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CDC-Funded HIV Testing Services Outcomes and Social Determinants of Health in *Ending the HIV Epidemic in the U.S.* Jurisdictions

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Abstract

We performed an ecological analysis to examine associations between CDC-funded HIV testing services outcomes and social determinants of health (SDOH) among *Ending the HIV Epidemic in the U.S.* jurisdictions. Using National HIV Prevention Program Monitoring & Evaluation (2020) and American Community Survey (2016–2020) data, we ran robust Poisson models (adjusted for race/ethnicity). In healthcare settings, a 10% absolute increase in percentage without health insurance was associated with a 40% lower prevalence of newly diagnosed positivity (aPR = 0.60, 95% CI: 0.43–0.83); a $5,000 increase in median household income (aPR = 1.04, 95% CI: 1.03–1.06) and a 10% absolute increase in percentage unemployed (aPR = 1.80, 95% CI: 1.31–2.46) were associated with 4% and 80%, respectively, higher prevalence of percentage linked to HIV medical care within 30 days of diagnosis (i.e., linkage). In non-healthcare settings, a 10% absolute increase in percentage with less than high school diploma (aPR = 0.53, 95% CI: 0.29–0.96) was associated with a 47% lower prevalence of newly diagnosed positivity, whereas a 10% absolute increase in percentage without health insurance (aPR = 1.92, 95% CI: 1.29–2.88) was associated with a 92% higher prevalence of newly diagnosed positivity; a 10% absolute increase in percentage with less than high school diploma was associated with a 35% lower prevalence of

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Authors' Contributions HAC conceived the study, and all authors contributed to study conceptualization and design. WOW analyzed the data, and NTA and DP conducted quality assurance of the coding and subsequent output. DP led the writing of the manuscript. All authors made significant contributions to the interpretation of the data, drafting of the article, and approved the final version of the manuscript.

Conflict of Interest The authors report no conflicts of interests.

Ethics Approval Data collection through the NHM&E system is designated as a public health program activity and does not contain any personally identifiable information; therefore, it was exempt from institutional review board approval.

Code Availability SAS was used to analyze data. Our code is not publicly available.

Disclaimer The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

linkage (aPR = 0.65, 95% CI: 0.43–0.97). Addressing SDOH in HIV prevention programs will play an important role in ending the HIV epidemic.

Keywords

HIV testing; Linkage to care; Social determinants of health

Introduction

Despite the progress made in HIV prevention and treatment over the past 40 years, HIV continues to disproportionately affect certain populations in the United States, including Black/African American persons; Hispanic/Latino persons; gay, bisexual, and other men who have sex with men (collectively referred to as MSM); transgender persons; and persons who inject drugs (PWID) [1, 2]. Although individual-level attributes (e.g., race/ethnicity, sex at birth, behavioral risk factors) align with the descriptions of disproportionately affected populations, other factors such as social determinants of health (SDOH) contribute to explaining HIV-related disparities [3]. SDOH refers to the nonmedical factors that influence health outcomes [4]. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems (e.g., economic policies and systems, social policies) shaping the conditions of daily life [4].

Several studies have shown various SDOH factors to be negatively associated with access to HIV testing, being diagnosed with HIV infection, adherence to antiretroviral therapy, and viral suppression in certain groups and geographic regions [5–19]. In 2019—when stratified by sex at birth, age group, race/ethnicity, transmission category, and area of residence—HIV diagnosis rates varied by federal poverty level (FPL) status, education level, median household income, health insurance coverage, and Gini index [3]. Higher diagnosis rates were reported among those living in census tracts where ≥ 18% of residents lived below FPL, ≥ 17% of residents had less than a high school diploma, the median household income was less than $44,000 per year, ≥ 14% of residents did not have health insurance coverage, and income inequality using the Gini index was ≥ 46% [3].Linkage to HIV medical care within one month and viral suppression within six months of diagnosis also varied by FPL status, education level, median household income, and health insurance status [3].

In 2019, *Ending the HIV Epidemic in the U.S.* (EHE) was announced with the goals of reducing the number of new HIV infections by 75% by 2025 and at least 90% by 2030 [20]. Phase 1 of EHE focuses on scaling up key HIV prevention and treatment resources in the 57 jurisdictions with the greatest HIV burden through the strategies of diagnose, treat, prevent, and respond [20]. The Centers for Disease Control and Prevention (CDC) plays a crucial role in the first strategy to “diagnose all people with HIV as early as possible” by funding jurisdictions to increase local capacity for HIV prevention programs, such as expanding HIV testing and increasing linkage to HIV medical care after diagnosis [21].

Understanding the role of SDOH in HIV prevention programs and addressing the related racial, ethnic, and geographic disparities [21] will be a vital aspect of EHE, as SDOH have been confirmed to be ecologically related to the intensity of HIV impact [22]. For this study,

we performed an ecological analysis [23] at the jurisdiction level to examine CDC-funded HIV testing services outcomes, SDOH factors, and their associations in the Phase 1 EHE jurisdictions.

Methods

Data Sources

National HIV Prevention Program Monitoring and Evaluation System—In 2020, CDC funded 60 state and local health departments and 100 community-based organizations (CBOs) in the United States and U.S. dependent areas to conduct HIV testing and prevention services [24]. These recipients submit their HIV testing and prevention services data semiannually to CDC through the National HIV Prevention Program Monitoring and Evaluation (NHM&E) data reporting system, EvaluationWeb®; we conducted our analysis with data submitted through March 15, 2022. We limited our analysis to NHM&E data on CDC-funded HIV tests performed in 2020 in the 57 Phase 1 EHE jurisdictions, as well as to CDC-funded HIV tests conducted among persons aged 18 years or older to approximately align with the age ranges of the SDOH variables.

Our outcomes of interest were (1) percentage of persons with newly diagnosed HIV (i.e., newly diagnosed positivity) and (2) percentage of persons with newly diagnosed HIV linked to HIV medical care within 30 days (i.e., percentage linked to care). We calculated positivity as the percent of CDC-funded HIV tests that identified persons with newly diagnosed HIV among all CDC-funded HIV tests with a positive or negative result. We calculated the percentage linked to care as the percent of persons with newly diagnosed HIV who were linked to HIV medical care within 30 days of HIV diagnosis, excluding those with missing information about linkage to care (17%).

CDC-funded HIV tests are conducted in healthcare and non-healthcare settings. Healthcare settings included STD clinics, community health centers, emergency departments, correctional clinics, and other healthcare sites where medical services are provided; non-healthcare settings included HIV testing sites, community settings (e.g., bars/clubs, public areas), non-healthcare correctional facilities, mobile units, and other sites such as health department field visits and syringe exchange programs [24]. Given that approximately three-quarters of CDC-funded HIV tests occurred in healthcare settings [24] and that our two outcomes may differ according to test setting (e.g., persons in certain jurisdictions may be more likely to test in healthcare settings versus non-healthcare settings; non-healthcare settings tend to have higher positivity and lower linkage to care [24]), we stratified our analysis by test setting. This approach was supported by sensitivity analyses, in which we observed statistically significant interactions between test setting and SDOH variables.

Data collection through NHM&E is designated as a public health program activity and does not contain any personally identifiable information; therefore, it is exempt from institutional review board approval.

