



NOTHING ABOUT US WITHOUT US¹

CAN AREA-BASED SOCIAL INDICES
EFFECTIVELY ADVANCE HEALTH EQUITY?



California Pan-Ethnic
HEALTH NETWORK

EXECUTIVE SUMMARY

Disparities in health outcomes and life expectancy persist for California's communities of color, LGBTQ+ and individuals with disabilities, despite concerted efforts to address them. As COVID-19 cases and deaths accumulate, disproportionately impacting communities of color, the imperative to address these disparities has never been more urgent.

National, state and local policymakers including those at the Centers for Disease Control and Prevention (CDC) and the State of California are increasingly using quantitative tools like area-based social indices to identify and prioritize disadvantaged communities during and beyond the public health crisis. These indices can be helpful tools in identifying and targeting interventions to certain at-risk populations. However, questions remain about their effectiveness in directly addressing racial disparities and health inequities.

To better understand the strengths and limitations of area-based social indices, CPEHN conducted an analysis of California's recent COVID-19 response strategies which relied on these tools to address COVID-19 inequities. CPEHN also analyzed quantitative data publicly available through the California Department of Public Health, and collected additional qualitative information through interviews with a number of CPEHN's community partners, who helped racially and ethnically diverse Californians receive the COVID-19 vaccine.

Our analysis seeks to highlight **four key findings** which policy and decision makers must take into account when adopting area-based social indices as tools in order to effectively address and prioritize racial and health equity:

- **Finding 1: Indices are most effective at helping policymakers identify and address inequities when paired with other tools and strategies including authentic, targeted community engagement and long-term structural reforms.** Area-based social indices themselves are not perfectly objective tools nor are they a guarantee of solving deeper, underlying factors that drive health disparities. The use of area-based social indices to identify and prioritize at-risk communities must always be paired with direct community engagement; otherwise, these tools may end up further alienating and disenfranchising the very communities they seek to help, pushing us further away from equity goals.



- **Finding 2: Indices should be matched with the specific policy issues they are intended to solve.** An index's design reflects assumptions about its intended use. Indices can be constructed to capture or represent a wide variety of different concepts including but not limited to the social determinants of health, disease risk, and more. When there is a mismatch between the concepts an index models, the outcomes it is meant to represent, and the factors that contribute to a policy issue or disparity of interest, we may miss key communities we aim to prioritize.
- **Finding 3: Indices must directly factor in race, ethnicity, language and other sociodemographic variables to adequately address systemic racism, discrimination and exclusion.** Although advancing racial equity is often a key reason for using area-based social indices, most indices do not include direct measures of the racial and ethnic makeup of a community, nor do they stratify community conditions by other sociodemographic variables. While addressing

the social determinants of health can improve population health, it is not a substitute for identifying and addressing structural inequities directly through the use of demographic data.

- **Finding 4: The effectiveness of indices can be improved more broadly by employing research practices in statistical analysis that will result in better demographic data collection and reporting.** Even when an index does factor in sociodemographic variables such as race, ethnicity and language, best practices must be employed to capture the needs of the communities who are small in size, heterogeneous, displaced and/or geographically dispersed. These communities are often erased or poorly represented in public datasets. Additionally, to maximize the effectiveness of these quantitative tools, researchers should employ best practices for counting small populations, consider better spatial measures of need and invest in additional tools to understand community needs and preferences.

SUMMARY OF RECOMMENDATIONS

CPEHN has identified **fifteen priority recommendations** tied to the four findings respectively. While some of these strategies can be implemented in the short-term, others may take longer to implement. Although these recommendations are primarily addressed to state and regional policymakers interested in addressing equity in public health, they are also applicable to health care payers, plans, systems, and providers who seek to use quantitative tools to identify and address racial disparities and health inequities within our health systems at large.

Finding 1: <i>Indices are most effective at helping policymakers identify and address inequities when paired with other tools and strategies including authentic, targeted community engagement and long-term structural reforms</i>		
1.1	Center decisions and policy-making around community input, needs and preferences	Pg 17
1.2	Identify specific targets, set measurable benchmarks and create a comprehensive community-centered action plan for achieving equity	Pg 17
1.3	Be explicitly antiracist and make long-term state and local reforms to rectify historic injustices	Pg 17
Finding 2: <i>Indices should be matched with the specific policy issues they are intended to solve</i>		
2.1	Select and modify indices as appropriate to adequately address the problems they are trying to solve	Pg 20
2.2	Establish a transparent stakeholder process that includes researchers and impacted communities when selecting an index	Pg 20
2.3	Ensure proposed changes in methodology do not inadvertently weaken or alter the strength or predictive value of the index	Pg 20

2.4	Ensure the methodology, underlying measures and metrics of indices are available for public review and updated regularly to incorporate new findings and learnings	Pg 20
Finding 3: <i>Indices must directly factor in race, ethnicity, language and other sociodemographic variables to adequately address systemic racism, discrimination and exclusion</i>		
3.1	Use indices that explicitly address racial, ethnic and other health disparities	Pg 22
3.2	Include direct community input in the development of indices to ensure interventions are targeted to those who are most in need	Pg 22
3.3	Pass laws and issue regulatory guidance that promote strategies that explicitly address structural racism and discrimination	Pg 22
Finding 4: <i>The effectiveness of indices can be improved more broadly by employing research practices in statistical analysis that will result in better demographic data collection and reporting</i>		
4.1	Employ research methods that are compatible with small groups, including, oversampling and the use of multi-year pooled data, while also providing more equitable data access to allow community researchers to access sensitive datasets	Pg 24
4.2	Expand the list of data sources that provide demographically disaggregated measures	Pg 24
4.3	Provide clear standards for collecting detailed race, ethnicity, language, sexual orientation and gender identity demographic data	Pg 25
4.4	Consider better spatial measures of need than ZIP codes	Pg 25
4.5	Invest in additional tools to understand community needs and preferences	Pg 25



INTRODUCTION

Despite equity-driven efforts, health inequities persist among California's racial and ethnic subgroups with significant differences in life expectancy and health outcomes.² These inequities have worsened for communities of color during the COVID-19 pandemic. In California, despite a paucity of disaggregated data for at-risk smaller populations, available information shows that Black, Latinx, Asian, particularly Cambodians, Filipinos and Koreans, Native Hawaiian and Pacific Islander, and American Indian or Alaska Native communities have had significantly higher COVID-19 infection and death rates than others³ and are more likely to bear long-term health and economic consequences.⁴ Such racial and health disparities are attributed not just to differences in health care and traditional public health interventions,⁵ but to historic and present inequitable distribution of social, political, economic and environmental resources as well as systemic racism and discrimination. The COVID-19 pandemic and the nationwide protests to defund the police following George Floyd's murder⁶ served as wake-up calls

for policymakers to begin centering racial equity in decisions regarding pandemic responses and public health at large. However, despite renewed efforts, the lack of comprehensive demographic data at state and local levels, particularly for individuals from diverse racial and ethnic backgrounds, LGBTQ+ and persons with disabilities, continues to hamper efforts to address known health disparities.

