Mortality in Los Angeles County, 2020: Provisional Report

Introduction

Mortality is one of the most fundamental indicators of population health. It is easily defined, can signal a broad range of health-related problems, and also help identify and characterize emerging trends in the health of a population. During a pandemic, tracking mortality metrics can provide additional insight into the true impact of the pandemic, both by highlighting changes in patterns and trends in causes of death and by exposing inequities in population health that may not have been apparent previously.

During 2020, the coronavirus disease 2019 (COVID-19) pandemic had a significant impact on mortality in Los Angeles County (LAC). COVID-19 was declared a global pandemic by the World Health Organization on March 11, 2020. The first confirmed case in LAC was reported on January 26, 2020,[1] and the first confirmed death of an LAC resident occurred on March 19, 2020,[2] the same week that a Safer-at-Home order was issued in the county.[3] Early in the pandemic, there were challenges with both testing accuracy and availability. Over the year, multiple Health Officer Orders were issued in response to the waxing and waning of the pandemic. People's behaviors related to COVID-19 protections also changed over the course of the year.

In this report, we present a brief overview of key patterns in mortality in LAC during 2020 using death certificate data.[†] All 2020 data presented in this report are provisional.[¥] Finalized data from 2019 are also presented to facilitate pre-pandemic comparisons. Weekly trends in mortality are presented by sex, age group, racial and ethnic groups, and geographic regions as defined by Service Planning Areas (SPAs). The leading causes of death are compared between 2020 and 2019, and COVID-19-specific mortality rates are also presented.

[†]Data presented in this report are based on death certificate data only and may differ from reports from programs within the Department of Public Health.

[¥]Provisional 2020 data do not include out-of-state deaths. Differences are expected to be minimal (<600 deaths) and not to affect overall patterns or trends. See Appendix A for more details.

[‡]All mortality rates presented in this report are age-adjusted to the 2000 US standard population, with the exception of age-specific rates.

Trends in Mortality, 2020 vs 2019

Overall County

In general, trends in mortality throughout 2020 were heavily influenced by the COVID-19 pandemic. Figure 1 shows 2020 COVID-19 and non-COVID-19 deaths compared to 2019 deaths on a weekly basis in tandem with pandemic milestones in LAC. There were greater than 16,500 more deaths among LAC residents in 2020 than in 2019 (81,083 vs 64,517, respectively), an increase of nearly 26%. Even after removal of all deaths directly attributable to COVID-19, there were 5,465 excess deaths in 2020 compared to 2019.

The age-adjusted all-cause mortality rate[‡] also increased dramatically, from 579 deaths per 100,000 in 2019 to 717 deaths per 100,000 in 2020, an increase of 24% (Appendix Table A1). This represents a reversal of the previous trend of a slight decline in annual all-cause mortality rate since 2015, when it was at 593 deaths per 100,000 (data not shown). Figure 2 shows the weekly age-adjusted all-cause mortality rates for 2020 and 2019.

Changes in weekly death rates appear to have been influenced by key pandemic milestones: prior to mid-March, when the first LAC resident COVID-19 death was reported, the weekly all-cause mortality rates were similar between 2020 and 2019. Starting the week of March 29, there was a marked increase in deaths from all causes in 2020 compared to 2019, which was sustained throughout the summer. For a brief two-week period in October, rates were again comparable between the two years.

Deaths began increasing rapidly again soon after, in what was referred to as "the winter surge," leading to a record number of deaths from all-causes. In the final week of 2019 (December 21-27), there were 1,393 deaths. In contrast, for the same week in 2020 (December 20-26), there were 3,080 deaths. The age-adjusted mortality rate for that week increased from 12.5 deaths per 100,000 in 2019 to 27.1 deaths per 100,000 in 2020, an increase of 117%.

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Figure 1. Weekly 2020 COVID-19 and non-COVID-19 Deaths vs. 2019 All-Cause Deaths, Los Angeles County
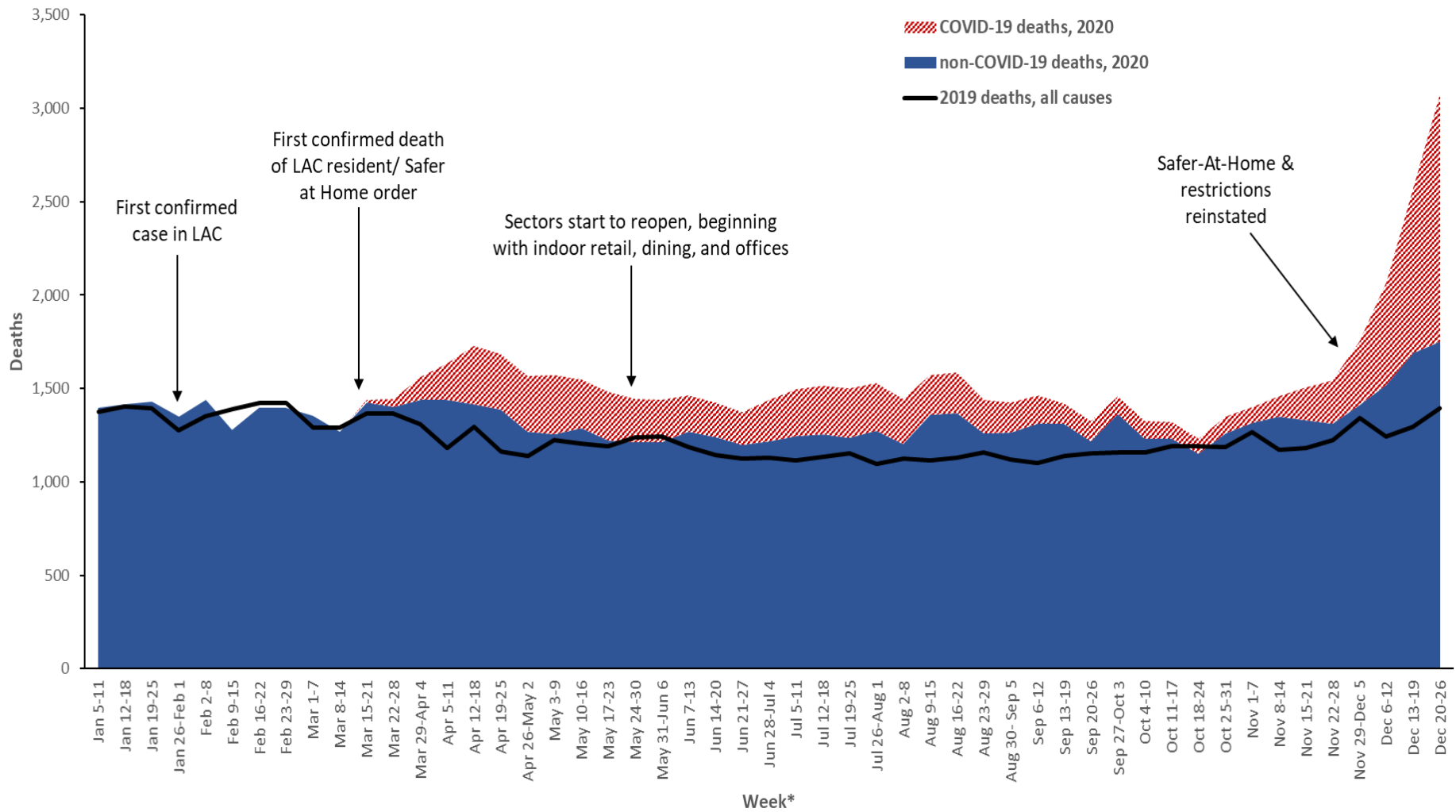
*Data are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g., January 11, 2020, corresponds to January 12, 2019. See Appendix A for more details.

Figure 2. Weekly All-Cause Mortality, Los Angeles County, 2020 vs 2019
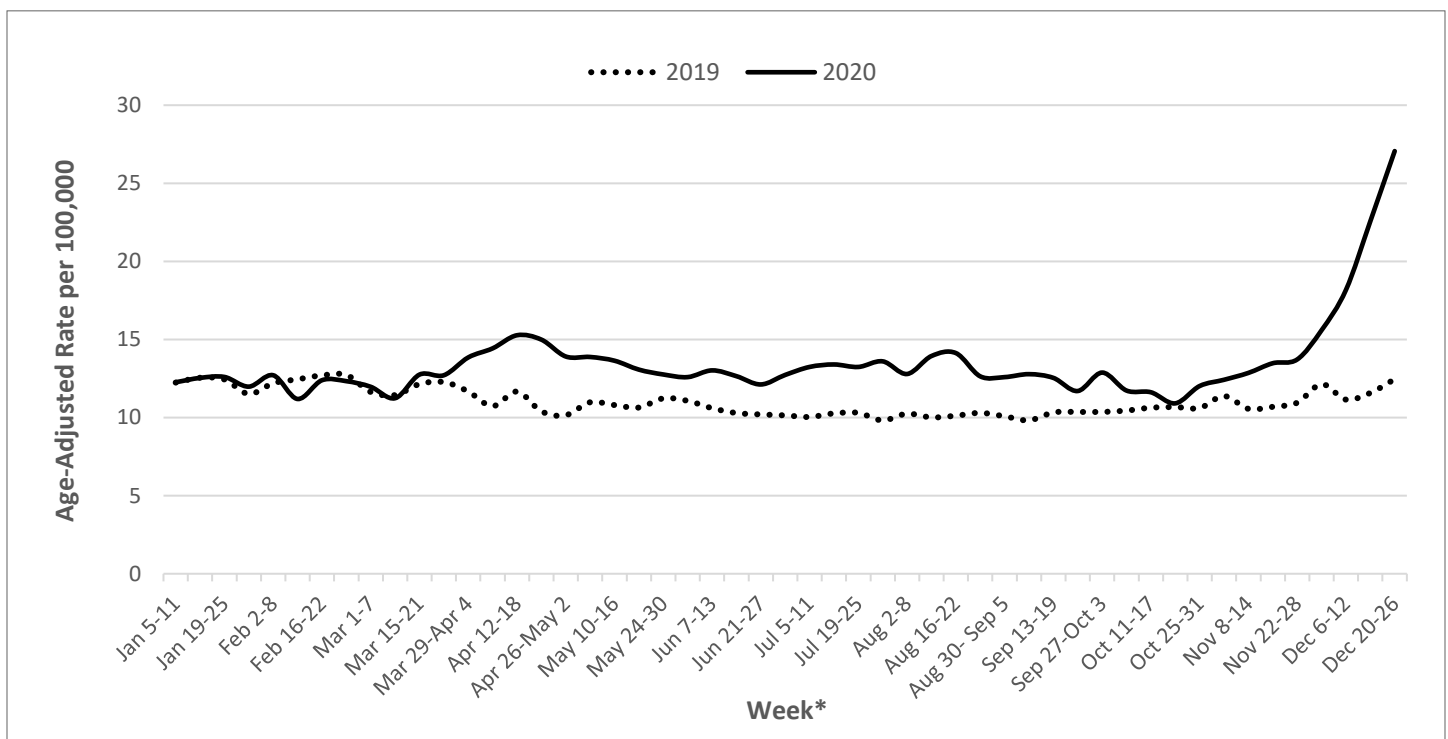
*Dates are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g., January 11, 2020, corresponds to January 12, 2019. See Appendix A for more details.

