

Hawai‘i Journal of Health & Social Welfare

A Journal of Pacific Health & Social Welfare

October 2021, Volume 80, No. 10, Supplement 2, ISSN 2641-5216

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Advancing Health Equity in Hawai'i: Critical Reflections on COVID-19, Chronic Conditions, and Health Disparities

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COVID-19, the disease caused by the SARS-CoV-2 virus, manifests most visibly among those individuals and communities that our social and economic policies have marginalized, overlooked, or exploited. Epidemiological evidence clearly demonstrates that the groups of people most at risk of infection, hospitalization, and death from COVID-19 are those most vulnerable in our society, such as those living in congregate settings,^{1,2} those incarcerated or in detention centers,^{3,4} racial/ethnic minorities and Indigenous peoples,^{2,5,6} and people with physical and mental disabilities.^{7,8} Often, these vulnerable groups overlap.^{2,7}

A common factor impacting many people disproportionately affected by COVID-19 is the inequitable distribution of the social determinants of health, which describe the conditions people experience in the places they live, learn, work, and play.⁹ Throughout the pandemic, people earning low wages,¹⁰ living or working in crowded conditions,^{2,10,11} lacking or having insufficient insurance,¹² working in low status or informal jobs (e.g. farmworkers, in meat processing plants),^{13,14} with low educational attainment,^{15,16} with uncertain or no legal status,^{2,16} or with limited English proficiency^{11,15} have been at increased risk of contracting the virus, and once infected, of hospitalization and death.

Those most vulnerable to COVID-19 also tend to be disproportionately affected by chronic conditions such as heart disease, diabetes, and asthma. For example, it is well documented in Hawai'i and elsewhere in the US that Native Hawaiians, Other Pacific Islanders, and Filipinos (NHPIF) have a higher prevalence of chronic conditions than other populations.¹⁷⁻²⁰ Moreover, for these populations, chronic conditions tend to occur earlier in life, are more severe, and are less well-managed.^{20,21}

Chronic conditions and poor COVID-19 outcomes are tightly related. In February, the *Journal of the American Heart Association* published a highly influential paper showing that just 4 conditions were associated with more than 60% of COVID-19 hospitalizations in the US: diabetes, hypertension, obesity, and heart failure.²² Moreover, the proportion of black Americans hospitalized with COVID-19 and having 1 of these 4 conditions was higher than white, Hispanic, and Asian/other patients, at all ages, reaching up to 80% of COVID-19 hospitalizations among adults 65 years and older.²² In Hawai'i, cardiometabolic conditions such as diabetes and hypertension are highly prevalent and much more common among NHPIF than among other racial/ethnic groups.^{17,18} In particular, Other Pacific Islanders and

Filipinos have been disproportionately affected by COVID-19.¹⁰ For example, as of March 2021, Other Pacific Islanders were 14 times more likely than the general population of Hawai'i and 40 times more likely than white individuals in the state to die of COVID-19.¹⁰

The underlying determinants for COVID-19 and chronic conditions are often the same.²³ Structural vulnerabilities such as inadequate access to food and housing, financial insecurity, discrimination, and uncertain legal status² are all factors that reflect social and political decisions about who does or does not benefit from the resources (e.g. economic, health services), power, and prestige accorded to members of society. For example, until December 2020, approximately 25 000 Micronesians in Hawai'i, constituting a significant proportion of the state's Other Pacific Islander population, were excluded from Medicaid and required to have (supplemental) private insurance instead, which often must be obtained through an employer.²⁴⁻²⁶ In a state that, throughout the pandemic, regularly had the highest unemployment in the US,²⁷ a lack of access to the social safety net of Medicaid likely resulted in significant disparities in access to care and jeopardized quality disease management for many Micronesians. This may be one reason for the significantly heightened risk of hospitalization and death from the SARS-CoV-2 virus in this group.¹⁰ True resolution of such structural vulnerabilities will require systems, environmental, and policy changes that fundamentally restructure society and redistribute power more equitably.

In this special issue of the *Hawai'i Journal of Health & Social Welfare* are a series of articles that examine the COVID-19 outbreak in Hawai'i through a lens that explicitly acknowledges the interrelated nature of infectious and chronic diseases and the underlying conditions that contribute to both. This issue begins by examining the challenges and impacts of COVID-19 on Hawai'i communities. In the first section, Zhang and colleagues quantify psychological distress reported from April to November 2020 among a representative sample of Hawai'i households. This article is complemented by a qualitative study by Riley et al of residents' views during COVID-19, which highlights their strong desire for improved food security through better preservation and stewardship of the land. To close out the first section, Pelzer and colleagues discuss the unique issues faced by new mothers during the pandemic by exploring current breastfeeding challenges and the potential implications of lower breastfeeding levels on chronic disease across the lifespan.

The second section of this special issue describes the varied responses taken to address the disease outbreaks in Hawai‘i, especially among highly vulnerable communities. Shek et al provide a detailed description of the responses taken within Hawai‘i’s Micronesian community, one of the groups most affected by COVID-19 in the state. Next, Kamaka and colleagues discuss the data deficiencies that hindered prompt recognition of the deadly outbreak among Other Pacific Islanders and what steps have since been taken to address those deficiencies. Finally, Moir et al outline the actions of an often under-celebrated group of health care providers working on the frontline of the pandemic: community health workers.

In the third and final section of this special issue, the authors provide several perspectives on advancing health equity and building resilience to future threats. Kamaka and colleagues present a Native Hawaiian cultural framework for advancing COVID-19 related and community-informed health policies. This paper is followed by the work of Sentell et al describing the need for and benefits of improving health literacy in the state. Finally, McGurk and colleagues present a policy perspective, focusing on the advantages of legislation for a sugar-sweetened beverage fee in order to reduce obesity and diabetes, 2 leading contributors to COVID-19 related hospitalization and mortality.²²

This special issue offers a number of perspectives and paths forward for addressing some of the root causes of both COVID-19 and chronic disease in Hawai‘i. However, more work is still needed, especially in light of alarming viral variants and low vaccination rates in certain groups.^{28,29} As of July 2021, all 4 counties in Hawai‘i had cases of the highly transmissible Delta variant, which may also cause more severe disease. For this variant, there is evidence of local transmission.²⁸ Other variants of concern present in the state include Alpha, Beta, and Gamma; preliminary studies suggest that vaccination may be less effective at preventing infection with Beta and Gamma variants.²⁸ Vaccination rates in the state vary widely.²⁹ Communities that previously had the highest rates of COVID-19 infection continue to experience heightened vulnerability to the disease because they also have some of the lowest vaccination rates. For example, as of July 13, 2021, Native Hawaiians and Other Pacific Islanders were underrepresented in terms of their percentage of the vaccine recipient population (17%) as compared to their share of the state population (25%).²⁹

There are also significant research gaps in the understanding of risk factors for COVID-19 among youth and if and how these might relate to underlying chronic disease. Research in Hawai‘i has shown that chronic conditions typically associated with later adulthood are prevalent among youths and young adults in acute care settings, especially among NHPIF.²⁰ Nationally, it has been speculated that asthma may be a risk factor for COVID-19 infection and severity among youth; yet, there are scarcely any data on this topic.³⁰ This is concerning because asthma is a prevalent health condition in Hawai‘i, especially among Native Hawaiians and Other Pacific Islanders.³¹

Another important research gap relates to health services. To date, there is limited research on how differential access to care across groups has contributed to differences in testing and vaccination rates as well as COVID-19 outcomes. This latter point relates to another concern: quality of care. The significant differences in mortality across race/ethnicity groups in Hawai‘i, especially for Other Pacific Islanders, are unlikely due solely to underlying chronic conditions. There is evidence that Other Pacific Islanders generally receive poorer quality of care than other groups in the state.³²⁻³⁴ Thus, there is an urgent need to better understand how health systems’ factors intersect with patient outcomes and if and how these contribute to health disparities.

Finally, as we move into the recovery phase of the pandemic, research needs to be directed towards a better understanding of the long-term consequences of COVID-19 on people’s health. In particular, researchers need to apply a life-course perspective to examine if and how policies such as remote learning for children and high unemployment rates during the pandemic affect people’s health throughout a lifetime.

In sum, this special issue documents the considerable advances public health and allied professionals have made in addressing an unparalleled health, social, and economic crisis. It provides lessons and paths forward for addressing the inequities in our society and ultimately promoting a healthier Hawai‘i. And, as is always the case, it acknowledges that much more work is needed to fundamentally advance health equity in our communities.

Conflict of Interest

None of the authors identify a conflict of interest.

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Vaccines and Variants, Valiance and Variance

Sarah Kemble MD; Desmond Edward PhD; Lola H. Irvin MEd; and Catherine M. Pirkle PhD

In September 2020, Richard Horton, the editor of the highly prestigious medical journal, *The Lancet*, made the provocative statement “COVID-19 is not a pandemic. It is a syndemic.”¹ In this statement, he was referring to the fact that COVID-19 and chronic conditions go hand-in-hand and cluster among groups that experience deep inequities due to their social and economic positions in society.¹

The concept of a syndemic emerged from medical anthropology in the 1990s.¹ It refers to the concentration of and interaction between two or more health conditions within a population group (and/or groups) that experiences health inequities due to conditions such as poverty, stigmatization, stress, or structural violence.² The entangled relationship between COVID-19 and chronic disease, as discussed in this special issue, exemplifies this type of interaction. A preponderance of evidence indicates that those groups most at risk of infection, hospitalization, and death from the SARS-CoV-2 virus represent those who, prior to the epidemic, already experienced the greatest health burdens, primarily from chronic conditions like diabetes and heart disease.³⁻⁸

With increasing vaccination rates and new viral variants, the epidemiology of COVID-19 is rapidly changing. With more than 80% of COVID-19 deaths occurring among people above the age of 65,⁹ older adults who, as a population, typically average 2 or more chronic conditions,¹⁰ are a high-risk group.⁹ However, in Hawai‘i, vaccination of older adults surpasses 90%,¹¹ greatly reducing their risks of serious disease and death from COVID-19. Cases are now concentrated among younger age groups (only 55% of those 18-29 are vaccinated)¹¹ and among those who distrust vaccines. It is now a “pandemic of the unvaccinated”.¹²

Youth in and of itself does not fully protect against severe COVID-19 disease and death. An “epidemic of chronic disease” was well underway before the pandemic and affected people of all ages.¹³ In Hawai‘i, there is strong evidence that Native Hawaiians and Other Pacific Islanders are more likely to be ill with chronic conditions, such as heart disease, at younger ages, including during childhood.¹⁴⁻¹⁶ Thus, while younger age protects against COVID-19 severity and mortality, the protection is not equal for all groups and existing disparities across groups, especially those socially and economically disadvantaged, exemplifies the concept of a syndemic.

When the call for papers for this special issue came out in the late summer of 2020, there was already strong evidence that

those with underlying chronic conditions were more likely to be hospitalized with and die from COVID-19.^{17,18} At that time, however, it was unknown if or when a vaccine would be available. Further, for many globally, August and September of 2020 was a highly uncertain and frightening time as cases surged during a “second wave” of the pandemic. For example, in Hawai‘i, case numbers reached a peak in August,⁸ causing government officials to issue strict restrictions on many facets of daily life.¹⁹ Unfortunately, they are again reaching an even higher peak in August 2021 than last year, but with few additional restrictions so far.

Since the original call for papers was issued, much has changed. Most critically, we now have several highly effective vaccines against COVID-19.²⁰ Additionally, treatment guidance for those with COVID-19 has evolved considerably in the 16 months since the pandemic was declared and the writing of this commentary.²¹ Relatedly, we also know a lot more about the risks of severe disease and premature death for people with chronic conditions;^{22,23} for example, there are now prediction tools for people with diabetes to better understand their individual risks of contracting a severe or fatal COVID-19 infection based on their personal clinical characteristics.²³ Simply put, compared to a year ago when this special issue was announced, we are in a much better place today to prevent disease from the SARS-CoV-2 virus and to save lives among those sickened with it.

Unfortunately, despite these rapid and impressive advancements, viral variants threaten the progress achieved to date.^{24,25} Variants describe strains of the virus that differ in terms of their nucleic acid sequence from the original Wuhan strain. Terms often used to describe these novel strains are “variants of interest” and “variants of concern”.²⁵ Variants of interest refer to those with mutations in the spike protein of the virus. These mutations are “of interest” because the spike protein is the part of the virus that binds to cells in the respiratory tract, and hence may affect transmissibility.²⁵ Variants of interest can become variants of concern, such as when they become increasingly prevalent among total cases and therefore suggestive of a heightened ability to transmit. One example of a variant of concern is Delta,²⁴ which is so highly transmittable that it has reversed national²⁶ and international trends of declining case numbers.^{27,28} Variants of concern can also describe viral strains that affect the immune response such that more antibodies are needed to neutralize an infection. These strains may curtail existing immunity from previous infection or make vaccination less effective.^{24,25} The Gamma variant is one such example²⁵ and appears to be responsible for the large COVID-19 outbreak in

December and January 2020 in the Brazilian Amazon. Many of those infected during that outbreak had had previous COVID-19 disease and thus should have been immune to new infection.²⁹

With the emergence and wide circulation of novel variants, local and global vaccination are more urgent a priority than ever, as vaccination is the most important strategy for putting an end to the pandemic.²⁰ Viruses mutate. The more a virus replicates, the more opportunities there are for mutations that result in new variants, including those of interest and concern. The best way to reduce the opportunities for mutations that affect viral transmission and/or severity is to reduce the opportunity for replication, hence the vital importance of mass vaccinations which allow us to stay one step ahead of the viral mutation process.

The state of Hawai‘i has excelled nationally in terms of vaccination coverage. As of July 19, 2021, 59.3% of the total population had been fully vaccinated, with rates varying from 61% in Honolulu to 53% in Maui county.¹¹ Comparatively, at the time, only a handful of other states and territories had vaccination rates as high or higher than Hawai‘i: Connecticut, District of Columbia, Maine, Massachusetts, Palau, Puerto Rico, and Vermont.³⁰ For a small state, Hawai‘i has also excelled in terms of disease surveillance, including the molecular sequencing of COVID-19 variants. Hawai‘i ranks second in the nation in the percent of positive cases which are sequenced and reported.³¹

These successes reflect the hard work of public health officials and their community partners. Unfortunately, despite relatively high vaccination rates, as of August 2021, Hawai‘i faced its worst outbreak of COVID-19, with hospitalizations threatening to overwhelm health systems across the state. Given the amplitude of the most recent outbreak, its control will require a massive mobilization of public health and medical resources, which is only possible with strong leadership from the most senior levels down to grass-roots community organizations.

Dating to early in the pandemic, there have been ongoing efforts by state public health officials to understand what was occurring “on the ground” in communities across the state in order to predict and adapt to how people would respond to COVID-19 public health measures. The 3R group described by Kamaka and colleagues in this special issue is one example of such a collaborative process. Crucially, ongoing efforts to engage with community leaders and stakeholders stem from a recognition that not everyone in the state has equal access of opportunity to vaccination. Some barriers to accessing vaccination are well-documented locally.³² For residents of rural communities, barriers cited in the media include fewer vaccine administration sites and appointment and walk-in hours that can conflict with work schedules.³²

Other barriers to accessing the vaccine are less apparent. As of writing, patients unaware of their access to free vaccinations were

still being reported by physicians and other medical professionals to Hawai‘i Department of Health leadership. As described in the article by Sentell et al, this example reflects a continuing need to increase health literacy among certain groups, especially among those for whom English is a second language or who do not speak English. Finally, there are barriers with regard to trust. For certain individuals and communities, historical legacies of trauma associated with public health actions, such as those criminalizing and exiling people with Hansen’s disease,³³ have resulted in a deep distrust of government-supported medical actions. For these individuals and communities, additional efforts, including taking time to build trust, are needed to increase vaccination rates.

Throughout most of the pandemic, Hawai‘i has led the nation in terms of low case counts and hospitalizations³⁴ as well as high vaccination rates.³⁰ A critical component of Hawai‘i’s success has been a deeply dedicated but relatively small public health workforce. The accomplishments of this workforce are exceptional given the critical human resources and financial shortages facing most state and county public health departments across the US. Public health has been deeply underfunded for decades, especially at local levels.³⁵⁻³⁷ Hawai‘i is no exception. In fact, many entry- and even mid-level Hawai‘i Department of Health professionals do not earn a livable wage, especially given the high cost of living in the state.^{38,39} Retention across the state bureaucracy is challenging and made worse by administrative rules that hinder efficient hiring and procurement processes. No matter how dedicated or professional the existing workforce, these challenges severely impede efficient and nimble public health responses, especially during times of crisis when maximum agility is needed. Hawai‘i’s successes in managing COVID-19 are thus all the more exceptional in the given context, but there remains an urgent need to address human resource shortages and bureaucratic hurdles.

The lack of resources for public health is not trivial. Public health, unlike medicine, is a field funded almost entirely by public dollars, yet its 2019 share of total health spending was estimated at less than 3%,³⁷ about half that of Canada or the United Kingdom.⁴⁰ Neoliberal policies that accelerated during President Trump’s tenure amplified a pattern of decades of public health neglect.⁴⁰ For example, budget shortfalls from his signature legislation—a trillion-dollar tax cut to the wealthy—justified cuts to essential wrap-around services for vulnerable populations, such as food and housing subsidies.⁴⁰ Further, in the past decade, shrinking government spending and an aging public health workforce have resulted in state and local public health agencies losing 50,000 positions, or 20% of the workforce.⁴¹ These positions represent the frontline public health professionals needed to effectively respond to crises.⁴⁰ At the national level, the CDC has experienced a 10% budget decrease since 2003. This was made worse by a 2017 hiring freeze that left hundreds of CDC positions for researchers and officials unfilled.⁴⁰ Ultimately, the dismantling of critical in-

frastructure for and chronic underfunding of public health has hamstrung an effective and efficient response to the pandemic, both locally and nationally. Worse, the crisis was predicted and its root causes explained nearly three decades ago.⁴²

Without significant and sustained investment in public health, the challenges described above will only grow. Already, many other critical public health issues are experiencing neglect due to the diversion of resources and personnel to address COVID-19. Despite the remarkable scientific success of developing new, highly efficacious vaccines for COVID-19 and their rapid roll-out in the US and other highly industrialized countries, routine childhood vaccination efforts have stalled or reversed.^{43,44} Currently, the world is facing a global vaccination crisis that extends far past COVID-19. It is estimated that 23 million children globally did not receive basic vaccinations in 2020, with many of these children affected by conflict, residing in remote locations, living in slums or informal settlements, or otherwise experiencing situations of limited access to basic health and social services.⁴³ The World Health Organization's Region of the Americas has experienced one of the most concerning drops in vaccine coverage due to funding shortfalls, vaccine misinformation, and instability.⁴³

In the US, vaccine administration data indicates substantially lower administration of routine childhood and adolescent vaccines, raising significant concerns for outbreaks of preventable diseases such as measles and potentially thwarting nationwide efforts to return children to the classroom.⁴⁴ These concerns are as compelling in Hawai'i as nationally. Prior to the COVID-19 pandemic, Hawai'i had already had a major mumps outbreak in 2017-18 and felt the impact of a measles epidemic in Samoa in 2019. While travel restrictions during the pandemic minimized the risk of importation on non-endemic illnesses, the return of tourism to the islands reignites this risk and the potential for other outbreaks. Further, children staying at home has negatively affected vaccination rates in the state. School entry vaccine requirements were not enforced for distance learners, and during case surges, many families avoided or were discouraged from attending in-person healthcare visits where routine vaccines would typically be administered. On top of it all, even the ability to accurately assess routine vaccine uptake during the pandemic has been limited because of disruption in routine data collection and reporting processes related to the redistribution of an already limited public health workforce to COVID-19 related duties.

Returning to the concept of a syndemic, in the absence of sustained and meaningful investment in public health, Hawai'i and the nation are poised to experience many other syndemics that will contribute to ongoing trends in reductions in US life-expectancy.⁴⁵ For example, if routine vaccination rates do not increase rapidly, there is a significant risk that both COVID-19 (as of writing, vaccines were not available to children under 12 years) and other preventable childhood diseases could explode

among children living in communities with low vaccination rates. Further, despite the increased risks of severe COVID-19 symptoms and death associated with smoking and underlying chronic conditions, policies and systems created to support at-risk populations face post-pandemic funding cuts. The situation is worsened by the fact that proposed prevention policies, such as those designed to limit youth vaping and consumption of sugar-sweetened beverages, faced set-backs during the pandemic.

Improving health outcomes and life-expectancy will require concerted policies, systems, and environmental changes to address the social determinants of health and advance health equity. To compound the challenge, social and digital media platforms amplified misinformation and disinformation on the vaccine and distrust in public health guidance, requiring sustained, intensive public health education and presence in communities for relationship-building. As is the case with nearly all health conditions, these challenges are not borne by communities equally and instead concentrate among those socially and economically deprived and marginalized. Now more than ever, it is essential to build trust and invest in public health.

Conflict of Interest

None of the authors identify any conflict of interest.

Acknowledgements

The authors would like to thank Julia Finn and Kara Saiki for carefully reviewing this Editorial and providing helpful comments to improve it.

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Prevalence of Psychological Distress in Hawai'i during the COVID-19 Pandemic: Exploring Disparities Using 11 Waves of Data from the Household Pulse Survey

Wei Zhang PhD; Yan Yan Wu PhD; and Margaret Walkover MPH

Abstract

Utilizing 11 waves of data from the Household Pulse Survey collected between April and November 2020, this study examines disparities in psychological distress (defined as having symptoms of anxiety/depression) among adult residents of Hawai'i during the COVID-19 pandemic. Results showed that 36.4% of the respondents reported symptoms of distress. Younger age, female, and lower household income were associated with higher levels of psychological distress than older age, male, and higher household income. The prevalence ratios of distress for those aged 18-24, 25-34, 35-44 and females were 43.1%, 47.3%, 44.1%, and 39.3% respectively. Asians experienced lower prevalence compared to other racial/ethnic groups. Two practical implications are offered. First, the economic sequelae of COVID-19 impact psychological distress even when the community infection rate is stable. Second, disparities in psychosocial distress demonstrate that social and economic resources are needed by social groups such as young adults, females, and racial/ethnic minorities that have experienced the highest impact. Strategies need to be developed to mitigate the unavoidable local consequences of a pandemic.

Keywords

Depression, Anxiety, Psychological Distress, COVID-19, Adults, Hawai'i

Acronyms

aPRs = adjusted prevalence ratios
BRFSS = Behavioral Risk Factor Surveillance System
CIs = confidence intervals
COVID-19 = coronavirus disease of 2019
cPRs = crude prevalence ratios
GAD-2 = two-item Generalized Anxiety Disorder
HPS = Household Pulse Survey
PHQ-2 = two-item Patient Health Questionnaire
PRs = prevalence ratios
SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2
US = United States

Highlights

- Results show 36.4% of the respondents reported symptoms of distress in Hawai'i.
- Disparities in distress were found by age, gender, household income, and race.
- More resources should be directed to social groups like young adults and females.
- Interventions should address unavoidable consequences of public health measures.

Introduction

COVID-19 brings human societies face-to-face with the introduction of a new biological stressor that challenges the well-being of populations without immunity who also experience a range of preexisting health conditions.¹ The success of the SARS-CoV-2 virus is increased by conditions that allow for proximity between human hosts, allowing in some circumstances for exponential reproduction within populations. This has consequences for Hawai'i, a state whose economy relies heavily on tourism, with a large number of travelers visiting its various islands on a regular basis. Governor David Ige announced Hawai'i's first case on March 6, 2020. This was followed by his initial "stay at home" order, that took effect on March 25, 2020, and by a series of social distancing and quarantine measures. This public health response to COVID-19 infection, by necessity, shut down the economy. By mid-May 2020, the community infection rate decreased to near zero.² As the stay at home order was lifted however, community infection rates started to climb. The second exponential wave of COVID-19 cases started to emerge in July 2020,³ and then a follow-up stay at home order was issued in August.

The impact of multi-staged policies designed to restrict social activity to support community infection management under COVID-19 created 2 breaches in the rhythm of daily life in Hawai'i. First, social, cultural, educational, and business gatherings that are central to the life of Hawai'i's diverse communities were sharply curtailed. This introduced patterns of social isolation within and across networks of families and friends that deviated from an island culture characterized by multigenerational households and close social associations.⁴ Second, a high proportion of residents experienced an unexpected loss of employment income. The seasonally adjusted unemployment rate in Hawai'i was 2.4% in March 2020 and climbed to 22.3% just 1 month later, in April.⁵ Unemployment, in turn, is closely related to housing and food insecurity.⁶ A statewide survey completed during the last week of August 2020 reported that more than 78% of the respondents believed that the impact of COVID-19 would lead to long term changes in their lives and their community.⁷

With this in mind, it is not surprising that social distancing and quarantine policies have been associated with a reported increase of mental health symptoms.⁸ Compared to results in

2019, American adults assessed in April and May 2020 after the onset of the pandemic were 3 times as likely to screen positive for symptoms of depression and/or anxiety.⁹ Using data from a national sample of US adults, it is found that close to 15% of respondents were categorized as having high risk of suicidality during the pandemic and the risk factors included food insecurity as well as physical and depressive symptoms.¹⁰ Psychological distress produced by experiencing anxiety and depression together is described by Mirowsky and Ross as a feeling of powerlessness “generated by the objective conditions of disadvantage.”¹¹ Therefore, symptoms of distress were theorized in the current study as a byproduct of social and economic disorganization emerging from strategies designed to manage COVID-19 community infection.

Globally, the impacts of COVID-19 have been disproportionately experienced across diverse social groups. In Cyprus it is found that women and young adults, aged 18-29, and those facing socio-economic and health disparities reported increased anxiety and depression symptoms.¹² In Spain, it is found that over 25% of the respondents reported symptoms of depression, anxiety, and stress during lockdown, with men reporting comparable levels of anxiety and stress but higher levels of depression than women.¹³ For differences by race/ethnicity, studies conducted in the US revealed that racial inequalities became magnified during the pandemic with African American, Latino, and Native American communities disproportionately impacted physically and mentally.¹⁴

The SARS-CoV-2 virus spreads through aerosols emitted from a person who is talking, coughing, or sneezing.^{15,16} COVID-19 is transmitted through social contact and is known to severely affect individuals with preexisting underlying health conditions, creating disproportionate harm in communities made vulnerable by social economic stressors.¹⁷⁻¹⁹ Of particular concern is the prevalence of COVID-19 in Native Hawaiian and Pacific Islander communities, who experience infection rates significantly higher than the general population in Hawai‘i and across the United States.^{20,21} Using 11 waves of weekly data from the 2020 Household Pulse Survey, this study aims to explore the prevalence of psychological distress in Hawai‘i during the pandemic and identify differences in prevalence by demographic groups such as age, gender, and race/ethnicity.

Methods

Data

This study describes how the trends of psychological distress follow the patterns of COVID-19 incidence and mortality during the pandemic. National COVID-19 incidence and death rate data between March 10 and December 10, 2020 were retrieved from Centers for Disease Control and Prevention (CDC).²² Following this, the Household Pulse Survey (HPS) data were used to analyze psychological distress between April 23 and November 23, 2020 and disparities in distress by demographic groups.

