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How Readable are Spanish-Language Medicaid Applications?

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Abstract

Nationally, Hispanics comprise nearly one-quarter of all non-elderly Medicaid recipients. We evaluated readability, layout characteristics, and document complexity of state-issued Spanish-language Medicaid enrollment applications. We located and analyzed Internet-based Spanish enrollment applications from 37 states and the District of Columbia. We calculated the readability of each Medicaid enrollment application “Signature” page using the Spanish Lexile Analyzer. We assessed application layout characteristics utilizing the User-Friendliness Tool, and we evaluated document complexity using the PMOSE/IKIRSCH scale. The average Lexile score estimated an 11th–12th grade reading level ($M = 1184$, $SD = 192$) for “Signature” pages of enrollment applications. Most applications used small font size and lacked adequate white space. Document complexity ranged from level 3 (moderate) to level 5 (very high); the majority of applications ranked at level 4 (high). Spanish-language Medicaid enrollment applications should be revised to adhere to low-literacy guidelines, which may improve the accessibility of Medicaid coverage for eligible Spanish-speaking families.

Keywords

Literacy; Readability; Health literacy; Medicaid; Spanish

Introduction

Medicaid, both a state and federally funded program, provides healthcare services to the medically needy, low-income families and pregnant women with limited resources [1].

Approximately, one in five Americans—nearly 59 million people—receive Medicaid benefits [2]. Ethnic minorities, namely Hispanics represent a significant proportion of Medicaid enrollees. Importantly, while Hispanics made up an estimated 15.4% of the US population in 2008 [3], they comprised 24.5% of all non-elderly Medicaid recipients nationally [4]. In some states, such as Massachusetts, the proportion of Hispanics receiving Medicaid is markedly higher than the national average [4]. Still, a larger proportion of Hispanics remain uninsured as compared to their non-Hispanic counterparts [5, 6], and Hispanics represent a large percentage of the uninsured population eligible for current public insurance programs [7, 8].

Adults with less than a high school education and below the poverty threshold—prevalent sociodemographic characteristics within the Medicaid population—are at particularly high risk of having limited general and/or health literacy skills [9]. The deficits—excessively high reading demands, poor layout features, tiny text point size—of English-language Medicaid enrollment applications [10] and similar informed consent documents [11–13] have been previously described. However, to our knowledge, no studies have assessed the quality of state issued Spanish-language Medicaid enrollment applications. To address this gap in the literature, we examined readability, layout characteristics, and document complexity of state-issued Spanish-language Medicaid enrollment applications. Since almost 40% of Hispanics have less than a high school education [14], it is critical that Spanish-language Medicaid enrollment applications adhere to established low-literacy guidelines for print materials [15, 16] to meet the needs of this vulnerable population.

Methods

Identification of Spanish-Language Medicaid Enrollment Applications

During the second full week of May, 2010, we attempted to locate Spanish-language Medicaid enrollment applications from each of the 50 states and the District of Columbia via the Internet. We were able to identify, download, and print Spanish-language Medicaid enrollment applications from 37 states and the District of Columbia. Of the remaining 13 states, 10 did not have a Spanish-language version available on their state Internet site (Alaska, Hawaii, Mississippi, Missouri, North Dakota, Oregon, Rhode Island, South Dakota, Vermont, and Virginia). The remaining 3 states (Nebraska, Maine, and Florida) did have Spanish-language enrollment applications available, but the documents were in formats that did not allow us to evaluate them. For example, the Spanish-language Medicaid enrollment form on the Nebraska state Internet site was corrupt and could not be opened. Maine's Spanish-language enrollment application could not be saved or printed because it was translated into Spanish using a program (Google Translator) that does not allow documents to be saved or printed. In Florida, Medicaid enrollment forms are not available electronically because applicants are required to apply to the program through a specialized web-based application.