In response, policymakers are increasingly looking to use area-based social indices as tools to identify and prioritize disadvantaged communities during and beyond the public health crisis.⁷ The National Academies of Sciences, Engineering and Medicine (NASEM) has recommended the use of area-based social indices, such as the Center for Disease Control and Prevention (CDC)'s Social Vulnerability Index (SVI), or the Minority Health Social Vulnerability Index, an enhanced version of the SVI that will support the identification of racially and ethnically diverse communities,⁸ to ensure equitable vaccine allocation.⁹

California's state government adopted the California Healthy Places Index (HPI), an index designed by the Public Health Alliance of Southern California, to determine when counties could safely relax COVID-19 public health measures without inadvertently exacerbating disparities. The state also used a significantly modified version of the HPI, the Vaccine Equity Metric (VEM), to prioritize COVID-19 testing and vaccine distribution for the State's vulnerable communities.¹⁰ Some state legislators have since proposed California state legislation that explicitly uses the HPI as a tool to support other equitable decision making and resource allocation efforts.¹¹ Other groups have developed additional tools that use similar approaches to inform local planning and decision making.¹²

Area-based social indices are place-based quantitative tools and a step towards addressing health inequities in policy making. These multidimensional composite indices can help governmental decision makers conceptualize upstream determinants of health as well as geographically map out disadvantaged or vulnerable communities, which helps to target resources and build consensus in policy making. As the Public Health Alliance of Southern California who developed the Healthy Places Index (HPI) noted, "the HPI creates a common language and framework around health equity, providing census tract-level data across the State."¹³

However, questions remain about the strength of area-based social indices as a tool to address racial inequities, and what key considerations there may be for their use in efforts to advance equity. As the use of indices becomes more popular in public health and health systems, reliance on such tools may direct attention away from other critically important strategies including engaging impacted communities directly. It also risks oversimplifying the underlying, structural issues that



perpetuate inequities, including institutionalized racism and discrimination which will necessitate more comprehensive and longer-term strategies to adequately address them. Furthermore, the ability to fully capture nuances in racialized health disparities can vary amongst indices based on how they are designed. In addition to these variations, current and historic limitations in demographic data collection through Census and in data disaggregation can limit the indices' ability to identify all populations at risk, who are yet to be reflected through such demographic data. As a result, some of the most vulnerable communities, such as smaller ethnic groups which include Native Americans or smaller Asian American or Native Hawaiian and Pacific Islander communities, especially if they are geographically dispersed, the LGBTQ+ communities and persons with disabilities may be excluded from area-based social indices and subsequently the public health resources and interventions that follow.

With increased pressure for policy and decision makers to address racial and health disparities as well as the uptake of quantitative frameworks such as area-based social indices, it is important that policy and decision makers understand how to truly work towards achieving "equity" and get it right. It is equally critical for policy making intended for advancing equity to not perpetuate or add harm, even unintentionally. **This brief seeks to provide an overview of several area-based social indices in the U.S., and an in-depth analysis of the State's use of these indices to address inequities in COVID-19. By providing a case study as well as comparison across indices, we hope to equip policy and decision makers with information on the strengths, limitations, and important considerations for using area-based social indices to reduce health disparities. We also provide additional recommendations to advance racial and health equity.**



ABOUT CPEHN

The California Pan Ethnic Health Network (CPEHN) is a statewide multicultural health advocacy organization dedicated to promoting health equity by advocating for public policies and sufficient resources to address the health needs of communities of color. Our policy research and advocacy are rooted in our collaborative work with a network of partners, including community based non profit organizations, community clinics and advocates who represent and serve the racially, ethnically and culturally diverse Californians across the state.¹⁴



METHODS

To better understand the effectiveness of applying area-based social indices to advance racial equity and reduce racialized health disparities, CPEHN first conducted an analysis of California's recent COVID-19 response strategies. Specifically, CPEHN analyzed California's Health Equity Metric (HEM) as part of the State's Blueprint for Economic Reopening, which used the California Healthy Places (HPI) Index, and the COVID-19 vaccine distribution strategy, which used a custom-made Vaccine Equity Metric (VEM) derived from the HPI's methodology. These provided a case study of how indices could be used to address COVID-19 health disparities. CPEHN analyzed quantitative data publicly available through the California Department of Public Health, and collected additional qualitative information through interviews with a number of CPEHN's community partners who helped directly impacted Californians receive the COVID-19 vaccine. CPEHN also conducted interviews with staff from the Public Health Alliance of Southern California to understand the background and applications of the Healthy Places Index in the State's COVID-19 efforts.

In addition to analyzing these strategies, CPEHN reviewed literature and documentation related to area-based social indices developed by governments and public health institutions in the United States to understand common features of these indices. Based on the information available on their official websites, CPEHN reviewed the origin, intended usage and current applications of these indices, and compared their robustness in taking into consideration key indicators that underlie racialized health disparities.

Together, these analyses painted a picture of the strengths and weaknesses of using area-based social indices as tools in addressing racialized health inequities. Based on these findings, CPEHN proposed fifteen recommendations under four general categories of findings for policy and decision makers. While drafting these recommendations, CPEHN also sought input from its community partners to ensure they reflect the needs and preferences of those who are directly impacted and whose health and well-being we seek to address.

GLOSSARY

Health or Public Health Index/Indices: A health or public health index is a number, a score, or sometimes a percentile ranking that seeks to conceptualize social and health conditions quantitatively. For example, the Centers for Disease Control's Social Vulnerability Index assigns a score to each Census tract by looking at a multitude of social conditions that impact health in that neighborhood, using Census data. Through this score, it is then easier to compare one neighborhood with another and understand their relative health risks, and/or visualize all neighborhoods' relative risks on a map.

Health Equity Metric: A metric is a system or standard of measurement. A health equity metric is a standardized, quantifiable way of examining health equity.

