COVID-19 Communication to English- and Spanish-Speaking Cancer Patients: A Website Analysis of Seven Healthcare Systems in North Texas

Robin T Higashi, John W Sweetenham, Aimee D Israel, Jasmin A Tiro

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Robin T Higashi[1, 2] PhD; John W Sweetenham[1, 2] MD; Aimee D Israel[1] MSW; Jasmin A Tiro[1, 2] PhD

[1]University of Texas Southwestern Medical Center Dallas US
[2]Harold C. Simmons Comprehensive Cancer Center Dallas US

Corresponding Author:
Robin T Higashi PhD
University of Texas Southwestern Medical Center
5323 Harry Hines Blvd.
Dallas
US

Abstract

Background: The COVID-19 pandemic created an urgent need to rapidly disseminate health information, especially to those with cancer because they face higher morbidity and mortality rates. At the same time, the disproportionate impact of the pandemic on Latinx populations underscores the need for information to reach Spanish-speakers. However, the equity of information about COVID-19 to Spanish-speaking cancer patients communicated through institutions' online media is unknown.

Objective: We conducted a multi-modal, mixed method document review study to evaluate the equity of online information about COVID-19 and cancer available to English and Spanish speaking populations from seven healthcare institutions in North Texas, where one in five adults is Spanish-speaking. Our focus is less on the "digital divide", which conveys disparities in access to computers and the Internet based on the race/ethnicity, education, and income of at-risk populations; rather, our study asks: to what extent is online content useful and culturally appropriate in meeting Spanish-speakers' information needs?

Methods: We reviewed 50 websites (33 English, 17 Spanish) over a period of one week in mid-May 2020. We sampled seven institutions' main oncology and COVID web pages, as well as both internal (institutional web pages) and external (non-institutional web pages) linked content. We conducted several analyses for each sampled page: (a) thematic content analysis, (b) literacy level analysis using Readability Studio software, (c) coding using the Patient Education and Materials Assessment Tool (PEMAT), and (d) descriptive analysis of video and diversity content.

Results: The themes most frequently addressed on English and Spanish websites differed somewhat. While "resources/FAQs" were frequently cited themes on both websites, English websites more frequently addressed "news/updates" and "cancer+COVID", whereas Spanish websites addressed "protection" and "COVID data". Spanish websites were on average lower literacy (11th grade) than English (13th grade), although still far above recommended guidelines of <9th grade. The overall average accessibility score using the PEMAT analysis was the same for English (n=33 pages) and Spanish pages (n=17 pages) at 82%. Among the DFW organizations, the average accessibility of the Spanish pages (n=7) was slightly lower than that of the English pages (n=19) at 77% vs. 81%, respectively, due mostly to the discrepancy in English-only videos and visual aids. Twelve of the 50 websites (24%) had embedded videos in them, however 100% of videos were in English, including one that was on a Spanish website.

Conclusions: We identified an uneven response among the seven healthcare institutions to providing equitable information to Spanish-speaking DFW residents concerned about COVID and cancer. Spanish-speakers lack equal access in both diversity of content about COVID-19 and access to other websites, leaving an already vulnerable cancer patient population at greater risk. We recommend several specific actions to enhance content and navigability for Spanish-speakers.

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ABSTRACT

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Conclusions. We identified an uneven response among the seven healthcare institutions to providing equitable information to Spanish-speaking DFW residents concerned about COVID and cancer. Spanish-speakers lack equal access in both diversity of content about COVID-19 and access to other websites, leaving an already vulnerable cancer patient population at greater

risk. We recommend several specific actions to enhance content and navigability for Spanish-speakers.

Keywords: coronavirus; safety-net; Internet; communication

INTRODUCTION

The COVID-19 pandemic created an urgent need for information to reach people with cancer because they are twice as likely to contract COVID-19[1] and 8 times more likely to die from it.[2] Healthcare institutions' websites constitute a major communication mechanism with the public at large and often have sub-sections to specifically serve the needs of cancer patients. As healthcare consumers, patients rely on these websites to provide information about available health services, basic information about health problems, and access to additional resources.[3] For patients with cancer, websites may include information about multidisciplinary cancer care (i.e. chemotherapy, surgery, radiation), support services (e.g. case management), and survivorship resources (e.g. wellness education). During public health crises, timely and equivalent access to health information is critical for patients to adequately inform and protect themselves. However, the equity of information about COVID-19 to Spanish-speaking cancer patients communicated through institutions’ online media is unknown.

The disproportionate impact of the pandemic on healthy Latinx populations[4, 5] underscores the need for equally high-quality information to reach Spanish-speaking populations impacted by cancer and concerned about COVID. The CDC estimates that risk of COVID-19 infection, hospitalization, and death of Latinx persons was 2.0, 3.0, and 2.3 times higher compared to Non-Hispanic whites.[6] Much of this was likely due to the fact that Latinx populations are at elevated risk for severe disease given higher rates of comorbid conditions[4] and exposure due to living and working conditions.[5] A study in May 2020 on access to coronavirus testing in major Texas cities also

suggested that lack of testing locations in heavily Latinx and African-American neighborhoods may have hampered quarantine efforts enabling the virus to spread unchecked and contributed to disproportionate rates of COVID-19.[7]