The HPS was developed by the National Center for Health Statistics and the US Census Bureau to document the complex social and economic impact of COVID-19. The HPS utilizes the Census Bureau’s Master Address File as the source of sampled housing units. The sample design was a systematic sample of all eligible housing units, with adjustments applied to the sampling intervals to select a large enough sample to create state level estimates. The final HPS survey weights are designed to produce weekly estimates for the total adults aged 18 and older living within housing units. These survey weights were created by adjusting the household level sampling base weights by various factors to account for nonresponse, adults per household, and coverage. Sampled households were contacted by email and/or text. One adult in each household was recruited to answer a 20-minute survey that included questions about the impact of COVID-19 on their entire household such as loss of employment income, food insecurity, housing, and disruptions in education for school age children. The survey also includes questions documenting changes in respondents’ access to health insurance, delays in receiving medical care for coronavirus, and their physical and mental well-being.

As of December 30, 2020, the HPS had collected 3 phases of data during 3 time periods. Phase 1 contained 12 waves of weekly data between April 23 and July 21. Phase 2 and 3 data were collected biweekly with 5 waves between August 19 to October 26, and 4 waves between October 28 to December 21. Phase 1 respondents remained in the sample for up to 3 consecutive weeks, whereas Phase 2 and 3 data contain independent respondents.²³ Eleven waves of independent samples were used in the current regression analysis (because some respondents in phase 1 remained in the sample for up to 3 weeks) and 19 waves of data were analyzed for the prevalence study. The sample sizes per wave are between 529 and 1385, and 11 873 and 27 610, for the State of Hawai‘i and for the United States, respectively.

Measures

The HPS uses the 2-item Patient Health Questionnaire (PHQ-2) and 2-item Generalized Anxiety Disorder (GAD-2) to measure psychological distress. The National Center for Health Statistics modified the PHQ-2 and GAD-2 measures to decrease the timeframe from 2 weeks to 7 days. This step synced these measures with the 7-day data collection timeframe for the HPS.²⁴ The PHQ-2 measure of depressive symptoms asks how often respondents have experienced “having little interest or pleasure in doing things” and “feeling down, depressed, or hopeless.” The GAD-2 anxiety measure asks how often participants have experienced “feeling nervous, anxious, or on edge” and “not being able to stop or control worrying.” Answer choices indicating how often the respondent experienced depression or anxiety included: not at all = 0; several days = 1; more than half the days = 2; and nearly every day = 3. The 2 responses for the PHQ-2 were summed together and the 2 responses for the GAD-2 were summed together. A sum equal to 3 or greater on the PHQ-2 is indicative of major depressive disorder and separately, and on

the GAD-2 is indicative of generalized anxiety disorder.²⁵ Our dependent variable, psychological distress, was defined as the respondent reporting symptoms of either depression or anxiety.

Independent variables included age group (18-24; 25-34; 35-44; 45-54; 55-64; 65-74; and 75-88 years), gender (male, female), and race/ethnicity (White, Black, Hispanic, Asian, and Other). The HPS defines Asian as respondents who chose 1 of the following: Chinese, Filipino, Japanese, Korean, Vietnamese, and Other Asian. The Other Asian category includes American Indian or Alaskan Native, Native Hawaiian, Chamorro, Samoan or other Pacific Islander, as well as other races and those self-identified as being multiracial.²⁶ The US Census Bureau does not make data for subgroups within the categories of Other and Asian available for public analysis.

The current study controlled for socio-demographics including education [high school or lower, some college (in progress or associate's degree), and bachelor's degree or higher], marital status (married, divorced/separated, never married, and widowed), household income (less than \$49 000, \$50 000-\$99 000, \$100 000-\$149 000, and \$150 000 or higher), and number of adults (1, 2, or 3+) and children younger than 18 in the household (Yes or No). Those who did not report household income were categorized as "unknown" to minimize missing data.

Analysis

Statistical software R version 3.6.2 was used for the analysis. We computed the 7-day moving averages of COVID-19 daily cases and deaths per 1,000,000 populations between March 10 and December 10, 2020 for both US and Hawai'i. We performed statistical analysis using the HPS survey data for Hawai'i only. Descriptive statistics were used to summarize sample characteristics and bivariate analysis of the prevalence of psychological distress with 95% confidence intervals (CIs) for all explanatory variables (Table 1). Chi-square tests were used to examine the associations between all covariates and psychological distress. Poisson regression analyses were performed to compute crude prevalence ratios (cPRs) and adjusted prevalence ratios (aPRs) with 95% CIs. Prevalence ratios were estimated because odds ratios can substantially over-estimate the prevalence ratios for common outcomes (when prevalence >10%). Results were summarized in Table 2. Survey data analysis accounted for survey weights. For Poisson regression analysis of 11 waves of data, average survey weights were used with each wave weighted equally.

Results

Prevalence of Psychological Distress in Hawai'i and in the US

Figure 1 compares the prevalence of self-reported psychological distress in Hawai'i and the US between April 23 and November 23, 2020 with the 7-day moving average of new

COVID-19 cases and deaths per 1 000 000 between March 10 and December 10, 2020. At the national level, the prevalence of psychological distress largely mirrored the waves of COVID-19 incidence. In April and May, Hawai'i experienced a steeper drop in prevalence compared to the national trend. Hawai'i's pattern of psychological distress then rose steeply in June, which preceded the state's exponential second wave of COVID-19 incidence. This second wave of COVID-19 incidence peaked in September and eventually stabilized, but at a rate 4 times as high as the rate at the end of the first wave. Concurrently, the prevalence of psychological distress, after reaching its peak in August, declined slightly, stabilizing at a rate of 38%.

Disparities in Psychological Distress in Hawai'i

Table 1 shows the sample characteristics of 11 194 survey respondents in Hawai'i and prevalence of psychological distress by all variables. There are 36.4% of survey respondents reported experiencing symptoms of psychological distress. White respondents experienced higher psychological distress rates (37.5%) compared to the Asian subsample (30.7%). Disparities in psychological distress rates were demonstrated for other race/ethnic groups: Other (40%), Hispanic (41.7%), and Black (42.7%). The category "other" includes respondents identifying as Native Hawaiian, Other Pacific Islander or other races.

Table 2 shows that the younger age groups (18-24, 25-34, and 35-44) had the highest prevalence of psychological distress, ranging between 43.1% and 47.3%, almost twice the prevalence of the 2 oldest age groups (65-74: 26.8%, and 75-88: 17.6%). More women reported psychological distress (39.3%) than men (33.3%), with an aPR of 1.19 (95%CI: 1.08 to 1.32, $P < 0.001$). Households with children, and those with 1 adult in particular, reported a higher prevalence of distress (44.9%) than households without children. However, the differences were not statistically significant after adjusting for covariates. Higher education and household income were also associated with lower prevalence of distress, and household income remained statistically significant in the adjusted model.

Discussion

This study examined the psychological impact of COVID-19 on adults in Hawai'i. Using 11 waves of data from the Household Pulse Survey, we documented a high prevalence of psychological distress among surveyed respondents. The 2018 Hawai'i Behavioral Risk Factor Surveillance System (BRFSS) survey showed that 16.4% of the adult US population reported psychological distress for at least 6 days in the past 30 days.²⁷ During our study's timeframe, however, over a third of Hawai'i residents reported distress during the last 7 days due to any combination of symptoms related to anxiety or depression (36.4%).

Disparities in psychological distress by age, gender, and household income were identified in the adjusted models. The 3

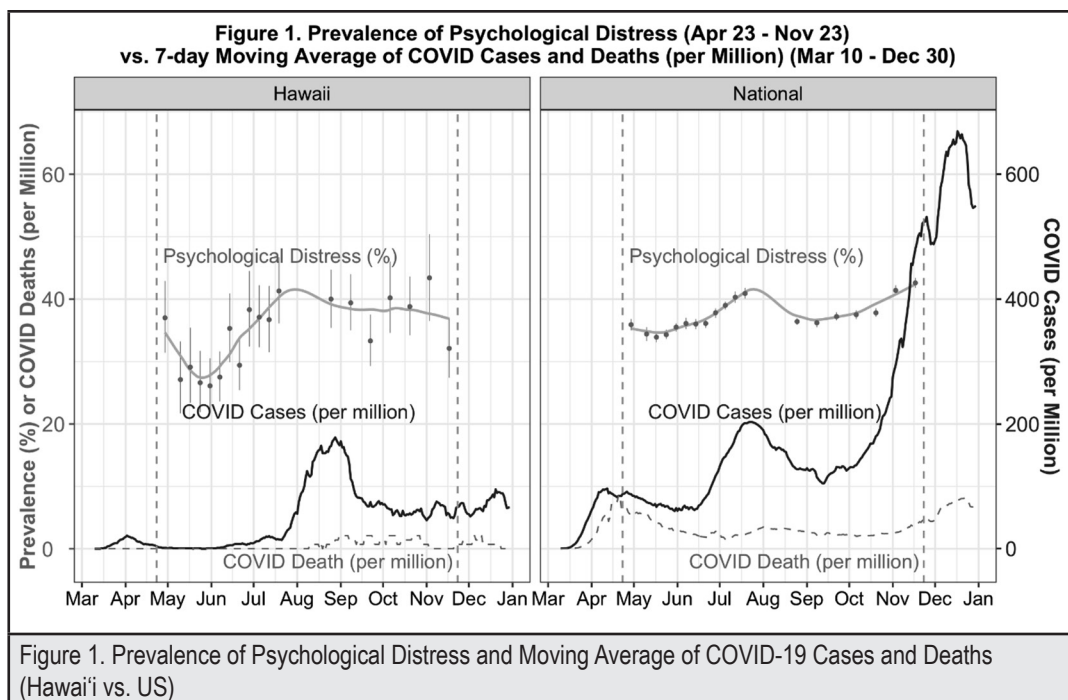


Figure 1. Prevalence of Psychological Distress and Moving Average of COVID-19 Cases and Deaths (Hawai'i vs. US)

Legend labels for psychological stress (%) and COVID-19 deaths (per 1 million) are on the left y-axis;
 Legend label for COVID-19 daily new cases (per million) is on the right y-axis;
 Legend scales for the 3 measures are different.

younger age groups (18-24, 25-34, and 35-44) reported higher prevalence of distress than all older age groups, suggesting that young adults may have experienced larger psychosocial impacts than their older counterparts. Losing income places greater pressure on all of these groups, but our findings particularly highlight the psychological challenges faced by young adults in Hawai'i. It is possible that COVID-19-related government policies and public health measures may lead to significant changes in young adults' daily routines, possibly including transitioning into online classes, remote working, no social gatherings, and job loss. These shifts may have generated social isolation, and for some, feelings of loneliness and helplessness which may trigger or intensify symptoms of depression and anxiety.⁸

The prevalence of psychological distress is significantly higher in females than in males. This remained true in the adjusted model that controlled for other sociodemographic covariates and is consistent with findings before the pandemic and findings from other countries.^{28,29} The stay-at-home orders associated with COVID-19 are likely to add additional stress for both gender groups but perhaps more so for females. One recent survey conducted in Hawai'i revealed that 62% of respondents with children reported that child care responsibilities during the pandemic have been very or somewhat difficult.⁷ Females, especially mothers, were often more concerned about childcare and were also found to take on a larger burden with homeschooling at the expense of paid work time than fathers.^{30,31} It is also found that some demographic groups such as females, the foreign-born,

families with children, and married individuals reported higher levels of COVID-19 fear than their corresponding counterparts.³²

Levels of psychological distress varied by race with the prevalence being 37.5% for Whites, 41.7% for Hispanics, 42.7% for Blacks, and 30.7% for Asians. The exceptionally low prevalence of psychological distress for the Asian group might, to some extent, be explained by their cultural pattern of avoiding extremes and staying in the middle in questionnaire response styles.³³ Access to disaggregated racial/ethnic data are needed to make meaningful racial/ethnic comparisons. It is not surprising that respondents with higher levels of education and income reported less psychosocial impacts compared to their counterparts. This suggests that residents with more resources may have more social and economic options to cope with the pandemic than others.

This study has several limitations. First, the dataset is cross-sectional, which prevents the determining of causal relationships. Second, the HPS distress measure was based on a time period of 1 week, which differed from the time period of 2 weeks used in the validated instruments. Because surveys administered before the pandemic tended to use the validated tools, comparisons with the current data were limited. Finally, 40% of survey answers were aggregated by HPS in the race category of "Other," which includes Native Hawaiian and Pacific Islanders. The HPS will not provide Hawai'i specific racial/ethnic disaggregated data, so the current study could not identify trends in distress for

Table 1. Sample characteristics and weighted prevalence of psychological distress and 95% confidence intervals (CIs) (N=11 194)				
Variables	Sample Characteristics		Weighted prevalence of psychological distress (%) and 95% CI	P-value
	N	%		
Total	11 194	100	36.4 (34.5, 38.2)	
Age				
18-24	287	6.6	43.1 (34.1, 52.7)	<.001
25-34	1010	16.4	47.3 (41.6, 53.2)	
35-44	1909	17.9	44.1 (39.7, 48.6)	
45-54	2085	16.2	36.0 (32.1, 40.0)	
55-64	2503	17.3	33.3 (30.0, 36.9)	
65-74	2400	18.8	26.8 (23.4, 30.5)	
75-88	1000	6.7	17.6 (13.3, 22.9)	
Gender				
Male	4754	49.0	33.3 (30.5, 36.1)	.001
Female	6440	51.0	39.3 (36.9, 41.8)	
Race/ethnicity				
White	3692	37.5	37.5 (34.0, 41.2)	<.001
Black	127	42.7	42.7 (27.9, 59.0)	
Hispanic	996	41.7	41.7 (35.6, 48.0)	
Asian	3815	30.7	30.7 (27.7, 33.9)	
Other	2564	40.0	40.0 (36.6, 43.5)	
Education				
HS/GED or lower	1506	33.7	37.5 (33.8, 41.4)	.033
Some college	3805	33.6	38.6 (35.6, 41.7)	
Bachelor or higher	5883	32.7	32.9 (30.3, 35.6)	
Marital status				
Married	6311	57.6	32.6 (30.3, 35.1)	<.001
Divorced/separated	1955	12.8	39.1 (34.7, 43.7)	
Never Married	2386	25.5	44.8 (40.8, 48.9)	
Widowed	542	4.1	27.5 (20.8, 35.5)	
Household income				
Less than \$49,000	2895	28.4	43.8 (40.2, 47.6)	<.001
\$50,000-\$99,000	3683	33.5	35.5 (32.4, 38.8)	
\$100,000-\$149,000	1987	16.2	32.6 (28.4, 37.0)	
\$150,000 or higher	1874	14.8	28.1 (23.5, 33.1)	
Unknown	755	7.1	36.2 (30.4, 42.4)	
N adults and children in household				
2 adults, no children	3519	25.8	33.2 (30.0, 36.6)	.234
1 adult, no children	1888	6.8	36.0 (32.2, 40.0)	
3+ adults, no children	1913	26.8	37.4 (33.5, 41.6)	
2 adults, 1+ children	1838	15.6	37.2 (32.9, 41.8)	
1 adults, 1+ children	483	1.7	44.9 (38.2, 51.8)	
3+ Adults, 1+ Children	1553	23.39	37.5 (33.4, 41.8)	

Table 2. Weighted crude prevalence ratios (cPRs) and adjusted prevalence ratios (aPRs) of psychological distress and 95% confidence intervals (CI) in Hawai'i

Variables	Bivariate Model		Multivariate Model	
	cPR (95% CI)	P-value	aPR (95% CI)	P-value
Age				
18-24	Reference			
25-34	1.10 (0.86, 1.41)	.465	1.21 (0.97, 1.51)	.093
35-44	1.02 (0.80, 1.30)	.854	1.22 (0.98, 1.53)	.081
45-54	0.83 (0.65, 1.06)	.145	0.97 (0.77, 1.23)	.797
55-64	0.77 (0.61, 0.98)	.036	0.88 (0.69, 1.11)	.286
65-74	0.62 (0.48, 0.80)	<.001	0.68 (0.53, 0.89)	.004
75-88	0.41 (0.29, 0.58)	<.001	0.47 (0.33, 0.67)	<.001
Gender				
Male	Reference			
Female	1.18 (1.06, 1.31)	.002	1.19 (1.08, 1.32)	<.001
Race/ethnicity				
White	Reference			
Black	1.14 (0.77, 1.67)	.512	0.95 (0.65, 1.39)	.804
Hispanic	1.11 (0.93, 1.33)	.247	0.92 (0.77, 1.11)	.398
Asian	0.82 (0.71, 0.94)	.005	0.78 (0.69, 0.89)	<.001
Other	1.07 (0.94, 1.21)	.336	0.92 (0.81, 1.05)	.228
Education				
HS/GED or lower	Reference			
Some college	1.03 (0.90, 1.17)	.670	0.99 (0.87, 1.12)	.846
Bachelor or higher	0.88 (0.77, 1.00)	.045	0.91 (0.80, 1.04)	.179
Marital status				
Married	Reference			
Divorced/separated	1.20 (1.05, 1.37)	.009	1.16 (1.01, 1.34)	.038
Never Married	1.37 (1.22, 1.54)	<.001	1.11 (0.96, 1.27)	.161
Widowed	0.84 (0.64, 1.11)	.232	1.01 (0.76, 1.35)	.952
Household income				
Less than \$49,000	Reference			
\$50,000-\$99,000	0.81 (0.72, 0.92)	<.001	0.86 (0.76, 0.97)	.013
\$100,000-\$149,000	0.74 (0.63, 0.87)	<.001	0.80 (0.68, 0.94)	.006
\$150,000 or higher	0.64 (0.53, 0.77)	<.001	0.70 (0.58, 0.84)	<.001
Unknown	0.83 (0.69, 0.99)	.043	0.85 (0.71, 1.02)	.073
N adults and children in household				
2 adults, no children	Reference			
1 adult, no children	1.08 (0.94, 1.26)	.285	1.02 (0.87, 1.19)	.807
3+ adults, no children	1.13 (0.97, 1.31)	.110	1.11 (0.97, 1.28)	.122
2 adults, 1+ children	1.12 (0.96, 1.31)	.152	0.91 (0.77, 1.07)	.263
1 adults, 1+ children	1.35 (1.13, 1.62)	.001	1.04 (0.86, 1.25)	.674
3+ adults, 1+ children	1.13 (0.97, 1.31)	.113	1.00 (0.86, 1.16)	.972

Native Hawaiians and Pacific Islanders who were disproportionately impacted by COVID-19.²¹ Despite these limitations, the current findings are consistent with trends presented in a systematic review of global experience with COVID-19, which identified the risk factors associated with psychological distress as female gender, younger age group (≤ 40 years), and unemployment status.³⁴

Practical Implications

COVID-19, a biological stressor, exerts a complex impact on social stability. This study documented the association of COVID-19 morbidity with high levels psychological distress across Hawai'i's population, including its disproportionate impact on vulnerable social groups. However, COVID-19 appears to increase psychological distress even when local morbidity is stable. As documented in Figure 1, Hawai'i's second wave of psychological distress began to rise in June 2020. This rise in psychological distress happened before the second wave of COVID-19 community infection. This suggests that psychological distress was impacted not only by COVID-19 morbidity, but also by other factors. Our study's observation that COVID-19 is a medical, economic, and social issue comes into play here. It remains unclear what might explain a rise in psychological distress during the summer. One answer is a severe economic downturn. Visitor arrivals to Hawai'i fell by 97.8% in 2020 during June, July and August.³⁵ The rise in psychological distress, occurred during one of Hawai'i's high seasons for tourism, suggesting that COVID-19's economic and social sequelae may have contributed to the steep rise in distress during a period when COVID-19 morbidity had plateaued.

Second, these findings provide further evidence that trends in Hawai'i's levels of psychological distress are connected to an economy that is largely dependent upon tourism. Initial COVID-19 prevention measures implemented between March and April 2020 resulted in 20% of Hawai'i residents experiencing a sudden loss of employment income.⁵ The impact of this trend on the ongoing economic instability of families was demonstrated here, with 43% percent of survey respondents reporting incomes within a financially vulnerable range of \$49,000 or less (Table 2). High rates of unemployment magnify preexisting structural inequalities among vulnerable social groups, resulting in disproportionate risk of psychological distress.³⁶ By May 2021, access to COVID-19 vaccines have become widely available to the general population in Hawai'i. However, variants of this virus are emerging and access to vaccines is primarily located in the Global North. As long as management of COVID-19 infection remains unstable around the world, local risk of community infection increases with each influx of travelers. To lower current high levels of psychological distress, strategies will need to be developed that mitigate the unavoidable local consequences of this global pandemic.

Conflict of Interest

None of the authors identify any conflict of interest.

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Much Needed Medicine: A Qualitative Study of Hawai'i Resident Views During COVID-19

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Abstract

The precarious financial status of the majority of Hawai'i residents coupled with the state's heavy reliance on tourism suggests that residents are particularly vulnerable to increased economic hardship resulting from the COVID-19 pandemic, which temporarily shut down the tourism industry and continues to erect barriers for resuming operations. Understanding how Hawai'i residents prioritize access to health care, food economics, care of 'āina, and culturally informed community in light of the current and future economic situation can inform policy actions that will support public health. To that end, this paper analyzes: (1) Hawai'i residents' views on health, specifically food security and healthcare, and their priorities for the future of these areas; (2) the differences between Native Hawaiian and non-Native Hawaiian views and priorities; and (3) the differences in views and priorities between families with higher and lower levels of economic stability. The authors close with policy recommendations that can be seen as medicine, or ways to heal Hawai'i, as the state shifts towards a more equitable and sustainable future.

Keywords

economic stability, social determinants of health, Native Hawaiian health, health policy

Abbreviations

*ALICE = asset limited, income constrained-employed
NHOPI = Native Hawaiian and Other Pacific Islanders
SDOH = social determinants of health*

Highlights

- *Hawai'i residents agree that Hawai'i's economy must become more sustainable*
- *Economic stability plays a role in health, including chronic care management*
- *There is broad support for increased local food production and food security*
- *The 'āina has begun to heal, allowing residents to imagine a sustainable future*
- *Many desire to expand the definition of healthcare to include alternative practices*

Introduction

The Hawai'i State Department of Health Office of Disease Prevention and Health Promotion describes economic stability as one of the key social determinants of health (SDOH). SDOH are the conditions, such as where people are born, live, and work, that impact the health status of individuals and the

community. Economic stability includes the underlying factors of employment, employment-based health insurance, poverty, housing instability, and food insecurity, each of which impacts one's health and ability to manage chronic conditions. Poverty, for example, is associated with a greater risk of both chronic infectious and degenerative diseases.^{1,2} Similarly, adults with food insecurity have a higher prevalence of chronic disease,³ which in turn impacts their future economic stability. In this paper, survey respondents' aspirations in the area of public health as a mechanism to guide policy actions supporting economic stability are explored.

Kaholokua, et al. noted that Native Hawaiians and Other Pacific Islanders (NHOPI) have been harder hit by the COVID-19 pandemic than other Hawai'i communities and opined that long-term recovery plans must include policy changes that address SDOH, including economic stability.⁴ One 2019 study found that 31% of Hawai'i residents were financially healthy, 54% of households could not make ends meet or were living paycheck-to-paycheck, and 20% had difficulty paying their mortgage or rent. Furthermore, 36% of Hawai'i residents had volatile incomes varying monthly.⁵ Moreover, from 2007 to 2018, the percentage of Asset Limited, Income Constrained Employed (ALICE) Hawai'i residents increased from 22% to 33%.⁶

The precarious financial status of the majority of Hawai'i residents coupled with the state's heavy reliance on tourism suggests that residents are particularly vulnerable to increased economic hardship resulting from the COVID-19 pandemic, which temporarily shut down the tourism industry and continues to erect barriers for resuming operations. Understanding how Hawai'i residents prioritize access to health care, food economics, care of 'āina (land), and culturally informed community in light of the current and future economic situation can inform policy actions that will support public health. To that end, this paper analyzes: (1) Hawai'i residents' views on health, specifically food security and healthcare, and their priorities for the future of these areas; (2) the differences between Native Hawaiian and non-Native Hawaiian views and priorities; and (3) the differences in views and priorities between families with higher and lower levels of economic stability. The authors close with policy recommendations that can be seen as medicine, or ways to heal Hawai'i, as the state shifts towards a more equitable and sustainable future.

Methods

To understand the implications of the pandemic for Hawai'i residents and their visions for Hawai'i's post-pandemic economy, several Native Hawaiian organizations conducted an online survey based on a convenience sample.⁷ The survey asked respondents their race/ethnicity by having them checking all boxes that apply before asking 28 questions on the effect of COVID-19 on them and their families. The questions covered ten domains (see Appendix) and asked respondents to rank areas of impact as well as future desires. While most questions requested a 6-point Likert scale, each domain provided space for free text responses, which are the focus of this article. The survey was disseminated through a variety of methods, including peer-to-peer, social media channels, and other online venues. The data represent 2278 Hawai'i residents who completed the survey in June 2020. (See Table 1 for respondent demographics.)

We used a mixed methods approach to identify patterns in the data. Two researchers independently applied an inductive coding scheme to open-ended responses to analyze the answers of respondents. Divergences were discussed and resolved before conducting a thematic analysis where 4 emergent themes were identified and agreed upon. Responses related to connections between health and economic stability were grouped into thematic areas. Responses to close-ended items were summarized using descriptive statistics. The strength of association between variables by respondent financial situation was calculated using Cramer's V statistic. Patterns in the close-ended responses were evaluated in relation to emergent themes, creating a cohesive discussion of each theme.

Results

When asked about financial status prior to the pandemic, 63% of respondents, 73% of Native Hawaiians and 49% of non-Native Hawaiians, reported that they had income and savings to cover their expenses for 2 months or less (See Table 2). Respondents with savings sufficient to cover 3 or more months of expenses were classified as financially stable, and other respondents as financially vulnerable.

Respondents commented on what factors would impact their future economic stability. As seen in Figure 1, analysis of these free text responses revealed 4 main themes and several sub-themes: (1) healthcare access, (2) food economics, (3) 'āina care, and (4) culturally informed community.

Theme 1: Health Care Access

Physical health is a top priority among respondents for themselves and their 'ohana (family), particularly among those who are more financially vulnerable (Cramer's $v=.12$). As such, healthcare access emerged as a shared theme among respon-

dents in influencing their future economic stability. Full tables of the measures of association using Cramer's V are presented in Appendix A.

While there was parity between Native and non-Native Hawaiians related to the theme of health care access, Native Hawaiians were twice as likely to provide comments related to insurance coverage (e.g., restrictions on claims and provider choice) and cost of medical care. Conversely, non-Hawaiians were more than twice as likely to identify quality of care and facilities as an area of concern. Respondents living on Hawaiian islands other than O'ahu, in particular, commented that traveling to

	Total	Native Hawaiian	Non-Native Hawaiian	No Response
Respondents	2278	1230	1000	48
Respondents who provided comments to open-ended questions	1209	657	529	23

Financial Situation	Native Hawaiian	Non-Native Hawaiian	Total
Vulnerable	73	49	63
Not able to make ends meet	4	1	3
Living paycheck-to-paycheck	29	17	24
Savings for 1 to 2 months of expenses	40	31	36
Stable	28	50	38
Savings for 3 to 12 months of expenses	17	31	23
Savings for more than 12 months of expenses	11	19	15

Themes	Sub-themes
Theme 1: Healthcare Access	Access to providers Quality of care and infrastructure Preventative care Universal healthcare Alternative medicine
Theme 2: Food Economics	Cost of food Food independence Self-grown foods
Theme 3: 'Āina Care	Environmental stewardship Sustainable tourism 'Āina use restrictions
Theme 4: Culturally Informed Community	Connecting with family Spirituality Building community Flexibility with time Cultural connection

Figure 1. Emergent Themes and Sub-Themes

O‘ahu for specialist appointments was a barrier to accessing health care. One respondent noted, “We would love to see better medical care here on island.” Another noted that “Serious medical issues can become a problem on an island with one hospital and few specialists.”

