

ALZHEIMER'S DISEASE AND RELATED DEMENTIAS IN SAN DIEGO COUNTY

APRIL 2018





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APRIL 2018

County of San Diego
Health and Human Services Agency

Aging & Independence Services
Public Health Services

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ALZHEIMER'S DISEASE AND RELATED DEMENTIAS IN SAN DIEGO COUNTY

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Dear San Diego County Residents:

In 2014, the San Diego County Board of Supervisors launched The Alzheimer's Project – an innovative, collaborative initiative bringing together world-class researchers, health care professionals, and community leaders to fight the growing Alzheimer's Disease and Related Dementias (ADRD) epidemic in our region. In the years since, we have made progress towards increasing awareness of this group of diseases, educating clinicians on providing appropriate dementia care, implementing programs to keep our seniors safe, and collaborating with academic and research-oriented partners to find a cure.

Accomplishments of The Alzheimer's Project in the past year include:

- Supported eight local research projects
- Finalized physician guidelines for the screening, diagnosis and management of ADRD
- Secured a \$1 million federal grant to enhance services for those with ADRD and their caregivers
- Launched The Alzheimer's Project website

To support and guide the work of The Alzheimer's Project, this report provides a snapshot of the increasing burden of ADRD. It describes the current number of San Diegans living with ADRD, which of our Health and Human Services Agency service regions are most affected, the burden of ADRD on our healthcare system, and the value of unpaid care provided by the families and friends of those suffering from ADRD.

As our residents age, and more members of our community develop Alzheimer's disease or a related dementias, the toll this devastating group of diseases takes on those directly and indirectly affected grows. We are working to get ahead of it, but there is still a lot of work to do.

Kristin Gaspar
Chairwoman, 3rd District

Dianne Jacob
Vice-Chairwoman, 2nd District



County of San Diego

NICK MACCHIONE, FACHE
AGENCY DIRECTOR

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CHUCK MATTHEWS, PhD
INTERIM DIRECTOR,
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April 12, 2018

Dear San Diegans:

The County of San Diego Health and Human Services Agency is proud to release the third edition of *Alzheimer's Disease and Related Dementias in San Diego County*. This group of diseases, their effects, and the care required for those suffering from them has a significant effect on those directly and indirectly affected within our community.

The San Diego County Board of Supervisors adopted *Live Well San Diego* in 2010. This regional vision aligns the efforts of government, community partners, and individuals to help all San Diego County residents be healthy, safe, and thriving.

In May 2014, the vision for The Alzheimer's Project was adopted by the Board of Supervisors. A partnership between local government, community leaders and research collaboratives, The Alzheimer's Project created a plan to address the disease within our community, and emphasized working together to find a cure. This report contributes an important component to understanding the actual burden of Alzheimer's Disease and Related Dementias (ADRD) within our community: how many residents are directly affected, how much unpaid care is required to care for those affected, and the number of hospitalizations and emergency department discharges that occur as a result of ADRD, or from related complications.

This report describes the prevalence of ADRD in our community for the lifetime of an individual with ADRD, the average costs should they need to be hospitalized, the value of unpaid care given by informal (family) caregivers. Currently over 84,000 San Diegans are suffering from ADRD. If nothing changes, that number is expected to increase to over 115,000 by 2030. Understanding the number of San Diegans suffering from this devastating disease, and the burden on the local healthcare system is an essential part of the County of San Diego's *Live Well San Diego* vision. This report brings the real burden of ADRD to light.

NICK MACCHIONE, FACHE
Agency Director

CHUCK MATTHEWS, PhD., Interim Director
Aging & Independence Services

TABLE OF CONTENTS

ALZHEIMER'S DISEASE AND RELATED DEMENTIAS IN SAN DIEGO COUNTY

FOREWORD	i
EXECUTIVE SUMMARY	ii
INTRODUCTION	1
ALZHEIMER'S DISEASE AND RELATED DEMENTIAS (ADRD) DATA:	
SAN DIEGO COUNTY	3
CENTRAL REGION	7
EAST REGION	10
NORTH CENTRAL REGION	13
NORTH COASTAL REGION	16
NORTH INLAND REGION	19
SOUTH REGION	22
CAREGIVERS IN SAN DIEGO COUNTY	25
EARLY SIGNS AND SYMPTOMS	27
HEALTHY BRAIN STRATEGIES	29
REFERENCES	31
DATA GUIDE AND DEFINITIONS	33
APPENDIX A: ADRD PREVALENCE ESTIMATES AND PROJETIONS BY GEOGRAPHY.....	37
APPENDIX B: ADRD PRIMARY DIAGNOSIS MEDICAL ENCOUNTER RATES.....	39

FOREWORD

Live Well San Diego is a regional vision adopted by the San Diego County Board of Supervisors in 2010 that aligns the efforts of County government, community partners and individuals to help all San Diego County residents be healthy, safe, and thriving. The vision includes three components. Building Better Health, adopted on July 13, 2010, focuses on improving the health of residents and supporting healthy choices; Living Safely, adopted on October 9, 2012, focuses on protecting residents from crime and abuse, making neighborhoods safe, and supporting resilient communities; and, Thriving, adopted on October 21, 2014, focuses on cultivating opportunities for all people to grow, connect and enjoy the highest quality of life. *Live Well San Diego* encompasses community engagement on all levels. It starts with individuals and families who are leading efforts to be healthy, safe and thriving and grows through County-community partnerships to convene working groups, conduct program activities, and leverage each other's resources and capabilities to improve the health, safety and overall well-being of residents throughout San Diego County.

In alignment with the *Live Well San Diego* vision, The Alzheimer's Project was launched in 2014, with a goal of uniting political leadership, research institutions, public universities, health care systems, and caregiver groups in finding a cure for this devastating group of diseases and supporting patients and families of those with Alzheimer's Disease or Related Dementias (ADRD). In the years since, we have made progress towards increasing awareness of ADRD, educating clinicians on providing appropriate dementia care, Implementing programs to keep our seniors safe, and working together with our research partners to find a cure.

This report provides important information on how many people in our region are directly and indirectly affected by ADRD, including how many people suffer from the disease, and how many have become informal caregivers to those directly affected, and the value of the informal care provided. It also shows how often those with ADRD visit local emergency departments, and how often they become hospitalized as a result of ADRD or its complications. Data is provided for the county overall, as well as for the Health and Human Services Agency's service regions and subregional areas. To inform future efforts, projections for the number of people living with ADRD are also presented as well as hospitalizations we could expect if Alzheimer's disease continues to develop at the current rate among our increasing aging population.

This report is intended to detail the burden of Alzheimer's Disease to our community and the medical system. Knowing this will help us support our residents touched by ADRD and know where more resources are needed – to help everyone in our region build better health, live safely, and thrive.



WILMA J. WOOTEN, M.D., M.P.H.
Public Health Officer
Director, Public Health Services

EXECUTIVE SUMMARY



Alzheimer's Disease and Related Dementias

Alzheimer's disease is the most common form of dementia, accounting for 60-80 percent of cases, yet all dementias are characterized by a decline in thinking skills, memory loss, and reduced ability to perform everyday activities.¹ The Alzheimer's Association, in conjunction with medical experts, expanded the definition of Alzheimer's disease and related dementias (ADRD) to include additional dementia diagnoses. This has increased the estimate of the number of persons living with ADRD.

Alzheimer's disease is the sixth leading cause of death in the U.S.,² and the third leading cause of death in California and San Diego County.³ In 2015, an estimated 84,405 San Diegans age 55 years and older were living with ADRD, accounting for 11% of the 55 years and older population.^{1, 4} In 2015, more than 35,000 San Diegans age 55 years and older were discharged from the emergency department (ED) or hospital with any mention of ADRD.

Assuming current trends continue, by 2030 just over 115,000 residents 55 years and older will be living with ADRD, a 36% increase from 2015. In addition, nearly 55,000 San Diego County residents age 55 years and older are projected to be discharged from the ED or hospital with a mention of ADRD by 2030.⁴

In 2015:
84,405 San Diegans
age 55 years and older
were living with
ADRD.

