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# Prostate cancer screening behaviors among U.S. immigrants: a cross-sectional analysis using the NHIS database

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## Background

- The health of immigrants is affected by barriers that challenge all underserved groups, but immigrant-specific factors such as language proficiency and access to physician services are unique and modifiable obstacles that can impede access to quality healthcare.
- Immigrants are less likely than the U.S.-born populations to receive screening for breast, cervical, and colorectal cancers.
- Patients with limited English proficiency (LEP) are more likely to be diagnosed with advanced stage cancer.
- LEP patients with male genitourinary (GU) cancers are 2.58x more likely to be diagnosed at an advanced stage.
- Research suggests physicians often do not discuss PSA testing with patients when a language barrier is present.

## Purpose

- The goal of this study was to characterize screening behaviors among U.S. immigrants.
- Furthermore, we sought to identify specific mechanisms to enhance guideline-concordant PSA-based screening for U.S. immigrants.

## Methods

- Dataset:** National Health Interview Survey (NHIS); 2010, 2013, 2015, and 2018 surveys.
- Variables:** Demographic information, immigration-specific data including region of origin, citizenship status, length of residence in the U.S. and English proficiency, and clinical information including history of prostate cancer, reason for PSA testing, and history of PSA testing.
- Analysis:** Multivariate logistic regression models tested the association between immigrant-specific variables and history of PSA testing, controlling for demographic characteristics.

## Results

### Multivariable regression analysis

- Foreign-born respondents were less likely than U.S.-born respondents to have been screened for prostate cancer (Fig 1).
- LEP respondents were less likely than English proficient respondents to have been screened.
- Non-citizens were less likely than citizens to have been screened.
- PSA screening rates appeared lower for respondents who had lived in the US for < 15 years, but this result was not significant.
- There was substantial difference in PSA testing rates based on country of origin. Asian immigrants were 70% less likely to have had PSA testing compared to the U.S.-born population (Fig 3).

Figure 1: MVA of PSA screening and immigration-specific variables

Predictor	Adjusted Odds Ratio	95% Confidence Interval
<b>Birthplace</b>		
U.S.-born	(Ref)	
Foreign-born	0.76	0.65 – 0.88
<b>English proficiency</b>		
English proficient	(Ref)	
Limited English proficiency	0.69	0.52 – 0.90
<b>Citizenship status</b>		
Citizen	(Ref)	
Non-citizen	0.72	0.57 – 0.91
<b>Length of residency</b>		
Resident > 15 years	(Ref)	
Resident < 15 years	0.77	0.55 - 1.09

### Moderating effect of health utilization and English proficiency

- Seeing a physician within the last 12 months led to a nearly three-fold increase in the odds of receiving screening for prostate cancer (Fig 2a).
- For the foreign-born population, English language proficiency led to a two-fold increase in the odds of receiving screening for prostate cancer (Fig 2b). This relationship remained true even after adjusting for physician visits within the last 12 months.

