

# Alcohol Abuse

Riverside University Health System - Public Health

Epidemiology and Program Evaluation

May 2022



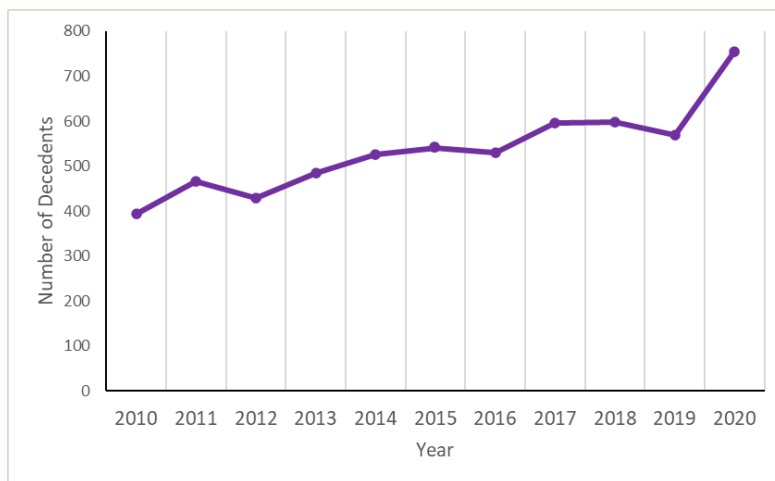
## ALCOHOL MORBIDITY AND MORTALITY REPORT

### INTRODUCTION

It is estimated that 95,000 lives in the United States are lost each year due to excessive alcohol abuse. Alcohol abuse can lead to a number of consequences. Short-term risks involve accidental injuries, violence, risky behavior, and miscarriages. Long-term alcohol abuse has been linked to chronic problems such as cardiovascular disease, liver disease, stroke, cancer, memory problems, mental health problems, social problems, and alcohol dependence<sup>1</sup>.

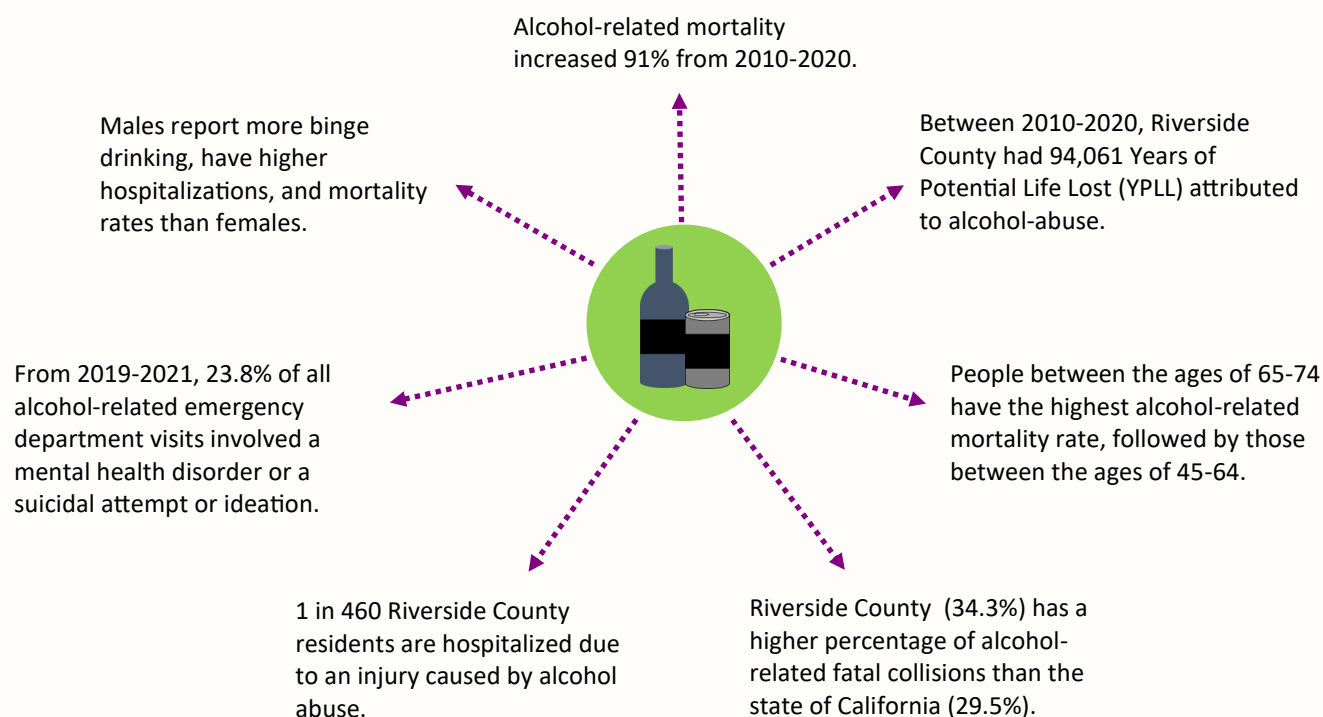
This report aims to increase awareness to the increasing problem of alcohol-abuse in the County of Riverside by reviewing population surveys, hospital inpatient visits, emergency department visits, collision data, and mortality data.

**Figure 1.** Number of Alcohol-Related Deaths in Riverside County, CA, 2010-2020



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2010-2020.

### Key Findings



# MORBIDITY INDICATORS

## Binge Drinking

In the United States, binge drinking is the most common form of excessive alcohol abuse. Drinking in excess until the blood alcohol concentration (BAC) is 0.08 g/dl is considered binge drinking. In order to bring your BAC to that level, a male would have to drink approximately five and women would have to drink approximately four alcoholic beverages within two hours. Most people that binge drink do not have a severe alcohol-use disorder<sup>2</sup>. Regardless, binge drinking has been associated with unintentional injuries, violence, sexually transmitted diseases, unintended pregnancy and poor pregnancy outcomes, health problems in newborns, chronic diseases, cancer, mental impairment, and alcohol use disorders<sup>3</sup>.



### Binge Drinking in Riverside County

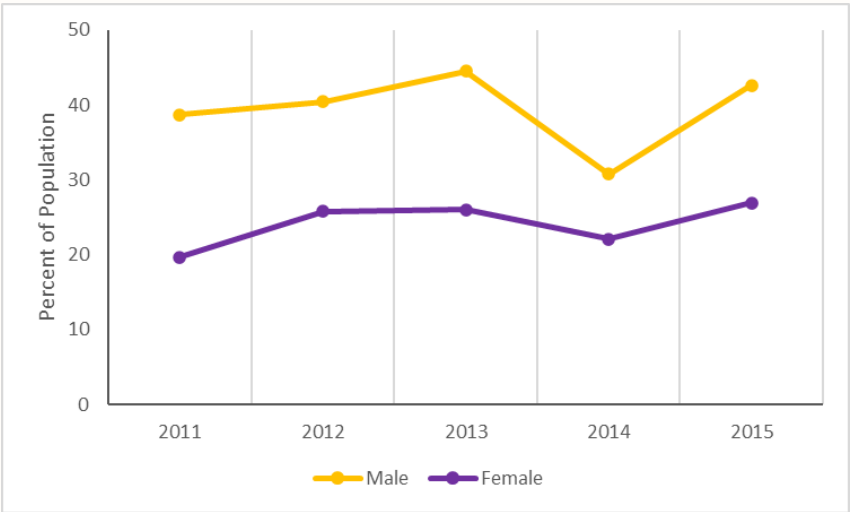
In 2015, 34.7% (C.I. 28.3-41.1) of Riverside County residents reported binge drinking in the past year; the same as the state of California.

Between 2011 and 2015 there was a 29.3% increase of Riverside County residents reporting binge drinking.

A higher percentage of males (42.6%, C.I. 32.6-52.7, in 2015) reported binge drinking than females (26.9%, C.I. 19.3 -34.4, in 2015) every year between 2011-2015 (Figure 2).

