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In Low-Income Latino Patients, Post-Affordable Care Act Insurance Disparities May Be Reduced Even More than Broader National Estimates: Evidence from Oregon

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Abstract

Background—Early survey evidence suggests a reduction of disparities in insurance coverage between Latinos and non-Hispanic Whites post-Affordable Care Act (ACA). These findings may not describe the insurance status of vulnerable, low-income Latino populations served in community health centers (CHCs) over the course of this policy change. Cross-sectional surveys also may be of limited use in describing longitudinal phenomena such as changes in health insurance status.

Methods—Using electronic health record (EHR) data, we compared the insurance status of $N=42,392$ low-income patients served in 23 CHCs in Oregon, by race/ethnicity and language, over a period of 6 years straddling the implementation of ACA-related Medicaid expansion on January 1, 2014.

Findings—Prior to 2014, Spanish-preferring Latinos were more likely to be uninsured than English-preferring Latinos and non-Hispanic Whites. Among uninsured patients who returned for

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Compliance with Ethical Standards: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The Institutional Review Board of Oregon Health and Science University (OHSU) approved this study.

Conflicts of Interest: The authors declare that they have no conflicts of interest.

Informed Consent: This analysis was performed with deidentified patient data, so was deemed exempt from individual informed consent procedures by the Institutional Review Board at OHSU. Community clinics in our network have consented to the use of their data in this manner.

at least one visit in 2014, Spanish-preferring Latinos had the largest increase in insurance coverage rates, and all three racial/ethnic/language groups had similar rates of insurance coverage. There were no racial/ethnic/language differences between those who did and did not have visit in 2014.

Conclusion—Among previously uninsured low-income patients returning to Oregon CHCs, insurance disparities were eliminated after Medicaid expansion, especially in Spanish-speaking Latinos. Further study is needed to understand the elimination of insurance disparities in this cohort.

Keywords

Health insurance; Hispanic/Latino Americans; Affordable Care Act; Community health centers

In the USA, the likelihood of having health insurance is associated with one's race, ethnicity, and preferred language; Hispanic, Latino, and those individuals whose preferred language is Spanish are less likely to have health insurance than English-preferring, non-Hispanic Whites [1–5]. Having health insurance, independent of having a usual source of care, is associated with increases in preventive service utilization and other markers of care quality [6–16]. The Affordable Care Act (ACA) contained provisions for states to expand Medicaid coverage to more low-income individuals, which many states implemented in 2014 [17]. Examining the effect of this landmark policy change on low-income populations is important because of the particular risk poverty poses to health. Among states choosing to expand Medicaid, Oregon experienced the second largest surge in Medicaid and Children's Health Insurance Program enrollment post-ACA (a 75 % increase, from 626,356 to 1,098,508 enrollees between mid-2013 and mid-2015) [18]. As outlined by the ACA, Oregon's Medicaid expansion was intended to expand coverage to all low-income (under 133 % federal poverty level [FPL]) individuals [19], but access to these expansions is still prohibited to undocumented immigrants or documented residents in the USA less than 5 years [20]. Because Oregon experienced increased Medicaid enrollment and also has a large Latino immigrant population, it is an ideal state in which to study how these exclusion stipulations might have affected insurance coverage changes for Latinos overall and whether expansions in Medicaid could reduce disparities in insurance coverage associated with ethnicity or preferred language.

Most prior studies reporting disparities in insurance coverage between racial, ethnic, and language groups are based on self-reported measures, which have significant limitations, especially in vulnerable populations; many vulnerable populations may not readily respond to anonymous telephone surveyors asking about personal information [21, 22]. Further, many surveys capture only data at a single time point and may not accurately describe a longitudinal phenomenon such as insurance coverage over time, hampering nuanced and robust understanding of potential disparities.

In the setting of this natural policy experiment, we used electronic health record (EHR) data to evaluate the association of Hispanic/Latino ethnicity and Spanish language preference with insurance status among a cohort of patients accessing community health centers (CHCs) in Oregon. We assessed these associations prior to ACA implementation (2009–2013), and then 1-year post-ACA implementation (2014) to determine (1) if disparities in

insurance coverage existed by race/ethnicity and language preference in this low-income CHC population prior to the ACA and (2), if so, whether such disparities were mitigated by ACA implementation.

