3-4-50: Chronic Disease Deaths in San Diego County, Detailed Brief – North Central Region, 2000-2021

What is 3-4-50?

Chronic diseases are among the leading causes of death and disability worldwide.[1] This reflects an improvement in the prevention and treatment of infectious diseases and significant changes in dietary habits, physical activity levels, and tobacco use in the population.[2,3] **Three** behaviors (poor diet, physical inactivity, and tobacco use) contribute to **four** chronic diseases (cancer, heart disease and stroke, type 2 diabetes, and lung diseases such as asthma) that result in over **50** percent of all deaths worldwide. This is the foundation of the 3-4-50 concept.[4] The influence of these three unhealthy behaviors may be seen in San Diego County as these four chronic diseases are among the most common causes of death and disability in our region. Considered together, the 3-4-50 chronic diseases cost $4 billion in direct treatment expenditures in San Diego County in 2007.[5]

3-4-50 in San Diego County

From 2000 to 2021, there has been a decrease in the percentage of county deaths due to 3-4-50 chronic diseases, as well as a decrease in the rate of 3-4-50 chronic disease related deaths in the six Health and Human Services Agency (HHSA) regions. In 2000, 63% of all San Diego County deaths were due to 3-4-50 chronic diseases. However, by 2021, the percentage of deaths due to 3-4-50 chronic diseases had decreased to 43%. In addition, the death rate of 3-4-50 chronic diseases decreased from 440.6 per 100,000 residents in 2000 to 336.2 per 100,000 residents in 2021. Among the HHSA regions, South Region had the highest percentage of deaths due to 3-4-50 chronic diseases every year from 2000 to 2019. However, in 2020, North Inland Region and North Central Region had the highest percentage of deaths due to 3-4-50 chronic diseases at 46%, respectively. In 2021, North Central Region had the highest percentage of deaths due to 3-4-50 chronic diseases (45%), followed by East Region (44%). From 2000 to 2021, the rate of death due to 3-4-50 chronic diseases was generally highest in East Region and lowest in Central Region and North Central Region. Within the regions there were considerable differences in the percentage of deaths due to 3-4-50 chronic diseases among the subregional areas (SRAs), as well as in 3-4-50 chronic disease death rates. More detailed information is provided in the following tables and graphs.

Understanding Public Health Data

This document presents San Diego County death statistics on stroke, coronary heart disease (CHD), diabetes, chronic obstructive pulmonary disease (COPD), asthma, and cancer from 2000 to 2021. Beginning in 2017, COPD includes chronic lower respiratory diseases (COPD/chronic lower respiratory diseases).

- A percentage is a way to express a proportion, or how small or large a quantity is relative to another quantity. For example, 9,870 cases out of a population of 654,321 would be 1.5%. This means that we would expect 1.5% of the population to be a case.
- A rate is the number of cases divided by the population, usually multiplied by a constant. For example, 987 cases, divided by population of 654,321 would be a rate of 150.8 per 100,000 population. This means for every 100,000 people, 150-151 cases would be expected.

Both measures are provided to give a more balanced look at the burden of 3-4-50 chronic diseases within the county. Percentages allow for the comparison of the number of 3-4-50 chronic disease deaths relative to the number of deaths overall. Percentages are influenced by both the number of 3-4-50 chronic disease deaths and the number of all cause deaths. It is important to keep this in mind when interpreting the data. For example, two regions could have the same number of 3-4-50 chronic disease deaths, but could have completely different percentages of 3-4-50 chronic disease deaths based on the number all cause deaths in each area.

	Region A	Region B
Number of 3-4-50 Chronic Disease Deaths	50	50
Number of All Cause Deaths	100	80
Percentage of Deaths Due to 3-4-50 Chronic Diseases	(50/100)*100% = 50%	(50/80)*100% = 62.5%

Rates were calculated to allow for comparison between regions, accounting for the size of each area's population. Like percentages, two regions could have the same number of 3-4-50 chronic diseases deaths but could have completely different rates of 3-4-50 chronic diseases deaths based on the total population of each region.