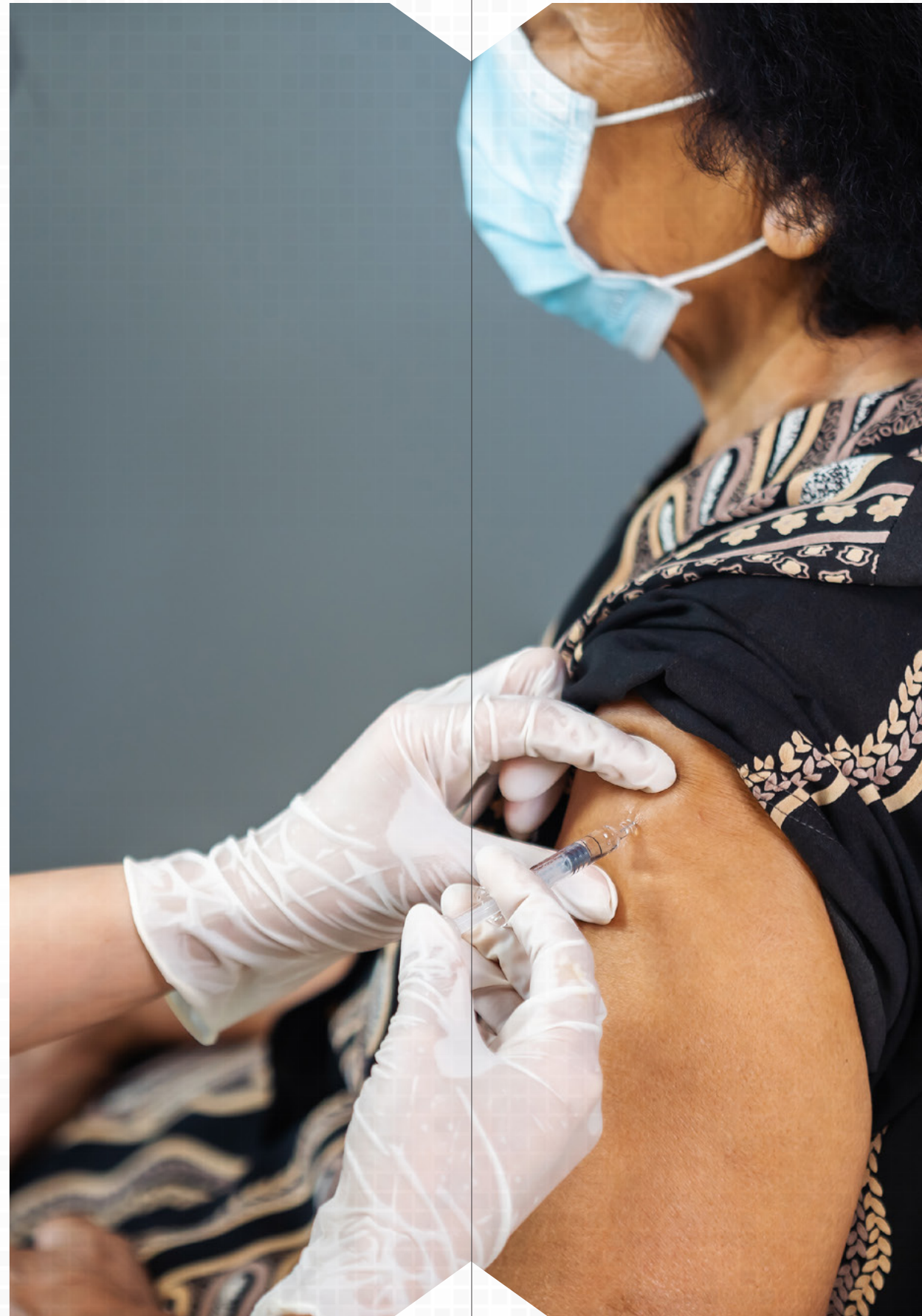
Community: A group of people who are located in a particular geographic area, or a group of people who might not be located in a single geographic area but who share a common identity, characteristic, social position, spiritual congregation, lived experience, and/or shared experience in accessing knowledge and opportunities to live in optimal health.

Health Disparities: Inequitable differences in health outcomes closely linked with social conditions. Both individuals and populations as a whole can experience health disparities. Health disparities are often associated with historical and current unequal distribution of social, political, economic, and environmental resources, as well as structural racism and other discriminatory conditions.

Social Determinants of Health: Conditions in the places where people live, work and play that affect a wide range of health risks and outcomes related to individual or population health.¹⁵ These include but are not limited to unstable housing, low-income, unsafe neighborhoods, substandard education or environmental conditions. Differences in these factors often arise from upstream factors including systemic exclusion, discrimination and racism. Addressing the social determinants of health can improve population health but is not a substitute for addressing structural inequities directly.

Equity: Just and fair inclusion in a society so that all can participate, prosper, and reach their full potential.

Immigration History: Both an individual's national origin and immigration status, recognizing that foreign-born individuals may have different experiences in the United States regardless of their immigration status.



A CASE STUDY ON CALIFORNIA'S INDEX-DRIVEN COVID-19 EQUITY EFFORTS

USING THE HEALTH EQUITY METRIC IN CALIFORNIA'S LOCAL COVID-19 TESTING AND OTHER EFFORTS

In order to address the stark inequities communities of color experienced in the pandemic, in October 2020, California's state government became one of the first nationwide to have added a Health Equity Metric (HEM) to the State's economic reopening plan ("Blueprint for a Safer Economy"). The HEM tied local governments' ability to reopen businesses with their ability to eliminate disparities in COVID-19 test positivity rates in the most vulnerable communities.

A key aspect of the Health Equity Metric is that it requires counties to examine their COVID-19 test positivity disparities using an area-based social index: the Healthy Places Index (HPI).¹⁶ The HPI composites 25 indicators that measure socioeconomic and built-environmental conditions which collectively predict life expectancy at birth.¹⁷ By computing these upstream determining factors of health, the HPI assesses healthy community conditions and assigns a score (in percentile) to each Census tract. Neighborhoods with the lowest scores are considered the most vulnerable.

