Bustillos, 2009). There are three issues related to common barriers to linguistic minorities participation in clinical trials: a) those with limited English proficiency may have less access to cutting edge treatment; b) if language barriers are not appropriately addressed, issues of consent and identification of adverse effects may be compromised, and c) failure to include the diversity of the population in such trials may decrease the usefulness of the research to patients as a whole.

Pain Management and Symptom Distress

One area of special concern is the impact of language barriers on pain management. One study found that obstetrical patients who always received interpreters were more likely to report higher levels of pain control, timely pain treatment and greater perceived provider helpfulness to treat their pain, compared with patients who do not always receive interpreters (Jimenez et al., 2014).

Other studies, which have explored ethnic/racial differences in pain management also suggest that language may be a factor in pain control. For example, Cleeland et al. (1997) found that only 35% of minority patients with cancer, compared to 50% of non-minority patients, received guideline-recommended analgesic prescriptions – more Hispanic than African-American patients (69% compared to 54%) were inadequately medicated, suggesting that English-language fluency may have been an important factor in this finding. Another study found that Hispanic ethnicity was a strong predictor of analgesic administration for long bone fracture in the emergency department, with Hispanics twice as likely to receive no pain medication (Todd et al., 1993). An Australian study found that language was associated with increased risk of inadequate analgesia for (mostly elderly) patients with head of femur fractures (Holdgate et. al., 2010).

There are also reports that limited English proficiency is associated with increased symptom distress in patients with cancer (Chan & Woodruff, 1999; Yi et al., 2011).

Chronic Disease Management

Many studies have focused on the impact of language barriers on chronic disease management, a particular area of concern at the present time. Diabetes and asthma management have received the most attention.

• Asthma management

A systematic review has identified language barriers as one barrier to improving asthma management (Lakhanpaul et al., 2014). Language barriers have been linked to lower rates

of goal setting, use of action plans and medication adherence (Chan, 2005; Riera et al., 2014; Squires et al., 2014; Wisnivesky et al., 2012; Wisnivesky et al., 2009). This may explain the poorer outcomes of asthma patients with limited English proficiency.

A study by Claudio & Stingone (2009) found that hospitalization rates due to asthma among Spanish speaking Latinos were double that of English speaking Latinos. Elderly Hispanics with asthma and with limited English proficiency had worse asthma control, increased likelihood of inpatient visits, and poorer quality of life. (Wisnivesky et al., 2012).

- ***Diabetes management***

Similar disparities are seen in diabetes management. Limited English language fluency has been identified as an independent risk factor for less knowledge of diabetes management, less likelihood of receiving diabetes education, less likelihood of performing self-monitoring of blood glucose (a key predictor of diabetes complications), and fewer foot checks (Choi et al., 2011; Detz et al., 2014; Fernandez et al., 2011; Karter et al., 2000), as well as less well controlled diabetic symptoms (Eamaramond et al., 2009b). These associations are not observed when care is provided by language-concordant physicians (Fernandez et al., 2011; Hacker et al., 2012; Lasater et al., 2001). However, one Canadian study found no increased risk of diabetes complications among those with limited English proficiency (Okraimec et al., 2015).

Elder Care

In Canada, healthcare providers are reporting increasing challenges around language access with an aging population (Koehn, 2009), and elderly minority language speakers also express concerns around communication (Bouchard et al., 2012). Many clients who have functioned at a high level of English proficiency throughout their working lives are observed to lose this second language ability as a result of the aging process, even in the absence of other factors such as dementia (Clyne, 2011; Goral, 2004). Older patients are more likely to return to using their first language, especially when under stress. This second language attrition may be more acute when the patient is suffering cognitive impairment (Kieizer, 2011). However, the reasons for this attrition are not well understood (Murtagh, 2011).

End-of-life care

Quality of end of life care is also affected by language barriers (Granek et al., 2013). Families with non-English family members are at increased risk of receiving less information about their loved one's illness than those who are English proficient (Thornton et al., 2009).

Informed Consent and Confidentiality

Obtaining informed consent and maintaining patient confidentiality are critical standards in delivery of ethical, quality care. However, there is good evidence that basic criteria for informed consent (voluntariness, discussion of alternatives, adequate information, and competence) are not achieved for patients with limited English proficiency. For example, using a matched retrospective chart review study, Schenker et al (2007) found that patients who did not speak English were less likely to have documentation of informed consent for invasive procedures. As Hunt & de Voogd (2007) observed in another study; in the absence of adequate interpretation, it was uncertain whether limited English proficient patients were provided the quality and content of information needed to assure that they are genuinely informed. Cases where language barriers have prevented informed consent have also been

documented in the Canadian context (Bowen, 2004; Stevens, 1993). The common practice of using ad hoc interpreters also jeopardizes the patients right to confidentiality (Betancourt & Jacobs, 2000; Bowen; 2004; Dick, 2011).