By Sex

All-cause mortality rates were higher among both males and females in 2020 compared to 2019 (Appendix Figure A1), with males experiencing a higher mortality rate compared to females: males experienced a mortality rate of 888 deaths per 100,000 in 2020, compared to a female mortality rate of 574 deaths per 100,000 (Appendix Table A1).

Similar to the pattern observed for the overall Los Angeles County population, the 2020 mortality rate increased for both sexes after March, before returning close to 2019 levels in October; the 2020 mortality rate then increased again sharply for both groups starting in November of 2020 and far surpassed the 2019 rates by the close of the year (Appendix Figure A1).

By Age Group

Age-specific mortality rates in 2020 ranged from 32 deaths per 100,000 for children under 18 years of age, to 4,155 deaths per 100,000 for those 65 years of age and older (Appendix Table A1).

For children under 18 years of age, the all-cause mortality rate throughout 2020 was generally similar to

what it had been throughout 2019. For all other age groups, the all-cause mortality rate was higher in 2020 compared to 2019 starting in April, following similar trends as the overall county (Appendix Figure A2).

By Service Planning Area (SPA)

West Los Angeles (LA) (SPA 5) had the smallest increase in all-cause mortality rates from 2019 to 2020 compared to the other SPAs (Appendix Table 1A).

Trends by SPA followed the same pattern as the overall county (Appendix Figure A3). Among the eight SPAs, Metro (SPA 4), South LA (SPA 6), and East LA (SPA 7) saw the greatest increases in mortality during the 2020 winter surge (November-December) compared to the corresponding weeks in 2019: Metro (SPA 4) experienced an increase of 166% in all-cause mortality rate in the last week of 2020 compared to 2019 (11 deaths per 100,000 vs. 28 deaths per 100,000, respectively), South LA (SPA 6) experienced an increase of 157% in all-cause mortality rate (16 deaths per 100,000 vs. 41 deaths per 100,000, respectively) while East LA (SPA 7) experienced an increase of 164% in all-cause mortality in that same week (13 deaths per 100,000 vs. 35 deaths per 100,000, respectively) (Appendix Figure A3).

By Race and Ethnicity

Overall, the all-cause mortality rate in 2020 among the racial and ethnic groups from highest to lowest were as follows: Native Hawaiians and Pacific Islanders (NHPI) (1,324 per 100,000), American Indians and Alaska Natives (AIAN) (1,138 per 100,000), Blacks (1,053 per 100,000), Latinos (725 per 100,000), Whites (698 per 100,000), and Asians (509 per 100,000) (Appendix Table A1).

Whites, Latinos, Blacks, and Asians all experienced higher all-cause mortality rates in 2020 compared to 2019 (Figure 3); the largest disparity in rates between 2019 and 2020 was seen among Blacks and Latinos, while the smallest difference was observed among Whites.

For most of 2020, the mortality rate was highest among Blacks and lowest among Asians. In early 2020, Whites had the second highest mortality rate, followed by Latinos.

However, after April 2020, the mortality rate among Latinos surpassed that of Whites, and by December 26, it was the highest among all four major racial and ethnic groups.

In the final full week of 2020 (Dec 20-26), the mortality rates among the four major racial and ethnic groups were: Latinos (34.3 deaths per 100,000), Blacks (33.6 deaths per 100,000), Whites (21.3 deaths per 100,000), and Asians (19.8 deaths per 100,000), corresponding to increases of 204%, 85%, 61%, and 126%, respectively, of the same week in 2019.

While we cannot present weekly results for the NHPI and AIAN populations due to the relatively small population sizes of these two groups, both groups also saw a marked increase in deaths in 2020: there were 269 deaths among NHPIs in 2020 compared to 214 in 2019, an increase of 26%. Similarly, AIANs experienced an increase in deaths of 25%, from 191 deaths in 2019 to 238 deaths in 2020 (Appendix Table A1).

Figure 3. Weekly All-Cause Mortality by Race and Ethnicity, Los Angeles County, 2020 vs 2019
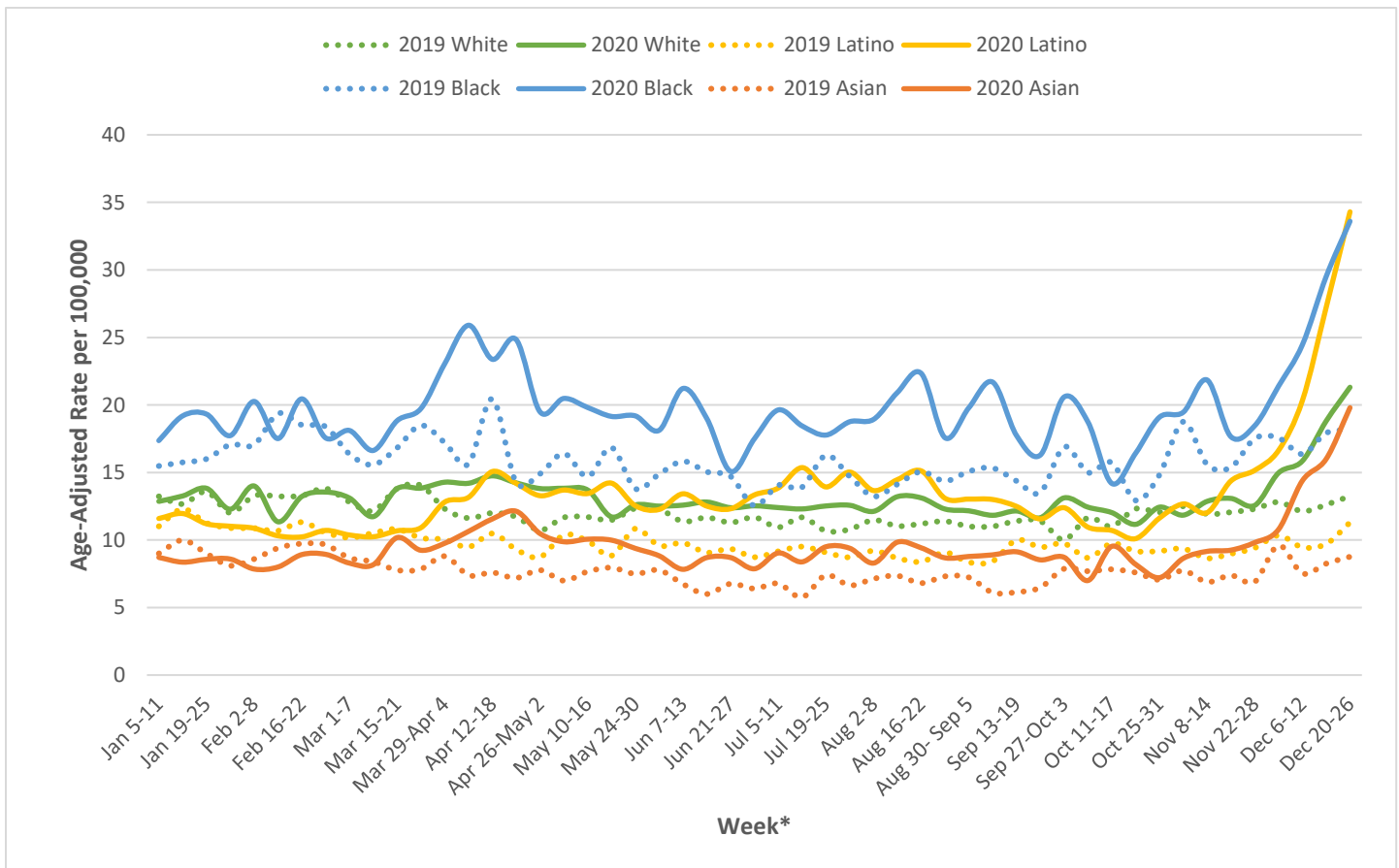
~Due to the relatively small number of annual deaths among Native Hawaiians and Pacific Islanders, and American Indians and Alaska Natives, weekly trends for these groups are not presented.

*Dates are for weeks in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g. January 11, 2020 corresponds to January 12, 2019.