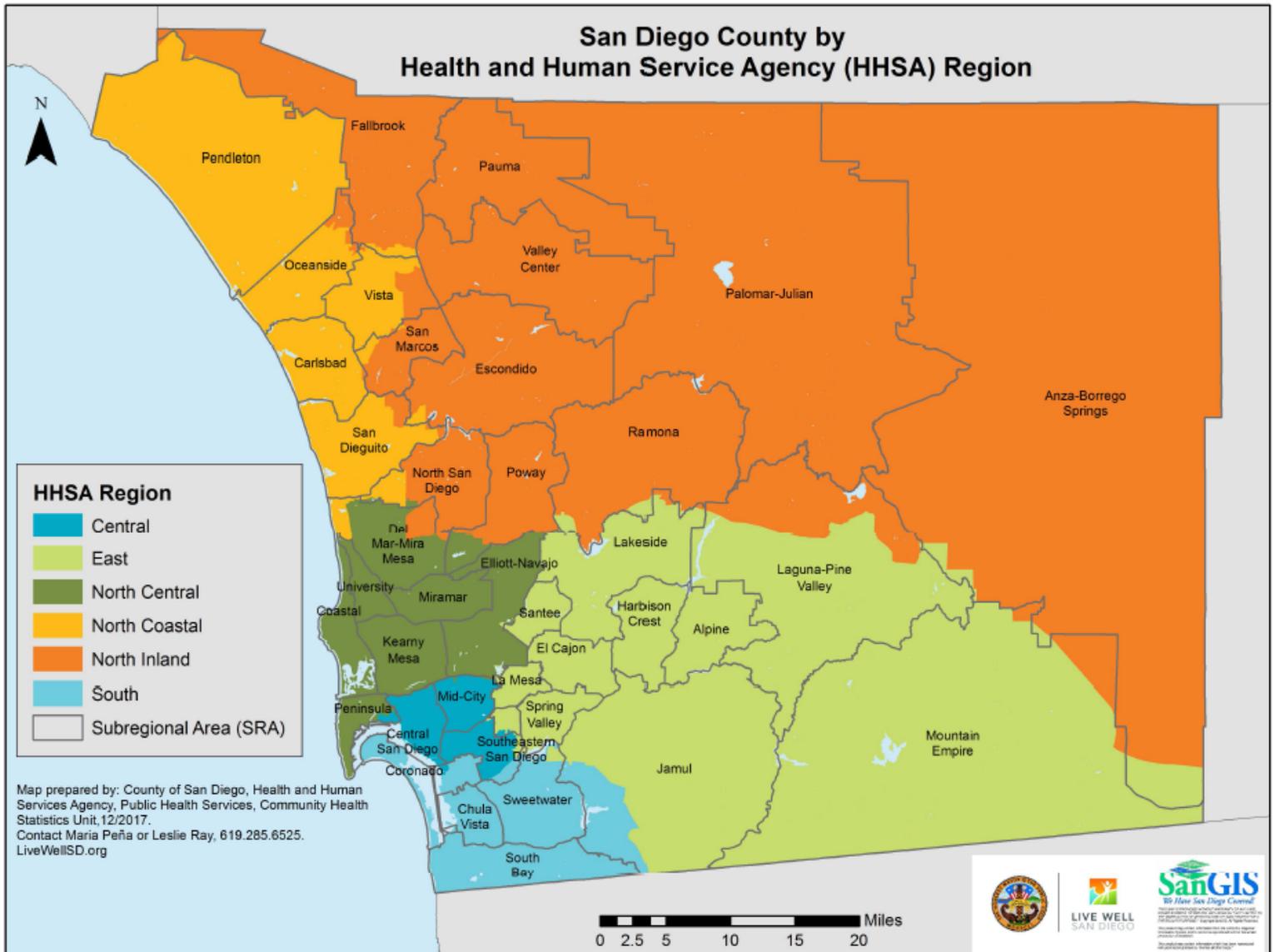


By 2030:
115,000 San Diegans
age 55 years and older
will be living with ADRD,
an increase of 36%
from 2015.

EXECUTIVE SUMMARY

ADRD Among Health and Human Services Agency Regions

The County of San Diego Health and Human Services Agency is divided into six different service delivery regions, based on geographic boundaries. These regions are Central, East, North Central, North Coastal, North Inland, and South.



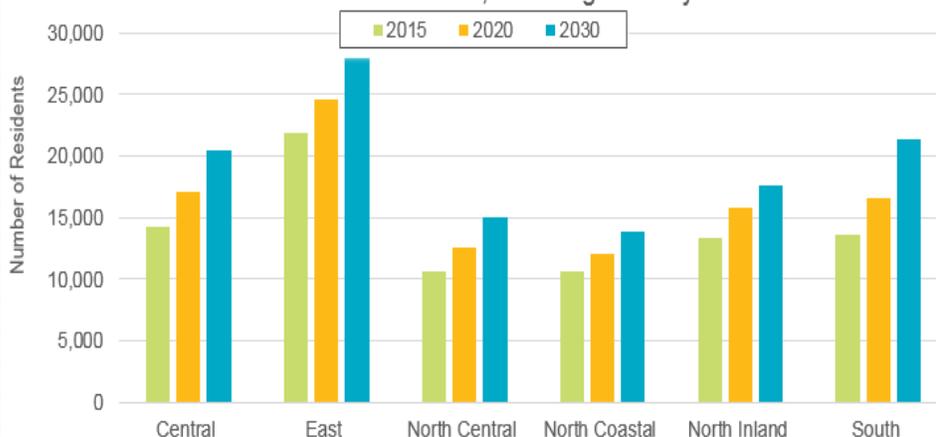
EXECUTIVE SUMMARY

Compared to the other Health and Human Services Agency Regions, in 2015⁴:

- East Region had the greatest number (21,901) and proportion (16.7%) of residents age 55 years and older living with ADRD.
- Similarly, East Region had the highest rate (5,832.1 per 100,000 residents) of residents discharged from the ED or hospital with any mention of ADRD.
- North Coastal Region had the smallest population age 55 years and older living with ADRD (10,626).
- North Central Region had the lowest proportion (6.8%) of its 55 years and older population living with ADRD.
- North Inland Region had the lowest rate (3,727 per 100,000 residents) of residents discharged from the ED or hospital with any mention of ADRD.

Data is also available by other geographic boundaries, including Supervisor District and Municipal city boundaries in the appendix.

Estimated Number of Residents with Alzheimer's Disease and Related Dementias by Health and Human Services Agency Region, 55 Years and Older, San Diego County



Prepared by: County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 2017.

In 2015, East Region had the greatest number of residents, aged 55 years and older, living with ADRD.

EXECUTIVE SUMMARY



Caregivers in San Diego County

In 2015, over 214,300 caregivers provided unpaid care for the 84,405 people living with ADRD in San Diego County.^{1,4} These caregivers provided over 244 million hours of unpaid care, valued at just over \$3 billion dollars. By 2030, there will be over 115,000 San Diegans age 55 years and older living with ADRD, which will require nearly 300,000 caregivers to provide over 333 million hours of unpaid care a year. This care is estimated to be worth \$4.2 billion in 2015 dollars.^{1,4}

The work required of caregivers, including the physical tasks, organization, and required planning can lead to increased emotional stress, depression, financial hardships, and poor health.¹ In 2015, the health care costs to caregivers due to the physical and emotional impact of caregiving were approximately \$134 million dollars. By 2030, the health care costs of unpaid caregivers will increase to \$182.6 million a year in 2015 dollars.^{1,4}

For information on resources for those living with ADRD and their caregivers, contact the County of San Diego Aging & Independence Services at 800-510-2020 or Alzheimer's San Diego (<https://www.alzsd.org/>).