PATIENT SAFETY

Patient safety can be defined as the pursuit of the reduction and mitigation of unsafe acts within the healthcare system, as well as the use of best practices shown to lead to optimal patient outcomes. Unlike the variation in how “quality” is defined in the literature, most research focusing on language barriers and patient safety, also assumes this definition.

Less research has been conducted in the area of patient safety compared to other dimensions of quality. However, recent research has highlighted the risks to patient safety when language barriers are present. According to the U.S. Joint Commission, communication is the root cause of 59% of serious adverse events reported to the Joint Commission's Sentinel Event Database (Joint Commission, 2012), and research suggests that LEP patients are more likely than English-speaking (ES) patients to experience safety events caused by communication errors (Wasserman et al., 2014). The joint commission states as a principle that *“providing safe and high quality patient care is dependent upon effective communication between health care professionals, patients and patients families* (Schyve, 2007, p. 361).

This review organizes the evidence related to patient safety in three categories a) adverse events (general); b) errors related to medication; and c) evidence of mortality. With the exception of the literature related to medication errors, most of this research is focused on hospital care.

Adverse Events

A six-hospital study by the U.S. Joint Commission analyzed adverse event data on English speaking patients and patients with limited English proficiency. The study found that over 49% of adverse experienced by patients with limited English proficiency involved some physical harm, whereas only 29.5% of adverse events for patients who speak English resulted in physical harm. Of those adverse events resulting in physical harm, 46.8% of the limited English proficient patient adverse events had a level of harm ranging from moderate temporary harm to death, compared with only 24.4% of English speaking patient adverse events (Divi et al., 2007). A case-control study in a large regional children's hospital found that there was a two-fold increase in serious medical events when a language barrier was present (Cohen et al., 2005). Lion et al. (2013), found a trend towards increased likelihood of an adverse event, and a fivefold increase in hospital length of hospital stay among paediatric patients where there was language barrier with parents. A Canadian study also found a higher risk of preventable adverse events in association with a communication barrier, although lack of official language proficiency was not specifically studied (Bartlett et al., 2008).

One study on ethnic and racial disparities found a higher rate of hospital acquired infection among Asian and Hispanic patients in the U.S. The authors suggested, particularly as these

groups showed higher educational and income levels than some other groups, that language barriers may be a contributing factor (Bakullari et al., 2014). However, further research is needed in this area.

A Dutch study examined 71 midwifery/obstetrical critical incidents: 39 were attributed to communication and seven of these were described as due to language barriers (Martijn et al., 2013).

Only one study was located that did not find an incidence of adverse events among those lacking English proficiency. This Dutch study, conducted in four hospitals with 763 Dutch and 576 ethnic minority patients, also found no increase in safety risks related to low health literacy or low education (Van Rosse et al., 2014).

- **Errors of Omission and Commission**

Adverse events may result from either errors of *omission* or errors of *commission*, both of which may result from language barriers. For, example, limited English proficiency was found to be an important risk factor in appendiceal perforation in paediatric patients (Levas et al., 2014). Limited English patients were less likely to undergo imaging, suggesting an error of omission (leading to incorrect diagnosis).

Conducting an unnecessary procedure is considered an error of commission. As an example, an intervention commonly used in emergency situations is intubation of patients. One U.S. study investigated potentially preventable intubations in Spanish-speaking patients. A 9-year retrospective review using the National Trauma Registry for the American College of Surgeons database, evaluated patients intubated prior to arrival at the trauma centre, and remaining intubated for less than 48 hours. The study took into account a large number of other factors that may affect results (e.g. substance use, Glasgow Coma and Injury Severity scores, mechanism of injury). Forty-nine per cent and 38 per cent of Spanish and English speaking individuals, respectively, were intubated for less than 48 hours ($P = 0.072$), although the Glasgow Coma Score was higher for Spanish than English speaking patients (Bard et al., 2004).

- **Indicators of adverse events**

Readmission rates are often viewed as an indicator of patient safety: patients facing language barriers are also more likely to be readmitted or return to the emergency room. After accounting for socio-economic variables and comorbidities, non-English speaking patients have been found to have higher rates of readmission (Karliner et al., 2010; Regalbuto et al., 2014). However, non-English speaking patients who received interpretation services at admission and/or discharge were less likely to be readmitted than patients receiving no interpretation (Lindholm et al., 2012). In addition, limited English proficient patients were found to be more likely to return to the Emergency Department for admission (Gallagher et al., 2013).