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Table 1. Leading Causes of Death in Los Angeles County, 2020 vs 2019

Causes of Death	2020			2019			% Change in Deaths
	Rank	Deaths	AAMR	Rank	Deaths	AAMR	
Coronary Heart Disease	1	12,207	105.7	1	11,075	97.4	10.2%
COVID-19	2	11,101	97.5	--	--	--	--
Alzheimer's Disease	3	4,978	43.5	2	4,433	39.1	12.3%
Stroke	4	4,026	35.5	3	3,786	33.9	6.3%
Diabetes Mellitus	5	3,527	31.0	4	2,978	26.7	18.4%
COPD	6	2,775	24.6	5	2,821	25.6	-1.6%
Lung Cancer	7	2,334	20.5	6	2,373	21.7	-1.6%
Pneumonia/Influenza	8	2,140	18.9	7	1,815	16.2	17.9%
Drug Overdose	9	1,954	18.2	16	1,208	11.2	61.8%
Hypertension	10	1,747	15.1	8	1,537	13.6	13.7%
Colorectal Cancer	14	1,427	12.4	9	1,454	13.0	-1.9%
Liver Disease/Cirrhosis	11	1,610	14.0	10	1,417	12.3	13.6%

AAMR age-adjusted mortality rate; *COPD* chronic obstructive pulmonary disease

Leading causes of death are tabulated from the underlying cause of death field on the death certificate , only. As such, the number of COVID-19 deaths may differ from what has been previously reported by LAC Department of Public Health's Acute and Communicable Disease Control program. See Appendix A for more details.

Leading Causes of Death, 2020 vs 2019

Similar to 2019, the leading cause of death in Los Angeles County in 2020 was coronary heart disease (CHD), with a total of 12,207 deaths occurring from this cause among residents. Although CHD deaths had been on the decline over the past 10 years,[4] the number of deaths increased in 2020 by 10% from the previous year (Table 1).

COVID-19 was the second leading cause of death in Los Angeles County in 2020, with deaths from COVID-19 far surpassing deaths from Alzheimer's disease, stroke, and diabetes. The rank order for the other leading causes of death remained similar between 2019 and 2020, with the exception of unintentional drug overdose; deaths from drug overdose increased by 62% in 2020 compared to 2019, making unintentional drug overdose the 9th leading cause of death in 2020, up from the 16th leading cause of death in 2019.

These trends were generally the same across all sex, race and ethnicity, and SPA groups. Even in West LA (SPA 5), which saw minimal changes in all-cause death rates in 2020 compared to 2019, COVID-19 was the 3rd leading cause of death in 2020. Leading causes of death for these groups can be found in Appendix B.

The notable exception to this trend is among Latinos: COVID-19 was the top leading cause of death in 2020, with an age-adjusted mortality rate of 157 deaths per 100,000 and more than 2,500 more deaths than coronary heart disease (Appendix Table B4).

COVID-19 was a leading cause of death in 2020 among all adult age groups. Among those 15 – 24 years old, COVID-19 was the fifth leading cause of death, whereas for all other age groups (25 years and older), COVID-19 was either the leading or second leading cause of death (Appendix Tables B9-16).

In addition to unintentional drug overdoses, several of the leading causes of death also saw increases in 2020, including CHD, diabetes, and Alzheimer's disease (Table 1). Pneumonia and influenza deaths also increased in 2020, by 18%.

Finally, although not among the leading causes of death, homicide deaths increased by 31% from 2019 to 2020 (528 deaths to 693 deaths, respectively), while suicide deaths decreased by 4% between 2019 and 2020 (863 deaths to 828 deaths, respectively; data not shown).

Deaths from COVID-19

COVID-19 mortality rates are presented in Figure 4. The overall county age-adjusted mortality rate due to COVID-19 was 97 deaths per 100,000.

Wide disparities in COVID-19 mortality rates were observed by sex, race and ethnicity, and SPA. Males had nearly double the COVID-19 mortality rate of females (132 deaths per 100,000 vs 69 deaths per 100,000, respectively).

Among racial and ethnic groups, Whites had the lowest COVID-19 mortality rate (52 deaths per 100,000), while NHPIs had the highest mortality rate (195 deaths per 100,000) and Latinos the second highest (157 deaths per 100,000), approximately four times higher and three times higher, respectively, than the COVID-19 mortality rate among Whites.

Among SPAs, SPA 5 (West) had the lowest COVID-19 mortality rate (34 deaths per 100,000), while SPA 6 (South) had the highest (170 deaths per 100,000).

Figure 4. COVID-19 Mortality Rates by Demographic Group and Service Planning Area, Los Angeles County, 2020
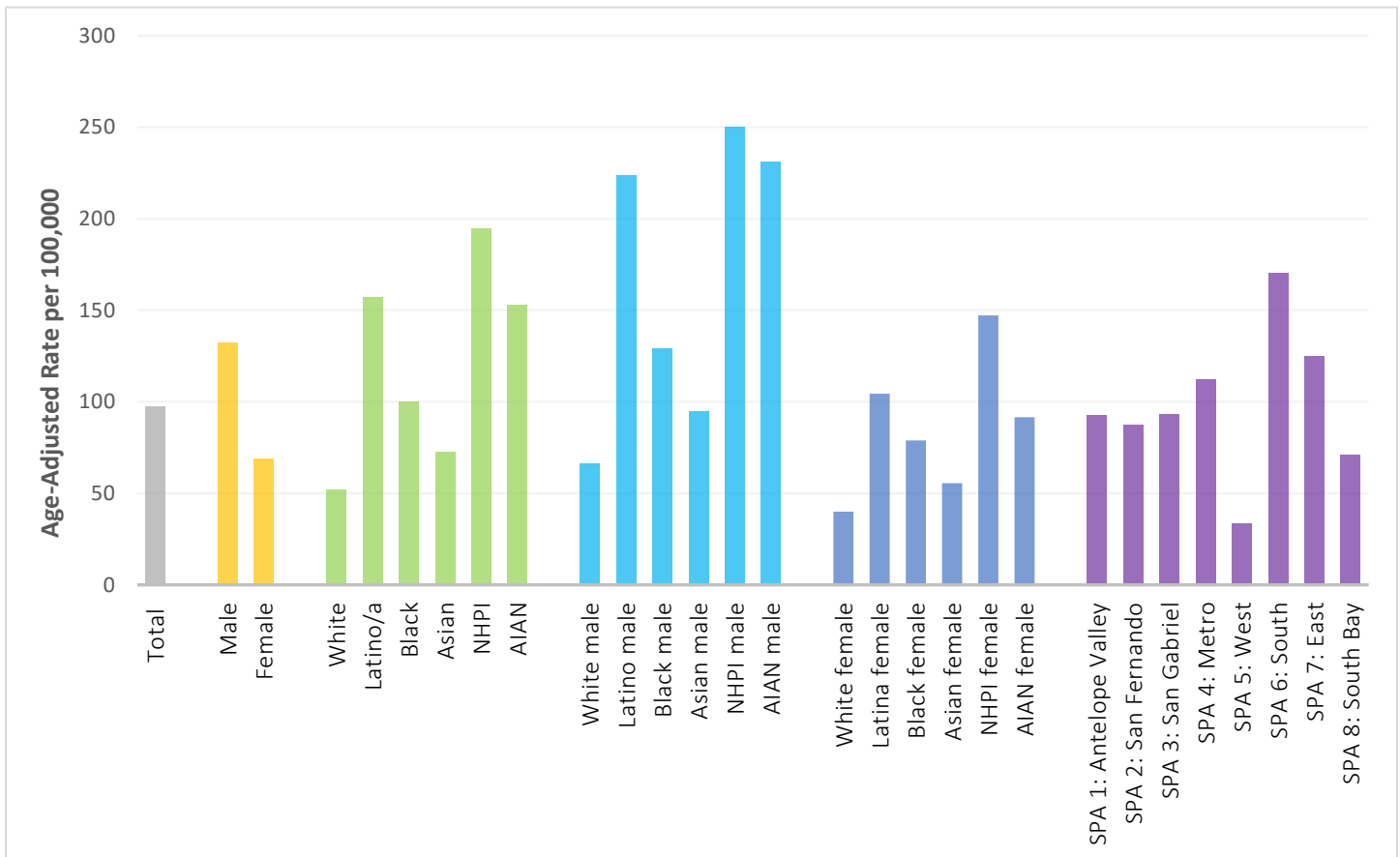
NHPI Native Hawaiian and Pacific Islander; *AIAN* American Indian and Alaska Native; *SPA* Service Planning Area
Rates for NHPI females and AIAN females are statistically unreliable and should be interpreted with caution (based on <20 deaths)

Place of Death, 2020 vs 2019

In contrast to non-COVID-19 causes of death, the vast majority of COVID-19 deaths in 2020 occurred in hospitalized patients (78% of COVID-19 deaths vs 31% non-COVID-19 deaths; Figure 5). A majority of deaths due to non-COVID-19 causes occurred outside of the hospital, with the exception of pneumonia and influenza, for which 86% of 2020 deaths occurred in the hospital (data not shown).

Among non-COVID-19 causes of death, the total proportion of out-of-hospital deaths increased from 59% in 2019 to 63% in 2020; this pattern was observed even for pneumonia and influenza deaths, which saw an increase from 12% occurring out-of-hospital in 2019 to 14% occurring out-of-hospital in 2020.

