

Disparities in 2020 Life Expectancy by Race and Ethnicity in Hawai'i

Yan Yan Wu, PhD¹, Lance Ching, PhD, MPH², Claire Prieto, MPH³, Michael M Phillips, PhD¹, Kathryn L Braun, DrPH¹

¹ Public Health Sciences, University of Hawai'i at Mānoa, ² Chronic Disease Prevention & Health Promotion Division, Hawai'i Department of Health, ³ Office of Health Equity, Hawai'i Department of Health

Keywords: longevity, Native Hawaiian or Other Pacific Islander, Health Status Disparities, Eastern Asians, Cultural Diversity

<https://doi.org/10.62547/RVCW6114>

Abstract

Life expectancy in Hawai'i is the longest among US states. However, Hawai'i is a multi-ethnic state, and significant disparities exist across racial and ethnic groups. From 1950 to 2010, disparities have been reflected in life expectancy, with a 10-year gap between the longest living racial and ethnic groups in Hawai'i (Japanese and Chinese) and Native Hawaiians. The current study estimated life expectancy in Hawai'i for 2020 across 7 racial and ethnic groups: Native Hawaiian, other Pacific Islanders, White, Filipino, Korean, Japanese, and Chinese. In 2020, life expectancy in Hawai'i was 81.9 years for the total population, 78.9 for males, and 85.2 for females. Disparities were observed across racial and ethnic groups, with life expectancy of 69.6 years for other Pacific Islanders, 77.4 years for Native Hawaiians, 81.8 years for Whites, 83.4 years for Filipinos, 84.3 years for Koreans, 84.9 years for Japanese, and 88.2 years for Chinese. The difference in life expectancy between sexes was 6.3 years, with variations ranging from 3.4 years among Chinese to 7.2 years among other Pacific Islanders. These findings highlight persistent disparities in life expectancy among Hawai'i's racial and ethnic groups, with much shorter life expectancy for Native Hawaiians and other Pacific Islanders compared to other groups. The results emphasize the need for targeted health interventions, enhanced access to health care, and culturally appropriate preventive measures to address these inequities.

Abbreviations and Acronyms

ACS = American Community Survey
SDoH = social determinants of health

Introduction

Among US states, Hawai'i has the most racially diverse population. Only 23% of the population is White, and about two thirds are Asian and/or Native Hawaiian and other Pacific Islander.¹ Native Hawaiians are the Indigenous people of Hawai'i, with ancestral ties to the original inhabitants of the Hawaiian islands. Other Pacific Islanders in Hawai'i represent a heterogeneous group of Indigenous peoples with cultural and geographic ties throughout the region of Oceania, many from the US-Affiliated Pacific Islands. In addition to Samoan, Tongan, Tahitian, and Chamorro populations, Micronesian –including Marshellese, Chuukese and Palauan – are among the largest subgroups with the other

Pacific Islander population.² Many of these Pacific Islanders migrate to Hawai'i to improve their access to education, work, health care, and public health services, which are limited in their islands.³ The state's history of immigration, largely tied to the import of plantation workers in the 1800s and early 1900s,⁴ has also led to relatively large proportions of distinct Asian cultural groups including Filipinos (~22.6%), Japanese (~16.1%), Chinese (~6.4%), and Koreans (~4.9%).⁵

Hawai'i has the longest life expectancy at birth of any state in the US, but life expectancy has traditionally varied across racial and ethnic groups.⁶ From 1950 to 2010, although life expectancy increased for all major racial and ethnic groups, a 10-year gap persisted between Native Hawaiians and the longest-living racial and ethnic groups in Hawai'i (Japanese in 1950-1970 estimates, and Chinese in 1980-2020 estimates).^{6,7} Previously, there have been limited health data on other Pacific Islander groups in the state.⁸ The most recent estimate from 2000 showed a life expectancy of 72.8 years for Samoan residents of Hawai'i, which was 1.5 years shorter than that of Native Hawaiians, and 6.2 years shorter than for Whites in 2000.⁷

