

LEADING CAUSES OF DEATH IN RIVERSIDE COUNTY DURING THE COVID-19 PANDEMIC

January 1, 2020 - December 31, 2021

INTRODUCTION

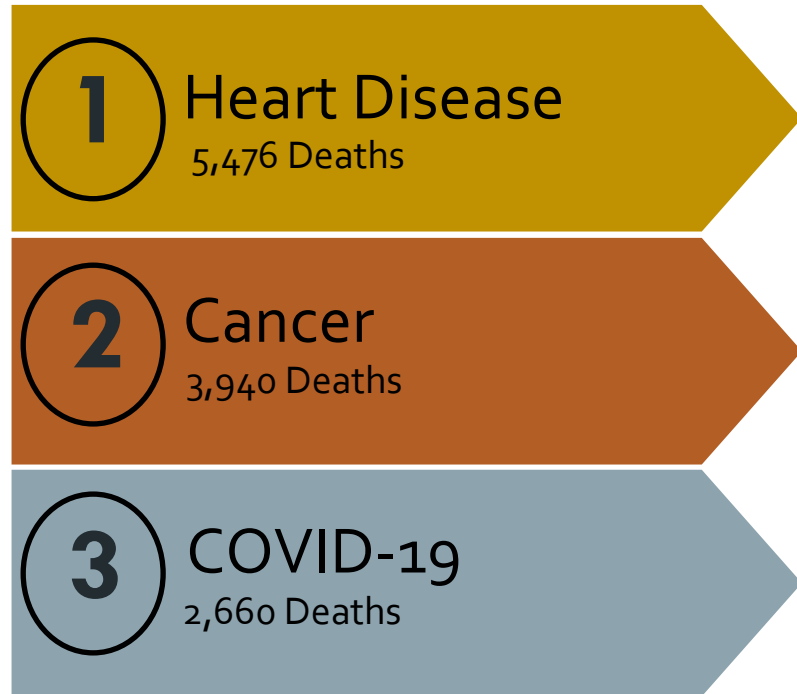
More Riverside County residents have died during the pandemic (2020 and 2021) than is typical in previous years. COVID-19 associated deaths account for some but not all increases in death in 2020 and 2021. This report compares 2020 and 2021 leading causes of death in Riverside County with those of 2019. Data for this analysis was extracted from the California Integrated Vital Records System (CAL-IVRS) on September 9, 2022.

There were increases among most leading causes of death from 2019 to 2020. The two most significant increases in causes of death in 2020 and 2021 were those attributed to COVID-19, followed by overdose and poisoning. COVID-19 ranked as the third most common cause of death in Riverside County in 2020 and 2021, respectively. This means that COVID-19 has caused more deaths in our community than common conditions like stroke and diabetes. In 2019, overdose and poisoning ranked as the 9th leading cause of death in Riverside County, with 434 deaths moving to the seventh leading cause in 2020 (689 deaths) and 2021 (796 deaths). COVID-19 and overdose deaths do not appear to replace other causes of death; instead, COVID-19 and overdose deaths seem to be additive¹.

Deaths from COVID-19 also contributed significantly to the overall increased mortality comprising 12% (2,660) of all deaths in 2020 and 17% (3,882) in 2021. In 2020 and 2021, COVID-19 was the third leading cause of death in Riverside County, behind heart disease and cancer. For Latinx

TOP THREE CAUSES OF DEATH

January 1, 2020 — December 31, 2020



21,801

Total Deaths in 2020
(January 1 - December 31)

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January 1, 2020 - December 31, 2021

INTRODUCTION CONT'D

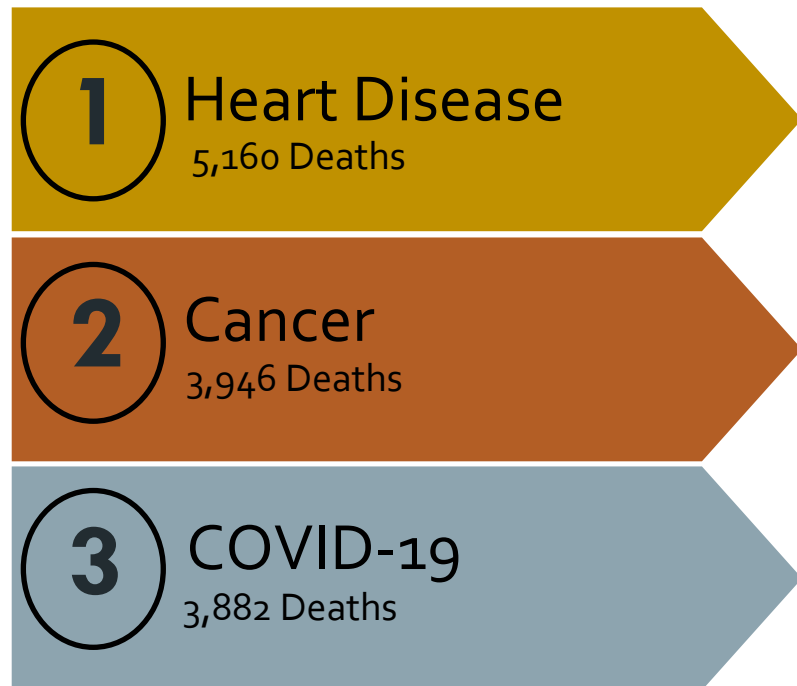
residents, this novel virus was the number one leading cause of death in 2020 and 2021 and the third leading cause of death for Black/African American and White residents. In 2021, COVID-19 moved from the third leading cause of death for Asian and Pacific Islander residents to second for Asian and first for Pacific Islander residents. During this same time period deaths associated with COVID-19 moved from the fourth leading cause of death for Native American residents to the second.