Figure 5. Place of Death for COVID-19 and non-COVID-19 Causes, Los Angeles County, 2020

Non-COVID-19 Deaths

COVID-19 Deaths

Legend:
- Hospital: ER
- Hospital: Inpatient
- Home
- Hospice
- Nursing Facility
- Out of Hospital, Other
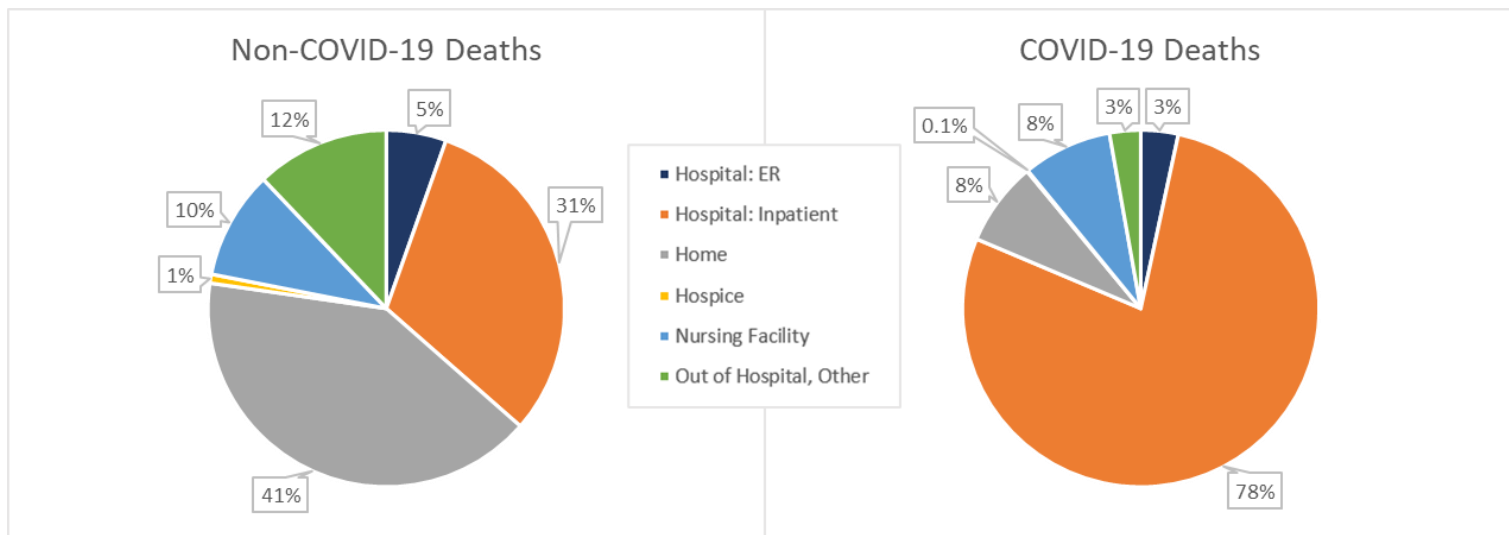
Percentages may not total to 100 due to rounding

Figure 6 shows a weekly comparison of the proportion of out-of-hospital deaths for non-COVID-19 causes in 2020 vs. all causes in 2019. From mid-March through December, a much larger proportion of non-COVID-19 deaths occurred out-of-hospital in 2020 compared to proportion of out-of-hospital deaths from all causes in 2019. By the end of 2020, 70% of non-COVID-19 deaths were occurring outside of hospitals.

Figure 6. Weekly COVID-19 Deaths Compared to Proportion of Out-Of-Hospital Deaths, 2020 vs 2019
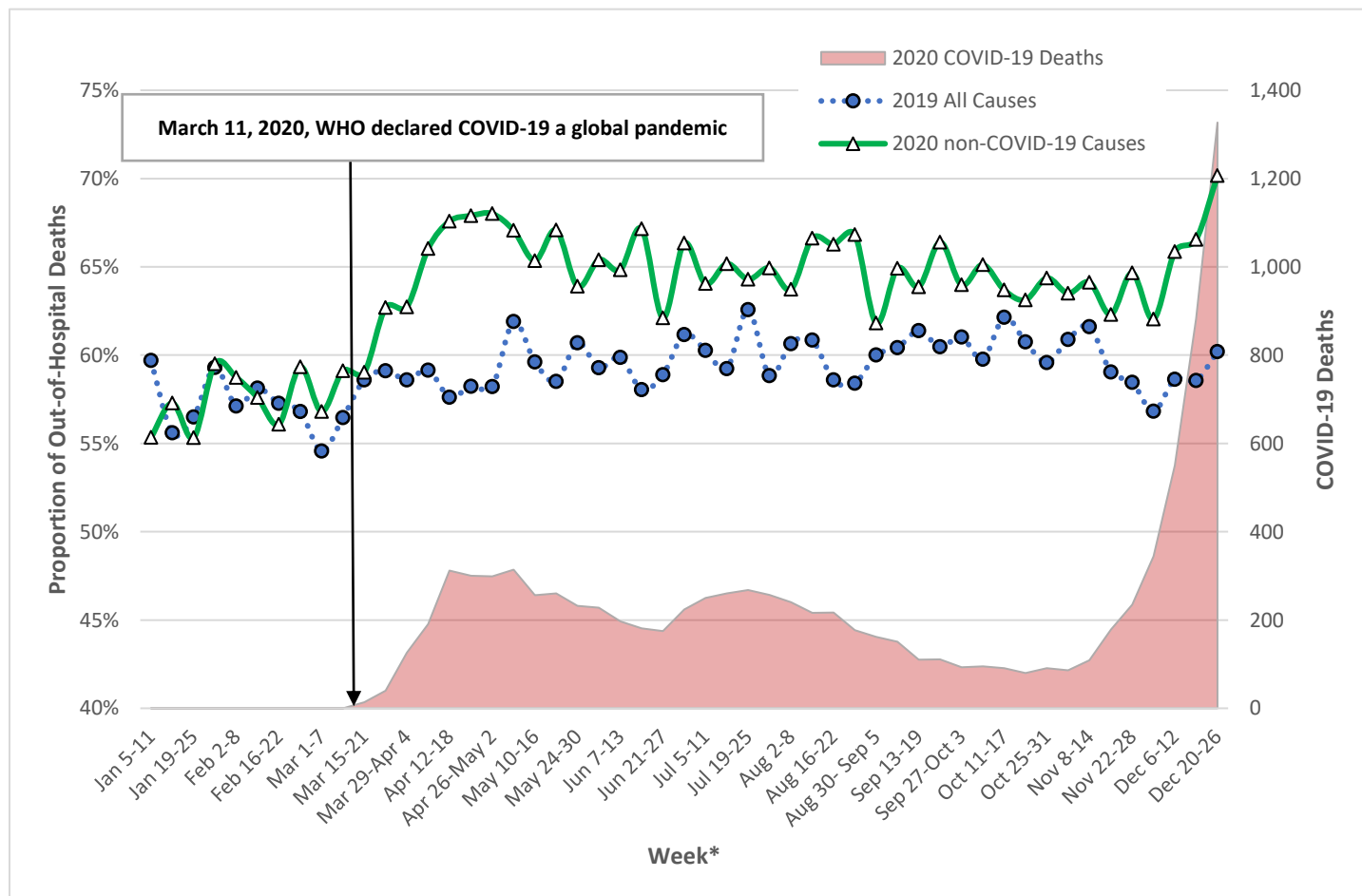
*Dates are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g. January 11, 2020 corresponds to January 12, 2019. See Appendix A for more details.

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Discussion

Substantial increases in mortality were observed in Los Angeles County in 2020 compared to 2019. A total of 81,083 deaths occurred in 2020, an increase of 26% from the previous year. COVID-19 accounted for the majority, but not all, of these excess deaths, further underscoring the magnitude of the pandemic's impact on the LAC population. There was also evidence of widening of pre-pandemic disparities in mortality by sex, and race and ethnicity in LAC during 2020, largely driven by the variations in COVID-19 mortality rates among these groups. All-cause age-adjusted mortality rates were significantly higher in 2020 than in 2019 among both males and females, with males experiencing much higher mortality rates than females throughout 2020. Similarly, while Whites, Blacks, Latinos, and Asians all experienced higher all-cause mortality rates in 2020 compared to 2019, during 2020, COVID-19 mortality rates were substantially higher among Blacks and Latinos, compared to Asians and Whites. Most notable were the increases observed among Latinos, a group that, pre-pandemic, experienced much lower age-adjusted mortality rates compared to Whites and Blacks. By the end of 2020, the all-cause mortality rate was highest among Latinos compared to Whites, Blacks, and Asians. This reversal in historical trends for Latinos was largely due to the high COVID-19 mortality rate experienced by this group: the COVID-19 mortality rate was three times higher among Latinos than Whites, and COVID-19 ranked as the first leading cause of deaths for Latinos in 2020 (whereas for other racial and ethnic groups, it ranked as the second or third leading cause). All-cause mortality and COVID-19 mortality rates in 2020 were also disproportionately higher among NHPIs and AIANs. These racial and ethnic disparities in all-cause and COVID-19 mortality rates are rooted in inequitable social conditions, including structural racism, access to healthcare and other resources, and likely reduced protections from COVID-19 related to housing and employment.[5-7]

Disparities in all-cause and COVID-19 mortality were also apparent by geographic region. Notably, all-cause mortality rates in West LA (SPA 5) were strikingly similar between 2020 and 2019, whereas all other SPAs experienced significantly higher all-cause mortality rates in 2020 versus 2019 (especially SPAs 4 and 6). These differences can partially be explained by variations in socioeconomic status, as SPA 5 encompasses some of the most affluent communities in LAC with relatively large populations of higher-income individuals compared to the rest of the county. This is in line with previous findings that more affluent communities were less impacted.[8]

Significant increases in all-cause mortality in 2020 vs. 2019 were also observed among all age groups, except among the youngest (i.e., 17 years and younger; this group experienced very few COVID-19 deaths). Even among younger adults (i.e., 18 – 44-year-olds), the all-cause mortality rate increased by 36% in 2020 compared to 2019, a larger percent increase than that observed for the 45 – 64-year age group. These findings are unexpected given that younger adults were initially thought to be at lower risk for severe outcomes from COVID-19. One possible explanation is low adherence to recommended social distancing practices.[9] Among 25 – 44-year-olds, all but three other leading causes of death saw significant increases from 2019 to 2020.