Methods

Data Collection

EHR data were electronically abstracted from the OCHIN network (originally the Oregon Community Health Information Network but shortened to OCHIN as other states joined) using structured queries of discrete data fields. OCHIN hosts a linked Epic©-based EHR dataset with one master patient index and unique patient identifiers that are consistent for each patient across clinics within the network [23]. We used patient-level data from Oregon clinics that were utilizing OCHIN's EHR during the entire study period (January 1, 2009, to December 31, 2014; $N = 23$ clinics). All data were gathered during the course of routine clinical care and deidentified for analysis.

Participants

Our study population consisted of adults (aged 21–79) who were alive throughout the study period, with low income (household income $\leq 100\%$ federal poverty level at every assessment, which occurs at least annually), and who had ≥ 1 primary care encounter at a study clinic in 2009–2013 ($n = 49,392$). We used ≥ 1 face-to-face primary care encounter as the inclusion criteria to be consistent with previous literature. [6, 24].

Dependent Variable

Our dependent variable was insurance status over the course of the entire study period. We categorized patients as having Medicaid (record of having Medicaid at ≥ 1 encounter), Medicare (record of having Medicare at ≥ 1 encounter), private insurance (private insurance at every encounter), or being uninsured (uninsured at every encounter). In a scenario of multiple coverages, we categorized patients into the Medicaid and Medicare categories if ≥ 1 encounter with these insurances, as this coverage likely indicated underlying eligibility for these federal programs and the ability to access them.

Independent Variables

Our primary independent variables were race/ethnicity and preferred language. Race/ethnicity was categorized as Hispanic/Latino and non-Hispanic White. We use Hispanic/Latino and Latino interchangeably in this discussion, acknowledging the limitations of these terms. All other categories were collapsed into an “other” category because of low overall numbers. Preferred language categories included English, Spanish, and other.

Covariates

We considered the following variables in our analyses: age at beginning of the study, sex, and total number of primary care office visits in the study period. We did not have comprehensive morbidity data; therefore, as has been demonstrated in previous studies, we use number of office visits as a proxy for morbidity. [25].

Analysis

Among the entire cohort ($n = 49,392$), we compared patient characteristics by insurance category using chi-squared analysis for categorical demographics and analysis of variance (ANOVA) models for continuous demographics. To assess whether insurance disparities changed post-ACA among the uninsured, we examined longitudinal insurance change in the subgroup of uninsured patients who had at least one visit pre-ACA and one visit post-ACA in 2014 ($N = 14,865$). We paid particular attention to those who were uninsured in the pre-ACA period and assessed whether they gained coverage in 2014. To determine if patients without insurance pre-ACA who returned for a post-ACA visit with insurance had significantly different demographic characteristics, we compared three groups: no post-ACA visit, post-ACA visit(s) with insurance coverage, and post-ACA visit(s) remaining uninsured using chi-square and ANOVA tests.

We also compared the pre-ACA insurance distribution between Hispanic-/Latino-/Spanish-speaking patients, Hispanic-/Latino-/English-speaking patients, and non-Hispanic Whites using age-stratified (<65 , ≥ 65 years) generalized estimating equation (GEE) logistic regression models to account for correlation of patients nested within CHCs. An exchangeable correlation structure was assumed and a robust sandwich estimator was applied to account for possible misspecification of the correlation structure. We chose this age delineation because after age 65, all adults (if they meet certain residency requirements) should qualify for Medicare. Lastly, to assess whether insurance disparities changed post-ACA, we examined longitudinal insurance change in the subgroup of patients aged 18–64 who had at least one visit pre-ACA and one visit post-ACA in 2014 ($N = 13,335$), evaluating insurance status by language/race/ethnicity. Specifically, a difference-in-differences, generalized estimating equation logistic regression model was used to assess changes in odds of uninsured from pre- to post-ACA between Hispanic/Latino/Spanish, Hispanic/Latino/English, and non-Hispanic White cohorts. All statistical tests were two sided and significance was defined as a p value <0.05 . Statistical analyses were performed using SAS v.9.3. The Institutional Review Board of Oregon Health and Science University approved this study.