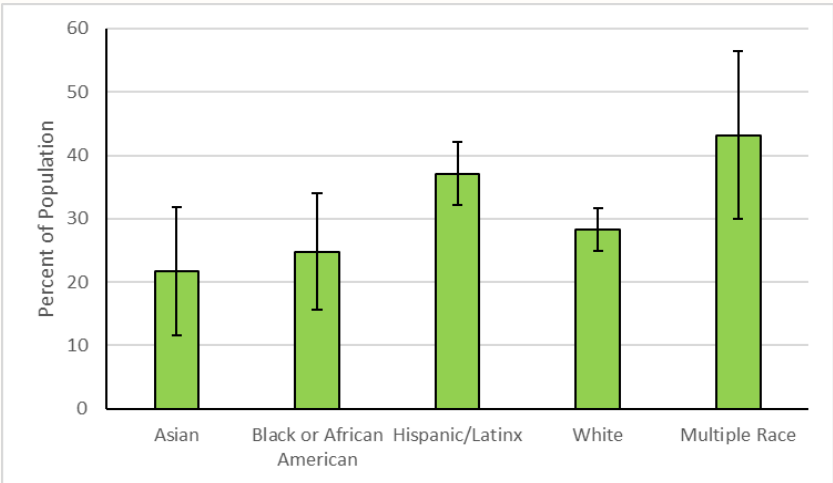
Individuals identifying as Hispanic/LatinX (37.1%) and those identifying as multiple race/ethnicity (43.2%) reported the highest proportion of binge drinking (Figure 3).

**Figure 2.** Comparison of Self-Reported Binge Drinking Between Males and Females in Riverside County, CA, 2011-2015



Source Figure: UCLA Center for Health Policy Research, Los Angeles, CA. AskCHIS 2011-2015. Binge drinking in the past year (Riverside County). Available at <http://ask.chis.ucla.edu>. Exported on 11/29/2021.  
\*Transgender/gender non-conforming data unavailable

**Figure 3.** Binge Drinking in Riverside County by Race/Ethnicity, 2011-2015



Source Figure: UCLA Center for Health Policy Research, Los Angeles, CA. AskCHIS 2011-2015. Binge drinking in the past year (Riverside County). Available at <http://ask.chis.ucla.edu>. Exported on 11/29/2021.  
\* Information for Pacific Islander and Native American are not available.

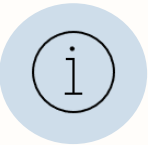
## Mental Health



In 2020, an estimated 19.5% (C.I. 16.9-26.4) of the population reported needing help with emotional/mental health problems or alcohol/drug use.



In 2020, 13.2% (C.I. 10.6-15.8) of the Riverside County population visited a professional for mental/drug/alcohol issues at least one time in the past year, and 6% (C.I. 4.3-7.7) sought help from an online tool.

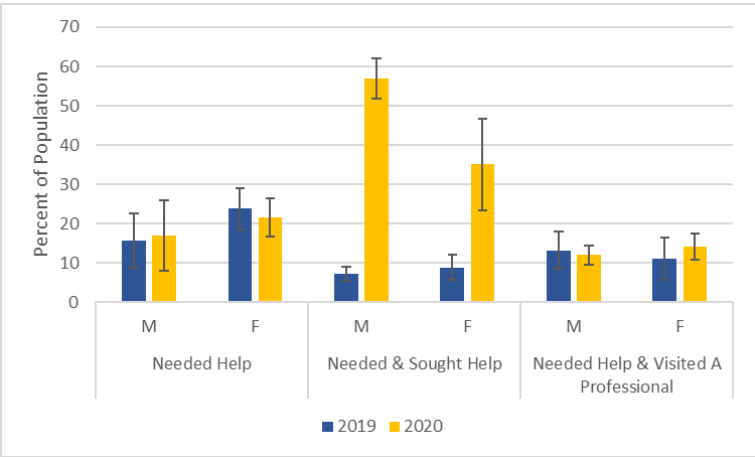


In 2020, less than half (43.8%, 95% CI: 34.4-53.1) of those reporting needing help, actively sought help for this issue.



Only 56.2% (C.I. 46.9-65.6) of those that said they needed help actually received it. Additional efforts could be made to ensure that accessing help for mental/drug/alcohol issues is available for those indicating they need help.

**Figure 4.** Alcohol and Drug-Related Mental Health Professional Needs and Use, in Riverside County, CA 2019-2020



Source: UCLA Center for Health Policy Research, Los Angeles, CA. AskCHIS 2020. Available at <http://ask.chis.ucla.edu>. Exported on 11/29/2021.

## Hospitalizations

### Riverside County Resident Alcohol-Related Inpatient Visits, 2016-2019

Alcohol abuse can lead to many health complications. Alcoholic diseases and disorders are caused entirely due to chronic alcohol abuse, but there are other health risks that can increase with alcohol use, such as injuries, cancer, and other diseases<sup>5</sup>. In this section alcohol-related refers to causes that are entirely and partially due to alcohol abuse.



From 2016 to 2019, 9.2% of all inpatient visits to hospitals in Riverside County were alcohol-related.

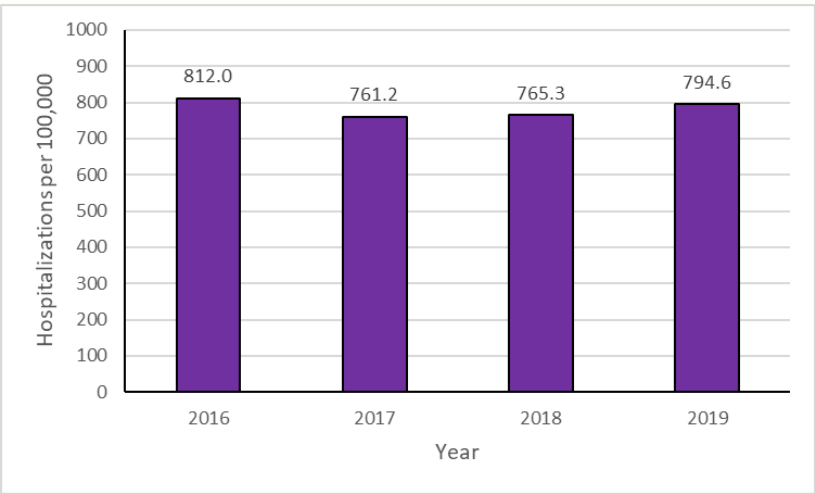


81.3% (n=74,698) of all alcohol-related hospitalizations in the county were Riverside County residents.



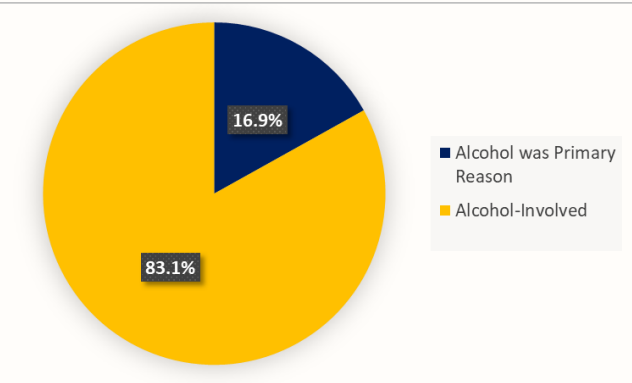
There was a 4.8% increase in all alcohol-related hospitalizations from 2016-2019.

**Figure 5** Hospitalizations per 100,000 due Entirely to Alcohol Abuse, Riverside County, CA, 2016-2019



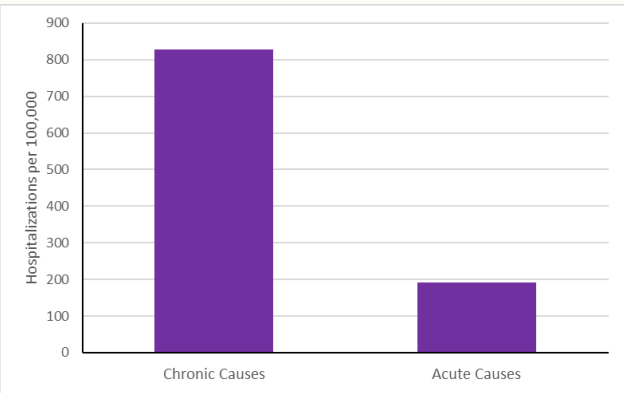
Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data , Riverside County. 2016-2020.