By 2030, among Health and Human Services Agency Regions⁴:

- East Region is projected to remain the region with the greatest number (27,894) of and proportion (16.3%) of residents age 55 years and older living with ADRD. East Region is also expected to have the highest number (11,849) of residents discharged from the ED or hospital with any mention of ADRD.
- North Coastal Region will remain the region with the lowest number of residents 55 years and older living with ADRD (13,875), while North Central Region will remain the region with the lowest proportion of residents 55 years and older living with ADRD (7.1%).
- Central Region is projected to have the least number (7,351) of its residents discharged from the ED or hospital with any mention of ADRD.

By 2030, East Region will continue to have the greatest number and proportion of residents 55 years and older living with ADRD.

EXECUTIVE SUMMARY

Signs, Symptoms, and Prevention

The Alzheimer's Association has described 10 early signs and symptoms that are typical of Alzheimer's disease. These include memory loss that disrupts daily life, challenges in planning or solving problems, and difficulty completing familiar tasks at home, work, or during leisure time.⁵ However, these early signs and symptoms are not meant to replace an evaluation by a doctor trained in the diagnosis of ADRD.

Although there is no cure for ADRD, several studies have suggested that it may be possible to

delay or prevent the onset of ADRD by practicing brain health strategies.⁶ Many of the recommendations for maintaining physical health can be used for brain health, such as eating a balanced diet, managing chronic conditions, and being physically active. For more information, visit <http://www.alz.org> and <http://www.nia.nih.gov>.



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INTRODUCTION

Alzheimer's disease is the third leading cause of death in San Diego County, and the sixth leading cause of death in the U.S.^{1,2} In May 2014, the San Diego County Board of Supervisors voted to launch The Alzheimer's Project to address the devastating effects of the disease on affected individuals, their families and the region's health care system. The Alzheimer's Project is bringing together the region's caregivers, researchers, clinicians, advocacy groups and leadership to inventory and improve caregiver resources and provide support for local efforts to find a cure. The Alzheimer's Project includes six major components:

- **Cure:** enhance the awareness, partnerships and funding for Alzheimer's disease research.
- **Care:** develop a countywide plan to improve the network of services for those afflicted with the disease and their caregivers.
- **Clinical:** address improving medical care for patients with Alzheimer's disease and related dementias (ARD).
- **Education/Awareness:** develop a multi-faceted education and public awareness campaign.
- **Legislation:** support legislation that increases funding for Alzheimer's disease research and provides resources for caregivers, family members, and those directly affected by the disease.
- **Funding:** identify and pursue opportunities for additional resources to support the Alzheimer's Project.



The Alzheimer's Project supports the *Live Well San Diego* vision, which encourages residents to live healthy, safe, and thriving lives. *Live Well San Diego* is a comprehensive, long term plan to advance the health and well-being of all San Diegans through a collective effort that involves residents, community, faith-based organizations, business, schools, law enforcement, local city and tribal jurisdictions, and the County of San Diego.

The Alzheimer's Project will take on and inventory and improve resources for San Diegans living with ARD and their caregivers in order to enhance their ability to live healthy, safe, and thriving lives. Specifically, improving coordination and communication related to ARD care and raising awareness for early diagnosis will improve the health of San Diegans with ARD as well as the health of their caregivers. An inventory of resources and facilities with designated ARD programs as well as education on environmental modifications will ensure the safety of those living with the disease. Lastly, improving the entire network of services enhances the quality of life for San Diegans living with ARD and their caregivers, allowing them to thrive through all stages of the disease.

For more information on *Live Well San Diego*, visit <http://LiveWellSD.org>.

INTRODUCTION

This report provides the following estimates for San Diego County and each of the six Health and Human Services Agency Regions for residents age 55 years and over:

- 1) The number and proportion of residents living with ADRD in 2015. These estimates represent the burden that ADRD has on San Diego County as a whole.
- 2) The number, proportion and rate of residents discharged from the emergency department or hospital with any mention of ADRD as well as a principle diagnosis of ADRD during a medical visit in 2015. The number and proportion represent the annual burden on the community. The rate represents an individual's risk and odds of an outcome.
- 3) Projections of the number and proportion of San Diegans living with ADRD for years 2020 and 2030. These projections were estimated based on what is known today about ADRD and population projections. If there is no change in the rate of ADRD, and/or if a cure or preventive therapy is not available, the projections in this report reflect what we would expect by 2020 and 2030.

In Health and Human Services Agency Region sections, information on communities, or subregional areas (SRAs), is also provided. Other geopolitical boundaries are presented in the Appendix.

Why Alzheimer's Disease and Related Dementias?

Alzheimer's disease is the most common form of dementia, accounting for 60-80 percent of cases, yet all dementias are characterized by a decline in thinking skills, memory loss, and reduced ability to perform everyday activities.³ The Alzheimer's Association, in conjunction with medical experts, expanded the definition of ADRD to include additional dementia diagnoses. This has increased the estimate of the number of persons living with ADRD.

The specific definition of ADRD was developed and modeled after review of publications and national standards for reporting ADRD by the Alzheimer's Association. The definition includes major causes of dementia such as Alzheimer's disease, frontotemporal dementia, and vascular dementia. Related forms of dementia include senility and mild cognitive impairment. For a complete list of conditions included in the definition of ADRD, and the corresponding International Classification of Disease (ICD) 10 codes, refer to the Data Guide and Definitions section.

For more information, refer to the Data Guide and Definitions Section of this report or contact the

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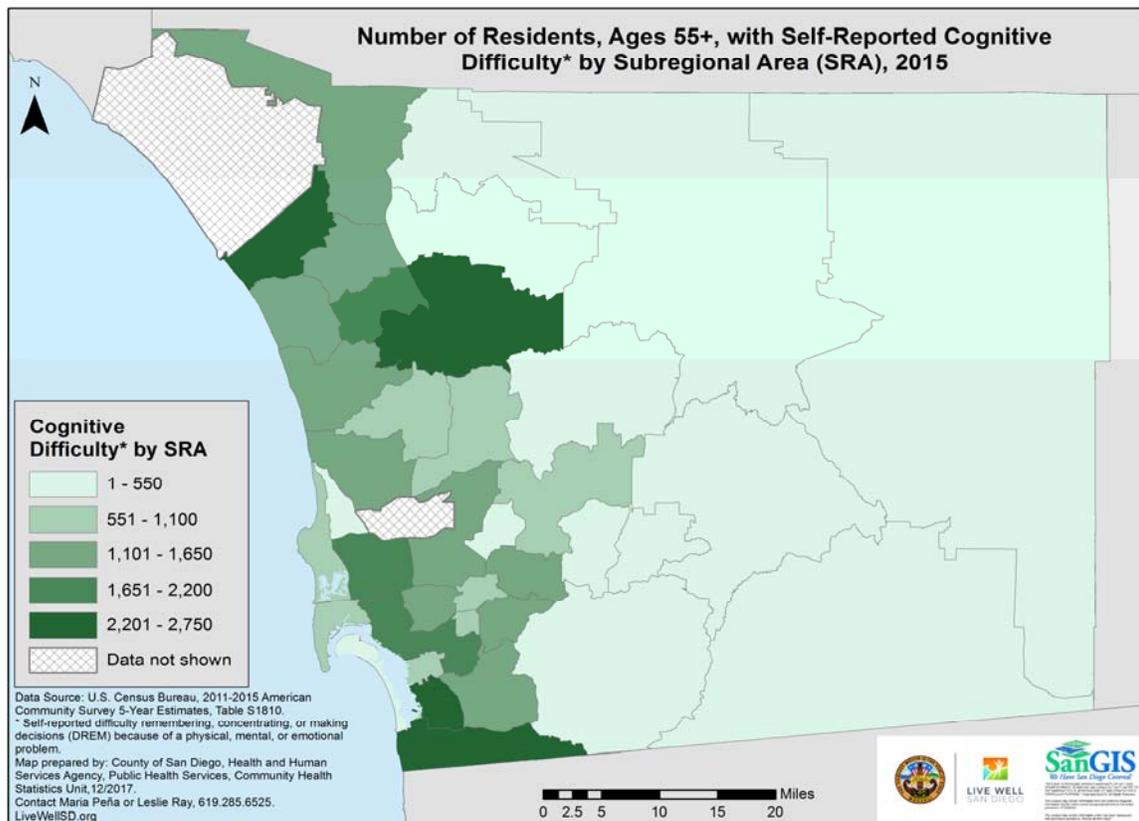
SAN DIEGO COUNTY