Figure 2a: Effect of physician visits

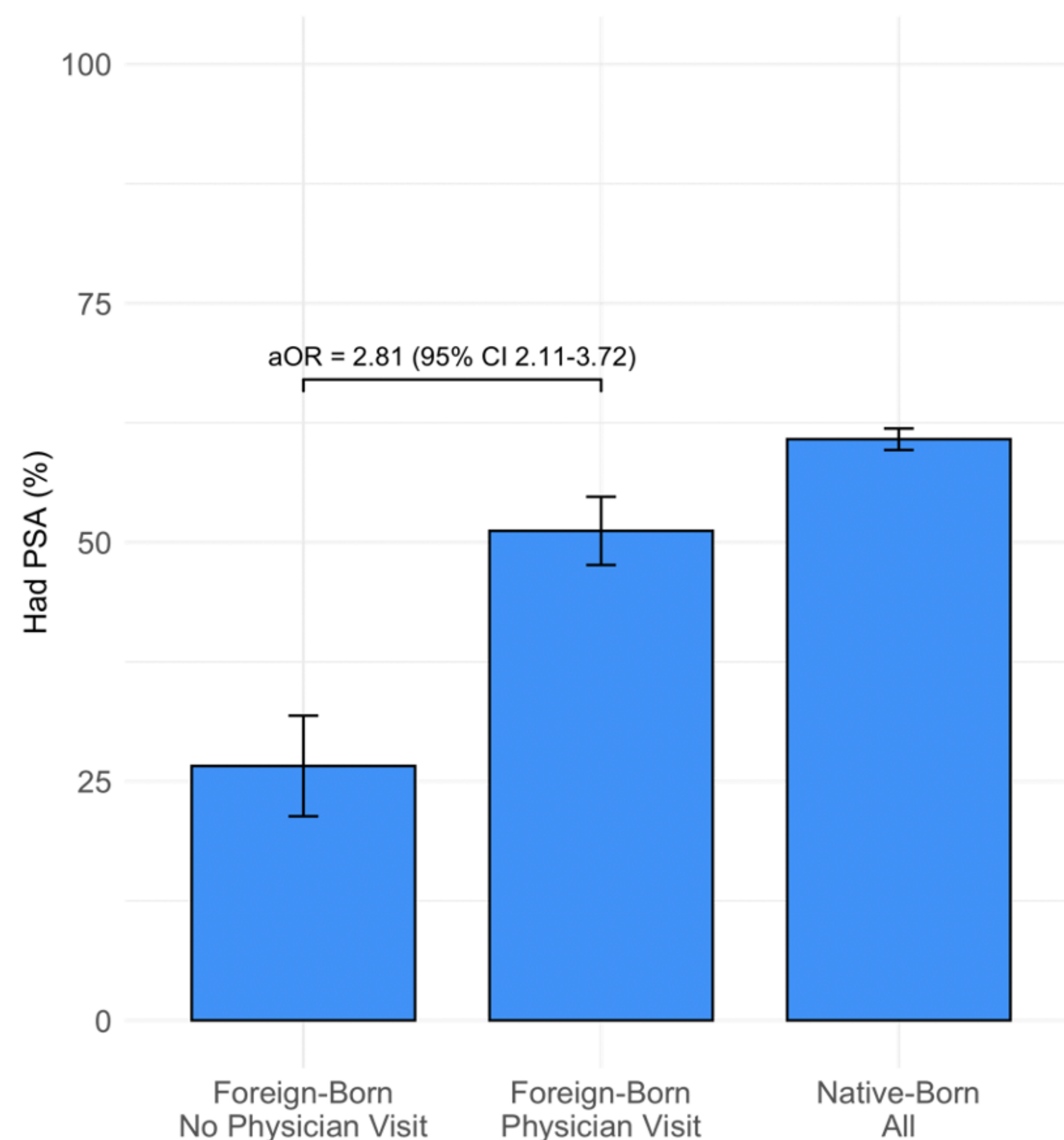


Figure 2b: Effect of English proficiency

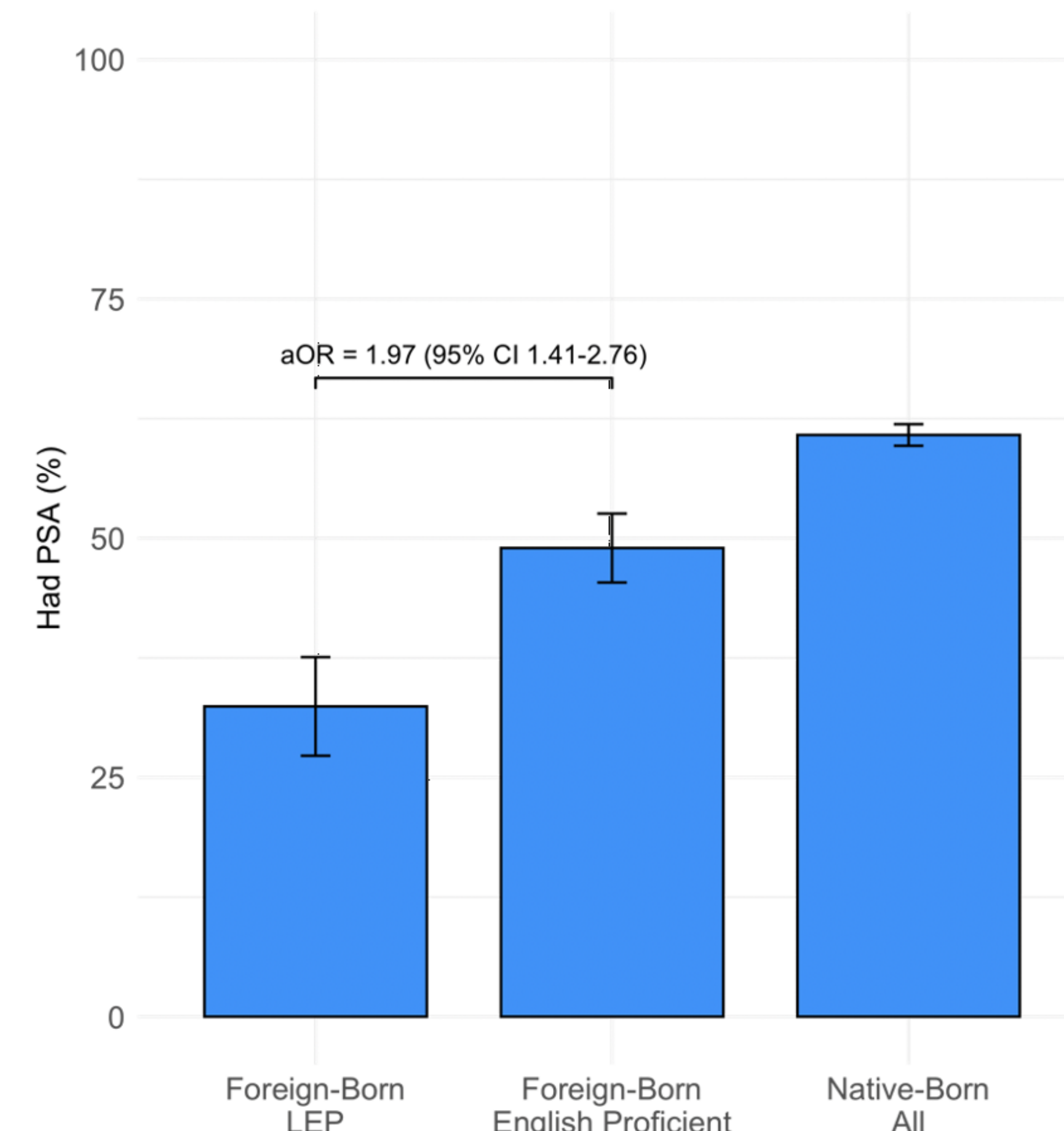
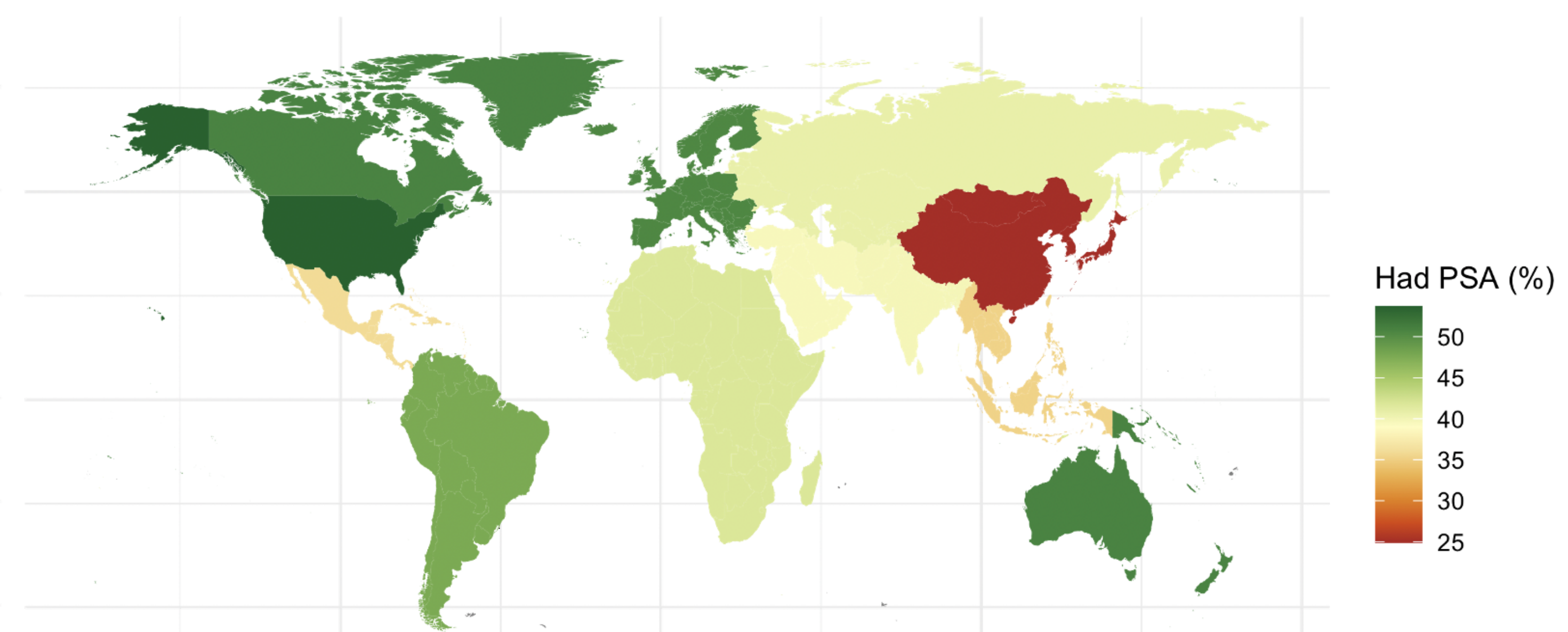


Figure 3: Variability in PSA screening rates for immigrants by region of origin



## Conclusion

- We found that the foreign-born population is significantly less likely than the U.S.-born population to have ever received a PSA test and that there is significant variability in PSA-based screening rates for immigrants based on region of origin.
- We also demonstrated that a physician visit within the last year is associated with significant reduction, but not elimination, of the disparity in PSA testing between foreign-born and U.S.- born populations.
- This disparity can be further narrowed by enhancing English proficiency and expanding interpreter services. The low rate of PSA testing among LEP respondents suggests that language difficulties contribute to the disparity in PSA testing for LEP patients.
- Additional examination of screening behaviors and mechanisms to promote guideline-concordant care for immigrants will help to enhance urologic care for this marginalized group and make the provision of this care more equitable.