A study of patients admitted for heart failure explored patient understanding to determine whether this factor was associated with increased readmission rates (Regalbuto et al., 2014). Patients completed an understanding survey immediately after their nurse read their discharge papers: poorer understanding was significantly associated with increased rate of readmission. Patients where the primary language spoken at home was not English had

over twice the rate of readmissions, suggesting that limited language proficiency affects readmission rates through decreased patient understanding of discharge instructions.

One of the most striking indications of possible health outcomes of language barriers was described in a study by LeSon and Gershwin (1996) of young adults with asthma. The purpose of the study was to determine risk factors for intubation (intubation was used as a marker for predicting death). This retrospective cohort study of hospitalized young adults included all asthmatics admitted to a university medical centre over a 10 year period. A large number of potential risk factors were investigated, including socioeconomic variables and a variety of factors related to psychosocial functioning. Patients with language barriers (defined as an inability to speak English) were 17 times more likely to be intubated than patients with the same characteristics who were fluent in English. In contrast, patients with low formal education were only 5.7 times more likely, and active smokers 7.1 times more likely, to be intubated.

Limited English proficiency is also associated with longer hospital length of stay (John-Baptiste et al., 2004; Levas et al. 2011; Renzaho et al., 2007; Shah et al., 2015). However, while increased length of stay is certainly a concern of those looking at appropriate utilization (efficiency - a subcategory of quality not addressed by this review), it is not clear from existing research whether increased LOS reflects a) poorer care/increased complications, b) increased provider caution because of language barriers, or c) some other factor (patient related factors, or greater severity on admission).

Medication Errors

Another critical area of safety relates to medication use. There is strong evidence of the increased risk of medication error among those who face language barriers. Dozens of studies have found decreased comprehension, adherence, and less than optimal control of symptoms, along with increased risk of complications when a language barrier is present (Dilworth et al., 2009). Limited English-proficient respondents are more likely than English-proficient respondents to report problems understanding medication category and purpose (Barton et al, 2013; Karliner et al., 2012): they are also less likely to have side effects of medications explained (David & Rhee, 1998). They are significantly more likely to lack knowledge of drug dosage and frequency. One study of parents at discharge found that Spanish speaking parents were more likely to demonstrate a dosing error than English speaking parents (Samuels-Kalow et al., 2013). In another study, 27% of patients who felt they needed an interpreter but didn't get one did not understand instruction for taking their medication, compared to 2% of those who got an interpreter or didn't need one (Andrulis et al., 2002). Patients with language barriers also have more difficulty understanding labels (Masland et al., 2011; Wilson, et al., 2005).

Given these factors, it is not surprising that those facing language barriers are less likely to be adherent to prescribed medication (David & Rhee, 1998; Ens et al., 2014; Karliner et al., 2012a; Krueger et al., 2005; Traylor et al., 2010), and are more likely to report complications. A U.S. study of outpatient drug complications demonstrated that having a primary language other than English or Spanish was significantly correlated to reported drug complications, although no significant differences were found by race, gender or education. The

failure of providers to adequately explain side effects was associated with increased reporting of complications (Gandhi et al., 2000).

All of these factors have important implications for disease management, and may explain some differences in health outcomes. Two studies (one comparing Spanish speaking and English speaking Hispanics, another comparing English proficient with non-English proficient patients) have found that patients using anticoagulant medications who had a language barrier spent less time in the therapeutic range for their medications (Bhandari et al., 2008; Rodriguez et al., 2013). In an Australian study, patients lacking English proficiency, from many different language backgrounds, were found to be more likely to be underutilizing warfarin for atrial fibrillation (Shen et al., 2005). Similarly, diseases like asthma require careful medication management, and may explain why asthma is often less well controlled with patients who are not English proficient.

Although medication safety risks due to language barriers have been well documented, many of the errors occur outside of the hospital setting and are the result of poor provider/system communication rather than errors committed directly by providers (e.g. errors in administration of drugs to in-hospital patients). This may explain why, even though medication safety is a priority patient safety issue in Canada, little attention has been directed to addressing the risks facing those lacking official language proficiency.

Language Barriers and Mortality Rates

In contrast to the evidence on adverse events, there does not seem to be an increased risk of language barriers to in-hospital mortality (Grubbs et al., 2008; Hines et al., 2014; John-Baptiste et al., 2004; Okrainec et al., 2015) and some studies have found *improved* mortality rates with LEP patients (Douglas et al., 2014; Mendu et al., 2013; Shah et al., 2015).