In addition to the cost and quality of care, nearly one-third of respondents identified improvements in preventative care as a priority. Respondents associated economic benefits with preventative care, stating “preventative rather than reactive” was preferred, and “More prevention efforts. It helps keep healthcare costs down.” One respondent stated, “[When] we change health (diet and lifestyle) and spend quality time in community, family and friends, mental and spiritual health happens.”

Respondents also identified “alternative” medicine as an area for improvement, reporting that both access to services and insurance coverage were key issues. Native Hawaiians were 4 times more likely to identify alternative medicine as a factor related to physical health, with 1 respondent stating “access to alternative health options such as *lomi* (massage) and *ho‘oponopono* (dispute resolution).” Other respondents added *lā‘au lapa‘au* (herbal healing), *‘aha kane* (male group often focused on health and wellness), and visits with naturopaths, chiropractors, and doulas as desired alternative services.

Finally, support coalesced around the sub-theme of universal healthcare, with nearly 13% of respondents, equally dispersed among Hawaiians and non-Native Hawaiians, independently reporting they wanted universal healthcare. For example, 1 respondent wrote, “Everyone should have free access to healthcare. Period.”

Theme 2: Food Economics

Respondents who were more financially vulnerable were more likely to identify COVID-19 as having a negative impact on their access to food (Cramer’s $V = .12$). The cost of food was a sub-theme in respondents’ priorities for the future. Fifty-four percent of Native Hawaiians identified cost of food as a factor in their economic stability, compared to 41% of non-Native Hawaiians. Notably, several respondents expressed pleasure at being able to connect with *mahi‘ai* (farmers) during the pandemic because food impacts health. One stated, “COVID has brought farmer[s] in direct contact with family’s this must continue.” Another respondent connected the cost of food and farming, noting, “The cost of food is [ridiculous] and the quality is poor. So much food here spoils in days after purchasing. Local [farmers] and ranchers need to have more direct access to the consumer.”

Increasing local food production and reducing dependence on outside resources were equally identified by Native and non-Native Hawaiians as priority areas. Many suggested supporting local farmers through increased access to land and subsidies

as well as general support for buying local fresh produce. One respondent said that “healthy food is related to land access, and climate, and willingness for people to labor towards production of quality food sources.” Another respondent explained that Hawai‘i needed to “Make farming & local agriculture a priority; diversify Hawaii economy & promote *mahi‘ai* and local ag.”

Along similar lines, a third sub-theme relating a desire to grow one’s own food emerged. This theme was most affiliated with mental health, food, and finances. Several respondents started their own gardens during the pandemic, with 1 noting that “Growing more food in our garden helps.” Another suggested that “More programs geared toward helping families live sustainably by growing own food” would be beneficial. Native Hawaiians were more than 3 times more likely to identify self-grown food as an area for improvement. Respondents, thus, agreed with the idea that food economics is tied to economic stability in Hawai‘i.

Theme 3: ‘Āina (Land) Care

The third theme of caring for the ‘āina included 3 major sub-themes: environmental stewardship, sustainable tourism, and ‘āina use restrictions. While Native Hawaiians more often identified environmental stewardship, non-Hawaiians more often to identified sustainable tourism as necessary for a strong economy. “We must take care of our ‘āina or we will always be dependent on others who don’t always have our best interest at heart,” encapsulates some of the comments around environmental stewardship. Other comments discussed a wide range of issues, including beach litter, recycling, sunblock damaging the coral, feral pigs, overgrowth, and increasing conservation land. Multiple respondents noted the benefits to the ‘āina due to tourism shutting down and limited social gatherings, with 1 stating, “The *aina* [sic] is happy right now.”

Sustainable tourism was 1 of the sub-themes that those who are financially vulnerable were more likely to identify as part of a strong, sustainable economy (Cramer’s $V = .16$). “Less tourism,” “Limit tourism,” “Caps on tourism,” “reducing tourism,” and similar phrases appeared throughout the write-in comments alongside stated benefits such as “The beaches are clean and clear of debris,” “trails growing, coral changing colors, and more marine life in our ocean,” and “less rental cars on the road.” Some comments seemed to acknowledge that changing the economic model around tourism may pose challenges, such as “Tourism is a drug. We can’t get off it.” However, over 89% of comments focused on the damage that the current tourism model has on the ‘āina.

The last sub-theme identified was ‘āina use restrictions, which aligns with sustainable tourism and environmental stewardship. Respondents specifically identified the need to limit the use of natural resources in order to promote their maintenance: “Reinstate the *Kapu* [(prohibition)] system that will allow for natural

regeneration of our resources” and “Limit access to some areas at different times to allow revival.” One respondent declared, “The ocean and land needs time to heal. Tourists were killing the islands. Loving it to death.” Environmental health and tourism were commonly connected by respondents.

Theme 4: Culturally Informed Community

Although not explicitly highlighted in the quantitative analysis (because the structure of the close-ended items did not support this analysis), the intersection of culture and building community appeared throughout the free text responses. Spirituality, access to community, and a desire to connect with Hawaiian culture and activities, especially activities that took advantage of the natural environment, were common. In this theme, Native Hawaiians were almost 3 times more likely than non-Hawaiians to comment on support systems. Comments around social support connected to health and wellbeing included a desire to connect with extended family members, engage in social activities, attend church, or engage with their community.

Connecting with family was an important sub-theme, with 1 respondent noting, “More time with family is important. We need to slow down and spend quality time with our families.” Another suggested that “More programs for ‘ohana to learn and practice [culture] together” would be beneficial. The connection between family and culture was reiterated by another respondent who stated that “Cultural practices [are] important to keep our families together.” Respondents also identified a desire for cultural education by stating that “Opportunities to participate in cultural practices to get more connected as a community” and “opportunities for novices to join/learn” were priorities.

Respondents described a lack of control over time as an area for improvement. One Native Hawaiian respondent stated, “Most people . . . are not engaged in cultural practices because they are working too hard to survive that they do not have time to do this.” This concern was not limited to Native Hawaiians. One non-Native Hawaiian respondent also noted that the “Pandemic is reminding every resident here that a calmer, quieter and less frantic lifestyle is so much healthier and calming.”

Native Hawaiians were 4.5 times more likely to comment on building or strengthening community. One respondent expressed a desire for a “*Pu‘uhonua* (place of refuge) for each community! Safe spaces where *kanaka* (humans) can gather, learn, engage, interact, support and sustain each other, our ‘Āina and our *lāhui* (nation). Modern day *ahupua‘a* (land division) space for all communities!” Although the desire to grow community connections was more commonly reported among Native Hawaiians, non-Native Hawaiians also expressed a desire to build community, including 1 respondent who suggested, “We need better community centers, that also function as resiliency hubs.”

Discussion

Although we expected differences between Native Hawaiians and non-Native Hawaiians with regard to priorities for economic stability, there was broad agreement between the 2 groups, especially in the area of caring for the ‘āina and increasing sustainability, which was discussed in Theme 3. Respondents noted the impacts tourism had on the overuse of the ‘āina. The broad agreement on this theme may be because of the unique importance of ‘āina in island living.

In 2019, the Department of Labor and Industrial Relations found that the average weekly wage for an employee in “accommodations and food” was \$689 compared to \$1 507 per week for “professional and technical services.”⁸ The low-earning power of Hawai‘i residents in the tourism industry can impact their abilities to save for the future, including emergencies. The majority of the respondents (63%) were in the vulnerable category, which helps explain increased concern around reforming the industry. Despite 38% of survey respondents having 3-12 months of expenses saved, as the pandemic continues, those in the “stable” group may become vulnerable as their resources are depleted. With more than 35% of Native Hawaiians working in tourism, a majority in low-wage positions, they represent a significant part of this industry.⁹

In addition to conflicting ideas about tourism’s future, Native Hawaiian respondents’ conceptions of *ola* (health) appear to be misaligned with Western concepts of health. Traditionally, *ma‘i* (sickness) occurs when there is a disruption in *pono* (balance), requiring a rebalancing of body, spirit, and environment to restore *ola*. Similarly, Chinese traditional medicines attempt to correct one’s *qi* (vital energy) when one is ill. Many respondents expressed a desire for insurance to cover alternative medicine including chiropractors, acupuncture, *lomilomi*, *lā‘au lapau*, and *ho‘oponopono*. Given the diversity of sociohistorical conceptions around health in Hawai‘i’s population, the desire to expand health care beyond traditional western treatments (as seen in theme 1) aligns with these diverse cultural constructs and may increase patient engagement in managing chronic disease.

Similarly, themes 2 and 3 showcased respondents’ strong desire for improvements around food through increased food production and ‘āina restoration. According to Hawai‘i Appleseed Center for Law and Economic Justice, food costs are 61% higher in Hawai‘i than the rest of the US, and Hawai‘i imports more than 90% of its food.¹⁰ However, pre-contact population estimates indicate that more than 1 million Hawaiians lived in the archipelago, demonstrating the abundance of our ‘āina. Respondents connected the high cost of food to importing food from outside of Hawai‘i and the lack of sufficient agricultural land. Respondents were also surprised by the amount of local

fresh produce that was funneled towards tourism pre-pandemic, but now is available for direct purchase. It is clear that there is support among respondents for exploring ways to increase local sustainable production of food to increase food security and improve population health through cheaper healthy options.

Finally, the Hawaiian culture revolves around 'ohana and friends, as articulated in theme 4, which provided a significant support structure for respondents. 'Ohana and friends were seen as the medicine for pandemic isolation. In addition, respondents referenced 'ohana when commenting on health care, education, housing, food, and the 'āina. This suggests that 'ohana serves as a backbone connecting these issues and may be a motivating factor in respondents' desired future.

Limitations

Analysis of the comments provided insight into the respondents' deeply held beliefs; however, following up with focus groups would have been beneficial in order to better understand respondents' comments and to gain perspective on the quantitative data. For example, when developing the themes, responses related to food independence and 'āina protection overlapped. This may be because the respondents identified that the production of food requires healthy 'āina; however, most comments did not explicitly make that connection. Focus groups would have allowed the research team to further develop the interconnection between these 2 concepts and better target policy recommendations. Additionally, while more than 2 200 respondents completed the survey, a random sample may have been preferable for generalizability.

Practical Implications

Given that Hawai'i finds itself at a crossroads as the pandemic and our economy enter a new phase, it may be time for a shift in policy to support a more equitable and sustainable future. Based upon the responses of this survey, there is broad support for shifting the future economy of Hawai'i. Furthermore, because free text responses represent individuals who strongly believe in an issue, these themes identify potential areas where constituent support is robust.¹¹ Thus, some policy recommendations to support economic stability which will, in turn, support the management of chronic disease and health are: (1) mandate health insurance companies to cover alternative medicine, especially traditional Hawaiian practices such as *lomilomi*, *lā'au lapau*, and *ho'oponopono*; (2) provide tax incentives to households who grow their own food and expand community gardens throughout the island; (3) support local agriculture for local consumption; (4) increase the number of community centers across the islands to support cultural learning and increased resiliency; and finally, (5) create an independent body to explore ways to limit or end the overuse of natural resources (through moratoriums or other means) alongside a larger effort to reduce negative impacts from the tourism industry.

Conflict of Interest

None of the authors identify a conflict of interest.

Acknowledgments

We are grateful for the leadership of the Office of Hawaiian Affairs, Lili'uokalani Trust, and Kamehameha Schools in addressing the needs of the Native Hawaiian community by developing the underlying survey on the preferred economic future for Hawai'i.

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Appendix A

Table A.1. Financially Vulnerable and Financially Stable Respondents' Reporting a Negative Impact of COVID-19 on Dimensions of their Lives			
Dimensions	Vulnerable (%)	Stable (%)	Effect Size (Cramer's V)
Finances (change in income, expenses, etc.)	37.5	17.6	.14
Housing (ability to pay rent or mortgage, adequate housing for stay-at-home orders, etc.)	22.1	7.8	.16
Education (ability to go to school, learn, etc.)	38.7	13.3	.20
Caregiving (access to childcare, ability to care for kūpuna, etc.)	30.6	12.6	.13
Physical health (access to medical care, exercise, contraction of COVID-19, etc.)	35.0	19.3	.05
Mental/Spiritual Health (feeling positive, depressed or lonely, participation in spiritual activities etc.)	41.3	22.9	.06
Food (access to affordable, healthy foods, etc.)	25.7	11.2	.12
Cultural practices (hunting, fishing, practice hula, mele, etc.)	30.9	15.1	.07
Social support (ability to gather with community or family, etc.)	52.0	31.5	.00
'Āina (experiencing a healthy land, ocean, natural environment, etc)	27.4	15.8	.02

Note: an effect size of .10 or higher is considered a small effect, .30 and higher is considered a medium effect, and .50 and higher is considered a large effect.

Table A.2. Financially Vulnerable and Financially Stable Respondents Identifying Each Dimension as among their Top 5 Priorities for their 'Ohana			
Percent of Respondents Identifying Each Dimension as among their Top 5 Priorities for their 'Ohana, by Financial Situation			
Dimensions	Vulnerable	Stable	Effect Size (Cramer's V)
Finances (income, cost of living, access to loans or credit, etc.)	48.6	24.7	.14
Housing (access to quality, affordable housing, etc.)	37.8	18.6	.11
Education (access to quality public schools, affordable college institutions, etc.)	30.6	15.3	.08
Caregiving (access to quality, affordable childcare, ability to care for kūpuna, etc.)	13.3	8.3	.00
Physical health (ability to seek medical care, exercise, etc.)	28.6	22.1	.12
Mental/Spiritual Health (ability to engage in spiritual activities etc.)	17.6	9.7	.03
Food (access to affordable, healthy foods, etc.)	40.2	23.2	.03
Cultural practices (hunting, fishing, practice hula, mele, etc.)	15.7	7.0	.08
Social support (ability to gather with community or family, etc.)	22.0	17.2	.10
'Āina (experiencing a healthy land, ocean, natural environment, etc.)	33.9	22.1	.04

Note: an effect size of .10 or higher is considered a small effect, .30 and higher is considered a medium effect, and .50 and higher is considered a large effect.

Table A.3. Financially Vulnerable and Financially Stable Respondents Identifying Each Dimension as among their Top 5 Priorities for their Hawai'i's Future Economy

Dimensions	Vulnerable	Stable	Effect Size (Cramer's V)
Diversified economy	41.0	27.0	.05
Contemporary, mainstream tourism	3.2	3.6	.08
Sustainable tourism	11.4	12.1	.16
Local food production/ agriculture	41.3	23.0	.06
Military development/ investment	1.9	1.8	.04
Livable wages	36.7	17.1	.14
Healthcare that is affordable and accessible	22.4	13.4	.01
Foods that are affordable and healthy	17.7	7.7	.09
Housing that is affordable and accessible	35.6	18.4	.09
Business-friendly taxes and regulations	8.5	8.3	.11
Strong social safety nets	10.0	4.3	.07
Highly competitive and technologically skilled workforce	10.3	9.8	.11
Healthy, thriving land and ocean ecosystems	27.2	16.2	.01
Land development for commercial use	1.2	1.0	.02

Note: an effect size of .10 or higher is considered a small effect, .30 and higher is considered a medium effect, and .50 and higher is considered a large effect.

Exploring Challenges and Opportunities for Breastfeeding in Hawai'i During the COVID-19 Pandemic

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Abstract

Increasing exclusive breastfeeding rates is an established public health strategy to reduce chronic disease and protect infants from illness. The role of breastfeeding in addressing health disparities takes on new significance as the COVID-19 pandemic has disproportionately impacted some communities in Hawai'i, and those with chronic conditions face increased risk of hospitalization and death. However, there are myriad policy, systemic, and environmental barriers that make it difficult for parents to breastfeed, some of which have been exacerbated by the COVID-19 pandemic. This editorial discusses the importance of breastfeeding in reducing chronic disease, reviews the status of breastfeeding in Hawai'i, explores the challenges parents face in breastfeeding their infants, especially in the time of COVID-19, and presents opportunities for improved access to lactation care to reduce health disparities.

Keywords

Breastfeeding, COVID-19, chronic disease, health disparities, Hawai'i, health equity

Abbreviations

ACA = Affordable Care Act
CDC = Centers for Disease Control and Prevention
IBCLC = International Board Certified Lactation Consultant
WIC = Women, Infants and Children

Introduction

Exclusive breastfeeding for 6 months is the optimal early infant feeding practice.¹⁻³ Breastmilk offers complete nutrition for infants that is essential for good health outcomes and optimal development.⁴ A growing body of evidence supports that higher rates of breastfeeding initiation and longer duration are associated with lower rates of chronic disease, including cardiovascular disease, hypertension, obesity, diabetes, asthma, and cancer, for both the breastfeeding parent and child.⁵⁻⁸ The protective effects of breastfeeding on chronic disease are visible as early as age 2.⁹

Despite the benefits, Hawai'i lags behind World Health Organization breastfeeding recommendations. While 89% of infants born in Hawai'i in 2017 initiated breastfeeding, only 30.6% were breastfeeding exclusively at 6 months.¹⁰ Additionally, although exclusive breastfeeding rates at 6 months in Hawai'i have improved over time,¹¹ breastfeeding disparities by racial/

ethnic group, geography, and income persist,^{12,13} which contribute to health disparities later in life for mothers and babies.¹⁴

Hawai'i is a multiethnic state with no majority race.¹⁵ Native Hawaiian and Other Pacific Islander (NHOPI) and Filipino adults experience higher rates of chronic conditions, such as obesity, diabetes, cardiovascular disease, asthma, and cancer, than whites, Japanese, and Other Asians in Hawai'i.¹⁹ Chronic conditions such as these increase the risk of severe illness and mortality among those infected with COVID-19.²⁰ This is reflected in the greater risk factors and higher COVID-19 infection rates for NHOPI and Filipino populations.²¹ These chronic disease health disparities start early in life²² and are affected by breastfeeding duration.²³ Thus, breastfeeding disparities by race/ethnicity mirror those seen for other health disparities.²⁴⁻²⁶ Hawai'i data have shown that NHOPI and Filipinos are less likely to be exclusively breastfeeding at hospital discharge than their white and Japanese counterparts.²⁷ This trend is seen for breastfeeding duration as well, with NHOPI and Asian subgroups in Hawai'i at a higher risk for exclusive breastfeeding attrition at 8 weeks postpartum compared to whites.²⁸

Breastfeeding disparities exist in rural areas compared to urban areas in Hawai'i as well.¹⁶ Although rural areas approximate 93.9% of total land area, they are inhabited by only 8.1% of the state's population.¹⁵ The majority of Hawai'i's people reside in Honolulu county.¹⁵ These population distributions contribute to inequities in the determinants of health in rural county areas compared to urban areas,¹⁶ including lower per capita income, higher poverty rates, higher unemployment rates, and shortages of health care professionals.¹⁷ They also explain some of the variations seen in exclusive breastfeeding at 8 weeks by county. Rural counties like Hawai'i and Maui report lower exclusive breastfeeding rates at 8 weeks than the state average.²⁹ Rural areas in Hawai'i have additional challenges providing access to adequate breastfeeding services²⁵ to support all breastfeeding parents and infants in these communities.

Breastfeeding Challenges

Hawai'i parents who desire to breastfeed their infants face numerous barriers. The first days after delivery are crucial to establishing breastfeeding,³⁰ and the first hours through first 2 weeks are a key opportunity for early breastfeeding interven-

tion.³¹ Counseling and hands-on support by trained lactation workers within the first 3 days of birth reduce feeding problems such as poor positioning and attachment.³² Lactation consultant interventions during these critical times increase both breastfeeding duration and exclusivity.^{33–35} Unfortunately, access to and insurance coverage for lactation supports are a major challenge for many parents. Here, we focus on 4 specific barriers Hawai‘i families face in accessing lactation care and support, some of which have been worsened by the COVID-19 pandemic: (1) inadequate supports in-hospital, (2) inconsistent insurance coverage for outpatient lactation care, (3) shortages of Indigenous and community-based breastfeeding counselors, and (4) lack of culturally appropriate lactation care.

In-Hospital Supports

Maternity care practices strongly influence breastfeeding initiation and duration.^{36,37} Yet, Hawai‘i hospitals fall below national averages in all areas of maternity care practices measured by the Centers for Disease Control and Prevention’s (CDC) national survey of Maternity Practices in Infant Nutrition and Care.³⁸ Prior to the pandemic, there were wide disparities in employment of lactation consultants at Hawai‘i hospitals, meaning that families across Hawai‘i have had unequal access to in-patient lactation support.²⁵ Furthermore, poor referral to lactation providers at time of hospital discharge delays timely follow-up care.^{39,40} COVID-19 has only exacerbated hospital challenges in providing lactation consultant care before discharge. Many hospitals face significant budget shortages due to increases in costs for caring for COVID-19 patients and reductions in profits from elective procedures.⁴¹ In the face of budget crises, some hospitals have decreased lactation consultant staffing,⁴² which increases patient vulnerability to breastfeeding attrition and formula use.⁴³

Current research recommends breastfeeding parents with suspected or confirmed cases of COVID-19 continue best practice breastfeeding care, including skin-to-skin, early breastfeeding initiation, and exclusive breastfeeding for 6 months.^{43,44,45} Breastfeeding also has protective effects for infants against COVID-19 due to a transfer of antibodies through breastmilk.^{46,47,48} Early in the pandemic, due to uncertainty over how COVID-19 was transmitted, many hospitals adopted infection prevention and control measures that contradicted evidence-based practices to support breastfeeding.⁴² For example, some hospitals separated mothers and infants, and discouraged skin-to-skin contact and breastfeeding to prevent vertical transmission. The impacts of these infection control measures may lead to poorer breastfeeding outcomes in Hawai‘i.

Inconsistent Insurance Coverage

Although the Affordable Care Act (ACA) requires insurers to cover lactation support and counseling by trained providers, coverage is inconsistent.⁵⁰ Many insurance plans deny lacta-

tion counseling coverage or lack lactation provider networks.⁵¹ Medicaid coverage for skilled lactation care is often limited to a few providers,⁵² many of whom are concentrated in urban centers.⁵³ Under Med-QUEST, Hawai‘i’s Medicaid policy, lactation care is reimbursed only when billed by a physician or nurse practitioner,⁵³ and fewer than 5 eligible providers statewide are trained in clinical lactation care.⁵⁴ Reimbursement does not cover International Board Certified Lactation Consultants (IBCLC), which is the highest level of breastfeeding professional certification, unless an IBCLC is completing the visit with, or is also licensed as, a physician or nurse practitioner. It also does not cover care from those with other certifications, like certified lactation counselors, breastfeeding peer counselors, certified lactation educators, or Indigenous breastfeeding counselors. This policy leaves few ways for Med-QUEST-insured families to secure coverage for lactation care. This is an equity concern, as Med-QUEST covers high percentages of rural populations in Hawai‘i, including many Native Hawaiians.⁵⁵ It is also a concern for population health as Med-QUEST covered 34% of all births in 2018.⁵⁶ This will likely be higher in the coming years due to a spike in Med-QUEST applications prompted by pandemic-related job losses.⁵⁷

Community Resource Shortages

Hospital discharge for healthy mothers and babies in Hawai‘i typically occurs 24–72 hours after birth,^{40,58} often before a parent’s milk comes in and breastfeeding problems arise.⁵⁹ Thus, parents need access to outpatient and community support to maintain breastfeeding. However, community breastfeeding resources are limited. Some rural counties in Hawai‘i have large disparities in access to care due to shortages of lactation consultants, and few home visiting programs and peer breastfeeding programs.^{25,60}

Telelactation services, which connect families to remote lactation consultants through audio-visual technology, have been proposed as a solution for rural gaps in lactation care.⁶¹ While telelactation visits fill an important gap in care, they cannot fully replace an in-person latch assessment or manual positioning to address feeding issues.⁴³ Additionally, unless an IBCLC is also a licensed billable provider, or completes a telelactation visit with such a provider, parents must pay out-of-pocket.⁶¹ There are also issues around equitable access to telehealth. A Hawai‘i telehealth needs assessment found that a greater percentage of neighbor island providers than Honolulu County providers reported their clients have poor internet connections.⁶³

The pandemic has reemphasized these healthcare access issues and the lack of broadband infrastructure in rural communities. Important community resources like the Women, Infants and Children (WIC) program provide breastfeeding peer counselors to low income families in Hawai‘i. However, a representative from the Hawai‘i State Department of Health WIC reported that a lack of broadband infrastructure for some rural partici-

pants challenges WIC's ability to expand peer counseling to all rural communities.⁶⁴ This is especially concerning in light of an increased WIC caseload this year.

Lack of Culturally Appropriate Care

Culturally appropriate care can have positive impacts on breastfeeding rates.⁶⁵ A study of Native Hawaiian/part-Hawaiian women receiving healthcare at the Wai'anāe Coast Comprehensive Health Center concluded that incorporating traditional Native Hawaiian breastfeeding practices may improve breastfeeding duration within their community.⁶⁶ Evidence in Hawai'i suggests that language interpretation and communication style challenges between provider and patient may also negatively impact maternity care.⁶⁷ Unfortunately, Hawai'i breastfeeding stakeholders have noted an underrepresentation of NHOPI and Filipino women in the lactation consultant workforce, leading to language and cultural barriers that may inhibit parents from seeking breastfeeding support.²⁵

Opportunities

Breastfeeding lowers the risk of chronic disease for breastfeeding parents and infants,⁵⁻⁹ and protects infants from COVID-19.⁴⁷⁻⁴⁹ This pandemic provides an opportunity for action in Hawai'i to increase comprehensive coverage and access to community-based lactation care. There are 4 key recommendations Hawai'i should consider to support breastfeeding practices during this pandemic and beyond.

1) Improve In-Hospital Supports and Referrals

Providing access to lactation specialists in hospitals and at discharge is a key clinical practice that can reduce breastfeeding attrition.⁶⁸ Despite pandemic challenges, hospitals must invest in evidence-based maternity care practices. A recent CDC report on supportive breastfeeding hospital practices advises increasing postnatal breastfeeding support and follow-up, and monitoring breastfeeding exclusivity to understand the long-term impact of COVID-19 on maternal and infant health.⁴² In particular, all hospital policies and procedures should include discharge plans with referrals to community breastfeeding support resources and scheduled follow-up visits.⁶⁹ Hawai'i should incentivize hospitals to adopt maternity care practices that facilitate breastfeeding initiation and ensure parents leave the hospital with the tools they need to successfully continue breastfeeding.