Since the first reported US COVID-19 case on January 20, 2020, the US has experienced an unprecedented rise in mortality, leading to a decrease in US life expectancy.⁹ Despite Hawai'i having the lowest standardized COVID-19 death rate in the US, the pandemic likely had a negative impact on the state's life expectancy.¹⁰ This impact on life expectancy was expected given Hawai'i's higher proportion of persons ages ≥65 years,¹¹ existing racial and ethnic disparities in socioeconomic status,¹² and health disparities experienced by Hawai'i's rural communities.¹³ Disaggregated surveillance data revealed that other Pacific Islanders experienced the highest COVID-19 incidence and COVID-19-associated mortality among all racial and ethnic subgroups in Hawai'i, and that Native Hawaiians had higher rates than Whites and Asian subgroups.^{14,15}

This paper presents estimates of life expectancy at birth in Hawai'i for the year 2020 for the total, male, and female populations, and examines disparities across 7 major racial and ethnic groups in Hawai'i: Native Hawaiians, other Pacific Islanders, Whites, Filipinos, Koreans, Japanese, and Chinese.

Methods

Life expectancy is an accepted summary measure of population health. The abridged period life table method, proposed by Chiang in 1968,¹⁶ was used to calculate life expectancy by 5-year age intervals up to ≥ 90 years, with separate estimates for infants (<1 year) and young children (1–4 years). This abridged method was used in previous life tables series for Hawai'i in 1980, 1990, 2000, and 2010, as well as for US life tables prior to 1997.^{6,7}

To produce accurate life expectancy estimates by race and ethnicity, death record data were obtained from the Hawai'i Department of Health, Office of Health Status Monitoring for the years 2018, 2019, 2020, 2021, and 2022. Deaths by race/ethnicity, sex, and age group were averaged over the five years. Population data by race/ethnicity, sex, and age group were obtained from the American Community Survey (ACS) for the same period. Life expectancy for 2020 was estimated for the total, male, and female populations, and across the 7 largest racial and ethnic groups in the state: Native Hawaiian, other Pacific Islander, White, Filipino, Korean, Japanese, and Chinese.

The state of Hawai'i makes a concerted effort to capture and report race and ethnic information at a more granular level to help address community concerns and target interventions. To achieve this, Hawai'i defines its racial and ethnic categories as follows. If Hawaiian is 1 of the multiple ethnicities listed, Native Hawaiian is coded; if a non-White ethnicity is listed with a White ethnicity, the non-White ethnicity is coded; and if there is more than 1 non-White ethnicity listed, the first one listed is coded.¹⁷ The race and ethnicity variable in the ACS data were sorted alphabetically, and thus, individuals with multiple non-White ethnicities were proportionally weighted, with equal weights assigned to each group. Data were analyzed using R statistical software (version 4.3.3, R Foundation for Statistical Computing, Vienna, Austria).

This study was approved by the Institutional Review Board of the Hawai'i State Department of Health. Because the analysis involved unidentified data collected by national and local surveillance systems, it was considered non-human-subject research by the University of Hawai'i Human Research Protection Program.

Results

Based on 5-year average death records and population estimates, life expectancy at birth in Hawai'i for 2020 was 81.9 years for the total population ([Table 1](#)). This is nearly 5 years longer than the US life expectancy estimate of 77.0 years.¹⁸ Compared to the 2010 data for Hawai'i,⁵ the state's 2020 life expectancy estimate of 81.9 years represents a decline of 0.5 years. During the same 10 years, however, the US experienced a 1.7-year decline in life expectancy.^{18,19}

Life expectancy at birth varied by racial and ethnic group: 77.4 years for Native Hawaiians, 69.6 for other Pacific Islanders, 81.8 for Whites, 83.4 for Filipinos, 84.3 for Koreans, 84.9 for Japanese, and 88.2 for Chinese ([Figure 1](#)

and [Table 1](#)). Similarly, racial differences in 2020 life expectancy estimates are seen for the US as a whole, ranging from 67.1 years for American Indians and Alaska Natives to 83.6 years for Asian Americans.¹⁸

Changes in life expectancy between 2010 and 2020 varied by race and ethnicity in Hawai'i. For example, the Filipino group experienced a decline of 0.9 years in life expectancy, and the 2020 estimate for Filipinos was lowest among the 4 Asian subgroups. Life expectancy increased from 2010 by 0.8 years for Native Hawaiians, 1.2 years for Whites, 0.5 year for Chinese, and 0.2 year for Japanese.