Grubbs et al. (2008) examined the association of language preference with length of stay (LOS) and in-hospital mortality for patients admitted for acute myocardial infarction (AMI) using electronic administrative discharge data. Records of 12,609 Medicaid patients across 401 California hospitals, were studied: 2,757 (or 22%) were noted as having on their files a language preference other than English. The risk adjustment model included 24 co-variables, including both patient level (e.g., race, age), and cardiac conditions. After adjusting for these variables no significant differences were found in either LOS or 30-day mortality between those with English and non-English language preference, although differences at the hospital level were identified. A later study (Hines et al., 2014) found similar results.

Studies of patients in critical care settings have found a *reduced* risk of mortality among those who are not English speakers. Mendu et al. (2015), in a Boston-based study of over 48,000 critical care patients, found significantly better outcomes in patients identified as non-English proficient. In this study, language status was determined by the patient or family members who interacted with administrative staff during hospital registration. These findings are consistent with another study in a critical care setting conducted in Melbourne Australia (Douglas et al., 2014). Admissions to one hospital over a ten year period were analyzed. All admissions to the hospital where the study was conducted are asked to select a "language status," which is recorded in the hospital administrative database. Non-English

patients were found to have a greater total LOS (though not longer stay in intensive care), and decreased risk of mortality.

Three Canadian studies identified demonstrated similar findings. A study that linked health and immigration databases to identify 87,707 adults with diabetes who immigrated to Ontario, Canada, between 1985 and 2005, explored relationship of language ability on a) one or more emergency department visits or hospitalizations for four specific diabetes related complications (hypo/hyper glycemia, skin/soft tissue infection, foot ulcer); and b) a cardiovascular event or death. Participants were stratified by language ability at the time of their immigration application (i.e. immigrants who reported that they spoke neither English or French at the time of their official immigration application were defined as non- English speaking). While the study found that a somewhat higher percentage of immigrants with language barriers experienced acute complications; these differences were largely eliminated after adjusting for baseline characteristics (Okrainec et al., 2015). An earlier study (John-Baptiste et al., 2004) undertook a retrospective analysis of inpatient visits at three Toronto hospitals between 1993 and 1999, using two administrative databases (the hospital electronic patient information system, which contained language information and the Canadian Institute for Health Information (CIHI) discharge abstract database). This study found that there were differences in length of stay for 7 of 23 conditions studied, but no differences in mortality.

Another study investigated all Ontario patients who were admitted with acute stroke or transient ischemic attack between July 2003 and March 2008 using data from the Registry of the Canadian Stroke Network. Mortality, stroke outcomes, in-hospital complications, quality of care, and disposition were compared between those without (n=12 787) and with (n=1506) language barriers, which was defined based on the patient's preferred language. Data on other quality indicators (e.g. guidelines for stroke care) were also collected. This study found that, after controlling for other characteristics, patients with language barriers had better 7-day mortality than those without, however, they were more likely to be discharged with a moderate-to-severe neurological deficit. These differences may be explained by greater likelihood of those in the language barriers group to select more assertive treatment options. In-hospital complication rates did not differ, although LOS was longer for those with a language barrier. Patients with a language barrier were also more likely to receive various assessments (Shah et al., 2015).

Unpacking the “Black Box” of Health Outcomes

There are diverse, and seemingly contradictory, findings on the impact of language barriers on health outcomes. While on most measures, there is good evidence on increased risk of adverse events, there is not evidence for increased mortality associated with language barriers. However, an understanding of a) the pathways by which language barriers affect health outcomes, and b) the strengths and limitations of research methodologies helps understand the possible reasons for these findings.

Unlike the research on access or patient satisfaction (where the pathways by which language barriers lead to negative impacts has been clearly articulated), more recent studies using large administrative data bases leave many unanswered questions. Such studies are able to find associations, but are limited to suggesting hypotheses to explain results. Why, if there is evidence of impact of language barriers at earlier stages of the health seeking and

disease management process, are findings not reflected in these large studies examining mortality?

- ***Accuracy of language proficiency data.***

Language proficiency is notorious difficult to categorize, and various researchers use different methods. First, as previously noted, there is not, in Canada, consistency in collection of language data, limiting research to data linkage (e.g. linking immigration and health data) or to use of facility databases (some of which do collect language data). Second, the quality of such data collection may be questionable. In some cases there is failure to note data on language or language proficiency, or to keep accurate records. For example, in one Dutch study on patient safety Van Rosse et al., (2015) found that language data was missing on 30% of LEP charts.

Third, selection and definition of the language variable may be questionable. The studies reviewed all used different definitions and criteria for assigning language data. In the Canadian study by Okrainec et al. (2015), language proficiency was determined by self-report *at the time of immigration application*. In another Canadian study, language proficiency was measured by “preferred language”, which may or may not have reflected language proficiency (Shah et al., 2015). Neither of these measures necessarily reflects current English language proficiency, meaning that the two language comparison groups are not well defined.