The pandemic also brought about a shift in the leading causes of death for LAC in 2020. COVID-19 emerged as the second leading cause of death in 2020, displacing Alzheimer's disease for the first time in 6 years. The number of deaths for most of the historic leading causes of death in LAC also increased in 2020 compared to 2019, including for coronary heart disease, Alzheimer's disease, stroke, diabetes mellitus, pneumonia and influenza, hypertension, and liver disease/cirrhosis. These increases could in part be attributable to changes in health seeking behavior that have been well documented during the pandemic, namely delaying or forgoing needed healthcare.[10,11] For some of these causes (e.g., coronary heart disease, stroke), the increases may also reflect the elevated risk of cardiovascular disease that has been a documented sequela of COVID-19 infection.[12] The increase in deaths from pneumonia and influenza may in part indicate potential misclassification of deaths actually attributable to COVID-19, especially given the limited availability of testing during the beginning of 2020.

Notably, unintentional drug overdose became a top leading cause of death in LAC for the first time in 2020, climbing from the 16th leading cause of death in 2019 to the 9th leading cause of death in 2020. During 2020, deaths from drug overdose in LAC increased by an astounding 62% compared to the 2019 numbers. This finding is consistent with what has been documented nationwide and has been attributed to pandemic-related

increases in self-reported drug and alcohol use, social isolation due to social distancing requirements, increases in stress and boredom, and the circulation of more potent synthetic opioids in local drug supplies.[13-15]

While not among the leading causes of death, notable trends in the number of homicides and suicides were also observed in LAC between 2020 and 2019. Homicides increased by 31% while suicides decreased by 4%, consistent with national trends for this same period.[16,17] The reasons for these changes remain unknown. It is speculated that the economic hardships brought about by the pandemic may have contributed to the increase in homicides, as spikes in homicides have been observed during other periods of stress.[18] It is also important to note that while deaths from suicide as a whole decreased throughout the US in 2020 compared to 2019, one report noted an increase in suicide deaths among certain subgroups, namely among Latino males, non-Latino Black males, and non-Latino AIAN males.[19] Other studies have documented profound adverse mental health impacts due to the pandemic, which has likely contributed to observed adverse physical health effects.[20]

The proportion of out-of-hospital deaths from non-COVID-19 causes also increased significantly between 2020 and 2019 in LAC, signaling a shift in healthcare seeking behavior during the pandemic that was also observed across the US. Studies examining national data have shown that emergency department visits decreased significantly, even among those who typically would have been admitted to the hospital;[21] fewer adults received routine cancer screenings and other preventive health services, and many missed scheduled appointments.[22] More than one in three non-elderly adults (36%) reported delaying or forgoing health care because of worry about exposure to the coronavirus or because healthcare providers' limited services during the pandemic.[10] These factors combined may also explain the observed increases in several of the historic leading causes of death that were observed in LAC between 2020 and 2019.

In summary, this brief report provides an overview of key trends in mortality in LAC in 2020 using provisional death certificate data. Though based on provisional data, the report findings still demonstrate that the COVID-19 pandemic brought about substantial shifts in historic mortality patterns in the county, including increases in all-cause mortality rates and numbers of deaths for many of the leading causes of death and widening of disparities in mortality by sex and by race and ethnicity. This data can inform the pandemic response and recovery efforts and underscore the importance of addressing the inequitable social conditions that have contributed to increased mortality risks for certain groups during the pandemic.

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Appendix A: Technical Notes

Provisional Death Data

When a death occurs in California, state law requires that a death certificate be registered within eight days of death and before a decedent is buried or cremated. The death certificate is a legal document that serves as a permanent record of the death of an individual. When the death certificate is complete, it is registered with the local registrar using the Electronic Death Registration System.[1] Then, the local registrar submits the document to the State Registrar of Vital Records and it is registered by the state. Death certificates are submitted in batches to the National Center for Health Statistics to process the text fields for all listed causes of death in order to include ICD-10 codes and the underlying cause of death. State records are available immediately upon registration, however deaths which occur outside the state of residence must be requested separately from the state and as such are delayed. This brief report uses provisional information obtained from certificates of death for only Los Angeles County residents who died within California state lines in 2020. However, we expect fewer than 600 deaths to have occurred outside the state, based on previous years. Analysis of 2017-2019 deaths have determined that omission of out-of-state deaths does not affect overall trends nor leading causes of death. We use complete and finalized 2019 data for comparison, including out-of-state deaths.

Classification of Deaths

This report provides the number of deaths and death rates for the leading causes of death in 2020 and 2019 for Los Angeles County residents. The variables included in the analysis are age at death, sex, race and ethnicity, Service Planning Area of residence, and the underlying cause of death. Mid-year population estimates of Los Angeles County residents were used to calculate death rates.[2] Race and ethnicity categories were considered as mutually exclusive. If Hispanic was marked on the death certificate, the decedent was categorized as Latino regardless of race. All race categories (White, Black, Asian, Native Hawaiian and Pacific Islander, and American Indian and Alaska Native) are non-Hispanic in this report. If more than one race was reported, the first reported race was used for this categorization. Geography for Los Angeles County Service Planning Areas was defined according to 2012 boundaries. To protect the identity of decedents, the exact number of deaths was not provided if there were fewer than eleven deaths in a particular group.

A standardized coding system, the International Classification of Diseases Tenth Revision (ICD-10), was used to classify causes of death.[3] Similar causes of death were grouped into categories for analysis in accordance with prior publications.[4] To identify the leading causes of death, cause-of-death groups were ranked by the number of deaths in each group. If there are ties, rankings continue as if there were none. For example, if three causes of death tie for 2nd, the next cause of death would be ranked as 5th. This ranking method differs from previously published reports and may not match prior publications. When a person dies, it is likely that several factors or conditions contributed to the death. For this report, we analyzed the underlying cause of death, which is the condition that most directly caused the death. By using a single cause of death rather than considering all conditions present at the time of death, the number of deaths and rates in this report do not reflect the full impact of certain diseases and conditions.[5] For some deaths, particularly COVID-19 deaths, this means our counts may be different than those reported previously by our department, as the definitions are not the same.

MMWR Weeks

In this report, we followed weekly trends to compare 2020 to 2019 along with milestones of the pandemic. Weeks were defined from Saturday to Sunday. Defining weeks this way is in line with the Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report (MMWR) weeks. The MMWR week is the week of the epidemiologic year for which the National Notifiable Diseases Surveillance System (NNDSS) disease report is assigned by the reporting local or state health department for the purposes of MMWR disease incidence reporting and publishing. Values for MMWR week range from 1 to 53, although most years consist of 52 weeks.[6] Dates in this report are presented for weeks in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which, they are lagged by two (2) days (e.g., January 11, 2020, corresponds to January 12, 2019). As the first week of both 2019 and 2020 overlapped with preceding years, and week 53 of 2020 overlapped with 2021, these weeks were excluded.

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[1] The Electronic Death Registration System (EDRS) is an internet system for death certificate origination and registration that enables coroners, funeral directors, doctors, and hospitals to submit death certificates for registration 24 hours per day. EDRS was first implemented in Los Angeles County in October 2007.

[2] July 1, 2019-2020 Population Estimates, prepared by Hedderson Demographic Services for Los Angeles County Internal Services Department. The 2020 estimates are provisional and have not been benchmarked to the 2020 US decennial census count.

[3] International statistical classification of diseases and related health problems, tenth revision. Geneva: World Health Organization, 1996.

[4] Patterns in Mortality and Life Expectancy in Los Angeles County, 2010-2019. Los Angeles County Department of Public Health. Office of Health Assessment and Epidemiology. May 2022.

[5] Redelings MD, Sorvillo F, Simon P. A comparison of underlying cause and multiple causes of death: U.S. vital statistics, 2000-2001. Epidemiology. 2006 Jan;17(1):100-3.

[6] MMWR Week Fact Sheet. National Notifiable Diseases Surveillance System, Division of Health Informatics and Surveillance, National Center for Surveillance, Epidemiology and Laboratory Services. Downloaded from https://ndc.services.cdc.gov/wp-content/uploads/MMWR_Week_overview.pdf on 2/3/2022.