Under this system, counties with a population size at or over 106,000 were required to address the disparities in the lowest quartile of their constituent census tracts on the Healthy Places Index map, which was referred to as the county's Health Equity Quartile. In order to move to a less restrictive reopening tier, counties needed to make sure the test positivity rates in this quartile were not behind the county's average. Additionally, all counties regardless of size were required to submit a plan to the California Department of Public Health elaborating how they would make targeted investments to control the spread of COVID-19 among their most vulnerable populations. Although not required, many counties opted to use the Healthy Places Index to identify these populations. In comparison, Los Angeles County selected their priority populations based on some of the hardest hit race and ethnicity groups rather than using a place-based strategy.¹⁸

USING THE VACCINE EQUITY METRIC IN CALIFORNIA'S STATEWIDE COVID-19 VACCINATION DISTRIBUTION

Starting March 2021, the California state government created a Vaccine Equity Metric (VEM) to track the distribution of four million COVID-19 vaccines to ZIP codes deemed the most “vulnerable” among communities statewide. These vulnerable communities were identified using an area-based social index based on the HPI, but with several key changes to the HPI’s methodology.¹⁹ These changes include the imputation of scores for HPI-excluded areas based on education and income, and the use of larger ZIP code tabulation areas (ZCTAs) as opposed to smaller census tracts, despite criticisms about the statistical validity and reliability of these changes.²⁰

Forty percent of California’s total vaccine doses were dedicated to ZCTAs with VEM index scores ranking in the lowest quartile statewide, often referred to as the statewide Vaccine Equity Quartile. The other sixty percent of the vaccines were distributed among the remaining VEM quartiles in the state. Eligibility to receive these allocated vaccines also followed the State’s age and occupation-based prioritization plan.²¹

COMPARING CENSUS TRACTS AND ZIP CODE TABULATION AREAS

GEOGRAPHIC REGION	DEFINITION ²³
ZIP Code Tabulation Area (ZCTA)	Approximate area representations of U.S. Postal Service (USPS) five-digit ZIP Code service areas. USPS defines ZIP codes and uses them to facilitate mail delivery.
Census Tract	Small, relatively permanent statistical subdivisions of a county or equivalent entity designed for statistical analysis. Local participants help update their boundaries.

USING THE VEM DID NOT FULLY ACHIEVE INTENDED EQUITY OUTCOMES

The use of place-based social indices was an important step to start centering equity in the State’s COVID-19 responses. For instance, by adding a Health Equity Metric to the State’s reopening plan, addressing inequities was no longer an afterthought but an outcome requirement, especially for local jurisdictions with a significant population size. Meanwhile, counties had the flexibility to identify their local priority populations either relying on the HPI or using their own data and methods.

Compared to the layered use of the HPI in the HEM and the local flexibility in self-determining priority populations, the VEM was a more prescriptive and top-down approach as local jurisdictions had little

flexibility in who they could deliver the COVID-19 vaccines to when it comes to addressing inequities (i.e. the 40% equity allocation). Furthermore, the VEM significantly deviated from HPI’s methodology or fidelity, including imputing data for HPI-excluded geographies and using ZCTAs instead of Census tracts. These factors likely contributed to the uneven progress towards the goal of boosting vaccination rates among those deemed the most vulnerable.

Publicly available vaccination data indicated that even though the Vaccine Equity Quartile ZIP codes were allocated 40% of all doses, these ZIP codes still had the lowest vaccine acceptance. These disparities were still present as of April 15, 2021, when

the state announced it had surpassed its stated commitment of delivering four million doses delivered to the Vaccine Equity Quartile communities and opened up vaccine eligibility to all Californians ages 16 and older.²² The table below lists recent COVID-19 vaccine administration and vaccine acceptance rates by Vaccine Equity Quartiles, where the First Quartile is the “sickest” quartile and the Fourth Quartile is the “healthiest”.



Table A. Statewide COVID-19 Vaccine Administration and Vaccination Acceptance Rates by Vaccine Equity Quartiles as of April 15, 2021 ²⁷

VACCINE EQUITY QUARTILES	SHARE OF ALLOCATED DOSES	VACCINATION ACCEPTANCE RATES
First Quartile (i.e. the sickest VEM score)	40%	24.5%
Second Quartile	20%	29.2%
Third Quartile	20%	34.1%
Fourth Quartile	20%	39.3%

We also found that the State’s vaccination distribution efforts failed to achieve racially equitable outcomes. As of June 2021, vaccination rates for Black and Latinx residents, who had already suffered the highest rates of COVID-19 infection and death, continued to lag behind the state average.²⁴ This outcome is alarming, especially given the fact that Black and Latinx Californians are overrepresented in the Vaccine Equity Quartile ZIP codes (first quartile) which were prioritized for vaccine distribution.²⁵

Furthermore, we learned from our community partners that because the VEM did not compute language, multifamily and multigenerational housing, or migration history, it overlooked many linguistically isolated, vulnerable communities, including Asian American, Native Hawaiian and Pacific Islander (AANHPI) and indigenous migrant communities, and

underplayed the barriers they faced. Many of these communities have had significantly higher COVID-19 infection and death rates and experience additional hardship in accessing COVID-19 related services.²⁶ Finally, community partners who serve other vulnerable populations such as the LGBTQ+ communities and persons with disabilities also reported being excluded from the VEM-driven approach in vaccine distribution, as these communities are rarely reflected in geographic sample-based data such as the U.S. Census Bureau American Community Survey that the VEM relies on.

To further understand why area-based social indices can fall short as tools to adequately address racialized health inequities, we also analyzed and compared across several indices and listed our major findings and recommendations below.



FINDINGS AND RECOMMENDATIONS



FINDING 1

Indices are most effective at helping policymakers identify and address inequities when paired with other tools and strategies including authentic, targeted community engagement and long-term structural reforms

Overall, we found that while indices are promising tools for advancing health equity, indices by themselves are insufficient to identify and address disparities without authentic, targeted community engagement and strategies to address long-standing structural inequities.

Indices provide policymakers with a standardized, quantitative framework to rank neighborhoods according to need when making decisions about resources and interventions. They make it easier to consider a wide array of community conditions when making complex decisions about resource allocation over a large number of neighborhoods or geographic regions. By standardizing neighborhood prioritization, indices are supposed to help reduce the impact of implicit and explicit biases on resource allocation and eligibility decisions.

However, area-based social indices themselves are not perfectly objective tools, nor are their design and programming free from historic and systemic biases. Using an area-based social index to identify and prioritize at-risk communities, without directly engaging these communities may end up further alienating and disenfranchising the communities it is seeking to help, pushing us further away from

equity goals. Relying on one quantitative tool alone to solve health inequities also risks overlooking or oversimplifying the deeper, underlying drivers of health inequities, including institutionalized racism, discrimination and exclusion that require additional, dedicated strategies, resources and plans to address them.

For example, the State's approach to vaccine distribution may have failed to fully close the equity gap due to structural challenges unrelated to vaccine supply, including the lack of culturally congruent or linguistically accessible strategies to raise awareness about vaccine availability and safety, mass drive-up vaccine distribution sites inaccessible to those without a car, as well as challenges faced by essential workers unable to meet stringent documentation requirements or who had difficulties taking time off from work to get a vaccine. These barriers especially impacted vaccine access and uptake rates by low-income communities, rural communities, linguistically-isolated communities, older adults, and individuals living with disabilities. Directly engaging these communities who have deep understanding of these barriers and can propose solutions will strengthen an index-driven approach.