Life expectancy also varied by sex, at 78.9 years for males and 85.2 years for females in Hawai'i in 2020 ([Table 1](#)). This compares to 74.2 years for males and 79.9 years for females in the US.¹⁸ By race/ethnicity ([Table 1](#) and [Figure 1](#)), life expectancies for males were 74.5 years for Native Hawaiians, 64.7 for other Pacific Islanders, 79.2 for Whites, 79.8 for Filipinos, 81.4 for Koreans, 81.9 for Japanese, and 86.1 for Chinese. For females, life expectancies were 80.5 for Native Hawaiians, 71.9 for other Pacific Islanders, 84.9 for Whites, 86.7 for Filipinos, 86.3 for Koreans, 87.6 for Japanese, and 89.5 for Chinese. The sex difference in life expectancy for the total population was 6.3 years, with variations across groups. Life expectancy estimates for females were longer than those for males in all groups, from 3.4 years longer for Chinese, 4.9 years for Koreans, 5.6 years for Whites, 5.7 years for Japanese, 6.9 for Filipinos, 6.1 for Native Hawaiians, and 7.2 for other Pacific Islanders.

Discussion

Compared to 2010, life expectancy for the total population in Hawai'i decreased by 0.5 years, likely due to the impact of COVID-19.^{8,10} Additionally, the 10-year life expectancy gap between Native Hawaiians and the longest-lived population remained unchanged, consistent with trends observed over the past 70 years ([Table 2](#)).^{6,7} The 2020 analysis also included an estimate for non-Hawaiian Pacific Islanders, and their estimate of 69.6 years suggested a 18.6-year gap between the longest living (Chinese) and shortest living (other Pacific Islander) racial and ethnic groups.

Life expectancy disparities are associated with differences in health status over the life course, and these differences are greatly influenced by social determinants of health (SDoH).²⁰ The US Centers for Disease Control and Prevention defines SDoH as nonmedical factors that influence health outcomes, which include individuals' living and working conditions and the economic, social, and political systems that govern life in their communities.²⁰ For example, unemployment, lower family income, food insecurity, low educational attainment, lack of private health insurance, and not being married or living with a partner are SDoH associated with premature death in the US.^{20–22}

Native Hawaiians and other Pacific Islanders in Hawai'i face disparities for a number of social determinants when compared to other populations. In Hawai'i, only 19% of Native Hawaiians, 13% of Micronesians, and 17% of Samoans (Pacific Islander groups for which data are available in

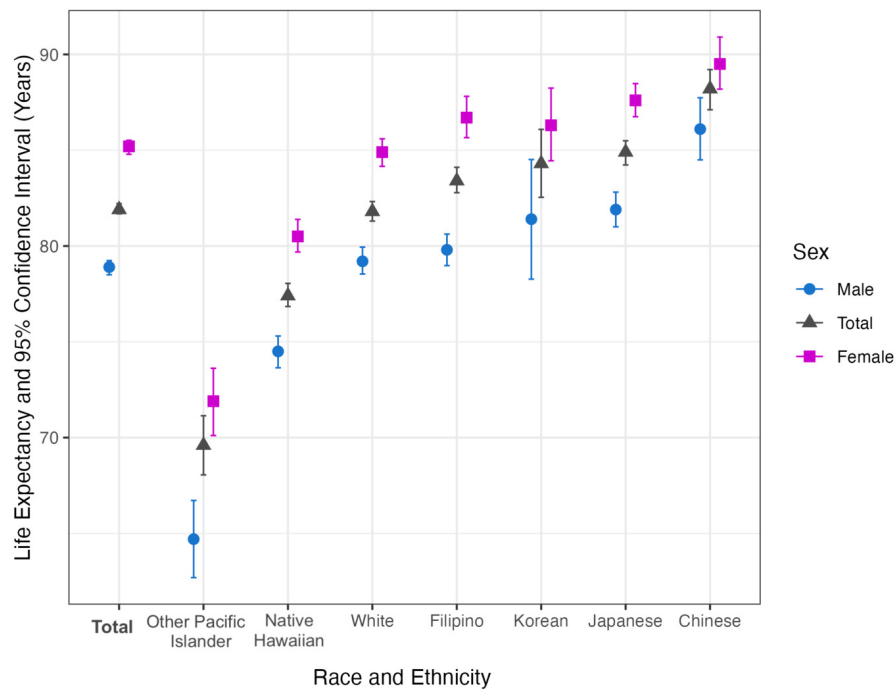


Figure 1. Life Expectancies at Birth in Hawai'i by Race and Ethnicity for 2020 and the 95% Confidence Intervals.