- ***Appropriateness of mortality as a quality indicator***

Use of mortality as an indicator to measure quality of care is controversial, even though it has strong “face validity” (Goodacre et al., 2015; Krauss & Maclean, 2002; Kristoffersen et al., 2012; Thomas & Hofer, 1999). Death is a rare event, and use of mortality as an indicator (most often measured as mortality within 30 days) may pick up only large differences between groups.

Records must be appropriately risk adjusted for patient characteristics, and “case-mix adjusted” for disease/service use characteristics in order to ensure that groups compared are medically equivalent (e.g., patients are of the same age, sex, socio-economic status, disease severity). If this adjusting is inadequate, or if the statistical methods used in investigation are flawed, results may give erroneous results. Even if the analysis is of high quality, failure to find a difference in mortality does not mean the absence of quality of care differences. In fact, some researchers have found differences in LOS, and complications at the same time that they found no increase in mortality (John Baptise et al. 2004; Shah et al., 2015).

- ***Adjustment of demographic and severity data***

Adjusting data to ensure that groups compared are equally “sick” has the potential hide any differences that might have occurred *earlier* in the disease progression (e.g. failure to manage a cardiac condition that might have been avoided, or delayed a patient being as severely ill as he is at this moment). To give an example:

Mr. X, who has limited English proficiency, arrives in the ED after suffering a stroke. The hospital follows the most current guidelines for stroke care. Data on Mr. is entered into administrative databases, he is assigned to the “non-English” group.

It is reasonable to assume the survival of an individual who arrives in the ED after suffering a stroke will be affected by the overall quality of hospital services (and the hospital's adoption of Stroke care guidelines) more than his/her English language proficiency. This would result in "no difference" in mortality rates. However, *conditions that may have led to the stroke occurring* (e.g. less than optimal use of anticoagulant medication (Bhandari et al., 2008; Fang et al., 2009; Rodriguez et al., 2013; Shen et al., 2005) would not be captured. All we know is this: when the patient arrives at the ED, survival is equivalent. What we don't know is "*what failures in health promotion, preventive and primary care may have led to this stroke in the first place*"?

An Australian study that looked at the relationship of immigrants' place of birth and language skills found that non-English patients were less likely to seek early treatment at the onset of cardiovascular disease and they were more likely to be admitted for an AMI than were English speaking patients. The authors suggested that patients may present late due to the contribution of language barriers a) to the inability to effectively communicate symptoms, or b) adherence to prescribed treatment in the early stages (Renzaho, 2007). A U.S. study found delay in presentation for care following a heart attack (Henderson et al., 2002). Later presentation may also mean that the patients are, overall, healthier: their AMI could have been prevented. This may also partly explain findings on better survival.

It is also necessary to recognize that adjustment is never perfect. For example, while the importance of SES is recognized as one of the most important contributors to health outcomes, in Canada, SES is most often determined by location of residence. In the case of immigrants (a large proportion of non-English proficient individuals) this strategy may not be ideal, as many new immigrants locate in lower income areas on first arrival and many well educated immigrants are underemployed (in part based on limited English language proficiency).

- ***Failure to identify and control for all potentially confounding variables***

It is also possible that there are unmeasured differences between the "English proficient" and "non-English proficient" groups. For example Mendu et al. (2013) note that, in their study, patients with a non-English primary language were younger and had significantly less sepsis, acute organ failure, inotropes/vasopressor use, and mechanical ventilation compared with patients who spoke English as a primary language. The researchers estimated severity of illness in this study using an acute organ failure score that strongly correlates with mortality, however, they observe that insufficient adjustment for severity of illness may have accounted for some of the findings.

There may be also be racial/ethnic or cultural characteristics that affect likelihood of recovery. For example, Shah et al. (2015) noted that those in the non-English group in their study were more likely to choose assertive treatment (a factor that would explain both lower mortality, and higher rates of neurological deficit on discharge). Other authors have suggested factors such as "the healthy immigrant effect", or differences in social support between ethnic/immigrant groups. However, the literature is not yet well enough developed to determine what these factors might be, and to which non-English proficient groups they may apply.

- ***Differing impacts of language barriers in critical care vs other health care services.***

It has been noted that the health conditions and services which rely more on communication for assessment (e.g. mental health, chronic disease management) are those that are most

sensitive to the impact of language barriers. One possible explanation for the failure to find differences in AMI or stroke is that appropriate testing, guideline adherence, and technical quality of care are more likely to predict mortality than patient interview in emergent situations. It is, therefore, reasonable to expect that any care disparities would be less apparent as patients became more seriously ill. This is reassuring, as it suggests that there is equally good care provided in an emergency / critical care context. Associated with this is the possibility that providers in situations where a patient is seriously ill may be more likely to exercise additional caution as they have concerns about communication or data accuracy.