American Community Survey—We obtained jurisdiction-level SDOH data for our analysis from the five-year estimates of 2016–2020 American Community Survey (ACS)

data. To align with CDC's *HIV Surveillance Supplemental Report* "Social Determinants of Health Among Adults with Diagnosed HIV Infection, 2019," [3] we selected the following SDOH variables for our analysis: percentage below FPL; percentage with less than high school diploma; median household income; percentage without health insurance; Gini coefficient—ranging from 0 (indicating perfect equality) to 1 (indicating perfect inequality)—which summarizes the dispersion of income across the entire income distribution [25]; and percentage unemployed. To account for racial/ethnic composition of EHE jurisdictions in multivariate analysis, we also obtained ACS data on percentage non-Hispanic Black/African American (hereafter referred to as Black/African American) persons and percentage Hispanic/Latino persons. To attain SDOH and race/ethnicity point estimates and 90% confidence intervals (CIs) for all EHE jurisdictions (48 counties; District of Columbia; San Juan, Puerto Rico; and seven states) [20], we used the variance replicate tables for the 2016–2020 ACS five-year estimates [26] when available. These tables support calculation of CIs for custom groupings. Replicate tables were available for educational attainment for those aged 25 years or older (Table B15002), poverty for those 18 years or older (B17001), and insurance status for those 19 years or older (BB27010). Replicate tables were not available for race/ethnicity (all ages, Table DP05) or employment for those 16 years or older (S2301), so CIs were not calculated for the EHE totals for these variables. EHE totals were not available and could not be calculated for median household income (Table B19013) or the Gini index (Table B19083).

Analysis

First, the NHM&E and ACS datasets were merged by EHE jurisdiction. Then, we performed a descriptive analysis to determine the prevalence of CDC-funded HIV testing services outcomes by test setting and generated point estimates and 90% CIs of SDOH variables for Phase 1 EHE jurisdictions (individually and overall). To assess collinearity between CDC-funded HIV testing services outcomes and SDOH variables, we performed a regression analysis and examined the variance inflation factor (VIF) for each independent variable. Percentage below FPL had the highest VIF (12.5 for healthcare settings and 4.8 for non-healthcare settings); removing FPL resulted in all other SDOH variables having a VIF < 5. Thus, FPL was dropped from subsequent models.

Next, we performed bivariable and multivariable analyses to assess associations between SDOH factors (independent variables) and each CDC-funded HIV testing services outcome (dependent variables) for Phase 1 EHE jurisdictions by test setting. For each dependent variable, we performed multivariable analyses to assess associations with SDOH variables while controlling for racial/ethnic composition (i.e., percentage Black/African American persons and percentage Hispanic/Latino persons) in Phase 1 EHE jurisdictions. For regression analyses, we used robust Poisson models and began with full models for each association (excluding percentage below FPL given its high VIF). Backward elimination was conducted to select SDOH variables for inclusion in each model using a $p < .05$ cutoff. Exponentiated coefficients from the model are reported as prevalence ratios (PRs) and adjusted prevalence ratios (aPRs). For percentage below FPL, percentage with less than high school diploma, percentage unemployed, and percentage without health insurance, as well as percentage Black/African American and percentage Hispanic/Latino persons, PRs

and aPRs represent associations with an absolute change of 10%. For median household income, PRs and aPRs represent associations with a change of $5,000 median income. For Gini index, PRs and aPRs represent associations with a change of 0.1 in the Gini index.

Results

In 2020, 817,232 CDC-funded HIV tests were conducted among persons aged 18 and older in Phase 1 EHE jurisdictions overall; 4,147 persons were identified with newly diagnosed HIV (0.5%) (Table 1). Nearly three-quarters of CDC-funded HIV tests were conducted in healthcare settings (72.9%) compared to 27.1% in non-healthcare settings. Newly diagnosed positivity was higher in non-healthcare settings (0.9%) compared to healthcare settings (0.4%), but percentage linked to care was higher in healthcare settings (77.2%) compared to non-healthcare settings (75.2%).

By Phase 1 EHE jurisdictions, newly diagnosed positivity ranged from 0.0% (Riverside County, Sacramento County, San Bernadino County, Marion County, Hudson County, Mecklenburg County, Arkansas, Oklahoma) to 14.0% (Bexar County) in healthcare settings and from 0.0% (San Bernadino County, San Francisco County, Gwinnett County, Montgomery County, Prince George's County) to 2.9% (Duval County) in non-healthcare settings. Percentage linked to care ranged from 0.0% (Bexar County) to 100.0% (Montgomery County, Prince George's County, Essex County) in healthcare settings and 33.3% (Baltimore City) to 100.0% (Maricopa County, Alameda County, East Baton Rouge Parish, Wayne County, Kings County, Cuyahoga County, Franklin County, San Juan, Missouri) in non-healthcare settings.

For Phase 1 EHE jurisdictions overall, percentage below FPL was 9.2% (90% CI: 9.1–9.2), percentage with less than high school diploma was 12.0% (90% CI: 12.0–12.1), percentage without health insurance was 10.4% (90% CI: 10.3–10.4), percentage unemployed was 5.5%, percentage Black/African American persons was 13.8%, and percentage Hispanic/Latino persons was 19.9% (Table 2); overall point estimates could not be calculated for median household income and Gini index.

By Phase 1 EHE jurisdictions individually, percentage below FPL ranged from 4.8% (Baltimore City) to 29.7% (San Juan); percentage with less than high school diploma from 6.6% (King County) to 26.6% (Bronx County); median household income from $23,642 (San Juan) to $119,136 (San Francisco County); percentage without health insurance from 3.9% (San Francisco County, District of Columbia) to 23.6% (Dallas County); Gini index from 0.4032 (Montgomery County) to 0.6099 (San Juan); percentage unemployed from 4.0% (Gwinnett County) to 16.1% (San Juan); percentage Black/African American persons from 0.2% (San Juan) to 61.6% (Prince George's County); and percentage Hispanic/Latino persons from 3.2% (Mississippi) to 98.0% (San Juan).

When controlling for percentage Black/African American and percentage Hispanic/Latino persons, a 10% absolute increase in the percentage without health insurance was associated with a 40% lower prevalence of newly diagnosed positivity (aPR = 0.60, 95% CI: 0.43–0.83) in healthcare settings (Table 3; Fig. 1A). When similarly controlling for race/ethnicity, a

10% absolute increase in the percentage unemployed was associated with an 80% higher prevalence of percentage linked to care (aPR = 1.80, 95% CI: 1.31–2.46; Fig. 1B) and a $5,000 increase in median household income was associated with a 4% higher prevalence of percentage linked to care (aPR = 1.04, 95% CI 1.03–1.06; Fig. 1C) in healthcare settings.

After controlling for percentages of Black/African American and Hispanic/Latino persons, a 10% absolute increase in the percentage without health insurance was associated with a 92% higher prevalence of newly diagnosed positivity (aPR = 1.92, 95% CI: 1.29–2.88) in non-healthcare settings (Table 4; Fig. 2A); however, a 10% absolute increase in the percentage with less than high school diploma was associated with a 47% lower prevalence of newly diagnosed positivity (aPR = 0.53, 95% CI: 0.29–0.96; Fig. 2B). Similarly, a 10% absolute increase in the percentage with less than high school diploma was associated with a 35% lower prevalence of percentage linked to care (aPR = 0.65, 95% CI: 0.43–0.97; Fig. 2C) in non-healthcare settings, after controlling for percentages of Black/African American and Hispanic/Latino persons.

Discussion

In this ecologic analysis of CDC-funded HIV testing services outcomes and SDOH factors in Phase 1 EHE jurisdictions, we found that associations of SDOH factors differed by outcomes and test setting. In healthcare settings, higher percentage of uninsured was associated with lower prevalence of newly diagnosed positivity. This finding also aligns with a previous analysis using older NHM&E data, which found that a higher percentage of uninsured was associated with a lower rate of new HIV diagnoses [27]. It is plausible that uninsured persons might be more likely to seek out HIV testing in non-healthcare settings where insurance coverage is not needed. To identify more new HIV diagnoses in healthcare settings, increased access to the healthcare system is needed; as found by Gai et al. [8], Medicaid expansion was associated with increased HIV test rates, which could subsequently identify more new HIV diagnoses through increased access to healthcare.