2) Expand Insurance Coverage

The ACA's mandated coverage of breastfeeding support services is clear evidence that improved access to lactation services across the nation was needed. However, inconsistencies and gaps in coverage still need to be addressed through expanded coverage of IBCLCs. High access to IBCLCs is associated with increased breastfeeding by low-income parents, and expanding Medicaid

coverage of IBCLCs would result in an estimated annual cost savings of \$2.33 million.⁷⁰ Expanding Med-QUEST coverage in Hawai'i to include IBCLCs who are not already covered as licensed providers in other disciplines, and including additional support from certified lactation counselors, breastfeeding peer counselors, certified lactation educators, and Indigenous breastfeeding counselors under covered services will increase access and support to rural and low-income families.

3) Bolster Community Resources

Community-based breastfeeding counseling has consistently been shown to increase breastfeeding initiation and duration among low-income women.^{35,71,72} Programs that train community members as breastfeeding counselors increase access to culturally relevant breastfeeding care. One example of a successful program is the Indigenous Breastfeeding Counselor Training, sponsored by Breastfeeding Hawai'i, a statewide breastfeeding coalition. This training included physiology and anatomy lessons and incorporated Native Hawaiian cultural breastfeeding practices. Such training supports the time-honored Native Hawaiian tradition of breastfeeding (referred to as *hānai waiū* in 'Ōlelo Hawai'i), trains new breastfeeding counselors, and increases access to community-based lactation support to Indigenous parents. Dedicated funding is needed to conduct more of these trainings.

4) Broaden Telehealth Services

Telelactation can support parents through breastfeeding challenges,⁶¹ filling established gaps in community resources. Some lactation consultants are expanding services to virtual medical platforms. One pediatric provider offers breastfeeding medicine services and has increased telemedicine visits for lactation support to anywhere in Hawai'i,⁷³ and Breastfeeding Hawai'i is making Zoom access available to providers giving lactation advice.⁷⁴ Concurrently, the Federal Communications Commission Fund is providing funding to Hawaiian Telcom to increase broadband service in rural areas of the state.⁷⁵ This investment may enable increased access to telelactation services. However, Hawai'i needs to continue to invest in telehealth infrastructure and work to improve Med-QUEST reimbursement for telelactation services in order to increase and sustain access to lactation care in all communities.

Conclusion

Breastfeeding mitigates numerous health disparities for breastfeeding parents and children. With COVID-19 exacerbating barriers to breastfeeding and widening health disparities, breastfeeding support is even more crucial. Improving Med-QUEST reimbursement for lactation consultants, strengthening hospital maternity practices and referrals, increasing access to culturally appropriate breastfeeding care, and expanding telehealth offer a first step toward reducing these health disparities and giving all infants a healthier start in life.

Conflict of Interest

None of the authors identify a conflict of interest.

Acknowledgements

We are grateful for the assistance from Dr. Jeanie Flood and Amber Kapua-makamaeokalani Estelle Granite, IBC, GPCE, for comments that improved this editorial. We also thank Amber for her Ōlelo Hawai'i translation.

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Micronesians Building Healthier Communities During the COVID-19 Pandemic

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Abstract

Micronesian communities in Hawai'i have a long history of mobilizing to address challenges they encounter as the most recent and fastest growing Pacific Islander immigrant population in the state. In particular, community leaders navigate a slew of obstacles specific to systemic racism and health care access. These hurdles have become exacerbated by the COVID-19 pandemic, prompting a range of Micronesian-led responses to the health crisis including strategic adaptations to existing networks and roles to address essential public health functions. These community responses have filled many critical gaps left by the state's delayed response to addressing the disparate impact of COVID-19 on Micronesian communities. This article highlights and encourages engagement with diverse models of collaboration and elevation of Micronesian leadership that has resulted in more productive cooperation with government leaders, agencies, and policymakers. This work offers insight into pathways forward toward healthier Micronesian families and communities.

Keywords

Micronesian, Pacific Islander, Advocacy, Leadership, Racism, Discrimination, Community, Outreach, COVID-19, Pandemic

Abbreviations

COFA = Compact of Free Association
FSM = Federated States of Micronesia
KKV = Kōkua Kalihi Valley Comprehensive Family Services
MCOH = Marshallese Community Organization of Hawai'i
ROP = Republic of Palau
RMI = Republic of the Marshall Islands
US = United States

Introduction

“With a solid foundation of cultural identity and pride, and with both patience and perseverance, we can rise above the racial noise that has brought so much anguish and pain to our [Micronesian] communities here in Hawai'i and that has broken our confidence in ourselves and our place. Empowered with our culture, our roots, we can then establish strong relationships of trust and mutual respect with our host communities, which may lead to a shared future of true prosperity.”

Peter, Tanaka, and Yamashiro 2018, p. 202¹

Micronesians in Hawai'i have long organized and led community health efforts, even in the face of systemic racism and fractured relationships. The opening quote from Dr. Joakim Peter, addressing Micronesian responses to the 2009 Medicaid cuts in Hawai'i, speaks of the “racial noise” of systemic racism and the

“broken confidence” of fractured relationships. The COVID-19 pandemic amplified both the needs and the challenges, but also highlighted Micronesian community leadership and opportunities to build enduring bridges with government leaders, agencies, and policymakers. While some connections rose up and thrived at this time—for example, We Are Oceania, a Micronesian-led project of Partners in Development Foundation, received CARES Act funding to provide direct services to Micronesian and other underserved communities²—the community was generally left to care for their own.³ This article highlights lesser-known efforts led by Micronesians, and the ways in which meaningful government actions yielded significant advances. We focus primarily on Micronesians with ties to the Federated States of Micronesia (FSM), the Republic of the Marshall Islands (RMI), and the Republic of Palau (ROP), which are countries that have Compact of Free Association (COFA) agreements with the United States (US). Throughout 2020, COVID-19 data about Micronesians was generally classified within the “Pacific Islander” category and the state's public-facing data still does not report disaggregated data.⁴

Health equity is at the core of public health's mission and essential functions.⁵ However, achieving equity for racial/ethnic minorities in the US requires an understanding of the source of inequalities. Racism is a major driver of unequal treatment of non-white populations in the US. And in Hawai'i, present-day impacts of colonialism and imperialism interlace with US racism, forming a multilevel, reinforcing system that has impacts across multiple sectors of contemporary society.⁶ Micronesians in Hawai'i have long faced both personally-mediated racism in the form of inferior and discriminatory treatment, and institutional racism through structural and systemic denials of healthcare.⁷⁻¹¹ In 2020, Micronesian communities in Hawai'i were not only challenged by the contagion of a disease, but also by navigating the pre-pandemic inequalities and societal prejudices at multiple levels of the social structure.^{10,12,13} This worsened structural barriers to health and wellness including: (1) longstanding exclusion from vital social safety nets such as Medicaid and Supplemental Nutrition Assistance Programs;¹¹ (2) language barriers and/or administrative barriers for access to services for which COFA Micronesians are eligible;^{14,15} (3) statements from governmental and industry leaders that stigmatize communities;¹⁶ and (4) racist and dehumanizing public and private comments that target Micronesian communities.^{10,12,13}

Early in the pandemic, Micronesian leaders, many of whom were already providing direct services to their communities and calling for policy and systemic change, predicted that the virus could hit their communities hard.^{17,18} Yet Hawai‘i’s governmental leaders failed to act.^{3,19} At the end of April 2020, higher COVID-19 rates among racial/minority populations were reported across the nation, including among Native Hawaiian and Pacific Islander communities in Hawai‘i.²⁰ By the end of June, the state’s partially disaggregated COVID-19 race data showed that Pacific Islanders (largely Micronesians) comprised 23% of COVID-19 cases, despite being only 4% of the state’s population.²¹ By mid-August, Pacific Islanders made up 30% of COVID-19 positive cases in Hawai‘i.³ Data published in mid-March of 2021 revealed dramatically worse disparities for this time period; Pacific Islanders actually comprised 55% and 59% of all COVID-19 cases in Hawai‘i in June and July of 2020, respectively.²² Still, gaps in services and support from, and meaningful communication with, state and local leaders remained.²³ In a press statement at the time, the Mayor of the Honolulu City and County reflected, “In some ways, I think we forgot about this community.”²³ Despite the inadequate government response, Micronesian communities took the lead on performing essential public health functions throughout the

crisis: communicating culturally and linguistically appropriate health information; engaging in informal contact tracing; mobilizing communities and facilitating essential health services; distributing food and emergency resource kits; and redoubling longstanding advocacy work. Eventually, formal connections and official positions were established within government agencies to improve the effectiveness of government responses to COVID-19 in Pacific Islander communities (Table 1).

Micronesian Responses to COVID-19

This article introduces 4 Micronesian-led responses to the pandemic that represent diverse entry points to Micronesian community engagement. The co-authors participated directly in these efforts, including in leadership roles. These examples reflect the emergence of specific responses to COVID-19, but more broadly illuminate how existing stakeholders and efforts converged and expanded in particular spaces. Given the diversity of the Micronesian community and its long-established record of mobilization, the examples presented here illustrate the range of responses, from broad networks and direct service work to elevated professional roles.

Core Functions	10 Essential Public Health Services ^a	Actions of Micronesian community leaders and organizations
Assessment	Monitor health status to identify and solve community health problems	<ul style="list-style-type: none"> • Advocated for disaggregation of data on cases of COVID-19 to understand impact and needs on Pacific Islander communities
	Diagnose and investigate health problems and health hazards and root causes	<ul style="list-style-type: none"> • Anticipated needs and facilitated data sharing (e.g., May 9, 2020 virtual meeting hosted by the FSM COVID-19 Task Force) • Created and distributed on-line surveys to assess needs among Micronesian families • Facilitated COVID-19 testing and contact tracing prior to formalized actions by government agencies
Policy Development	Communicate effectively to inform and educate	<ul style="list-style-type: none"> • Extended existing outreach and education efforts to include information about COVID-19 and provided needed culturally appropriate messaging (via outlets and platforms preferred by community members) • Developed webinars directed to Micronesian communities on COVID-19 related topics
	Strengthen, support and mobilize communities and partnerships	<ul style="list-style-type: none"> • Adapted and built on existing partnerships to collaboratively respond to challenges resulting from the pandemic • Extended invitations to new partners including government agencies and leaders to increase impact and effectiveness of response
	Create, champion, and implement policies, plans and laws	<ul style="list-style-type: none"> • Continued pre-pandemic advocacy for reinstatement of Medicaid access at the federal and state level • Directed focused advocacy and engagement with government leaders and media to specifically address COVID-19 impact on Pacific Islander communities
	Utilize legal and regulatory action	<ul style="list-style-type: none"> • Relayed and reinforced evidenced-based public health messages from the Centers for Disease Control and Prevention, the State of Hawai‘i, and the local government offices on COVID-19 prevention, stay-at-home measures, quarantine rules, etc. to their community networks
Assurance	Enable equitable access	<ul style="list-style-type: none"> • Provided direct support through food drives, distribution of personal protective equipment and supplies for quarantining at home • Helped community members access critical services (e.g., rent relief, isolation facilities, testing locations)
	Build a diverse and skilled workforce	<ul style="list-style-type: none"> • Engaged with governmental agencies as liaisons and accepted positions to support efforts at address COVID-19 in Pacific Islander communities
	Improve and innovate through evaluation, research and quality improvement	<ul style="list-style-type: none"> • Engaged in dialog with government leaders and agencies and better positioned to provide feedback on on-going and future initiatives to address COVID-19 response and recovery
	Build and maintain a strong organizational infrastructure for public health	<ul style="list-style-type: none"> • Identified new avenues of establishing, supporting and prioritizing strong relationships between community and government as vital to successfully addressing disparities in COVID-19 and other existing inequities

^a 10 essential public health services. Centers for Disease Control and Prevention (Adapted from Sept. 9, 2020 version). <https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html>. Accessed June 24, 2021.

FSM COVID-19 Task Force USA

In early May 2020, Dr. Vidalino Raatior and the Pacific Leadership Assistance Network²⁴ organized 2 virtual meetings of Micronesian community leaders across the US to discuss the gap in information and services addressing the disproportionate impact of the coronavirus on Micronesian populations. The FSM leaders decided to create the FSM COVID-19 Task Force USA²⁵ (FSM Task Force) to focus on the FSM diaspora in the US.

The FSM Task Force has members representing all FSM states, living in 11 US states and territories, and affiliated with dozens of community organizations, educational institutions, and government agencies (Table 2). This broad network serves as a vehicle to facilitate communication and strengthen relationships

across many geographic, cultural, and professional affiliations. The Task Force held weekly meetings to provide updates about direct service work of various regions and organizations, and to coordinate projects through committees (Table 2).

One of the most significant projects during 2020 was the completion of a COFA citizens' Family Needs Survey²⁶ (Table 1) that gathered responses from 320 Micronesian community households in the US (including approximately 40 families in Hawai'i). The FSM Task Force evaluated the comprehensive data about the economic and health impact of COVID-19 as well as access to services. In order to best respond to community needs, the FSM Task Force initiated another survey in early 2021 to understand FSM people's perception and acceptance of—and access to—the COVID-19 vaccine.

Table 2. Selected Activities of the FSM COVID-19 Task Force USA			
Organization	Committees	Leadership	Activities
FSM COVID-19 Task Force USA	Executive Team	John Akapito, Co-Chair Joseph Pangelinan, PhD, Co-Chair Mike Pangelinan, Treasurer FSM Consul General Joe Enlet, Founding Co-Chair Stacy Ruegilin, JD, Founding Co-Chair Raleigh Welly, Secretary Vidalino Raatior, EdD Natalie Nimmer, PhD	- Lead coordination
	Data Team	Mike Pangelinan, Co-Leader Kevin Tugruwfaimaw, Co-Leader	- Constructed surveys on COVID-19 impact and vaccine attitudes - Collected and analyzed survey results - Disseminated data
	Communications Team	Cal Tiweyang, Co-Leader Simeon Jacob, Co-Leader	- Created culturally and linguistically appropriate information and programs - Disseminated surveys - Hosted Youth Summit and Panels - Virtual Hut Interviews - Social Media presence - Regional COVID-19 related resource pages
	Education Team	Shanty Asher, JD, Co-Leader Asinech Hellan-Pangelinan, OD, Co-Leader	- Hosted virtual programming and information on issues related to parents' and students' concerns about schooling during the pandemic
Marshallese Community Organization of Hawai'i (MCOH)		Jendrikdrik Paul, President Borden Bolkein, Vice President Kelly Bokin, Secretary Joanne Loeak, Treasurer Ned Anjolak and Cassie Alik, Volunteer Chairs Caster Konou, Constitution Day Chair	- Organized food distribution and emergency supports alongside community partners including the RMI Consulate Office, the Marshallese COVID-19 Task Force, We Are Oceania, Pacific Gateway Center, Domestic Violence Action Center, Chef Paul, and Chef Hui - Acted as resource navigators for Marshallese community members - Provided health messages in Marshallese and English via online social networks - Partnered with other organizations to extend reach and support capacity of initiatives directed at Pacific Islanders broadly
Micronesian Ministers & Leaders Uut		Innocenta Sound-Kikku, co-organizer David Derauf, MD, co-organizer Sass Gouland, Pastor and co-organizer Tadasy "Tester" Puas, Pastor and co-founder Bender Sam, Pastor and co-founder Jaffy Poll, Pastor and co-founder	- Utilized technology to mobilize community through an approach rooted in cultural traditions and values - Organized weekly on-line gatherings to share critical public health information and to address community concerns - Hosted guests and community partners including Dept. of Education Superintendent, administrators, and teachers; medical providers; American Civil Liberties Union; Medical-Legal Partnership for Children in Hawai'i; Office of the Public Defenders; FSM government and FSM Consulate Office officials; Hawai'i legislators; Department of Health staff; and other service providers.

The FSM Task Force was needed for several reasons: collecting accurate and disaggregated data on the disproportionately high infection rates among the FSM people, creating and disseminating culturally and linguistically appropriate and accurate health and education information to the FSM people, and advocating for the equitable and unbiased perception and treatment of the FSM people (Table 1).

Marshallese Community Organization of Hawai'i (MCOH)

The Marshallese Community Organization of Hawai'i (MCOH) was established in late 2019 by Jendrikdrik Paul and other Honolulu-based Marshallese engaging in community service and organizing community sports events. At the beginning of 2020, MCOH received a grant to conduct Census 2020 work. When the pandemic hit Hawai'i, they quickly pivoted to engage in extensive direct services and community education. This volunteer-driven organization quickly became an essential provider for basic needs (food drives, quarantine supports, mask distributions) and resource navigation for Marshallese-speaking families, including those stranded in Hawai'i due to the sudden and complete travel restrictions to their home islands (Table 1). All of their services are available in Marshallese and English, and MCOH also established an on-line presence to share vital health education messaging in Marshallese. The MCOH Facebook group currently has over 2,400 members.²⁷

MCOH spent most of 2020 engaging in close collaboration with RMI Consular staff, government officials, churches, and nonprofits, and a wide range of volunteers including Marshallese and non-Marshallese community members. MCOH partnered with numerous organizations to conduct food distributions of food baskets and prepared meals (Table 2). From September through December, they regularly served 300 families on Tuesdays and 400 families on Saturdays, providing essential resources to mostly Micronesian, Pacific Islander, and Filipino communities. MCOH had a regular roster of 27 Marshallese volunteers and engaged as many as 50 volunteers at a single event, such as an event that distributed 1 000 emergency kits. They provided resources to neighbor island communities and assisted hundreds of Marshallese community members to navigate unemployment benefits, housing advocacy, rent relief applications, and other vital services. The MCOH team estimated they fielded up to 50 calls each week for individual help. They reached thousands more through social media messaging.

During 2020, MCOH expanded its capacity by securing non-profit legal status and establishing a formal structure (Table 2). MCOH helped manage CARES Act funding as members of the Pacific Islander sub-group of the Native Hawaiian & Pacific Islander Hawai'i COVID-19 Response Team.²⁸ This included co-organizing the *Pasefika*²⁹ virtual concert to share music and health information that was viewed nearly 80 000 times.

Like many other community efforts, MCOH engaged in extensive emergency supports for Marshallese communities, including functions that are the responsibility of the Hawai'i Department of Health such as contact tracing, quarantine supports, and accessing COVID-19 testing. The pandemic amplified existing problems, and MCOH plans to sustain this work beyond the public health crisis and continue working alongside community, government, and non-profit partners. MCOH's emphasis on nurturing relationships as friends, not just colleagues, illustrates its cultural values and exemplifies moving past harmful narratives and biases that have perpetuated discrimination (Table 1). The Marshallese saying "*Kakur wot wor*" means "we are stronger together."

Micronesian Ministers and Leaders Uut

The Micronesian Ministers and Leaders Uut was formed following the circulation of an email from state officials claiming that Micronesian leaders and ministers were "not responsive" to outreach efforts. At the same time, Kōkua Kalihi Valley Comprehensive Family Services (KKV) Executive Director Dr. David Derauf asked Innocenta Sound-Kikku, KKV staff and respected "community aunty," to convene Micronesian church ministers to address community concerns and disseminate critical public health information and advisories. Ms. Sound-Kikku immediately began efforts with Sass Gouland, Pastor and President of the Micronesian Health Advisory Coalition, that demonstrated how Micronesian communities respond and mobilize when reached out to through respectful and trusted relationships.

The email and resulting exchange served as the catalyst for the establishment of the Micronesian Ministers and Leaders Uut, a weekly virtual meeting that convenes ministers and elders serving Micronesian communities alongside other community members and stakeholders (Table 2). The term *uut* refers to the meeting houses found in many Micronesian societies where clan dialog on critical issues occurs and important decisions are often made. Drawing from these spaces and traditions in their home islands, Micronesian communities in Hawai'i and elsewhere have long relied on their elders and church leaders for guidance by forming *uut* abroad, especially in times of crises and adversity. In Hawai'i, Sound-Kikku recalls a far-reaching community *uut* that long predates the current coronavirus pandemic, noting that "we always know that our elders, our ministers and our pastors are our go-to." Indeed, the current, virtual Micronesian Ministers and Leaders Uut followed a longer standing *uut* in the Honolulu community, and an even longer tradition of church leaders and community elders being situated at the core of community and mobilization efforts.

The weekly online meeting began as a way to discuss pressing concerns brought on by the COVID-19 pandemic and its impact on Micronesian communities. The organizers also invited guests

representing legal, educational, medical, and social services to disseminate information and address questions and concerns from attendees (Table 1). Youth are increasingly attending and given the space and permission by their elders to speak openly on community issues. Participants increasingly dial in from Palau, Guam, Washington, D.C., and everywhere in between.

The *uut* serves an immediate purpose of providing a space for information sharing, and members have far-reaching impact. For example, Pastor Jaffy Poll posts wide-reaching online sermons and Pastor Sam Bender hosts a weekly radio show called “Voice of Chuuk” where he shares vital information and resources, including health messaging during the pandemic. Pastor Sass Gouland has organized at the state’s largest public housing complexes and also serves in a diplomatic capacity with governmental ties to FSM. Just as these ministers and elders have embraced technology and changing social spaces to serve their communities, the broader Micronesian diaspora in the US has followed suit, using social media, the arts, and other platforms to expand and continue conversations that begin in the *uut* (Table 1).

Elevating Micronesian Leadership

With growing disparities in infection and mortality rates and after several government missteps,³ state and county officials began to meaningfully engage Micronesian communities by September 2020, including appointing Micronesian leaders to government positions. While overdue, these actions were significant to strengthening community relationships and establishing more formal liaison positions between government and Micronesian residents. We next highlight 2 examples of successfully elevating Micronesian leadership.

Tulpe Day is a Kosraean community leader who has worked for the County of Hawai‘i since 2014 as an Immigration Information Specialist, and she was nominated by Governor David Ige to serve on the Language Access Advisory Council.³⁰ Ms. Day is an active member of Micronesians United-Big Island and other groups promoting Micronesian culture, education, and resources. In response to a COVID-19 cluster in Kona—and the outcry after the Department of Health Director Dr. Bruce Anderson singled out the Marshallese community affected¹⁶—Hawai‘i County Mayor Harry Kim asked Ms. Day to identify leaders for a County of Hawai‘i COFA COVID-19 Task Force. This group is tasked with serving as a bridge between members of COFA communities, government agencies, and non-profit organizations.

The County of Hawai‘i COFA COVID-19 Task Force includes Marshallese, Kosraean, Pohnpeian, Chuukese, Yapese, and Palauan community leaders who volunteer their time to support the Department of Health, Civil Defense, and other government efforts. Their work includes education and public health messaging, COVID-19 testing including on-site outreach and contact

tracing, and post-testing wrap around services (Table 1). Even before this formal relationship, Ms. Day was leading a Kosrae Big Island COVID-19 Task Force and working with others to address similar needs for Micronesians on Hawai‘i Island. The community did not wait for the government to address these needs. Rather, the increased collaborations and the impact of government and community advocates engaging side-by-side furthered relationships built on trust and respect.

In September of 2020, attorney Shanty Sigrah Asher was hired as the first Pacific Islander Liaison Officer at the Office of Economic Revitalization for the City and County of Honolulu. This role was established by O‘ahu Mayor Kirk Caldwell shortly after a meeting with Micronesian leaders in mid-August. Her role is primarily to engage in outreach and to improve communication between government, community organizations, and community/church leaders, as well as to provide up-to-date COVID-19 resources and information to the Pacific Islander community (Table 1). Like Ms. Day, Ms. Asher brings a wide range of community organizing experience and governmental, non-profit, and grassroots community relationships and expertise.^{31,32} In the last 4 months of 2020, she hosted 11 weekly webinars covering topics from COVID-19 updates (testing, quarantine, contact tracing, vaccines) to practical resources for housing, rent relief, unemployment, and scam protections. These webinars and other vital messaging on social media receive thousands of views (Table 1).³³ Her participation at food drives and other events creates opportunities for community members to share concerns with a government representative.

These positions grew out of the government’s realization that, in the words of Shanty Sigrah, “they can’t do it without us.” Elevating Micronesian leaders within all levels of government programs is a fundamental and effective approach to establishing clear communication, trust, and confidence in the community for public health initiatives (Table 1).

Conclusion

The efforts of the Micronesian community filled the gaps left early in the state’s response to the COVID-19 pandemic in addressing health equity. By September, the state made an important pivot and began engaging Micronesian community groups in earnest. The last 4 months of 2020 demonstrated that intentional collaboration, funding grassroots efforts, and hiring Micronesians at all levels of government positions is effective. To the authors’ knowledge, there is no study demonstrating the impact of this turn toward greater collaboration with Micronesian community partners. However, there was a decline in the case rates among Pacific Islanders in the following months.²² While serious concerns about testing, hospitalization, deaths, vaccination access, job loss, and other consequences of the pandemic impacting their communities persist, Micronesian leaders maintain hope in the face of loss and uncertainty brought on by the pandemic.

The experience of Micronesian leaders in navigating the challenges of this pandemic exemplified successful strategies for achieving greater equity in health and community well-being. Most prominently, collaborations and relationships must be built on trust and respect. Relationships and connections are fundamental to Pacific peoples' way of understanding, analyzing, and organizing their lives and communities. Relationships cannot be simply transactional. These connections are successful and sustainable only when executed in culturally responsive ways that embrace Micronesian protocols and practices. The increase in collaboration across islander communities and between the government and Micronesian community enhanced the impact of these efforts and amplified the voices of the community.

For continued progress in terms of both addressing the COVID-19 crisis and advancing health equity overall, these relationships must continue to develop beyond the current pandemic. A key requirement is nurturing relationships as friends, not just colleagues, so that policymakers, government leaders, and community members build trust and learn to invest in each other. There can be no return to "normal" when pre-pandemic relationships were marked by neglect and racist narratives. Rather the pathway forward is to work together across communities, organizations, and agencies to rise above the racial noise and achieve the shared vision of healthier Micronesian families and communities.

Conflict of Interest

None of the authors identify any conflict of interest.

Acknowledgements

The authors would like to thank Dr. Vidalino Raator and Srue Wakuk for substantial contributions to the design and production of this paper. We also acknowledge the many other initiatives that take place in every county in Hawai'i—organized by Micronesian advocates, church leaders, diplomats, women, youth, and island/regional leaders—that sustain, heal, uplift, and celebrate the Micronesian community every day.

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Addressing Native Hawaiian and Pacific Islander Data Deficiencies Through a Community-based Collaborative Response to the COVID-19 Pandemic

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Abstract

Early evidence of disproportionate COVID-19 infection and death rates in Native Hawaiian and Pacific Islander communities in the continental US raised concerns for similar disparities in Hawai'i, where these communities make up 25% of the state's population. Representatives from more than 40 different government, academic, institutional and community-based organizations partnered to form the Hawai'i Native Hawaiian and Pacific Islander COVID-19 Response, Recovery, and Resilience Team. The team consists of 5 committees including the Data & Research Committee. This committee is tasked with examining issues regarding the acquisition, quality, public reporting, and utilization of race/ethnicity-related health data used to inform priorities and guide resource allocation. Problems addressed by this committee include: inconsistency across agencies in the use of race identifiers, defaulting to the Office of Management and Budget standards which aggregated Native Hawaiian and Pacific Islanders, and methods of data collection and reporting by the Department of Health. Outcomes include: 2 forms with race categories that reflect the population of Hawai'i; the reporting of disaggregated data by the Department of Health; and conversations with testing sites, laboratories, and health institutions urging a standardized form for race/ethnicity data collection. The collection and reporting of disaggregated race/ethnicity data is critical to guiding organizations in addressing underlying inequities in chronic disease and social determinants of health that can exacerbate the adverse effects of COVID-19. The Data and Research Committee's network offers a community-based model for collaborative work that honors culture and ensures Native Hawaiian, Pacific Islander, and other minority populations are recognized and counted.

