

3-4-50: Chronic Disease Deaths in San Diego County, Detailed Brief – Central Region 2000-2022

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 2000-2022, 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 (HHS) regions. In 2000, 63% of all San Diego County deaths were due to 3-4-50 chronic diseases. However, by 2022, the percentage of deaths due to 3-4-50 chronic diseases had decreased to 44%. In addition, the death rate of 3-4-50 chronic diseases decreased from 440.6 per 100,000 residents in 2000 to 334.3 per 100,000 residents in 2022. Among the HHS regions, South Region had the highest percentage of deaths due to 3-4-50 chronic diseases every year from 2000-2019. 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 (45%) due to 3-4-50 chronic diseases, while in 2022, Central, East, and South Regions had the highest percentage of deaths (45%). From 2000-2022, 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 2000-2022. 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 of 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 | $(50/10,000) * 100,000 = 500$ 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 February 8, 2024).

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 February 8, 2024)

³ Centers for Disease Control and Prevention (CDC). "About Chronic Diseases", <https://www.cdc.gov/chronicdisease/about/index.htm> (Accessed February 8, 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.

3-4-50 Deaths in San Diego County – Central Region, 2000-2022

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

3-4-50 Death[†] Percentages* Among San Diego County Residents - Central Region, 2000-2022**

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 | 2022 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| San Diego County[§] | 63% | 63% | 61% | 60% | 59% | 58% | 57% | 57% | 56% | 56% | 56% | 54% | 54% | 55% | 54% | 53% | 53% | 51% | 50% | 50% | 45% | 43% | 44% |
| Central Region | 61% | 60% | 59% | 58% | 58% | 55% | 56% | 56% | 55% | 56% | 57% | 55% | 54% | 53% | 55% | 54% | 53% | 51% | 51% | 51% | 44% | 42% | 45% |
| SRA | | | | | | | | | | | | | | | | | | | | | | | |
| Central San Diego | 58% | 57% | 58% | 55% | 57% | 54% | 54% | 54% | 54% | 53% | 56% | 53% | 52% | 52% | 54% | 51% | 50% | 48% | 51% | 50% | 41% | 40% | 46% |
| Mid City | 63% | 62% | 57% | 60% | 56% | 55% | 58% | 57% | 54% | 55% | 55% | 54% | 53% | 50% | 55% | 53% | 52% | 52% | 49% | 50% | 45% | 42% | 44% |
| Southeastern San Diego | 63% | 61% | 64% | 59% | 60% | 55% | 56% | 57% | 58% | 59% | 62% | 57% | 59% | 57% | 57% | 58% | 58% | 54% | 52% | 53% | 44% | 44% | 47% |

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

[§]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.

[§]Percentages not calculated for fewer than 5 events for the years 2000 to 2019. Percentages not calculated for fewer than 11 events for the years 2020-2022. 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, 2014-2022 California Vital Records Business Intelligence System (VRBIS).

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHS), Public Health Services (PHS), Community Health Statistics Unit, January 2024.

3-4-50 Death[†] Rates* Among San Diego County Residents - Central Region, 2000-2022**

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 | 2022 |
|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| San Diego County[§] | 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 | 334.3 |
| Central Region | 391.3 | 377.3 | 363.5 | 347.7 | 339.8 | 318.2 | 304.3 | 297.0 | 286.3 | 294.8 | 310.7 | 305.2 | 305.2 | 303.2 | 305.1 | 301.4 | 303.9 | 292.2 | 288.5 | 287.3 | 286.2 | 305.3 | 311.1 |
| SRA | | | | | | | | | | | | | | | | | | | | | | | |
| Central San Diego | 458.2 | 441.2 | 420.1 | 393.4 | 380.5 | 345.9 | 332.9 | 315.3 | 313.9 | 302.8 | 322.5 | 305.5 | 298.5 | 327.2 | 302.2 | 287.6 | 281.0 | 259.8 | 263.9 | 250.8 | 234.0 | 255.4 | 308.2 |
| Mid City | 370.6 | 366.7 | 328.6 | 334.7 | 310.7 | 303.0 | 295.7 | 286.2 | 254.4 | 271.9 | 296.2 | 291.1 | 269.9 | 257.7 | 268.6 | 275.7 | 277.1 | 282.3 | 257.3 | 258.3 | 282.0 | 268.6 | 267.4 |
| Southeastern San Diego | 346.8 | 323.9 | 344.1 | 315.6 | 329.7 | 305.1 | 284.0 | 289.4 | 290.8 | 310.3 | 313.2 | 319.7 | 338.1 | 325.3 | 365.5 | 365.7 | 386.7 | 365.6 | 379.0 | 390.9 | 392.3 | 445.5 | 380.1 |

*Rates per 100,000 population.