COVID-19 was the leading cause of death for those between 40 – 49 years old in 2020. However, in 2021, COVID-19 was the leading cause of death for three age groups (40-49, 50-59, and 60-69).

The most significant increase in fatalities, other than COVID-19, was attributed to unintentional overdose & poisoning. Nationally, overdose deaths have had the most significant percentage increase in 20 years (30% from 2019 to 2020)². This trend is reflected in Riverside County, with a 59% increase in overdose deaths from 2019 to 2020. Nationally overdose deaths increased by 44% for Black/African American and 39% for Native American/Alaskan Native populations compared to 22% among the White population. In Riverside County, overdose deaths increased by 124% for Black/African American, 47.7% for Latinx, and 49.2% for White populations. Though the numbers were small, Asian overdose deaths increased from 4 in 2019 to 18 (350.0%) in 2020, and Native American overdose deaths increased from 2 to 13 (550.0%). The data highlights some of the known health disparities in overdose mortality rates.

TOP THREE CAUSES OF DEATH

January 1, 2021 — December 31, 2021



22,753

Total Deaths in 2021
(January 1 - December 31)

LEADING CAUSES OF DEATH BY RACE/ETHNICITY, 2020

January 1, 2020 - December 31, 2020

| | Latinx | Black | Asian | Pacific Islander | Native American | White |
|---|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|
| 1 | COVID-19 | Heart disease | Heart disease | Cancer (Malignant neoplasms) | Cancer (Malignant neoplasms) | Heart disease |
| 2 | Heart disease | Cancer (Malignant neoplasms) | Cancer (Malignant neoplasms) | Heart disease | Heart disease | Cancer (Malignant neoplasms) |
| 3 | Cancer (Malignant neoplasms) | COVID-19 | COVID-19 | COVID-19 | Unintentional overdose & poisoning | COVID-19 |
| 4 | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | COVID-19 | Chronic lower respiratory diseases |
| 5 | Diabetes mellitus | Unintentional overdose & poisoning | Alzheimer disease | Diabetes mellitus | Stroke (Cerebrovascular diseases) | Alzheimer disease |
| 6 | Unintentional Injury | Diabetes mellitus | Diabetes mellitus | Chronic lower respiratory diseases | Diabetes mellitus | Stroke (Cerebrovascular diseases) |

LEADING CAUSES OF DEATH

COVID-19 is a leading cause of death among all race/ethnicities in 2020. For Latinx residents, this novel virus is the number one leading cause of death. It's the third leading cause for Black/African American, White, Asian, and Pacific Islanders and fourth for Native Americans. Heart disease and Cancer remain in the top three leading causes of death for all race/ethnicities.

LEADING CAUSES OF DEATH BY RACE/ETHNICITY, 2021

January 1, 2021 - December 31, 2021

| | Latinx | Black | Asian | Pacific Islander | Native American | White |
|---|-----------------------------------|------------------------------------|-----------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 1 | COVID-19 | Heart disease | Heart disease | COVID-19 | Heart disease | Heart disease |
| 2 | Heart disease | Cancer (Malignant neoplasms) | COVID-19 | Heart disease | COVID-19 | Cancer (Malignant neoplasms) |
| 3 | Cancer (Malignant neoplasms) | COVID-19 | Cancer (Malignant neoplasms) | Cancer (Malignant neoplasms) | Cancer (Malignant neoplasms) | COVID-19 |
| 4 | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | Stroke (Cerebrovascular diseases) | Chronic liver disease and cirrhosis | Alzheimer's disease |
| 5 | Diabetes mellitus | Unintentional overdose & poisoning | Alzheimer's disease | Unintentional overdose & poisoning | Diabetes mellitus | Stroke (Cerebrovascular diseases) |
| 6 | Unintentional Injury | Alzheimer's disease | Diabetes mellitus | Diabetes mellitus | Unintentional overdose & poisoning | Chronic lower respiratory diseases |

LEADING CAUSES OF DEATH

COVID-19 is a leading cause of death among all race/ethnicities in 2021. For Latinx and Pacific Islander residents, this novel virus is the number one leading cause of death. It's the second leading cause for Asian and Native American residents and the third for Black/African American and White residents. COVID-19 moved up from 2020 (page 3) among Asian, Pacific Islander, and Native American residents. Heart disease and Cancer remain in the top three leading causes of death for all race/ethnicities.