	Region A	Region B
Number of 3-4-50 Chronic Disease Deaths	50	50
Total Population at Risk	10,000	8,000
Rate of Deaths Due to 3-4-50 Chronic Diseases	(50/1,000) *100,000 = 500 deaths per 100,000 people	(50/8,000) * 100,000 = 625 deaths per 100,000 people

[1] World Health Organization (WHO). "WHO reveals leading causes of death and disability worldwide: 2000-2019", https://www.who.int/news/item/09-12-2020-who-reveals-leading-causes-of-death-and-disability-worldwide-2000-2019 (Accessed April 11, 2023).
[2] Centers for Disease Control and Prevention (CDC). "Ten Great Public Health Achievements --- United States, 2001—2010", https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6019a5.htm (Accessed April 11, 2023)
[3] Centers for Disease Control and Prevention (CDC). "About Chronic Diseases", https://www.cdc.gov/chronicdisease/about/index.htm (Accessed April 11, 2023).
[4] 3Four50, www.3four50.com (Accessed September 22, 2011).
[5] County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit. (October, 2010). 3-4-50: Chronic Disease in San Diego County. Retrieved from www.SDHealthStatistics.com (Accessed April 11, 2023).

3-4-50 Deaths in San Diego County – North Central Region, 2000-2021

The following tables and charts display trends in 3-4-50 chronic disease deaths for the North Central Region of San Diego County.

3-4-50 Death† Percentages* Among San Diego County Residents - North Central Region, 2000-2021**
By SRA

Area	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
San Diego County[a]	63%	63%	61%	60%	59%	58%	57%	57%	56%	56%	56%	54%	54%	55%	54%	53%	53%	51%	50%	50%	45%	43%
North Central Region	63%	61%	62%	60%	60%	59%	58%	56%	56%	55%	54%	54%	55%	53%	53%	53%	51%	50%	49%	48%	46%	45%
SRA																						
Coastal	61%	61%	57%	59%	61%	57%	61%	53%	55%	53%	54%	51%	53%	52%	50%	52%	49%	47%	46%	48%	44%	42%
Del Mar/Mira Mesa	63%	58%	62%	59%	57%	60%	53%	58%	55%	56%	55%	55%	52%	55%	58%	55%	56%	51%	55%	51%	46%	48%
Elliot-Navajo	65%	62%	68%	61%	60%	59%	61%	57%	54%	51%	50%	54%	55%	54%	53%	50%	52%	53%	49%	48%	46%	46%
Kearny Mesa	65%	61%	62%	62%	61%	61%	58%	55%	56%	59%	56%	54%	56%	51%	53%	54%	48%	51%	48%	49%	45%	46%
Miramar	§	§	§	§	§	§	§	§	§	§	§	§	§	§	57%	50%	56%	46%	51%	48%	45%	49%
Peninsula	61%	62%	60%	61%	55%	58%	56%	57%	60%	54%	54%	55%	55%	55%	53%	53%	49%	51%	47%	46%	45%	42%
University	64%	70%	62%	60%	58%	57%	54%	50%	54%	54%	51%	55%	56%	49%	48%	54%	52%	46%	48%	47%	46%	41%

*3-4-50 deaths as a percentage of all-cause deaths.

[a]Deaths with unknown Region or SRA are reflected in the county total, but not in the individual categories. Category sums may not add up to county total.

§Rates and percentages not calculated for fewer than 5 events for the years 2000 to 2019. Rates and percentages not calculated for fewer than 11 events for the years 2020 and 2021. Rates and percentages not calculated in cases where zip code is unknown.

†3-4-50 deaths include stroke, coronary heart disease (CHD), diabetes, COPD, asthma, and cancer. Beginning with 2017, COPD includes chronic lower respiratory diseases (COPD/chronic lower respiratory diseases).

**The COVID-19 pandemic was associated with increases in all-cause mortality. COVID-19 deaths have affected the patterns of mortality including those of 3-4-50 chronic diseases.

Source: California Department of Public Health, 2000-2013 Death Statistical Master Files, 2014-2021 California Vital Records Business Intelligence System (VRBIS).

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, April 2023.