[§]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.

[†]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).

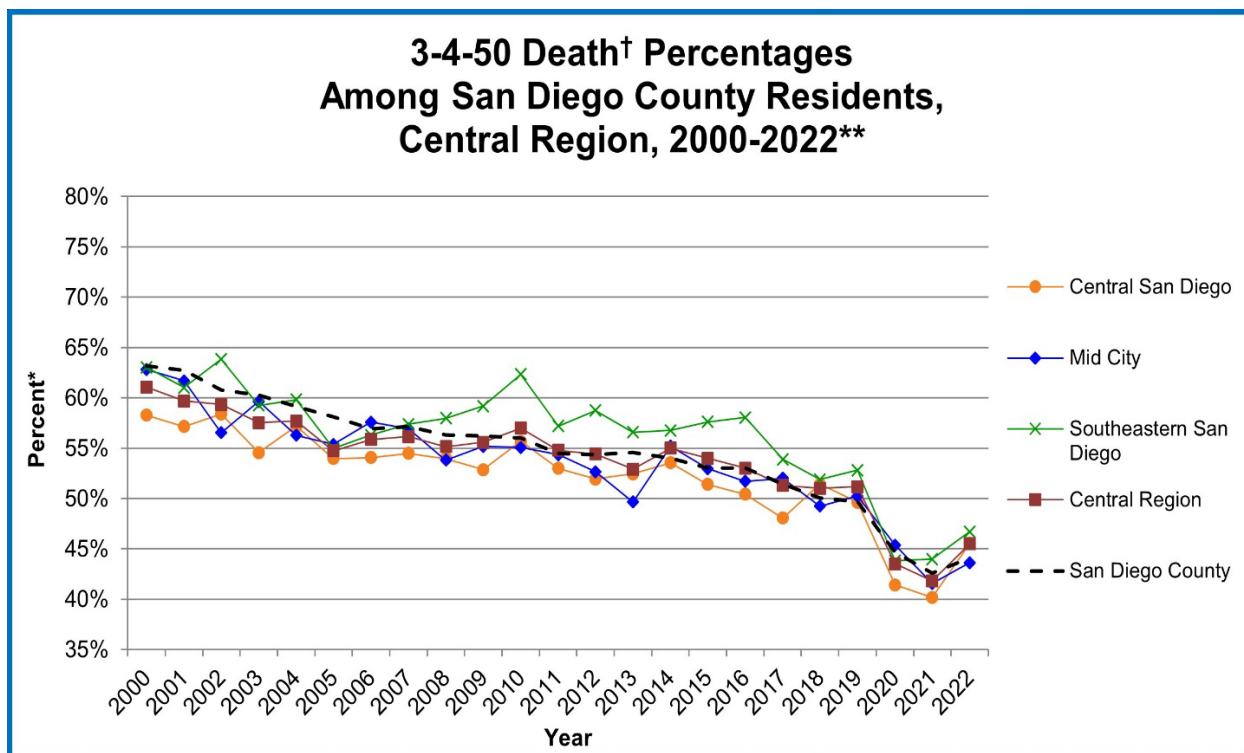
[§]Rates not calculated for fewer than 5 events for the years 2000 to 2019. Rates not calculated for fewer than 11 events for the years 2020-2022. Rates not calculated in cases where zip code is unknown.

**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, 2014-2022 California Vital Records Business Intelligence System (VRBIS). SANDAG, Current Population Estimates.

2020-2021 population estimates were derived using the 2010 decennial census and data should be considered preliminary. 2022 population estimates were derived from the 2020 decennial census.

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHS), Public Health Services (PHS), Community Health Statistics Unit, January 2024.



*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 2020-2022. Percents not calculated in cases where zip code is unknown.