LEADING CAUSES OF DEATH BY AGE GROUP, 2020

January 1, 2020 - December 31, 2020

| | Less than 20 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80+ |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|---------------------|---------------------|---------------------|
| 1 | Perinatal | Unintentional overdose & poisoning | Unintentional overdose & poisoning | COVID-19 | Heart disease | Cancer | Heart disease | Heart disease |
| 2 | Unintentional overdose & poisoning | Unintentional injury | Unintentional injury | Cancer | Cancer | Heart disease | Cancer | Cancer |
| 3 | Unintentional injury | Homicide | Cancer | Unintentional overdose & poisoning | COVID-19 | COVID-19 | COVID-19 | Alzheimer's |
| 4 | Congenital | Suicide/ Intentional self-harm | COVID-19 | Heart disease | Unintentional overdose & poisoning | Chronic respiratory | Chronic respiratory | COVID-19 |
| 5 | Cancer | Cancer | Heart disease | Unintentional injury | Cirrhosis | Diabetes | Stroke | Stroke |
| 6 | Suicide/ Intentional self-harm | COVID-19 | Suicide/ Intentional self-harm | Cirrhosis | Diabetes | Cirrhosis | Alzheimer's | Chronic respiratory |

LEADING CAUSES OF DEATH

COVID-19 was a leading cause of death among all age groups in 2020 except in Riverside County residents under 20 years old. Among the 40-49 year age group, COVID-19 was the number one leading cause of death. For residents ages 50-59, 60-69, and 70-79, this novel virus was the third leading cause of death, the fourth leading cause for those 30-39 and 80+, and sixth for those 20-29.

LEADING CAUSES OF DEATH BY AGE GROUP, 2021

January 1, 2021 - December 31, 2021

| | Less than 20 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | 80+ |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|---------------|---------------------|---------------------|
| 1 | Perinatal | Unintentional overdose & poisoning | Unintentional overdose & poisoning | COVID-19 | COVID-19 | COVID-19 | Heart disease | Heart disease |
| 2 | Unintentional injury | Unintentional injury | COVID-19 | Unintentional overdose & poisoning | Cancer | Cancer | Cancer | Cancer |
| 3 | Congenital | Suicide | Unintentional injury | Cancer | Heart disease | Heart disease | COVID-19 | COVID-19 |
| 4 | Suicide | COVID-19 | Suicide | Heart disease | Unintentional overdose & poisoning | Diabetes | Chronic respiratory | Alzheimer's |
| 5 | Unintentional overdose & poisoning | Homicide | Cancer | Cirrhosis | Cirrhosis | Cirrhosis | Stroke | Stroke |
| 6 | Cancer | Cancer | Heart disease | Unintentional injury | Unintentional injury | Stroke | Diabetes | Chronic respiratory |

LEADING CAUSES OF DEATH

COVID-19 is a leading cause of death among all age groups in 2021 except among residents under 20 years old. For residents aged 40-49, 50-59, and 60-69, this novel virus was the number one leading cause of death and the second leading cause for those 30-39. Among the 70-79 and 80+ age groups, COVID-19 was the third-leading cause of death; and the fourth-leading cause of death for the 20-29 age group.

References: 1. Napier, R., Gardner, A., Hetherington, W., Patel, S., Martinez Luna, D. Excess mortality in Riverside County during the COVID-19 pandemic, 2020 - 2021. Riverside University Health System — Public Health, Epidemiology & Program Evaluation. August 2022. 2. Kariisa, M., Davis, N.L., Kumar, S., et al. Vital Signs: Drug Overdose Deaths, by Selected Sociodemographic and Social Determinants of Health Characteristics — 25 States and the District of Columbia, 2019–2020. MMWR Morb Mortal Wkly Rep. ePub: 19 July 2022. DOI: <http://dx.doi.org/10.15585/mmwr.mm7129e2> **Suggested Citation:** Gardner, A., Patel, S., Lopez, R., Curlee, E., Leading Causes of Death During the COVID-19 Pandemic, January 1, 2020 – December 31, 2021. Riverside University Health System — Public Health, Epidemiology & Program Evaluation. January 2023.

APPENDIX

LEADING CAUSES OF DEATH 2019 - 2021, GENERAL POPULATION

Table 1. 2019 Leading Causes of Death, January 1 - December 31, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 4,905 | 28.5 | 202.0 | 168.0 |
| 2 | Cancer (Malignant neoplasms) | 3,888 | 22.6 | 160.1 | 135.4 |
| 3 | Alzheimer's disease | 1,009 | 5.9 | 41.5 | 34.3 |
| 4 | Chronic lower respiratory diseases | 1,005 | 5.8 | 41.4 | 34.5 |
| 5 | Stroke (Cerebrovascular diseases) | 976 | 5.7 | 40.2 | 33.5 |
| 6 | Diabetes mellitus | 549 | 3.2 | 22.6 | 19.1 |
| 7 | Unintentional injury | 548 | 3.2 | 22.6 | 21.3 |
| 8 | Chronic liver disease and cirrhosis | 438 | 2.5 | 18.0 | 16.0 |
| 9 | Unintentional overdose & poisoning | 434 | 2.5 | 17.9 | 21.3 |
| 10 | Influenza and pneumonia | 337 | 2.0 | 13.9 | 12.1 |
| | All other causes | 3,150 | 18.3 | | |
| | Total Deaths | 17,239 | 100.0 | 709.9 | 607.4 |