Summary

There are likely a number of potentially contributing factors to the findings of equal or lower mortality rates among patients who have language barriers. However, such findings should be interpreted with caution. Many studies (in some cases the same studies that found no increase in mortality) find increased complications, adverse events, and LOS in LEP patients. Although mortality rates have “face validity” they may not actually be good indicators for evaluating quality of care for those facing language barriers.

SECTION 3: IMPLICATIONS

There is compelling evidence of the negative impacts of language barriers on many aspects of patient safety and provision of quality of care. However, there is limited awareness within the health system of this evidence. This section will first review the challenges in promoting action on language barriers. It will then review needed action, and implications for the SSF.

CHALLENGES IN PROMOTING ACTION ON LANGUAGE BARRIERS

Level of Research Awareness

Canadian research, as well as consultation with both minority language communities and providers, has found that the level of awareness of the importance of language barriers in health is generally low within the health system, and that there are many misconceptions about strategies to address these barriers (Bowen, 2004, 2005). Many providers and administrators are not aware of the patient and organizational risks of failing to appropriately address language barriers, and see provision of language services as a supplementary, but not core service. However, a project within the Winnipeg Regional Health Authority found that of 154 high level risks identified in the organizational risk management framework, 43 were directly impacted by language barriers (including 26 of 31 patient safety/quality of care risks) (Bowen et al., 2010).

Misconceptions: who is at risk

One of the most dangerous misconceptions is that if a patient speaks *some* English he or she does not need an interpreter or a language - congruent provider. This misconception may be more evident in responses to official minority languages speakers, as many francophones are also fluent in English. However, research suggests that there is often a greater risk in situations where the patient speaks limited English. This is because there is an illusion of communication: whereas, when there is no ability to communicate, the provider recognizes that there is a problem and takes additional precautions.

Those who speak some English or French may face language barriers: especially when under stress, or in distress, patients are much better able to communicate in their first language. Many bilingual individuals demonstrate greater ease in one language than another: even individuals who work and interact in English may need language access services in emotional stress or crisis (including pregnancy), or to be able to understand complex diagnoses. This may affect care received. A U.S. study demonstrates, for example, that even when Latino patients can communicate in English, they are significantly less likely to receive recommended health services if they speak Spanish at home, compared to Latino patients who speak English at home (Cheng et al., 2007).

Misconceptions: appropriate responses to language barriers

A second common assumption is that, while language can be a barrier to communication, this barrier can be addressed by using the services of bilingual family members or ad hoc interpreters. Many organizations are unaware of the risk of using ad hoc interpreters as a response to language barriers, a response common in Canada. Studies using transcript analysis graphically illustrate the risk of using untrained interpreters. Such analysis indicates the actual pathways through which errors occur and the ways these errors can impact health outcomes. A number of studies have undertaken using such analyses (Ebdon et al.,

1988; Elderkin-Thompson et al., 2001; Flores et al., 2003; Flores et al., 2012; Jackson et al., 2011; Laws et al., 2004; Pham et al., 2008). Several different types of errors have been identified:

- Omitting information provided by the client or health provider
- Adding information to what the client or provider has said
- Substituting words, concepts or ideas
- Using inaccurate words for anatomy, symptoms or treatment
- Failing to interpret a message
- False fluency
- Editorializing
- Role exchange (e.g. taking over the interviewing role).

Often dozens of errors are made in the space of one short encounter. Many of these errors have potential clinical consequences. In a study of interpreting in a paediatric setting, Flores et al. (2003), found that an average of 29 interpretation errors were found per encounter, and that 63% of these errors had potential clinical consequences. For example, in one instance the interpreter mistranslated instructions for administration of oral antibiotics, instructing the mother to place it in the child's ears. Similarly, Laws et al (2004) found that in over 66% of communication segments, information was interpreted either with substantial errors or not at all.

Lack of Canadian Research

As previously discussed, there has been limited Canadian research on language barriers in health. This may lead to some administrators believing that there is a lack of data on which to make informed decisions.

Research is limited by available data: there is not a requirement in Canada to collect consistent data on language proficiency at either the federal or provincial levels. This has the result that some research methods (e.g. using much administrative data to investigate differences in health outcomes by language proficiency) may be difficult or impossible. The importance of data coding for language cannot be overestimated. For example, because coding related to First Nations status (although not on language) is available in administrative data, it is possible to document differences between Registered First Nations and other Canadians in utilization patterns and health outcomes (see for example, Martens et al., 2002). In spite of the limitations of Canadian research, the pathways by which language barriers lead to less positive health outcomes can be identified, making it possible to learn from research conducted in other jurisdictions.