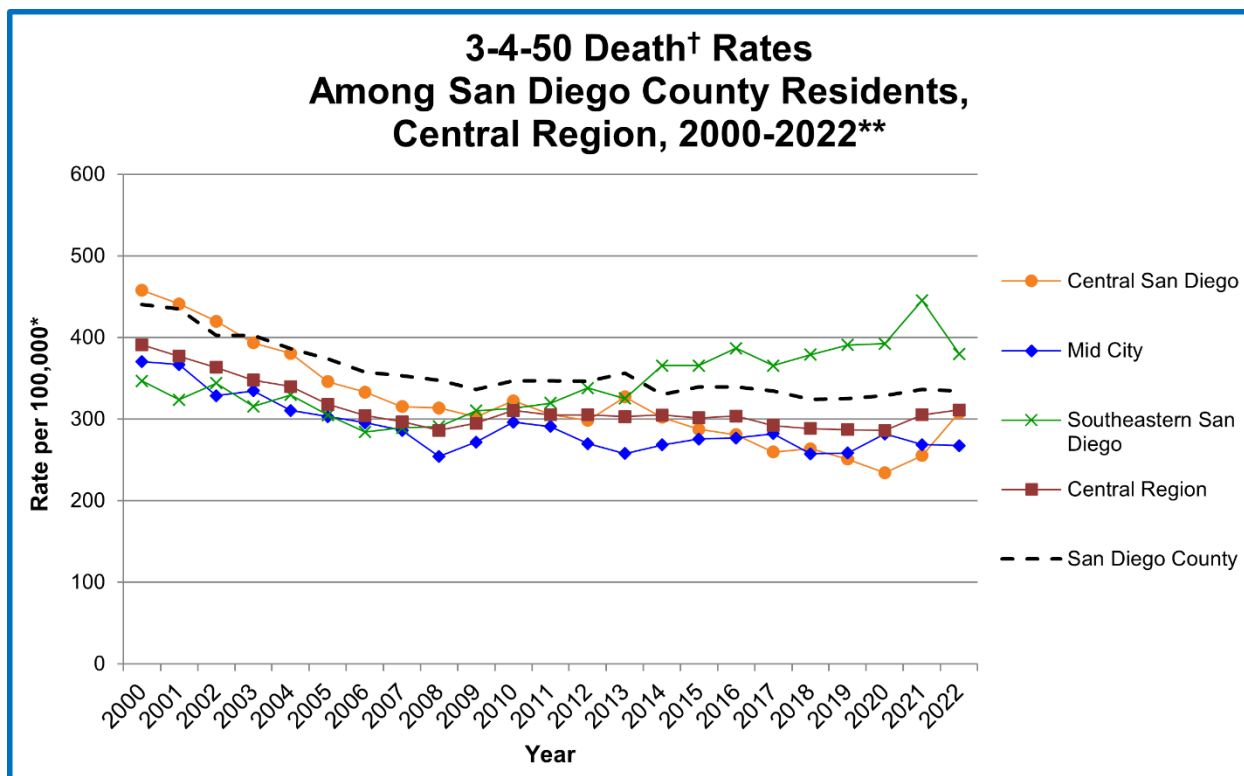
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Source: California Department of Public Health, 2000-2013 Death Statistical Master Files, 2014-2022 California Vital Records Business Intelligence System (VRBIS).

Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, January 2024.

3-4-50 in Central Region:

- Overall, the percentage of deaths due to 3-4-50 chronic diseases decreased in Central Region and its subregional areas (SRAs) from 2000-2022.
- From 2000 to 2022, Mid City experienced the largest percentage decrease in the proportion of deaths from 3-4-50 chronic diseases compared to all other SRAs in the Central Region.
- Among the Central Region SRAs, Central San Diego had the lowest percentage of deaths due to 3-4-50 chronic diseases between 2000-2022, except in 2002, 2004, 2010, 2013, 2018, and 2022 when Mid City had the lowest percentage.



*Rates per 100,000 population.

†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).

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Prepared by County of San Diego (CoSD), Health and Human Services Agency (HHSA), Public Health Services (PHS), Community Health Statistics Unit, January 2024.

3-4-50 in Central Region:

- From 2000-2022, the death rate due to 3-4-50 chronic diseases decreased in Central Region and its SRAs, except in Southeastern San Diego SRA where the rate increased by 9.6%.
- Among the Central Region SRAs, Southeastern San Diego had higher death rates due to 3-4-50 chronic diseases compared to Central Region and San Diego County overall from 2014-2022.
- Among the Central Region SRAs, Central San Diego had the greatest decrease in death rates due to 3-4-50 chronic diseases from 458.2 per 100,000 residents in 2000 to 308.2 per 100,000 residents in 2022.