Results

Patients were predominantly female, non-Hispanic White, publicly insured, and English speaking. As described in Table 1, age, sex, race/ethnicity, language, and visit frequency differed significantly across the insurance types (all $p < 0.001$).

Figure 1 shows the percentage of insurance type in our ethnic/language categories during the pre-ACA period (2009–2013), stratified by age (<65 and ≥ 65 years of age). For the age group of less than 65 years, Spanish-speaking Latinos had significantly higher odds of being uninsured (65.6 %; odds ratio = 4.89, $p < 0.001$) than non-Hispanic Whites (34.0 %). English-speaking Latinos had similar odds of being uninsured compared to non-Hispanic Whites (odds ratio = 1.16, $p = 0.205$). We observed a similar disparity among the ≥ 65 years of age group with 42.1 % of Spanish-speaking Latinos not being insured compared to only 2.4 % of uninsured non-Hispanic Whites ($p < 0.001$). Among this senior population, we did

observe a significant difference in odds of being uninsured for English-speaking Latinos compared to non-Hispanic Whites (odds ratio = 3.56, $p = 0.010$).

As shown in Fig. 2, among the 5926 patients who were uninsured at all pre-ACA visits and had at least one post-ACA visit, 81.2 % gained insurance in 2014.

Among the 13,335 patients with a pre-ACA visit and a post-ACA visit, insurance coverage rates improved for all strata (Fig. 3). In this difference-in-differences analysis, the improvement was greatest among Hispanic/Latino patients who reported Spanish as their preferred language with an absolute change of -51.6 % in uninsured rate (pre-ACA 65.3 % vs. post-ACA 13.7 %). We also observed a decrease -21.3 % in uninsured rate for English-preferring Hispanics and -19.2 % for non-Hispanic Whites. Change in the proportion of uninsured patients from pre- to post-ACA for Spanish-preferring Hispanics was significantly different than the change in non-Hispanic Whites ($p < 0.001$). We observed no statistically significant difference in change of the uninsured proportion between Hispanic/Latino/English and non-Hispanic White cohorts over the same span ($p = 0.401$). All cohort groups had an uninsured rate of 13–14 % in 2014.

Among patients uninsured at all pre-ACA visits ($N = 14,865$), there were no significant differences in the distribution of patient characteristics between the following three post-ACA subgroups: patients without a visit in 2014, those with an insured visit, and those remaining uninsured at all post-ACA visits (Table 2).

Discussion

This longitudinal analysis of EHR data from a cohort of CHC patients before and after the implementation of the ACA Medicaid expansions in Oregon is one of the first to evaluate the association of insurance status with ethnicity in an established clinic patient cohort over time and spanning a major policy change. Pre-ACA analyses confirmed prior reports of racial/ethnic/language disparities in insurance coverage: Spanish-speaking Latinos were much more likely to be uninsured than English-speaking Latinos and non-Hispanic Whites (Fig. 1). This difference was also observed in those age 65 and over, a demographic that should, save immigration status [20], be universally eligible for Medicare. The finding suggests either a direct language barrier to insurance enrollment or that language serves as a proxy for another barrier (e.g., immigration/citizenship status) that has been associated with insurance status in previous work [1, 3, 4].

Overall, the percentage of uninsured CHC patients in this study dropped when comparing pre- vs post-ACA rates. This is consistent with national findings regarding the decreasing rates of Americans without health insurance [26, 27], results from studies showing health insurance gains among CHC patients [28], and reports of Oregon being a state with the significant gains in Medicaid coverage [18, 28].