Keywords

Native Hawaiian (NH), Pacific Islander (PI), data disaggregation, health disparities, COVID-19

Abbreviations

CDC=Centers for Disease Control and Prevention
COVID-19=coronavirus disease 2019 virus
DOH=Department of Health
DOCD=Disease Outbreak Control Division
DRC=Data and Research Committee
NH=Native Hawaiian
NHPI=Native Hawaiian and Pacific Islander
NHPI 3R Team =Hawai'i Native Hawaiian and Pacific Islander COVID-19 Response, Recovery, and Resilience Team
OHA=Office of Hawaiian Affairs
OMB=Office of Management and Budget
PI=Pacific Islander
SARS-CoV-2=severe acute respiratory syndrome coronavirus 2
US=United States
WHO=World Health Organization

Highlights

- The COVID-19 pandemic highlighted the health disparities of NHPI populations.
- Utilizing inclusive community-based collaborations ensure effective outcomes.
- Disaggregation of race data is critical to informing NHPI disparity related policy.
- Data collection processes need to be standardized.

Komo mai kau māpuna hoe.
“Dip your paddle in.”
(Everyone pitch in.)¹

Introduction

The *'ōlelo no 'eau* (Native Hawaiian proverb) quoted above reflects the unprecedented response by Native Hawaiians and Pacific Islanders (NHPI) to work quickly and collaboratively to confront the staggering disparate impacts of COVID-19 on their communities. Nationally, NHPI communities are quite small (0.4% of the US population) and their issues frequently go unnoticed.² However, early in the pandemic, concerns were raised by NHPI health advocates in the continental US that NHPI communities were being impacted disproportionately by COVID-19.³ Unfortunately, it was difficult to gain a clear understanding of the situation early in the pandemic, because most states did not disaggregate or even report NHPI COVID-19 data.³⁻⁶ The COVID-19 pandemic highlighted a range of data-related deficiencies with respect to how race/ethnicity data are collected, reported, and used, and the need for collaboration among government agencies, health care systems, and community leaders in Hawai'i as well as nationally.

NHPI have long advocated for disaggregated racial data to best inform programmatic and policy efforts to effectively address health disparities.⁷ The COVID-19 pandemic further underscored the need for disaggregated race/ethnicity data to inform COVID-19 response and recovery efforts.^{4,5} The 1997 update to the Office of Management and Budget (OMB) federal race and ethnicity classification designated 5 basic racial groups, finally separating “Native Hawaiian or Other Pacific Islander” from the “Asian” category.⁸ Table 1 illustrates the revised OMB race and ethnicity classification standards.

Standards for Collection	
Ethnic categories	
Hispanic or Latino	
Race categories	
American Indian or Alaska Native	
Asian	
Black or African American	
Native Hawaiian or Other Pacific Islander	
White	

Source: https://obamawhitehouse.archives.gov/omb/fedreg_1997standards
Source: <https://www.govinfo.gov/content/pkg/FR-1997-10-30/pdf/97-28653.pdf>

In the current paper, “Native Hawaiians” (NHs) refers to the original inhabitants of the Hawaiian archipelago, and “Pacific Islanders” (PIs) refers to the original inhabitants of the islands of Oceania. NHPI refers to a diverse group of peoples with distinct languages, cultures, and political affiliations with the US.

The minimum level of collection and reporting of race and ethnicity data to federal agencies must comply with the revised OMB Standards (1997). Although states can collect and report more granular categories for their own purposes, such categories must be rolled into the OMB classification categories when reporting data to federal agencies. The aggregation of such categories such as grouping NH with PI at both the federal and state level masks the differential social, political, economic, and health impacts that health crises, such as the COVID-19 pandemic, have on specific communities.

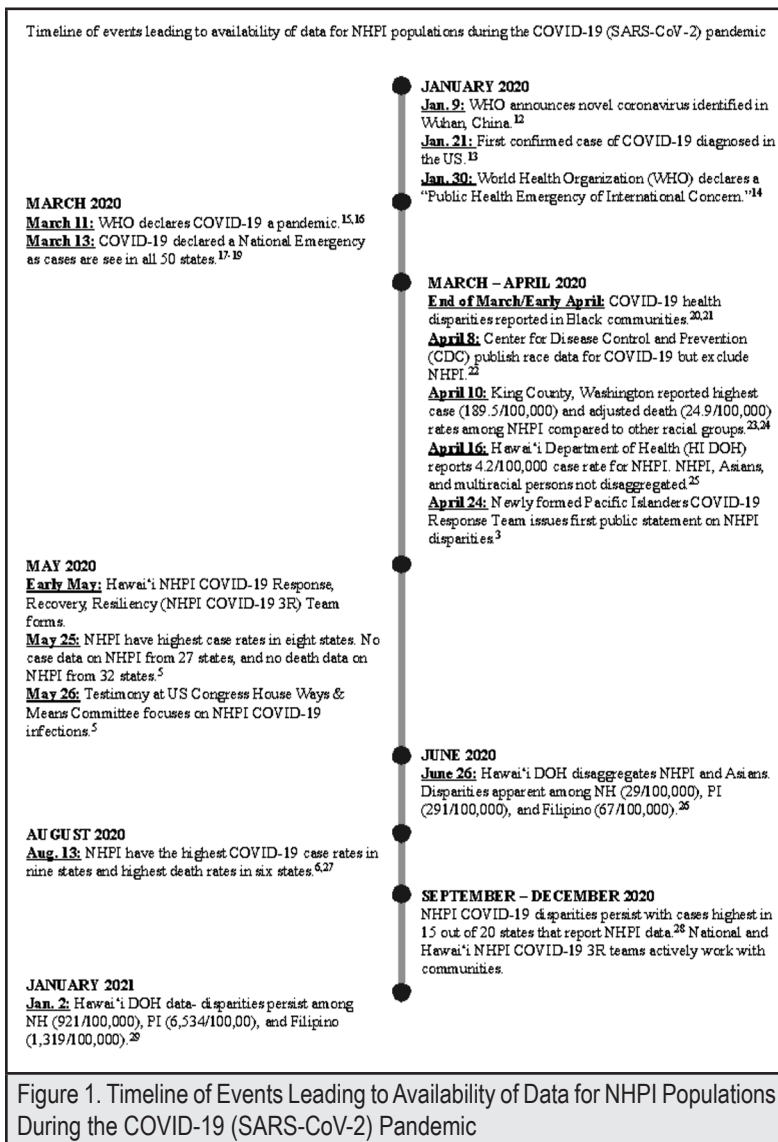


Figure 1. Timeline of Events Leading to Availability of Data for NHPI Populations During the COVID-19 (SARS-CoV-2) Pandemic

In Hawai‘i, NHs and a diverse community of PIs (eg, Samoan, Tongan, Chuukese, and Marshallese) make up more than 21% and 4% of the state’s population, respectively. NHPI combined comprise 25% of the population of Hawai‘i and, depending on what agency is reporting, might encompass anywhere from 7 to more than 30 different PI groups.⁹⁻¹¹ Thus, there is a need to further disaggregate NH and PI data to understand the unique needs of distinct PI populations.

Current data collection methodologies and tools widely applied in Hawai‘i and elsewhere lack the needed specificity and validity to capture relevant data, including data that are critical to making important policy and resource-allocation decisions, especially during a public health crisis. A timeline of events showing data availability in 2020 for NHPI populations can be seen in Figure 1. This timeline illustrates how national problems in race/ethnicity-related data collection, such as the failure to look for and gather race/ethnicity-related data, led to a delay in recognizing the disparate impacts of COVID-19 on the NHPI community both nationally and locally.^{3,5-6,19-29}

When the Centers for Disease Control and Prevention (CDC) first published race/ethnicity data regarding COVID-19 on April 8, 2020, NHPI data were not included.²² Hints of NHPI disparities started with reports in early April from Seattle, Washington, showing NHPI with the highest case rates of all racial/ethnic groups.^{23,24} By April 24, NHPI had the highest case rates in Washington, California, Utah, Oregon, and Hawai‘i.³ One month later, NHPI had the highest case rates in 8 of the 10

states that reported NHPI data.²⁸ Unfortunately many states were not reporting NHPI data, and 2 reported NHPI data aggregated with Asians. By early June 2020, there were still 27 states that did not report NHPI COVID-19 case rate data.⁵

With many states not reporting race data for COVID-19, members of Congress and health care advocates rallied together to demand the reporting of race and ethnicity data for COVID-19 cases, hospitalizations, and deaths to fulfill “the need for comprehensive patient demographic data to better identify these racial and ethnic disparities, and to be able to respond with increased resources for prevention, testing, and treatment among populations experiencing those disparities.”²⁵ By the first week of 2021, in 16 of the 21 states that reported NHPI data, NHPI had the highest per capita COVID-19 case rate of any racial/ethnic group.^{28,29}

As of January 4, 2021, Hawai‘i, the only state to disaggregate NH from PI, reported the per capita cumulative case rate (unadjusted for age) for NHPI as 1 830 per 100 000 compared to 795 per 100 000 for non-NHPI. The NHPI population comprised 43% of COVID-19 cases. More specifically, PIs, who are 4% of the state population, comprised 25% of cases and had a cumulative case rate of 6 534/100 000 (Figure 1).²⁹ At that time, 30% of the data were still missing due to a backlog at the State of Hawai‘i Department of Health, raising questions as to whether the disparity might be even worse than previously reported.²⁹

NHPI suffer from disproportionately higher rates of comorbidities such as obesity, diabetes, cardiovascular disease, and asthma, which are known risk factors for severe COVID-19 related illness or death.³⁰ Health and social determinants’ disparities within the NHPI community, as with other marginalized communities in the US, place NHPI populations at greater risk for COVID-19 infections and adverse outcomes.³⁰⁻³⁴ The lack of a standard and culturally responsive protocol for data collection, management, and reporting make it difficult for health care organizations and government agencies to recognize and therefore adequately address and implement appropriate responses to not only COVID-19, but also to the underlying chronic conditions driving NHPI health and socioeconomic disparities.

Methodology: The Efforts of the Data and Research Committee

To address the adverse impact of COVID-19 on the social, cultural, economic, and health conditions of NHPI communities as well as the data deficiencies described earlier, the Hawai‘i Native Hawaiian and Pacific Islander COVID-19 Response, Recovery, and Resilience Team (NHPI 3R Team) was formed. This section describes the structure of the NHPI 3R Team, the specific role of the Data and Research Committee (DRC), and how the collaborative nature of this committee addressed the data deficiencies identified. The authors are all members of the DRC.

The NHPI 3R Team, a collective of more than 40 organizations that directly serves NHPI communities, was formed in May 2020 to address NHPI COVID-19 related disparities. The NHPI 3R Team has 4 Co-Leads (2 NHs and 2 PIs) and 5 committees: (1) Testing, Contact Tracing and Isolation, (2) Policy, (3) Social Supports and Recovery, (4) Communication, and (5) Data and Research. Partners include government agencies, academic groups, and community groups (both nonprofit and grassroots). The organizational structure of the 3R Team can be seen in Figure 2.

When the NHPI 3R team was formed in May 2020, there were significant gaps in data needed to accurately assess the impact of COVID-19 on NHPI in Hawai‘i, including insufficient, inconsistent, untimely, and inaccessible data across various state and county departments and health care organizations. The Data and Research Committee (DRC) of the NHPI 3R team was formed to address these issues. Soon after, the Kūkākūkā Data Disaggregation Hui sponsored by the Office of Hawaiian Affairs (OHA), a group with similar interests in addressing issues around NHPI data, merged with the DRC.

NHPI 3R Team’s Data and Research Committee (DRC) was designed to be a flexible and fluid network consisting of various organizations and governmental agencies with shared core values and a passion for eliminating NHPI health disparities as spotlighted by the COVID-19 pandemic. Current DRC members, which include the authors, belong to a wide range of organizations, which are summarized in Table 2.

The collective work of the NHPI 3R team is guided by NHPI core values. These core values were agreed upon at the formation of the NHPI 3R team by its members and include: *pono* (equity, just, virtuous), *aloha* (love, compassion), *kuleana* (right, privilege and responsibility), *‘ohana* (family, relations), *laulima* (cooperation, joint action), and *imua* (movement forward, to advance). Also, cultural protocols and practices are at the forefront and woven into the work that is done to remind all team members of the importance of the work and to draw strength and guidance from ancestral and spiritual relations.

The purpose of the DRC is to ensure that NHPI data are disaggregated and to identify data and research gaps, develop a course of action to address these gaps, and provide recommendations. Important goals include ensuring that data on health disparities across racial/ethnic groups are no longer invisible so that needed policies and interventions can be created and resources can be allocated where most needed. More specifically, the DRC’s goals are to:

- (1) Identify priorities and strategies to address the immediate data and research issues to better understand the COVID-19 impact on NHPI communities.
- (2) Establish long-term priorities for systemic change regarding data governance policies and procedures.
- (3) Build and strengthen a network of NHPI serving organizations, government agencies, and other community organizations to inform and support these goals.

Operationally, the weekly group meetings are conducted remotely and administratively supported by Papa Ola Lōkahi, also known as the Native Hawaiian Health Board. Table 3 shows the DRC data gaps and research needs identified, the activities conducted to address these needs, and the results of these efforts to date.

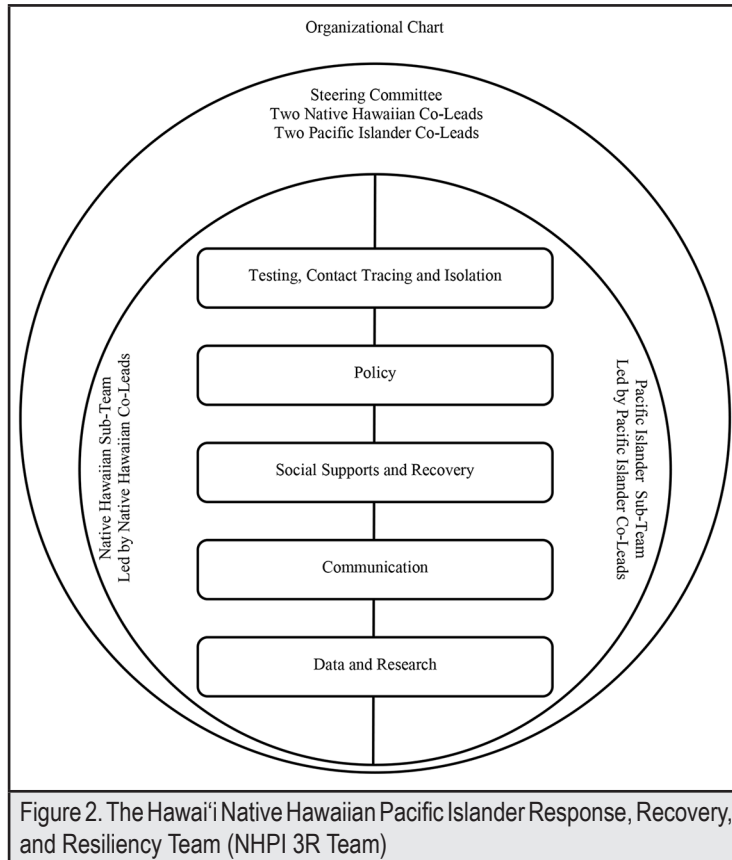


Figure 2. The Hawai'i Native Hawaiian Pacific Islander Response, Recovery, and Resiliency Team (NHPI 3R Team)

Table 2. Members of the Data and Research Committee	
Organization	Type
Office of Hawaiian Affairs	Government
Hawai'i State Department of Health	Government
Department of Hawaiian Homelands	Government
Papa Ola Lōkahi	Non-profit
'Ahahui o nā Kauka (Assn of NH Physicians)	Non-profit
Hawai'i Pacific Health	Healthcare facility/system
Kōkua Kalihi Valley	Healthcare facility/system
The Queen's Health systems	Healthcare facility/system
Waimānalo Health Center	Healthcare facility/system
Hawai'i Pacific University	Academia
The University of Hawai'i at Mānoa, John A. Burns School of Medicine, Department of Native Hawaiian Health	Academia
The University of Hawai'i at Mānoa, Myron B. Thompson School of Social Work, Center on Aging, Pacific Health Analytics Collaborative	Academia

Table 3. Responses to Data and Research Issues		
Data Issues	Responses/Activity	Result
Collection		
Inconsistent collection of race/ethnicity identifiers across testing organizations including hospitals.	Reliance on OMB 15 Federal standards that aggregate Native Hawaiians and Pacific Islanders.	Ongoing advocacy for change with testing sites, labs, health institutions.
Management		
Develop a data collection form that appropriately captures the racial and ethnic populations served by Hawai'i hospitals and medical records.	Research project planned with two main hospital systems assessing the consistency of data entry, methods, forms, ease of use.	Race and ethnicity data collection. Long and Short forms developed.
Inconsistent data entry. The decision to initially focus on the backlog of NHPI race data entry at DOH.	Recruit individuals to follow up on missing race data and assist with data entry.	DRC partners recruited two staff members. Missing race data reduced from 52% to 19%.
Reporting		
Lack of timely sharing of disaggregated NHPI data.	Develop a collaborative relationship with DOH/DOCD advocating for timely sharing.	(1) NH, PI, and Asians disaggregated in DOH reports for COVID-19. (2) The Team consults with DOH on the relevance and usefulness of data reported.
Race data collected for positive cases but was not reported by disaggregated race and ethnicity categories.	Advocate for reporting by disaggregated race and ethnicity.	NHPI and Asians are disaggregated in COVID-19 reporting.
No disaggregated data reported for hospitalizations, deaths, and negative cases.	Support DOH efforts through a collaborative relationship.	Disaggregated data by race and ethnicity for hospitalization and deaths reported.
Limited understanding of the distribution of negative cases among NHPI.	Sub-team developed to consider accessing databases of negative cases from Hawai'i Pacific Health and Queen's Health Systems hospitals.	Collaborative partnership with Hawai'i Pacific Health and Queens Health Systems. Goals: (1) participating in a study of negative cases; (2) developing an understanding of how each system processes race and ethnicity data, and; (3) identifying complementary goals for future studies.

Achievements

In addition to the results summarized in Table 3, the following 3 primary activities illustrate the work of the DRC around COVID-19.

1. Development of a Race & Ethnicity Data Collection Form

Realizing that uniformity in the documentation of race was needed, the DRC created data collection forms to best represent the unique racial/ethnic demographics of Hawai'i. Particularly, addressing the mixed-race category was important because 24.2% of Hawai'i's population identifies as multiracial.³⁵ Although the Department of Health (DOH) has a prioritization algorithm method for identifying primary race when reporting data,³⁶ the DRC felt that allowing the respondents to self-identify their primary race would collect a more accurate reflection of their true racial/ethnic identity and any influences this may have on epidemiological outcomes. Building upon work started by the OHA Kūkākūkā Data Disaggregation Hui, a recommended list of 29 race/ethnicity categories was developed that included all known PI categories (Appendix 1). A shorter list with 12 race categories was also developed to address concerns about the length and time required to complete the form (Appendix 2). The DRC continues to look for opportunities to strongly advocate for the use of these forms.

2. Department of Health (DOH) Collaboration with the DRC

Early in the pandemic, as the first wave of COVID-19 cases were identified in Hawai'i, race and ethnicity data were not routinely reported by the DOH despite the agency having these data.³⁷ The first public release of race/ethnicity data by the DOH in mid-April, covering 450 confirmed cases, showed that persons identifying as white and NHPI were disproportionately more likely to be diagnosed with COVID-19.²⁶ This crude stratification of the race/ethnicity data relied on the standard federally defined OMB categories. Also, NHPI numbers only reflected single race, not mixed-race, categories. The insufficiency of the existing federal race classification for predominantly Asian and Pacific Islander populations of Hawai'i has been previously documented.³⁸ However, several barriers prevented further disaggregation, including:

- (1) lack of access to disaggregated population reference data needed to detect disparities;
- (2) lack of consistent standardized methodology for persons of mixed-race; for example, some data collection protocols place mixed-race NHs into a "mixed-race" category or "other" category, which makes NHs invisible and does not reflect their actual ethnic identity; and
- (3) lack of appreciation for the importance of data disaggregation in informing appropriate COVID-19 policy and response efforts.

The DOH's partnership with the DRC was instrumental in helping the DOH's Disease Outbreak Control Division (DOCD) navigate data disaggregation challenges. From June 2020, epidemiologists from DOCD joined the DRC and attended weekly meetings to promote information sharing and discuss data challenges and related resources. As a result of this collaboration, there has been a change in the way that race/ethnicity data are reported. Table 4 shows the racial/ethnic categories reported by the DOH DOCD in April 2020 compared to when the agency started reporting disaggregated NHPI data in July 2020. Notably, as seen in Figure 3, disaggregation of the COVID-19 race/ethnic data in Hawai'i revealed that the disparity observed among NHPI was concentrated in PI communities.²⁹

The collaboration also:

- (1) enabled DOH DOCD to receive input on the most effective, accurate, and culturally respectful way to publicly share more detailed COVID-19 race/ethnicity data;
- (2) provided guidance and mentorship to a DOH student researcher who began retrospectively collecting specific race/ethnicity data for disaggregation;
- (3) facilitated meetings with community stakeholders to present updated results;
- (4) enabled a partner to provide additional staff to help process the backlog of testing data; and
- (5) provided an opportunity for the team to work on a joint report detailing the race/ethnicity disparities in the state's COVID-19 data.

Additional collaborative efforts with the DOH Chronic Disease Prevention and Health Promotion Division, the Hawai'i Health Data Warehouse, and the University of Hawai'i at Mānoa Office of Public Health Studies allowed for sharing of information and the adoption of consistent data reporting standards across state programs.

The importance of interdepartmental and community partnerships and collaboration cannot be overstated. Without economic incentives (eg, federal grants) or local statutes in place to require

April 2020 Hawaii Case Report Form race categories	July 2020 Hawaii Revised Case Report Form race categories
Black	White
White	Native Hawaiian
Asian	Pacific Islander, specify:
American Indian/Alaska Native	Japanese
Native Hawaiian/Other Pacific Islander	Filipino
Unknown	Chinese
Other, specify:	Other Asian, specify:
	Black
	Other, specify:

Adapted from Centers for Disease Control and Prevention

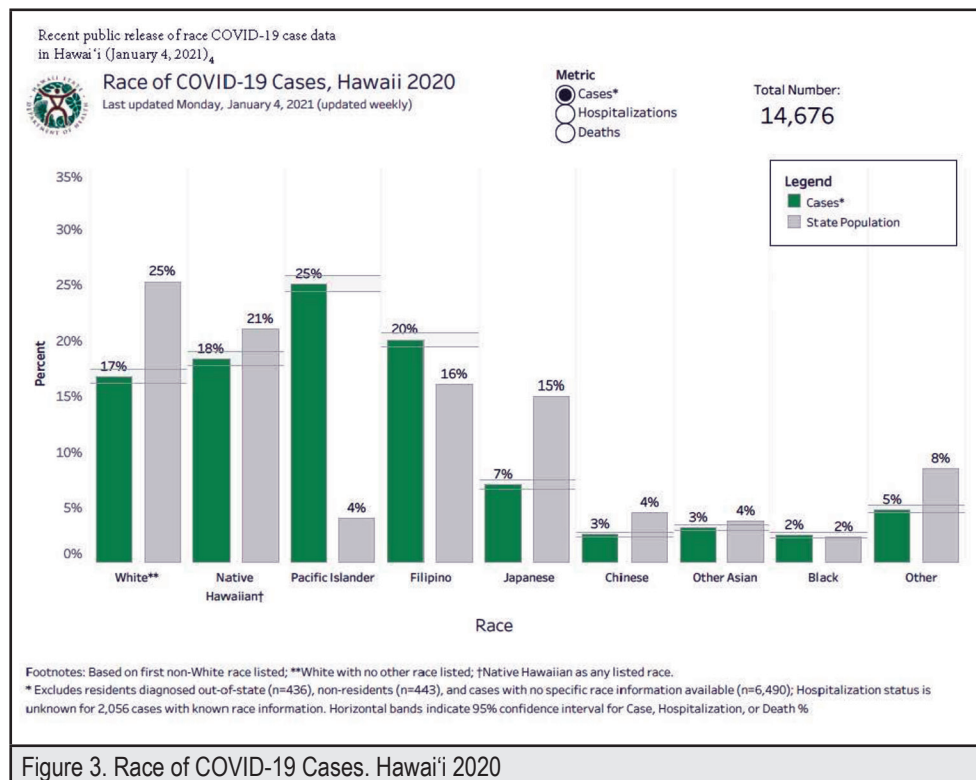


Figure 3. Race of COVID-19 Cases, Hawai'i 2020

data disaggregation, DOCD relied on a broad base of assistance to overcome significant barriers to disaggregation during a public health emergency. This assistance allowed DOCD to provide critical data needed to detect emerging COVID-19 disparities in Hawai‘i.

3. Hawai‘i Pacific Health and The Queen’s Medical Center Collaboration with the DRC

There are gaps in data on COVID-19 testing in Hawai‘i because the DOH DOCD receives and reports on information only from patients with positive COVID-19 test results. The DRC has offered the opportunity for committee members with ties to 2 of the major health care systems in Hawai‘i, Hawai‘i Pacific Health and The Queen’s Medical Center, to collaborate in discussions on how to utilize their electronic medical record databases to fill some of these gaps. The DOH DOCD contact tracing allows for additional detailed disaggregated race and ethnicity data collection from patients testing positive, but not for those who test negative. Hawai‘i Pacific Health and The Queen’s Health Systems comprise the largest medical systems in the state of Hawai‘i and are responsible for a significant amount of COVID-19 testing, including testing symptomatic and exposed individuals as well as individuals requiring clearance for procedures, travel, or hospital admissions. Comprehensive review of electronic medical record data on sociodemographic characteristics such as race, age, gender, and place of residence from all patients who received COVID-19 testing regardless of test results could provide insight into how these factors may influence access and utilization of COVID-19 testing and testing sites.

Although race and ethnicity demographic information is part of patients’ electronic medical records, these data may be incomplete or inconsistently documented. For example, some demographic categories within the medical record aggregate NH and PI into a single NHPI category, which makes it difficult to study differences between these 2 populations through medical chart review.

Institutional-level partnerships regarding shared patient data across health care systems in the past have been challenging due to competing financial priorities and regulations on sharing patient health information. However, health care institutions hold a wealth of patient clinical data that cannot be obtained reliably from self-report measures. With the need to address pandemic-related challenges including access to testing for NHPI populations, the DRC offered a valuable forum to: (1) bring together invested participants from these 2 health systems, (2) build a foundation of trust, and (3) discuss the potential for a future research project utilizing electronic medical records to further understand testing access and potential data gaps. The results of this research project collaboration would provide a rich source of information that could be utilized and shared with the DRC committee to aid that committee and others within the

NHPI 3R team in identifying target areas to improve equitable health outcomes across NHPI communities.

Table 5 provides a summary of recommendations from the DRC regarding data governance and best practices for collaborating with NHPI communities.

