

# Usage of Mongolian and Arabic Infographics to Improve Patient Health Literacy in an Outpatient Setting

Marcus Marable MS4

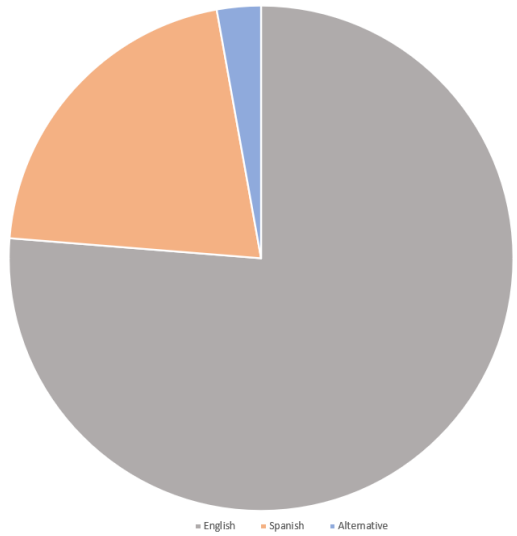
University of Colorado SOM

## Abstract

Approaches to improve patient health literacy and thereby empower patients and improve health outcomes is an area of ongoing research. This is especially relevant in the outpatient setting, where limited time, and potential lack of resources can lead to limited conversations and knowledge sharing. This project seeks to uncover whether patient health literacy can be improved is through the creation and provision of infographics concerning common health concerns in Arabic and Mongolian in select Denver Health and University of Colorado primary care sites. Site staff members reported that these documents provided value to both providers and patients, and emphasized how further improvements could be made.

## Introduction

Health literacy has repeatedly been found to be efficacious in improving health outcomes(1). But the optimal tools by which to share medical knowledge with patients, are still under investigation and undergoing constant changes. Improved patient relationships and improved medication adherence are just two examples of the usefulness of shared decision making techniques(2,3). For these reasons, medical interpreters have become a part of the standard of care for health care institutions working with non-english speaking populations, and the Affordable Care Act has mandated that “reasonable steps to provide meaningful access to each individual with limited English proficiency eligible to be served or likely to be encountered in its health programs and activities” be taken by any health program which receives funding from the Department of Health and Human Services(4). Further research has gone into effective approaches to patient communication, all aligned at emphasizing the importance of information sharing/languages(5). With the growing emphasis on digital and telecommunication in healthcare, increased attention has been paid on whether infographics can be efficacious through these means(6,7). These efforts have largely been limited to English and Spanish speaking patients(8). The integration of infographics into the outpatient setting has been thought as of a way of addressing limitations in informing patients(9). Colorado has been undergoing a dramatic population growth(10). Immigrants currently make up 9.8% of Colorado’s population, compared to 2.7% in 1970(11,12). 3% of patients at the Park Hill Family Center in the neighbor of Capital Hill identify as in this population or as their descendants and report no English or Spanish proficiency.



## Materials and Methods

Topics for the created infographics were generated from physician reported reasons for visits documented in EPIC for patients with appointments at an outpatient primary care clinic in the neighborhood of Park Hill, Denver, Colorado from November 2020 to January 2021, in addition to the CDC Leading Causes of Death in 2017, and the 2020 Denver Health Report To The City. The topics selected were Heart Disease, Diabetes, Syphilis, Depression, and Influenza from these resources.

The primary language spoken by the patient was evaluated similarly, with the documented primary language in EPIC for each encounter. During this period, a total of 6,177 patient encounters were logged, 4,711 of these encounters had a primary language listed of English, 1292 of Spanish, and 174 listed Non-English, Non-Spanish Languages. Three patient encounters logged during this period were excluded from this study due to EPIC reporting their primary language as “Unlisted,” and provider documentation not elucidating the patient’s primary language or whether there was a need for translation services.

The Mongolian and Arabic languages were specifically chosen due to contributing just short of 45% of the Non-English, Non-Spanish speaking patients who had appointments at this clinic over the three month period, and making up the majority of projected patients per site physicians. Amharic was excluded from infographic development due to the reporting that a large portion of these patients were functionally medically fluent in english, and not receiving translation services during their regular visits. As such, the development of infographics was deemed to be potentially less efficacious in this patient population. These results contrasted from expected language distribution based on census data in Colorado(where Vietnamese is the third most common language in Colorado behind English and Spanish), however the potential benefits to the patients of this clinic were deemed to be sufficient to base infographic language on these values.

Documents were then disseminated to two primary care clinics in the Arapahoe and Adams Counties.Clinic providers where encouraged to distribute infographics to patients they believed would derive benefit. Success of this intervention was evaluated by informal interviews with staff at the clinics, who detailed how regularly they gave out the infographics, and the perceived effects these documents had on patient knowledge, questions, and engagement.

No COMIRB or IACCUC approval was necessary or obtained for this project.