San Diego County is a large region, covering more than 4,200 square miles of coastal, valley, mountain, and desert areas. In 2015, almost 3.3 million people called San Diego County home.⁴ Nearly half of this population was white and one third was Hispanic. In 2015, there were more than 785,000 San Diego County residents over the age of 55 years, accounting for roughly one quarter of the total population.⁵

Of the nearly 398,000 San Diegans age 65 years and older, more than half were married while a quarter were living alone in 2015. The average older adult household earned \$60,039 a year and just over one in four older adult households had income below 200% of the Federal Poverty Level.⁴

In 2015, just over one in three older adults reported having some kind of disability, such as hearing, vision, or cognitive disabilities. Roughly one in four older adults reported having an ambulatory disability, indicating a difficulty with walking or climbing stairs.⁶ Another commonly reported disability was with independent living, indicating difficulty doing certain activities alone, such as shopping or visiting a doctor's office.⁶ The Health and Human Services Agency (HHS) East and South Regions had the highest proportions of older adults with a disability, each with about two in five residents age 65 years and older reporting some type of disability. These limitations, along with financial barriers, pose challenges to the medical and social care systems in San Diego County and the ability to provide care for those living with Alzheimer's disease and related dementias (ADRD).



SAN DIEGO COUNTY

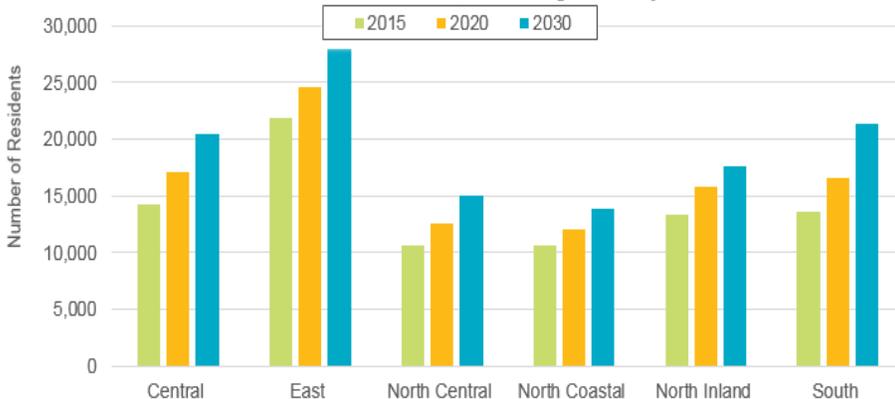
Projections of Alzheimer's Disease and Related Dementias in San Diego County

Countywide, the number of San Diegans age 55 years and older living with ADRD is expected to increase by 36.5% between 2015 and 2030, an increase from 84,405 to more than 115,000 residents living with ADRD by 2030. The region with the largest estimated increase in residents living with ADRD is South Region, with an increase of 57.2% from 2015 to 2030. However, it is projected that 24% of all San Diegans age 55 years and older living with ADRD will live in East Region in 2030.

In 2030, over 55,200 San Diego County residents age 55 years and older are expected to be discharged from the ED or hospital with a mention of ADRD. This is a 56.2% increase between 2015 and 2030. Between 2015 and 2020, the number of residents discharged are expected to increase by 14%. East Region residents will continue to account for the largest proportion of these discharges, with one in five San Diegans age 55 years and older discharged from the ED or hospital with a mention of ADRD residing in East Region.



Estimated Number of Residents with Alzheimer's Disease and Related Dementias by Health and Human Services Agency Region, 55 Years and Older, San Diego County

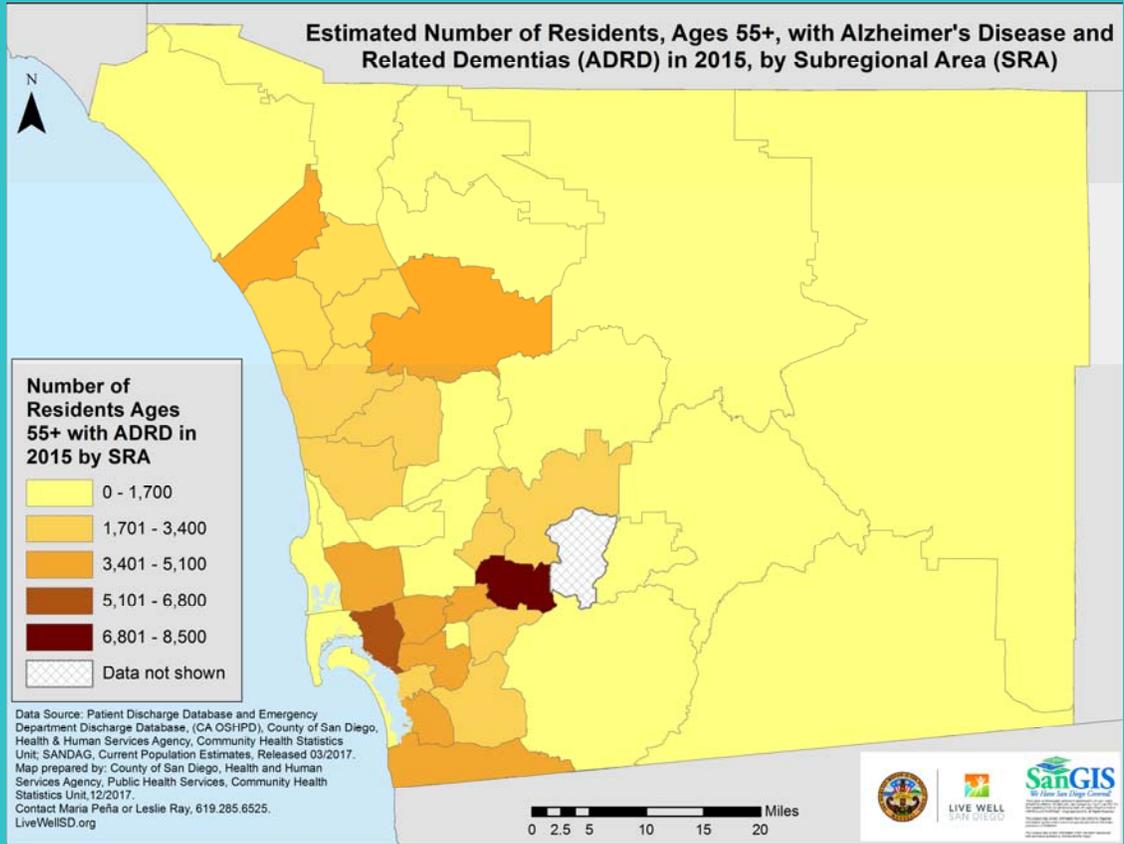


Prepared by: County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 2017.