Table 1. Hawai'i 2020 Life Expectancy at Birth (Years) by Race and Ethnicity for the Total, Male and Female Populations, in Comparison To 2010 Life Expectancy.⁶

Race/ethnicity	Total		Male		Female		Sex Difference	
	2010	2020	2010	2020	2010	2020	2010	2020
Total Population	82.4	81.9 (0.14) ^b	79.2	78.9 (0.19)	85.6	85.2 (0.19)	6.4	6.3
Other Pacific Islander	NA ^a	69.6 (0.79)	NA	64.7 (1.03)	NA	71.9 (0.89)	NA	7.2
Native Hawaiian	76.6	77.4 (0.31)	73.9	74.5 (0.42)	79.4	80.5 (0.43)	5.5	6.1
White	80.6	81.8 (0.26)	78.3	79.2 (0.36)	83.4	84.9 (0.37)	5.1	5.6
Filipino	84.3	83.4 (0.34)	80.8	79.8 (0.42)	88.1	86.7 (0.55)	7.3	6.9
Korean	NA	84.3 (0.90)	NA	81.4 (1.59)	NA	86.3 (0.97)	NA	4.9
Japanese	84.7	84.9 (0.32)	81.2	81.9 (0.46)	88.0	87.6 (0.44)	6.8	5.7
Chinese	87.7	88.2 (0.53)	85.3	86.1 (0.83)	90.0	89.5 (0.69)	4.7	3.4

^a2010 data not available for other Pacific Islander

^bValue in the parenthesis are standard errors of 2020 life expectancy estimates.

Table 2. Hawai'i 1950 to 2020 Life Expectancy at Birth (Years) by Race And Ethnicity for the Total Populations.^{6,7}

	1950	1960	1970	1980	1990	2000	2010	2020
Total Population	69.5	72.4	74.2	77.9	78.9	80.5	82.4	81.9
Other Pacific Islander ^a	NA	NA	NA	NA	NA	NA	NA	69.6
Native Hawaiian	62.5	64.6	67.6	71.8	74.3	74.3	76.6	77.4
White	69.2	72.8	73.2	75.8	75.5	79.0	80.6	81.8
Filipino	69.1	71.5	72.6	79.3	78.9	80.9	84.3	83.4
Korean	NA*	NA	NA	NA	NA	81.4	NA	84.3
Japanese	72.6	75.7	77.4	80.9	82.1	82.8	84.7	84.9
Chinese	69.7	74.1	76.1	81.7	82.9	86.1	87.7	88.2

^aData not available for other Pacific Islander before 2020

Hawai'i) hold a baccalaureate degree, compared to 35% of the total state population.¹² The median family income for Native Hawaiians is estimated at \$93,000 per year, compared to \$58,100 for Micronesians, \$90,200 for Samoans, and \$103,600 for Hawai'i as a whole.¹² Non-Hawaiian Pacific Islanders report about 5.0 members per household, compared to 4.0 for Native Hawaiians and 3.0 for the general population.¹² Homeownership is lower among some Pacific Islander groups—15% for Micronesians and 28.8% for Samoans—compared to 57.4% for Native Hawaiians and 61% for the total state population.¹²

Housing insecurity in Hawai'i also varies across the 7 racial/ethnic subgroups examined in this study. Non-Hawaiian Pacific Islanders experienced the highest prevalence of housing insecurity, followed by Native Hawaiians and Filipinos, and these 3 groups reported significantly higher levels of housing insecurity compared to the 4 other subgroups.²³ Native Hawaiian and other Pacific Islanders also have the lowest prevalence of private health insurance.¹² Limited English proficiency affects only 2.1% of Native Hawaiians, but affects 9.3% of Samoans and 33% of Micronesians in Hawai'i.¹² Additionally, data from 2010 suggest that Native Hawaiians experience more adverse childhood events (74.9%) than the general population (57.8%) in the state.²⁴ These disparities can all contribute to lower life expectancy estimates observed among Native Hawaiians and other Pacific Islanders in Hawai'i.