Interestingly, increase in median household income and higher prevalence of unemployed were both positively associated with linkage to HIV medical care within 30 days of new diagnosis in healthcare settings. It could be that— regardless of SDOH factors—it is easier to link persons to care when they are already accessing a healthcare setting. However, this potential explanation conflicts with a prior study indicating that unemployment was associated with a lack of linkage to care at a large urban healthcare center [13]. Our definition of healthcare settings includes sites such as STD clinics, community health centers, and correctional facilities versus only traditional health centers or clinics; thus, our findings may be explained by differing individual characteristics of persons seeking HIV prevention services compared to persons attending traditional health centers or clinics.

In non-healthcare settings, higher percentage without health insurance was associated with higher prevalence of newly diagnosed positivity. As indicated previously, persons without health insurance may deliberately access non-healthcare settings for HIV prevention services, and CDC-funded HIV testing has long been conducted in areas potentially more affected by HIV as characterized by urbanicity, minority racial/ethnic composition, and

percentage uninsured [27]. Furthermore, surveillance data have shown that HIV diagnosis rates increased as census-tract levels for the percentage uninsured increased [28].

Conversely, higher percentage with less than high school diploma was associated with lower prevalence of newly diagnosed positivity in non-healthcare settings. This finding conflicts with surveillance data that found HIV diagnosis rates increased as census-tract education levels decreased [28]. Further exploration may be needed as to why this discrepancy exists between non-healthcare settings in EHE jurisdictions versus nationally. Regardless, staff from HIV prevention programs in non-healthcare settings may want to assess education levels in order to refer those with lower education levels to services and opportunities that would allow them to increase their education levels. This type of referral could be instrumental in improving HIV-related outcomes among persons who test positive for HIV infection, especially given that higher percentage with less than high school diploma was negatively associated with linkage to care in non-healthcare settings. Findings from several prior studies have shown lower educational attainment to be associated with negative HIV-related outcomes—and greater educational attainment with positive outcomes—across the HIV care continuum and among various subpopulations [5, 15, 17, 29, 30].

In order to achieve the goals of EHE, SDOH needs to be integrated into all aspects of HIV prevention, treatment, and care [31]. Through “Notice of Funding Opportunity Announcement PS20–2010: Integrated HIV Programs for Health Departments to Support Ending the HIV Epidemic in the United States” [32], CDC has funded 32 health departments to support the Phase 1 EHE jurisdictions in implementing comprehensive HIV programs (that complement existing programs) to leverage data, tools, and resources to reduce new HIV infection by 75% in 5 years. This funding opportunity encourages health departments to consider SDOH in the development, implementation, and evaluation of their HIV programs. Phase 1 EHE jurisdictions could expand this type of analysis to include data from all HIV tests performed in their jurisdiction (i.e., both CDC-funded and non-CDC funded), which would further help inform the development and implementation of their programs by identifying which SDOH factors are most prevalent and should be addressed to reach the maximal impact of HIV prevention services.

Our analysis has several limitations. First, NHM&E is comprised of CDC-funded HIV tests only; thus, HIV tests funded through other mechanisms are not included in this analysis. Second, NHM&E HIV testing data represent the number of CDC-funded HIV tests conducted and not the number of persons tested for HIV (e.g., a person could be tested for HIV via CDC-funded HIV testing more than once). Third, CDC-funded HIV tests are classified by the location of the HIV testing site and not the residence of the person being tested; hence, the testing site location may be incongruent with the person’s residence. Fourth, to calculate percentage linked to care, we excluded tests with missing or unknown outcome data on linkage to care (17%), which likely overestimated actual linkage. Fifth, CDC-funded HIV prevention programs were impacted by the COVID-19 pandemic and conducted fewer HIV prevention services in 2020 than in the preceding years, leading to fewer numbers of tests conducted and persons identified with newly diagnosed HIV [33]; however, the distribution of HIV testing services outcomes by sociodemographic and other characteristics were similar in 2020 and 2019 [24, 34]. Similarly, the COVID-19 pandemic

posed challenges to 2020 ACS data collection, but the U.S. Census Bureau refined their methodology to reduce the impact of nonresponse bias in their five-year data [35]. Sixth, NHM&E data represent one year of data, whereas ACS estimates are over a five-year period; however, this five-year period allows for more precise estimation of SDOH factors given that it provides data for all geographic areas (including smaller areas such as counties) with smaller margins of error [36]. Finally, ecologic bias may be a limitation due to heterogeneity of individual-level data not being fully captured by jurisdiction-level data [23] (i.e., because ACS estimates pertain to geographic areas, we cannot ascertain how the SDOH factors apply to specific individuals seeking HIV prevention services).

However, the major strength of this study is that it provides associations between SDOH factors and data from prevention programs in EHE jurisdictions, compared to previous studies that used data from surveillance systems, surveys, or academic/clinical studies prior to EHE and/or focused on treatment outcomes [5–19, 28–30].

Conclusion

SDOH factors—primarily percentage without health insurance and percentage unemployed—were associated with CDC-funded HIV testing services outcomes in healthcare and non-healthcare settings. Achieving the goals of EHE will require a multi-level approach, including the integration of SDOH [37]. HIV prevention programs, as well as HIV treatment programs, can incorporate SDOH through referral and linkage to related services (e.g., health benefits navigation and enrollment) and partnerships with organizations that address various SDOH factors (e.g., employment assistance programs). This incorporation and integration of SDOH into HIV programs will help to ensure that persons who experience greater risk for acquisition of HIV and persons with HIV are receiving the care that they need without being impeded by social and structural barriers.

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Data Availability

The datasets generated for this analysis are not publicly available.

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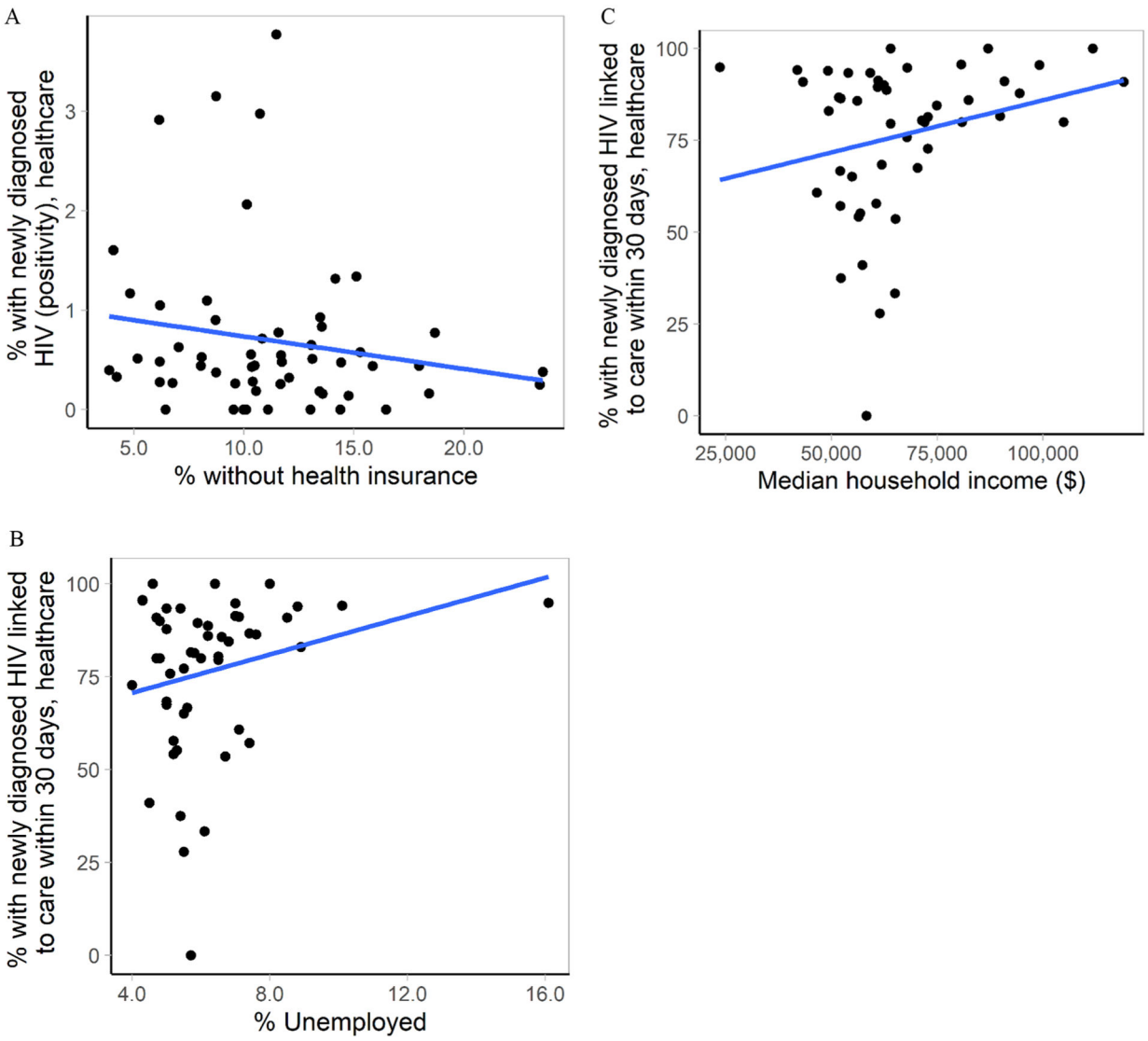