Figure A1. Weekly All-Cause Mortality by Sex, Los Angeles County, 2020 vs 2019
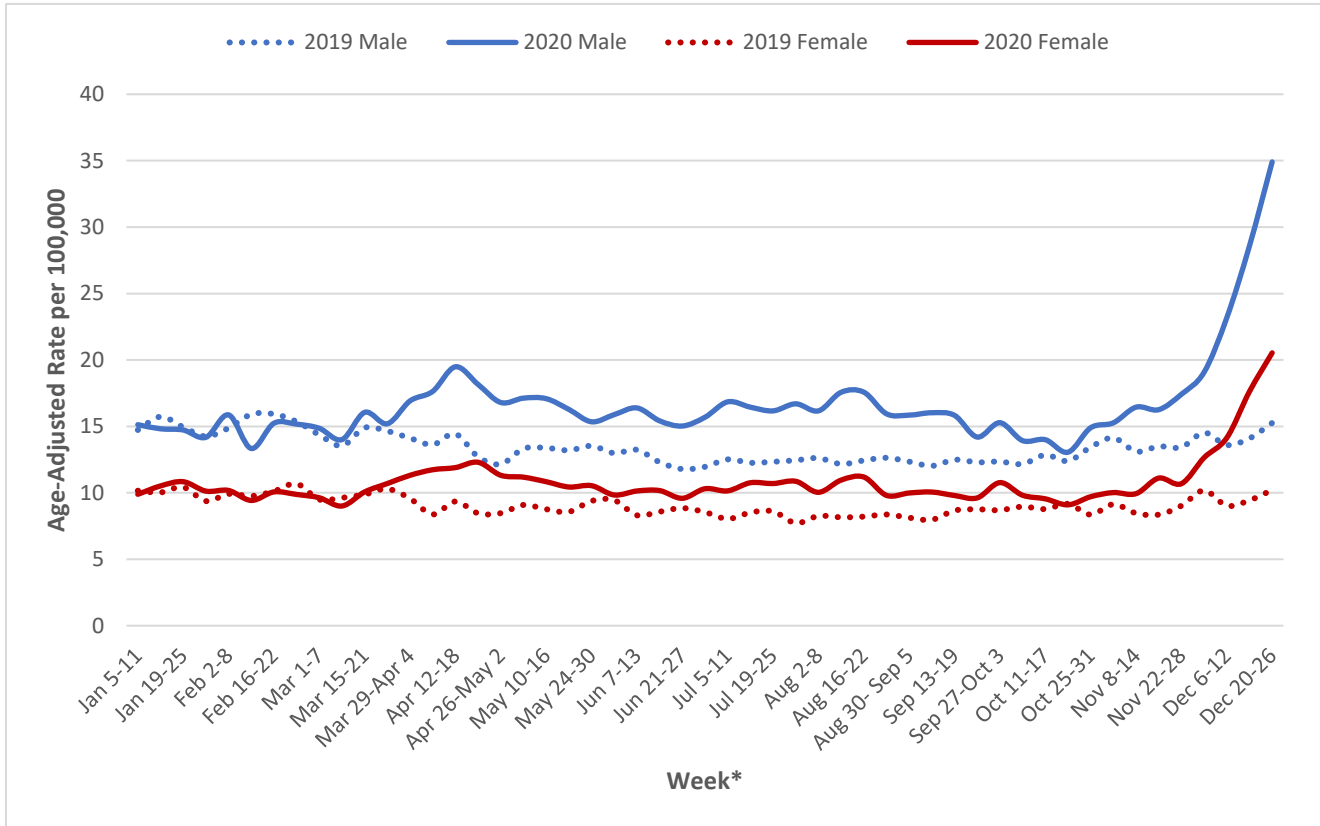
*Dates are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g. January 11, 2020 corresponds to January 12, 2019. See Appendix A: Technical Notes for more details.

Table A1. Mortality of Demographic Groups and Service Planning Areas, Los Angeles County, 2020 vs 2019

Group	2020*		2019		% Change in MR
	Deaths	MR**	Deaths	MR**	
Overall County	81,083	716.7	64,517	578.9	23.8%
Sex					
Male	43,606	888.3	33,916	706.3	25.8%
Female	37,477	573.5	30,601	474.3	20.9%
Age Group					
Less than 18 years	676	31.8	672	30.7	3.5%
18-44 years	5,304	135.1	3,969	99.7	35.5%
45-64 years	15,860	587.3	12,280	451.9	30.0%
65 years and older	59,243	4155.2	47,596	3465.0	19.9%
Race and Ethnicity					
White	31,484	697.5	28,496	630.2	10.7%
Latino/a	27,084	724.9	18,583	511.1	41.8%
Black	10,398	1052.6	8,317	835.2	26.0%
Asian	11,082	508.5	8,341	403.0	26.2%
American Indian and Alaska Native	238	1137.9	191	697.3	63.2%
Native Hawaiian and Pacific Islander	269	1324.4	214	956.2	38.5%
SPA					
1 (Antelope Valley)	3,446	944.8	2,870	792.9	19.2%
2 (San Fernando)	16,935	675.2	14,103	560.5	20.5%
3 (San Gabriel)	14,838	664.6	12,229	548.9	21.1%
4 (Metro)	8,396	659.5	6,481	509.1	29.5%
5 (West)	4,367	505.9	4,088	471.8	7.2%
6 (South)	8,087	953.1	6,107	724.7	31.5%
7 (East)	10,073	745.8	8,016	595.3	25.3%
8 (South Bay)	12,373	713.4	10,623	611.2	16.7%

MR mortality rate; *SPA* service planning area
*Data for 2020 does not include out-of-state deaths of Los Angeles County residents.
**Mortality rates are age-adjusted to the 2000 US standard population except for age-specific rates.

Figure A2. Weekly All-Cause Mortality by Age Group, Los Angeles County, 2020 vs 2019
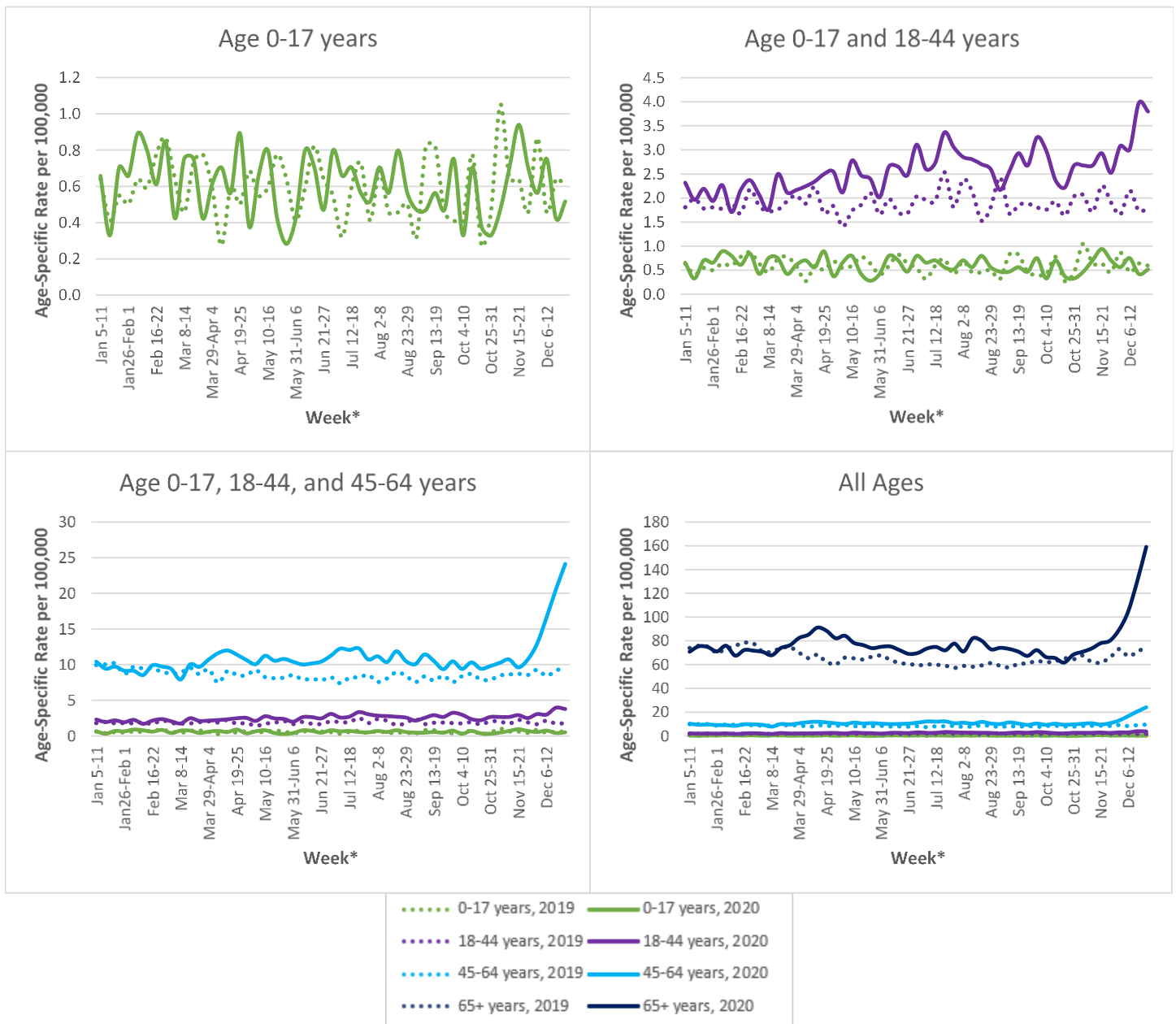
*Dates are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g. January 11, 2020 corresponds to January 12, 2019. See Appendix A: Technical Notes for more details.

Figure A3. Weekly All-Cause Mortality by Service Planning Area (SPA), Los Angeles County, 2020 vs 2019

······ 2019 ——— 2020

*Dates are for weeks (Sun-Sat) in 2020. Corresponding dates for 2019 are lagged by one (1) day from January to February 29, after which they are lagged by two (2) days. e.g. January 11, 2020 corresponds to January 12, 2019. See Appendix A: Technical Notes for more details.