Table 5. DRC Recommendations
Data Governance
Advocate for more accurate data collection, transparent data management, and disaggregated reporting across State departments and health institutions.
Promote the use of the categories in the DRC short form across departments in collecting race data.
Promote the importance of communication and transparency between all collaborators in partnerships with health institutions to obtain trust for managing sensitive patient data while respecting stakeholders’ need for data ownership and independent analysis of data.
Advocate for OMB to eliminate the use of the “2 or more” category for multiple race classifications and replace it with a reporting schema similar to the Census Bureau reporting categories alone and in combination with one or more races.
Advocate for States to adopt data collection strategies that accurately reflect their populations by expanding the race categories available for selection and/or including the identification of a primary category as an additional question.
Advocate for States to create a minimum level of standardization across departments for the collection, management, and reporting of race data.
Promote and engage in solution-oriented discussions regarding the challenges of counting small populations (e.g. confidentiality).
Collaborating with Community
Collectively align goals and strategies across multiple stakeholders and institutions.
Collectively establish shared values to guide the work and partner relationships.
Identify stakeholders and additional collaborators across multiple institutions to aid in obtaining administrative, technological, and other resource funding.
Post-pandemic, government agencies need to continue to engage the NHPI community (e.g., advisory committees, stakeholder feedback sessions, etc.) with a particular emphasis on their inclusion to address health and social determinants of health inequities.

Discussion

Although the membership is large and diverse, the success of the NHPI 3R Team and the DRC lies in the shared core values of *pono, aloha, kuleana, ‘ohana, laulima*, and *imua* that inspire the DRC to work for the betterment of Hawai‘i communities. The DRC’s collaborative efforts have resulted in the creation and sharing of documents that list specific race/ethnicity categories for data collection that reflect the diverse population of Hawai‘i; a partnership with the DOH in reporting COVID-19 outcomes according to disaggregated NH, PI, and Asian race groups; and advocacy for accurate racial/ethnic data collection with partners conducting COVID-19 testing. Also, the DRC is actively identifying research needs to address data gaps and continuing to establish valuable cross-sector partnerships at the local, state, and national levels.

The DRC continues to meet regularly as the need remains for data collection and research pertinent to NHPI communities. As COVID vaccine efforts across the state continue, future efforts may include investigating the attitudes and perspectives of NHPI around COVID-19 vaccination and vaccine hesitancy to ensure vaccination equity in these communities.³⁹ The DRC is also considering the continuation of the group to explore other issues that continue to impact NHPI physical and mental health, such as unexpected complications (eg, multisystem inflammatory syndrome in children) and long-term sequelae of COVID-19 (eg, long COVID-19) and their impact on socio-economic conditions and vice versa.^{40,41} Health disparities experienced by NHPI and other minority populations are masked by the aggregation of data for these groups, effectively eliminating visibility and acknowledgment of specific health needs. Health agencies, institutions, and organizations must collect accurate, meaningful data, including race data to better guide resource and policy decisions toward health equity.

Practical Implications

- Obtaining disaggregated racial/ethnic data is paramount to understanding and developing effective policies addressing health inequities in chronic health conditions and other underlying risk factors that lead to disparities in COVID-19 outcomes.
- Researchers and policymakers must actively engage with stakeholders within the NHPI community to ensure that accurate data are reported in a meaningful way that benefits NHPI communities and does not further stigmatize already marginalized NHPI populations.
- A collaborative model that bridges key stakeholders across government, non-profit, academic, and community organizations while also adhering to cultural NHPI values can lead to more effective partnerships and utilization of combined resources.
- This collaborative model creates opportunities for research and policy-setting in investigating other chronic disease disparities in the NHPI community.

Conflict of Interest

None of the authors identify any conflicts of interest.

Acknowledgments

Mahalo to Ignatius Bau for providing data references and review and to the DRC partners for their support.

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Appendix 1

Race/Ethnicity Data Collection Long Form

1. What is your race/ethnicity? (Check all that apply)

1. White or Caucasian
2. Black or African American
3. American Indian
4. Alaska Native
5. Asian Indian
6. Chinese
7. Filipino
8. Japanese
9. Korean
10. Vietnamese
11. Other Asian (please specify _____)
12. Native Hawaiian
13. Chamorro
14. Samoan
15. Tongan
16. Fijian
17. Tahitian
18. Marshallese
19. Chuukese
20. Kosraean
21. Pohnpeian
22. Yapese
23. Palauan/Belauan
24. Nauruan
25. Kiribati
26. Other Pacific Islander (please specify _____)
27. Other (please specify _____)
28. Unknown
29. Refused/Prefer not to answer

2. Pick ONLY ONE of these groups which best represents your race and ethnicity.

- a. White or Caucasian
- b. Black or African American
- c. American Indian
- d. Alaska Native
- e. Asian Indian
- f. Chinese
- g. Filipino
- h. Japanese
- i. Korean
- j. Vietnamese
- k. Other Asian (please specify _____)
- l. Native Hawaiian
- m. Chamorro
- n. Samoan
- o. Tongan
- p. Fijian
- q. Tahitian
- r. Marshallese
- s. Chuukese
- t. Kosraean
- u. Pohnpeian
- v. Yapese
- w. Palauan/Belauan
- x. Nauruan
- y. Kiribati
- z. Other Pacific Islander (please specify _____)
- aa. Other (please specify _____)
- bb. Unknown
- cc. Refused/Prefer not to answer

3. What language do you prefer to use when discussing your health care? (fillable) _____

4. Interpreter needed?

1. Yes
2. No
3. Don't Know

Appendix 2

Race/Ethnicity Data Collection Short Form

1. What is your race/ethnicity? (Check all that apply)

1. White or Caucasian
2. Black or African American
3. American Indian or Alaska Native
4. Chinese
5. Filipino
6. Japanese
7. Other Asian (please specify _____)
8. Native Hawaiian
9. Other Pacific Islander (please specify _____)
10. Other (please specify _____)
11. Unknown
12. Refused/Prefer not to answer

2. Pick ONLY ONE of these groups which best represents your race and ethnicity.

- a. White or Caucasian
- b. Black or African American
- c. American Indian or Alaska Native
- d. Chinese
- e. Filipino
- f. Japanese
- g. Other Asian (please specify _____)
- h. Native Hawaiian
- i. Other Pacific Islander (please specify _____)
- j. Other (please specify _____)
- k. Unknown
- l. Refused/Prefer not to answer

3. What language do you prefer to use when discussing your health care? (fillable) _____

4. Interpreter needed?

1. Yes
2. No
3. Don't Know

The Critical Role Hawai'i's Community Health Workers Are Playing in COVID-19 Response Efforts

Stephanie Moir MPH; Jessica Yamauchi MA; Claudia Hartz; Rie Kuhaulua PsyD, MPH; Meetu Kelen; Amanda Allison MA; Gregg Kishaba; and Cristina Vocalan BSN, RN

Abstract

Community health workers play an instrumental role in the health care system and are critical partners in pandemic response. In Hawai'i, community health workers are working to reduce the burden of chronic disease among Pacific Islander, Filipino, and Native Hawaiian populations in partnership with government agencies and health care organizations. This commentary reviews the role community health workers in Hawai'i are playing in assisting with the COVID-19 response. Utilizing their skills and the community's trust, they are optimally positioned to reach marginalized and vulnerable populations hit hardest by COVID-19; community health workers educate, screen, and provide social service referrals to community members.

Keywords

community health workers, COVID-19

Abbreviations

CHWs = community health workers
FQHC = federally qualified health center
HIPHI = Hawai'i Public Health Institute
DOH = Hawai'i State Department of Health
NHPIF = Native Hawaiian/Pacific Islander/Filipino
PI = Pacific Islanders
PPE = personal protective equipment
PSA = public service announcement

Highlights

- Community health workers (CHWs) are an integral part of the health care system, especially during a time of crisis
- CHWs use their unique connection with the community to outreach to vulnerable populations
- CHWs must rely on partnerships with state and local entities to provide education and resources to communities on COVID-19

Introduction

Community health workers (CHWs) are trusted members of the communities they serve and play critical roles in the COVID-19 pandemic response.^{1,2} CHWs in Hawai'i are employed by various organizations, including but not limited to federally qualified health centers (FQHCs), hospitals, nonprofit organizations, insurance companies, and state agencies. CHWs bridge the community and the health care system by increasing access to care and advocating on behalf of patients.³ As cultural mediators between patients and systems of care, CHWs provide culturally appropriate health education, information, and direct services.⁴

CHWs promote health equity by addressing social determinants of health and improve health outcomes for people with chronic diseases through education and outreach efforts.^{5,6} The purpose of this article is to describe social, economic, and health inequities that impact marginalized populations, and CHWs' efforts to promote equity during the COVID-19 pandemic. In addition, the article addresses how CHWs can contribute to the COVID-19 response in partnership with other organizations. Finally, the article describes potential training topics that may be helpful for CHWs' COVID-19 response work with marginalized and vulnerable communities.

Inequities During COVID-19

The COVID-19 pandemic exacerbated and highlighted existing inequities in Hawai'i, particularly among Pacific Islanders. In June 2021, Pacific Islanders (PIs) accounted for 20% of the COVID-19 cases in Hawai'i, although they made up only 4% of its population.⁷ In the same month, Filipinos had a disproportionately higher percentage of COVID-19 cases (20% of Hawai'i COVID-19 cases) compared to their proportion in the population (16% of the population), while cases among Native Hawaiians were about equal to the proportion of their population (20% of cases, and 21% of the population).⁷

Several factors have likely contributed to health inequities around COVID-19, such as overcrowded housing, low-paying jobs for essential workers, and the prevalence of chronic conditions.⁸ Multigenerational households and overcrowded living situations could contribute to COVID-19 infection risk, creating challenges for people who are likely to live in these situations, such as Native Hawaiians, Pacific Islanders, and Filipinos (NHPIFs).^{9,10} Employment is also a likely factor in high COVID-19 infection risk among NHPIFs, as they tend to hold occupations in industries deemed essential during the COVID-19 shutdown: health care; restaurants/foodservice; tourism; hotels/cleaning services; construction; security; retail sales; airport/airline services; and delivery services.^{8,10-12} Finally, higher prevalences of diabetes, heart disease, stroke, and hypertension among NHPIFs increase risks for more severe forms of COVID-19 illness, highlighting how pandemics can deepen health inequities for marginalized and vulnerable populations.¹³⁻¹⁶ To address the health disparities and higher COVID-19 infection risks among NHPIFs, CHWs play an essential role during the pandemic: They navigate the complex systems of care, increase access to health care, disseminate information, and improve health outcomes.³

CHWs Role During the Pandemic

The Hawai'i Public Health Institute (HIPHI) conducted an informal needs assessment and focus groups between June and December 2020 to learn if and how CHWs' roles in Hawai'i have changed during the COVID-19 pandemic.¹⁷⁻¹⁹ Of the 35 CHW participants in the needs assessment, 32 CHWs experienced a shift in their job duties due to COVID-19.¹⁷ CHWs saw their workload increase and COVID-19 responsibilities replacing their other work.¹⁷ Many CHWs noted changes to their daily duties, including adopting new technology and telehealth (due to challenges in meeting face to face and maintaining their relationships with clients); educating the community on PPE and clinic safety protocols; conducting screenings with clients; and other duties focused on COVID-19, including medication and grocery delivery.^{17,18} Multilingual CHWs reported serving as interpreters in their communities. For example, CHWs utilized their language skills to serve as medical interpreters in the COVID-19 testing tents during the pandemic.¹⁸ The needs assessment and focus group were conducted before vaccination efforts began and does not include information describing CHW roles during this phase of pandemic recovery.

CHWs in the 2020 focus group shared that they helped develop culturally appropriate and relevant resources materials on COVID-19 in NHPIF languages.¹⁸ The rapid changes and updates to information created a challenging dilemma, and CHWs shared information verbally rather than relying on the traditional approach of disseminating written resources/information.¹⁸ In addition to serving as translators, CHWs served as cultural translators for local agencies trying to effectively reach communities; CHWs used their knowledge of cultural beliefs, attitudes, and practices to develop effective strategies for communication and messaging. Thus, CHWs play an integral role in ensuring that communities have culturally and linguistically appropriate information.

During the early days of the pandemic, CHWs successfully expanded partnerships to ensure that communities received adequate health education about COVID-19.¹⁸ For example, in the Kona District of Hawai'i Island, CHWs increased their outreach efforts from 3 to 13 farms, addressing the importance of mask-wearing, physical distancing, and hygiene with migrant workers in Spanish and Thai.¹⁸ CHWs also worked closely with NHPIF populations through racial/ethnic community associations to ensure they received current and accurate information.¹⁸ Community collaborations and new partnerships were formed to distribute limited resources necessary for basic needs and COVID-19 prevention.¹⁹ For example, CHWs distributed hundreds of meals, personal hygiene packages, produce boxes, and cleaning supplies to NHPIF communities across the state.¹⁸

CHWs can partner with community-based and governmental organizations to create and disseminate educational materials and public service announcements (PSAs), ensuring that messaging is culturally appropriate for NHPIF communities.

Employing CHWs to send culturally appropriate messages to the community may help to reduce the burdens that marginalized and vulnerable populations face during the pandemic. As cultural mediators between patients and health care systems, CHWs provide culturally appropriate health education, information, or direct services and effectively educate and promote the COVID-19 vaccine.⁴ Furthermore, in their position as trusted community members, they can effectively address the misinformation, fear, and stigma surrounding COVID-19 infection and vaccines by providing relevant, accurate information on how people can protect themselves and their families.⁴ CHWs also serve as models for the community by observing and abiding by safety recommendations.¹⁸

CHWs are often under-utilized when responding to infectious disease outbreaks, and additional roles for CHWs in promoting pandemic preparedness exist.^{20,21} CHWs can share resources with a broad audience through telehealth visits or community events such as food drives. Some CHWs relied on phone calls to their homeless clients in Hilo, ensuring access to food, medication, and formula for infants.¹⁸ On Lāna'i, CHWs delivered food and masks to clients who were homebound.¹⁹ Leaders from the Marshallese community in Kona conducted outreach to families who were physically distancing, providing education on COVID-19 and distributing donations of food, water, and traditional home remedies.¹⁸

Lessons Learned and Next Steps

CHWs play many critical roles in response to the pandemic and desire to be involved with COVID-19 prevention and control, such as contact tracing. CHWs' connection to the communities they serve means they are passionate advocates for their communities and need to be included in statewide and local COVID-19 prevention and vaccination efforts, especially when they work with NHPIF populations. As trusted members of the communities they professionally serve, CHWs have unique access to marginalized and vulnerable populations in Hawai'i through in-person outreach. CHWs link marginalized patients to various services to meet basic human needs, including health care. CHWs serve as linguistic and cultural translators (mediators), provide health education, and collect information about their communities. CHWs are also links between NHPIF communities and nonprofit, private, and governmental organizations: They disseminate critical information from federal, state, and local agencies to the communities they serve. The creation of trusting work relationships and partnerships between CHWs and organizations can enhance public health initiatives that necessitate access and trust with communities, such as outreach in homes, businesses, community groups, faith-based organizations, and with NHPIF populations. CHWs can and are helping partners in the COVID-19 prevention and vaccination efforts. They are assisting with community needs assessments, contact tracing, health education, translation services, community vaccine drives, and service/treatment referrals.

The Centers for Disease Control and Prevention (CDC) describe CHWs as frontline public health professionals, who can use their understanding of communities and cultural context of residents in educating and engaging communities about contact tracing, collecting data, navigating patients through the healthcare system, and supporting home-based care for quarantined individuals.²² For example, CHWs in Washington, DC conducted contact tracing by home-visits when phone contact was not possible.²³ Although initially, most CHWs in Hawai‘i did not meet the eligibility criteria to be contact tracers, such as minimum educational degree, Hawai‘i’s DOH and The University of Hawai‘i (UH) announced that CHW-students would join the UH-DOH Contact Tracing Training Program in August 2020.²⁴ DOH’s decision to include CHWs in the contact tracing effort is encouraging. Moving forward, CHWs will be an invaluable resource to bring to the table as decision-makers develop comprehensive strategies to reach populations that may be vaccine-hesitant or reluctant to engage with contact tracers. As vaccination rates rise, cases of COVID-19 infection fall, and contact tracing of small outbreaks become a viable method of tracking viral infections, CHWs’ input may reduce poor health outcomes for marginalized and vulnerable communities such as NHPIFs populations.

Ongoing COVID-19 training for CHWs will provide them with up-to-date information and equip them with the knowledge and skills to serve their communities. During HIPHI’s 2020 focus group, CHWs said they were confident about their knowledge and skills to share information on COVID-19 prevention but are only somewhat confident in sharing information on treatment and care.¹⁸ CHWs could benefit from training, such as current resources to address social needs (i.e., food assistance, housing needs, and health care), mental health, prevention guidelines, ongoing updates on state and local restrictions and mandates, the relationship between chronic disease and COVID-19, and contact tracing.¹⁸ Many CHWs perceive they lack the opportunity to participate in training as part of their work responsibilities due to scheduling issues and lack of power within their organizations. With the vital role CHWs play in pandemic response efforts, it is equally important to acknowledge and recognize that CHWs are an integral part of the health care system. Some employers recognize the valuable role CHWs play in health care and challenge the broader public health, healthcare community, and leadership to do so as well. Professional development, resource allocation, compensation, and job security should reflect their role in the healthcare system. CHWs are the eyes and ears of the community, and they now want to be the voice, too.¹⁸

Conclusion

Proximity and strong relationships between CHWs and marginalized and vulnerable populations can enhance the efficacy of public health interventions and health messaging to prevent COVID-19 infection, reduce disease risk factors, and ensure positive health outcomes. Decision-makers, who are developing strategies for Hawai‘i’s COVID-19 prevention and control planning, could benefit from listening to CHWs’ voices and investing in CHWs’ work and training to continue improving the health outcomes of marginalized and vulnerable populations such as NHPIFs. CHWs must be included in planning and implementation efforts, especially when marginalized populations are most susceptible to deleterious health outcomes due to viral pandemics.

Conflict of Interest

None of the authors identify a conflict of interest.

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He 'A'ali'i Kū Makani Mai Au: Developing a Cultural Framework for Advancing COVID-19 Related, Community-informed Health Policies

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Abstract

The Native Hawaiian and Pacific Islander community found itself on the front pages of national news when the COVID-19 pandemic struck the United States. By April 2020, the small, frequently overlooked community experienced the highest COVID-19 case rates in 5 states including Hawai'i. In response, Native Hawaiian and Pacific Islander networks across the US were mobilized to address the crisis. In Hawai'i, the Native Hawaiian Pacific Islander COVID-19 Response, Recovery, and Resilience Team was created. Framed by Indigenous Pacific based cultural values, protocols, and practices, the team consists of multiple committees that examine policy; testing, contract tracing, and isolation; communications; social supports and resources; and data and research. Inherent in this work are the shared core values of pono (righteousness, goodness), aloha (love, compassion), laulima (cooperation), and imua (moving forward with strength) as well as an 'ohana/aiga (family)-based, kuleana (responsibility)-centric approach that acknowledges, honors, and values 'ike kūpuna (ancestral knowledge). With the burden of not only COVID-19 disparities, but also chronic diseases and socioeconomic disparities that place Native Hawaiian and Pacific Islander communities at increased risk for adverse impacts from COVID-19, an effective response is critical. This article, authored by members of the Team's Policy Committee, discusses the development of a cultural framework that guides its advocacy efforts. The Policy Committee's work presents a cultural framework that grounds and guides their efforts for effectively promoting a strong voice in governmental and agency policies which would ultimately contribute to a healthy and thriving Native Hawaiian and Pacific Islander community.

Keywords

Native Hawaiian (NH), Pacific Islander (PI), COVID-19, culture, resilience, policy framework

Abbreviations

CBSFA=Community-Based Subsistence Fishing Area
COVID-19=Corona Virus Disease caused by SARS-CoV-2 virus
NH=Native Hawaiian
NHPI=Native Hawaiian and Pacific Islander
NHPI 3R Team=Hawai'i Native Hawaiian and Pacific Islander COVID-19 Response, Recovery, and Resilience Team
PC=Policy Committee
PI=Pacific Islander
SARS-CoV-2=severe acute respiratory syndrome coronavirus 2
SDOH=Social Determinants of Health
US=United States
WHO=World Health Organization

Highlights

- COVID-19 highlighted NHPI health disparities.
- NHPI COVID-19 health disparities need culturally informed policy advocacy.
- Culturally relevant policy advocacy for NHPI incorporates Pacific core values.
- Pacific-focused framework enables effective NHPI policy advocacy.

He 'a'ali'i kū makani mai au; 'a'ohe makani nana e kula'i.
I am a wind-resting 'a'ali'i; no gale can push me over.¹
(Meaning: "I can hold my own even in the face of difficulties.")

Introduction

Voyaging across the 12.5 million square miles of the Pacific was common practice among Pacific people. Utilizing non-instrument navigation (wayfinding) required observation and Indigenous knowledge of the movements of the stars, moon, sun, as well as the ocean currents, winds, and other elements of nature. In order to survive the long ocean voyages on double hulled canoes, Pacific ancestors worked collaboratively and interdependently with each other and all the elements of nature. The shared core values of pono (righteousness, goodness), aloha (love, compassion), laulima (cooperation), and imua (moving forward with strength) enabled Indigenous peoples of the Pacific to survive and thrive. These core values are the basis for an 'ohana/aiga (family)-based, kuleana (responsibility)-centric approach to policy advocacy and decision making that acknowledges, honors, and values 'ike kūpuna (ancestral knowledge) as a sustaining force.

Like the 'a'ali'i plant, Native Hawaiians and Pacific Islanders (NHPI) have consistently proven their resilience when facing adversity. Over the centuries, Pacific communities have faced formidable adversaries. Most have come from distant lands, including population-decimating infectious diseases, world wars, and the devastating impacts of colonization with its associated upending of policies and social structures and values that directly contrasted the ancestral values of collectivism, communal subsistence, caretaking of sacred environment, and mutual respect.^{2,3} The adverse results of these exposures and conflicts have resulted in lived experiences of racism and prejudice; loss of land, sovereignty, and culture; as well as disparate poverty, poor physical and mental health, food and

housing insecurity, and underperforming school systems which negatively impact employment opportunities for NHPI. There have been insufficient relevant and responsive policy and resource interventions to address these inequities and the associated structural racism. As a result, health disparities across a multitude of chronic conditions and inequities in the social determinants of health (SDOH) have continued to worsen for NHPI for many generations with specific data emerging in the past 5 decades.²⁻⁶

The latest adversary to be imported onto Pacific shores is the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).⁷ First detected in Wuhan, China in Fall 2019, the emerging disease pattern caused by this virus prompted the Chinese government on December 31, 2019 to inform their US counterparts and the World Health Organization (WHO).^{8,9} Although Chinese scientists were able to isolate the virus a few days later, the viral outbreak was not contained and foreign cases were soon detected in Korea, Japan, and Thailand.^{10,11} This outbreak led the WHO to declare a “Public Health Emergency of International Concern.”¹² Unfortunately, the virus was already present in the US.¹³ On January 20, 2020, a laboratory confirmed the first case of SARS-CoV-2 caused disease, now called COVID-19, in the state of Washington.^{14,15} By mid-March, the virus had spread to all 50 states.¹⁶ COVID-19 was now no longer an outbreak; it was a pandemic.¹⁷

As COVID-19 spread across the US, it became apparent that minority communities were suffering disproportionately from COVID-19 infections.¹⁸⁻²⁰ The NHPI community, whose small population is rarely included in national diversity and inclusion efforts, in terms of policy inclusion or otherwise, now found its community similarly impacted. By early April, NHPI communities were experiencing the highest age-adjusted death rates of all racial/ethnic groups in the state of Washington.²¹ Seattle’s King County reported NHPI had the highest case rates at 189.5/100,000.²² By mid-April, 5 states reported NHPI cases were greater than the percentages of NHPI in their respective populations (I. Bau, JD, email communication, April 21, 2020). This included Hawai‘i, where NHPI make-up 26.7% of the state’s population.^{23,24} Stories about NHPI communities suffering from disproportionately higher case rates of COVID-19 than any other minority group in several US states and counties began appearing in media outlets.^{25,26}

Since the first COVID-19 case was diagnosed in Hawai‘i in early March 2020, the state has been collecting racial/ethnicity data on COVID-19 cases. On June 26, 2020, Hawai‘i became the first state to publicly disaggregate NH and PI data.²⁷ Although PIs make up about 4% of the state’s population, they accounted for 23% of the COVID-19 cases in the June 26, 2020 cumulative incidence data set. The next most-impacted group, comprising 16% of the state population, were Filipinos, with 21% of the cases.²⁷ In Hawai‘i, the data showing that the PI population bore the brunt of COVID-19 persisted throughout 2020.²³

Nationally, NHPIs continued to be impacted adversely throughout the summer of 2020 and by mid-August, NHPIs had the highest case rates in 9 US states and the highest death rates in 6 states.^{28,29} Remarkably, many states were not reporting race data, even fewer were reporting disaggregated NHPI data in their COVID-19 reports.³⁰ For example, in June of 2020, “twenty-seven state health departments are not reporting COVID-19 cases for Native Hawaiians and Pacific Islanders, and thirty-two state health departments are not reporting COVID-19 deaths for Native Hawaiians and Pacific Islanders.”³⁰ As a consequence, it was impossible to know the exact burden of COVID-19 borne by NHPI communities across the US.³⁰

The April 2020 COVID-19 data were a call to action for NHPI. Word quickly spread throughout national NHPI health provider networks. As the scale of the problem became clearer, it also became more evident there was a paucity of programs, policies, and organizations focused on addressing the disparate number of COVID-19 cases that NHPI communities were enduring. The community rallied to address the crisis leading to the establishment of a national collaborative NHPI response.²⁵ About the same time, the Native Hawaiian and Pacific Islander Hawai‘i COVID-19 Response, Recovery, and Resilience Team (NHPI 3R Team) was created in Hawai‘i.

The literature suggests that there is a strong association between socioeconomic inequalities and the burden of infectious diseases.³¹ It is therefore not surprising that socially disadvantaged communities bear a disproportionate share of the burden of the COVID-19 disease in the US.^{32,33} These disadvantaged communities also suffer from the highest chronic disease disparities in the US, putting them at substantial risk for higher morbidity and mortality from COVID-19.^{30-32,34-36} NHPI communities were no exception. Lack of prior effective policy interventions addressing the inequities in the SDOH for minority communities, particularly NHPI communities, compounded the impacts of COVID-19.³⁴⁻³⁶ For example, approximately 8.3% of NHPI are uninsured compared with 5.9% of non-Hispanic whites.³⁷ Consequently, the formation of the NHPI 3R Team was motivated by a concern for the lack of culturally-responsive policy interventions to address COVID-19 as well as long-term recovery that incorporates the SDOH.