This critical review found that although there was a small literature in the area of franco-phone health and language access, almost no research had been conducted on quality and safety of care for official language minorities. This is a concerning gap. Too often, if there is a lack of research on a topic, decision makers conclude that there is no real problem (i.e., they define "absence of evidence" as "evidence of absence"). While the little Canadian research identified is consistent with findings related to limited English language proficiency in other countries, there is a need to confirm that the evidence on risks of language barriers from other countries (largely focusing on immigrant populations) also applies to official language minorities in Canada.

Framing Language Access as a "Soft" Issue

Another challenge is that addressing language barriers is often viewed as an issue of “cultural sensitivity” (something that is nice to do) rather than a quality/safety issue. This results in addressing language barriers being viewed as an optional activity. It also means that the philosophy and standards, now accepted within the patient safety movement, which focuses on the need for *system* change to address quality and safety risks, are not applied to the challenge of addressing language barriers.

This results in reliance on the commitment of individual practitioners (the source of most information on the “near misses” resulting from language barriers) to ensure the safety of patients who lack English proficiency; an approach that does not meet accepted best practice for other quality and safety issues, where evidence-informed *organizational level responses* would be expected, developed and implemented.

NEEDED ACTION

Needed Research

There remain important gaps in the research on this topic, particularly in the Canadian context. Where mechanisms of impact are well understood, it is appropriate to apply international findings to the Canadian context. However, each health system (and each national culture) is unique, requiring more focused Canadian research. There is also a need to shift the past emphasis of Canadian research on cultural/ethnic differences, to a focus on differences in treatment by language proficiency.

Canada could be in a unique position to provide leadership in this research: several provinces have well developed, population based health data-bases, along with well-developed expertise in researching disparities by measures of socio-economic status. The country is home to a multicultural/multilingual population. Provision of universal health care services also makes it easier to research impacts of language barriers independent of insurance status.

At the same time, it is important to develop a research program that will evaluate the effectiveness of language access interventions. The diversity between regions of Canada requires that innovation is required to ensure that models both a) reflect the standards for quality language access, and b) are feasible for a specific context.

The field of language access and the patient safety movement do not have a history of collaboration. Consequently, the influence that cultural and language variables may have on the incidence and impact of preventable adverse events in patients from minority racial, ethno-cultural, and language backgrounds has not been well explored (Johnstone & Kanitsaki, 2006). Future research requires collaboration between a) researchers with expertise in working with large datasets, b) experts on language access and language barriers, c) patient safety experts, and d) qualitative and mixed method researchers who can help determine the pathways through which language barriers impact quality of care and safety.

Promoting Use of Evidence

Although further research is needed in many areas, and Canadian research is needed to explore the applicability of international findings to our context, there is sufficient evidence on risks to inform action. This requires an action plan based on the latest research in “knowledge translation” and implementation science.

IMPLICATIONS

Implications for the SSF

As discussed in the introductory section, this report addresses only one of the many issues related to language access that are of concern to the Société Santé en français. The focus of this report is on quality and safety of healthcare: it does not address either a) other impacts of language barriers on health (e.g., on health system effectiveness) or other sectors, or b) the legitimate desires of Canada's official language speakers to access services in their language of preference (as well as any legal obligations to do so).

In addition, there is a practical challenge facing the SSF concerning appropriate and evidence-informed models for providing language access. As noted earlier, very little research has focused on evaluating interventions for providing language access (Schwei et al., 2015). In a country as diverse as Canada, finding feasible alternatives that meet accepted standards for language access, and are also acceptable to the affected communities, is a priority challenge. Historically, the Canadian francophone population has not been receptive to models of interpreter services, preferring instead to request French language services. While appropriate (given the standing of French as an official language of the country), the critical challenge of addressing the feasibility of providing bilingual health services in French in all parts of the country - including rural and remote areas - must be addressed.

Promoting Research on Impacts of Language Barriers: Official Minority Populations

Of particular concern to the SSF is the dearth of published research on the impacts of language barriers on official language minorities in Canada. It is likely that this review, which was conducted in English, failed to identify all the evidence related to francophone minorities in Canada. However, major medical/health related journals generally provide abstracts in English. This suggests that, even if there is additional research available on the experience of francophones in Canada, this evidence is not readily available, and therefore unlikely to affect health service policy.

Given the extent of the international literature on the impact of language barriers on health and healthcare services, the SSF may wish to explore strategies for promoting research in this area specific to francophone minorities in Canada.