Appendix B: Leading Causes of Death, Los Angeles County, 2020 vs 2019[‡]

B1: Male

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
Coronary Heart Disease	1	7,039	142.0	1	6,439	132.5	7.2%
COVID-19	2	6,586	132.2	--	--	--	--
Diabetes Mellitus	3	1,950	38.7	3	1,647	33.4	16.1%
Stroke	4	1,836	38.5	2	1,690	36.1	6.5%
Alzheimer's Disease	5	1,609	36.7	4	1,472	33.9	8.3%
Drug Overdose (Unintentional)	6	1,506	28.1	8	940	17.5	60.6%
COPD	7	1,412	30.3	5	1,399	30.7	-1.5%
Lung Cancer	8	1,291	26.2	6	1,324	28.2	-7.3%
Pneumonia/Influenza	9	1,133	24.2	9	923	20.2	19.6%
Liver Disease/Cirrhosis	10	1,069	19.5	7	944	17.3	12.2%

B2: Female

Causes of Death	2020			2019			% Change In AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
Coronary Heart Disease	1	5,168	76.4	1	4,636	69.4	10.0%
COVID-19	2	4,515	69.1	--	--	--	--
Alzheimer's Disease	3	3,369	47.6	2	2,961	42.1	12.9%
Stroke	4	2,190	32.7	3	2,096	31.7	3.2%
Diabetes Mellitus	5	1,577	24.7	5	1,331	21.2	16.2%
COPD	6	1,363	20.5	4	1,422	21.9	-6.4%
Breast Cancer	7	1,135	18.0	6	1,193	19.1	-5.8%
Lung Cancer	8	1,043	16.3	7	1,049	16.7	-2.5%
Pneumonia/Influenza	9	1,007	15.1	8	892	13.3	13.7%
Hypertension	10	889	13.0	9	776	11.7	11.7%

B3: White

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
Coronary Heart Disease	1	5,344	113.0	1	5,264	111.7	1.2%
Alzheimer's Disease	2	2,604	52.3	2	2,488	49.8	5.0%
COVID-19	3	2,392	51.8	--	--	--	--
COPD	4	1,611	34.4	3	1,668	35.9	-4.3%
Stroke	5	1,512	32.2	4	1,513	31.8	1.3%
Lung Cancer	6	1,074	23.6	5	1,148	25.8	-8.6%
Diabetes Mellitus	7	881	19.5	6	836	18.9	3.3%
Pneumonia/Influenza	8	823	17.5	7	753	16.0	9.6%
Drug Overdose (Unintentional)	9	754	25.6	13	501	16.6	54.6%
Hypertensive Heart Disease	10	683	14.1	10	561	11.5	23.3%

COPD chronic obstructive pulmonary disease

[‡]Presented percent changes in rate are based on more precise data and may differ due to rounding.

[*]Age-adjusted mortality rate per 100,000 using the 2000 US standard population.

B4: Latino/a

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
COVID-19	1	5,927	157.2	--	--	--	--
Coronary Heart Disease	2	3,279	91.5	1	2,670	76.1	20.3%
Diabetes Mellitus	3	1,482	40.2	2	1,211	33.7	19.5%
Stroke	4	1,207	34.6	3	1,150	34.0	1.6%
Alzheimer's Disease	5	1,161	37.1	4	943	30.5	21.6%
Liver Disease/Cirrhosis	6	895	20.6	5	836	19.9	3.6%
Drug Overdose (Unintentional)	7	755	14.4	9	456	8.9	63.0%
Pneumonia/Influenza	8	597	17.3	8	485	14.5	19.5%
Renal Failure	9	539	15.0	7	486	13.7	9.2%
Hypertension	10	512	14.5	11	426	12.5	16.1%

B5: Black

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
Coronary Heart Disease	1	1,704	166.1	1	1,547	148.6	11.8%
COVID-19	2	1,002	99.9	--	--	--	--
Stroke	3	553	55.5	2	495	50.3	10.5%
Diabetes Mellitus	3	553	55.4	4	419	40.9	35.6%
Alzheimer's Disease	5	508	53.0	3	453	46.9	13.0%
COPD	6	415	40.6	5	351	34.3	18.3%
Drug Overdose (Unintentional)	7	339	36.8	11	191	20.7	77.8%
Lung Cancer	8	330	31.6	6	315	31.3	1.2%
Hypertension	9	317	31.4	7	257	25.6	22.5%
Pneumonia/Influenza	10	258	25.5	10	196	19.1	34.0%

B6: Asian

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
Coronary Heart Disease	1	1,709	76.5	1	1,456	68.0	12.4%
COVID-19	2	1,618	72.6	--	--	--	--
Stroke	3	702	32.1	2	585	27.8	15.4%
Alzheimer's Disease	4	663	27.8	3	514	22.7	22.2%
Diabetes Mellitus	5	555	25.5	4	469	22.5	13.0%
Lung Cancer	6	465	21.4	5	439	21.3	0.6%
Pneumonia/Influenza	7	433	19.1	6	364	16.7	14.3%
Hypertension	8	278	12.0	9	225	10.3	16.1%
Colorectal Cancer	9	268	12.2	8	259	13.0	-6.0%
COPD	10	250	10.9	7	269	12.5	-12.7%

COPD chronic obstructive pulmonary disease
*Age-adjusted mortality rate per 100,000 using the 2000 US standard population.

B7: Native Hawaiian and Pacific Islander

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
Coronary Heart Disease	1	52	242.4	1	37	166.9	45.2%
COVID-19	2	43	194.8	--	--	--	--
Diabetes Mellitus	3	23	105.4	3	13	53.3	97.8%
Stroke	4	11	60.2	5	<11	--	--
Renal Failure	5	<11	--	5	<11	--	--
Alzheimer's Disease	6	<11	--	9	<11	--	--
COPD	7	<11	--	9	<11	--	--
Drug Overdose (Unintentional)	8	<11	--	13	<11	--	--
Hypertension	9	<11	--	7	<11	--	--
Breast Cancer	9	<11	--	4	<11	--	--

B8: American Indian and Alaska Native

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
Coronary Heart Disease	1	35	188.8	1	35	124.2	52.0%
COVID-19	2	32	153.1	--	--	--	--
Alzheimer's Disease	3	17	104.9	7	<11	--	--
Liver Disease/Cirrhosis	4	14	52.6	6	<11	--	--
Stroke	5	13	62.7	7	<11	--	--
Diabetes Mellitus	6	12	61.7	5	<11	--	--
Hypertensive Heart Disease	7	<11	--	16	<11	--	--
Drug Overdose (Unintentional)	7	<11	--	3	11	39.7	--
Lung Cancer	7	<11	--	3	11	38.7	--
COPD	10	<11	--	2	16	62.2	--

B9: Age Less than 1 Year

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR**	Rank	Deaths	MR**	
Extremely Low Birth Weight or Extreme Immaturity	1	65	69.0	1	61	61.8	11.5%
Sudden Infant Death Syndrome	2	32	34.0	2	33	33.4	1.5%
Congenital Malformations of Heart	3	18	19.1	3	24	24.3	-21.5%
Edward Syndrome	4	11	11.7	4	15	15.2	-23.2%
Newborn Affected by Complications Involving Placenta	4	11	11.7	10	<11	--	--
Newborn Affected by Premature Rupture of Membranes	4	11	11.7	5	14	14.2	-17.7%
Respiratory Distress of Newborn	7	<11	--	10	<11	--	--
Accidental Suffocation and Strangulation in Bed	8	<11	--	7	11	11.1	--
Atelectasis	8	<11	--	17	<11	--	--
Neonatal Hemorrhage	8	<11	--	19	<11	--	--

COPD chronic obstructive pulmonary disease
*Age-adjusted mortality rate per 100,000 using the 2000 US standard population.
**Age-specific mortality rate per 100,000.
Rates based on a small number of deaths (<20) may be statistically unreliable and should be interpreted cautiously. Rates not presented for fewer than 11 deaths to protect confidentiality.

B10: Age 1-4 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Accidental Drowning and Submersion	1	11	2.7	1	<11	--	--
Malignant Neoplasms of Meninges, Brain and Other Parts of Central Nervous System	2	<11	--	5	<11	--	--
Pneumonia/Influenza	3	<11	--	6	<11	--	--
Homicide	4	<11	--	3	<11	--	--
Motor Vehicle Crash	4	<11	--	4	<11	--	--
Leukemia	6	<11	--	6	<11	--	--
Accidental Discharge of Firearms	7	<11	--	--	--	--	--
Accidental Exposure to Smoke, Fire and Flames	7	<11	--	--	--	--	--
Acute Bronchitis and Bronchiolitis	7	<11	--	--	--	--	--
COVID-19	7	<11	--	--	--	--	--

B11: Age 5-14 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Suicide	1	14	1.1	8	<11	--	--
Motor Vehicle Crash	2	13	1.0	1	16	1.3	-16.8%
Homicide	3	11	0.9	4	<11	--	--
Malignant Neoplasms of Meninges, Brain and Other Parts of Central Nervous System	4	<11	--	3	<11	--	--
Leukemia	5	<11	--	4	<11	--	--
Drug Overdose (Unintentional)	6	<11	--	12	<11	--	--
Pneumonia/Influenza	6	<11	--	12	<11	--	--
Falls	8	<11	--	12	<11	--	--
Accidental Exposure to Smoke, Fire and Flames	9	<11	--	--	--	--	--
Asthma	9	<11	--	12	<11	--	--

B12: Age 15-24 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Drug Overdose (Unintentional)	1	236	17.2	1	137	9.7	76.3%
Motor Vehicle Crash	2	148	10.8	2	126	9.0	20.2%
Homicide	3	138	10.0	3	116	8.3	21.8%
Suicide	4	89	6.5	4	98	7.0	-7.0%
COVID-19	5	27	2.0	--	--	--	--
Diabetes Mellitus	6	13	0.9	11	<11	--	--
Malignant Neoplasms of Meninges, Brain and Other Parts of Central Nervous System	7	<11	--	6	<11	--	--
Leukemia	8	<11	--	5	24	1.7	--
Stroke	9	<11	--	9	<11	--	--
Accidental Drowning and Submersion	10	<11	--	11	<11	--	--

*Age-specific mortality rate per 100,000. Rates based on a small number of deaths (<20) may be statistically unreliable and should be interpreted cautiously. Rates not presented for fewer than 11 deaths to protect confidentiality.