**Figure 6.** Alcohol-Related Hospitalizations by Alcohol Involvement Riverside County, CA 2016-2019 (n=91,894)



Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data , Riverside County. 2016-2020.

**Figure 7.** Four-Year Average Hospitalizations due Entirely to Alcohol Abuse by Condition Type, Riverside County, 2016-2019 (n=74,698)



Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data , Riverside County. 2016-2020. \*

**Table 1.** Hospitalizations with Conditions Caused Entirely due to Alcohol Abuse in Riverside County Residents, 2016-2019

	Hospitalizations n(%)	4-Year Rate per 100,000 Population
Injuries	5,221(7.0)	217.8
Motor Vehicle Crashes	1,665(2.2)	69.4
Homicide	1,324(1.8)	55.2
Suicide Attempt or Ideation	528(0.7)	22.0

Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data, Riverside County. 2016-2020. \*Frequency(percent) values may not add up to 100 due to rounding and/or missing data.

For hospitalizations that involved alcohol, 83.1% were instances where alcohol contributed to some degree to the hospitalization and 16.9% were primarily due to alcohol use (Figure 6).

5.3% of hospitalizations that were solely caused by alcohol use, had alcohol present in their system at the time of hospitalization. 4.4% of inpatients with an alcohol-caused chronic disease had alcohol in their system when hospitalized.

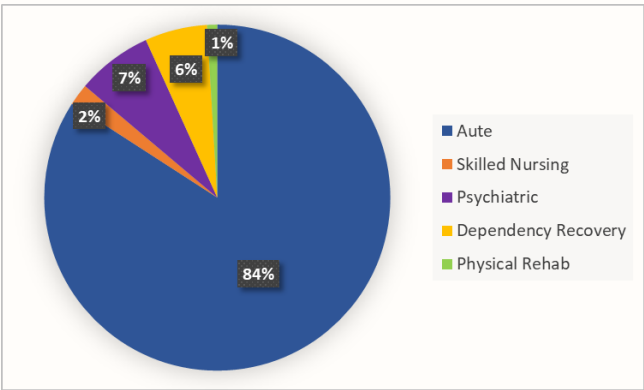
The majority (76.8%) of hospitalizations due to alcohol abuse were due to chronic diseases. 827 hospitalizations per 100,000 population were due to a chronic alcohol condition and 191 per 100,000 were due to acute conditions (Figure 7).

The majority of Inpatient visits were related to acute care (90.3%) followed by psychiatric care (5.9%) (Figure 8).

On average, alcohol-related inpatient visits lasted 5.9 days for acute conditions and 5.7 days for chronic conditions.

From 2016-2019, acute alcohol-attributed inpatient visits accounted for 71.9% of all alcohol-related inpatient costs.

**Figure 8.** Alcohol-Related Inpatient Visits by Care Type, Riverside County, CA 2016-2019 (n=74,698)



Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data, Riverside County. 2016-2020.

For the purpose of this report, only 100% attributable and Direct ICD 10 codes for chronic and acute causes were used as indicated in: <https://www.cdc.gov/alcohol/ardi/alcohol-related-icd-codes.html>

## Alcohol-Attributed Inpatient Demographic Profile for Riverside County Residents

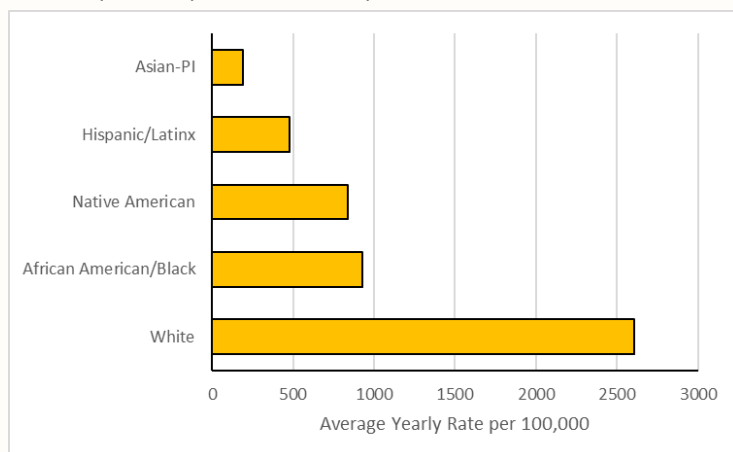


Rates for age and sex stayed consistent from 2016-2019. Males had a 2.0% increase and females had a 0.3% decrease in the number of inpatient visits caused entirely to alcohol use from 2016 to 2019.



White/non-Hispanics had a higher number of inpatient visits due to alcohol use (n=44,449) than any other racial/ethnic group from 2016-2019 (Table 2).

**Figure 10.** Average Inpatient Visit Rates Caused Entirely by Alcohol Abuse by Ethnicity, Riverside County, CA 2016-2020



Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data, Riverside County. 2016-2020. \*Asian and Pacific Islander are reported together until 2019 and cannot be disaggregated.

**Table 2.** Socio-Demographics of Hospitalizations Caused by Alcohol Abuse for Residents of Riverside County, 2016-2019

	Total n(%) <sup>1</sup>	Average Yearly Rate per 100,00 Population
<b>Age Group</b>		
Under 15	721(1.0)	35.4
15-24	3,834(5.1)	277.5
25-44	15,373(20.6)	585.1
45-64	29,670(39.7)	1,264.3
65-74	12,613(16.9)	1,571.3
75+	12,487(16.7)	2,049.1
<b>Sex</b>		
Female	29,225(39.1)	594.3
Male	45,469(60.9)	930.6
<b>Race/Ethnicity</b>		
Asian-PI	1,135(1.5)	189.9
African American/ Black	5,159(6.9)	926.3
Hispanic/Latinx	20,784(27.8)	478.3
Multiple Race/ Other	2,105(2.8)	1,041.0
Native American <sup>2</sup>	390(0.5)	837.8
White/Non-Hispanic	44,449(59.5)	2,607.7

Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data, Riverside County. 2016-2020. <sup>1</sup>Frequency(percent) values may not add up to 100 due to rounding and/or missing data. <sup>2</sup>This population is less than 20,000. \*Asian and Pacific Islander are reported together until 2019 and cannot be disaggregated. \*Transgender/gender non-conforming data unavailable.

## Spatial Distribution of Alcohol-Related Inpatient Visits, 2016-2019

**Table 6.** Hospitalizations Due to Entirely to Alcohol Abuse, Riverside County Regions, 2016-2019 (n=74,671)

	Hospitalizations n(%) <sup>1</sup>
Coachella Valley	19,183(25.7)
East	479(0.6)
Mid	15,215 (20.4)
Northwest	27,901(37.4)
Southwest	11,892(15.9)

Source: Department of Health Care Access and Information (HCAI): Patient Discharge Data, Riverside County. 2016-2020. <sup>1</sup>Frequency(percent) values may not add up to 100 due to rounding and/or missing data.



The Northwest region in Riverside County had the highest number (n=27,901) of alcohol-attributed inpatient visits (Table 6).

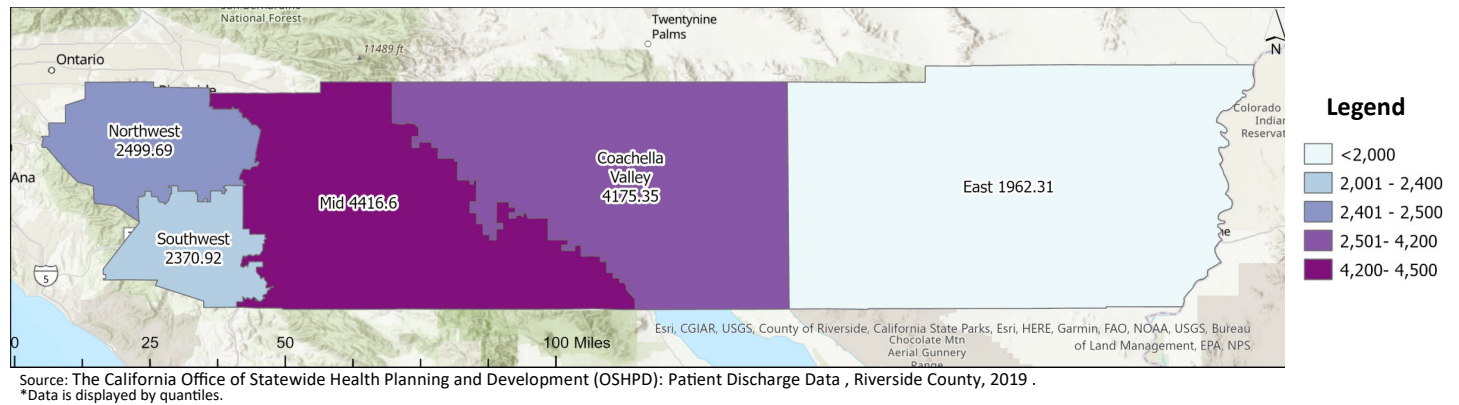


The residential zip code with the highest number of alcohol-related inpatient visits in 2019 was 92503 (Riverside City, n=602), in the Northwest region.



