A chart review study was conducted using the electronic health record and patient charts were assessed for eligibility (n=3082). Further assessment of patient chart eligibility (n=2031) resulted in non-English speaking patient charts assessed for eligibility (n=3827) and study excluded (n=1051) Pediatric patients (Age 18 years and younger) and patients who use American Sign Language as primary form of communication (n=687) not requiring any follow-up and patients requiring follow-up after timeframe of study (n=1364) were documented between providers, making it difficult to uniformly extract data from chart review.

A total of 1300 charts were reviewed. The intervention was use of trained interpreter for LEP patients and the outcome variable measured was patient follow-up. Appropriate follow-up, late follow-up, and lost to follow-up were categorized according to the following criteria:

- **Appropriate follow-up**: Patient returned for follow-up visit as scheduled.
- **Late follow-up**: Patient returned for follow-up visit within ½ of the recommended follow-up time documented in the chart.
- **Lost to follow-up**: Patient did not return for recommended follow-up visit.

<table>
<thead>
<tr>
<th>Follow-up Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

**Table 1. Follow-up criteria**

**Methods**

A chart review study was conducted using the electronic health record and patient charts were selected using the following exclusion criteria:

- All patient visits at AtlantiCare Healthplex Resident Clinic were excluded from July 2019 to June 2020 (n=9090).
- Non-English speaking patient charts assessed for eligibility (n=3827).
- Study excluded (n=1051) Pediatric patients (Age 18 years and younger) and patients who use American Sign Language as primary form of communication (n=687).

**Background**

Language is a proven social determinant of health. More than 46 million people in U.S. speak a language other than English at home and 8.6% of the population has limited English proficiency (LEP). Those with LEP are less likely to receive preventative care than those who speak English fluently (1). Studies have suggested that LEP patients tend to have longer hospital stays and reduced follow-up appointment rates when compared to English speaking patients. Providing care to LEP patients without a qualified interpreter may lead to misinformation, poor understanding of diagnosis and plan, unnecessary diagnostic testing, and increased rates of hospital admission (2). Use of professional interpreters has been shown to reduce malpractice risk, increase compliance, and lead to overall better health outcomes (3).

Currently, AtlantiCare provides various means to communicate with LEP patients including family members, certified staff, and official interpreter services. Research shows that factors contributing to rate of interpreter use include availability of interpreter services and equipment, physician and patient time, equipment connectivity, and cost. Understanding the direct impacts of interpreter use on patient outcomes in the local community may improve healthcare disparities by encouraging providers to consider possible language barriers when evaluating patients and acting to minimize such barriers via increased use of professional interpreter services. This will not only facilitate communication throughout patient encounters, but will also help increase patient health literacy, reduce healthcare expenditures and build patient-physician relationships, thereby improving long term clinical outcomes for patients (4).

This study evaluated impacts of interpreter use on patient outcomes by aiming to demonstrate the correlation between use of professional or other interpreter services and appointment follow-up rates in an outpatient and Telemedicine setting.

**Objectives**

Examine the correlation between the use of professional medical interpreter services and appointment follow-up time in patients with limited English proficiency from July 2019 to June 2020 at AtlantiCare HealthPlex in Atlantic City, NJ, and demonstrate a clinical consequence of appointment follow-up time in patients with limited English proficiency from July 2019 to June 2020 (n=6909) in the in-person and Telemedicine setting.

**Discussion**

**Limitations:**

- There is considerable heterogeneity in the location and means of how interpreter services were documented between providers, making it difficult to uniformly extract data from chart review.
- The increased use of interpreters in Telemedicine visits over in-person visits is likely secondary to the format of the Telemedicine system at AtlantiCare. For identified LEP patients, trained interpreters are built into every Telemedicine call unless the patient declines their services, whereas in-person visits interpreters must be offered or requested. This lead to a significant limitation in our study and potentially explains the variability in interpreter usage between the in-person and Telemedicine patient visits.
- While it allowed us to investigate Telemedicine role in healthcare, the COVID-19 pandemic— which began during the last few months we were collecting our data— may have affected patients’ willingness to return to healthcare settings. Ultimately, many patient follow-up times between March-June 2020 may have been affected by the pandemic.
- Providers may tend to use interpreters for sicker or more complicated patients, thus confounding effect on outcomes (1).
- Statistical analysis was not performed to show differences in impact of interpreter services so results should be considered with caution.

**Conclusions:**

- The study found there were higher rates of interpreter use with Telemedicine visits than with in-person visits; although, it is unclear if this finding is impacted by the format of the visit.
- The chart review data collected in the study showed no significant difference in follow-up outcomes based on interpreter use. However, due to the limitations discussed above, we are unable to statistically determine if interpreter use was directly associated with follow-up outcomes.

**Future Direction:**

- Establish a standardized method within the EMR for providers to document use of interpreter services during patient visits.
- Analyze follow-up times for in-person visits separately from Telemedicine visits to determine if there is a significant difference.
- Investigate health outcomes for LEP patients using different modes of translation: trained in-person interpreters, language telephone line, translation devices, English speaking family members, and physicians fluent in the patient’s language.
- Create and administer a patient satisfaction survey for LEP patients. This will allow for more conclusive results on how to best incorporate interpreter services and provide this population with optimal healthcare.

**Acknowledgements**

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