B13: Age 25-44 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Drug Overdose (Unintentional)	1	866	29.6	1	521	17.6	67.9%
COVID-19	2	458	15.7	--	--	--	--
Homicide	3	348	11.9	4	260	8.8	35.2%
Motor Vehicle Crash	4	341	11.7	3	290	9.8	18.7%
Suicide	5	295	10.1	2	296	10.0	0.7%
Liver Disease/Cirrhosis	6	225	7.7	5	176	6.0	29.0%
Coronary Heart Disease	7	162	5.5	6	134	4.5	22.1%
Diabetes Mellitus	8	121	4.1	7	113	3.8	8.1%
Stroke	9	84	2.9	8	97	3.3	-12.5%
Breast Cancer	10	76	2.6	9	81	2.7	-5.2%

B14: Age 45-64 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
COVID-19	1	2,585	95.7	--	--	--	--
Coronary Heart Disease	2	2,378	88.1	1	2,167	79.7	10.4%
Diabetes Mellitus	3	841	31.1	2	762	28.0	11.1%
Liver Disease/Cirrhosis	4	775	28.7	3	679	25.0	14.9%
Drug Overdose (Unintentional)	5	751	27.8	5	485	17.8	55.8%
Stroke	6	565	20.9	4	512	18.8	11.0%
Lung Cancer	7	450	16.7	7	416	15.3	8.8%
Colorectal Cancer	8	400	14.8	8	414	15.2	-2.8%
Breast Cancer	9	385	14.3	6	445	16.4	-12.9%
Hypertension	10	284	10.5	13	246	9.1	16.2%

B15: Age 65-74 Years

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Coronary Heart Disease	1	2,410	290.0	1	2,094	265.4	9.2%
COVID-19	2	2,406	289.5	--	--	--	--
Diabetes Mellitus	3	895	107.7	2	718	91.0	18.3%
Lung Cancer	4	738	88.8	3	695	88.1	0.8%
Stroke	5	640	77.0	4	573	72.6	6.0%
COPD	6	543	65.3	5	535	67.8	-3.7%
Pneumonia/Influenza	7	406	48.9	9	317	40.2	21.6%
Colorectal Cancer	8	357	43.0	7	328	41.6	3.3%
Liver Disease/Cirrhosis	9	336	40.4	8	321	40.7	-0.6%
Hypertension	10	334	40.2	12	243	30.8	30.5%

COPD chronic obstructive pulmonary disease
*Age-specific mortality rate per 100,000.

B16: Age 75 Years and Older

Causes of Death	2020			2019			% Change in MR
	Rank	Deaths	MR*	Rank	Deaths	MR*	
Coronary Heart Disease	1	7,256	1,220.1	1	6,676	1,141.7	6.9%
COVID-19	2	5,628	946.4	--	--	--	--
Alzheimer's Disease	3	4,668	785.0	2	4,162	711.8	10.3%
Stroke	4	2,725	458.2	3	2,593	443.4	3.3%
COPD	5	1,962	329.9	4	2,005	342.9	-3.8%
Diabetes Mellitus	6	1,657	278.6	5	1,381	236.2	18.0%
Pneumonia/Influenza	7	1,451	244.0	6	1,290	220.6	10.6%
Lung Cancer	8	1,128	189.7	7	1,241	212.2	-10.6%
Hypertension	9	1,102	185.3	8	1,021	174.6	6.1%
Hypertensive Heart Disease	10	918	154.4	11	744	127.7	21.3%

B17: SPA 1 - Antelope Valley

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR**	Rank	Deaths	AAMR**	
Coronary Heart Disease	1	452	122.3	1	419	114.5	6.8%
COVID-19	2	341	92.8	--	--	--	--
COPD	3	200	58.7	2	231	66.0	-11.1%
Alzheimer's Disease	4	194	60.4	3	178	54.8	10.1%
Diabetes Mellitus	5	190	50.9	5	148	41.1	24.0%
Stroke	6	181	51.6	4	175	50.5	2.2%
Drug Overdose (Unintentional)	7	112	28.3	13	58	15.1	87.9%
Lung Cancer	8	102	27.7	6	107	29.0	-4.5%
Motor Vehicle Crash	9	96	23.8	8	65	16.3	46.2%
Hypertension	10	86	24.5	7	91	25.0	-2.2%

B18: SPA 2 - San Fernando

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR**	Rank	Deaths	AAMR**	
Coronary Heart Disease	1	2,785	108.9	1	2,617	102.2	6.6%
COVID-19	2	2,190	87.4	--	--	--	--
Alzheimer's Disease	3	1,301	51.7	2	1,199	47.5	8.9%
Stroke	4	825	33.4	3	762	30.2	10.5%
COPD	5	613	24.6	4	626	25.1	-1.8%
Diabetes Mellitus	6	591	23.4	6	516	20.4	14.3%
Lung Cancer	7	526	20.8	5	549	22.1	-5.8%
Pneumonia/Influenza	8	381	15.3	7	340	13.7	12.3%
Hypertensive Heart Disease	9	352	13.7	11	256	9.9	38.6%
Drug Overdose (Unintentional)	10	324	14.1	17	209	8.9	58.0%

COPD chronic obstructive pulmonary disease
*Age-specific mortality rate per 100,000.
**Age-adjusted mortality rate per 100,000 using the 2000 US standard population.

B19: SPA 3 - San Gabriel

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
Coronary Heart Disease	1	2,203	95.4	1	2,105	91.2	4.6%
COVID-19	2	2,098	93.5	--	--	--	--
Alzheimer's Disease	3	891	37.7	2	786	32.8	15.1%
Stroke	4	788	34.7	2	786	34.4	0.8%
Diabetes Mellitus	5	632	28.4	5	588	26.1	8.8%
COPD	6	510	22.3	4	607	26.6	-16.1%
Lung Cancer	7	468	20.7	6	477	21.8	-5.2%
Pneumonia/Influenza	8	443	19.3	7	393	16.9	14.3%
Hypertension	9	347	14.8	8	309	13.2	11.6%
Liver Disease/Cirrhosis	10	278	13.2	10	255	11.9	11.6%

B20: SPA 4 - Metro

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
COVID-19	1	1,431	112.0	--	--	--	--
Coronary Heart Disease	2	1,283	99.7	1	1,190	91.9	8.5%
Alzheimer's Disease	3	454	34.1	2	371	28.1	21.0%
Diabetes Mellitus	4	409	32.6	4	342	27.5	18.4%
Stroke	5	399	31.3	3	365	28.6	9.3%
Drug Overdose (Unintentional)	6	292	21.7	6	242	18.3	19.0%
Pneumonia/Influenza	7	279	21.9	8	207	16.7	31.5%
COPD	8	222	18.1	5	246	19.9	-9.1%
Lung Cancer	9	197	16.3	7	210	17.2	-5.2%
Hypertension	10	195	15.3	9	155	12.0	26.7%

B21: SPA 5 - West

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR[*]	Rank	Deaths	AAMR[*]	
Coronary Heart Disease	1	684	76.8	1	641	72.4	6.1%
Alzheimer's Disease	2	375	40.6	2	362	39.0	4.1%
COVID-19	3	296	33.5	--	--	--	--
Stroke	4	227	25.4	3	235	26.3	-3.3%
COPD	5	155	17.5	4	156	18.0	-3.1%
Lung Cancer	6	134	16.0	5	152	18.0	-11.3%
Pneumonia/Influenza	7	132	14.7	6	130	14.6	1.1%
Diabetes Mellitus	8	120	13.9	9	96	11.2	23.6%
Drug Overdose (Unintentional)	9	114	15.9	13	73	10.2	56.1%
Parkinson's Disease	10	94	11.0	7	100	11.7	-5.9%

COPD chronic obstructive pulmonary disease
[*]Age-adjusted mortality rate per 100,000 using the 2000 US standard population.

B22: SPA 6 - South

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
COVID-19	1	1,469	170.3	--	--	--	--
Coronary Heart Disease	2	1,112	133.9	1	1,001	119.6	12.0%
Diabetes Mellitus	3	464	55.9	2	390	46.7	19.8%
Stroke	4	397	49.5	3	361	45.9	7.8%
Alzheimer's Disease	5	313	42.1	4	267	35.9	17.1%
COPD	6	240	30.2	5	233	29.5	2.3%
Liver Disease/Cirrhosis	7	213	22.4	9	179	18.4	21.7%
Hypertension	8	210	25.6	6	188	23.2	10.4%
Drug Overdose (Unintentional)	9	200	19.0	12	143	14.0	36.4%
Pneumonia/Influenza	10	198	24.5	10	173	21.3	15.0%

B23: SPA 7 - East

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
COVID-19	1	1,679	124.8	--	--	--	--
Coronary Heart Disease	2	1,386	101.4	1	1,239	90.6	12.0%
Alzheimer's Disease	3	582	41.6	2	505	36.3	14.7%
Diabetes Mellitus	4	526	39.3	4	457	33.9	16.1%
Stroke	5	461	33.7	3	468	34.8	-3.2%
COPD	6	296	22.0	5	296	22.3	-1.4%
Lung Cancer	7	289	21.4	6	267	20.3	5.5%
Pneumonia/Influenza	8	261	19.8	8	219	16.3	21.7%
Liver Disease/Cirrhosis	9	244	17.7	7	259	18.7	-5.1%
Hypertension	10	217	15.8	11	182	13.4	18.1%

B24: SPA 8 - South Bay

Causes of Death	2020			2019			% Change in AAMR
	Rank	Deaths	AAMR*	Rank	Deaths	AAMR*	
Coronary Heart Disease	1	1,918	108.2	1	1,863	104.7	3.3%
COVID-19	2	1,235	71.1	--	--	--	--
Alzheimer's Disease	3	762	43.9	2	765	44.2	-0.6%
Stroke	4	639	36.7	3	634	36.2	1.3%
Diabetes Mellitus	5	490	28.2	4	441	25.5	10.6%
COPD	6	449	26.1	5	426	25.0	4.6%
Lung Cancer	7	364	21.1	5	426	24.2	-12.8%
Pneumonia/Influenza	8	311	17.9	7	288	16.4	9.0%
Drug Overdose (Unintentional)	9	301	18.3	12	198	12.0	52.5%
Renal Failure	10	264	15.1	11	212	12.0	26.3%

COPD chronic obstructive pulmonary disease
*Age-adjusted mortality rate per 100,000 using the 2000 US standard population.