Fig. 1.

Statistically Significant Associations between CDC-Funded HIV Testing Services Outcomes and Social Determinants of Health in Healthcare Settings among EHE Phase 1 Jurisdictions. **A**) Association between Newly Diagnosed Positivity and Percentage Without Health Insurance. *Note*: One jurisdiction (Bexar, Texas) removed as an outlier due to high % with newly diagnosed HIV (6/43 = 14%). **B**) Association between Percentage Linked to Care and Percentage Unemployed. **C**) Association between Percentage Linked to Care and Median Household Income.

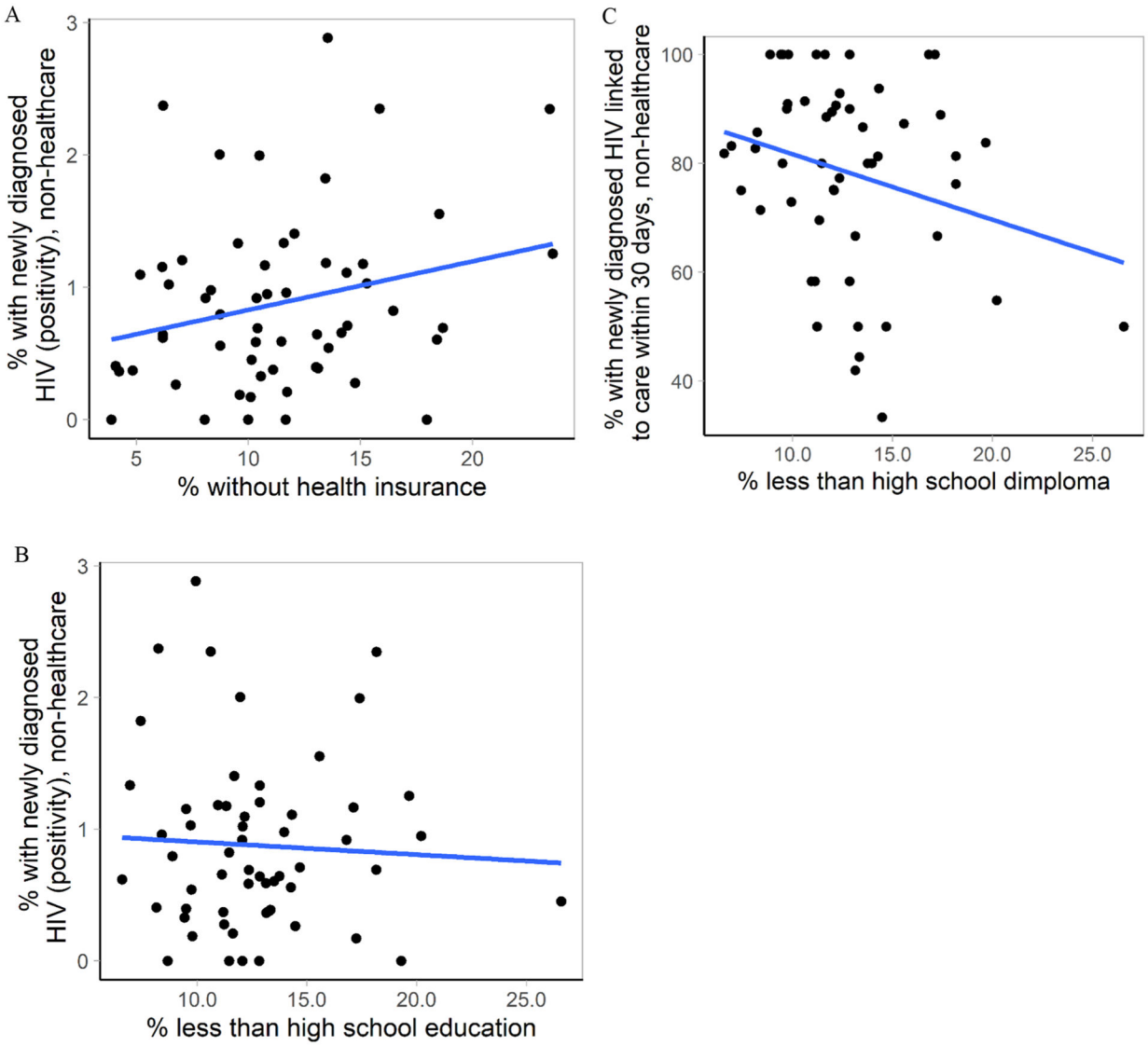

Fig. 2.

Statistically Significant Associations between CDC-Funded HIV Testing Services Outcomes and Social Determinants of Health in Non-Healthcare Settings among EHE Phase 1 Jurisdictions. **A**) Association Between Newly Diagnosed Positivity and Percentage Without Health Insurance. **B**) Association between Newly Diagnosed Positivity and Percentage with Less than High School Education. **C**) Association between Percentage Linked to Care and Percentage with Less than High School Education

Table 1

CDC-Funded HIV Testing Services Outcomes by Phase 1 *Ending the HIV Epidemic in the U.S.* Jurisdictions, National HIV Prevention Program Monitoring & Evaluation System (2020)