Native Hawaiians and other Pacific Islanders (NHOPI) are aggregated in most US reports. However, this lumping of groups masks differences between them. As noted by the US Census, the NHOPI label encompasses more than 30 distinct cultural and language groups.²⁵ Yet their histories of colonization, displacement, and discrimination differ, as do their relationships with, and benefits within, the US. In Hawai'i, colonization led to militarization, widespread use of pesticides on plantations, uncontrolled development, racism, and other factors that have contributed to an increased risk of cancer, birth defects, infant mortality, and chronic diseases (such as asthma, diabetes, and cardiovascular disease) among Native Hawaiians.²⁶ Residents of the US-Affiliated Pacific Island jurisdictions are allowed to freely migrate to Hawai'i based on their political status (eg, American Samoa is a US territory) or due to military and trade agreements (eg, the Marshall Islands and the Federated States of Micronesia), and they often migrate for better opportunities.²⁷ Life expectancies in these island nations and territories remain lower than for the US, for example 70.3 years in Samoa, 65.0 years in the Marshall Islands, and 65.7 years in the Federated States of Micronesia in 2020.^{28, 29}

This report also demonstrates the importance of disaggregating Asian subgroups. Although life expectancy across all four Asian subgroups was higher than that of non-Asian groups (including Whites, Native Hawaiians, and other Pacific Islanders), Filipinos had the lowest life expectancy among the Asian subgroups and experienced the greatest decline (0.9 years) between 2010 and 2020. Compared to other Asian subgroups, Filipinos have a distinct colonial history with over 3 centuries of Spanish rule followed by

American colonization until 1946. The country also has an on-going relationship with the US involving military and trade agreements, all of which have shaped Filipino cultural, political, and social institutions while contributing to structural inequalities that continue to limit health opportunities.³⁰ In Hawai'i, Filipinos experience lower educational levels, income per capita, and English proficiency than the general population.¹² Additionally, Filipinos had the highest incidence of COVID-19 among Hawai'i's Asian subgroups.^{15,31}

The findings underscore the critical need for disaggregated racial and ethnic data to identify and address health disparities among Native Hawaiians, other Pacific Islanders, and Asian subgroups. Addressing the health inequities that influence life expectancy will require a comprehensive approach, from reducing economic, education, and housing disparities to enhancing access to quality and culturally considerate health care.

Limitations

The findings in this report are subject to at least 2 limitations. First, although the analysis is based on complete death counts, life expectancy estimates may be subject to inaccuracies due to potential measurement errors. These errors could arise from misreporting of age or race/ethnicity on death certificates or inaccuracies in data from the ACS or census records. Second, mortality rates might be influenced by demographic shifts, including changes in immigration and out-migration of people who are sicker or healthier than average. For example, research suggests that life expectancy in the US increased by 1.5 years due to immigration of healthy young people.³² These factors can complicate the interpretation of mortality trends and life expectancy estimates.³³

Conclusions

Although Hawai'i continues to lead the nation in overall life expectancy, the aggregated statewide estimate obscures the deep and persistent disparities across racial and ethnic groups. The 2020 life expectancy estimates reveal an 18.6-year gap between Chinese and non-Hawaiian Pacific Islanders, the largest disparity documented in the state. The next largest difference in life expectancy was 10.8 years between Chinese and Native Hawaiians—a gap that remained unchanged from 1980 to 2020—while the broader 10-year gap between Native Hawaiians and the longest-living group has persisted since 1950. Additionally, estimates suggest that life expectancy for other Pacific Islanders in Hawai'i is 7.8 years less than for Native Hawaiians. Despite improvements for some groups, Native Hawaiians and other Pacific Islanders continue to experience shorter lifespans, largely driven by long-standing social, economic, and structural inequities.

In Hawai'i, life expectancy gaps also continue between sexes, with men living fewer years than women. The sex gap was 6.1 years in 2000,⁶ 6.4 years in 2010,⁷ and 6.3 years in 2020. This is a larger sex gap than published for the US

as a whole.³⁴ While the overall difference between sexes has decreased by 0.1 year in the last decade, the most notable differences in 2020 exist between non-Hawaiian Pacific Islander females and males (7.2 years) and between Filipino females and males (6.9 years). These findings emphasize the critical need for disaggregated population data in Hawai‘i by race and ethnicity at the most detailed level possible, even when assessing sex differences. Findings also support the development and sustaining of culturally grounded interventions tailored to the specific health needs of each community. Addressing the root causes of disparities in SDoH, such as education, income, housing, and access to care, is essential to improving the well-being of these populations and all residents, while working to narrow and eliminate the life expectancy gap.

