The Underuse of Medical Interpretation Services:
A Human Factors Analysis of Why They Are Not Used Enough and How Their Usage Can Be Increased

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INTRODUCTION

Language barriers can lead to health disparities for patients who prefer languages other than English (LOE). For instance, they struggle to communicate their concerns to healthcare professionals[1] and, as a result, receive lower quality of care.[2] It is a huge problem, especially in Toronto where one in two people have a mother tongue other than English.[3]

While **medical interpretation services (MIS)** have been proven effective in reducing these disparities,[4] **their usage remains significantly low** in Canada. Existing studies **have not applied human factors principles** to researching these issues, resulting in a disproportionate **focus on provider-oriented barriers**, while overlooking other equally important systematic factors.[5,6] Moreover, their research focus has primarily been to study **Spanish-speaking patients in the United States**.[7]

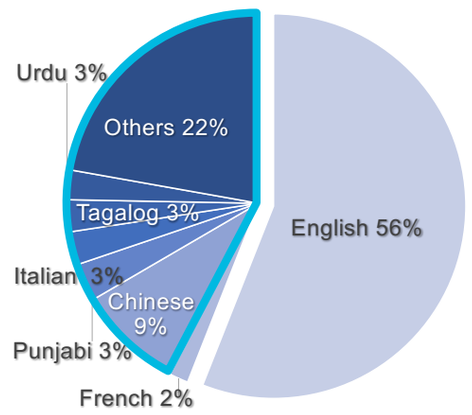

Figure 1. Mother tongue distribution in Toronto, ON in 2016[3]

OBJECTIVES

Objectives Our study aims **1) to identify barriers to MIS utilization** and **2) to develop recommendations** informed by Human Factors principles.

Study Site The research was conducted at the General Internal Medicine ward of St. Michael's Hospital in Toronto which **offers 24/7 on-demand MIS through both phone and video modes.** The General Internal Medicine ward serves a diverse ethnolinguistic population, by accommodating up to 80 patients at a time, of which approximately 10-30% have a preferred language other than English.[8]

METHODS

Data collection external & internal documents; existing clinician survey (N = 17); contextual inquiry with nurses, allied health professionals; & interpreters (N = 14)

Data analysis process map; PETT scan (*People, Environments, Tools, and Tasks*)[9]

RESULTS

Process maps revealed challenges at three key steps for MIS use in the phone mode and at five key steps for MIS use in the video mode. A total of 20 system-related barriers and four facilitators were identified across four PETT scan categories. We developed 14 practical recommendations guided by human factors to systematically address these barriers. **The findings are summarized in the PETT scan below (Table 1).**

System Factors	Barriers	Recommendations
People ○ Patients ○ Healthcare professionals ○ Interpreters	**Patients** Some LOE patients preferred ad-hoc interpreters (e.g., family members) or faced cognitive challenges (e.g., dementia) and sensory issues (e.g., hearing or vision impairment), making MIS usage difficult.	**Notification to bring hearing aids/glasses** Implement a system to send text/email notifications to patients who face sensory challenges such as hearing and vision impairment, reminding them to bring their hearing aids or glasses when using MIS.
Environments ○ Physical ○ Socio-organizational ○ External	**Physical inaccessibility** The limited availability of the video MIS tablets shared across multiple wards causes accessibility and time-related issues. **Lack of education** Few knew how to use the phone MIS as they had not had recent training. **Absence of relevant external policy** While American Sign Language and French language services are mandated, there is no coverage for MIS in other languages in Canada or Ontario.	**Expand tablet availability** Increase the number of tablets available throughout the ward and consider utilizing bedside tablets for inpatients. **Educational session with staff** Conduct educational sessions for healthcare professionals who are not familiar with MIS. **Incentives policy** Implement an incentive policy/system to recognize and reward employees for actively using MIS whenever it is possible and appropriate, encouraging its adoption.
Tools	**Manuals/posters exclusively in English** Manuals and posters for both the phone and video MIS are only available in English, restricting accessibility for users who prefer other languages. **Single screen** The single-screen design of the video MIS hampers usability as users need to rotate the screen when speaking, resulting in a clunky user experience.	**Digital manual** Create a digital manual accessible on digital devices and available in multiple translated languages, for user convenience and easy reference. **Bluetooth-connected side monitor** Offer a side monitor that connects to the tablet via Bluetooth to enhance user experience.
Tasks	**Requesting technical support** Requesting technical support is a time-consuming process, compounded by limited awareness of how to contact the maintenance team. Consequently, interpreter device malfunctions are not promptly addressed, leading to frustration and discouragement to use the MIS.	**On-site IT support** Establish a resident technical support team within the building to provide timely and efficient assistance for MIS users, enhancing overall support and usability.

Table 1. PETT scan that summarizes barriers to the use of MIS and the developed recommendations

CONCLUSIONS

We identified system-related barriers across the PETT factors, indicating potential for **improvement in all aspects of the PETT scan**. Moreover, these barriers highlight multiple systematic challenges within each PETT category, suggesting that addressing individual barriers in isolation may not suffice for improving Medical Interpretation Services (MIS) utilization. Thus, **comprehensive enhancements spanning multiple systematic layers are required** to achieve desired outcomes.

SIGNIFICANCE

The findings of this work can shed light on key systematic factors contributing to the underutilization of MIS, **providing actionable insights to increase MIS usage**. Furthermore, this work identified **patient-centered barriers** (e.g., hearing/vision impairment, dementia) that were not uncovered in the previous literature review. Lastly, the study's transferability is particularly robust because of its investigation of multiple languages spoken by **a diverse ethnolinguistic population** in Toronto.

FUTURE DIRECTIONS

The project's scope did not include the implementation phase, primarily due to time constraints. However, it would be highly useful **to implement the recommended interventions** and closely measure their effectiveness in practice. This follow-up phase will validate the ability of these recommendations to improve MIS utilization.

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