EHE jurisdiction[a]	CDC-funded HIV Testing Services Outcomes, 2020					
	Healthcare settings			Non-healthcare settings		
	# of CDC-funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]	# of CDC- funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]
Arizona						
Maricopa County	31,068	149 (0.5)	75.8	4,766	10 (0.2)	100.0
California						
Alameda County	428	5(1.2)	80.0	806	3 (0.4)	100.0
Los Angeles County	14,140	101 (0.7)	80.4	11,484	109 (1.0)	54.8
Orange County	3,744	41 (1.1)	87.8	1,533	15 (1.0)	80.0
Riverside County	37	0 (0.0)	N/A	1,765	3 (0.2)	66.7
Sacramento County	23	0 (0.0)	N/A	587	6 (1.0)	75.0
San Bernardino County	41	0 (0.0)	N/A	125	0 (0.0)	N/A
San Diego County	6,540	59 (0.9)	86.0	1,098	22 (2.0)	89.5
San Francisco County	12,074	48 (0.4)	90.9	307	0 (0.0)	N/A
Florida						
Broward County	7,063	31 (0.4)	89.5	7,365	173(2.4)	91.4
Duval County	5,277	44 (0.8)	55.2	2,184	63 (2.9)	72.9
Hillsborough County	5,395	71 (1.3)	57.8	2,132	14 (0.7)	58.3
Miami-Dade County	2,847	22 (0.8)	93.3	8,506	59 (0.7)	76.2
Orange County	4,034	54 (1.3)	27.9	9,353	110 (1.2)	69.6
Palm Beach County	2,876	4 (0.1)	33.3	1,799	5 (0.3)	50.0
Pinellas County	8,424	46 (0.6)	54.2	1,981	19 (1.0)	71.4
Georgia						
Cobb County	2,704	5 (0.2)	80.0	658	12 (1.8)	75.0
Dekalb County	6,065	35 (0.6)	53.6	4,365	45 (1.0)	90.0
Fulton County	6,179	48 (0.8)	81.4	20,820	278 (1.3)	83.2
Gwinnett County	2,487	11 (0.4)	72.7	479	0 (0.0)	N/A

EHE jurisdiction[a]	CDC-funded HIV Testing Services Outcomes, 2020					
	Healthcare settings			Non-healthcare settings		
	# of CDC-funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]	# of CDC- funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]
Illinois						
Cook County	5,233	29 (0.6)	94.7	4,941	29 (0.6)	77.3
Indiana						
Marion County	2,065	0 (0.0)	N/A	1,321	5 (0.4)	50.0
Louisiana						
East Baton Rouge Parish	22,731	60 (0.3)	85.7	6,380	12 (0.2)	100.0
Orleans Parish	17,434	49 (0.3)	90.9	2,313	16 (0.7)	92.9
Maryland						
Baltimore City	26,840	72 (0.3)	86.4	1,129	3 (0.3)	33.3
Montgomery County	1,584	7 (0.4)	100.0	319	0 (0.0)	N/A
Prince George’s County	1,559	4 (0.3)	100.0	606	0 (0.0)	N/A
Massachusetts						
Suffolk County	22,086	73 (0.3)	84.5	823	3 (0.4)	66.7
Michigan						
Wayne County	7,950	50 (0.6)	83.0	581	7 (1.2)	100.0
Nevada						
Clark County	3,847	25 (0.7)	91.3	7,132	46 (0.6)	80.0
New Jersey						
Essex County	6,651	34 (0.5)	100.0	2,315	9 (0.4)	44.4
Hudson County	100	0 (0.0)	N/A	1,529	17 (1.1)	93.8
New York						
Bronx County	2,520	52 (2.1)	94.1	884	4 (0.5)	50.0
Kings County	8,916	47 (0.5)	79.5	979	9 (0.9)	100.0
New York County	16,529	85 (0.5)	81.6	3,104	34 (1.1)	90.6
Queens County	5,404	24 (0.4)	80.0	902	18 (2.0)	88.9
North Carolina						
Mecklenburg County	348	0(0.0)	N/A	1,261	5 (0.4)	80.0
Ohio						

AIDS Behav. Author manuscript; available in PMC 2024 April 01.

EHE jurisdiction[a]	CDC-funded HIV Testing Services Outcomes, 2020					
	Healthcare settings			Non-healthcare settings		
	# of CDC-funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]	# of CDC- funded HIV tests conducted	# (% positivity) of persons with newly diagnosed HIV	% linked to care within 30 days[b]
Cuyahoga County	549	16 (2.9)	86.7	260	3 (1.2)	100.0
Franklin County	952	30 (3.2)	90.0	1,132	9 (0.8)	100.0
Hamilton County	1,429	15(1.1)	93.3	590	14 (2.4)	85.7
Pennsylvania						
Philadelphia County	22,515	84 (0.4)	93.9	3,037	17 (0.6)	81.3
Puerto Rico						
San Juan Municipio	1,344	40 (3.0)	94.9	343	4 (1.2)	100.0
Tennessee						
Shelby County	15,508	144 (0.9)	57.1	1,859	22 (1.2)	58.3
Texas						
Bexar County	43	6 (14.0)	0.0	4,377	68 (1.6)	87.3
Dallas County	50,839	193 (0.4)	68.3	6,377	80 (1.3)	83.8
Harris County	57,989	146 (0.3)	88.7	6,008	141 (2.4)	81.3
Tarrant County	52,851	86 (0.2)	67.5	2,475	15 (0.6)	86.7
Travis County	15,124	24 (0.2)	95.7	2,214	12 (0.5)	90.9
Washington						
King County	4,544	22(0.5)	95.5	1,938	12 (0.6)	81.8
Washington, DC	3,552	57 (1.6)	91.1	8,130	33 (0.4)	82.8
Alabama	159	6 (3.8)	66.7	46,086	272 (0.6)	42.0
Arkansas	397	0 (0.0)	N/A	976	13 (1.3)	90.0
Kentucky	8,686	24 (0.3)	37.5	2,026	13 (0.6)	58.3
Mississippi	29,445	140 (0.5)	60.7	1,407	10 (0.7)	50.0
Missouri	28,927	54 (0.2)	41.0	3,650	12 (0.3)	100.0
Oklahoma	176	0 (0.0)	N/A	2,912	24 (0.8)	80.0
South Carolina	27,767	89 (0.3)	65.1	6,764	95 (1.4)	88.5
EHE Total	596,039	2115 (0.4)	77.2	221,193	2032 (0.9)	75.2

Abbreviations: EHE = Ending the HIV Epidemic in the U.S., N/A = not applicable.

[a] *Ending the HIV Epidemic in the U.S.* Phase 1 is focused on 48 counties, San Juan, Puerto Rico, Washington, DC, along with seven states with a substantial HIV burden in rural areas.

[b] Percentage of persons with newly diagnosed HIV linked to HIV medical care within 30 days.

Table 2

Social Determinants of Health by Phase 1 *Ending the HIV Epidemic in the U.S.* Jurisdictions, American Community Survey (2016–2020)