Healthcare institutions serving large Spanish-speaking populations have a professional and moral obligation to ensure that information reaches Spanish speakers. Moreover, the disproportionate impact of the pandemic on Black and Latinx populations[4, 5] in general elevates the need for information to reach Spanish-speaking populations impacted by cancer and concerned about COVID. For example, the Dallas-Fort Worth (DFW) area is home to over 1.6 million Spanish speakers,[8] that is, persons five years and older who speak Spanish at home. Spanish speakers, the largest non-English speaking group, comprise approximately 21% of the 7.5 million residents in the 13 county DFW catchment area.[9] Of Spanish-speaking adults aged 25 years and older, most have less than a high school education (42%), 26% are high school graduates, and 14% are college graduates or beyond.[10]

Educational attainment notwithstanding, delivery of health information at a low literacy level is a recommended best practice for all populations. While the average American adult reads at about an 8th grade level, the American Medical Association recommends that the readability of patient-facing health materials be no higher than sixth grade.[11] In the U.S., adults who prefer to communicate in Spanish are especially affected by negative health outcomes associated with low literacy, such as higher emergency department utilization, higher morbidity, and lower use of preventive services.[12-14] Therefore, with new disease outbreaks like COVID, it is particularly important for new information to be conveyed in Spanish at a low literacy level. Thus, it is critically

important to monitor if online information meets the needs of populations with lower literacy.

In this paper, our focus is less on the “digital divide”, which conveys disparities in access to computers and the Internet based on the race/ethnicity, education, and income of at-risk populations.[15-17] Rather, once Spanish-speaking consumers have physical access to healthcare institutions’ websites, to what extent is the content useful and culturally appropriate in meeting their needs?[18] We conducted a document review study to evaluate the equity of information about cancer and COVID-19 available online to English and Spanish speakers from large healthcare institutions in the DFW area. Document analysis is the ideal method to capture information at discrete periods of time as a historical record of the online information presented to healthcare consumers by each institution. It allows for thematic analysis using pattern recognition and coding, evaluation of completeness and accuracy, and fitness to the proposed purpose of the document. Here, we report the results of that evaluation, including a thematic analysis of institutional website content, measurement of literacy and accessibility, and analysis of links to external websites and expressions of diversity.

METHODS

Website sampling

Rigorous document analysis involves a systematic sampling strategy grounded in the research problem and purpose of the study.[19] In this exploratory study, our website sampling approach was guided by the goal of comparing what cancer- and COVID-related resources were available to English-

and Spanish-speaking consumers in the DFW area. We sampled a total of 50 websites in a hierarchical sampling "block" strategy with criteria outlined in Table 1.

Table 1. Website Sampling by Blocks, Criteria and Number of Pages

Sampling Block	Pages	Criteria	# pages
A	7 DFW institutions' main cancer/ oncology websites	We sampled all 7 institutions' main cancer/oncology page in English. Only one institution had a parallel* Spanish website, which we also sampled. (i.e. We did not sample Google translate versions of English websites.)	8
B	7 DFW institutions' main COVID websites	Same criteria as Block A (n=8). In addition, one academic medical center had two COVID websites to orient patients/families on healthcare services and inform the public about research and educational missions, so we sampled both in English.	9
C	Internal direct sub-links to English/Spanish parallel content	We sampled any internal** linked content in Spanish from the main cancer or COVID pages if: (a) parallel English and Spanish content were available for comparison; and (b) relevant† information.	10 (5 pairs)
D	External direct sub-links to English/Spanish parallel content	We sampled any external‡ linked parallel content in Spanish and English from the main cancer or COVID pages using the same criteria as Block C.	12 (6 pairs)
E	External direct sub-links of English or Spanish non-parallel content	We sampled external non-parallel English (n=7) and Spanish (n=4) pages with relevant information linked from the main cancer or COVID pages.	11
		TOTAL:	50

*"Parallel" is defined as separate web pages that mirror each other in format and content.
**"Internal links" are links to another web page authored by the institution.
†"Relevant" is defined as including information about COVID that would be pertinent specifically to a cancer patient, survivor, or someone participating in a cancer prevention services.
‡"External links" are links to web pages not authored by the institution.

We focused first on sampling the seven large DFW area healthcare institutions' main oncology and COVID web pages (Blocks A and B) to assess the type and accessibility of COVID and cancer information available to consumers. From there, we sampled internal and external linked content available in both languages to further assess equity of information to English- and Spanish-speaking consumers. By 'internal links', we mean links to another web page authored by the institution. As indicated in the sampling strategy, we assessed internal linked content if (a) parallel English and Spanish content was available for comparison, and (b) content was relevant. By 'parallel', we mean separate

web pages in English and Spanish designed by the institution to convey the same information. We define ‘relevant’ as including information about COVID that would be pertinent specifically to a cancer patient, survivor, or someone participating in a cancer prevention services. Using this strategy, we identified 5 pairs (n=10 websites) of internal English and Spanish content from two institutions’ main COVID websites, and 6 pairs (n=12 pages) of parallel English and Spanish external linked websites. These are itemized as Sampling Blocks C and D in Table 1. Finally, we sampled external links to 7 English and 4 Spanish non-paired websites to assess potentially inequitable information available to consumers (Block E). The 50 total websites included 33 (66%) predominantly English and 17 (34%) Spanish websites.