RECOMMENDATIONS:

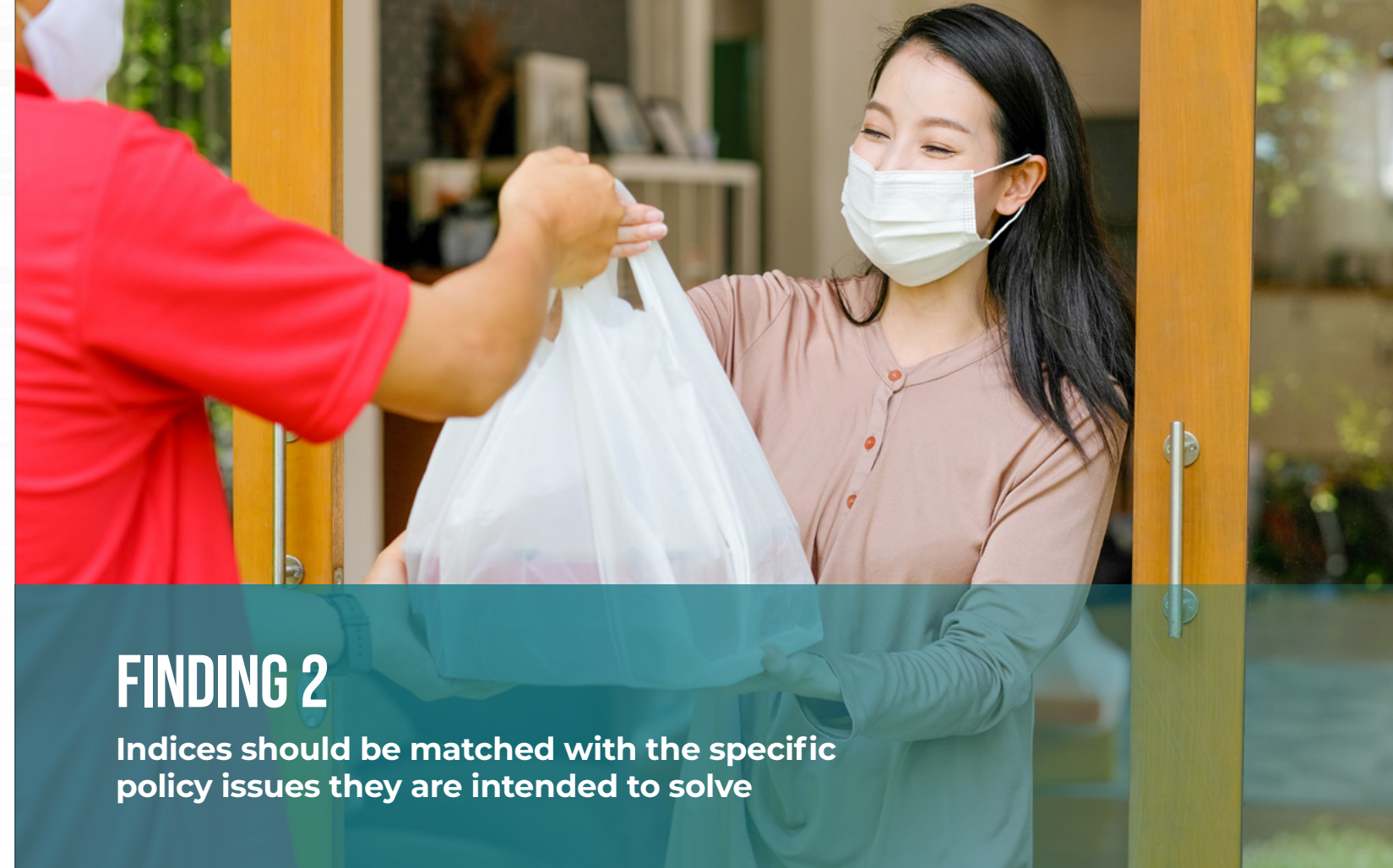
1.1 Center decisions and policy-making around community input, needs and preferences: The adoption of “equity” indices, while a welcome policy step, is still a top-down approach to equity that should never replace directly engaging with the community members who it is seeking to help. Specifically, stakeholders including community based non-profit organizations (CBOs), community-based providers, grassroots advocates and leaders, and those with lived experiences should have a say in the planning and development of any public health strategies, especially from early on. These include decisions around whether or not to use area-based social indices as part of the strategies at all, and if so, which indices to use. Funding should be made available to compensate for the stakeholders’ time and contribution.

When using indices to address inequities for a particular population or problem, there should be consistent, authentic, and intentional public stakeholder processes. Further support should also be made available to community members who have been historically excluded from public participation. When using an index to solve a public health problem, there should be adequate funds and resources dedicated to tracking and evaluating its development and implementation in order to ensure the equitable outcomes that policymakers are aiming to achieve. This also includes dedicating resources to publicize and conduct community education on the index being considered, including explaining its underlying assumptions and variables, so that directly impacted communities can understand and examine whether it works for their own communities and not be excluded from relevant conversations.

1.2 Identify targets, set measurable benchmarks and create a comprehensive community-centered action plan for achieving equity: While indices can provide great insight into health disparities, they do not automatically guarantee actionable progress towards closing health disparities. Rather, effective strategies need to combine any index or data-driven insights with community-centered strategies. Community-centered strategies are key to addressing the root causes of disparities while holding decision-makers accountable for achieving measurable disparity reduction. For example, the Blueprint for Economic Reopening instructed counties to develop population-specific plans to reduce COVID-19 disparities. It then used an index to track progress towards reducing disparities as a mandatory condition for relaxing public health restrictions. In contrast, the State’s vaccine distribution strategy merely used an index to allocate vaccines, but did not have any specific strategy to hold decision makers accountable to reducing known disparities.

1.3 Be explicitly antiracist and make long-term state and local reforms to rectify historic injustices: As the devastating and unjust health and social impacts of COVID-19 have demonstrated, maintaining the status quo is no longer an option. While indices can help policymakers better target interventions in the short-term, longer-term investments and commitments are needed to dismantle systemic racism. This includes declaring racism as a public health crisis, followed with examining and reforming governmental practices and procedures with explicitly antiracist principles.²⁸

With a historic state budget surplus in 2021, California’s leaders have a once-in-a-lifetime opportunity to begin dismantling structural racism, rebuild communities, and become the nation’s leader in advancing health equity and racial justice. California’s lawmakers should consider making tangible budgetary investments to address systemic racism, including investing in community supports, and creating a grant program for culturally and linguistically diverse community-based organizations to support racial justice innovations. These types of long-term, large-scale investments are needed to reform and rebuild our public health systems so they are responsive to, and more accurately addressing, health and racial inequities.