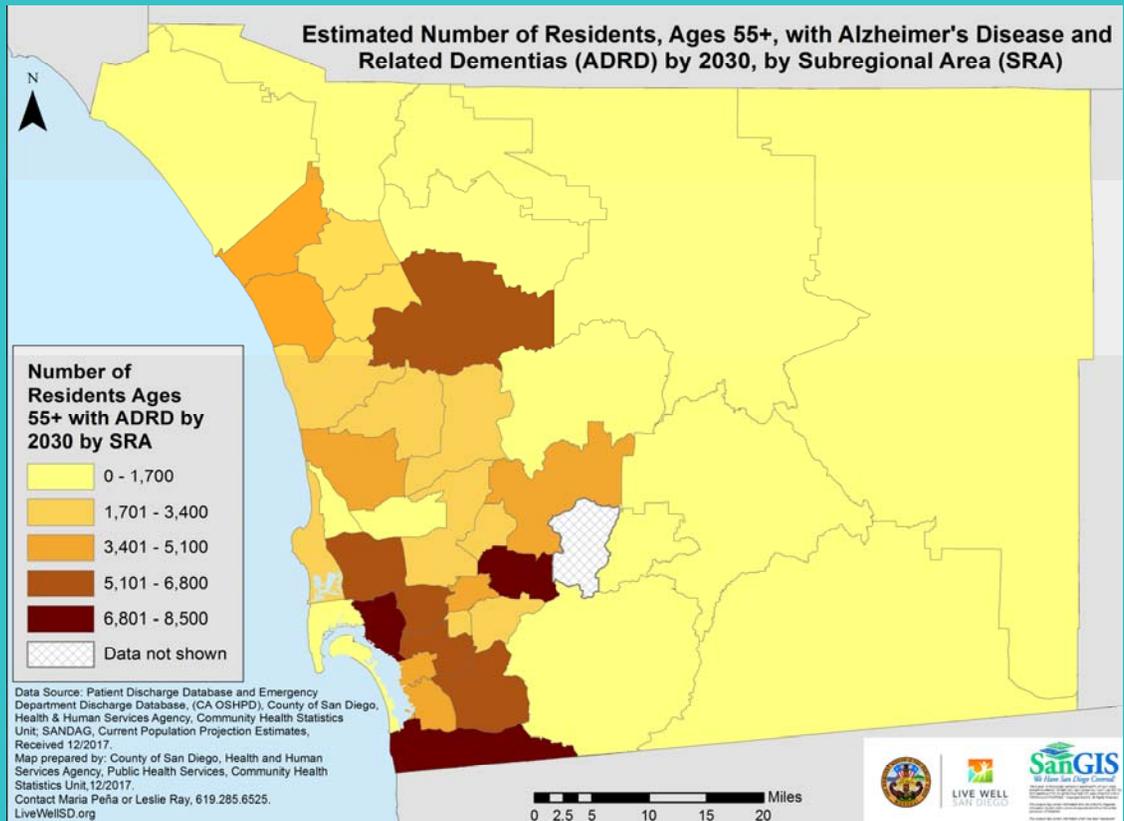
By 2030, an estimated 115,000 residents of San Diego County will be living with ADRD.

SAN DIEGO COUNTY

2015



2030



SAN DIEGO COUNTY

Alzheimer's Disease and Related Dementias in San Diego County

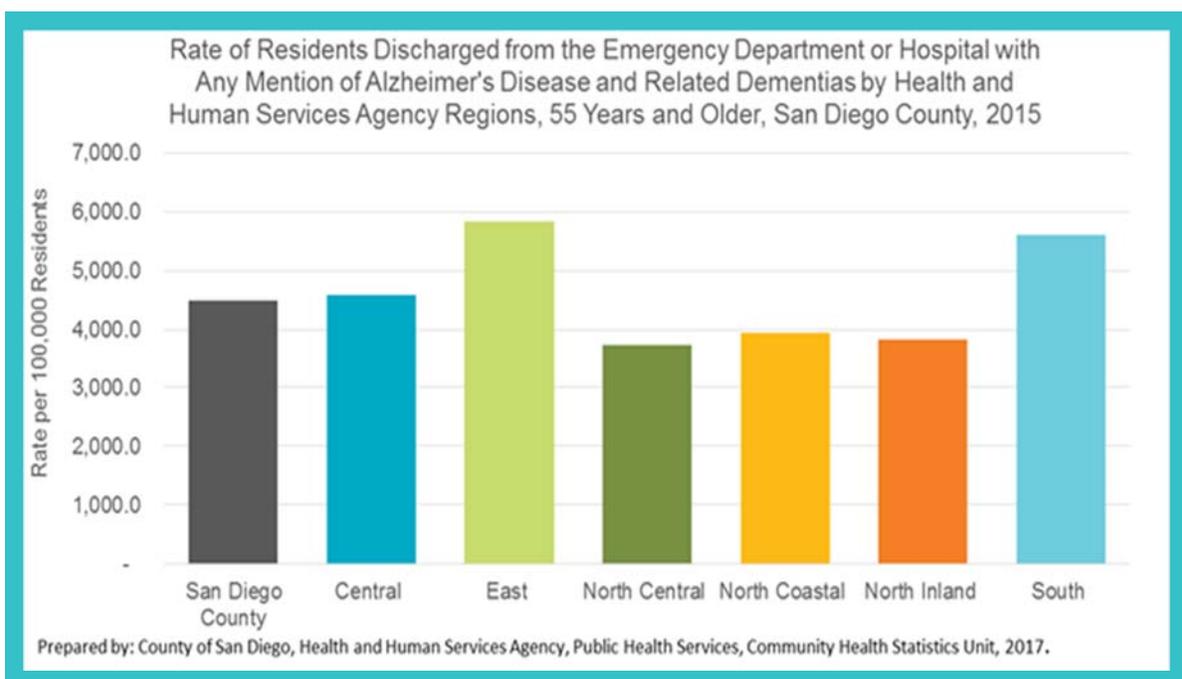
In 2015, nearly 84,500 San Diegans age 55 years and older were living with ADRD, accounting for 10.7% of the 55 years and older population.^{3,7} In other words, one in ten San Diegans age 55 years and older had ADRD in 2015. One quarter of these residents were living in East Region and 16.9% were living in Central Region.

84,405 San Diegans age 55 years and older were living with ADRD in 2015.

Alzheimer's Disease and Related Dementias in the Medical System

In 2015, more than 35,000 San Diegans age 55 years and older were discharged from the emergency department (ED) or hospital with ADRD. The discharge could result from a visit to the ED or hospital due to ADRD or for another reason but ADRD was also noted. Of all the San Diegans discharged from the ED or hospital with any mention of ADRD, 21.6% lived in East Region and 17.3% lived in North Inland Region.

The rate of San Diego County residents discharged with any mention of ADRD was 4,499 per 100,000 residents age 55 years and older in 2015. East Region had the highest rate, with 5,832.1 residents age 55 years and older discharged from the ED or hospital with any mention of ADRD per 100,000 residents. South Region had the second highest rate with 5,606.7 residents discharged with any mention of ADRD per 100,000 residents.



CENTRAL REGION

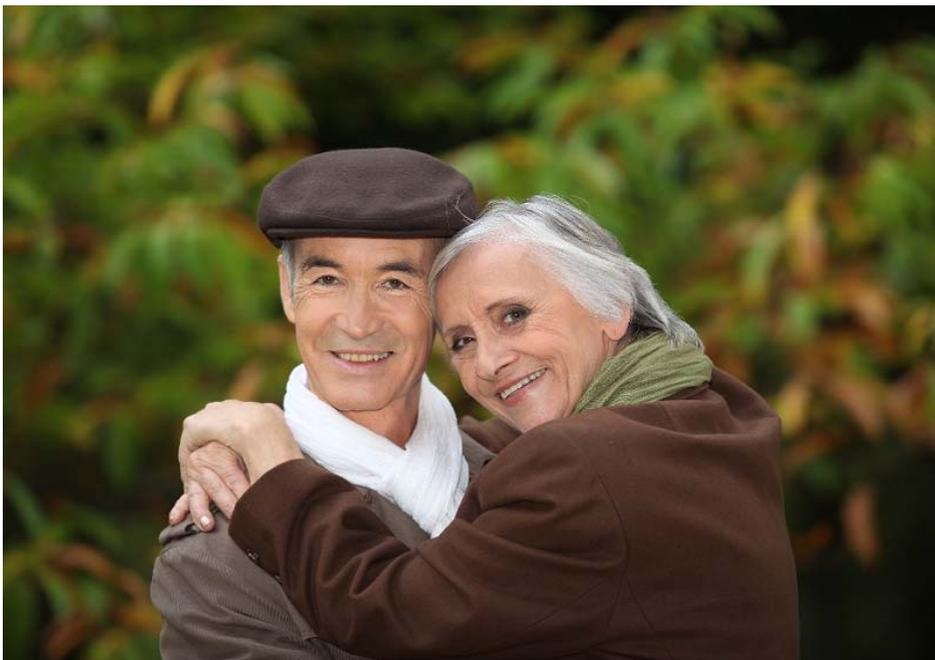


The Health and Human Services Agency (HHS) Central Region was home to 503,845 San Diego County residents in 2015, accounting for 15.6% of the county's population that year.⁴ The region includes the communities of Central San Diego, Mid-City, and Southeastern San Diego. Central Region is densely populated, and is one of the most racially and ethnically diverse regions within the county. In 2015, one in eight San Diego County residents 55 years and older lived in the Central Region. Within Central Region, the 55 years and older population was evenly spread between the three communities.⁵