Data collection

To promote systematic and consistent data collection, the Principal Investigator [RTH] designed a data collection tool in REDCap[20] that structured rules for evaluation and data entry of specific constructs informed by the literature.[11, 18, 21-23] The tool consisted of: (1) a literacy score, measured using *Readability Studio* (Oleander Solutions, Vandalia, OH) software; (2) topics for thematic analysis (e.g. main headers, presence of embedded videos, internal and external links, and markers of cultural inclusiveness); and (3) a survey instrument consisting of 12 items measuring accessibility (using the Patient Education and Materials Assessment Tool (PEMAT)[24]). We further compared English and Spanish parallel websites with respect to cultural (in)appropriateness, (in)accuracy of translation, and literacy level (non-)congruence. One research staff used the tool to collect data from each

website, except for the PEMAT survey portion, which was completed by two staff members per website to enhance rigor.

All website data were collected during a one-week period in mid-May 2020. At that time, all 50 websites had been updated in 2020. Thirty-one of 50 were updated since March 1, 2020; 26/50 were updated since April 1, 2020; and 12/50 were updated since May 1, 2020. A few websites reported being updated daily.

The Principal Investigator (PI) performed a quality assessment check by reviewing 10% of collected data to ensure completeness and adherence to the data collection tool during documentation.

Data analyses

Once data were collected, several analyses were performed, including: thematic content analysis, literacy level analysis using Readability Studio software, coding of the PEMAT, and descriptive analysis of video and diversity content.

Thematic content analysis

We used website headers to approximate the thematic content of the main COVID and cancer websites in English and Spanish. First, data collection staff recorded the headers that corresponded to content related to cancer or COVID on each of the 50 selected websites. Next, the PI reviewed these data and created a qualitative codebook consisting of 29 topics, such as “prevention”, “resources”, and “testing”. Three persons then double-coded in an alternating matrix the free-text headers into codebook topics. Discrepancies between two coders were resolved by the PI. A table of this conversion process

is shown in Appendix 1.

We used the same approach to analyze the thematic content of linked internal and external pages from the institutions' main COVID and cancer websites to assess healthcare consumers' ease of navigating to additional information. In addition to comparing thematic content, two bilingual research staff assessed the translation accuracy, conceptual equivalence, and cultural appropriateness of Spanish and English parallel websites (Sampling Blocks C and D).[25]

Literacy Level

A literacy level, or readability, score approximates the level of education a person may need to be able to read a piece of text easily. Scores are generally based on factors such as sentence length, syllable length, and syntax. Website content was scored using *Readability Studio,* which yielded a combined score from the Gilliam-Peña-Mountain and SOL (Spanish SMOG) readability scales.[26]

Patient Education and Materials Assessment Tool (PEMAT)

The PEMAT instrument measures the overall clarity and accessibility of print materials, such as the simplicity of concepts, syntax, layout, and availability of non-text communication tools.[24] Four coders were trained by the lead investigator in the use of the PEMAT instrument to promote consistency in coding. Then two pairs of two coders each scored 25 websites (for a total of 50 websites). Coding agreement between paired individuals was high (k=.77 and .82). Where discrepancies existed, coders reconvened, discussed, and decided upon one code to be used for the final PEMAT scoring.

Video content

While most individuals learn visually (i.e., what they see and read), others

are auditory or kinesthetic learners, which means they prefer to learn by touch or manipulation like note-taking and role-playing. Given these different learning styles, videos can enhance the accessibility of websites by engaging audiences, reducing literacy burden, and quickly delivering important health messages.[27] We counted the number of websites that contained embedded videos and the language videos in which videos were presented.

Diversity and inclusiveness

Communications of racial and ethnic diversity on websites can convey an institution's core values and may serve to attract members of racial/ethnic minorities to web content.[23, 28] We counted the number of websites with pictures of persons of perceived non-White racial backgrounds, or statements of diversity or inclusion (e.g. "For interpreting services, please call: xxx-xxxx.")

RESULTS

Only one of seven institutions had parallel Spanish cancer and COVID websites: the safety-net institution in the metroplex center. In 2015, the institution logged 75,000 encounters each month with non-English speakers, 92% of which were with Spanish-speakers.[29] Two institutions had some Spanish content and links to external websites in Spanish. Four institutions had no Spanish content and no links to external Spanish websites.

Thematic content

The top 10 themes of website headers are reported by language and number of times cited in Table 2. Examples of website headers are shown in Figures 1 and 2. Items with an asterisk (*) indicate themes in English that did not appear in the top 10 themes cited on Spanish websites; items with a cross

(†) indicate themes in Spanish that did not appear in the top 10 themes cited in English.