EHE Jurisdiction[a]	Social Determinants of Health, 2016–2020[b]							
	% below Federal poverty level	% less than high school diploma	Median household income ($)	% without health insurance	Gini index[c]	% unemployed	% non- Hispanic Black/African American	% Hispanic/ Latino
Maricopa County	8.4 (8.2–8.5)	11.6 (11.4–11.8)	67,799 (67,355 −68,243)	11.7 (11.5–11.9)	0.4629 (0.4598–0.4660)	5.1 (4.9–5.3)	5.4 (5.3–5.5)	31.1[d]
California								
Alameda County	7.2 (7.0–7.4)	11.2 (11.0–11.4)	104,888 (103,847 – 105,929)	4.8 (4.6–5.0)	0.4621 (0.4594–0.4648)	4.7 (4.5–4.9)	10.1 (10.0–10.2)	22.2[d]
Los Angeles County	9.9 (9.8–10.0)	20.2 (20.1–20.3)	71,358 (71,022–71,694)	10.8 (10.7–10.9)	0.4987 (0.4968–0.5006)	6.5 (6.4–6.6)	7.8 (7.7–7.9)	48.3[d]
Orange County	7.3 (7.1–7.5)	14.0 (13.8–14.2)	94,441 (93,575 −95,307)	8.3 (8.1–8.5)	0.4660 (0.4627–0.4693)	5.0 (4.8–5.2)	1.6 (1.5–1.7)	33.8[d]
Riverside County	8.5 (8.2–8.7)	17.2 (16.9–17.5)	70,732 (70,059–71,405)	10.1 (9.8–10.3)	0.4549 (0.4517–0.4581)	7.3 (7.0–7.6)	6.1 (6.0–6.2)	49.4[d]
Sacramento County	9.5 (9.2–9.7)	12.1 (11.7–12.4)	70,684 (69,984 – 71,384)	6.4 (6.2–6.7)	0.4496 (0.4460–0.4532)	6.4 (6.1–6.7)	9.3 (9.1–9.5)	23.4[d]
San Bernardino County	9.4 (9.1–9.6)	19.3 (19.0–19.6)	65,761 (65,159 – 66,363)	10.0 (9.7–10.2)	0.4389 (0.4346–0.4432)	7.3 (7.1–7.5)	7.7 (7.6–7.8)	53.8[d]
San Diego County	8.0 (7.8–8.1)	12.0 (11.7–12.2)	82,426 (81,692 – 83,160)	8.7 (8.5–8.9)	0.4616 (0.4589–0.4643)	6.2 (6.0–6.4)	4.6 (4.5–4.7)	33.9[d]
San Francisco County	8.8 (8.5–9.1)	11.4 (11.1–11.8)	119,136 (117,006–121,266)	3.9 (3.7–4.1)	0.5079 (0.5033–0.5125)	4.7 (4.4–5.0)	4.9 (4.8–5.0)	15.2[d]
Florida								
Broward County	9.2 (8.9–9.4)	10.6 (10.3–10.9)	60,922 (60,174 – 61,670)	15.9 (15.5–16.2)	0.4893 (0.4832–0.4954)	5.9 (5.7–6.1)	27.6 (27.4–27.8)	30.2[d]
Duval County	9.8 (9.3–10.2)	9.9 (9.5–10.3)	56,769 (55,840 – 57,698)	13.5 (13.0–14.0)	0.4715 (0.4648–0.4782)	5.3 (5.0–5.6)	29.1 (28.9–29.3)	10.2[d]
Hillsborough County	9.9 (9.6–10.2)	11.1 (10.8–11.4)	60,566 (59,776 – 61,356)	14.2 (13.7–14.6)	0.4822 (0.4766–0.4878)	5.2 (4.9–5.5)	15.5 (15.4–15.6)	29.1[d]
Miami-Dade County	11.7 (11.5–11.9)	18.2 (17.9–18.4)	53,975 (53,377 – 54,573)	18.7 (18.3–19.0)	0.5185 (0.5136–0.5234)	5.0 (4.8–5.2)	15.6 (15.5–15.7)	68.1[d]
Orange County	9.8 (9.4–10.2)	11.3 (10.9–11.7)	61,416 (60,601 – 62,231)	15.1 (14.6–15.6)	0.4776 (0.4716–0.4836)	5.5 (5.2–5.8)	19.7 (19.5–19.9)	32.1[d]
Palm Beach County	8.5 (8.2–8.7)	11.2 (10.9–11.5)	65,015 (64,195 – 65,835)	14.8 (14.3–15.2)	0.5212 (0.5165–0.5259)	6.1 (5.8–6.4)	18.2 (18.1–18.3)	22.6[d]

EHE Jurisdiction[a]	Social Determinants of Health, 2016–2020[b]							
	% below Federal poverty level	% less than high school diploma	Median household income ($)	% without health insurance	Gini index[c]	% unemployed	% non- Hispanic Black/African American	% Hispanic/ Latino
Pinellas County	9.1 (8.7–9.4)	8.4 (8.1–8.6)	56,419 (55,558 – 57,280)	11.7 (11.3–12.0)	0.4835 (0.4777–0.4893)	5.2 (4.9–5.5)	10.0 (9.8–10.2)	9.9[d]
Georgia								
Cobb County	6.0 (5.7–6.3)	7.4 (7.1–7.8)	80,830 (79,663 – 81,997)	13.4 (12.9–13.9)	0.4477 (0.4414–0.4540)	4.8 (4.4–5.2)	26.8 (26.6–27.0)	13.0[d]
Dekalb County	9.2 (8.8–9.6)	9.7 (9.3–10.1)	65,116 (63,789 – 66,443)	15.3 (14.8–15.7)	0.4891 (0.4823–0.4959)	6.7 (6.3–7.1)	52.8 (52.5–53.1)	8.4[d]
Fulton County	9.1 (8.7–9.5)	6.9 (6.6–7.3)	72,741 (71,502 – 73,980)	11.6 (11.1–12.1)	0.5395 (0.5341–0.5449)	5.8 (5.5–6.1)	43.1 (42.9–43.3)	7.2[d]
Gwinnett County	6.7 (6.3–7.0)	12.1 (11.6–12.5)	72,787 (71,630 – 73,944)	18.0 (17.4–18.5)	0.4336 (0.4256–0.4416)	4.0 (3.7–4.3)	27.3 (27.1–27.5)	21.2[d]
Illinois								
Cook County	9.5 (9.4–9.7)	12.3 (12.2–12.5)	67,886 (67,315 – 68,457)	10.3 (10.1–10.5)	0.5047 (0.5022–0.5072)	7.0 (6.9–7.1)	22.9 (22.8–23.0)	25.3[d]
Indiana								
Marion County	10.6 (10.2–11.0)	13.3 (12.8–13.7)	51,219 (50,594 – 51,844)	11.1 (10.8–11.4)	0.4808 (0.4745–0.4871)	5.7 (5.4–6.0)	27.9 (27.6–28.2)	10.5[d]
Louisiana								
East Baton Rouge Parish	11.8 (11.2–12.4)	9.8 (9.1–10.4)	56,076 (54,476 – 57,676)	9.6 (8.9–10.3)	0.5115 (0.4948–0.5282)	6.6 (6.0–7.2)	45.5 (45.1–45.9)	4.3[d]
Orleans Parish	16.2 (15.5–16.9)	12.3 (11.8–12.9)	43,258 (41,775 – 44,741)	10.4 (9.9–10.9)	0.5655 (0.5539–0.5771)	8.5 (7.8–9.2)	58.6 (58.4–58.8)	5.5[d]
Maryland								
Baltimore City	4.8 (4.5–5.0)	8.6 (8.4–8.9)	111,812 (110,451 – 113,173)	8.0 (7.8–8.3)	0.4640 (0.4595–0.4685)	4.6 (4.4–4.8)	18.0 (17.8–18.2)	19.5[d]
Montgomery County	6.0 (5.8–6.2)	12.8 (12.5–13.2)	86,994 (86,129 – 87,859)	11.7 (11.2–12.1)	0.4032 (0.3995–0.4069)	6.4 (6.1–6.7)	61.2 (61.0–61.4)	18.8[d]
Prince George's County	14.2 (13.8–14.6)	14.5 (13.9–15.1)	52,164 (51,218 – 53,110)	6.8 (6.4–7.1)	0.5123 (0.5061–0.5185)	7.6 (7.2–8.0)	61.6 (61.4–61.8)	5.4[d]
Massachusetts								
Suffolk County	13.2 (12.8–13.6)	13.1 (12.7–13.5)	74,881 (73,473 – 76,289)	4.2 (4.0–4.5)	0.5279 (0.5226–0.5332)	6.8 (6.4–7.2)	19.5 (19.3–19.7)	22.9[d]
Michigan								
Wayne County	13.8 (13.5–14.0)	12.8 (12.6–13.1)	49,359 (48,874 – 49,844)	7.0 (6.8–7.2)	0.4926 (0.4897–0.4955)	8.9 (8.6–9.2)	38.1 (38.0–38.2)	6.1[d]