FINDING 2

Indices should be matched with the specific policy issues they are intended to solve

An index’s design reflects assumptions about its intended use. During the design process, an index’s authors will make a series of decisions about what data to include or exclude, how important each included piece of data should be, and how specific the index should be. These decisions will impact the situations where the index is ultimately appropriate to use. To start with, indices can be categorized by their level of specificity. We also compared five selected indices by showcasing their respective intended use and underlying data variables, as listed in Table B.

- **A specific-purpose index** is designed to include data measurements that are believed to be closely linked to a specific issue or use. For example, the CDC’s Social Vulnerability Index was designed with the specific aim of helping disaster response planners identify neighborhoods that are vulnerable to human suffering and financial losses following a disastrous event.²⁹ CalEnviroScreen is an index used by California state planners to identify communities most affected and vulnerable to the effects

of pollution.³⁰ The U.S. COVID Community Vulnerability Index (CCVI) is a specific purpose index that summarizes local factors that may increase community vulnerability to COVID-19.³¹ Other examples include the Health Resources & Services Administration (HRSA) Unmet Need Score (UNS) which is used to detect medically underserved areas, and the Service Area Needs Assessment Methodology (SANAM) that is used to generate an Unmet Need Score (UNS).³²

- **A general-purpose index** incorporates a broad range of data measurements linked to various public health issues, but may not identify communities vulnerable to a specific public health concern with the same level of specificity as a specific-purpose index. For example, the Healthy Places Index is a general-purpose index that summarizes a variety of factors that predict life expectancy at birth.³³ Similarly, the Area Deprivation Index is used to rank neighborhoods by socioeconomic disadvantages within a geographic region.³⁴

Table B. Comparison of Selected Area-Based Social Indices

INDEX	SPECIFICITY	ABSTRACT CONCEPT OR FACTOR MEASURED BY THE INDEX	UNDERLYING MEASURES USED TO CREATE THE INDEX
Healthy Places Index ³⁵	General	Factors associated with life expectancy at birth	Combination of measures related to economic security, food, shelter, healthcare access, clean environment, neighborhood safety, transportation, education, social connection and political participation
Social Vulnerability Index ³⁶	General	Factors affecting the resilience of communities during a disaster and the subsequent recovery	Combination of measures related to socioeconomic status, household composition and disability, racial/ethnic minority status (non-White population) and language (Limited English proficient population), and housing and transportation
Area Deprivation Index ³⁷	General	Socioeconomic disadvantage in a region of interest	Combination of measures related to income, education, employment, and housing quality
Pre-Existing Health Vulnerability Index ³⁸	Specific	Novel measure of risk or severity of COVID-19 infection due to pre-existing health conditions	Combination of six measures related to diabetes, obesity, heart disease, overall health status, mental health, and food insecurity
U.S. COVID Community Vulnerability Index ³⁹	Specific	Novel measure of vulnerability to worse health, economic, and social outcomes due to COVID-19	Combination of measures related to socioeconomic status, racial/ethnic minority status and language, household and transportation, epidemiological factors, health care system factors, high-risk environments, and population density

As illustrated, indices can be constructed to capture or represent a wide variety of different concepts including but not limited to the social determinants of health, disease risk, and more. Because of the wide variation in concepts represented by an index, practitioners must carefully match indices to their application. **When there is a mismatch between**

the concepts an index models, the outcomes it is meant to represent, and the factors that contribute to a policy issue or disparity of interest, we may miss key communities we aim to prioritize. In their paper *Assessing Vulnerability Indicators and Race/Ethnicity*, Paul M. Ong, PhD and Jonathan D. Ong compared several pre-pandemic



general-use indices to a novel index constructed specifically for the pandemic, and noted significant geographic and demographic differences amongst those who various indices identify as vulnerable communities.⁴⁰ They also noted in their analysis that some general-purpose indices may not give good insight into specific risks and challenges that may drive COVID-19 vulnerability. Ninez A. Ponce, PhD, MPP also made similar findings in her analysis of how area-based social indices have underrepresented certain racial and ethnic groups, especially Native Hawaiians, Pacific Islanders, and Filipinx.⁴¹

The COVID-19 Community Vulnerability Index (CCVI), which was designed specifically to address the COVID-19 pandemic, models the best practice of designing an index around its application. The index includes forty variables that cover seven core Social Vulnerability themes, as well as additional relevant factors that make a community or individual susceptible to the health and social impacts of the COVID-19 pandemic.⁴² For example, the CCVI accounts for the kinds of jobs that local residents work in, recognizing that certain occupations are at higher risks for COVID-19 exposure than others. The methodology and evaluation have been made publicly available and the index has been updated in real-time to reflect additional learnings from its applications.

RECOMMENDATIONS:

2.1 Select and modify indices as appropriate to adequately address the problems they are trying to solve: Because an index’s design is guided by assumptions about its intended use, before recommending a blanket adoption of any one index, policymakers should identify the specific outcomes the index is intended to address and determine whether the index includes the appropriate data inputs and outcome measures to achieve the policy goal. Policy makers should also consider working with the developers of these indices to tailor or modify the index to better serve their goal, for instance, when additional data layers are needed to fully capture the nuances of racial inequities. Matching the right index to a policy goal will help prevent overlooking key populations that may otherwise be left behind.

2.2 Establish a transparent stakeholder process that includes researchers and impacted communities when selecting an index: Because indices may potentially impact resource access for marginalized communities, agencies looking to adopt their use should ensure that impacted communities are able to inform their use and guard against unintended consequences. Likewise, policymakers should consult with researchers including those from impacted communities with technical expertise to assess if the use of an index is appropriate for a given application.

2.3 Ensure proposed changes in methodology do not inadvertently weaken or alter the strength or predictive value of the index: Because even subtle changes to an index’s methodology may impact its behavior, caution must be taken before modifying an index. Any changes should be validated to ensure they do not have unintended consequences for marginalized communities.

2.4 Ensure the methodology, underlying measures and metrics of indices are available for public review and updated regularly to incorporate new findings and learnings: Policymakers should ensure the methodology and evaluation of area-based social indices are made publicly available, allow for public input, and are updated frequently or in real-time to incorporate additional insights from the public, especially interested stakeholders, such as CBOs and other community-based data experts when the indices are being used.