3-4-50 Death† Rates* Among San Diego County Residents - North Central Region, 2000-2021**
By SRA

Area	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
San Diego County[a]	440.6	435.2	402.8	402.7	386.7	373.8	357.8	353.1	347.5	336.6	347.0	347.0	346.2	356.3	329.6	338.8	339.5	334.4	324.0	325.4	329.1	336.2
North Central Region	417.1	388.3	360.1	351.7	348.9	337.6	331.9	305.1	316.6	302.2	299.4	309.3	314.6	310.2	297.4	301.9	283.4	287.8	263.3	278.2	266.2	283.1
SRA																						
Coastal	572.7	505.1	449.3	468.4	495.5	449.9	455.7	377.9	403.1	380.4	406.0	390.4	384.8	404.0	315.2	285.6	272.3	263.9	263.2	307.1	268.6	262.9
Del Mar/Mira Mesa	208.5	169.5	192.9	167.2	173.5	162.9	161.9	171.6	148.8	153.2	170.7	186.8	178.0	182.0	208.5	213.9	222.1	216.1	208.5	212.8	206.9	223.9
Elliot-Navajo	439.6	428.1	434.9	371.2	402.1	366.5	389.1	354.9	329.5	301.4	335.6	355.6	360.1	370.0	341.3	336.3	351.0	357.4	295.8	308.6	329.0	365.5
Kearny Mesa	579.1	559.6	491.3	529.0	496.9	490.5	451.0	416.1	468.4	458.4	431.2	425.2	450.7	415.6	375.0	383.0	337.0	356.4	324.2	336.5	320.9	338.2
Miramar	§	§	§	§	§	§	§	§	§	§	§	§	§	§	249.0	209.1	254.6	243.4	204.6	226.7	219.5	253.6
Peninsula	397.7	388.0	361.8	314.4	292.5	334.0	317.5	311.8	323.6	322.7	257.4	282.3	287.7	326.4	304.0	330.6	265.2	317.3	272.8	280.6	245.4	274.8
University	307.8	301.2	233.8	245.6	241.3	238.3	250.8	206.9	247.7	202.4	191.3	231.6	239.4	201.8	252.9	284.1	263.7	239.5	222.6	243.8	228.8	211.1

*Rates per 100,000 population. Population estimates for 2020 and 2021 were derived using the 2010 Census and data should be considered preliminary.

[a]Deaths with unknown Region or SRA are reflected in the county total, but not in the individual categories. Category sums may not add up to county total.
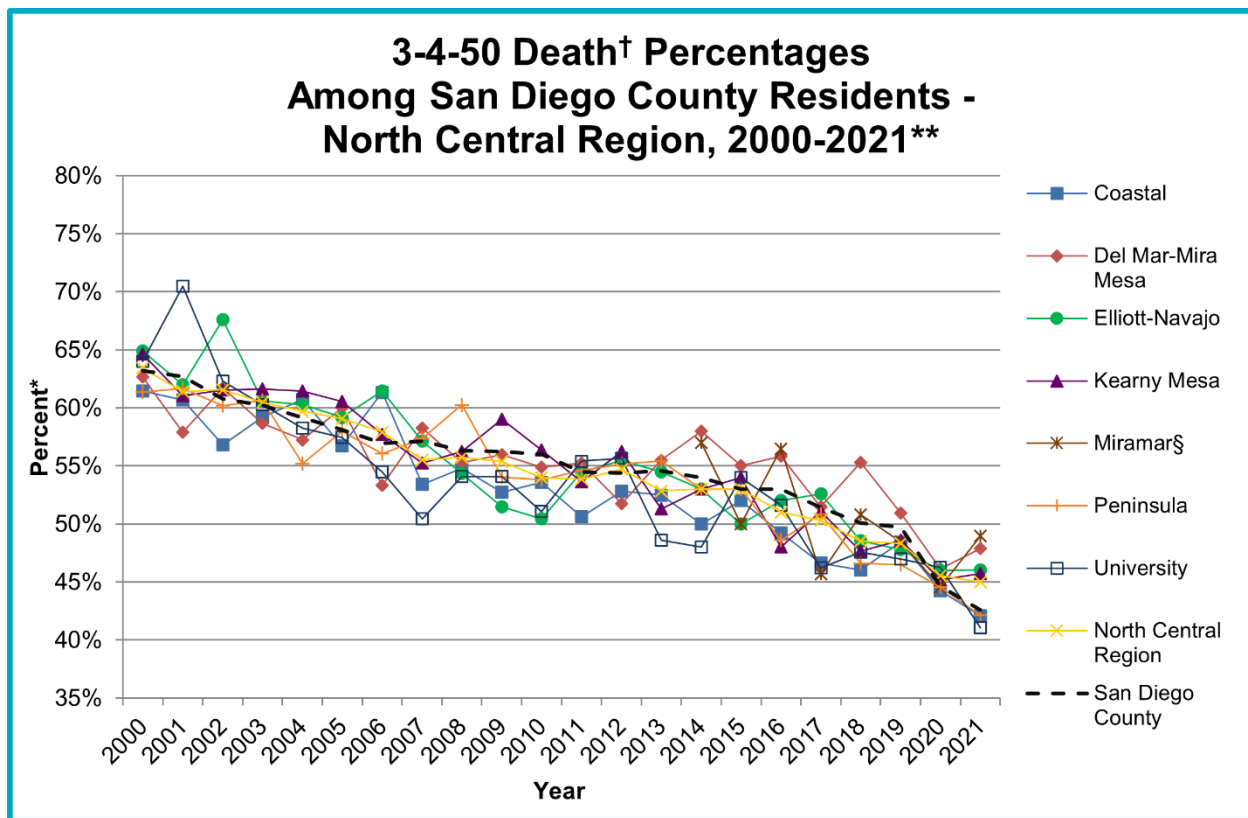
§Rates and percentages not calculated for fewer than 5 events for the years 2000 to 2019. Rates and percentages not calculated for fewer than 11 events for the years 2020 and 2021. Rates and percentages not calculated in cases where zip code is unknown.