EHE Jurisdiction[a]	Social Determinants of Health, 2016–2020[b]							
	% below Federal poverty level	% less than high school diploma	Median household income ($)	% without health insurance	Gini index[c]	% unemployed	% non- Hispanic Black/African American	% Hispanic/ Latino
Nevada								
Clark County	9.0 (8.8–9.2)	13.7 (13.5–14.0)	61,048 (60,529 – 61,567)	13.1 (12.8–13.3)	0.4676 (0.4629–0.4723)	7.0 (6.7–7.3)	11.5 (11.4–11.6)	31.3[d]
New Jersey								
Essex County	10.2 (9.8–10.5)	13.3 (12.9–13.8)	63,959 (62,747 – 65,171)	13.1 (12.6–13.7)	0.5470 (0.5420–0.5520)	8.0 (7.6–8.4)	38.0 (37.8–38.2)	23.3[d]
Hudson County	10.1 (9.6–10.5)	14.3 (13.9–14.8)	75,062 (73,647 – 76,477)	14.4 (13.9–14.9)	0.4978 (0.4922–0.5034)	5.4 (5.1–5.7)	10.5 (10.4–10.6)	42.6[d]
New York								
Bronx County	17.8 (17.4–18.2)	26.6 (26.1–27.1)	41,895 (41,271 – 42,519)	10.1 (9.8–10.5)	0.5093 (0.5044–0.5142)	10.1 (9.8–10.4)	28.8 (28.7–28.9)	56.0[d]
Kings County	13.2 (13.0–13.4)	16.8 (16.5–17.1)	63,973 (63,294 – 64,652)	8.1 (7.9–8.2)	0.5246 (0.5209–0.5283)	6.5 (6.3–6.7)	29.3 (29.2–29.4)	18.9[d]
New York County	12.7 (12.3–13.0)	12.2 (11.8–12.5)	89,812 (88,131 – 91,493)	5.2 (4.9–5.4)	0.5950 (0.5909–0.5991)	5.7 (5.4–6.0)	12.2 (12.1–12.3)	25.7[d]
Queens County	8.7 (8.5–8.9)	17.4 (17.1–17.7)	72,028 (71,337 – 72,719)	10.5 (10.2–10.7)	0.4543 (0.4473–0.4613)	6.0 (5.8–6.2)	17.0 (16.9–17.1)	27.8 (27.7–27.9)
North Carolina								
Mecklenburg County	7.1 (6.8–7.3)	9.5 (9.1–9.9)	69,240 (68,064–70,416)	13.0 (12.7–13.4)	0.4877 (0.4822–0.4932)	4.7 (4.4–5.0)	31.1 (30.9–31.3)	13.4[d]
Ohio								
Cuyahoga County	11.9 (11.6–12.2)	9.5 (9.3–9.7)	51,741 (51,224 – 52,258)	6.2 (5.9–6.4)	0.5111 (0.5072–0.5150)	7.4 (7.1–7.7)	29.0 (28.9–29.1)	6.1[d]
Franklin County	10.1 (9.8–10.4)	8.9 (8.6–9.2)	62,352 (61,646 – 63,058)	8.7 (8.4–9.1)	0.4612 (0.4569–0.4655)	4.8 (4.6–5.0)	22.5 (22.3–22.7)	5.7[d]
Hamilton County	9.8 (9.5–10.0)	8.2 (7.9–8.6)	59,190 (58,000–60,380)	6.2 (5.9–6.5)	0.5006 (0.4937–0.5075)	5.4 (5.1–5.7)	25.4 (25.2–25.6)	3.4[d]
Pennsylvania								
Philadelphia County	16.0 (15.6–16.4)	14.3 (13.9–14.6)	49,127 (48,353 – 49,901)	8.7 (8.4–9.0)	0.5170 (0.5120–0.5220)	8.8 (8.4–9.2)	40.1 (39.9–40.3)	15.1[d]
Puerto Rico								
San Juan Municipio	29.7 (28.9–30.5)	17.1 (16.5–17.8)	23,642 (22,960 – 24,324)	10.7 (10.2–11.3)	0.6099 (0.5995–0.6203)	16.1 (15.3–16.9)	0.2 (0.1–0.3)	98.0 (97.7–98.3)
Tennessee								

EHE Jurisdiction[a]	Social Determinants of Health, 2016–2020[b]							
	% below Federal poverty level	% less than high school diploma	Median household income ($)	% without health insurance	Gini index[c]	% unemployed	% non- Hispanic Black/African American	% Hispanic/ Latino
Shelby County	11.4 (11.0–11.9)	10.9 (10.6–11.3)	52,092 (51,356 – 52,828)	13.5 (13.0–13.9)	0.5162 (0.5079–0.5245)	7.4 (7.0–7.8)	53.6 (53.5–53.7)	6.4[d]
Texas								
Bexar County	9.9 (9.7–10.2)	15.6 (15.2–15.9)	58,288 (57,681 – 58,895)	18.5 (18.2–18.8)	0.4692 (0.4649–0.4735)	5.7 (5.4–6.0)	7.0 (6.9–7.1)	60.5[d]
Dallas County	8.8 (8.6–9.1)	19.7 (19.3–20.0)	61,870 (61,399 – 62,341)	23.6 (23.2–24.0)	0.4909 (0.4878–0.4940)	5.0 (4.8–5.2)	22.3 (22.2–22.4)	40.2[d]
Harris County	9.5 (9.3–9.7)	18.2 (17.9–18.4)	63,022 (62,415 – 63,629)	23.4 (23.1–23.8)	0.4962 (0.4931–0.4993)	6.2 (6.0–6.4)	18.5 (18.4–18.6)	43.1[d]
Tarrant County	7.0 (6.8–7.2)	13.5 (13.2–13.8)	70,306 (69,629 – 70,983)	18.4 (18.0–18.9)	0.4519 (0.4480–0.4558)	5.0 (4.8–5.2)	16.3 (16.1–16.5)	29.0[d]
Travis County	8.2 (8.0–8.5)	9.7 (9.4–10.1)	80,668 (79,696 – 81,640)	13.6 (13.2–14.0)	0.4736 (0.4691–0.4781)	4.3 (4.0–4.6)	7.9 (7.8–8.0)	33.6[d]
Washington								
King County	6.5 (6.3–6.7)	6.6 (6.4–6.8)	99,158 (98,214 – 100,102)	6.2 (6.0–6.4)	0.4683 (0.4648–0.4718)	4.3 (4.1–4.5)	6.4 (6.3–6.5)	9.8[d]
District of Columbia	14.5 (14.0–15.0)	9.1 (8.7–9.5)	86,420 (85,412 – 87,428)	3.9 (3.7–4.2)	0.5269 (0.5219–0.5319)	6.9 (6.5–7.3)	45.4 (45.2–45.6)	11.0[d]
Alabama	10.9 (10.7–11.0)	13.1 (12.9–13.3)	52,035 (51,658 – 52,412)	11.5 (11.3–11.7)	0.4777 (0.4754–0.4800)	5.6 (5.5–5.7)	26.4 (26.3–26.5)	4.4 (4.3–4.5)
Arkansas	10.9 (10.7–11.1)	12.8 (12.6–13.1)	49,475 (49,044–49,906)	9.5 (9.3–9.8)	0.4792 (0.4748–0.4836)	5.2 (5.0–5.4)	15.1 (15.0–15.2)	7.6 (7.5–7.7)
Kentucky	11.6 (11.4–11.7)	12.8 (12.7–13.0)	52,238 (51,938 – 52,538)	6.2 (6.0–6.3)	0.4776 (0.4746–0.4806)	5.4 (5.3–5.5)	8.0 (7.9–8.1)	3.8 (3.7–3.9)
Mississippi	12.9 (12.7–13.2)	14.7 (14.4–14.9)	46,511 (46,138 – 46,884)	14.4 (14.1–14.7)	0.4838 (0.4805–0.4871)	7.1 (6.8–7.4)	37.5 (37.4–37.6)	3.2 (3.1–3.3)
Missouri	9.1 (8.9–9.2)	9.4 (9.3–9.6)	57,290 (57,002–57,578)	10.5 (10.4–10.7)	0.4634 (0.4613–0.4655)	4.5 (4.4–4.6)	11.3 (11.2–11.4)	4.3 (4.2–4.4)
Oklahoma	10.2 (10.1–10.3)	11.4 (11.3–11.6)	53,840 (53,465 – 54,215)	16.5 (16.3–16.7)	0.4673 (0.4644–0.4702)	5.1 (5.0–5.2)	7.1 (7.0–7.2)	10.9[d]
South Carolina	10.0 (9.9–10.2)	11.7 (11.5–11.9)	54,864 (54,521 – 55,207)	12.0 (11.8–12.3)	0.4770 (0.4739–0.4801)	5.5 (5.4–5.6)	26.3 (26.2–26.4)	5.8 (5.7–5.9)
EHE Totale	9.2 (9.1–9.2)	12.0 (12.0–12.1)	N/A	10.4 (10.3–10.4)	N/A	5.5	13.8	19.9