Table 2. Themes of Website Headers

English websites (n=33)	*Freq (n)*	*Spanish websites (n=17)*	*Freq (n)*
resources/more information/FAQ	25	protection/what you can do	14
updates/news*	20	resources/more information/FAQ	8
cancer and COVID	19	COVID data†	7
prevention/how it spreads	14	what to do if you're sick or you think you have COVID	7
protection/what you can do	13	cancer and COVID	6
services/treatments available	13	hours/locations/info for patients and visitors†	5
signs/symptoms*	13	prevention/how it spreads	5
testing/screening*	11	risk factors/risk assessment/high risk populations†	5
what is X-institution doing?*	10	social distancing†	5
what to do if you're sick or you think you have COVID	10	specific populations information†	5

Figure 1. Example of English website header

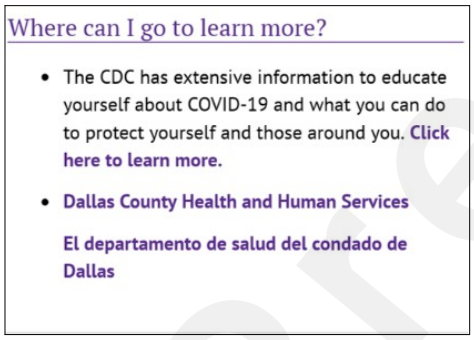
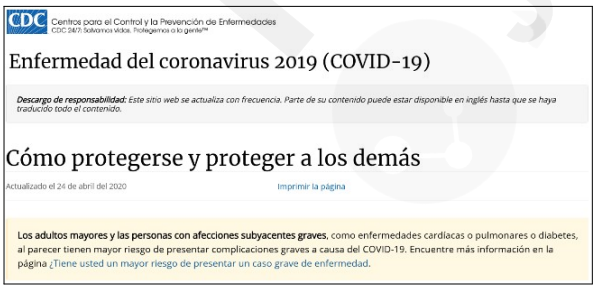


Figure 2. Example of Spanish website header



There were some similarities and several differences in the content of website information on English and Spanish websites. With respect to organizations' main COVID websites, for example, content related to the topic of

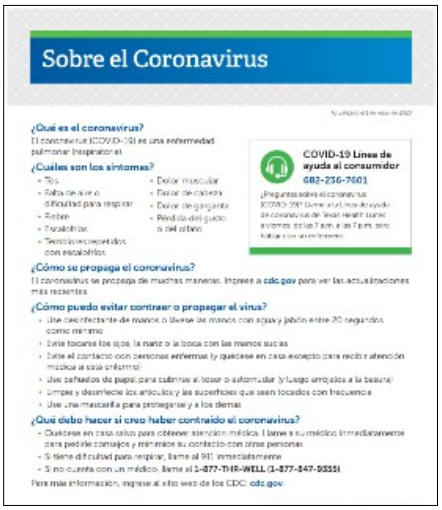
how to obtain additional resources (e.g. where to find more information, and responses to frequently asked questions) figured prominently on both English (#1) and Spanish (#2) websites, as did content related to COVID prevention and protection. However, while COVID news and updates constituted the second most frequently cited theme in English, and testing the 8th, neither theme ranked among the top 10 content areas in Spanish. In contrast, the Spanish websites contained several headers and subheaders that did not figure into the top 10 English content areas: COVID data, hours and locations for patients and visitors, risk factors or information for high-risk populations, social distancing, and information for specific populations (e.g. elderly persons or pregnant women).

With respect to information specifically about COVID and cancer, there was more information available in English (58% of websites) than in Spanish (43%) among the institutions' websites. Three institutions had no information about COVID on their main cancer page; three institutions included a banner at the top of the page with a link to some form of COVID-19 information, such as "COVID-19 updates" or "Important information about COVID-19"; and one institution had 21 instances of "COVID" mentioned on its cancer main page, indicating a substantial amount of detailed information for cancer patients. Examples of content headers included: "Cancer and COVID-19: What You Need to Know"; "Virtual Visits Available"; and "Am I considered immunocompromised if I have had cancer treatment?" These headers linked consumers to content that, for example, reassured them about safety measures for in-person care and informed them of options for virtual care.

Internal links

Two institutions had some internal content in English and Spanish, e.g. a bulletin called “About Coronavirus” (Figure 3). A total of 5 pairs of English/Spanish links were identified (Sampling Block C). Four institutions had no internal or links to external Spanish content. However, for those familiar with how to access the function in Chrome web browsers, a “google translate” version of the website was available.[a]

Figure 3. Example of an internally linked bulletin



External links

For three institutions, the main COVID website also contained links to external websites in Spanish, either as English/Spanish pairs (Sampling Block D) or individual Spanish links (Sampling Block E).

Among all external links in Spanish (n=10), the main CDC coronavirus website was linked to twice, and 7/10 links were to CDC pages. However, 4/10 external links were to 1-page static factsheets, not websites (Figure 4). And 4 of the 5 links were to an English page (e.g. https://www.cdc.gov/coronavirus/2019-ncov/index.html), where the user must locate a button to convert the page to Spanish, rather than linking directly to the Spanish website URL (https://espanol.cdc.gov/coronavirus/2019-ncov/index.html). In other words,

[a] Evaluating the quality of “Google translate” versions was beyond the scope of this study. For an extended discussion of the translation function in Google, please see: Patil S, Davies P. Use of Google Translate in medical communication: evaluation of accuracy. *BMJ: British Medical Journal.* 2014;349:g7392.

much of the available content in Spanish was abbreviated and did not lead to further opportunities to link to other websites; and of the available websites, many required users to navigate in English to arrive at Spanish text. Consumers with lower health literacy or digital literacy[30] may miss the opportunity to arrive at the Spanish website, or at best, may get frustrated in navigating there.