Table 2. 2020 Leading Causes of Death, January 1 - December 31, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 5,476 | 25.1 | 223.6 | 181.8 |
| 2 | Cancer (Malignant neoplasms) | 3,940 | 18.1 | 160.9 | 133.0 |
| 3 | COVID-19 | 2,660 | 12.2 | 108.6 | 91.0 |
| 4 | Alzheimer's disease | 1,199 | 5.5 | 49.0 | 39.2 |
| 5 | Stroke (Cerebrovascular diseases) | 1,092 | 5.0 | 44.6 | 36.7 |
| 6 | Chronic lower respiratory diseases | 1,091 | 5.0 | 44.5 | 36.1 |
| 7 | Unintentional overdose & poisoning | 689 | 3.2 | 28.1 | 28.2 |
| 8 | Diabetes mellitus | 640 | 2.9 | 26.1 | 21.6 |
| 9 | Unintentional injury | 616 | 2.8 | 25.2 | 23.8 |
| 10 | Chronic liver disease and cirrhosis | 463 | 2.1 | 18.9 | 16.2 |
| | All other causes | 3,935 | 18.0 | | |
| | Total Deaths | 21,801 | 100.0 | 890.1 | 746.0 |

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LEADING CAUSES OF DEATH 2019 - 2021, GENERAL POPULATION

Table 3. 2021 Leading Causes of Death, January 1 - December 31, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 5,160 | 22.7 | 208.2 | 165.0 |
| 2 | Cancer (Malignant neoplasms) | 3,946 | 17.3 | 159.2 | 128.2 |
| 3 | COVID-19 | 3,882 | 17.1 | 156.7 | 130.9 |
| 4 | Stroke (Cerebrovascular diseases) | 1,175 | 5.2 | 47.4 | 37.8 |
| 5 | Alzheimer's disease | 1,068 | 4.7 | 43.1 | 33.5 |
| 6 | Chronic lower respiratory diseases | 869 | 3.8 | 35.1 | 27.7 |
| 7 | Unintentional overdose & poisoning | 796 | 3.5 | 32.1 | 32.0 |
| 8 | Unintentional injury | 693 | 3.0 | 28.0 | 26.1 |
| 9 | Diabetes mellitus | 601 | 2.6 | 24.3 | 19.8 |
| 10 | Chronic liver disease and cirrhosis | 504 | 2.2 | 20.3 | 18.1 |
| | All other causes | 4,059 | 17.8 | | |
| | Total Deaths | 22,753 | 100.0 | 918.2 | 758.7 |

All rates are per 100,000 population

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2020 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 4. 2020 Leading Causes of Death Among the Hispanic/Latinx Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | COVID-19 | 1,413 | 23.1 | 121.7 | 178.0 |
| 2 | Heart disease | 1,080 | 17.6 | 93.0 | 153.2 |
| 3 | Cancer (Malignant neoplasms) | 929 | 15.2 | 80.0 | 117.6 |
| 4 | Stroke (Cerebrovascular diseases) | 285 | 4.7 | 24.5 | 42.5 |
| 5 | Diabetes mellitus | 278 | 4.5 | 23.9 | 35.9 |
| 6 | Unintentional injury | 239 | 3.9 | 20.6 | 23.1 |
| 7 | Alzheimer's disease | 232 | 3.8 | 20.0 | 40.2 |
| 8 | Unintentional overdose & poisoning | 229 | 3.7 | 19.7 | 19.3 |
| 9 | Chronic liver disease and cirrhosis | 197 | 3.2 | 17.0 | 21.6 |
| 10 | Chronic lower respiratory diseases | 121 | 2.0 | 10.4 | 18.5 |
| | All other causes | 1,124 | 18.3 | | |
| | Total Deaths | 6,127 | 100.0 | 527.8 | 791.4 |

Table 5. 2020 Leading Causes of Death Among the Black/African American Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 405 | 24.3 | 275.8 | 285.0 |
| 2 | Cancer (Malignant neoplasms) | 285 | 17.1 | 194.1 | 191.5 |
| 3 | COVID-19 | 146 | 8.8 | 99.4 | 98.9 |
| 4 | Stroke (Cerebrovascular diseases) | 85 | 5.1 | 57.9 | 63.8 |
| 5 | Unintentional overdose & poisoning | 74 | 4.4 | 50.4 | 47.5 |
| 6 | Diabetes mellitus | 67 | 4.0 | 45.6 | 46.5 |
| 7 | Chronic lower respiratory diseases | 66 | 4.0 | 44.9 | 43.4 |
| 7 | Alzheimer's disease | 66 | 4.0 | 44.9 | 57.1 |
| 8 | Unintentional injury | 61 | 3.7 | 41.5 | 39.8 |
| 9 | Kidney disease | 39 | 2.3 | 26.6 | 28.1 |
| 10 | Homicide / Assault | 31 | 1.9 | 21.1 | 21.9 |
| | All other causes | 340 | 20.4 | | |
| | Total Deaths | 1,665 | 100.0 | 1,133.7 | 1,171.4 |

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2020 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 6. 2020 Leading Causes of Death Among the White Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 3,669 | 29.0 | 399.3 | 189.9 |
| 2 | Cancer (Malignant neoplasms) | 2,457 | 19.4 | 267.4 | 137.3 |
| 3 | COVID-19 | 930 | 7.4 | 101.2 | 49.5 |
| 4 | Chronic lower respiratory diseases | 863 | 6.8 | 93.9 | 44.3 |
| 5 | Alzheimer's disease | 842 | 6.7 | 91.6 | 39.4 |
| 6 | Stroke (Cerebrovascular diseases) | 623 | 4.9 | 67.8 | 32.3 |
| 7 | Unintentional overdose & poisoning | 352 | 2.8 | 38.3 | 40.4 |
| 8 | Unintentional injury | 290 | 2.3 | 31.6 | 25.3 |
| 9 | Diabetes mellitus | 239 | 1.9 | 26.0 | 14.1 |
| 10 | Chronic liver disease and cirrhosis | 228 | 1.8 | 24.8 | 15.3 |
| | All other causes | 2,155 | 17.0 | | |
| | Total Deaths | 12,648 | 100.0 | 1,376.5 | 721.7 |

