LENS: HIV PREVALENCE AND COVID-19 VULNERABILITIES

A DATA-MAPPING TOOL

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DISCLAIMER

The views expressed herein are those of the authors and not necessarily those of the University of California, Los Angeles or the California HIV/AIDS Research Program. The authors alone are responsible for the content of this report.

INTRODUCTION

The COVID-19 pandemic has renewed concerns about social and structural factors related to health disparities, including those related to HIV. The Lens tool is a partial response to an urgent need to understand whether elevated risk of COVID-19 disease and mortality among persons living with HIV (PLWH) results from related risk behaviors, a higher burden of comorbidities, and/or social determinants of health. This tool can help decision-makers, community-based organizations and other stakeholders to access critical neighborhood-level information about the intersection of socio-economic and health vulnerabilities and HIV. The Lens portal also contains information on COVID-19 case rates for counties where such information is available. We hope this information helps guide overstretched public health and health systems in recasting, prioritizing, and improving HIV prevention and treatment services in this tragic pandemic era.

This brief is organized into two major parts. The first provides background information on HIV: state epidemiological data, ethnoracial and gender disparities, social determinants of health, COVID-19, and the latter's impact on HIV services. The second part of the brief provides information to help users navigate and utilize the Lens tool.

BACKGROUND

HIV in California

In California, recent state surveillance data indicate that from 2015 through 2019, the annual number and rate of new HIV diagnoses declined. Over the same period, however, the number of persons living with HIV (PLWH) increased, representing a 4% increase in HIV prevalence across the State. Approximately three fourths of Californians diagnosed with HIV were receiving HIV care and nearly two-thirds (65.3%) achieved viral suppression. In addition, in 2019, the annual number of deaths of PLWH in California increased, representing a 2.1% increase in the crude death rate of persons with diagnosed HIV infection since 2015. Causes of death among those diagnosed with HIV may or may not be related to HIV infection.

Disparities in HIV

The California Department of Public Health has issued numerous reports highlighting specific HIV-related disparities. Based on surveillance data reported through December 31, 2020, Black/African Americans are the most disproportionately affected by HIV with new diagnoses rates 3.8 times higher than Whites for men and 6.9 times higher for women. The rate of new HIV diagnoses among Black/African American men who have sex with men (MSM) was 3.9 times higher than White MSM; the rate for Latino MSM was 2.2 times higher than White MSM. Among women, the rate among newly diagnosed Black/African Americans was 6.9 times that of Whites; the rate for Latinas was 1.3 times that of Whites. Rates for transgender people remain unavailable, as there are no data on population denominators. However, evidence suggests that transgender people are disproportionately affected by HIV.

HIV and Social Determinants of Health

HIV affects communities with overlapping vulnerabilities and those disadvantaged by structural barriers to health care. Recent research using U.S. census-tract level data identified associations between HIV diagnoses and key social determinants of health (e.g., poverty, education, income, employment, health insurance, housing vacancy). HIV rates among adults increased 1.4 to 4.0 times among men and 1.5 to 5.5 times among women as census-tract poverty levels increased, education levels decreased, income decreased, unemployment increased, lack of health insurance increased, and vacant housing increased. The authors also found differences by race/ethnicity and geography across the U.S. A factor of increasing significance to HIV diagnoses is the experience of homelessness with HIV rates increasing among those experiencing homelessness. In California from 2015 to 2017, cross-sectional data of PLWH from the Medical Monitoring Project (MMP) documented that 28% lived at or below the federal poverty threshold, 40% were unemployed, 22% had gone without food owing to lack of money, and 12% had experienced homelessness. Additionally, among low-income recipients of federally funded Ryan White HIV/AIDS Program services in 2017, unhoused persons were found to experience the greatest disparities in achieving viral suppression.

Vulnerabilities at the Intersection of HIV and COVID-19

There is a growing body of knowledge related to COVID-19 among PLWH. Evidence of various comorbidities that are common among PLWH (e.g., cancer, heart disease, chronic kidney and lung diseases, diabetes, etc.) demonstrate heightened risk for severe COVID-19. Initial case series and the Veterans Aging Cohort Study did not appear to find significant differences between people living with HIV (PLWH) and HIV-negative individuals who had acquired COVID-19. Other cohort studies from the U.S. and the United Kingdom (UK), however, point to HIV as a marker for worse COVID-19 outcomes. UK primary care data linked to a national death registration system suggests increased risk of mortality among PLWH compared to the general population. New York state data, linking HIV diagnoses, COVID-19 laboratory diagnoses, and individual outcomes, indicate higher rates of COVID-19 requiring hospitalization among PLWH in comparison to HIV-negative individuals. The risk of hospitalization among PLWH rose with HIV disease stage, measured by CD4 count.