Figure 4. Example of static factsheet

The external links from the cancer and COVID websites in English (n=24) from all 7 DFW organizations demonstrated greater heterogeneity. In total, links included ten different CDC websites as well as local organizations (e.g. Department of State Health Services, Komen Greater Fort Worth), academic organizations (e.g. New England Journal of Medicine and American Society of Microbiology), and government entities (e.g. National Institutes of Health, Occupational Safety and Health Administration). As was the case in Spanish, the main CDC coronavirus website was the most frequently linked-to page (4 times); this was followed closely by the CDC's website about symptoms (3 times). All organizations linked to at least one CDC page. However, the fact that different, i.e. non-parallel, websites were offered as links on the English and Spanish main

pages underscores the finding that inequitable information is available to English- and Spanish-speaking consumers.

Literacy level

Among the 50 websites, the average literacy score for the English websites (n=33) was grade 13.2, while the average for the Spanish websites (n=17) was lower, at grade 11.7. Websites with parallel English and Spanish content scored exactly the same, at an overall average of grade 12.8. This suggests a high degree of accuracy in the translations. However, among the DFW-area organizations' main cancer and COVID websites only, the average literacy level was higher, at 15.4 (range 14.8-16.9) and 12.6 (range 8.3-15.5), respectively. The only website that scored at an 8th grade reading level was the metroplex center safety net institution's main COVID page in Spanish.

Patient Education and Materials Assessment Tool (PEMAT)

The overall average accessibility score using the PEMAT analysis was the same for English (n=33 pages) and Spanish pages (n=17 pages) at 82%. Among the DFW organizations, the average accessibility of the Spanish pages (n=7) was slightly lower than that of the English pages (n=19) at 77% vs. 81%, respectively, due mostly to the discrepancy in English-only videos and visual aids. Overall, the most common items on which websites scored negatively included the following; the first and third likely account for the high overall literacy level scores.

- "Medical terms are used only to familiarize audience with terms. When used, medical terms are defined." (22/50 websites) Non-defined higher literacy terms included: "oncology", "SARS CoV-2", and "intravenous iron supplementation".

- “The material uses visual aids whenever they could make content more easily understood.” (17/50 websites). Visual aids included, for example, the use of videos, icons, graphics, or GIFs.
- “The material uses common, everyday language.” (9/50 websites). Higher literacy language included those scoring above 9th grade, which typically included multiple sentences containing more than 23 words and multiple words with more than 3 syllables, e.g. infrastructure.

In contrast, among the external organizations’ websites, the average accessibility score of the Spanish pages (n=10) was slightly higher than that of the English pages (n=13) at 86% vs. 83%, respectively. Overall the scores indicate a moderately high level of accessibility. And with relatively few total pages being scored we cannot state whether these differences are statistically significant.

Accuracy and cultural sensitivity

Several errors in accuracy of translation or conceptual equivalence were noted on English-Spanish paired websites. For example:

- family and patient *education* = asesoramiento para el paciente y la familia (translation: patient and family *advice*)
- including COVID-19 = incluido el que provoca la COVID-19 (translation: including *that which causes* COVID-19)
- underlying medical condition = afecciones subyacentes graves (translation: *serious* underlying conditions)

There were also instances in which the Spanish version used a higher literacy level term than the English, making it less accessible to Spanish-speaking audiences. For example:

- medication refill = rebastamiento de medicamentos (simpler would be: *resurtido* de medicamento)
- enter a facility = ingrese una instalación (simpler would be: *entre* una instalación)
- strongly = encarecidamente (simpler would be: *fuertemente*)

Video content

Twelve of the 50 websites (24%) had embedded videos in them, however 100% of videos were in English, including one that was on a Spanish website. This indicates a missed opportunity to not only to reach Spanish-speakers, but to engage lower-literacy audiences using non-textual information delivery.

Diversity and inclusiveness

Just over half (n=26, 52%) of the 50 websites had pictures of people. Of those that had pictures, 69% (n=18/26) included people of non-White racial or ethnic backgrounds. Other markers of inclusivity included: data provided by race and ethnicity, patient stories told from the perspective of those of different racial backgrounds, and documents offered in several languages in a drop-down menu.

Missed opportunities included: a button for a Spanish website was listed at the very bottom of an English web page, and the Spanish website about local cases was not updated in real time like the English equivalent. (The Spanish website reported zero cases in the County as of March 2020, whereas the English website correctly reported cases.)

Lastly, there were a few instances where websites lacked cultural sensitivity. These included:

- A link from to a YouTube video from the Spanish text "Pasos simples para

prevenir COVID" (Translation: Simple steps to prevent COVID) took the user to a video in English, even though the text and page was in Spanish.

- Charts that are available on the English website, “Cases by Race and Age” and “Cases by Ethnicity and Age”, are not available on the Spanish parallel website.
- The English website was last updated the day before, whereas the Spanish parallel website was updated over one month ago. This resulted in significantly outdated and imbalanced content on the Spanish website.
- The English website uses the phrase “Keep America Open”, whereas the Spanish parallel website says “Keep the United States open”. In this case, the English lacks sensitivity because using the term “America” to refer to the United States implies a political and cultural dominance over a continental area.