.....

Conflict of Interest Disclosures

None of the authors identify any conflict of interest.

Funding/Support

The authors acknowledge support from the US Administration on Aging of the Department of Health & Human Services under Hā Kūpuna National Resource Center for Native Hawaiian Elders (#90OIRC0001); the National Institute on Minority Health and Health Disparities under the Ola HAWAII Research Center for Minority Institutes (#2U54MD007601-36); the National Institutes of Health under the Center for Pacific Innovations, Knowledge and Opportunities (PIKO) IDeA-CTR (U54GM138062), and the Barbara Cox Anthony Endowment at the University of Hawai‘i.

Submitted: October 31, 2024 PDT. Accepted: August 25, 2025 PDT. Published: October 01, 2025 PDT.

References

1. US Census Bureau. State Hawaii - Census Bureau Profile. Accessed August 4, 2025. <https://data.census.gov/profile/Hawaii?g=040XX00US15#race-and-ethnicity>
2. US Census Bureau. 2020 Census Detailed Demographic and Housing Characteristics File A. Accessed August 4, 2025. <https://www.census.gov/data/tables/2023/dec/2020-census-detailed-dhc-a.html>
3. Carlin M, Mendoza-Walters A, Ensign K. Half an ocean away: health in the US-affiliated Pacific Islands. *J Public Health Manag Pract JPHMP*. 2016;22(5):492-495. doi:10.1097/PHH.0000000000000467
4. McDermott J, Andrade N, eds. *People and Cultures of Hawai'i: The Evolution of Culture and Ethnicity*. University of Hawai'i Press; 2011. doi:10.21313/hawaii/9780824835804.001.0001
5. State of Hawai'i, Department of Business, Economic Development & Tourism, Research & Economic Analysis. 2023 State of Hawaii Data Book. Accessed August 4, 2025. <https://dbedt.hawaii.gov/economic/databook/db2023/>
6. Wu Y, Braun K, Horiuchi BY, Tottori CJ, Wilkens L. Life expectancies in Hawai'i: a multi-ethnic analysis of 2010 life tables. *Hawaii J Med Public Health*. 2017;76(1):9-14.
7. Park CB, Braun KL, Horiuchi BY, Tottori C, Alvin TO. Longevity disparities in multiethnic Hawaii: an analysis of 2000 life tables. *Public Health Rep*. 2009;124(4):579-584. doi:10.1177/003335490912400415
8. Quint J, Matagi C, Kaholokula JK. The Hawai'i NHPI data disaggregation imperative: preventing data genocide through statewide race and ethnicity standards. *Hawaii J Health Soc Welf*. 2023;82(10 Suppl 1):67-72.
9. Harris E. Life expectancy in US climbed after declines related to COVID-19. *JAMA*. 2024;331(1):15. doi:10.1001/jama.2023.24683
10. Bollyky TJ, Castro E, Aravkin AY, et al. Assessing COVID-19 pandemic policies and behaviours and their economic and educational trade-offs across US states from Jan 1, 2020, to July 31, 2022: an observational analysis. *The Lancet*. 2023;401(10385):1341-1360. doi:10.1016/S0140-6736(23)00461-0
11. US Census Bureau. Exploring age groups in the 2020 census. Accessed August 4, 2025. <https://www.census.gov/library/visualizations/interactive/exploring-age-groups-in-the-2020-census.html>
12. State of Hawai'i, Department of Business, Economic Development & Tourism, Research & Economic Analysis. Demographic, social, and economic characteristics of Hawai'i's race groups: 2017-2021. Accessed August 4, 2025. https://dbedt.hawaii.gov/economic/detailed-race-characteristics_acs2021/
13. Bond-Smith D, Bond-Smith S, Juarez R. Rural health disparities in Hawai'i. 2024. Accessed August 4, 2025. <https://uhero.hawaii.edu/wp-content/uploads/2024/08/RuralHealthDisparitiesInHawaii.pdf>
14. Hawai'i State Department of Health. *COVID-19 in Hawai'i: Addressing Health Equity in Diverse Populations*. Disease Outbreak Control Division Special Report; 2021. Accessed August 4, 2025. <https://www.shvs.org/health-equity/covid-19-in-hawaii-addressing-health-equity-in-diverse-populations/>
15. Quint JJ. Disaggregating Data to measure racial disparities in COVID-19 outcomes and guide community response — Hawaii, March 1, 2020–February 28, 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70. doi:10.15585/mmwr.mm7037a1
16. Chiang CL. *Introduction to Stochastic Processes in Biostatistics*. 99th ed. Wiley; 1968.
17. Hawai'i Health Data Warehouse. Race-ethnicity documentation, 2022. Accessed August 4, 2025. https://hhdw.org/wp-content/uploads/2022/04/Race-Ethnicity_4.2.22.pdf
18. Arias E, Xu J. United States Life Tables, 2020. *Natl Vital Stat Rep Cent Dis Control Prev Natl Cent Health Stat Natl Vital Stat Syst*. 2022;71(1):1-64.
19. Arias E. United States life tables, 2010. *Natl Vital Stat Rep*. 2014;63(7):1-63.
20. US Centers for Disease Control and Prevention. Social determinants of health (SDOH). Accessed August 4, 2025. <https://www.cdc.gov/about/priorities/why-is-addressing-sdoh-important.html>