†3-4-50 deaths include stroke, coronary heart disease (CHD), diabetes, COPD, asthma, and cancer. Beginning with 2017, COPD includes chronic lower respiratory diseases (COPD/chronic lower respiratory diseases).

**The COVID-19 pandemic was associated with increases in all-cause mortality. COVID-19 deaths have affected the patterns of mortality including those of 3-4-50 chronic diseases.

Source: California Department of Public Health, 2000-2013 Death Statistical Master Files, 2014-2021 California Vital Records Business Intelligence System (VRBIS). SANDAG, Current Population Estimates.

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, April 2023.

3-4-50 Death† Percentages Among San Diego County Residents - North Central Region, 2000-2021**

*3-4-50 deaths as a percentage of all cause deaths.

†3-4-50 deaths include stroke, coronary heart disease (CHD), diabetes, COPD, asthma, and cancer. Beginning with 2017, COPD includes chronic lower respiratory diseases (COPD/chronic lower respiratory diseases).

§Percents not calculated for fewer than 5 events for the years 2000 to 2019. Percents not calculated for fewer than 11 events for the years 2020 and 2021. Percents not calculated in cases where zip code is unknown.
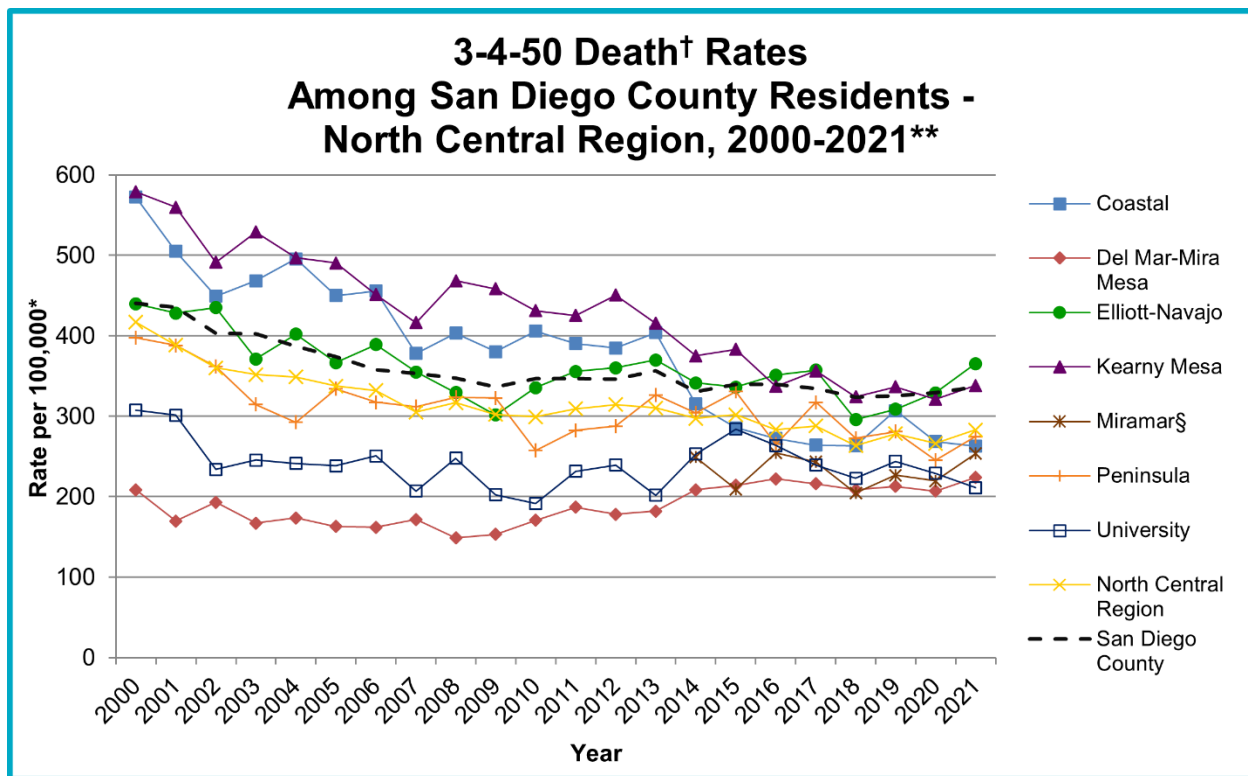
**The COVID-19 pandemic was associated with increases in all-cause mortality. COVID-19 deaths have affected the patterns of mortality including those of 3-4-50 chronic diseases.

Source: California Department of Public Health, 2000-2013 Death Statistical Master Files, 2014-2021 California Vital Records Business Intelligence System (VRBIS).

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, April 2023.

3-4-50 in North Central Region:

- Overall, the percentage of deaths due to 3-4-50 chronic diseases decreased in North Central Region and its subregional areas (SRAs) from 2000-2021.