DISCUSSION

This document analysis of seven healthcare institutions’ websites demonstrates that Spanish-speakers lack equal access to information about COVID-19 compared with their English-speaking counterparts, leaving an already vulnerable cancer patient population at greater risk. In addition to a greater volume of information, English-speakers had access to a wider variety content via linked information on dynamic web pages rather than static fact sheets. Additionally, video content, which is recommended for low literacy audiences, was available only in English or on English websites. Moreover, findings noted post-access disparities,[18] such as ease of navigability, which could exacerbate deficits in content for Spanish-speaking consumers of online

information.

Our readability analysis demonstrated that overall, Spanish websites had a lower average literacy level than English websites (11.7 vs. 13.2 respectively) Both literacy levels are unacceptably high because the average American adult reads at about an 8th grade level, and the American Medical Association recommends the readability of patient-facing health materials be no higher than 6th grade.[11] This indicates a significant need for institutional changes to make all websites more accessible to healthcare consumers in accordance with suggested guidelines.[31]

According to the American Hospital Association's Code of Ethics, healthcare institutions have a professional and moral obligations to provide communications that are "clear, accurate, and sufficiently complete", and "should be aimed primarily at better public understanding of health issues, the services available to prevent and treat illness, and patient rights and responsibilities to health care decisions."[32] However, the guidelines are unclear regarding how healthcare institutions should best structure and deliver content during public health emergencies, such as the COVID-19 pandemic, when information is rapidly evolving and institutions may lack the resources for regular updates. The AHA guidelines also lack specificity about the scope and speed with which to inform the non-English-speaking public, which is critical in the DFW metroplex, where 21% of the population is Spanish-speaking. As a result, findings from this study demonstrate an uneven response among the seven healthcare institutions to providing equitable information to Spanish-speaking DFW residents concerned about COVID and cancer.

This study is unique in assessing the equity of local healthcare

institutions' cancer and COVID website content for English- and Spanish-speaking consumers. We are aware of only other study that completed a limited examination of equity by noting accessibility of NCI comprehensive cancer centers' visitor policies; it determined that the majority (66%) of the cancer centers published their visitor policies only in English, even in areas of the country with large proportions of Hispanic/Latinx populations.[33] Other studies have inventoried online resources in Spanish about COVID-19, but these have specifically investigated the educational activities of healthcare institutions.[34, 35]

We recommend several specific actions to enhance content and navigability for Spanish-speakers. First, all healthcare institutions could feature at least the CDC and their State's Public Health Department main coronavirus websites.[b] In addition to having websites in English and Spanish, both link to many other COVID-related websites in English and Spanish. Second, they should label links to Spanish websites with text in Spanish, as shown in Figure 5. Third, we recommend lowering the readability of website text to the recommended 8th grade reading level. And fourth, linked content should be sent directly to the Spanish version of a page (*https://espanol.cdc.gov/coronavirus/2019-ncov/index.html*), rather than to the English version (*https://www.cdc.gov/coronavirus/2019-ncov/index.html*), wherefrom users would need to navigate in English to button or pull-down menu to select the Spanish.

[b] Center for Disease Control's main COVID websites: in English (*https://www.cdc.gov/coronavirus/2019-ncov/index.html*), in Spanish (*https://espanol.cdc.gov/coronavirus/2019-ncov/index.html*). Texas Department of State Health Service's main coronavirus websites: in English (*https://www.dshs.texas.gov/coronavirus/*), in Spanish (*https://www.dshs.state.tx.us/coronavirus-sp/*).

Figure 5. Example of linked content labeled in Spanish

This study is subject to several limitations. First, this study was conducted in Texas, a border state with a large Spanish-speaking population. Findings may not be as generalizable or relevant for other regions with small Spanish-speaking populations. Second, this analysis was performed during a single week in May 2020; we did not examine how information evolved. For example, by May of 2020, the country had experienced only the first wave of the pandemic; a cursory review in April 2021 revealed a greater volume of Spanish content on some healthcare institutions' websites compared to when it was analyzed the year prior. Finally, this study, like all document review studies, is inherently limited in detail; intentionality cannot be clarified, as would be expected in an interview, for example.[19] However, document analysis studies like this one provide clear, objective documentation of an institution's online record that can be reanalyzed by others. Given that the communication goal should be to meet the specific needs of local communities,[36] further research using other qualitative methods could clarify whether there was a evidence-based rationale for differentiating content between English and Spanish websites.

The COVID-19 pandemic presented significant challenges for healthcare institutions in meeting the informational needs of the public. This study is significant in being the first of its kind to demonstrate inequities in the online information available to English- and Spanish-speaking residents concerned about COVID and cancer in a large US metropolitan area. Future research should

qualitatively assess where Spanish-speakers go for information about COVID and cancer, and the implications of information-seeking from potentially non-reputable sources.