In 2015, 43% of Central Region residents were Hispanic and 29.5% were white. Nearly two in five Central Region households had an income below \$35,000. Further, just over two in five adults age 65 years and older were living below 200% of the Federal Poverty Level.⁴ Compared to other regions, residents of Central Region were more economically disadvantaged in 2015. Such financial hardships can especially affect the older population and the population living with a disability or functional difficulty. Central Region residents age 65 years and older reported having some type of disability such as ambulatory, self-care-difficulty, and independent living difficulty at the third highest rate of any HHS region.⁶

Alzheimer's Disease and Related Dementias in Central Region

In 2015, an estimated 14,235 Central Region residents, age 55 years and older, had Alzheimer's disease or related dementias (ADRD), accounting for 14.4% of Central Region's 55 years and older population. Central Region had the second highest proportion of 55 years and older residents with ADRD, following East Region. In fact, the ADRD population in Central Region accounted for nearly 16.9% of all San Diego County residents living with ADRD in 2015.



**In 2015, 16.9%
of the County's
ADRD population
resided in
Central Region.**

CENTRAL REGION

Within Central Region, Mid-City had the smallest number of residents age 55 years and older living with ADRD in 2015. Similarly, it was the community with the smallest proportion of residents age 55 years and older living with ADRD compared to the other Central Region communities, at 13.5%. This was higher than the county's proportion of 55 years and older residents living with ADRD overall in 2015 (10.7%).

Alzheimer's Disease and Related Dementias in the Medical System

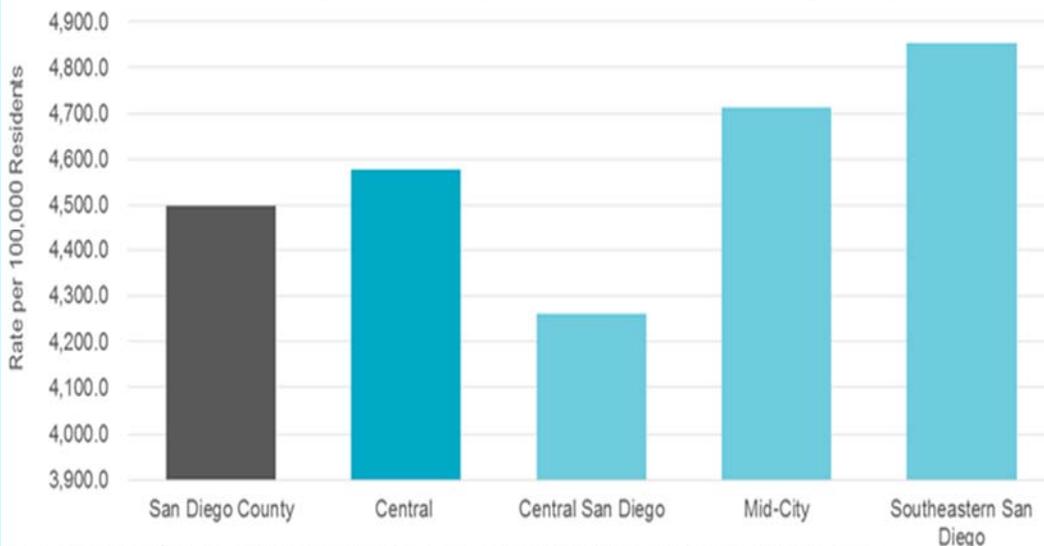
In 2015, over 4,500, or nearly one in eight, San Diego County residents discharged from the hospital or emergency department (ED) with any mention of ADRD lived in Central Region. This includes visits to the hospital or ED for ADRD, or for another reason with ADRD also noted. Within Central Region communities, the proportion of residents discharged from the hospital or ED with any mention of ADRD was similar between Central San Diego, Mid-City, and Southeastern San Diego.

The rate of residents discharged from the ED or hospital with any mention of ADRD among Central



Region residents age 55 years and older was 4,578.5 per 100,000 in 2015, which was slightly higher than the county rate of 4,499 per 100,000. The community with the highest rate of residents discharged with any mention of ADRD among residents age 55 years and older was Southeastern San Diego with a rate of 4,853.7 per 100,000 in 2015.

Rate of Residents Discharged from the Emergency Department or Hospital with Any Mention of Alzheimer's Disease and Related Dementias by Sub-Regional Areas of the Health and Human Services Agency Central Region, 55 Years and Older, San Diego County, 2015



CENTRAL REGION

Projections of Alzheimer's Disease and Related Dementias in Central Region

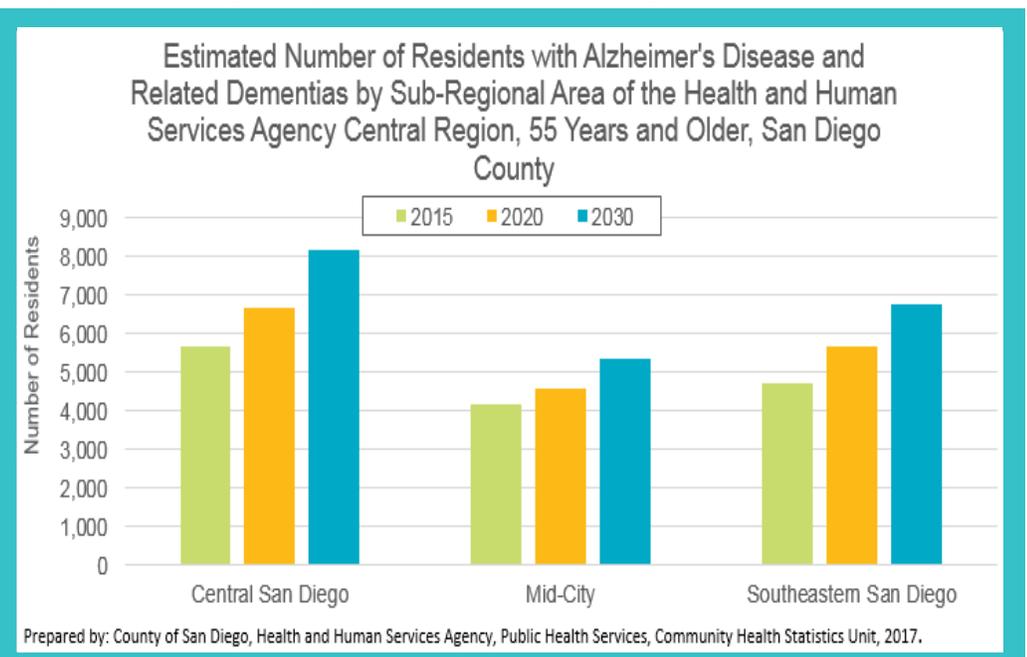
The 55 years and older population of Central Region is projected to grow to nearly 118,000 residents by 2020 and 144,000 residents by 2030. Although the proportion of Central Region residents living with ADRD will remain around 14%, the number of those living with ADRD will grow significantly. By 2030, there will be over 20,000 Central Region residents, 55 years and older, living with ADRD; a 44% increase from 2015.

Compared to other regions in the county, Central Region is projected to have the third highest proportion of residents with ADRD by 2030, following East and South Regions. By 2030, the number of Central Region residents with ADRD will account for 17.8% of the county's total population living with ADRD.

Among Central Region communities, Central San Diego is projected to have the greatest proportion of residents age 55 years and older

by 2030. In fact, the 55 years and older population of Central San Diego will nearly double by 2030. Similarly, Central San Diego is expected to have the greatest number of residents 55 years and older with ADRD by 2030, compared to other Central Region communities. In 2030, nearly 40.0% of Central Region residents ages 55 years and older with ADRD will be living in the community of Central San Diego.