Spanish-language enrollment applications were either for general public (Medicaid, Food Stamps, and/or Temporary Assistance for Needy Families) or medical assistance for families and children. Adult or family Spanish-language Medicaid enrollment applications were downloaded and printed in their entirety from each state's department of health/social

services Internet site. For example, the Colorado Application for assistance was downloaded from the Department of Health Care Policy and Financing at <http://www.colorado.gov/cs/Satellite/HCPF/HCPF/1251567068887>.

Assessment of Spanish-language Medicaid Enrollment Applications

Medicaid enrollment applications were typically multiple pages in length. However, due to formatting (e.g., embedded figures and boxes), readability (reading grade level) could not be calculated for applications in their entirety. Instead, the “Signature” page, describing the rights and responsibilities of the applicant, was used to calculate readability because it contained continuous text that could be objectively measured.

Assessment of Readability Characteristics—We calculated reading grade level using the Spanish Lexile Analyzer, a readability analysis tool produced by the Lexile Framework® for Reading [17]. To evaluate readability using the Spanish Lexile Analyzer, the “Signature” page content was copied and pasted into a plain text file with Unicode UTF-8 encoding with allowance for character substitution. Next, each file was uploaded to the Spanish Lexile Analyzer.

Five applications (Connecticut, Ohio, Tennessee, Wisconsin, and Wyoming) contained scanned images or were configured to prevent copying and pasting. Therefore, “Signature” pages from these enrollment applications were typed by hand into a plain text file and subsequently uploaded into the Spanish Lexile Analyzer.

The Lexile Analyzer displayed the estimated grade level of each “Signature” page text. In addition to calculating readability of “Signature” pages, we recorded examples of difficult sentences/passages and then revised them to meet low-literacy guidelines [15, 16].

Assessment of Layout Characteristics—Layout characteristics were assessed using criteria from the User-Friendliness Tool (UFT) [18]. User-friendly layout criteria were as follows: font style 12 points; avoidance of all-capital letters, italics, and specialty fonts; use of ample white space; short paragraph lengths (<5 lines per paragraph); and extent of well-organized information.

Because of the subjective nature of UFT criteria, the first and second author reviewed all enrollment applications independently and noted how much effort (little or no, some, or much) would be necessary to bring each criterion per application to an acceptable level of user-friendliness. Level of agreement per criterion ranged from 46.0 to 70.3% (57.3% overall agreement = 57.3%). Scoring discrepancies were resolved through discussion and final scores were agreed upon and assigned. During our evaluation, we identified layout features consistent with established low-literacy guidelines [15, 16] to show how applications could best be organized to promote patient understanding.

Assessment of Document Complexity—We assessed document complexity using the PMOSE/IKIRSCH readability formula [19]. Assessment of document complexity entails scoring documents based on the complexity of their structure (e.g., simple list, combined list, nested lists) and their density (e.g., number of labels and items on the list). Scoring on

the PMOSE/IKIRSCH ranges from level 1 proficiency (very low complexity) to level 5 proficiency (very high complexity).

Because of the time involved to calculate PMOSE/IKIRSCH the second author, who has extensive experience evaluating printed materials, scored each enrollment application independently. The second author had questions regarding assignment of PMOSE/IKIRSCH scoring for 8 enrollment applications. In these cases, the first and second author reviewed PMOSE/IKIRSCH scoring criteria together and assigned final complexity scores for each of these 8 enrollment applications.

Statistical Analyses

We calculated descriptive statistics (percentages, frequencies, means [M], and standard deviations [SD]) to assess readability and layout characteristics of the Spanish-language Medicaid enrollment applications. All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS+) for Windows, Version 17.0 (Chicago, IL).

Results

The average Lexile score estimated an 11th–12th grade reading level ($M = 1184$, $SD = 192$) for “Signature” pages of Spanish-language Medicaid enrollment applications. According to the criteria derived from the User-Friendliness Tool [18], appropriate font size (12 point) was used consistently in only 5 of the 37 (13.2%) enrollment applications (see Table 1). Most states had limited the use of all-capital letters, italics, and specialty fonts in their enrollment applications; however, nearly 70% of applications needed “some” or “much” improvement in the amount of white space used and in paragraph length.