Table 7. 2020 Leading Causes of Death Among the Asian Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|--------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 215 | 23.5 | 145.0 | 122.8 |
| 2 | Cancer (Malignant neoplasms) | 192 | 21.0 | 129.5 | 102.2 |
| 3 | COVID-19 | 122 | 13.3 | 82.3 | 67.3 |
| 4 | Stroke (Cerebrovascular diseases) | 84 | 9.2 | 56.7 | 49.2 |
| 5 | Alzheimer's disease | 45 | 4.9 | 30.4 | 27.3 |
| 6 | Diabetes mellitus | 41 | 4.5 | 27.7 | 22.3 |
| 7 | Chronic lower respiratory diseases | 23 | 2.5 | 15.5 | 13.8 |
| 8 | Influenza and pneumonia | 21 | 2.3 | 14.2 | 12.2 |
| 9 | Kidney disease | 18 | 2.0 | * | * |
| 9 | Unintentional overdose and poisoning | 18 | 2.0 | * | * |
| 10 | Unintentional injury | 15 | 1.6 | * | * |
| | All other causes | 120 | 13.1 | | |
| | Total Deaths | 914 | 100.0 | 625.2 | 526.8 |

* Rates not calculated due to instability of small numbers

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2020 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 8. 2020 Leading Causes of Death Among the Pacific Islander Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|------------------------------------|-----------|---------|------------|-------------------|
| 1 | Cancer (Malignant neoplasms) | 20 | 25.0 | 297.6 | 349.5 |
| 2 | Heart disease | 16 | 20.0 | * | * |
| 3 | COVID-19 | 12 | 15.0 | * | * |
| 4 | Stroke (Cerebrovascular diseases) | 6 | 7.5 | * | * |
| 5 | Diabetes mellitus | 5 | 6.3 | * | * |
| 5 | Chronic lower respiratory diseases | 5 | 6.3 | * | * |
| 6 | Influenza and pneumonia | 4 | 5.0 | * | * |
| 7 | Unintentional injury | 2 | 2.5 | * | * |
| 7 | Suicide/Intentional self-harm | 2 | 2.5 | * | * |
| | All other causes | 8 | 10.0 | | |
| | Total Deaths | 80 | 100.0 | 1,190.5 | 1,446.8 |

Table 9. 2020 Leading Causes of Death Among the Native American Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Cancer (Malignant neoplasms) | 29 | 22.3 | 239.8 | 190.8 |
| 2 | Heart disease | 28 | 21.5 | 231.5 | 187.4 |
| 3 | Unintentional overdose & poisoning | 13 | 10.0 | * | * |
| 4 | COVID-19 | 9 | 6.9 | * | * |
| 5 | Stroke (Cerebrovascular diseases) | 6 | 4.6 | * | * |
| 6 | Chronic lower respiratory diseases | 5 | 3.8 | * | * |
| 6 | Diabetes mellitus | 5 | 3.8 | * | * |
| 6 | Alzheimer's disease | 5 | 3.8 | * | * |
| 6 | Chronic liver disease and cirrhosis | 5 | 3.8 | * | * |
| 7 | Unintentional injury | 3 | 2.3 | * | * |
| 8 | Suicide/Intentional self-harm | 2 | 1.5 | * | * |
| 8 | Kidney disease | 2 | 1.5 | * | * |
| | All other causes | 18 | 13.8 | * | |
| | Total Deaths | 130 | 100.0 | 1,074.8 | 920.4 |

* Rates not calculated due to instability of small numbers

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2021 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 10. 2021 Leading Causes of Death Among the Hispanic/Latinx Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | COVID-19 | 1,920 | 28.9 | 163.2 | 220.3 |
| 2 | Heart disease | 1,045 | 15.7 | 88.8 | 142.2 |
| 3 | Cancer (Malignant neoplasms) | 922 | 13.9 | 78.4 | 109.0 |
| 4 | Unintentional injury | 273 | 4.1 | 23.2 | 25.7 |
| 5 | Unintentional overdose & poisoning | 270 | 4.1 | 23.0 | 23.0 |
| 6 | Stroke (Cerebrovascular diseases) | 266 | 4.0 | 22.6 | 36.5 |
| 7 | Diabetes mellitus | 231 | 3.5 | 19.6 | 28.2 |
| 8 | Chronic liver disease and cirrhosis | 225 | 3.4 | 19.1 | 23.1 |
| 9 | Alzheimer's disease | 213 | 3.2 | 18.1 | 34.7 |
| 10 | Influenza and pneumonia | 97 | 1.5 | 8.2 | 12.3 |
| | All other causes | 1,192 | 17.9 | | |
| | Total Deaths | 6,654 | 100.0 | 565.6 | 797.1 |