Eleven staff members were asked to be interviewed regarding the value of the provided infographics, with 100% of those requested agreeing to be interviewed. These participants consisted of three primary care physicians affiliated with Denver Health, three primary care physicians affiliated with UCHearth, four medical assistants, and one physician assistant. Interview length ranged from 5 to 25 minutes, dependent on staff availability. These individuals were asked a series of questions briefly summarized as:

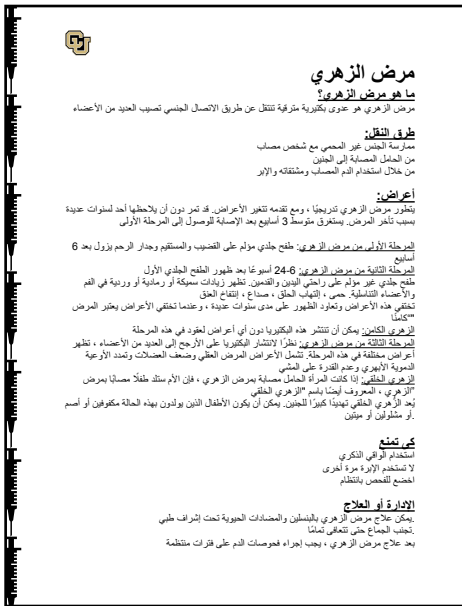
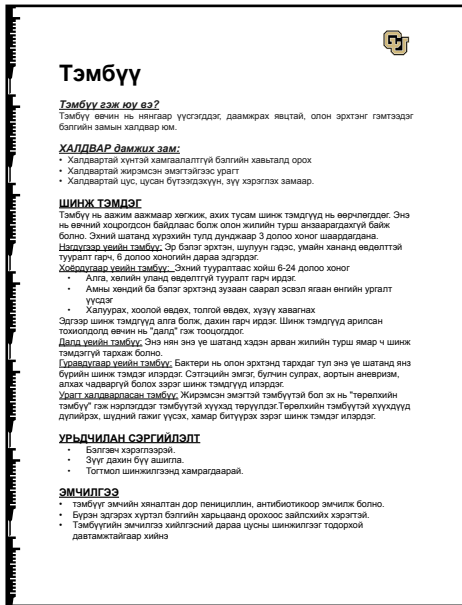
- 1) “What has been the impact on patients?”
- 2) “What has been the impact on providers?”
- 3) “What are ways you think this intervention can improve?”

## Results

When asked about the impact this intervention had on patients, the infographics were commonly reported to be “useful in specific instances,” with the majority of patient encounters, even within this patient population being unaffected due to the focused nature of the infographics. It was also reported that when patients were provided time to examine the infographic, they were more likely to ask questions regarding their conditions brought up in infographic, and engage in a dialogue about the topic.

When asked about the impact this intervention had on providers, it was universally reported that there was no reduction in time providers spent with patients. This was reportedly due to longstanding patients did not require infographics, mew patients not being provided these infographics prior to their arrival, and providers feeling the responsibility to discuss health conditions adequately, regardless of infographic availability. Uniquely, physicians and physician assistants reported that the infographics not being integrated into EPIC or existing translation services, limited their ease of use, and subsequently at times requiring additional time and effort for providers to distribute these infographics to patients. Furthermore, providers emphasized that resources such as this one are rarely standardized in their integration across outpatient clinics, frequently resulting in gaps of care where one site can provide significant aid for a patient, but neighboring sites might lack the particular resource which makes that possible.

When asked about possible improvements to the project, multiple providers suggested that infographics on medications would be extremely beneficial, as they believed these specifically would improve patient medication adherences, while several medical assistants recommended infographics with institution and clinic specific information, such as phone numbers, and what to expect when presenting to clinic initially. All eleven of the interviewed staff members reported interest in the project continuing and expanding, and reaffirmed the need for information resources for the non-english, non-spanish speaking patient population. An important note, when asked, of the eleven staff members interviewed, four reported that they had yet to disseminate any of the infographics, as they reported having no patients which were Mongolian or Arabic speaking with these health conditions in the one month following being provided those infographics.



## Conclusions

As Colorado becomes increasingly diverse, it will become increasingly more important to encourage the health literacy of our medically underserved populations. This intervention and following interviews provide several valuable insights into approaches to improve patient health literacy and self-advocacy. Most notably, that when these patients were given resources regarding evidence based practices, and fundamental health information in accessible ways, patients were more willing to engage in a dialogue with providers, and agree with evidenced based practices. Another insight being that such interventions should be based on clinic needs assessed prior to infographic development, beyond the languages needed, and another being that interventions such as this must be integrated into existing infrastructure in order to encourage usage and minimize the time required to utilize. Another noteworthy discovery from the interviews is that perspectives regarding this intervention differed significantly based on profession. Providers broadly saw these infographics as a way of encouraging dialogues with patients and sharing knowledge, whereas clinic staff viewed these documents as a resource that could be later referred to when scheduling appointments and requesting care.

While acknowledging that continuously evolving the resources is common in this realm of study it would be advantageous when developing such interventions, to conduct a thorough assessment of the patient population baseline, and ensure that there is a significantly large patient population to study following the intervention. These findings support existing literature on the topic, encourages further attempts at interventions in the realm of health literacy in the primary care setting, and the subsequent interviews with providers and staff provided valuable specific recommendations for future directions for this work.

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The author declares to have no affiliations with any organization with a financial or non-financial interest in the subject matter discussed or materials developed through this project.