The proportion of San Diego County residents age 55 years and older discharged from the ED or hospital with any mention of ADRD living in Central Region will remain similar to 2015, at 13.3% in 2030. Among Central Region communities, by 2030 Central San Diego will account for the greatest percent of ED or hospital discharged patients, 55 years and older with any mention of ADRD. This proportion will decrease slightly for Mid-City and Southeastern San Diego.



EAST REGION



The Health and Human Services Agency (HHS) East Region of San Diego County is a large area with some densely populated communities, such as El Cajon and Spring Valley, and some rural communities, such as Alpine and Mountain Empire. In 2015, one in six San Diego County residents age 55 years and older lived in East Region.⁵ Within East Region, over one quarter of the 55 years and over population lived in El Cajon and another 17% lived in Spring Valley.⁵

In 2015, three in five East Region residents were white and just over one in four were Hispanic. Almost three in ten East Region households had an income of less than \$35,000 and just over one quarter of the 65 years and older population were living below 200% of the Federal Poverty Level.⁴ In 2015, nearly two in five East Region residents age 65 years and older reported having some type of disability, including ambulatory, self-care, hearing, and cognitive difficulties.⁶ These residents face many of the issues common with living in a rural area, such as limited transportation and access to medical care. These limitations can pose an extra challenge to the older population and the population living with a disability or specific difficulty.

Alzheimer's Disease and Related Dementias in East Region

In 2015, of the nearly 131,000 East Region residents age 55 years and older, an estimated 16.7% had Alzheimer's disease and related dementias (ADRD). East Region had the largest proportion of 55 years and older residents with ADRD, and East Region residents with ADRD accounted for one quarter of all San Diego County residents living with ADRD in 2015. Within East Region, the communities of El Cajon and Harbison Crest-El Cajon had the highest proportion of residents age 55 years and older living with ADRD, with 22.0% and 21.7% respectively. The large population of residents living with ADRD in East Region poses a challenge to both the health care and life care systems and networks in the area.



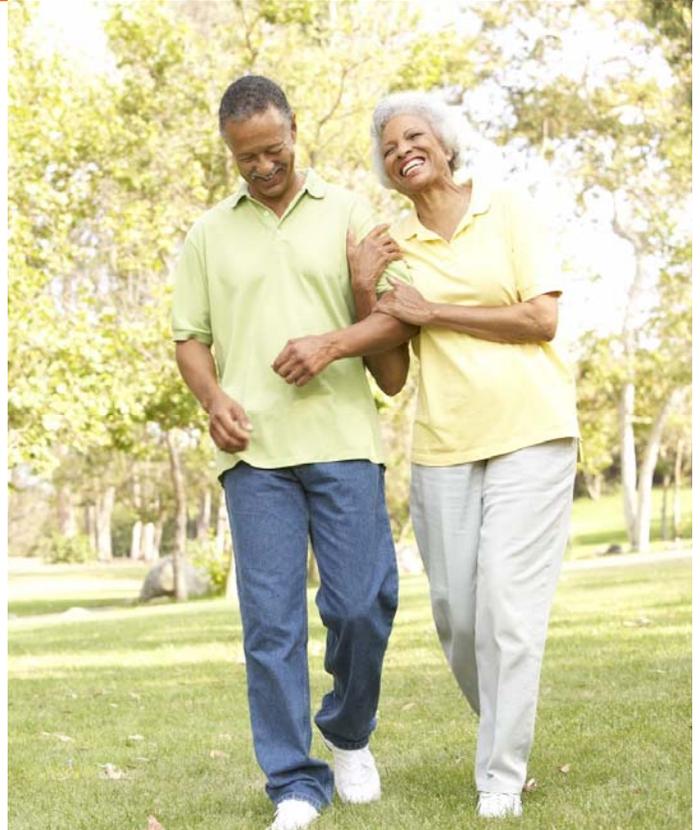
Over one in three East Region residents living with ADRD lived in El Cajon in 2015.

EAST REGION

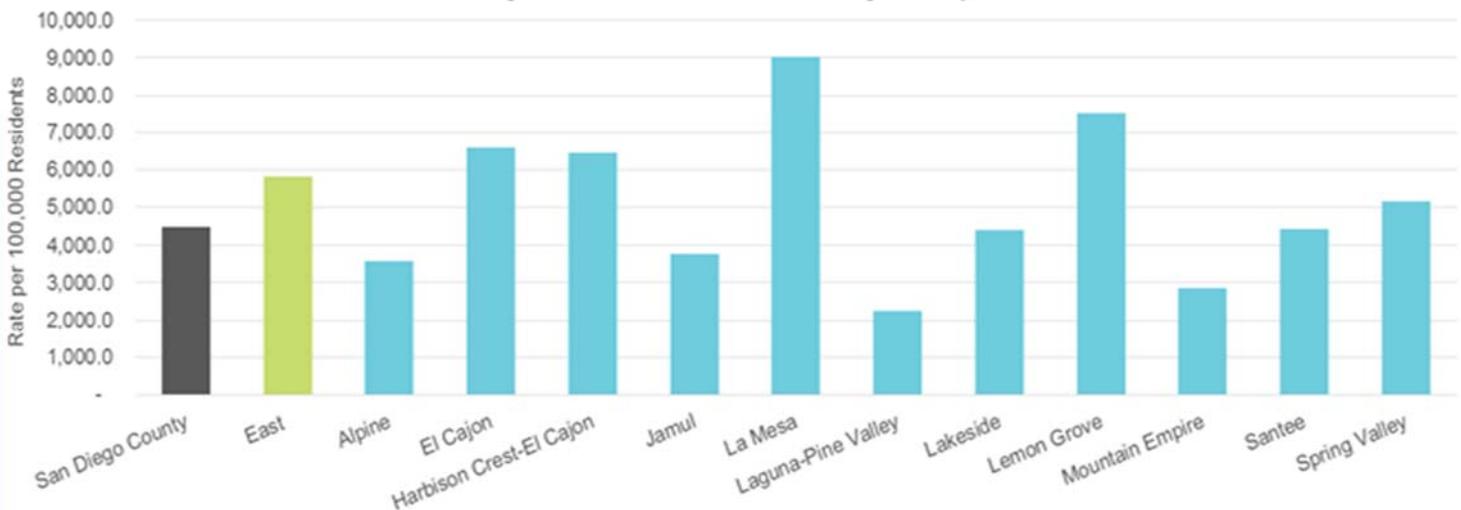
Alzheimer's Disease and Related Dementias in the Medical System

In 2015, one in five San Diego County residents age 55 years and older discharged from the hospital or emergency department (ED) with any mention of ADRD lived in the East Region. This includes visits to the hospital or ED for ADRD, or for another reason with ADRD also noted. In a single year, this accounted for more than 7,600 people. More people aged 55 years and older discharged from the hospital or ED with any mention of ADRD lived in East Region than in any other region. One third of the East Region residents discharged from the hospital or ED with any mention of ADRD lived in El Cajon and another 20.6% lived in La Mesa in 2015.

In 2015, the rate of East Region residents age 55 years and older with any mention of ADRD in their discharge from the ED or hospital was 5,832.1 per 100,000, which was higher than the county overall. The rate of discharge from the ED or hospital with any mention of ADRD among residents age 55 years and older was highest in La Mesa at 9,032 per 100,000, which was higher than East Region's and the countywide rates.



Rate of Residents Discharged from the Emergency Department or Hospital with Any Mention of Alzheimer's Disease and Related Dementias by Sub-Regional Areas of the Health and Human Services Agency East Region, 55 Years and Older, San Diego County, 2015



Prepared by: County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 2017.

EAST REGION

Projections of Alzheimer's Disease and Related Dementias in East Region

The 55 years and older population of East Region is projected to grow to over 147,600 residents by 2020 and over 171,000 residents by 2030. The estimated proportion of residents living with ADRD among this age group will remain relatively constant in 2030, at about 16%. This means that by 2030, there will be nearly 28,000 East Region residents age 55 years and older living with ADRD. This is a 27.4% increase in the number of East Region residents age 55 years and older living with ADRD from 2015.