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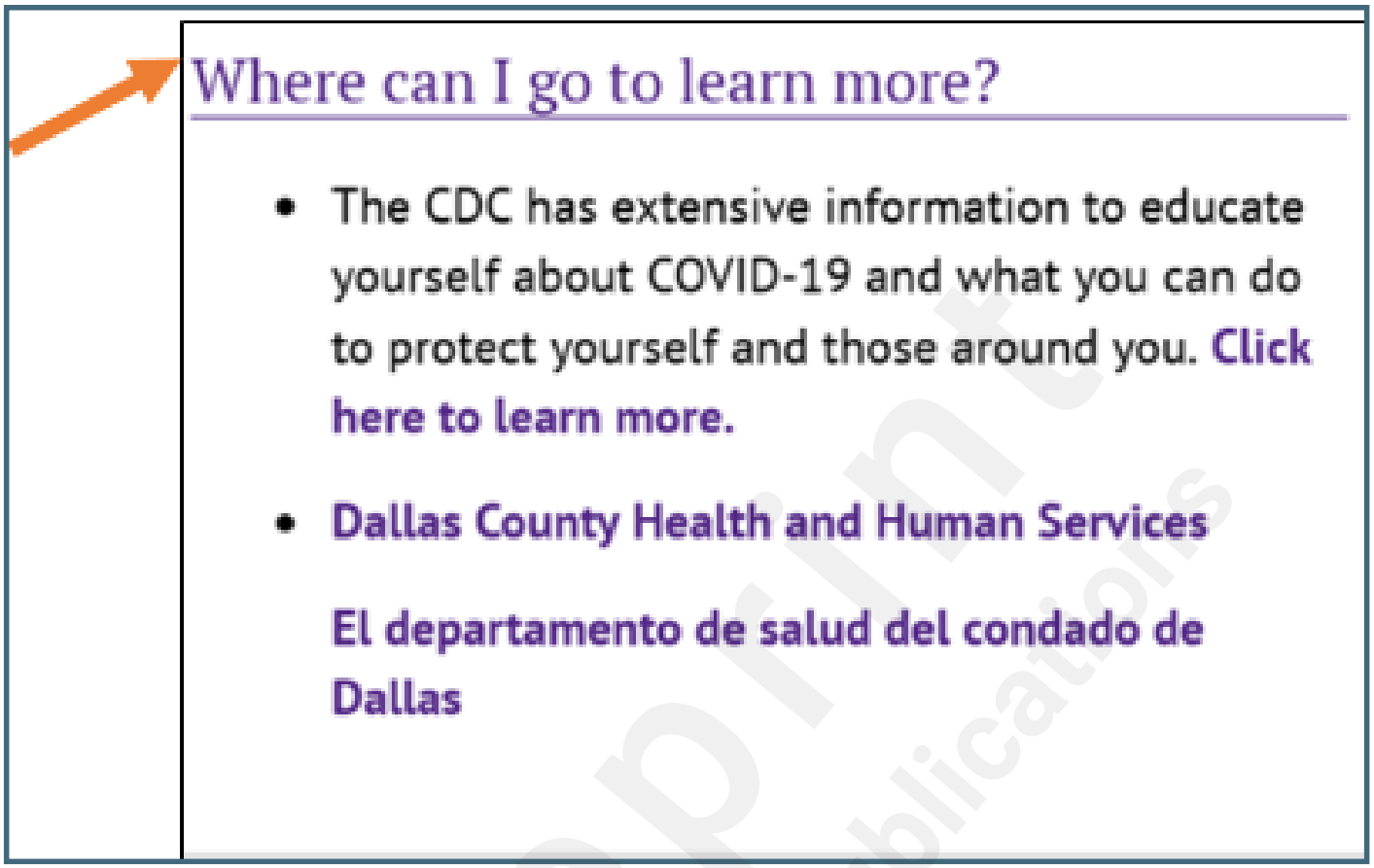
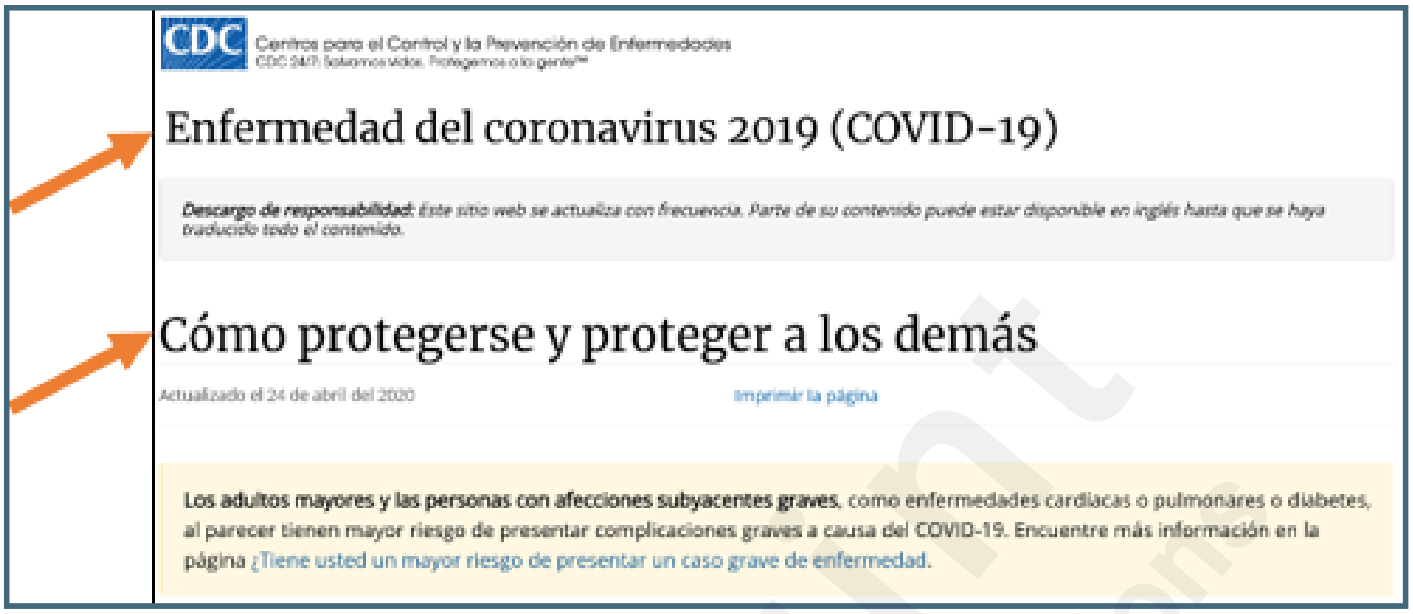
Supplementary Files