In 2019, the Mid region in Riverside County had the highest alcohol-related inpatient rate (23 per 1,000) followed closely by Coachella Valley (20 per 1,000) (Figure 11).

**Figure 11.** Hospitalization 4-Year Rates due Entirely to Alcohol Abuse by Riverside County Region, 2016-2019



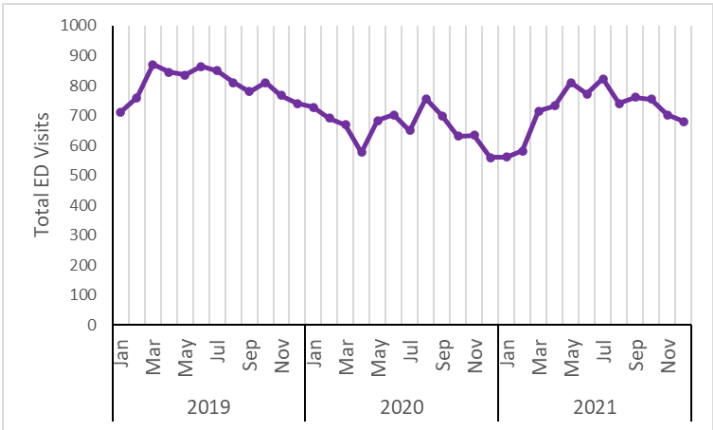
## Alcohol-Related Emergency Department Visits, 2019-2021

*In Riverside County, 15 of 17 emergency departments (ED) participated in syndromic surveillance and submitted daily data to ESSENCE (Electronic Surveillance System for the Early Notification of Community-Based Epidemics), from 2019-2021. Although timely, the information in this section is limited due to ED participation being voluntary.*



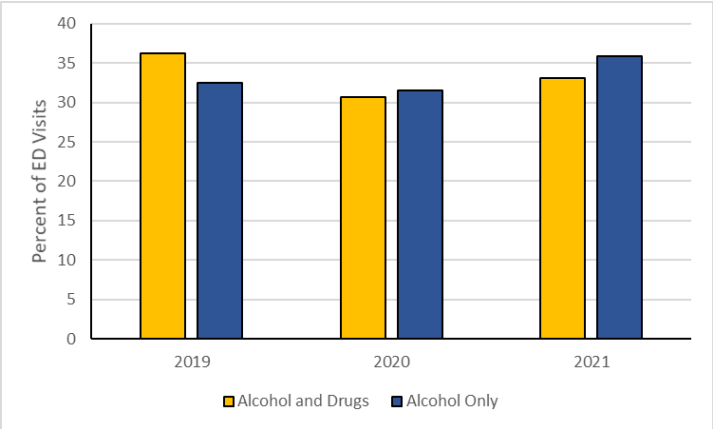
- From 2019-2021, there were a total of 26,977 alcohol-related ED visits. 85% of these visits were from Riverside County residents.
- On average, there were a total of 24 (SD= 6.7) daily alcohol-related emergency department visits throughout the county.
- A total of 5,434 (20.7%) alcohol-related ED visits also had a mental-health component; included depression, a suicidal component, or a diagnosed mental-health disorder.
- A total of 2,225 (9.6%) alcohol-related ED visits were due to physical injuries such as traffic incidents, work-related injuries, or a fall.
- A total of 124 (0.5%) alcohol-related visits to the ED were associated with firearms and intimate partner or sexual violence.
- Alcohol-related ED visits tend to be lowest during the winter and fall months, increasing in the spring, and peaking in the summertime (Figure 12).
- 2019 accounted for 36% of all alcohol and drug-related visits from 2019-2021. This was lower in 2020 and 2021. The opposite is true for alcohol-only visits (Figure 13).

**Figure 12.** Number of Alcohol-Related Emergency Department Visits by Month, Riverside County, CA 2019-2021



Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021 .

**Figure 13.** Comparison of the Proportion of Alcohol-Related ED Visits and Alcohol and Drug-Related Visits from 2019-2021.



Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021 .

## Riverside County Alcohol-Related Emergency Department Visits Demographic Profile 2019-2021



Alcohol-related injuries in the African-American/Black community decreased 2.2% from 2019 to 2021, while all other racial/ethnic groups increased (Figure 14).

Hispanic/Latinx (38.5%) and White/Non-Hispanic (45%) populations had the highest proportions of alcohol-related ED visits (Figure 15).



Those between the ages of 45-64 had the highest number of visits to the ED (Table 3).

Those between the ages of 25-44 had higher proportion of concurrent mental health issues (49.2%), drug use (50.3%), and unintentional injuries (33.9%) (Table 3).



Males made up the highest proportion (64.9%) of alcohol-related ED visits (Table 3).

Males had a higher proportion of ED visits in relation to alcohol and mental health issues (61.1%), other drug use (63.3%), and unintentional injuries (65.1%) than females (Table 3).

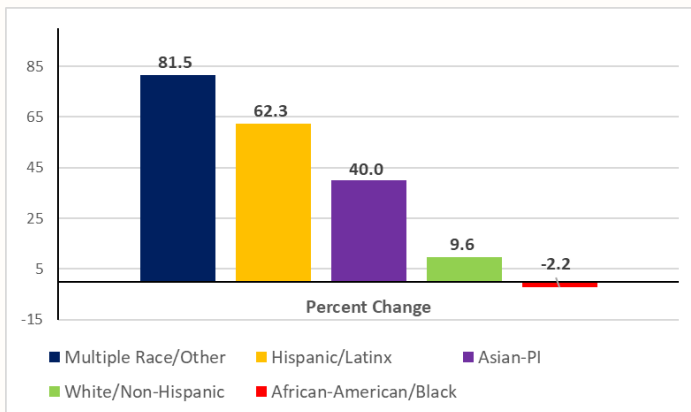
**Table 3.** Frequencies and Percent of Alcohol-Related ED Visits for Residents in Riverside County by Sociodemographics, 2019-2020

	Total ED Visits <sup>1</sup> (n=26,273)	Alcohol and Mental Health <sup>1</sup> (n=5,434)	Alcohol and Other Drugs <sup>1</sup> (n=2,084)	Alcohol and Unintentional Injuries <sup>1</sup> (n=2,225)
<b>Age Group</b>				
Under 15	183(0.8)	33(0.6)	44(2.1)	8(0.4)
15-24	3,116(13.5)	632(11.8)	535(25.7)	407(18.3)
25-44	9,711(42.0)	2,633(49.4)	1,048(50.3)	756(33.9)
45-64	7,412(32.1)	1,824(34.2)	383(18.4)	309(13.9)
65-74	1,615(7.0)	243(4.6)	63(3.0)	501(22.5)
75+	585(2.5)	69(1.3)	11(0.5)	244(11.0)
<b>Sex</b>				
Female	7,591(32.8)	2,172(40.7)	763(36.6)	773(34.7)
Male	15,019(64.9)	3,261(61.1)	1,320(63.3)	1,448(65.1)
<b>Ethnicity</b>				
Asian-PI <sup>2</sup>	199(0.9)	56(1.0)	13(0.6)	23(1.0)
African American/Black	1,790(7.7)	375(7.0)	253(12.1)	140(6.3)
Hispanic/Latinx	8,900(38.5)	1,904(35.7)	831(39.9)	893(40.1)
Multiple Race/Other	1,096(6.1)	218(4.1)	76(3.6)	108(4.9)
Native American <sup>3</sup>	100(0.4)	17(0.3)	10(0.5)	10(0.4)
White/Non-Hispanic	10,408(45.0)	2,850(53.4)	894(42.9)	1,031(46.3)

Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County, 2019-2021. <sup>1</sup>Frequency(percent) values may not add up to 100 due to rounding and/or missing data. <sup>2</sup> Asian and Pacific islander are reported together and cannot be disaggregated. <sup>3</sup>This population is less than 20,000. \*Transgender/gender non-conforming data unavailable.