Methodology: A Culturally Framed NHPI Policy Response

Equitable representation and engagement in generating comprehensive policy solutions are imperative for ensuring an appropriate response and recovery plan for NHPI that extends beyond COVID-19 to addressing longstanding NHPI disparities. Intentionally designed by and for NHPI, the Hawai‘i NHPI 3R Team was formed in early May 2020 at the urging of national and local NHPI leaders. The NHPI 3R Team has *kuleana* for improving accuracy of data collection and reporting, assessing community needs and resources, supporting existing and new

initiatives to foster health and resilience, and providing expertise and resources for partnerships with policy makers and funders. The NHPI 3R Team comprises more than 40 NHPI-serving organizations in Hawai‘i including community and grassroots organizations, nonprofits, churches, government, healthcare, industry, and academia. Members of these organizations constitute the 5 committees under the NHPI 3R Team: (1) policy; (2) testing, contract tracing, and isolation; (3) communications; (4) social supports and resources; and (5) data and research.

The authors are all members of the NHPI 3R Policy Committee which represents a wide range of organizations ranging from government to academia to healthcare to grassroots community as seen in Table 1. Utilizing NHPI Indigenous protocols and processes while embracing NHPI cultural values, the Policy Committee (PC) identified community needs and advocated, negotiated, and mediated on behalf of NHPI communities, while remaining a strong influential voice for ‘*ohana/aiga*-based, *kuleana*-centric policies at the local, state, and federal levels. An adaptation of the “3 Piko Model” for Indigenous health provides the framework for the PC’s approach to the COVID-19 crisis as illustrated in Figure 1.^{38,39} *Piko* is literally defined as one’s navel, or more poetically, one’s life-giving connection to its source. The 3 components of this framework come together to ensure ‘*ohana/aiga*-based, *kuleana*-centric positive policy changes and outcomes. The core of the framework is the “Piko I” which is the connection to ‘*ike kūpuna* and traditional and cultural ways of knowing. The self-awareness of each individual and group, “Piko O”, is rooted in culture and spirituality, and the decision to accept the *kuleana* of addressing current and

Organization	Type
Office of Hawaiian Affairs	Government
Hawai‘i State Department of Health	Government
Hawaiian Homelands	Government
Papa Ola Lokahi	Non-profit
We Are Oceania	Non-profit
‘Ahahui o nā Kauka	Non-profit
Project Vision Hawai‘i & Hawaiian Eye Foundation	Non-profit
Nā Pu‘uwai	Health Services Provider
Kōkua Kalihi Valley	Health Services Provider
Queens Health Systems	Health Services Provider
American Red Cross, Pacific Islands Region	Non-profit
Islands Society	Non-profit
‘Ekolū Mea Nui	Non-profit
Aloha Care	Industry (Insurer)
Aloha ‘Āina Legal Group, LLLC	Industry
Kahuku Consulting	Industry (Consulting)
Hawai‘i Pacific University	Academic
University of Hawai‘i at Mānoa, John A. Burns School of Medicine, Department of Native Hawaiian Health	Academic
Nā Limahana O Lonopūhā	Consortium

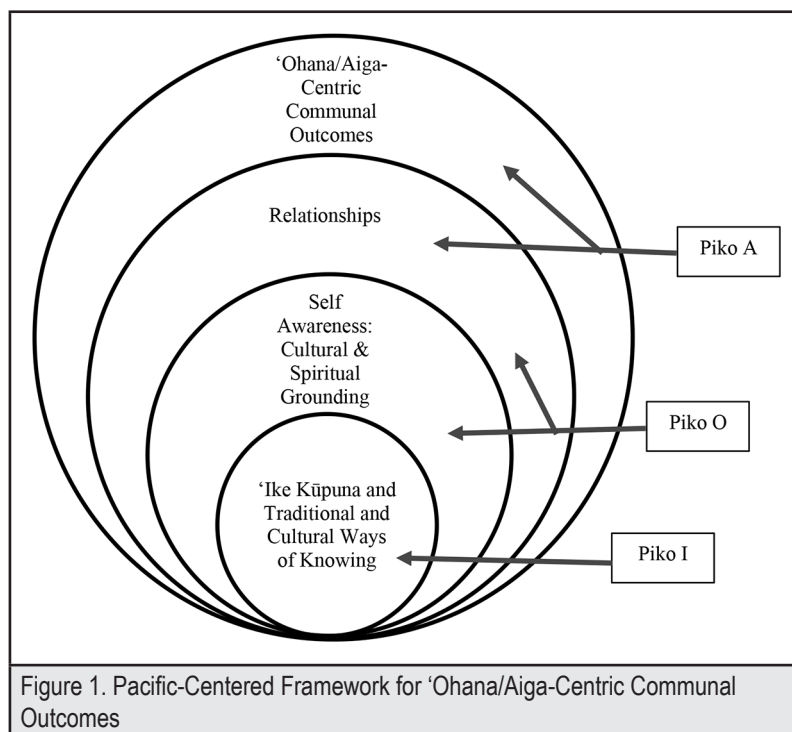


Figure 1. Pacific-Centered Framework for ‘Ohana/Aiga-Centric Communal Outcomes

future needs of the *lāhui* (nation, people) shapes all relationships. These relationships—with individuals, to *‘āina* (land, place), and to community—are critical in the establishment of the shared vision and progress of the PC. Relationships connect both current policy efforts (“Piko O”) and outcomes and future initiatives impacting generations to come (“Piko A”).

The PC naturally emerged as a spiritually and culturally grounded entity, which was always mindful of being inclusive and representative of a collective NHPI community. Given the extreme importance of representation, committee composition was organic, fluid, and informed by assessing connections that could assist in addressing current policy advocacy needs. The broad representation of NHPI organizations and communities underscored the strong sense of relationship and *kuleana* that guides the PC (see Table 1). The PC weekly gatherings were deliverable-focused and intentional and always began with cultural protocols of a *pule* (prayer) or spiritual intention setting. Collaborative *talanoa* (discussion) about current events on COVID-19 and presentations on relevant NHPI topics, endeavors and commitments are featured and meetings end with the identification of policy action items relative to community needs. These gatherings provided a consistent space to nurture relationships and for community organizing and strategizing where the environment and priorities of the community were continuously monitored through the networking offered by the PC. These actions allowed the group to assess the best time to take action and advocate, as well as identify gaps, resources,

and additional players who may be better suited to create needed policy change.

Results: Navigating Toward Change

Since June 2020, the PC has deliberated over the intersection of policy and multiple issues from education and training to the provision and distribution of immediate essential needs and other important policy issues for community, government, and educational partners. The PC collective *talanoa* always considers issues through an SDOH lens. Policy advocacy outcomes thus far include submission of testimonies for state meetings and county resolutions, general letters and statements on public health and safety, small group discussion with government leaders, reporting to the community, and planning and informational sessions to prepare for policy advocacy for the 2021 state legislative session. Table 2 outlines the outcomes and achievements of the PC to date. A few examples of the efforts and the use of the framework are discussed as follows:

(1) The cultural framework allowed for the PC to identify, discuss, and act upon NHPI health factors that were negatively impacted during the pandemic such as food insecurity. For example, the PC supported the creation of the Mo‘omomi Community-Based Subsistence Fishing Area (CBSFA) through a letter of support indicating the significant impact of the pandemic on sustainability and the Indigenous food systems of Hawai‘i. This action highlighted the use of an indigenous cultural lens

Date (2020)	Item	Description	Impact
June 19	Support testimony	Maui County Resolution 20-84, “SUPPORTING AND URGING THE MAYOR TO SUPPORT A FEMINIST ECONOMIC RECOVERY PLAN FOR COVID-19”	Resolution adopted by the Council of the County of Maui
July 30	General testimony	State of Hawai‘i Board of Education Special Meeting re: COVID-19 concerns	Support for Hawai‘i State Teachers Association (HSTA)
August 4	Statement	Denouncing recent illegal evictions of NHPI in violation of the current eviction moratorium during the coronavirus pandemic	Ongoing eviction moratorium
August 6	Meeting	Meeting with Lieutenant Governor, Dr. Josh Green	Connections with Pacific Islander leaders; discussion of Pacific Islander pandemic effects and needs
August 11	Letter	Questions and Concerns Regarding Rim of the Pacific (RIMPAC) Maritime Exercises in August 2020	Response from U.S. Navy Admiral Aquilino
August 12	Meeting	Meeting with Dr. Sarah Park, Department of Health lead for contract tracing	Development of Pacific Islander contact tracing team
August 24	Support testimony	Proposed Adoption of Hawai‘i Administrative Rules Chapter 13-60.9, “Mo‘omomi Community-Based Subsistence Fishing Area”	No update as of Jan. 1, 2021
August 26	Support with comments testimony	Honolulu City & County Council, Resolution 20-206, “Proclaiming Honolulu City Council’s Commitment to Equity and Social Justice”	Resolution adopted by the Honolulu City Council
August 31	Letter and Petition	“Standing in Support with the Call to Action to Stop Spread of COVID-19 in Prisons and Jails”	Ongoing campaign from ACLU Hawai‘i #FreeOurOhana
October 12	Letter	‘Aha‘hui o nā Kauka letter to the Governor advocating for two step COVID-19 testing requirement for incoming travelers	NHPI 3R sent separate letter. No response or update as of Jan. 1, 2021 to either letter
November-Dec	Legislative preparation	Planning and informational presentations for 2021 State Legislative Session	State Legislative tracking, discussion, and testimonies planned

to recognize how culture, COVID-19 related policy, and SDOH are woven together for NHPI. Promoting culturally-informed subsistence and lifestyles, the CBSFA acknowledged the positive impact on mental and physical health outcomes particularly for NHPI who rely on Mo‘omomi as an Indigenous subsistence fishery. Community-driven management efforts such as the Mo‘omomi CBSFA contribute to resilience, self-sufficiency, cultural perpetuation, and public health benefits for NHPI communities throughout the islands, a critical new reality for the post-COVID-19 era.

(2) As a result of regular gatherings, discussions, and a collaborative framework grounded on shared cultural values, the PC advocated for appropriate and specific representation of NHPI communities. For example, testimony was submitted in support of the Honolulu City & County’s equity and social justice resolution. The PC expressed concern about a lack of specific focus on NHPI disparities in the areas of housing and education and urged a specific acknowledgment of the state’s role in reconciling inequities in SDOH impacting Micronesian communities, which are an important PI community in Hawai‘i. Previously, NHPI voices as individual organizations have gone unheard, but the NHPI collective voice has now gained strength and courage.

(3) A final example of the impact and utility of the cultural framework can be seen in the advocacy work of the ‘Ahaui o nā Kauka (Association of Native Hawaiian Physicians), a partner in the PC team. Spurred by the concerns of NH physicians on islands other than O‘ahu who represented communities that feared being placed at undo risk with unclear COVID-19 travel and testing guidelines, this physician group embraced a leadership and advocacy *kuleana* that advocated for policies that were both scientifically sound and respectful of community values and desires. As seen in the physicians’ letter to the Governor and several Mayors, motivation for this work was a “deep sense of *kuleana*” for protecting Hawai‘i and NHPI communities with a more thoughtful, sustainable, future oriented, and culturally relevant response to the COVID-19 epidemic and the related impacts on tourism, travel, and people (K. Chong-Hanssen, MD, email communication, July 21, 2020). The physicians’ letter was shared with the PC soliciting feedback and support. As a result, an additional letter was submitted by the NHPI 3R Team.

Discussion: Setting Sail

Amidst a worldwide pandemic, the story of the NHPI community is one of resilience in navigating uncharted waters. The Policy Committee within the NHPI 3R Team embodies fundamental Pacific core values that foster both a team and an environment from which culturally relevant policy advocacy approaches naturally emerged. Policy advocacy was navigated through relationships of trust and respect that were informed and reinforced through deep ties and *kuleana* for the NHPI community.

The systems-level leadership skills and expertise represented on the PC facilitated policy strategies to confront health inequities disparately impacting NHPI during the COVID-19 pandemic. The outcomes and achievements of the PC thus far have contributed to the overall NHPI 3R Team’s position and reputation as a valuable asset for the COVID-19 response and post-pandemic recovery efforts in NHPI communities. Similar to a *lei* (wreath) of ‘a‘ali‘i, a complete circle weaving together the many facets of culture and shared history of resiliency, this framework was born out of *aloha* and *kuleana* for *kūpuna* (elders), *‘ohana*, *lāhui*, and a sacred *‘āina*.

Hawaiian Master Navigator Nainoa Thompson, trained by Micronesian Master Navigator Mau Piailug, emphasized the importance of *seeing* Tahiti before leaving Hawai‘i as he prepared for his first sail there as the navigator on the the Hōkūle‘a (a double hulled Hawaiian voyaging canoe). Mau told him, “don’t ever lose that image or you will be lost.”⁴⁰ In a parallel navigation process, the NHPI 3R Team amidst the COVID-19 pandemic must envision a healthy and thriving NHPI community and develop strategies to effectuate policy changes that support resiliency today and for generations to come. The inseparable connection to one’s ancestors has enabled this NHPI 3R Team to come together and lean on cultural foundations to inform policy responses and actions aimed at ensuring that an *‘āina*-based, *‘ohana/aiga*-focused, *kuleana*-centric approach is leveraged for the future of NHPI peoples.

Practical Implications

The cultural framework that emerged from this community-based collective effort has important implications for both policy and practice within NHPI and other Indigenous communities. The PC and the broader NHPI 3R Team represent how Indigenous communities can organize and take collective action for complex public health and policy outcomes. The PC and the broader NHPI 3R Team have acted within a flexible, inclusive cultural framework to evaluate and respond to issues that the pandemic has caused, or exacerbated, by providing a structural mechanism that brings organizations together in pursuit of measurable and “sustained, scalable, systemic change” through policy advocacy.^{41,42} Ongoing systemic change will be accomplished through collectively clarifying and refocusing on challenges new and old, redefining policy approaches and strategies for dual identity NHPI communities, and recreating a shared vision for health equity.

The prioritization of *‘ike kūpuna*, spiritual and cultural grounding, and the establishment of *‘āina* and *‘ohana/aiga*-based, *kuleana*-centric relationships specific to a local context are unique to this framework. Future endeavors utilizing this cultural framework could shed new light on how the peculiarities of local context can inform variations in policy interventions and contribute to knowledge on more effective practices within

NHPI communities. Moreover, NHPI culture-related strengths and assets that positively contribute to resilience among NHPI despite overwhelming experiences with the COVID pandemic are not well-understood, nor documented, nor used to inform policies. The use of the concepts within this cultural framework has the potential to contribute to culturally-relevant policy responses to health and well-being moving forward to the future for NHPI and all indigenous communities.

Conflict of Interest

None of the authors identify any conflict of interest.

Acknowledgements

We would like to thank Ignatius Bau for the assistance in the early NHPI data reporting and acknowledge the extraordinary leadership of the NHPI 3R Team, Sheri Daniels, Josie Howard, Keawe'aimoku Kaholokula and Felea'i Tau, and Kealoha Fox, co-lead of the Policy Committee, as they navigate our canoe toward a vision of NHPI health and supporting us on this voyage. Mahalo to Kim Ku'ulei Birnie and Ua Ho'opai for committee support.

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Health Literate Hawai'i: A Blueprint to Empower Health and Wellbeing

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Abstract

Recent studies have identified high rates of chronic disease in Hawai'i's adults and youth. As the state responds to the COVID-19 pandemic and looks beyond it, the prevention and management of chronic diseases are critical for community health and wellbeing. Low health literacy is more common in rural populations, Filipinos, and Pacific Islanders in Hawai'i, older adults, and many other groups with high rates of chronic disease. Promoting health literacy can reduce chronic disease burdens for individuals, families, and communities. Using the framework of the social-ecological model, which is important for visioning effective chronic disease management and prevention, this article provides a blueprint of layers of influence for building a health literate Hawai'i generally and around chronic disease specifically. The article will close with a call to action informed by the National Action Plan to Improve Health Literacy for stakeholders and providers to address health literacy in the state of Hawai'i in organizations, systems, and policy. These actions should address root causes of disease and help build more equitable health outcomes across the state now and in the future.

Introduction

Recent studies have identified high rates of chronic disease in Hawai'i's adults and youth.^{1,2} Chronic disease is associated with low health literacy,³ defined as a limited capacity to obtain, communicate, process, and understand essential health information and services in order to make appropriate health decisions.⁴ Low health literacy is more common among rural communities, older adults, as well as Filipinos and Pacific Islanders in Hawai'i compared to other racial/ethnic groups.⁵ However, even those considered to have "adequate" health literacy may still struggle to obtain, process, and understand health information without effective support from providers, caregivers, health organizations, or social networks. This may be particularly true in times of stress, such as after a new diagnosis, or while navigating the complexities of a society transformed under COVID-19, which includes new health information, potentially unfamiliar remote technologies, and greater responsibility for self-management.

Health literacy challenges are of the utmost importance for individuals with chronic conditions.³ Chronic illness prevention and management encompass many skills, from reading prescription medicine and using social skills to find relevant health information, to evaluating and applying recent research findings and appraising treatment options. Chronic care management is enabled through partnerships with providers and often includes managing complex medicine regimens and medical bills, following restricted diets, changing physical activity habits, and staying vigilant even when feeling fine.^{3,6} Given this complexity, those with lower health literacy often have less understanding of chronic disease prevention, a higher

prevalence of illness, and poorer disease management than those with higher health literacy.³

As the state and its residents respond to the COVID-19 pandemic and look beyond it, the prevention and management of chronic diseases are critical for the health of Hawai'i's communities. Promoting health literacy can reduce chronic disease burdens for individuals, families, and communities and reduce health disparities.^{3,7} Using the framework of the social-ecological model (SEM), which is important for visioning effective chronic disease management and prevention,^{8,9} this article provides a blueprint of levels of influence and inflection points for building a health literate Hawai'i generally and around chronic disease specifically. The article will close with a call to action informed by the National Action Plan to Improve Health Literacy (NAP) for stakeholders and providers to address health literacy in organizations, systems, and policy.¹⁰ The NAP (Table 1) has 7 broad goals and has been influential in research and practice. We use NAP framework to consider action steps to improve health literacy across levels of the SEM in order to build sustained and comprehensive change.

Health Literacy

Health literacy is one of the national goals of Healthy People (HP) 2030.¹¹ Within the HP 2030 definition, health literacy is conceptualized as a bidirectional synergy between personal and organizational health literacy.

Personal

Personal health literacy is defined by Healthy People 2030 as "the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others."¹¹ Over the past 30 years, researchers and advocates have exposed an often hidden national burden of low health literacy.¹² Research has found that 36% of American adults have low health literacy and may have challenges with basic health information.¹³

Personal health literacy was first revealed by practical challenges often related to basic skills, such as being unable to read well enough to follow medication directions or to fill out medical forms.⁵ As a study participant in rural Hawai'i noted: "The assumption is that everybody can read... But not everyone can read."¹⁴ One-third of residents in several Hawai'i communities self-reported a struggle with basic health literacy tasks.¹⁵

Develop and disseminate health and safety information that is accurate, accessible, and actionable.	<ul style="list-style-type: none"> • Provide health information across languages, especially Pacific Islander and Asian languages, with cultural relevance. • Provide reliable, official information that is easily accessible without requiring visits to multiple websites and calls to non-answered phone numbers. • Remind people of the importance of managing their chronic disease even in the stress and complexity of the pandemic. • Empower the community. As the Islander Institute highlights in the #spreadALOHANotCOVID campaign: everyone can be a first responder and everyone can be a healer.⁸⁰
Promote changes in the healthcare delivery system that improve information, communication, informed decision-making, and access to health services.	<ul style="list-style-type: none"> • Follow the "Ten Attributes of Health Literate Health Care Organizations" to create an environment that enables people to access and benefit optimally from health-care services.⁸¹ • Perform a health literacy self-assessment. • Design signage, forms, websites, and apps from a health literacy perspective.^{32,82} • Assist patients with accessing the care they need (e.g., making referrals easy) and with understanding health care bureaucracy and cost. • Provide simple guides for medications and other health self-management practices.^{83,84} • Reinforce what patients are doing well and partner with them to develop strategies that will help them achieve goals safely.³² • Provide access to materials and linkages to address social needs as well as health needs. • Community-clinical linkages are critical. Community health workers, who bridge critical gaps between health care and community needs, are fundamental to this effort.⁸⁵⁻⁸⁷ • Recognize the importance of social connections in interventions and incorporate social networks and social context in interventions for individuals with chronic illness, a perspective that may be particularly meaningful for Native Hawaiians and Other Pacific Islanders.³⁰
Incorporate accurate and standards-based health and developmentally appropriate health and science information and curricula into child-care and education through the university level.	<ul style="list-style-type: none"> • Ensure that there are health standards in Hawai'i public health settings and public schools at all levels⁴⁰ • Recognize that equity is critical, particularly as the pandemic is exacerbating educational disparities in Hawai'i that may have consequences that last a lifespan, and even beyond as educational inequities can be intergenerational.
Support and expand local efforts to provide adult education, English-language instruction, and culturally and linguistically appropriate health information services in the community.	<ul style="list-style-type: none"> • Continue critical outreach efforts even in the pandemic when volunteers for non-COVID-19 activities are strained. • Utilize social media to deliver relevant messages in different languages by influential and trusted individuals.⁸⁸ • Consider cultural liaisons and multilingual community health workers as a link between individuals, communities, and healthcare organizations.
Build partnerships, develop guidance, and change policies.	<ul style="list-style-type: none"> • Support the new cross-sector relationships that have been made in COVID-19. • Continue linking community with health care organizations to build partnerships that provide relevant resources for chronic disease and COVID-19 management. • Integrate clear communication and health literacy into public health planning, funding, policy development, research, and evaluation as recommended by the CDC.⁴⁰
Increase basic research and the development, implementation, and evaluation of practices and interventions to improve health literacy.	<ul style="list-style-type: none"> • Fund research into Hawai'i-specific communication needs, which are understudied and underfunded. • Include population-based needs assessment and program evaluations with disaggregated Asian American and Pacific Islander populations to understand needs and outcomes.
Increase the dissemination and use of evidence-based health literacy practices and interventions.	<ul style="list-style-type: none"> • Continue to gather and promote consolidated resources around health literacy in Hawai'i.^{89,90} • Sustain the growing collaborations in the time of COVID-19, including HDOH, grassroots organizations, health care organizations, build natural partnerships for sustainable locations for testing and disseminating evidence-based health literacy approaches across a variety of real-world settings

Over time, the global understanding of what personal health literacy encompasses has expanded to include other capabilities that promote and maintain wellbeing, such as being able to evaluate and apply recent information to changing circumstances; to use social skills to find and communicate relevant health information; and to understand and use health data and statistics (numeracy).¹⁶ These challenges are often coupled with additional barriers to health communication, including limited English proficiency (LEP).¹⁷ According to the US Census classification, 1 out of 8 people (12%) in Hawai'i speak English "less than very well."¹⁸

The pandemic has exacerbated inequities related to health literacy. For instance, clear messaging to those with LEP has been a major issue in pandemic health communication in Hawai'i and beyond.¹⁹ Furthermore, digital health literacy is a prominent and growing issue, particularly critical in the time of this pan-

dem, which has occurred alongside an infodemic—a tsunami of complex, conflicting, and overwhelming information that is rapidly changing and often biased.^{20,21} Low personal health literacy has been associated with poorer health outcomes and less health-related knowledge,²² and these relationships may grow even stronger in the pandemic.

Organizational

Organizational health literacy is defined by Healthy People 2030 as "the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others."¹¹ The organizational context is important as the complexities and demands of health care and public health systems impact how easy or difficult it is to be health literate.²³ Limited personal and organization health literacy lead to higher

health care expenditures.^{24,25} Following organizational health literacy principles not only supports health literacy, but can also promote patient-centered care, better patient-provider engagement, as well as effective and culturally relevant communication in treatment, diagnosis, prevention, education, research, and outreach.²⁶ Health care settings with organizational health literacy offer patient education materials in plain language, an opportunity to ask questions, a confirmation of understanding through teach-back methods, and follow a universal precautions approach in health information exchange, meaning all patients are treated as if they are at risk of not understanding.²⁷

While the relationship between personal and organizational health literacy is critical, achieving health literacy is a multilayered and dynamic process across many other layers of influence.²³ Individual health literacy skills and abilities interact with health care organizations, within a family, community, and policy context impacting health and well-being.

Layers of Influence for Achieving a Health Literate Hawai'i

The SEM is an influential model that contextualizes individual health outcomes, knowledge, and behaviors across multiple levels of influence: individual (e.g., modifiable and non-modifiable personal health factors); interpersonal (e.g., family, friends); organizational (e.g., health care environment); community (e.g., neighborhood context); and policy (e.g., state and federal). Chronic disease prevention and management is best considered within the context of the SEM for optimal outcomes for individuals and populations.^{8,9} Below, health literacy across the levels of the SEM are considered as a blueprint for areas where action to build health literacy are needed.

Individual

Health literacy is associated with demographic factors, including age, education, race/ethnicity, location of residence, and language.²³ Chronic illnesses are similarly associated with demographic factors in the US. Those who are older, have less education, of minority race/ethnicity, have rural residence, and have LEP are more likely to have poor health outcomes.²³ To build stronger health literacy and improve chronic disease health outcomes, health systems must be equitable for individuals regardless of individual characteristics. Individuals need to be able to access culturally appropriate information about chronic disease prevention and management, other health-related topics, and information to address social needs in formats and languages they can understand and trust.²⁸ Chronic illnesses are hard to manage, and behavior change is hard to sustain. Individuals need to know when a situation is a health emergency and when it is time to see a health professional²⁹ as well as where, and when, to get physical and mental health care to manage diet, exercise, and stress. Increasingly, individuals access medical care online. Taking care of chronic conditions at home necessitates not only

clear, relevant patient education but also patient empowerment. In the COVID-19 pandemic and beyond, individuals need accessible, easy-to-understand and follow health information to discern which activities are “essential” and safe for the health of family members and communities, and health systems must support people unfamiliar with finding health information online or participating in telehealth.

Interpersonal

Like chronic disease prevention and management, health literacy is built and sustained through relationships and conversations. Thus, health literacy has been considered “distributed,” a capacity embedded within social networks and interpersonal relationships.⁶ Similarly, a recent study noted that “greater inclusion of social and familial networks can help address health disparities among people with chronic illness and enhance culturally relevant healthcare.”³⁰ Some critical interpersonal relationships to consider are provider-patient, caregivers, and social networks.