Table 11. 2021 Leading Causes of Death Among the Black/African American Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 387 | 22.6 | 259.6 | 263.4 |
| 2 | Cancer (Malignant neoplasms) | 295 | 17.2 | 197.9 | 184.7 |
| 3 | COVID-19 | 257 | 15.0 | 172.4 | 159.9 |
| 4 | Stroke (Cerebrovascular diseases) | 105 | 6.1 | 70.4 | 73.3 |
| 5 | Unintentional overdose & poisoning | 84 | 4.9 | 56.4 | 52.5 |
| 6 | Alzheimer's disease | 70 | 4.1 | 47.0 | 55.5 |
| 7 | Unintentional injury | 63 | 3.7 | 42.3 | 42.9 |
| 8 | Diabetes mellitus | 62 | 3.6 | 41.6 | 39.0 |
| 9 | Chronic lower respiratory diseases | 42 | 2.5 | 28.2 | 27.4 |
| 10 | Kidney disease | 37 | 2.2 | 24.8 | 24.5 |
| | All other causes | 311 | 18.2 | | |
| | Total Deaths | 1,713 | 100.0 | 1,149.2 | 1,131.8 |

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2021 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 12. 2021 Leading Causes of Death Among the White Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 3,379 | 26.3 | 364.7 | 171.9 |
| 2 | Cancer (Malignant neoplasms) | 2,455 | 19.1 | 265.0 | 781.3 |
| 3 | COVID-19 | 1,391 | 10.8 | 150.1 | 81.1 |
| 4 | Alzheimer's disease | 735 | 5.7 | 79.3 | 33.3 |
| 5 | Stroke (Cerebrovascular diseases) | 711 | 5.5 | 76.7 | 35.3 |
| 6 | Chronic lower respiratory diseases | 693 | 5.4 | 74.8 | 34.6 |
| 7 | Unintentional overdose & poisoning | 405 | 3.1 | 43.7 | 44.4 |
| 8 | Unintentional injury | 326 | 2.5 | 35.2 | 26.7 |
| 9 | Diabetes mellitus | 260 | 2.0 | 28.1 | 15.0 |
| 10 | Chronic liver disease and cirrhosis | 234 | 1.8 | 25.3 | 18.1 |
| | All other causes | 2,275 | 17.7 | | |
| | Total Deaths | 12,864 | 100.0 | 1,388.5 | 733.3 |

Table 13. 2021 Leading Causes of Death Among the Asian Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 227 | 22.1 | 151.0 | 121.1 |
| 2 | COVID-19 | 215 | 20.9 | 143.0 | 109.6 |
| 3 | Cancer (Malignant neoplasms) | 210 | 20.4 | 139.7 | 108.2 |
| 4 | Stroke (Cerebrovascular diseases) | 75 | 7.3 | 49.9 | 39.9 |
| 5 | Alzheimer's disease | 38 | 3.7 | 25.3 | 22.0 |
| 6 | Diabetes mellitus | 34 | 3.3 | 22.6 | 16.3 |
| 7 | Chronic lower respiratory diseases | 22 | 2.1 | 14.6 | 12.4 |
| 8 | Unintentional injury | 19 | 1.8 | 12.6 | 10.5 |
| 8 | Kidney disease | 19 | 1.8 | 12.6 | 10.1 |
| 9 | Suicide/Intentional self-harm | 17 | 1.7 | * | * |
| 10 | Influenza and pneumonia | 16 | 1.6 | * | * |
| | All other causes | 137 | 13.3 | | |
| | Total Deaths | 1,029 | 100.0 | 684.5 | 547.5 |

* Rates not calculated due to instability of small numbers

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2021 LEADING CAUSES OF DEATH BY RACE/ETHNICITY

Table 14. 2021 Leading Causes of Death Among the Pacific Islander Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|------------------------------------|-----------|---------|------------|-------------------|
| 1 | COVID-19 | 26 | 29.9 | 383.1 | 381.0 |
| 2 | Heart disease | 17 | 19.5 | * | * |
| 3 | Cancer (Malignant neoplasms) | 14 | 16.1 | * | * |
| 4 | Stroke (Cerebrovascular diseases) | 6 | 6.9 | * | * |
| 5 | Unintentional overdose & poisoning | 3 | 3.4 | * | * |
| 6 | Chronic lower respiratory diseases | 2 | 2.3 | * | * |
| 6 | Diabetes mellitus | 2 | 2.3 | * | * |
| 6 | Alzheimer's disease | 2 | 2.3 | * | * |
| 6 | Influenza and pneumonia | 2 | 2.3 | * | * |
| 6 | Kidney disease | 2 | 2.3 | * | * |
| | All other causes | 10 | 11.5 | | |
| | Total Deaths | 87 | 100.0 | 1,281.9 | 1,324.2 |

Table 15. 2021 Leading Causes of Death Among the Native American Population, Riverside County, CA

| Rank | Cause of Death | Frequency | Percent | Crude rate | Age-adjusted rate |
|------|-------------------------------------|-----------|---------|------------|-------------------|
| 1 | Heart disease | 36 | 22.8 | 294.0 | 227.8 |
| 2 | COVID-19 | 26 | 16.5 | 212.3 | 185.0 |
| 3 | Cancer (Malignant neoplasms) | 17 | 10.8 | * | * |
| 4 | Chronic liver disease and cirrhosis | 12 | 7.6 | * | * |
| 5 | Diabetes mellitus | 9 | 5.7 | * | * |
| 6 | Unintentional injury | 7 | 4.4 | * | * |
| 6 | Unintentional overdose & poisoning | 7 | 4.4 | * | * |
| 7 | Chronic lower respiratory diseases | 6 | 3.8 | * | * |
| 8 | Stroke (Cerebrovascular diseases) | 5 | 3.2 | * | * |
| 9 | Suicide/Intentional self-harm | 3 | 1.9 | * | * |
| 9 | Alzheimer's disease | 3 | 1.9 | * | * |
| 9 | Influenza and pneumonia | 3 | 1.9 | * | * |
| | All other causes | 24 | 15.2 | * | |
| | Total Deaths | 158 | 100.0 | 1,290.4 | 1,098.4 |