HIV Treatment and Prevention in the COVID-19 Era

PLWH and persons at risk of HIV have also felt the impact of the COVID-19 pandemic on access to HIV testing, prevention, and treatment services. National data collected by the National Alliance of State and Territorial AIDS Directors (NASTAD) in August 2020 surveyed state and local health departments. They found that more than 90% of 37 HIV prevention programs and nearly 70% of 45 Ryan White ADAP/Part B programs indicated staff were re-directed to the COVID-19 pandemic response. In May 2020, the California HIV/AIDS Policy Research Centers conducted an online survey to document the direct impact of COVID-19 on healthcare and social service providers working to address HIV, Hepatitis C (HCV), and sexually transmitted disease (STDs) in California. Survey respondents included 70 organizations. In response to COVID-19 physical distancing measures placed both locally and statewide, 44% of responding agencies and organizations reported reassigning staff to address COVID-19, 53% reported modifying their hours of service, 67% shifted to using telehealth services, and 87% reported having employees work remotely. HIV (57%), HCV (36%) and STD testing (34%) were the top categories of service reduction or suspension as a result of the pandemic.

USER GUIDE

Mapping Tool Overview

The [Lens](#) data-mapping tool was developed to better understand geographic health and social disparities impacting PLWH. The tool includes eight determinants of vulnerability across California:

1.   HIV case rate

2.   Distribution of same-sex households

3.   COVID-19 case rate

4.   Vulnerable areas as designated by the Healthy Places Index

5.   Vulnerable areas as designated by the Social Vulnerability Index

6.   Medicaid coverage

7.   Health insurance coverage

8.   Median household income

The U.S. Census Bureau's ZIP Code Tabulation Areas (ZCTA) serve as the geographic unit of analysis for the [Lens](#) tool.[1] The visual distribution of data for each layer varies in order to produce accurate visual representations of trends across California. In general, darker-shaded areas represent greater vulnerabilities across the various layers.

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1   With the exception of COVID-19 case rates in Los Angeles County, as Los Angeles County reports COVID-19 case data by community rather than ZCTA.

Data Description

- *ZIP Code Tabulation Areas (ZCTA)* : The ZCTA layer displays California's ZIP Code Tabulation Areas (ZIP-codes). ZCTAs are generalized areal representations of United States Postal Service (USPS) ZIP Code service areas created by the U.S. Census Bureau. ZCTAs serve as the basic geographic unit of analysis of this tool for a neighborhood unless otherwise specified.

- *HIV Cases per Population* : This layer displays HIV prevalence as a rate per 100 people across California ZCTAs. HIV cases per population are calculated by taking the number of people living with HIV divided by the total population within a ZCTA, then converting that value to a percent. Data reflect people living with diagnosed HIV in California as of December 31, 2019. ZCTAs with case counts below 10 are suppressed prior to calculating the rate in the interest of the safety and privacy of inhabitants. Data were acquired from the California Department of Public Health (CDPH).

- *Same-Sex Households (SSH)* : This layer displays the distribution and prevalence of same-sex households (SSH) across California by ZCTA as a percentage. Data include both married and coupled partners counts that are divided by the population within each ZCTA to obtain the percent of same-sex households by neighborhood. Data were acquired from the U.S. Census Bureau's 2015-2019 American Community Survey (ACS) data portal.

- *COVID-19 Case Rate* : This layer displays COVID-19 case rates per 100,000 people by ZCTA for select counties. Data were acquired from the Los Angeles Times and/or directly from the county as of March 2021.

- *COVID-19 Case Rate for Los Angeles County* : This layer displays COVID-19 case rates per 100,000 people. Data are grouped by community for Los Angeles County, as reported by Los Angeles County. Data were acquired from the Los Angeles County Department of Public Health COVID-19 Dashboard as of March 2021.