21. Bundy JD, Mills KT, He H, et al. Social determinants of health and premature death among adults in the USA from 1999 to 2018: a national cohort study. *Lancet Public Health*. 2023;8(6):e422-e431. doi:10.1016/S2468-2667(23)00081-6
22. Chelak K, Chakole S. The role of social determinants of health in promoting health equality: a narrative review. *Cureus*. 2023;15(1):e33425. doi:10.7759/cureus.33425
23. Hawai'i State Department of Health, Hawai'i Health Data Warehouse. Housing insecurity, past 12 months, 2021 and 2023. Accessed August 4, 2025. https://hhdw.org/report/query/result/brfss/SDOHNoPayBills/SDOHNoPayBillsAA11_.html
24. Ye D, Reyes-Salvail F. Adverse childhood experiences among Hawai'i adults: findings from the 2010 Behavioral Risk Factor Survey. *Hawaii J Med Public Health*. 2014;73(6):181-190.
25. US Census Bureau. Detailed look at Native Hawaiian and Other Pacific Islander groups, Chuukese and Papua New Guinean populations fastest growing Pacific Islander groups in 2020. Accessed August 4, 2025. <https://www.census.gov/library/stories/2023/09/2020-census-dhc-a-nhpi-population.html>
26. Kawakami KL, Muneoka S, Burrage RL, Tanoue L, Haitsuka K, Braun KL. The lives of Native Hawaiian elders and their experiences with healthcare: a qualitative analysis. *Front Public Health*. 2022;10:787215. doi:10.3389/fpubh.2022.787215
27. Hawai'i Journal of Health and Social Welfare special issue on health disparities in US affiliated Pacific Islanders: the voyage forward. *Hawaii J Health Soc Welf*. 2020;79(6 Suppl 2):3-5.
28. World Health Organization. Data (by country). Accessed August 4, 2025. <https://data.who.int/countries/>
29. World Bank Group. Life expectancy at birth, total (years). Accessed August 4, 2025. <https://data.worldbank.org/indicator/SP.DYN.LE00.IN>
30. Abinales PN. Philippines-US relations. In: *Oxford Research Encyclopedia of American History*. doi:10.1093/acrefore/9780199329175.001.0001/acrefore-9780199329175-e-404
31. Dela Cruz MRI, Glauberman GHR, Buenconsejo-Lum LE, et al. A report on the impact of the COVID-19 pandemic on the health and social welfare of the Filipino population in Hawai'i. *Hawaii J Health Soc Welf*. 2021;80(9 Suppl 1):71-77.
32. Hendi AS, Ho JY. Immigration and improvements in American life expectancy. *SSM - Popul Health*. 2021;15:100914. doi:10.1016/j.ssmph.2021.100914
33. State of Hawai'i, Department of Business, Economic Development & Tourism, Research & Economic Analysis. Population and economic projections for the state of Hawai'i to 2050. Accessed August 4, 2025. <https://dbedt.hawaii.gov/economic/economic-forecast/long-range-projections/>
34. Arias E, Tejada-Vera B, Kochanek KD, Ahmad FB. *Provisional Life Expectancy Estimates for 2021*. NVSS Vital Statistics Rapid Release; 2022. doi:10.15620/cdc:118999