More striking was the finding that, among those with visits in both the pre- and post-ACA periods, disparities in public insurance coverage in the pre-ACA period between Spanish-speaking Latino patients, English-speaking Latino patients, and non-Hispanic White patients disappeared in the post-ACA period. This contrasts with the findings of McMorow, Long,

Kenney, and Anderson, who demonstrated, in survey-based work, reduced uninsurance rates in Latinos (42.8 % uninsurance pre-ACA to 31.8 % post-ACA) but persistent disparities compared to non-Hispanic Whites. Given the barrier immigration status poses to insurance coverage, we also expected disparities between Latinos and non-Hispanic Whites to diminish, but not to be eliminated. One might hypothesize that Latinos (especially those who remained uninsured) were more likely to have no visits in 2014; however, the demographics of those without a visit in 2014 did not skew towards Hispanic-/Latino-/Spanish-speaking patients. Table 2 demonstrates that the group without a visit in 2014 did not differ from the group that had at least one 2014 visit with respect to any covariate we examined. Although we cannot determine the immigration status of patients in this study, we have anecdotal evidence that a large number of Latino immigrants are cared for in the OCHIN network, and expected these patients to be reflected in the uninsured or non-returning groups.

There are several possible explanations for why our post-ACA results demonstrated no insurance disparities (as opposed to merely reduced disparities, as we expected) when comparing Latinos and non-Hispanic Whites who had access to a community health center. First, ACA Medicaid expansion in Oregon simply led to a significant increase in Medicaid coverage in many Latinos. Our population consisted of patients already accessing care at a CHC, and these patients may be less likely to encounter barriers to obtaining insurance coverage compared to the general population. There could be a significant number of undocumented immigrants from all racial/ethnic backgrounds as CHCs care for diverse populations of patients; thus, this barrier to coverage may not be unique to the Latino-labeled subgroups. Shifting demographics in Oregon [29], a pent-up demand of “documented” Latinos ready to enroll, new eligibility in immigrants completing 5 years of residency, or particularly targeted/effective Latino enrollment campaigns in Oregon [30] may have also increased the number of newly insured Latinos in proportion to non-Hispanic Whites.

Interestingly, Spanish-speaking Latinos made larger gains than English-speaking Latinos in their enrollment in public insurance after the ACA was implemented. This suggests successful outreach to less acculturated, possibly immigrant population that met residency and income requirements for public insurance programs.

This analysis of an established CHC population has important policy implications. It focuses on a low-income population with high rates of uninsurance and suggests that in this economic strata, coverage expansions can have significant impact on improving insurance coverage rates and eliminating insurance disparities. Additionally, previous research has demonstrated that a lack of health insurance is a barrier to care even among patients with access to a CHC [6]; thus, the coverage gains observed in this CHC patient cohort will likely lead to improved access to quality care and more adequate compensation for a perpetually strained safety-net.

Limitations

The primary limitation of our study is that it analyzes a population already with access to a community health center; the disparity reduction observed here may not apply to

populations without such access. We do not have post-ACA income information for patients who did not return in 2014, though we did not observe differences by race/ethnicity, language, age, sex, and number of pre-ACA visits among uninsured patients who did and did not return for a visit in 2014. Our dataset did not include sufficient information to calculate a comorbidity score, so we used visit counts as a proxy for comorbidity [25]. Finally, the EHR data that we used might be limited in its ability to detect variables provided in health care settings outside of our network using different EHR systems.

Conclusions

We examined the proportion of uninsured patients by race/ethnicity and language in a Medicaid expansion state community health center population, and followed that cohort post-ACA implementation to observe if these proportions changed. Before the ACA, Spanish-speaking Latinos were less likely to have insurance, regardless of age. After ACA implementation, there was no difference in insurance coverage rates between Spanish-speaking Latinos, English-speaking Latinos, and non-Hispanic Whites. These findings need further exploration to understand the longer term policy impacts of the ACA on a low-income, vulnerable population.

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Fig. 1.
Age-stratified pre-ACA (2009–2013) Insurance Distribution among Hispanic/Latino/
Spanish, Hispanic/Latino/English, and non-Hispanic White cohorts

Fig. 2.
Insurance and Visit Disposition in Low-income Oregon CHC patients before and after the ACA Medicaid Expansion

Fig. 3.