Provider-Patient

All patients should feel welcomed and comfortable at each stage of their health care encounter – from a telephone call, to reception, examination, procedure or inpatient room, and to finance area. Providers can help build health literacy and reduce chronic disease by being inclusive of health literacy principles in their practice, especially by remembering to use plain language in every interaction, even over telehealth, and including teach-back or show me methods.^{31,32} Health communication should be effective, conducted in a shame-free environment, summarized into 3 to 5 key points, include visual cues, models, pictures, and/or videos. As much as possible written materials should be written at a fourth- to sixth-grade reading level, use short sentences and simple words, provide clear instructions, and include pictures.³³ For example, providers can ask patients how they will take their medication tomorrow or how they will explain their treatment to their family or friends, instead of asking, “Do you understand?” as most patients will automatically say “yes.” The Centers for Medicare and Medicaid Services has a toolkit to support the development of effective health information materials³⁴ and Agency for Healthcare Research and Quality (AHRQ) has a tool to assess already developed patient education materials.³⁵

Caregivers

The health literacy of caregivers is increasingly important in the time of COVID-19 as patients may be less willing to attend primary care visits and/or more reliant on online health information and their caregivers’ support. Caregivers must be supported with information for their own health literacy, including access to community and educational resources. Activities that promote health and wellbeing can engage families and social networks

to decrease isolation and loneliness. In COVID-19, these social activities may need to be creatively carried out to remain safe, but can also engage individuals across distances in innovative ways that can be deeply meaningful.³⁶

Social Networks

Many individuals with low health literacy specifically draw upon social networks to better understand health care concerns.³⁷ Recent studies highlight the critical importance of incorporating social networks and social context in interventions for individuals with chronic illness, including among Native Hawaiians and Other Pacific Islanders, who have higher rates of chronic disease. Many individuals had social network members engaged in their health decisions and in the management of their chronic disease. However, in these particular studies of vulnerable adults, networks were often small and most members were family.^{30,38} A social network lens is important to health literacy, but important variations exist in strengths, size, and diversity of these networks that may impact health literacy, chronic care management, and knowledge.^{30,38,39} This links with the need to support caregivers, as sometimes the only social network member is the caregiver. Of note, some individuals are “isolates” with no social network members.³⁰ In these cases, they may need augmented support from the health system or other services to confirm health literacy and prevent and manage chronic conditions.²⁹

Organizational

Health systems are critical levers for health and wellbeing and should follow health literate principles. Public health organizations must also be health literate to advance population health to all the citizens in their communities.⁴⁰

Health Systems

Organizational health literacy is particularly important for those with chronic illness who spend a considerable amount of time in the health care system. To reduce chronic disease, our health systems must be patient-centered and user-friendly, even as they expand into the digital health technologies. Digital health technologies, including telehealth and remote monitoring systems are new to many people, especially the elderly, and often not self-explanatory. Health literacy inequities may be exacerbated by new technology and its complexities, costs, and access challenges. Both patients and health providers would benefit from more guidance on how to use these services. Telehealth has known inequities^{41–43} and new ones are likely to be revealed during COVID-19.⁴⁴

Public Health Systems

Public health systems need to work closely with communities to provide easy-to-understand and culturally relevant informa-

tion across languages to support chronic disease prevention and management. Departments of health must engage with community knowledge to advance health equity and support population health literacy. COVID-19 has revealed challenges in our public health sectors, which have been significantly underfunded,⁴⁵ as well as amazing commitment and engagement in the response to meet dynamic community needs.⁴⁶ Public health systems must be funded at higher levels to allow the outreach to meet community needs to build health literacy and better chronic disease outcomes. The pandemic cannot be an excuse to cut preventive health systems even more or there will be poorer health outcomes over time and communities will be more vulnerable to future pandemics due to higher chronic disease and associated preventable illnesses.^{45,47}

Community

Health literacy can be explicitly community-oriented, comprising the knowledge and tools to build trust and advocate for collective wellbeing and chronic disease management. Community level health literacy is independently associated with health outcomes.¹⁵ As currently described by the World Health Organization, health literacy is explicitly community-oriented, comprising the knowledge and tools to advocate for collective wellbeing.⁴⁸ Community social norms are critical to building healthy environments that promote wellness and reduce chronic disease.⁹ This perspective is highly relevant in the COVID-19 pandemic, which has exposed collective strengths and synergistic relationships, making the urgency of efforts to build health literacy for all within communities clear.⁴⁹ Many individuals, especially those with LEP, remain out of the informational cycle or trapped in conflicting health information.⁵⁰ Answers to build health literacy for groups at risk may come from communities themselves as they know their strengths and top concerns, including how to make health information relevant.

Policy

Policy changes that would help build health literacy are critical for sustainable change. We consider several areas of particular importance for policy change to achieve health literacy.

Infrastructure

Equitable access to technology is critical to build health literacy in our digital age, especially in the pandemic. We must address the need for access to the tools such as computers, broadband, smart phones, and technical assistance. People cannot equitably become consumers of information and participate in telehealth without access to consumer tools. This issue is particularly acute for rural communities in Hawai‘i.

Social/Economic Needs

By acknowledging the fact that social factors impact health, we can build social safety nets and address institutional and structural barriers to health, including social marginalization. Understanding health information is not sufficient if one is not able to apply this knowledge due to social vulnerabilities.²⁹ Policies that recognize these connections and build ways to address health and social needs together are critical. For instance, social factors included into electronic health records can help identify the needs of individual patients and provide data that, when analyzed, can help us understand community-level barriers to better health outcomes and inform policies. Social needs such as housing are critical to giving individuals a stable chance to address and manage their chronic health conditions.⁵¹ Housing-first policies have been successful in supporting individual and community health.⁵²

Reimbursement Structures

Policy should support community health workers and community-clinical linkages that address gaps between patients knowledge and understanding and the high demands of the health care system in culturally relevant ways.⁵³ Health care organization can reimburse community health workers or other trusted liaisons that help address community health literacy, which requires sustainable payment structures.

Educational System

Health literacy is often built upon basic skills learned in school. As noted by the CDC: “Public health has a special responsibility to make sure children and adolescents have the health literacy skills - including math and science literacy - they need to prevent early-onset chronic health problems and protect themselves from infectious diseases, violence, and injury.”⁴⁰ Incorporating health literacy throughout schools demands policy and systems change.⁵⁴ To address the root-cause of limited health literacy, we should advocate for an equitable education system that includes comprehensive learning and skills across digital and socioeconomic divides. This should include health education about health promoting behaviors as well as when and how to access both physical and mental health care. National best-practice guidelines exist from early childhood education into college and there are many useful international models. Our educational system must continue to foster critical reading and thinking skills in all students, including how to appraise health information. Educational equity is tied to health equity, which is vital to community health and wellbeing. Critically in the time of the pandemic, educational inequity is increasing.⁵⁵ School health centers are also a place where health literacy can be created, as are adult basic education settings.⁵⁶ Locally, we have the “Hawai‘i Keiki” program, which is a partnership between UH Mānoa School of Nursing and Dental Hygiene and the Hawai‘i Department of Education that provides school nursing services to children.⁵⁷

A Health Literate Hawai‘i

Table 1 presents an action plan for a health literate Hawai‘i based on these levels of influence in the SEM, particularly the outer layers, which then can support individual and interpersonal wellbeing across all demographic and individual characteristics. A transformation to a health literate Hawai‘i can provide a foundation for building health equity. A health literate Hawai‘i would include clear and accessible information on meeting social needs, like acquiring healthy food, employment, and childcare. Achieving a health literate Hawai‘i includes making it easy for patients to read medication bottles and fill out health insurance forms, but also includes providing ways for patients to learn new skills and knowledge, such as how to fill prescriptions virtually and how to see a doctor for a telehealth appointment. A health literate Hawai‘i can be achieved by using plain language in medicine; building strong and fair health and educational systems; providing clear and accessible information on social needs; and creating easy-to-follow, culturally relevant health materials drawn from community knowledge. It also means taking collective action. Academia and government should help sustain these efforts to support and protect vulnerable communities (e.g., those in long-term care, those with LEP). Stakeholders and providers must continue to promote patient empowerment through health literacy even while eHealth, telemedicine, and remote care expands. A health literate Hawai‘i will help reduce chronic diseases by fostering collective and individual health and wellbeing.

Conclusions

Health literacy is more important than ever in the time of COVID-19.^{58,59} In Hawai‘i, the pandemic lessons have helped build collective health literacy on many topics. This includes the importance of trust, clarity, consistency, and cultural relevance in effective health communications⁶⁰⁻⁶² and the devastating consequences when these goals are unmet;⁶³ the fact that health is dependent not just on medical care, but on education, income, childcare, and other social factors including relationships, connectivity, and solidarity; and the value of understanding and interpreting data, including what data can hide or reveal.^{64,65} Large political structures can affect health,⁶⁶ economic prosperity depends on community health, and institutionalized racism and police violence are public health issues.⁶⁷ Given this, health equity across factors like education, income, English language proficiency, social support, and access to medical care are critical objectives for the collective wellbeing in an interdependent society.

Recognition of these factors should spur energy to conceptualize and build a health literate Hawai‘i. The people of Hawai‘i sacrificed and worked hard together to keep the communities safe and informed. They have created an extraordinary output of community-driven resources⁶⁸⁻⁷² in response to the emerging needs and challenges⁷³⁻⁷⁵ while engaging with government organizations, existing non-profits, and grassroots organiza-

tions.⁷⁶⁻⁷⁹ Hawaii's collectivist culture is a notable strength of this state along with its diversity. We should use these lessons to build a health literate Hawai'i and create more health opportunities for us all.

Conflict of Interest

None of the authors identify any conflict of interest.

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Sugar-Sweetened Beverage Fee: A Model to Address Health Disparities in Hawai‘i

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Abstract

Sugar-sweetened beverage (SSB) consumption is associated with increased risk of obesity, diabetes, and other chronic diseases. SSB consumption is also a health equity issue, as rates of consumption and related chronic diseases vary by race, ethnicity, and income in Hawai‘i. The COVID-19 pandemic has highlighted the need for greater investment in public health and the well-being of communities experiencing health disparities because individuals with chronic diseases are more likely to develop complications from the virus. It has also created economic hardships for the people of Hawai‘i, especially the state’s most vulnerable populations. Amid this health and economic crisis, an opportunity exists to implement an SSB fee in Hawai‘i. An SSB fee would impose a fee on SSB distributors that would be passed on to consumers in the form of price increases that influence purchasing behavior. Jurisdictions with SSB taxes or fees have seen reductions in SSB purchases and consumption and have generated millions of dollars in revenues to support health initiatives and reduce socioeconomic disparities. Models predict that a \$0.02 SSB fee in Hawai‘i could generate \$60.5 million and significantly reduce healthcare costs and chronic diseases. This commentary will present an SSB fee policy as a viable model for Hawai‘i to reduce SSB consumption, lower chronic disease risks, and generate needed revenues to support health, reduce inequities, and rebuild the state’s economy.

Keywords

sugar-sweetened beverages, sugary drinks, policies, health equity, chronic disease, COVID-19

Abbreviations

COVID-19 = Coronavirus Disease 2019
NH = Native Hawaiian
NHPI = Native Hawaiian and Pacific Islander
PI = Pacific Islander
SNAP = Supplemental Nutrition Assistance Program
SSB = Sugar-Sweetened Beverages

Sugar-sweetened beverages (SSBs) are beverages with added sugars or other caloric sweeteners, such as high fructose corn syrup.¹ SSBs are one of the largest contributors of added sugars to the American diet.² In 2014, American youth consumed 7.3% of their daily calories from SSBs,³ while adults consumed 6.5%.⁴ SSB consumption alone exceeds the United States (US) Dietary Guideline Advisory Committee’s recommendation that no more than 6% of a person’s daily calories should come from added sugars.⁵ SSBs offer calories with little nutritional value⁵ and do not satiate the appetite like food.⁶ Additionally, SSB consumption is associated with increased risk of obesity, diabetes, heart disease, and cancer, some of the leading causes of morbidity and mortality globally.^{7,8}

In Hawai‘i, SSB consumption is a major concern for both its health and economic impacts. A 2012 study found that nearly half of Hawai‘i adolescents surveyed drank SSBs 1 or more times daily, and nearly all drank SSBs at least once weekly.⁹ Among Hawai‘i adults, 12.5% report drinking 1 or more sodas daily.¹⁰ This daily consumption contributes to Hawai‘i’s high overweight and obesity rates for both adults (57.6%)¹¹ and teens (28.4%),¹² which cost the state \$470 million annually in direct healthcare expenses in 2009.¹³ Further, Hawai‘i’s diabetes-related direct healthcare costs were calculated at more than \$1.3 billion in 2017,¹⁴ despite the fact that only about a quarter of Hawai‘i adults reported being diagnosed with diabetes, pre-diabetes, or gestational diabetes.¹⁵ Additionally, there are persistent racial and ethnic disparities in rates of SSB consumption,¹⁰ obesity,¹¹ and other chronic diseases^{16–18} that are of great concern for the state.

SSB Consumption and Health Equity

Native Hawaiian and Pacific Islander (NHPI) adults in Hawai‘i report higher rates of daily SSB consumption (15.8% and 19.9%, respectively),¹⁰ as well as higher obesity rates.¹¹ National data show similar trends; people of underserved communities, specifically black and Hispanic communities, consume SSBs at higher rates than their white and Asian peers.^{3,4} Children in low-income families of all races are more likely to consume SSBs compared to those in high-income families.¹⁹ Additionally, the high prevalence of fast-food chains and lack of fresh produce retailers in low- and middle-income communities have been associated with increased risk of cardiovascular disease.²⁰

Analyses of beverage industry marketing expenses indicate higher investments in low-income communities of color, compounding on the industry’s harmful practices that prioritize marketing and sales over public health.^{21–24} SSB companies also dedicate millions of marketing dollars to minority communities by sponsoring cultural festivals, professional conferences, and athletes and celebrities of color.²⁵ In Hawai‘i, the beverage industry has exploited local culture, portraying SSBs at popular local beaches and framing them as a way to “live Aloha.”²⁶ As a result, SSBs are a normalized part of local culture and are regularly consumed at family gatherings.²⁷

In addition to targeted marketing, NHPI and Filipino adults in Hawai‘i experience other risk factors for chronic disease—overweight/obesity,¹² tobacco use,^{28,29} physical inactivity,³⁰ food and housing insecurity,³¹ and obesogenic neighborhoods³²—at higher rates than many other racial/ethnic groups. These risk

factors contribute to higher levels of chronic disease experienced by these populations. National data show that NHPI adults experience higher rates of heart disease than Asians and higher rates of hypertension than both Asian and white adults.³³ In Hawai‘i, data show that NHPI and Filipino adults have higher rates of diagnosed diabetes than white adults across nearly all age groups.¹⁷ Chronic diseases are also seen at alarming rates among young NHPI and Filipinos.¹⁸ A recent study found that among children ages 5-9 who were hospitalized in Hawai‘i between 2015 and 2016, a greater proportion of those with chronic conditions were NHPI and Filipino than other races/ethnicities.¹⁸ This is significant because chronic diseases are risk factors for hospitalization and severe COVID-19 (i.e., admission to intensive care units, invasive mechanical ventilation, or death) not only for adults,³⁴ but also for children.³⁵ In fact, cases of severe COVID-19 among pediatric patients have been concentrated in youth with underlying conditions.³⁵

The pandemic has further highlighted significant racial and ethnic disparities with health risks related to SSB consumption because vulnerable populations, many of whom have high rates of obesity, diabetes, and/or certain other health conditions, have experienced worsened health outcomes from COVID-19.³⁴ According to the Centers for Disease Control and Prevention, people of color have higher rates of COVID-19 cases,³⁶ hospitalizations,³⁷ and deaths than white individuals.³⁸ Hawai‘i data show similar patterns across racial and ethnic groups, as Pacific Islander and Filipino populations have 27% and 21% of cases but comprise only 4% and 16% of the state’s population, respectively.³⁹ The disproportionate impact of COVID-19 on NHPI and Filipino populations underscores pervasive inequities in the social determinants of health in Hawai‘i, including inequities in access to healthcare, paid sick leave, high-paying jobs, and affordable nutritious foods. These social determinants of health contribute to the high chronic disease rates experienced by these communities.^{40,41}

An SSB Fee: A Promising Solution

Organizations such as the American Academy of Pediatrics⁴² and World Health Organization⁴³ recommend SSB taxes or fees to reduce SSB consumption and related health disparities. SSB taxes or fees are levied on distributors and passed on to consumers through higher prices at the point of sale, where purchasing decisions are made.⁴⁴ SSB taxes and fees are functionally the same, only differing in how they are administered. Although taxes are most common, the bills drafted in Hawai‘i to date have proposed an SSB fee to be administered by the Hawai‘i State Department of Health.⁴⁵

More than 40 countries and 7 US jurisdictions have SSB taxes.⁴⁶ These locations have seen reduced SSB purchases and consumption after tax implementation and have generated millions of dollars to address health and socioeconomic inequities.⁴⁶⁻⁴⁹ Revenues have been used for fresh produce deliveries to low-

income families, school nutrition education programs, diabetes prevention programs, dental care for low-income populations, job readiness training, and more.^{46,49,50} Recently, some of these locations reallocated their funding to specifically address critical needs resulting from COVID-19. San Francisco, California directed \$1.65 million in SSB tax revenues to aid low-income populations facing food insecurity,⁵¹ and Seattle, Washington spent \$5 million to fund grocery vouchers for families enrolled in food assistance programs.⁴⁹

Hawai‘i SSB fee proponents recommend a \$0.02 per ounce fee, which would result in a \$0.24 increase in the purchase price of a 12-ounce SSB and generate an estimated \$60.5 million annually.⁵² This is critical funding that could be used to support public health, reduce inequities, and rebuild Hawai‘i’s economy, which has been crippled during the pandemic. For example, revenues could be used to expand funding for Hawai‘i’s DA BUX Double Up Food Bucks Program, which provides Supplemental Nutrition Assistance Program (SNAP) users with vouchers to double their dollars when purchasing local fresh produce.⁵³ This subsidy offsets the higher costs of fresh produce compared to sugary foods,⁵⁴ incentivizes SNAP users to purchase more fresh produce,⁵⁵ and supports local grocers and farmers.⁵³ Revenues could also be used to improve the quality of school physical education programs, provide preventive dental benefits for adults Med-QUEST clients, and offer job training opportunities for those impacted by COVID-19.

In addition to generating substantial revenues, a \$0.02 per ounce fee in Hawai‘i is projected to save \$59.3 million in healthcare costs over 10 years through anticipated reductions in SSB consumption and the prevention of new cases of obesity and diabetes.⁵⁶ This is an important benefit of the fee, considering the high obesity- and diabetes-related direct healthcare costs facing the state annually.^{13,14} This would also benefit Hawai‘i’s private employers, who are required by the Prepaid Health Care Act to pay at least half of their employees’ health insurance premiums.⁵⁷ Models also project that over the fee’s first year, there would be differential decreases in SSB consumption and childhood obesity by race and ethnicity, with NHPI and Filipino SSB consumption and Native Hawaiian childhood obesity rates decreasing the most.⁵⁶

Despite these benefits, none of the SSB fee bills introduced in Hawai‘i have passed. Arguments against the fee include concerns of job losses in the local beverage industry.⁴⁵ This is a serious concern considering Hawai‘i’s high unemployment rate, which skyrocketed from the pre-pandemic low of 2.4% to 15.1% in September 2020.⁵⁸ However, a recent study following impacts of Philadelphia’s SSB tax showed no significant job losses, neither in key industries that sell SSBs, nor overall unemployment.⁵⁹ Some of the reasons that employment rates are unaffected are that consumers shift purchases to other beverages, such as water or diet drinks,⁶⁰ and revenues that are reinvested in the local community create jobs across multiple sectors.⁵⁹⁻⁶¹

Another opposition argument is that this is a regressive tax, overburdening low-income populations, who will have to spend a larger portion of their income on the additional fee than high-income populations.⁶¹ However, fee supporters argue that these laws are actually progressive because of the disproportionate burdens low-income populations and communities of color experience from targeted marketing by the beverage industry,^{21,22} rates of SSB consumption,^{19,22} and prevalence of SSB-related chronic disease.⁶² Additionally, models predict that these groups will see the greatest health gains from an SSB fee.⁵⁶ Although health impact data from SSB taxes are not yet available, examination of purchases in Mexico before and after the tax showed reductions in SSB purchases across all socioeconomic status groups, with the largest reductions among the lowest socioeconomic group.⁶³ Similarly, intercept surveys conducted in low-income communities in Berkeley, California showed self-reported consumption decreased by 52% after the tax.⁴⁸ Additionally, utilizing SSB fee revenue to reduce health inequities, with feedback from NHPI, Filipino, and low-income communities can amplify benefits to these communities.⁴⁶

The economic and health benefits of an SSB fee are significant. As Hawai‘i braces for extreme budget shortfalls and a prolonged economic recovery,⁶⁴ lawmakers have an opportunity to implement an SSB fee to reduce SSB consumption and chronic disease risks, significantly save on healthcare costs, and generate revenue to reduce health and socioeconomic inequities during austere post-COVID-19 times. The challenge for lawmakers will be ensuring funds are used to these ends and not solely used to fill budget gaps that perpetuate the status quo. As COVID-19 has so somberly emphasized, the state’s current systems neglect our most vulnerable residents.^{40,65,66} Furthermore, public support for an SSB fee hinges on how the revenues would be used. Hawai‘i Public Health Institute’s public polling found that 81% of people surveyed would strongly or somewhat support a fee if the revenues were earmarked for health improvement programs for Hawai‘i’s keiki.⁶⁷ However, if the use of the funds was unspecified, support dropped to 62%. This is critical for Hawai‘i lawmakers to recognize, as without public support, an SSB tax can be repealed soon after enactment, as occurred in Cook County, Illinois.⁶⁸ Examination of the repeal showed that a key issue was that the tax was framed as being used to close budget gaps and that none of the funds were explicitly dedicated to public health.⁶⁸ Alternatively, successful taxes in other jurisdictions have established community advisory boards to ensure funds are used for public interest projects to reduce health disparities,⁴⁶ and thus have maintained public support and remained in effect.

As lawmakers consider an SSB fee, they should also draw lessons from tobacco taxes. Hawai‘i’s tobacco prevention and control efforts, including the tobacco tax, have successfully reduced smoking rates and cigarette sales.⁶⁹ This is a public health triumph, but has led to concerns about decreasing tax revenues and sustaining efforts funded through them. Contrary to opposition arguments, tobacco taxes are actually a stable form of revenue for states’ public health efforts and sharp declines in revenue from year-to-year are uncommon.⁷⁰ Also, states that have substantially increased tobacco taxes over time have generated revenues that exceed the losses from decreased sales.⁷⁰ Similarly, if the SSB fee is effective, consumption, the associated health consequences, and revenues will decrease over time. Lawmakers should heed these lessons, understanding that while SSB consumption will decline, fee increases can be used to maintain revenue streams and fee effectiveness. Additionally, any declines in tax revenues will be offset by reduced health care costs and improved health equity for Hawai‘i’s vulnerable populations.

Conclusion

The links between SSB consumption and chronic diseases are well documented, as are the disparate rates of chronic disease by race, ethnicity, and income in Hawai‘i. As the State of Hawai‘i rebuilds its economy and emerges from this pandemic, it has the opportunity to enact an SSB fee to reduce SSB consumption, prevent chronic disease, generate revenues to support health, and address the root causes of Hawai‘i’s disparities.

Conflicts of Interest

No conflicts of interest are reported by the authors of this paper.

Disclosures

The University of Hawai‘i at Mānoa’s Office of Public Health studies and the Hawai‘i Public Health Institute receive funding from the Hawai‘i State Department of Health’s Chronic Disease Prevention and Health Promotion Division to work on Physical Activity and Nutrition Policies. The Hawai‘i Public Health Institute also received grant funding in 2021 from a private funder to work on an SSB fee. Mr. Takeda is an employee of Sharecare, Inc., which receives funding from HMSA to work on Blue Zones Project - Hawai‘i.

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Acknowledgements

This special issue, *Roadmap to a Healthier and More Equitable Hawai'i: Solutions to Root Causes at the intersections of Chronic Disease and Covid-19*, would not have been possible without the efforts of our guest editorial team. The Editors greatly appreciate the guest consulting editors who gave their time to review manuscripts in the editorial process. Please see the Editors' brief biographies to understand how their diverse expertise was necessary to produce this high-quality special issue. Finally, we would also like to thank the copy-editing team for their assistance in ensuring the manuscripts were complete.

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Dr. Pirkle received her PhD in Public Health, specializing in epidemiology, from the Université de Montréal, in Québec, Canada. She is currently an Associate professor and Specialization head of Health Policy and Management at the University of Hawai'i at Mānoa. Her areas of specialization are global health, women's health, and evaluation.

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Jessica Yamauchi MA, has served as the Executive Director of the Hawai'i Public Health Institute (HIPHI) since 2012 and has worked to pass several health policies, including raising the age of sale of tobacco products to 21, including electronic smoking devices in Hawai'i's state smoke-free air law, healthy by default beverages for kids' meals, and securing funding for a pilot double up bucks program (increasing fresh local produce for SNAP recipients). Jessica is currently chair of the National Network of Public Health Institutes Board of Directors, ex-officio board member of the Hawai'i Public Health Association and serves on the University of Hawai'i, Office of Public Health Studies, Community Advisory Panel.

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Hawai‘i Journal of Health & Social Welfare (HJH&SW)

Style Guide for the Use of Native Hawaiian Words and Diacritical Markings

The HJH&SW encourages authors to use the appropriate diacritical markings (the ‘okina and the kahakō) for all Hawaiian words. We recommend verifying words with the Hawaiian Language Dictionary (<http://www.wehewehe.org/>) or with the University of Hawai‘i Hawaiian Language Online (<http://www.hawaii.edu/site/info/diacritics.php>).

Authors should also note that Hawaiian refers to people of Native Hawaiian descent. People who live in Hawai‘i are referred to as Hawai‘i residents.

Hawaiian words that are not proper nouns (such as *keiki* and *kūpuna*) should be written in italics throughout the manuscript, and a definition should be provided in parentheses the first time the word is used in the manuscript.

Examples of Hawaiian words that may appear in the HJH&SW:

‘āina
ali‘i
Hawai‘i
kūpuna
Kaua‘i
Lāna‘i

Mānoa
Māori
Moloka‘i
O‘ahu
‘ohana
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Hawai'i Journal of Health & Social Welfare

ISSN 2641-5216 (Print), ISSN 2641-5224 (Online)

Aim:

The aim of the Hawai'i Journal of Health & Social Welfare is to advance knowledge about health and social welfare, with a focus on the diverse peoples and unique environments of Hawai'i and the Pacific region.

History:

In 1941, a journal then called The Hawai'i Medical Journal was founded by the Hawai'i Medical Association (HMA). The HMA had been incorporated in 1856 under the Hawaiian monarchy. In 2008, a separate journal called the Hawai'i Journal of Public Health was established by a collaborative effort between the Hawai'i State Department of Health and the University of Hawai'i at Mānoa Office of Public Health Studies. In 2012, these two journals merged to form the Hawai'i Journal of Medicine & Public Health, and this journal continued to be supported by the Hawai'i State Department of Health and the John A. Burns School of Medicine.

In 2018, the number of partners providing financial backing for the journal expanded, and to reflect this expansion the name of the journal was changed in 2019 to the Hawai'i Journal of Health & Social Welfare. The lead academic partners are now the six units of the UH College of Health Sciences and Social Welfare, including the John A. Burns School of Medicine, UH Public Health, the Thompson School of Social Work & Public Health, the School of Nursing and Dental Hygiene, the UH Cancer Center, and the Daniel K. Inouye College of Pharmacy. Other partners are the Hawai'i State Department of Health and the UH Office of the Vice Chancellor for Research. The journal is fiscally managed by University Health Partners of Hawai'i.

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The aim of the columns of the HJH&SW is to provide a space for the entities that financially support the HJH&SW to disseminate information regarding their research, programs, goals, or current issues facing their respective fields. Columns are edited by the HJH&SW contributing editors, who are employees of the agencies that support the HJH&SW.

The aim of the Hawai'i Journal Watch is to highlight recent research of the entities that financially support the HJH&SW. The research articles that are covered in the Hawai'i Journal Watch are selected by both the HJH&SW and by researchers in the units that support the HJH&SW. The researchers whose articles are covered in the Hawai'i Journal Watch are given the opportunity to fact check the news brief.

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