Abbreviations: EHE = Ending the HIV Epidemic in the U.S., N/A = not applicable (value could not be calculated for EHE Overall).

[a] *Ending the HIV Epidemic in the U.S.* Phase 1 is focused on 48 counties, San Juan, Puerto Rico, Washington, DC, along with seven states with a substantial HIV burden in rural areas.

[b] Social determinants of health variables' point estimates and 90% confidence intervals were derived from 2016 to 2020 ACS 5-year estimates.

[c] The Gini index ranges from 0 (indicating perfect equality) to 1 (indicating perfect *in*equality).

[d] As per ACS data documentation, a margin of error is not appropriate because the corresponding estimate is controlled to an independent population or housing estimate. Effectively, the corresponding estimate has no sampling error and the margin of error may be treated as zero.

[e] 90% CIs could not be calculated for EHE totals of % unemployed, % non-Hispanic Black/African American, and % Hispanic/Latino because variance estimate replicate tables were not available.

Table 3

Associations between Social Determinants of Health (ACS, 2016–2020) and CDC-Funded HIV Testing Services Outcomes (NHM&E, 2020) in *Healthcare Settings* among EHE Phase 1 Jurisdictions

SDOH variables	% with newly diagnosed HIV (positivity)			% with newly diagnosed HIV linked to HIV medical care within 30 days[a]		
	Univariable Models PR (95% CI)	Full Model aPR (95% CI)	Backward Elimination Model aPR (95% CI)	Univariable Models PR (95% CI)	Full Model aPR (95% CI)	Backward Elimination Model aPR (95% CI)
% Below federal poverty level[b]	1.65 (0.91–3.01)	N/A	N/A	1.13 (1.05–1.23) **	N/A	N/A
% Less than high school diploma[b]	0.95 (0.54–1.67)	0.67 (0.34–1.34)	N/A	1.05 (0.93–1.20)	1.04 (0.87–1.25)	N/A
Median household income[c]	1.00 (0.94–1.05)	0.99(0.92–1.06)	N/A	1.01 (0.99–1.03)	1.04 (1.01–1.07) **	1.04 (1.03–1.06) ***
% Without health insurance[b]	0.79 (0.61–1.01)	0.64 (0.37–1.11)	0.60 (0.43–0.83) **	0.90 (0.80–1.01)	0.94 (0.80–1.10)	N/A
Gini index[d]	1.48 (0.87–2.51)	0.84 (0.52–1.38)	N/A	1.23 (1.09–1.40) ***	0.99 (0.89–1.11)	N/A
% Unemployed[b]	3.58 (1.28–10.01) *	1.87 (0.33–10.49)	N/A	1.40 (1.16–1.69) ***	1.56 (0.84–2.87)	1.80 (1.31–2.46) ***
% Black/African American	1.01 (0.91–1.11)	1.08 (0.89–1.30)	1.09 (0.97–1.22)	1.01 (0.98–1.04)	1.05 (1.00–1.11)	1.05 (1.00–1.09)
% Hispanic/Latino	1.06 (0.91–1.22)	1.26 (1.02–1.57) *	1.23 (1.10–1.36) ***	1.02 (1.00–1.05)	1.04 (0.96–1.13)	1.03 (0.99–1.07)

Notes: Multivariable analyses performed using robust Poisson models; models controlled for % Hispanic/Latino and % non-Hispanic Black/African American; N/A = not appliable (variable removed from model due to collinearity or after backward elimination using a $p < .05$ cutoff).

[a] New diagnoses with missing information on linkage to care were excluded from the analysis.

[b] PR/aPR represents association with an absolute change of 10%.

[c] PR/aPR represents association with a change of $5,000 median income.

[d] PR/aPR represents association with a change of 0.1 in the Gini Index.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 4

Associations between Social Determinants of Health (ACS, 2016–2020) and CDC-Funded HIV Testing Services Outcomes (NHM&E, 2020) in *Non-Healthcare Settings* among EHE Phase 1 Jurisdictions

SDOH variables	% with newly diagnosed HIV (positivity)			% with newly diagnosed HIV linked to HIV medical care within 30 days[a]		
	Univariable Models PR (95% CI)	Full Model aPR (95% CI)	Backward Elimination Model aPR (95% CI)	Univariable Models PR (95% CI)	Full Model aPR (95% CI)	Backward Elimination Model aPR (95% CI)
% Below Federal poverty level[b]	0.49 (0.23–1.05)	N/A	N/A	0.75 (0.38–1.48)	N/A	N/A
% Less than high school diploma[b]	0.99 (0.57–1.73)	0.56 (0.29–1.11)	0.53 (0.29–0.96) *	0.86 (0.73–1.02)	0.66 (0.50–0.88) **	0.65 (0.43–0.97) **
Median household income[c]	1.01 (0.94–1.09)	1.03 (0.96–1.11)	N/A	1.04 (0.98–1.10)	1.03 (0.99–1.07)	N/A
% Without health insurance[b]	1.66 (1.23–2.25) **	2.62 (1.66–4.13) ***	1.92 (1.29–2.88) **	1.08 (1.01–1.15) *	1.24 (1.04–1.47) *	N/A
Gini index[d]	1.22 (0.71–2.11)	1.38 (0.81–2.36)	N/A	1.19 (0.90–1.59)	1.02 (0.85–1.21)	N/A
% Unemployed[b]	0.59 (0.19–1.89)	2.34 (0.52–10.47)	N/A	1.06 (0.67–1.67)	1.67 (0.95–2.93)	N/A
% Black/African American	1.00 (0.89–1.13)	0.93 (0.80–1.08)	0.97 (0.87–1.07) *	1.01 (0.96–1.06)	0.99 (0.95–1.04)	1.02 (0.98–1.05)
% Hispanic/Latino	1.07 (0.97–1.18)	0.99 (0.85–1.15)	1.05 (0.92–1.20)	1.03 (0.96–1.10)	1.06 (0.99–1.13)	1.10 (1.01–1.20) *

Notes: Multivariable analyses performed using robust Poisson models; models controlled for % Hispanic/Latino and % non-Hispanic Black/ African American; N/A = not appliable (variable removed from model due to collinearity or after backward elimination using a $p < .05$ cutoff).

[a] New diagnoses with missing information on linkage to care were excluded from the analysis.

[b] PR/aPR represents association with an absolute change of 10%.

[c] PR/aPR represents association with a change of $5,000 median income.

[d] PR/aPR represents association with a change of 0.1 in the Gini index.

* $p < .05$;

** $p < .01$;

*** $p < .001$.