- *Largest Ethnoracial Group* : This layer shows the distribution of the largest ethnoracial groups across ZCTAs. The largest ethnoracial group is defined as the group that makes up the majority of the population in a ZCTA (>50%) or the group that is the plurality (<50% but still the most abundant group). The following ethnoracial groups were considered: Non-Hispanic White, Asian, Black, Hispanic & Latino, and American Indian & Alaska Native. Data were acquired from the U.S. Census Bureau's 2014-2018 American Community Survey (ACS) data portal.

- *Highly Vulnerable Areas as Designated by the Healthy Places Index (HPI)* : This layer shows areas designated as being the least healthy places by the Healthy Places Index (HPI). The HPI combines 25 community characteristics to generate a single indexed score at the census tract level, and those values are proportionately allocated into ZCTAs. Only the most

vulnerable areas are displayed by this layer. The HPI was developed by the Public Health Alliance of Southern California to give information to decision makers and other stakeholders to formulate policies that improve health. Data were acquired as of October 2020.

- *Highly Vulnerable Areas as Designated by the Social Vulnerability Index (SVI)* : This layer shows areas designated as being most vulnerable by the Social Vulnerability Index (SVI) by ZCTA. The SVI was created by the Centers for Disease Control and Prevention (CDC) to identify vulnerable areas for disaster planning and response. As defined by the CDC, "social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters or disease outbreaks." This layer displays only the most vulnerable ZCTAs, as determined by the CDC by analyzing fifteen different census variables to scale different neighborhoods from least to most vulnerable. Data were acquired as of October 2020.

- *Medicaid (Medi-Cal) Coverage* : This layer shows the distribution of the population covered by Medicaid insurance by ZCTA. Medicaid is a government program "administered at the state level, which provides medical assistance to the needy. Families with dependent children, the aged, blind, and disabled who are in financial need may be eligible for Medicaid." In California, the Medicaid program is known as Medi-Cal. The data are based on the 2014-2018 American Community Survey, which asked respondents about their health insurance coverage status. Values are calculated by dividing the total number of individuals with Medicaid health insurance coverage in a ZCTA by the total population (civilian non-institutionalized population) in that area. The indicator on Medicaid insurance coverage is visualized in quintiles, dividing the data into five roughly equal segments, meaning roughly 20% of California's ZCTAs fall within each quintile. Neighborhoods are ranked from lowest to highest quintiles and each neighborhood ranking is relative to all ZCTAs in California.

- *No Health Insurance* : This layer shows the distribution of the percentage of people with no health insurance by ZCTA. The data are based on the 2014-2018 American Community Survey (ACS), which asked respondents about their health insurance coverage status. Health insurance is defined as "plans and programs that provide comprehensive health coverage" as opposed to coverage for specific conditions or other kinds of coverage like dental, life, or disability insurance. If respondents marked "no" for all health insurance options on the ACS, they are considered as having no health insurance. Data on no health insurance coverage are visualized in quintiles, dividing the data into five roughly equal segments, meaning roughly 20% of California's ZCTAs fall within each quintile. Neighborhoods are ranked from lowest to highest quintiles and each neighborhood ranking is relative to all ZCTAs in California.

- *Median Household Income* : This layer shows the distribution of median household income by ZCTA. According to the U.S. Census Bureau, "median income is the amount which divides the income distribution into two equal groups, half having income above that amount, and half having income below that amount." In calculating median household income, the

Census Bureau looks at the incomes of only those people who are 15 or older in the household. Data on median household income come from the 2014-2018 American Community Survey and are visualized in quintiles, dividing the data into five roughly equal segments, meaning roughly 20% of California's ZCTAs fall within each quintile. Neighborhoods are ranked from lowest to highest quintiles and each neighborhood ranking is relative to all ZCTAs in California.

Using the [Lens]() Tool

Main Navigation : Use the tools in the top corners to navigate the mapping tool. On the top right, there are widgets that allow you to read and explore the data more thoroughly.

To search for a specific location, type a county, city, zip code, address, or place into the search bar and the map will automatically zoom to that location. Once you have typed your desired search location, you can either select it from the options that appear below the search bar or click on the magnifying glass icon to zoom to that location.

To zoom, use the boxes with the + and - symbols on the left-hand side of the map to zoom in and out. Clicking the "+" will zoom in to wherever your page is centered around and clicking the "−" will zoom out. You can also place your mouse over a desired location and swipe with two fingers on your trackpad to zoom in and out. Alternatively, you can click and hold your mouse anywhere on the map while dragging to pan around the screen.