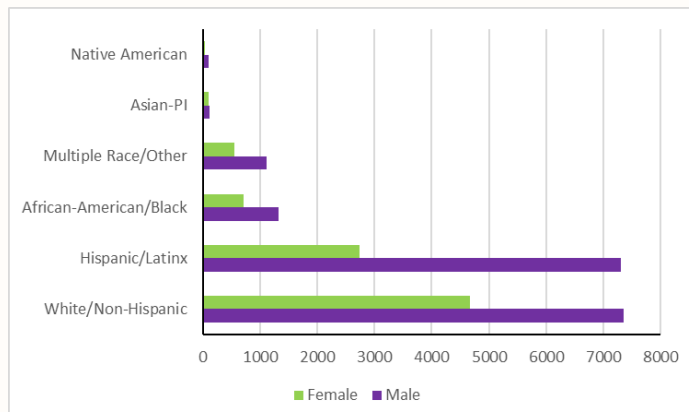


**Figure 14.** Percent Change in Alcohol-Related Injuries 2019-2021 by Race/Ethnicity



Source: Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021. \* Native American not shown due to no injuries in 2019. \*\* Asian and Pacific Islander are reported together and cannot be disaggregated in this report.

**Figure 15.** Number of Alcohol-Related ED Visits by Ethnicity, Riverside County, CA 2019-2021



Source: Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021. \* Native American population is less than 20,000. \*\* Asian and Pacific Islander are reported together and cannot be disaggregated in this report.

## Spatial Distribution of Emergency Department Visits

**Table 5.** Riverside County Cities With the Highest Residential Alcohol-Related ED Visits Rates, 2021 (n=8641)

	ED Visits n(%) <sup>1</sup>	Rate per 100,000 Population <sup>1</sup>
<b>Desert Hot Springs</b>	228(2.6)	840.3
<b>Hemet</b>	696(8.1)	733.1
<b>Palm Springs</b>	343(4.0)	769.5
<b>Lake Elsinore</b>	389(4.5)	727.5
<b>Riverside</b>	1736(20.1)	571.3

Source: Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021. \*Only includes cities or CDP with populations over 20,000. <sup>1</sup>Frequency(percent) values may not add up to 100 due to rounding and/or missing data.

**Table 7.** Riverside County Regions with Highest Residential Alcohol-Related ED Visits, 2021 (n=8641)

	ED Visits n(%) <sup>1</sup>	Rate per 100,000 Population <sup>1</sup>
<b>Coachella Valley</b>	1,650(19.1)	359.7
<b>East</b>	6(0.1)	24.8
<b>Mid</b>	1,251(14.5)	360.0
<b>Northwest</b>	3,515(40.7)	314.6
<b>Southwest</b>	1,835(21.2)	362.5

Source: Source: Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE): Riverside County. 2019-2021. \*Frequency(percent) values may not add up to 100 due to rounding and/or missing data.



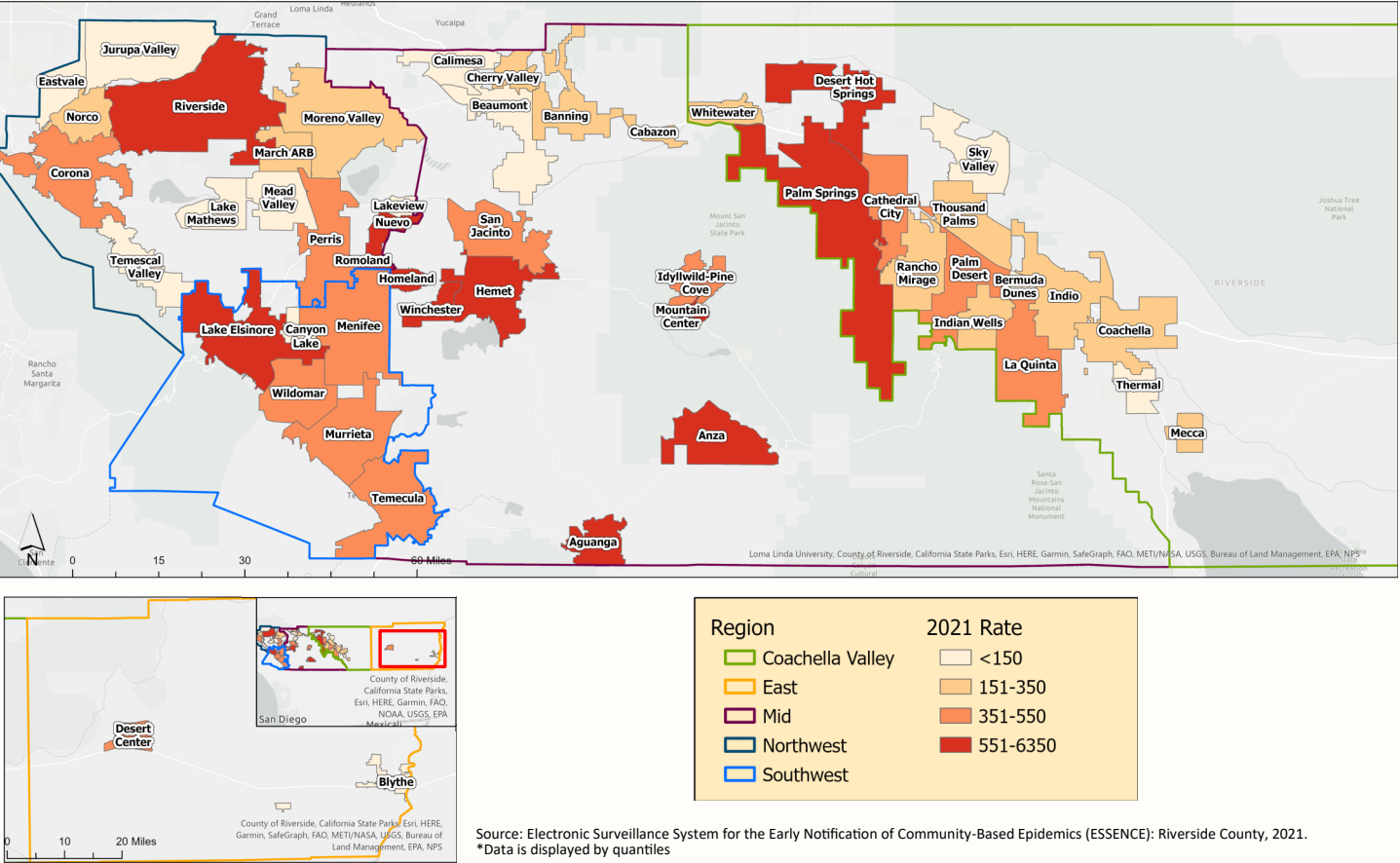
The majority of ED visits, required a Riverside County resident to travel over 5 miles. 1,139 (4.0%) total visits to the ED were less than 1 mile away, 2670 (9.9%) of total visits were between 2-3 miles away, and 7945 (29.7%) of visits were between 3-4 miles away.

The city of Desert Hot Springs had the highest alcohol-related visits rate (840.3) in 2021, however, Riverside city had the highest total number of alcohol-related ED visits and was in the top 5 cities with the highest rate (Table 5).

Although the Southwest region of Riverside County had the highest rate of alcohol-related ED visits, all regions have smaller geographies within them that have high rates (Table 7, Figure 16).