* Rates not calculated due to instability of small numbers

APPENDIX

Table 16. 2020 LEADING CAUSES OF DEATH BY AGE GROUP

| Less than 20 | | | | 20-29 | | | |
|--------------------------------------------------------|-------|---------|---------|-------------------------------------|-------|---------|---------|
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Certain conditions originating in the perinatal period | 55 | 22.4 | 8.3 | Unintentional Overdose & Poisoning | 138 | 30.9 | 38.4 |
| Unintentional Overdose & Poisoning | 34 | 13.8 | 5.1 | Unintentional Injury | 103 | 23.0 | 28.7 |
| Unintentional Injury | 32 | 13.0 | 4.8 | Assault/Homicide | 49 | 11.0 | 13.6 |
| Congenital | 26 | 10.6 | 3.9 | Suicide/Intentional Self-harm | 40 | 8.9 | 11.1 |
| Cancer (Malignant neoplasms) | 23 | 9.3 | 3.5 | Cancer (Malignant neoplasms) | 25 | 5.6 | 7.0 |
| Suicide/Intentional Self-harm | 14 | 5.7 | * | COVID-19 | 16 | 3.6 | * |
| Assault/Homicide | 14 | 5.7 | * | Heart Disease | 8 | 1.8 | * |
| Total Deaths | 246 | 100.0 | 37.1 | Total Deaths | 447 | 100.0 | 124.4 |
| 30-39 | | | | 40-49 | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Unintentional Overdose & Poisoning | 136 | 22.8 | 44.7 | COVID-19 | 155 | 17.0 | 53.8 |
| Unintentional Injury | 86 | 14.4 | 28.2 | Cancer (Malignant neoplasms) | 129 | 14.1 | 44.7 |
| Cancer (Malignant neoplasms) | 55 | 9.2 | 18.1 | Unintentional Overdose & Poisoning | 121 | 13.3 | 42.0 |
| COVID-19 | 49 | 8.2 | 16.1 | Heart Disease | 116 | 12.7 | 40.2 |
| Heart Disease | 42 | 7.0 | 13.8 | Unintentional Injury | 69 | 7.6 | 23.9 |
| Suicide/Intentional Self-harm | 41 | 6.9 | 13.5 | Chronic liver disease and cirrhosis | 43 | 4.7 | 14.9 |
| Assault/Homicide | 36 | 6.0 | 11.8 | Suicide/Intentional Self-harm | 33 | 3.6 | 11.4 |
| Total Deaths | 597 | 100.0 | 196.0 | Total Deaths | 913 | 100.0 | 316.6 |
| 50-59 | | | | 60-69 | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Heart Disease | 420 | 20.8 | 139.1 | Cancer (Malignant neoplasms) | 865 | 23.5 | 330.5 |
| Cancer (Malignant neoplasms) | 404 | 20.0 | 133.8 | Heart Disease | 862 | 23.4 | 329.4 |
| COVID-19 | 307 | 15.2 | 101.7 | COVID-19 | 562 | 15.3 | 214.8 |
| Unintentional Overdose & Poisoning | 144 | 7.1 | 47.7 | Chronic lower respiratory diseases | 164 | 4.5 | 62.7 |
| Chronic liver disease and cirrhosis | 96 | 4.8 | 31.8 | Diabetes mellitus | 157 | 4.3 | 60.0 |
| Diabetes mellitus | 84 | 4.2 | 27.8 | Chronic liver disease and cirrhosis | 145 | 3.9 | 55.4 |
| Unintentional Injury | 76 | 3.8 | 25.2 | Stroke (Cerebrovascular diseases) | 110 | 3.0 | 42.0 |
| Total Deaths | 2,020 | 100.0 | 669.1 | Total Deaths | 3,679 | 100.0 | 1,405.9 |
| 70-79 | | | | 80+ | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Heart Disease | 1,281 | 25.1 | 708.8 | Heart Disease | 2,745 | 31.2 | 2,682.2 |
| Cancer (Malignant neoplasms) | 1,239 | 24.3 | 685.5 | Cancer (Malignant neoplasms) | 1,200 | 13.6 | 1,172.5 |
| COVID-19 | 698 | 13.7 | 386.2 | Alzheimer's disease | 982 | 11.2 | 959.5 |
| Chronic lower respiratory diseases | 315 | 6.2 | 174.3 | COVID-19 | 871 | 9.9 | 851.1 |
| Stroke (Cerebrovascular diseases) | 254 | 5.0 | 140.5 | Stroke (Cerebrovascular diseases) | 620 | 7.0 | 605.8 |
| Alzheimer's disease | 183 | 3.6 | 101.3 | Chronic lower respiratory diseases | 543 | 6.2 | 530.6 |
| Diabetes mellitus | 170 | 3.3 | 94.1 | Diabetes mellitus | 181 | 2.1 | 176.9 |
| Total Deaths | 5,098 | 100.0 | 2,820.7 | Total Deaths | 8,801 | 100.0 | 8,599.6 |