FINDING 3

Indices must directly factor in race, ethnicity, language and other sociodemographic variables to adequately address systemic racism, discrimination and exclusion

Although advancing racial equity is often a key reason to use a social vulnerability index, we found that many indices do not directly consider the racial and ethnic makeup of a community, nor do they incorporate disaggregated measures of community conditions by race and/or ethnicity. In addition to the lack of race and ethnicity analyses, many of them do

not directly factor in other key factors that underlie health inequities including primary language, sexual orientation, gender identity, disability status, and/or immigration status and/or history. In reviewing the selected five indices, we found major discrepancies in whether or not they directly factor in these key sociodemographic factors, as shown in Table C.

Table C. Inclusion of key demographic factors that underlie health inequities in selected indices

INCLUSION OF FACTORS	RACE AND ETHNICITY	LANGUAGE	IMMIGRATION HISTORY	DISABILITY STATUS	SEXUAL ORIENTATION AND/OR GENDER IDENTITY
Healthy Places Index	Available Option	No	No	No	No
Social Vulnerability Index	Yes	Yes	No	Yes	No
Area Deprivation Index	No	Yes	Yes	No	No
Pre-Existing Health Vulnerability Index	No	No	No	No	No
U.S. COVID Community Vulnerability Index	Yes	Yes	No	Yes	No

One possible reason for the lack of direct consideration of race, ethnicity and other key factors is that many decision-makers conflate addressing the social determinants of health (e.g. housing, transportation and education resources) with addressing institutionalized racism, discrimination and biases. While it is true that inequitable access and unfair distribution of resources like safe neighborhoods, stable housing, healthy foods and quality jobs can contribute to racialized health disparities, these factors are not the underlying causes of racism and cannot be used as proxies for the effects of systemic racism. Many people of color experience worse health outcomes despite the presence of similar built-environment resources, due to both interpersonal discrimination (i.e. stigmatizing treatment from authorities and health care providers, authority unconscious and conscious biases) and structural discrimination (i.e. long-term underinvestment and disinvestment, and the absence of culturally and linguistically appropriate services). Addressing the social determinants of health alone without explicitly and directly addressing the structural racism, ableism, homophobia, transphobia and other types of systemic discrimination that impact all fibers of our society will run the risk of perpetuating health disparities.

Further, racially discriminatory laws and policies may cause decision-makers to avert explicit discussion around race and ethnicity. For instance, The Healthy Places Index cites California Proposition 209, which enacted a statewide ban on affirmative action in public institutions, as a legal barrier to the use of certain demographic measures in indices used to make resource allocation decisions.⁴³ As a workaround, the Healthy Places Index instead provides this information to decision-makers via a supplemental version of the index.

Regardless of the reason, the exclusion of demographically disaggregated measures in many indices diminishes their capacity to adequately account for disparities resulting from the harmful impact of systemic racism, discrimination and exclusion based on race, gender, immigration and other factors.



RECOMMENDATIONS:

3.1 Use indices that explicitly address racial, ethnic and other health disparities: Addressing systemic racism or other types of discrimination must be a central component in all public health strategies. This means that all public health indices must go beyond just addressing the social determinants of health and explicitly include variables on race, ethnicity, immigration, language, sexual orientation, gender identity and disability status, which are factors shown to predict health disparities. Policymakers should use a race explicit index when the goal is to advance racial equity, and encourage existing indices to include these key factors as well.

3.2 Include direct community input in the development of indices to ensure interventions are targeted to those who are most in need: Adoption of indices that directly address racial, ethnic and other health disparities, while a welcome policy step, will be more effective when paired with additional strategies, especially including targeted community engagement to ensure community input for any proposed indices.

3.3 Pass laws and issue regulatory guidance that promote strategies that explicitly address structural racism and discrimination: The most effective approaches to addressing health inequities require explicit consideration of structural inequities. Policymakers must work to change relevant portions of the law to embrace these approaches and facilitate greater investment into strategies that directly address racism. This includes repealing laws such as Proposition 209, which are often cited as barriers to creating public policy that acknowledges and addresses structural inequities.



FINDING 4

The effectiveness of indices can be improved more broadly by employing research practices in statistical analysis that will result in better demographic data collection and reporting

Even when an index does factor in sociodemographic data such as race, ethnicity and language, it may still be inadequate in capturing the needs of communities who are small in size, heterogeneous, displaced and/or geographically dispersed, and are often poorly represented in public datasets. As indices are generally used to identify geographic locations with concentrated health needs, they may not effectively capture the needs of certain kinds of populations, especially during a public health crisis like the COVID-19 pandemic. CPEHN community partners highlighted a number of cases where California's index-focused COVID-19 equity efforts failed to account for specific community needs:

- **Small populations.** Community partners shared that American Indians and Alaska Natives, Native

Hawaiians, Pacific Islanders, and some Asian American subgroups are frequently undercounted or aggregated under other larger groups. As a result, datasets may not provide a full or precise view of these populations and their needs, which are overshadowed or masked by other larger populations.

- **Heterogeneous ZIP codes.** Canal Alliance, which works in Marin County, found that local communities with serious health needs were often overlooked because the State's approach used ZIP codes, which are not always demographically homogeneous. As a result, low-income communities sharing a ZIP code with higher-income communities were not prioritized during the COVID-19 vaccine distribution.

- **Migrant workers.** Mixteco Indigena Community Organizing Project (MICOP), an organization working with indigenous migrant workers in the Central Coast, found that commonly-used demographic questionnaires did not reflect the ethnic identities of many migrant indigenous workers, preventing them from being accurately captured in any public datasets. Many also only speak native pre-Hispanic indigenous languages and are excluded from strategies that focus on more commonly spoken languages like Spanish.
- **Geographically dispersed vulnerable populations.** Persons with disabilities are more integrated into communities as a result of civil right laws. The use of area-based social indices may unintentionally reverse the progress made by attempting to group these communities into a particular geographic area, rather than accounting for the fact that they may be more dispersed across geographic regions.