Document complexity, based on PMOSE/IKIRSCH scores, was as follows: level 3—moderate ($n = 9$), level 4—high ($n = 22$), and level 5—very high ($n = 7$). As shown in Table 2, complex passages can be revised to meet established low-literacy guidelines [15, 16] and to bring down the average from a high reading level (average of 11th–12th grade) to one that is more appropriate. Figures 1 and 2 highlight sections of Spanish-language Medicaid enrollment applications consistent with established low-literacy guidelines [15, 16]. Figure 1 provides potential enrollees with an example of how to “fill-in” demographic information, while Fig. 2 depicts how a payment stub should be interpreted to estimate income.

Discussion

This study had two important findings: (1) Spanish-language Medicaid enrollment applications were written far above the recommended 6th grade reading level [15, 16]; and (2) document complexity overall was generally high (equivalent to at least 15 years of schooling). Additionally, Spanish-language enrollment applications were plagued by small text font size (12 point), lacked sufficient white space, and tended to be poorly organized. Our findings mirror similar English-language documents, including the Consent to Sterilization section of the Medicaid-Title XIX form [11], state-issued adult Medicaid enrollment applications [10], and family history assessment tools [20].

As health insurance reforms are implemented and states are required to enroll more individuals in Medicaid [21], it will be essential that state Medicaid enrollment applications be improved to meet the recommended 6th grade reading level. As evidenced in Table 2 and Figs. 1 and 2, certain states could potentially mentor other states in developing more readable applications, and some states have more work to do than others. In all cases, relatively straight-forward revisions can greatly improve the readability of text without sacrificing the meaning and/or importance of information. Furthermore, states should not only strive to improve the formatting and reading demands of applications, but the entire Medicaid enrollment process. For example, it is critical that potential enrollees are provided with understandable information related to eligibility criteria and where to seek help if they experience difficulties completing enrollment applications.

The current volume of information required to support Medicaid eligibility is enormous. As a result, the document complexity of the majority of enrollment applications was high. Therefore, to enable expanded accessibility of public insurance programs as outlined in federal health insurance reforms policies will require policymakers and stakeholders to re-evaluate what information is most pertinent when designing enrollment applications in the future. Our findings regarding layout characteristics and document complexity highlight the need for standardized processes in the development and revision of Medicaid enrollment applications and the need to be cognizant of how information is both structured and organized. Relatively simple changes in formatting—increasing text font size and the amount of available white space—could greatly improve ease of use for potential Medicaid enrollees.

Although 37 states and the District of Columbia offered Spanish-language Medicaid enrollment applications, several states with a significant number of Hispanic Medicaid recipients did not have a Spanish version available on the Internet. For example, Missouri, Oregon, and Rhode Island—with Hispanics accounting for more than 25% of their state's Medicaid population—did not offer an Internet-based Spanish-language version of their state's Medicaid enrollment application [4].

Several limitations should be considered when interpreting our results. First, assessments using the User-Friendliness Tool [18] require a certain degree of subjectivity. However, we used an iterative process to reconcile differences between the initial scores assigned by two independent examiners and reached consensus on a final score only after a lengthy discussion of each score. Second, PMOSE/IKIRSCH assessments [19] were performed by only one reviewer due to the complex nature of making these assessments. However, to overcome this limitation, extensive discussions took place between the first and second author when there were ambiguities to be resolved. Third, we did not directly assess and/or evaluate patient comprehension of information contained within application enrollment forms. Instead, consistent with other research [11–13, 20], we used readability, layout characteristics, and document complexity as proxies for the likelihood of Spanish speaking adults' understanding of Medicaid enrollment applications. Although beyond the scope of this paper, this type of evaluation should be conducted in a future study. Fourth, our analyses were limited to Internet-based enrollment applications exclusively. While the digital divide between non-Hispanics and Hispanics is closing [22], many Hispanic

households may not have Internet access and therefore would not be able use on-line enrollment forms even if available.