To return to the original map extent, click the "Home Button" with the home icon at any time.

To zoom to your current location on the map, click the "My Location" button to zoom to your current location on the map. Note that location settings must be enabled on your browser in order to use this feature.

To read more about the layers, click on the "About" widget, which includes descriptions for all layers in the mapping tool. This is the default widget to open when launching the mapping tool.

To view a complete list of layers included in the mapping tool, click on the "Layer List" widget. Layers can be turned off and on by clicking the white box next to each layer. A layer that is turned on will be indicated by a turquoise check mark. The legend for any layer, whether it is on or off, can be viewed by pressing the small gray arrow of that layer to reveal a drop-down legend. To compare various layers to one another, we recommend zooming to a location of interest and turning both layers on. Then, repeatedly click off and on the overlying layer to compare trends for that location. Alternatively, users can open the mapping tool in two side-by-side browser windows and compare trends visually.
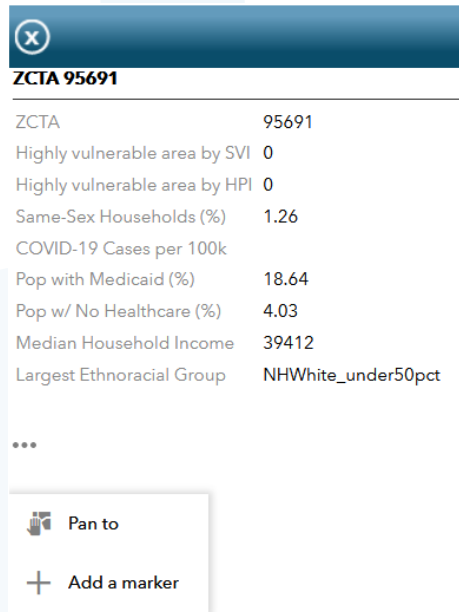
To display the legends for all layers that are turned on, click on the "Legend" widget.

To change the basemap, click on the highlighted icon composed of four white squares titled "Basemap Gallery". The light gray canvas basemap serves as the default background. Other background options include a terrain map or a street map. You can change the basemap at any time without affecting your other selections/zoom.

To share the data-mapping tool, click on the "Share" widget. A link to the data-mapping tool will be available, and optional specifications can be found under "Link options." The code to embed the data-mapping tool to a website can be found in the text box below "Embed this app in a website."

ZCTA 95691	
ZCTA	95691
Highly vulnerable area by SVI	0
Highly vulnerable area by HPI	0
Same-Sex Households (%)	1.26
COVID-19 Cases per 100k	
Pop with Medicaid (%)	18.64
Pop w/ No Healthcare (%)	4.03
Median Household Income	39412
Largest Ethnoracial Group	NHWhite_under50pct

•••

Pan to

+ Add a marker

To view data about a specific ZCTA, click on any tract within the map and a tiny window will pop up: the zip code appears on the window and, if the "County" layer is turned on, clicking on the plain white arrow to the second window page will display the county. Click on the encircled right arrow to view the following data:

1. The unique ZCTA code
2. If the ZCTA falls under an area designated as highly vulnerable by the Social Vulnerability Index (SVI), where "1" indicates vulnerability, "0" indicates no vulnerability.
3. If the ZCTA falls under an area designated as highly vulnerable by the Healthy Places Index (HPI), where "1" indicates vulnerability, "0" indicates no vulnerability.
4. The percentage of same-sex households within that ZCTA
5. COVID-19 case rate per 100 thousand people, not available for all ZCTAs
6. The percentage of the population with Medicaid
7. The percentage of the population with no health insurance coverage
8. The median household income of that ZCTA
9. The largest ethnoracial group of that ZCTA.

The three dots at the bottom left corner of the data display also gives two more options:
1. "Pan to" re-centers the selected tract to the middle of your screen.
2. "Add a marker" places a marker on the tract so that it may be located easily if zoomed out to a greater extent.

FURTHER INFORMATION

For questions regarding the Lens data-mapping tool, please contact chprc@luskin.ucla.edu. To learn more information about California HIV/AIDS Policy Research Center, please visit www. chprc.org. For more information about the California Department of Public Health, Office of AIDS, please contact OfficeofAIDS@cdph.ca.gov or call (916) 449-5900.

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