- Among the North Central Region SRAs, Miramar had the highest percentage of deaths due to 3-4-50 chronic diseases in 2021.
- Among the North Central Region SRAs, University had the lowest percentage of 3-4-50 chronic disease deaths in 2021.

3-4-50 Death† Rates
Among San Diego County Residents -
North Central Region, 2000-2021**

*Rates per 100,000 population. Population estimates for 2020 and 2021 were derived using the 2010 Census and data should be considered preliminary.

†3-4-50 deaths include stroke, coronary heart disease (CHD), diabetes, COPD, asthma, and cancer. Beginning with 2017, COPD includes chronic lower respiratory diseases (COPD/chronic lower respiratory diseases).

§Rates not calculated for fewer than 5 events for the years 2000 to 2019. Rates not calculated for fewer than 11 events for the years 2020 and 2021. Rates not calculated in cases where zip code is unknown.

**The COVID-19 pandemic was associated with increases in all-cause mortality. COVID-19 deaths have affected the patterns of mortality including those of 3-4-50 chronic diseases.

Source: California Department of Public Health, 2000-2013 Death Statistical Master Files, 2014-2021 California Vital Records Business Intelligence System (VRBIS). SANDAG, Current Population Estimates.

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, April 2023.

3-4-50 in North Central Region:

- Overall, the 3-4-50 chronic diseases death rate decreased in North Central Region and all its SRAs, except Del Mar-Mira Mesa, from 2000-2021.
- Among the North Central Region SRAs, Kearny Mesa generally had the highest 3-4-50 chronic disease death rates from 2000-2015 and 2018-2019. Elliott-Navajo SRA had the highest death rate due to 3-4-50 chronic diseases from 2020-2021.
- Among the North Central Region SRAs, Del Mar-Mira Mesa had the lowest 3-4-50 chronic disease death rates from 2000-2017 and 2019-2020, while Miramar and University had the lowest death rates in 2018 and 2021, respectively.