In conclusion, our findings support the need for extensive revision in Spanish-language Medicaid enrollment applications to achieve consistency and to meet widely established low-literacy guidelines [15, 16]. Specifically, text font point size should be increased to at least 12 point size, paragraphs need to be shortened, and text needs to be revised to be easily readable at or below the 6th grade level. Additionally, to increase access to Medicaid for eligible Hispanics, all states should provide an on-line Spanish-language version of the enrollment application. Future research should focus on both the development and rigorous evaluation of revised Spanish-language applications to reduce structural barriers related to Medicaid enrollment.

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Fig. 1.

Example of a Spanish-language medicaid enrollment application consistent with established low-literacy guidelines (completion of demographic information)

Fig. 2.
Example of a Spanish-language medicaid enrollment application consistent with established low-literacy guidelines (interpretation of payment stub)

Table 1

User-friendliness of Spanish-language medicaid enrollment applications

Layout feature	Proportion of work needed to make applications more user friendly (<i>n</i> = 38)		
	Little n (%)	Some n (%)	Much n (%)
Font is 12 points	5 (13.2)	19 (50.0)	14 (36.8)
Avoids all-capital letters, italics, specialty fonts	24 (63.2)	9 (23.6)	5 (13.2)
Ample white space	10 (26.3)	24 (63.2)	4 (10.5)
Short paragraphs (< 4–5 lines)	11 (29.0)	23 (60.5)	4 (10.5)
Information is well organized visually	11 (29.0)	26 (68.4)	1 (2.6)

User-friendliness based on established criteria [18]

Table 2

Current versus revised Spanish-language medicaid enrollment application text

Current Spanish-language text (<i>English-language translation</i>)	Revised Spanish-language text (<i>English-language translation</i>)
<p>Yo comprendo las preguntas de este formulario y certifico bajo pena de falso testimonio que todas mis respuestas son correctas y que han sido completas de acuerdo a mi mejor saber y entender, incluyendo la información con respecto al estado de ciudadanía o de residencia de cada uno de los miembros de la familia que está solicitando asistencia. (Lexile score = 1660)</p> <p><i>(I understand the questions on this form and certify, under penalty of perjury, that all my answers are correct and complete to the best of my knowledge, including information about the citizenship or alien status of each household member applying for assistance.)</i></p> <p>Doy mi consentimiento y colaboraré plenamente en el proceso de registro digital de huella digital, fotografía y firma. Entiendo que si rehúso cooperar me podrían negar los beneficios. (Lexile score = 920)</p> <p><i>(I consent to, and will fully cooperate in the finger, photo and signature imaging process. I understand that refusal to cooperate may result in the denial of benefits.)</i></p> <p>Certifico, so pena de perjurio y todas las demás sanciones aplicables, que las declaraciones hechas en esta solicitud, en todos los anexos y a las personas que me entrevistaron, son verdaderas y precisas. (Lexile score = 1360)</p> <p><i>(I certify under penalty of perjury and all other applicable penalties that the statements made on this application, any attachments, and to whoever interviewed me are true and correct.)</i></p>	<p>“Yo entiendo lo que se me pide en este formulario. He dicho la verdad sobre el estado de ciudadanía de cada persona listada en el formulario. Yo comprendo que si miento o doy información falsa, podría tener que pagar multas y/o ir a la cárcel.” (Lexile score = 860)</p> <p><i>(I understand what this form asked me. I told the truth about the citizenship status of each person I listed on the form. I know that if I lie, I may have to pay fines and/or go to jail.)</i></p> <p>Yo entiendo que para recibir los beneficios tengo que:</p> <ul style="list-style-type: none"> Permitir que se me tomen huellas digitales Permitir que me saquen una fotografía Firmar donde sea necesario <p>(Lexile score = 540)</p> <p><i>(I understand that to receive benefits I must:</i></p> <ul style="list-style-type: none"> Agree to give my fingerprint Agree to get my photo taken Agree to give my signature.) <p>Toda la información que he provisto es verdadera. Si no fuera verdadera, podría tener que pagar multas y/o ir al cárcel.” (Lexile score = 640)</p> <p><i>(All the information I gave is true. If it is not, I may have to pay fines and/or go to jail.)</i></p>