Figure 16. Emergency Department Visit Rate per 100,000 Population by Resident City in Riverside County, CA, 2021



### Alcohol-Involved Collisions 2019-2021

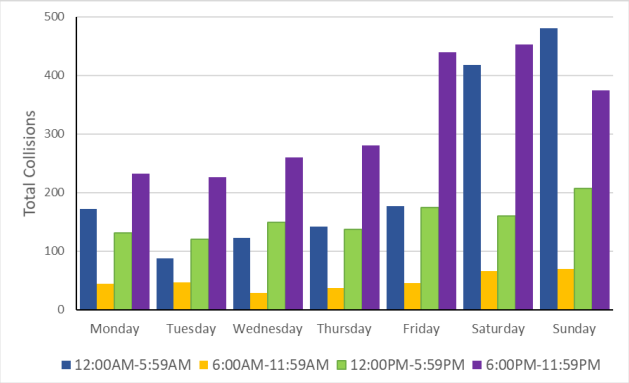
It is estimated that, in the United States, one person dies every 50 minutes due to a motor-vehicle crash involving an alcohol-impaired driver<sup>1</sup>. Riverside County had a similar proportion of alcohol-involved collisions (10.9%) compared to California (10.5%), but had a higher proportion of alcohol-related fatalities (34.3%) than California(29.5%).

Table 8. Comparison of alcohol-involved collisions in Riverside County and California, 2019-2020

	Total Incidents		Injuries		Fatalities	
	State n(%)	RC n(%)	State n(%)	RC n(%)	State n(%)	RC n(%)
<b>Alcohol-involved</b>						
No	750,222(89.5)	43,409(89.1)	422,524(89.3)	23,939(88.7)	5,396(70.5)	391(65.7)
Yes	88,412(10.5)	5,324(10.9)	50,633(10.7)	3045(11.3)	2,260(29.5)	204(34.3)
<b>Impaired Vehicle Collided With</b>						
Non-collision	2,575(2.9)	190(3.6)	2,042(4.0)	135(4.4)	132(5.8)	10(4.9)
Pedestrian	3,074(3.5)	152(2.9)	2,695(5.3)	95(3.1)	518(22.9)	52(25.5)
Other motor vehicle	37,273(42.2)	2,426(45.6)	28,318(55.9)	1,850(60.8)	774(34.2)	82(40.2)
Parked motor vehicle	14,195(16.1)	5,68(10.7)	3,594(7.1)	135(4.4)	49(2.2)	3(1.5)
Train	18(0.02)	1(0.02)	6(0.01)	0(0.0)	1(0.04)	0(0.0)
Bicycle	1029(1.2)	43(0.8)	937(1.9)	36(1.2)	57(2.5)	4(2.0)
Animal	44(0.05)	4(0.1)	24(0.05)	3(0.1)	1(0.04)	0(0.0)
Object	29,753(33.7)	1,929(36.2)	12,727(25.1)	789(25.9)	728(32.2)	53(26.0)

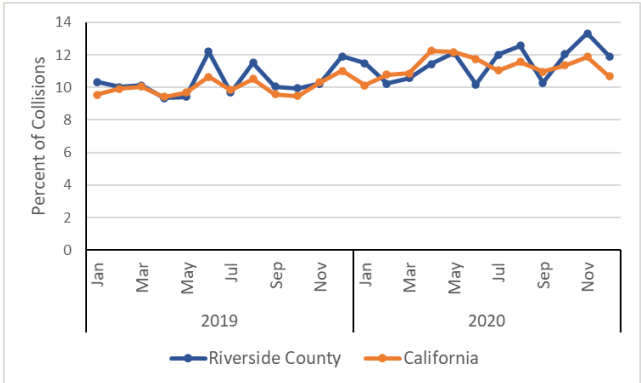
Source: Statewide Integrated Traffic Records System (SWITRS): Collisions 2019-2020.  
<sup>1</sup>Frequency (percent) values may not add up to 100% due to rounding and/or missing data.

**Figure 17.** Number of Alcohol-Related Collisions in Riverside County by Day of the Week, 2019-2020



Source: Statewide Integrated Traffic Records System (SWITRS): Collisions 2019-2020.

**Figure 18.** Percent of Alcohol-Related Accidents from 2019-2020 by Month



Source: Statewide Integrated Traffic Records System (SWITRS): Collisions 2019-2020.



Most impaired vehicles collided with another motor vehicle (45.6%) or an object (36.2%) on the road (Table 8).



17.0% of all alcohol-involved collisions, from 2019-2020, occurred on a Saturday between the hours of 12AM and 6AM (Figure 14).



The percent of collisions attributed to alcohol in Riverside County were higher than that of California 15 out of 24 months between 2019-2020 (Figure 15).

Riverside County had a lower percentage of injuries (3.1%) to pedestrians due to an impaired driver compared to California (5.3%), but had 2.6% more pedestrian fatalities (Table 8).

The highest number of alcohol-related collisions in 2019 and 2020 occurred between the hours of 12AM-2AM early Sunday morning (n=330) followed by 12AM-2AM Saturday morning (n=287).

Riverside County saw a 5.0% decrease in alcohol-related collisions from 2019-2020 and California saw a decrease of 12.0%.

Riverside County had 5.4% less total impaired vehicle collisions involving a parked vehicle than California (Table 8).

From Monday -Thursday, alcohol-involved collisions accounted for less than 10% of all collisions in a day, however, the proportion increased on Friday (10.6%), Saturday (16.8%), and Sunday (19.7%) (Figure 17).

Riverside County has higher proportions of alcohol-involved incidents (10.9% vs 10.5%), injuries(11.3% vs 10.7%), and fatalities (34.3% vs 29.5%) compared to the state of California (Table 8).

## Alcohol-Related Mortality 2010-2020



3.3% (n=5,878) of all county deaths between 2010 to 2020 were alcohol-related.

On average, 534 alcohol-related deaths occurred each year between 2010 and 2020.

The average annual age-adjusted mortality rate between 2010 and 2020 was 23.4 per 100,000.

There was a 91.1% increase in alcohol-related deaths between 2010 and 2020 (Figure 1).

96.2% (n=5,657) of all alcohol-related deaths were due to chronic alcohol-use causes and 3.8% (n=221) deaths were due to acute causes.

89.1% of all alcohol related deaths occurred in those aged 45 and over (n=5,239). 96% of these deaths were due to chronic causes.

Males aged 15-24 (56%, n=18) had a higher proportion of acute deaths than females of the same age group (27%, n=7).

The large shift in proportion between acute and chronic mortality causes between the ages of 15-24 (60% acute) and 24-44 (12% acute) points to a need for public health intervention before the age of 25 (Figure 19).

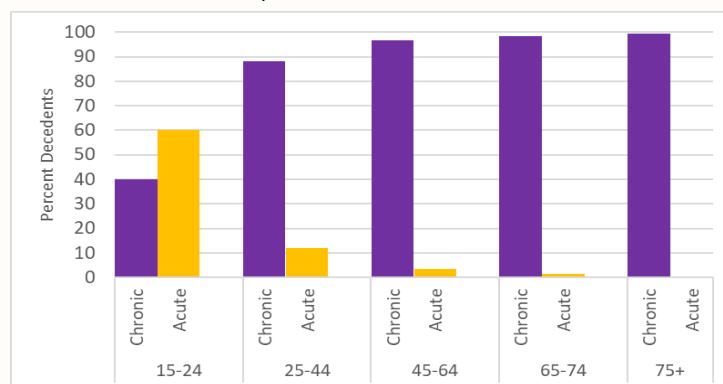
*Chronic mortality causes included death from diseases directly or completely caused by long-term alcohol abuse. Acute deaths, included injuries/accidents while intoxicated and/or using drugs, and/or organ failure due to excessive drinking.*

**Table 9.** Alcohol-related Deaths in Riverside County from 2010-2020 by Social Determinants of Health (n=5878)

	Total deaths n(%) <sup>1</sup>	Average Crude Death Rate per 100,000 Population
<b>Age group</b>		
15-24	23(0.4)	0.7
25-44	614(10.4)	9.0
45-64	3,252(55.3)	53.1
65-74	1,297(22.1)	65.8
75+	690(11.7)	45.4
<b>Sex</b>		
Female	1,580(26.9)	12.1
Male	4,298(73.1)	33.2
<b>Marital status</b>		
Single	1,387(23.6)	17.5
Married	2,403(40.9)	21.0
Widowed	637(10.8)	53.1
Divorced	1,896(32.3)	86.0
<b>Armed forces</b>		
No	4,808(81.7)	356.8
Yes	1,021(17.4)	75.9
<b>Education<sup>2</sup></b>		
No HS diploma	1,295(22.0)	41.6
HS diploma	2,229(37.9)	50.6
Some college	1,089(18.5)	26.0
Associate	351(6.0)	27.0
Bachelor	483(8.2)	21.1
Graduate/Professional	228 (3.9)	17.7
<b>Race/Ethnicity</b>		
Asian-Pi <sup>3</sup>	106(1.8)	*
African American or Black	309(5.3)	20.2
Hispanic / Latinx	1,935(32.9)	16.2
Native American <sup>4</sup>	64(1.1)	*
White	3,449(58.7)	35.0

Source: California Integrated Vital Records System (Cal-IVRS), Riverside County. 2010-2020. <sup>1</sup>frequency (percent) values may not add up to 100 due to rounding and/or missing data. <sup>2</sup>Educational attainment includes only those aged 25 and older (n=5,854). <sup>3</sup>Events for Pacific Islander are aggregate with Asian due to low counts, rate suppressed due to low numbers. <sup>4</sup>Rate suppressed due to instability. \*Transgender/gender non-conforming data unavailable.