Insurance distribution pre- (2009–2013) and post-ACA (2014) among patients aged 18–64 who had at least one community health center visit before and after ACA expansion ($N=13,335$)

Table 1

Characteristics among patients who had at least one visit at an Oregon Community Health Center pre-ACA (2009–2013), by insurance group ($N = 43,292$)

Demographic	Public insurance $N = 25,205$ N (%)	Private insurance $N = 2,322$ N (%)	Uninsured $N = 14,865$ N (%)	Overall p value ^a
Female	16,127 (64.1)	1306 (56.3)	8020 (54.0)	<0.001
Age (in years) at study initiation				
18–30	7232 (28.7)	806 (34.7)	4469 (30.1)	
31–40	5827 (23.1)	647 (27.9)	4034 (27.1)	
41–50	5660 (22.5)	496 (21.4)	3588 (24.1)	
51–60	4113 (16.3)	317 (13.7)	2306 (15.5)	
61–64	955 (3.8)	39 (1.7)	241 (1.6)	
>65	1418 (5.6)	17 (0.7)	227 (1.5)	
Mean (SD)	40.9 (13.5)	37.4 (11.5)	38.8 (11.7)	<0.001 ^b
Race/ethnicity				<0.001
Hispanic/Latino	2968 (11.8)	518 (22.3)	4665 (31.4)	
NH White	16,570 (65.7)	1602 (69.0)	8558 (57.6)	
Other	5667 (22.5)	202 (8.7)	1642 (11.1)	
Preferred language				<0.001
English	19,999 (79.3)	1876 (80.8)	9985 (67.2)	
Spanish	1877 (7.5)	381 (16.4)	4106 (27.6)	
Other	3329 (13.2)	65 (2.8)	774 (5.2)	
Number of office visits in a 5-year period (2009–2013)				<0.001
1	3032 (12.0)	691 (29.8)	4877 (32.8)	
2–5	7083 (28.1)	927 (39.9)	6461 (43.5)	
>5	15,090 (59.9)	704 (30.3)	3527 (23.7)	

^a p value estimated from chi-square test unless otherwise specified

^b p value estimated from analysis of variance model

Table 2

Characteristics among $N = 14,865$ patients who were uninsured at all pre-ACA visits (2009–2013), stratified into three categories: those with no CHC visits in 2014, those insured at 2014 visits, and those uninsured at 2014 visits

Demographic	No visits in 2014 $N = 8939$ $N (\%)$	Visit(s) insured in 2014 $N = 5106$ $N (\%)$	Visit(s) uninsured in 2014 $N = 820$ $N (\%)$	Overall p value ^a
Female	4831 (54.1)	2753 (53.9)	436 (53.2)	0.889
Age (in years) at study initiation				0.373
18–30	2639 (29.5)	1587 (31.1)	243 (29.6)	
31–40	2416 (27.0)	1391 (27.2)	227 (27.7)	
41–50	2216 (24.8)	1185 (23.2)	187 (22.8)	
51–60	1397 (15.6)	775 (15.2)	134 (16.3)	
61–64	134 (1.5)	89 (1.7)	18 (2.2)	
65	137 (1.5)	79 (1.5)	11 (1.3)	
Mean (SD)	38.9 (11.7)	38.6 (11.8)	38.8 (11.8)	0.335 ^b
Race/ethnicity				0.804
Hispanic/Latino	2801 (31.3)	1605 (31.4)	259 (31.6)	
NW White	5156 (57.7)	2942 (57.6)	460 (56.1)	
Other	982 (11.0)	559 (11.0)	101 (12.3)	
Language				0.743
English	6003 (67.2)	3445 (67.5)	537 (65.5)	
Spanish	2480 (27.7)	1391 (27.2)	235 (28.7)	
Other	456 (5.1)	270 (5.3)	48 (5.8)	
Number of office visits in a 5-year period (2009–2013)				0.727
1	2895 (32.4)	1706 (33.4)	276 (33.7)	
2–5	3899 (43.6)	2209 (43.3)	353 (43.0)	
>5	2145 (24.0)	1191 (23.3)	191 (23.3)	

^a p value estimated from chi-square test unless otherwise specified

^b p value estimated from analysis of variance model