Figures

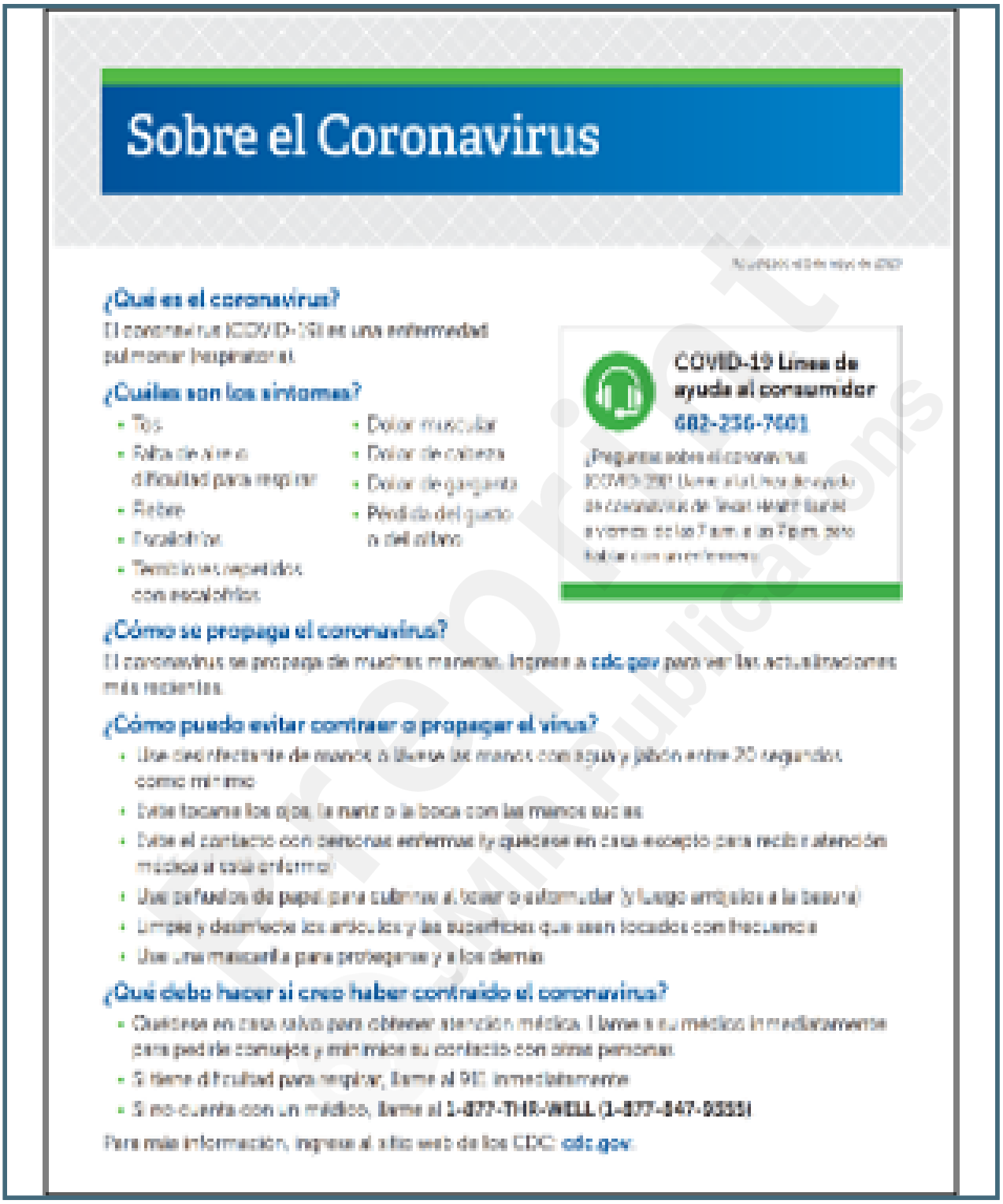
Example of English website header.



Example of Spanish website header.



Example of an internally linked bulletin.



Example of a static factsheet.

Example of linked content labeled in Spanish.

Multimedia Appendixes

Coding of website headings.
URL: http://asset.jmir.pub/assets/46199b4c4f681a03e2f0e40f2c327456.xlsx