**Figure 19.** Alcohol-Related Mortality by Age Group and Type of Mortality Cause, 2010-2020, Riverside County



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County. 2010-2020.

Alcohol-Related Mortality Socio-Demographics in Riverside County, 2010-2020



There was a 92.5% difference in the total number of alcohol-related decedents between males (n=4,297) and females (n=1,580) from 2010-2020.

There are marked differences in alcohol-related mortality rates between age groups. Those in ages 65-75 have higher mortality rates than any other age group (Figure 20).

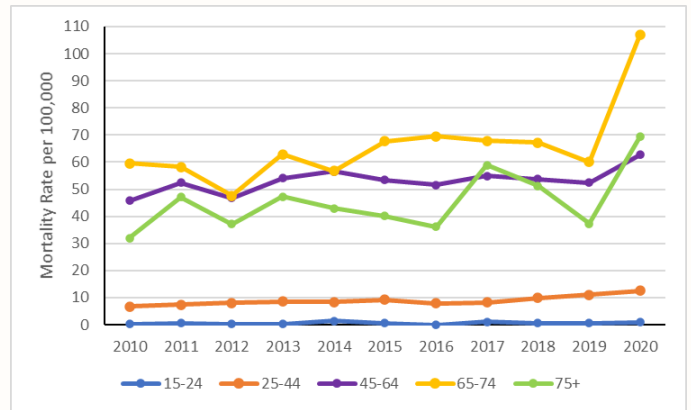
After adjusting for age, Asian-PI and Hispanic populations had the lowest alcohol-related mortality rates over time (Figure 21).

From 2010 to 2020, those never married had a 135% increase in alcohol-related deaths followed by the widowed population which had a 119% increase.

Divorced populations had the highest alcohol-related mortality rate followed by those who were widowed (Figure 22).

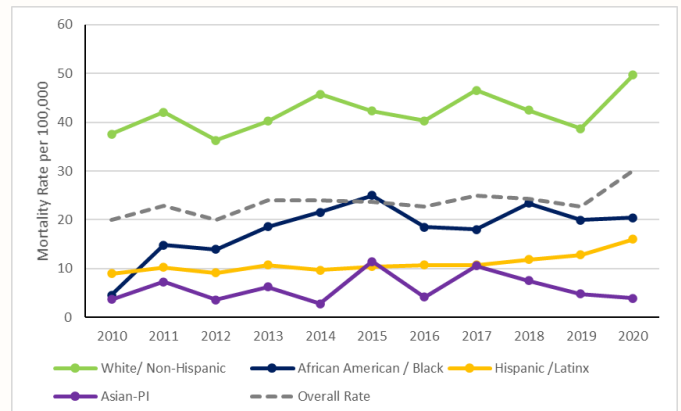
Regardless of educational attainment, males had higher proportions of alcohol-related deaths in comparison to females (Figure 23).

Figure 20. Alcohol-Related Mortality Rates by Age Group, Riverside



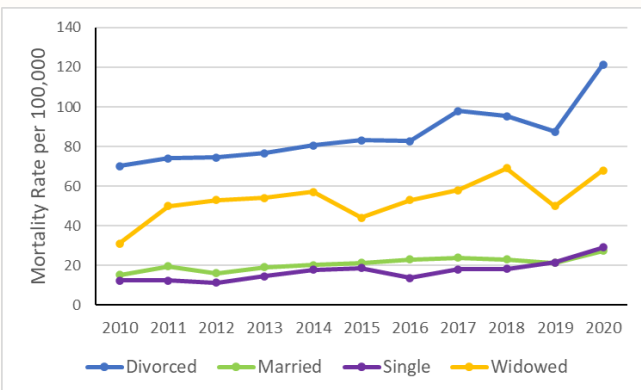
Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2010-2020.

Figure 21. Age-Adjusted Alcohol-related Mortality Rates by Ethnicity, Riverside County, 2010-2020



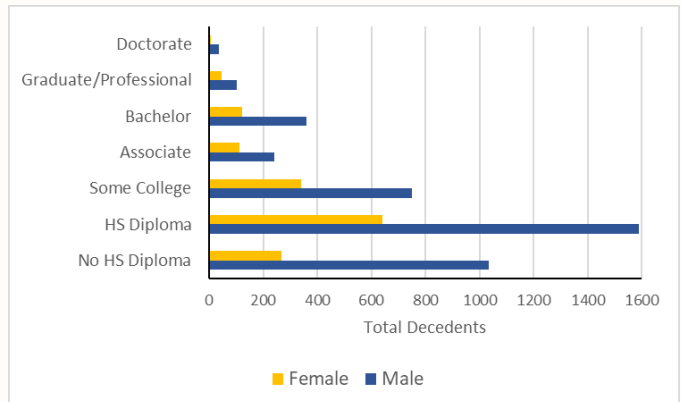
Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2010-2020. \*Native American Population not depicted due to unstable rates. Events for Pacific Islander are aggregated with Asian due to low counts.

Figure 22. Mortality rate by marital status, Riverside County from 2010-2020



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2010-2020.

Figure 23. Number of Alcohol-Related Mortality by Educational Attainment, 2010-2020

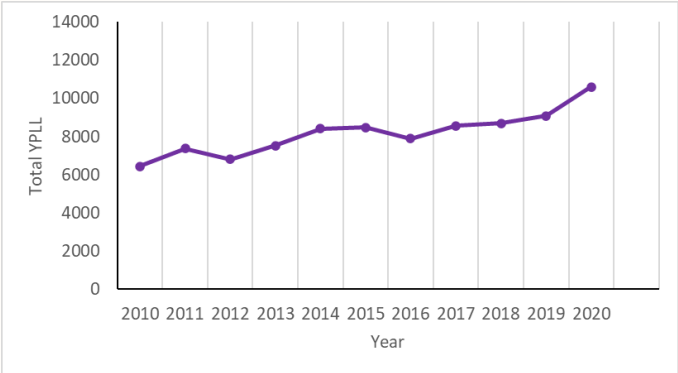


Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2010-2020. \*Transgender/gender non-conforming data unavailable.

Years of Potential Life Lost

Years of potential life lost (YPLL) is used to reflect the impact of premature deaths. In Riverside County, a premature death is that which occurred before the age of 75. In this section, the YPLL of alcohol-related deaths are explored.

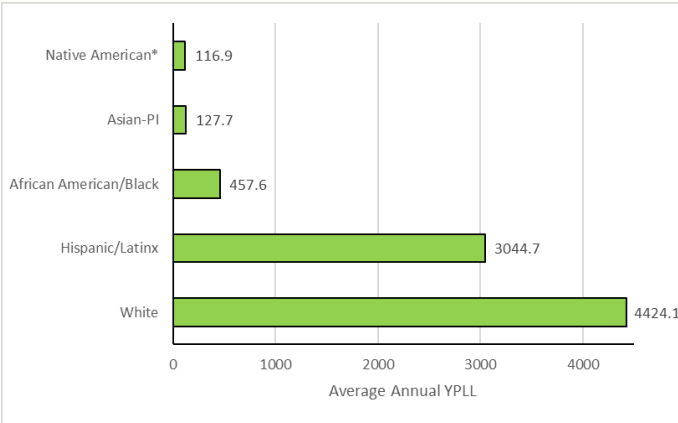
Figure 24. Years of Potential Life Lost in Riverside County, 2010-2020



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County. 2010-2020.