Developing and Supporting “Evidence to Action Strategies”

While there is strong international consensus on the negative impacts of failing to appropriately address language barriers, awareness of these risks remains low within the Canadian healthcare system. There is a need to not only be aware of these perceptions, but to actively develop and implement strategies to address them.

The common framing of language access needs as a sensitivity issue, rather than an issue of health care quality and safety, requires particular attention. Research indicates that there are additional challenges to promoting action on evidence that is viewed as the result of “soft”, rather than “hard”, science; and “language barriers” are seen as a “soft”, optional issue of quality, rather than an issue of hard science (Hanney et al., 2003). There are also

specific challenges, within the health system, to promoting use of evidence on minority communities in health system (Bowen et al., 2011).

These challenges suggest that focused attention is required to develop an effective plan to promote not only awareness, but also appropriate action, on language access issues. This plan should target federal and provincial policy makers, as well as health authorities and other health service providers.

Developing Collaborations with other Language Minority Communities

The pathways by which language barriers affect health are similar for all language constituencies. Issues faced by official language minorities are of heightened concern as francophones have legal rights that are not in place for other constituencies. Developing effective partnerships with other language minority communities (as has been done in some jurisdictions (Bowen, 2005)) provides the opportunity to a) learn from the experience of other language minorities, ensuring that the SSF does not lag behind current evidence in the field; and b) through collaboration, have more impact on addressing shared challenges.

Providing Guidance to Future Research and Action

There is increasing recognition that some of the best quality and effective research is conducted by partnerships of researchers with practitioners and experts in the field. This is often referred to as “integrated knowledge translation” or “engaged scholarship” (Bowen & Graham, 2013). The SSF has an important opportunity to become involved in guiding research priorities and informing research design in order that future research may further our understanding in this important area. Such collaborative has been demonstrated to promote evidence-informed action in both the policy and program arenas.

Summary

Barriers presented by unaddressed language barriers within the health system are many and varied. It is not enough that research identifying and describing the risks of these barriers has been conducted. Strategies must be developed to promote appropriate action on this research synthesized with community experience within a Canadian context.

CONCLUSION

This critical review was limited in scope to evidence related to impacts of language barriers on quality and safety of care in the healthcare setting. Current evidence indicates that language barriers affect almost every aspect of health. Consistent and compelling international research highlights the impacts of language barriers on participation in health promotion and prevention activities; delayed presentation for care; barriers to initial access for most health services; increased risks of misdiagnosis; poorer patient understanding of and adherence to prescribed treatment; lower patient satisfaction; increased risk of experiencing adverse events; poorer management of chronic disease; and less effective pain management. Language barriers also commonly result in failure to obtain informed consent and to protect client (patient) confidentiality.

In recognition of the importance of language barriers in patient safety, some health organizations are now including interpreters in root cause analysis of sentinel events, increasing the range of experience and expertise used to analyze system solutions (Robert Wood Johnson Foundation, 2008).

The lack of evidence, in the few studies available, that language barriers are associated with increased short term mortality (and some evidence that there may be better outcomes among those who are not “English speaking”) should not be used to justify non-action to address language barriers. It is critical to understand the pathways by which language barriers affect health service utilization and outcomes, as well the strengths and limitations of studies based on analysis of administrative data.

Language barriers do not always result in medical error: they may result in more cautious treatment. The small literature on the impact of language barriers on healthcare utilization suggests that many providers take additional precautions when caring for a patient when a language barrier is present, resulting in additional laboratory and imaging testing (Hampers et al., 1999; Hampers & Nutley, 2002; Waxman & Levitt, 2000) longer length of stay in the ED or on the ward; or increased likelihood of “uptriaging” or admission. While these actions increase safety for the patient, they may be working against the quality dimension of “efficiency”.

Moreover, relying on the dedication and insights of individual providers to prevent errors, without addressing systemic risks, is not in keeping with current knowledge on how to create and maintain a culture of patient safety.

Although not within the scope of this review, it is also important to note that It is not only the individual patient/client that is at risk: there is increasing evidence that health providers and organizations face risks if they fail to provide language access. Language barriers are associated with lower provider satisfaction, and impaired learning experiences for medical students and residents, as well as greater concerns about malpractice. They also affect patterns of service utilization. These organizational impacts have the potential to negatively affect care of all patients.

It is also important to note, that while the evidence related to the impact of quality and safety of care are critically important to planning a response to addressing language barriers, this is not the only evidence needed. Responses must reflect the historical, legal, and cultural context in which they take place: the specific rights of official language minorities is a separate consideration that has not been addressed in this review.

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