Current limitations in data collection and data disaggregation also contribute to the deficiency of such data-driven indices. For instance, many underlying data sources do not collect or report demographically disaggregated measures, especially at the neighborhood level such as ZIP codes or census tracts, limiting the construction of disaggregated demographic index measures that can reveal local disparities. The paucity of disaggregated data and a lack of consistency across geographic regions runs the risk of masking social impacts, particularly for smaller populations. Further complicating these issues are a lack of clear standards for collecting detailed data on race, ethnicity, language, disability status, sexual orientation and gender identity, sometimes resulting in incomparable categories between datasets that do provide this information. These complications are exacerbated by privacy and confidentiality concerns that can hinder reporting of critical disaggregated data if not properly addressed. Although some area-based social indices try to address the lack of disaggregated data by including measures of neighborhood composition as an additional index input factor (e.g. considering the portion of non-Hispanic whites within a geographic region), this approach may not be sufficient to uncover the presence of racialized health disparities within a given community.

“

OMAR CARRERA,
CEO, CANAL ALLIANCE

The canal has one of the poorest [communities] in the entire state of California. But it was not included in the HPI lowest quartile because that community is connected to a bigger, wealthier ZIP code in the city of San Rafael.

RECOMMENDATIONS

4.1 Employ research methods that are compatible with small groups, including oversampling and the use of multi-year pooled data, while also providing more equitable data access to allow community researchers to access sensitive datasets: Although small demographic groups can be hard to sample, adoption of best practices in statistical measurement, such as oversampling or use of multi-year data are promising approaches that can help researchers deal with data instability due to smaller sample sizes. Additionally in instances where there is a strong public health alignment and there are data use agreements, transaction costs for researchers to access confidential data should be lower in order to achieve more equitable outcomes.

4.2 Expand the list of data sources that provide demographically disaggregated measures: State and local policymakers should require the collection and reporting of disaggregated sociodemographic data, including race, ethnicity, language, sexual orientation, gender identity, and disability status, especially at the neighborhood level. Where possible, agencies should model their approaches off of existing best practices for disaggregated data collection and reporting, such as the approach used by the California Health Interview Survey.

“

DOREENA WONG JD, POLICY DIRECTOR, ASIAN RESOURCES, INC

[When the state decided to use the Healthy Places Index (HPI) as its health equity tool, in order to] ensure equity, we recommended using additional factors to create an “HPI plus” equity tool to take into account smaller and non-geographically located populations, such as smaller Asian American, NHPI, and AI/AN populations. The allocation of 40% of those lower HPI quartiles was not adequate for some communities like ours. In order for any indices to be effective, strategies that incorporate the wisdom and expertise of trusted community members, CBOs, and other trusted entities that are tailored to address the immediate and long term goals should be adopted, as well as investments for such engagement, to fully address racial and health inequities.

4.3 Provide clear standards for collecting detailed race, ethnicity, language, sexual orientation and gender identity demographic data:

Although health disparities are well-documented, significant variation in demographic data collection and reporting exists, with some counties still failing to report even basic race and ethnicity data for key public health measures like COVID-19 infections and deaths. State public health and health agencies should implement AB 1726 (Bonta) and issue standard guidance and requirements that expand on and map back to existing federal standards as these would be helpful, particularly for collecting and reporting data for smaller Asian American, Native Hawaiian and Pacific Islander populations and American Indian/Alaska Native populations for which disparities are well-documented. Further, collection and reporting of demographic data should be expanded to additional subpopulations such as persons with disabilities and LGBTQ+ communities.

4.4 Consider better spatial measures of need than ZIP codes:

ZIP codes identify post offices and metropolitan delivery areas associated with an address, and are designed primarily to facilitate timely mail delivery.⁴⁴ As a result, their boundaries may vary widely in geography and neighborhood composition, and may also combine or split historic neighborhoods based on mail delivery. As such, their use by

public health entities as a primary way to understand neighborhood health disparities is concerning, given the potential to erase historic neighborhoods where inequities may be concentrated. Policymakers should consider better measures of spatial need such as census block groups, local or regional planning districts or municipal designations for neighborhoods, such as neighborhood councils within cities as they may more accurately capture the experience of local communities.

4.5 Invest in additional tools to understand community needs and preferences:

Investing in additional tools such as surveys and participatory hearings can also help policymakers understand health inequities and ensure decisions reflect the needs of diverse communities. Moreover, policymakers should ensure surveys and other community assessment tools are easy to understand, culturally appropriate and translated into multiple languages. Additionally, there should be investment in community outreach to ensure adequate survey uptake by all communities to accurately capture the needs of underserved communities. Direct, authentic and intentional engagement with communities should always be a primary tool in addressing racialized health disparities and a complementary strategy to insufficiencies in collecting and reporting racial and ethnic data.

“

TAVAE SAMUELU, EXECUTIVE DIRECTOR, EMPOWERING PACIFIC ISLANDER COMMUNITIES (EPIC):

I want policymakers and researchers to understand that data, for all its pursuits of objectivity, is not neutral. Because of that, there needs to be an active practice that prioritizes justice and equity making data a tool for the survival of communities of color and not a weapon for erasure.

“

VANESSA TERÁN, POLICY & COMMUNICATIONS ASSOCIATE, MIXTECO/INDIGENA COMMUNITY ORGANIZING PROJECT (MICOP)

When our migrant communities who speak indigenous languages are asked to mark their race/ethnicity, there is no current race/ethnicity question that allows them the opportunity to identify as Mixteco, or Zapoteco, etc. It was only this past year in 2020 where our community was able to self identify in this manner with a prefilled box. Whereas before it was leading to confusion on marking Latino/a or White or leaving us to the option of “other,” further othering us instead of uplifting us because there was not an option to list which “other” community we were from, and even more there are no services in their primary/preferred language. Our indigenous communities are rarely reflected on these maps.

CONCLUSION

The adoption of area-based social indices to address health disparities is an important new development in federal, state and regional policymaking. While these indices are an exciting part of a toolkit for racial and health equity, to be most successful they must directly address the underlying causes of structural racism, discrimination and biases. Additional limitations on race and ethnicity data necessitate the inclusion of community centered strategies to ensure interventions are targeted to those with the greatest needs. Adoption of area based social indices can supplement but should never replace authentic, intentional engagement with impacted communities during the planning, implementation and evaluation of any public health strategies.

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The California Pan-Ethnic Health Network (CPEHN) is a multicultural health policy organization dedicated to improving the health of communities of color in California. CPEHN's mission is to advance health equity by advocating for public policies and sufficient resources to address the health needs of the State's new majority. We gather the strength of communities of color to build a united and powerful voice in health advocacy. More about CPEHN can be found here: www.cpehn.org

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ENDNOTES

1 We would like to recognize that the modern usage of the slogan, often used by many marginalized groups, traces its roots to the work of disability rights activists. To learn more, please visit: https://www.ynpntwincities.org/_nothing_about_us_without_us_including_the_use_of_this_slogan

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