- 1 A total of 94061 years of potential life lost (YPLL) was attributed to alcohol-abuse between 2010 and 2020.
- 2 YPLL increased 68.7% from 2010-2020 (Figure 24).
- 3 On average, 15 years of premature deaths were lost for each alcohol-related death from 2010-2020.

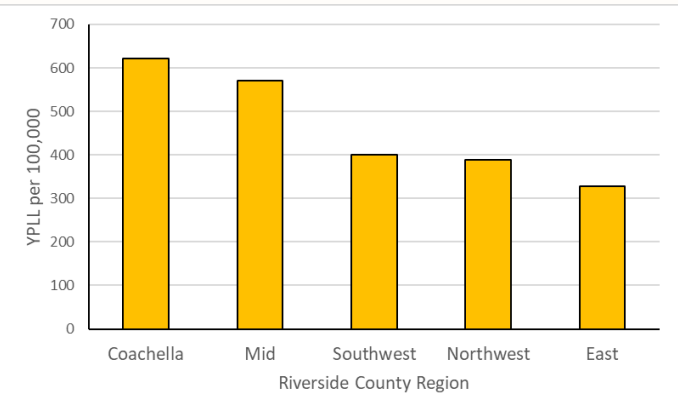
Figure 25. Average Annual Years of Potential Life Lost by Ethnicity, Riverside County, 2010-2020



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County. 2010-2020.  
\*Native American Population consists of fewer than 20,000 individuals. \*\*Pacific Islander events are aggregated with Asian due to low counts.

- 4 White (982.7 YPLL per 100,000) and African American/Black (620.1 YPLL per 100,000) populations consistently had the highest alcohol-related YPLL rates between 2012-2021.
- 5 Decedents that were divorced had over three times the YPLL (14202.9 per 10,000) than married, widowed, or never married decedents from 2010, to 2020.
- 6 62.7% of the YPLL due to alcohol abuse were from decedents that had a highest educational attainment of a high school diploma or less.

Figure 26. Years of Potential Life Lost by Riverside County Regions, 2020



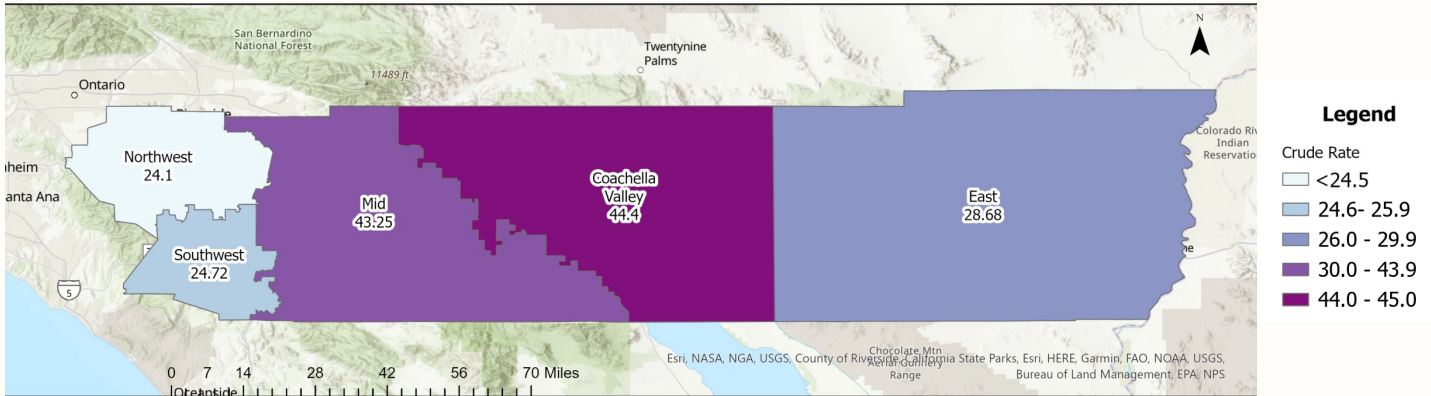
Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2020.

- 7 The Coachella Valley region in Riverside County had the highest YPLL (623.2 per 100,000) in 2020 (Figure 26).
- 8 The Southwest region had a 104% increase in the total number of alcohol-related deaths from 2010-2020.
- 9 The East region of Riverside County was the only region that had a decrease (-26.6%) in YPLL from 2010-2020.

## Spatial Distribution of Alcohol-Related Mortality in Riverside County, 2020

The Coachella Valley and Mid region of Riverside County share the largest burden of alcohol-related deaths per 100,000 of the population (Figure 27). Although these regions had the highest burden of alcohol-related deaths, the city of Riverside, located in the Northwest region, consistently had the highest alcohol-related death rate in the county every year from 2010-2020, the rate being 5.0 per 100,000 in 2020.

**Figure 27.** Alcohol-Related Mortality Rate per 100,000 Population in Riverside County, CA, 2020



Source: California Integrated Vital Records System (Cal-IVRS), Riverside County, 2020.  
\*Data is displayed by quantiles.

## Future Directions

Further studies will address access to resources and help in historically under-resourced neighborhoods. More information is needed to understand behaviors surrounding alcohol abuse. Data surrounding binge drinking in Riverside County is lacking for recent years, making it difficult to understand current drinking behaviors for adolescents and adults. The 2020 CHIS survey suggests that half of the population in Riverside County that report needing mental-health help, for alcohol/drug -related issues, actually seek help but it is important to understand what prevents the other half from pursuing the help they need. Collaborating with other partners such as the Riverside Medical Center and RUHS-Behavioral Health may bring some understanding to current behaviors and shed some light on gaps that need to be addressed to improve program success.

Injuries relating to alcohol use, in the recent years, have increased. Looking into the occupations and health insurance status of people suffering from the effects of alcohol abuse may provide some insight to help determine what kinds of gap gaps are present in our communities as well as the role job industries play on alcohol abuse.

Chronic diseases shared the largest proportion of alcohol-related deaths in Riverside County. It is recommended that alcohol interventions begin before the age of 25, a time where the chronic effects of alcohol abuse is still minimal in the community. It is known that the harm from excessive alcohol use can be prevented through early screening and interventions in adolescents and adults as well as government control over alcohol sales<sup>1</sup>, however, more information is needed to understand what preventative measures are needed to best serve the community. Further studies will address the role of alcohol outlet densities throughout the County of Riverside to determine any needs for intervention.

The Mid and Coachella Valley regions have the highest alcohol-related rates for hospitalizations, emergency department visits, and deaths. Future interventions should focus in these areas, especially in the younger populations, where early interventions can help change behavior and prevent chronic disease.

Riverside University Health System-Public Health understands the need for better representation of marginalized populations, such as the LGBTQ+ community and persons who are unstably housed and is working to remedy this informational gap so that future analysis and interventions can be more inclusive.

## References

1. Centers for Disease Control and Prevention. "Chronic Disease Fact Sheets: Excessive Alcohol Use." November 23, 2021. <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/alcohol.htm>
2. Esser MB, Hedden SL, Kanny D, Brewer RD, Gfroerer JC, Naimi TS. Prevalence of alcohol dependence among US adult drinkers, 2009–2011. *Prev Chronic Dis*. 2014;11:140329. doi: <http://dx.doi.org/10.5888/pcd11.140329>.
3. Centers for Disease Control and Prevention. "Alcohol and Public Health: Binge Drinking." December 30, 2019. <https://www.cdc.gov/alcohol/fact-sheets/binge-drinking.htm>
4. Centers for Disease Control and Prevention. "Impaired Driving: Get the Facts." August 24, 2020. CDC: [https://www.cdc.gov/transportationsafety/impaired\\_driving/impaired-driv\\_factsheet.html](https://www.cdc.gov/transportationsafety/impaired_driving/impaired-driv_factsheet.html)
5. Centers for Disease Control and Prevention. "ARDI Methods." July 6, 2021. CDC: <https://www.cdc.gov/alcohol/ardi/methods.html>

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