* Rates not calculated due to instability of small numbers

APPENDIX

Table 17. 2021 LEADING CAUSES OF DEATH BY AGE GROUP

| Less than 20 | | | | 20-29 | | | |
|--------------------------------------------------------|-------|---------|---------|-------------------------------------|-------|---------|---------|
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Certain conditions originating in the perinatal period | 62 | 20.7 | 9.4 | Unintentional Overdose & Poisoning | 126 | 29.8 | 35.0 |
| Unintentional Injury | 57 | 19.1 | 8.6 | Unintentional Injury | 96 | 22.7 | 26.6 |
| Congenital | 34 | 11.4 | 5.1 | Suicide/Intentional Self-harm | 43 | 10.2 | 11.9 |
| Suicide/Intentional Self-harm | 22 | 7.4 | 3.3 | COVID-19 | 37 | 8.7 | 10.3 |
| Unintentional Overdose & Poisoning | 20 | 6.7 | 3.0 | Assault/Homicide | 33 | 7.8 | 9.2 |
| Cancer (Malignant neoplasms) | 16 | 5.4 | * | Cancer (Malignant neoplasms) | 25 | 5.9 | 6.9 |
| Assault/Homicide | 9 | 3.0 | * | Heart Disease | 6 | 1.4 | * |
| Total Deaths | 299 | 100.0 | 45.3 | Total Deaths | 423 | 100.0 | 117.3 |
| 30-39 | | | | 40-49 | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Unintentional Overdose & Poisoning | 188 | 25.6 | 60.5 | COVID-19 | 282 | 26.3 | 97.7 |
| COVID-19 | 124 | 16.9 | 39.9 | Unintentional Overdose & Poisoning | 126 | 11.7 | 43.6 |
| Unintentional Injury | 92 | 12.6 | 29.6 | Cancer (Malignant neoplasms) | 125 | 11.6 | 43.3 |
| Suicide/Intentional Self-harm | 58 | 7.9 | 18.7 | Heart Disease | 103 | 9.6 | 35.7 |
| Cancer (Malignant neoplasms) | 52 | 7.1 | 16.7 | Chronic liver disease and cirrhosis | 75 | 7.0 | 26.0 |
| Heart Disease | 37 | 5.0 | 11.9 | Unintentional Injury | 63 | 5.9 | 21.8 |
| Homicide Assault | 32 | 4.4 | 10.3 | Suicide/Intentional Self-harm | 36 | 3.4 | 12.5 |
| Total Deaths | 733 | 100.0 | 235.9 | Total Deaths | 1,074 | 100.0 | 371.9 |
| 50-59 | | | | 60-69 | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| COVID-19 | 587 | 25.7 | 193.9 | COVID-19 | 939 | 23.1 | 345.9 |
| Cancer (Malignant neoplasms) | 424 | 18.6 | 140.1 | Cancer (Malignant neoplasms) | 896 | 22.0 | 330.0 |
| Heart Disease | 369 | 16.2 | 121.9 | Heart Disease | 816 | 20.0 | 300.6 |
| Unintentional Overdose & Poisoning | 166 | 7.3 | 54.8 | Diabetes mellitus | 151 | 3.7 | 55.6 |
| Chronic liver disease and cirrhosis | 128 | 5.6 | 42.3 | Chronic liver disease and cirrhosis | 145 | 3.6 | 53.4 |
| Unintentional Injury | 83 | 3.6 | 27.4 | Stroke (Cerebrovascular diseases) | 139 | 3.4 | 51.2 |
| Stroke (Cerebrovascular diseases) | 71 | 3.1 | 23.5 | Unintentional Overdose & Poisoning | 132 | 3.2 | 48.6 |
| Total Deaths | 2,280 | 100.0 | 753.2 | Total Deaths | 4,070 | 100.0 | 1,499.2 |
| 70-79 | | | | 80+ | | | |
| Cause | Count | Percent | Rate | Cause | Count | Percent | Rate |
| Heart Disease | 1,209 | 23.1 | 668.9 | Heart Disease | 2,616 | 30.2 | 2,556.1 |
| Cancer (Malignant neoplasms) | 1,167 | 22.3 | 645.7 | Cancer (Malignant neoplasms) | 1,241 | 14.3 | 1,212.6 |
| COVID-19 | 954 | 18.3 | 527.8 | COVID-19 | 955 | 11.0 | 933.1 |
| Chronic lower respiratory diseases | 276 | 5.3 | 152.7 | Alzheimer's disease | 864 | 10.0 | 844.2 |
| Stroke (Cerebrovascular diseases) | 266 | 5.1 | 147.2 | Stroke (Cerebrovascular diseases) | 657 | 7.6 | 642.0 |
| Diabetes mellitus | 159 | 3.0 | 88.0 | Chronic lower respiratory diseases | 437 | 5.1 | 427.0 |
| Alzheimer's disease | 159 | 3.0 | 88.0 | Diabetes mellitus | 175 | 2.0 | 171.0 |
| Total Deaths | 5,224 | 100.0 | 2,890.4 | Total Deaths | 8,650 | 100.0 | 8,452.1 |

* Rates not calculated due to instability of small numbers