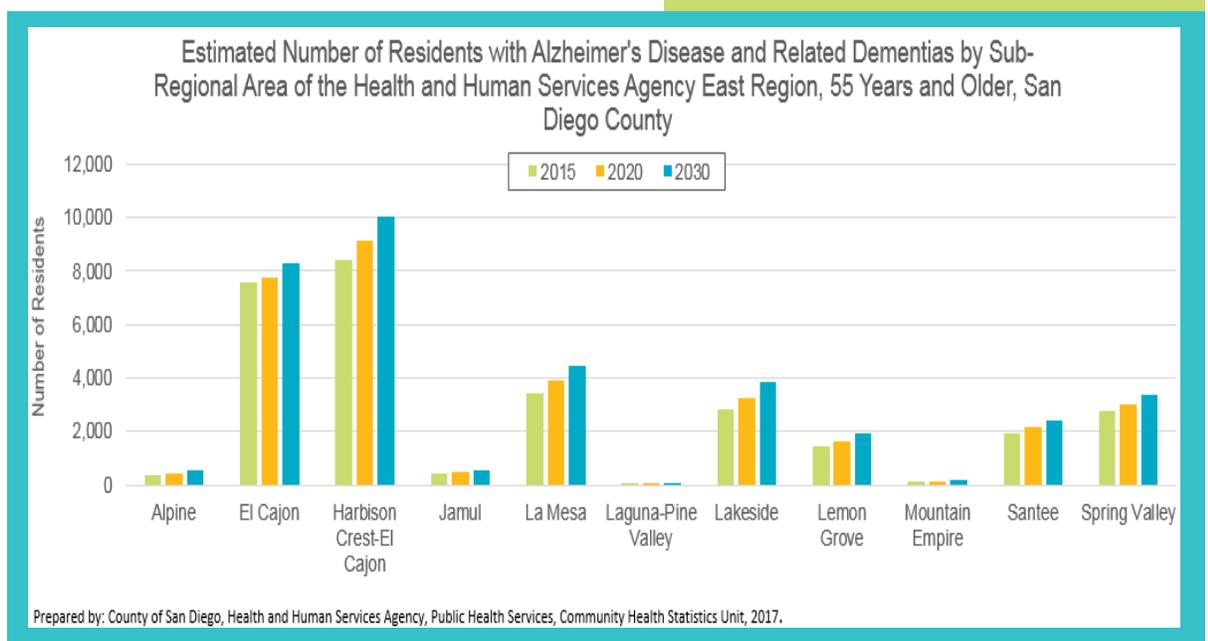
In 2030, East Region will remain the area of the county with the largest proportion of residents with ADRD. Similarly, East Region's 55 years and older ADRD population will continue to account for nearly one fourth of the entire 55 years and older ADRD population in San Diego County.

In 2020 and 2030, one quarter of East Region residents age 55 years and older with ADRD will still be living in El Cajon. Similar to East Region, the number of residents age 55 years and older with ADRD living in El Cajon will increase by 9% between 2015 and 2030. The community of Laguna-Pine Valley will see the largest growth in the number of residents with ADRD age 55 years and older, with an increase of 109.4% from 2015 to 2030.

The proportion of San Diego County residents age 55 years and older discharged from the ED or hospital with any mention of ADRD living in East Region will remain similar to 2015, at 21.5% in 2030.



In 2030, East Region will have the largest proportion of residents living with ADRD in San Diego County.



NORTH CENTRAL REGION



The Health and Human Services Agency (HHS) North Central Region of San Diego County consists of the Coastal, Del Mar-Mira Mesa, Elliott-Navajo, Kearny Mesa, Miramar, Peninsula, and University communities. In 2015, there were over 625,333 residents within North Central Region, accounting for 19.4% of the county's population.⁴ Similarly, 20% of the county's 55 years and older population lived in the North Central Region in 2015.⁵ Compared to other North Central Region communities, Kearny Mesa and Del Mar-Mira Mesa had the greatest 55 years and older populations at nearly 40,000 residents each.⁵

Although the majority of North Central residents were white, nearly one in five were Asian or Pacific Islander and over one in seven were Hispanic.⁴ Compared to the county overall, North Central Region residents generally had higher household incomes. In 2015, nearly two in five North Central Region households had an income of \$100,000 or greater.⁴ One in five North Central residents age 65 years and older were living below the 200% of the Federal Poverty Level in 2015, a lower proportion compared to the county overall.⁴ North Central Region residents age 65 years and older reported having a disability at a lower rate than any other region. However, just over three in ten North Central older adults reported having some type of disability, including ambulatory and independent living difficulties, such as difficulty walking up stairs or doing errands alone.⁶ Despite higher incomes and lower rates of disabilities, the medical and caregiving network face a challenge providing care to the older population living with Alzheimer's disease and related dementias (ADRD).

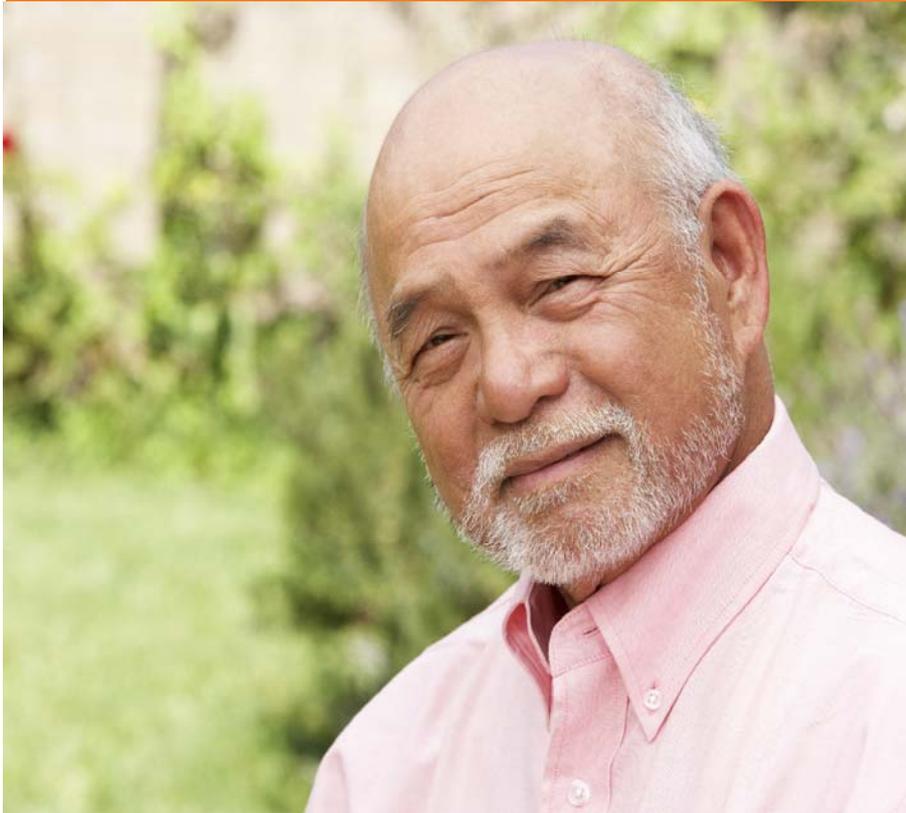
Alzheimer's Disease and Related Dementias in North Central Region

In 2015, there were nearly 10,700 North Central Region residents ages 55 years and older with ADRD, accounting for 6.8% of the entire 55 years and older age group in the region. North Central Region residents represented 12.6% of all San Diego County residents living with ADRD.

Within North Central Region, the communities of Kearny Mesa and Peninsula had the highest proportion of residents age 55 years and older living with ADRD, with 10.5% and 6.6% respectively.

**Compared to other HHS Regions,
North Central Region had the second largest
population of residents age 55 years and older,
yet one of the lowest proportions of those living
with ADRD in 2015.**

NORTH CENTRAL REGION



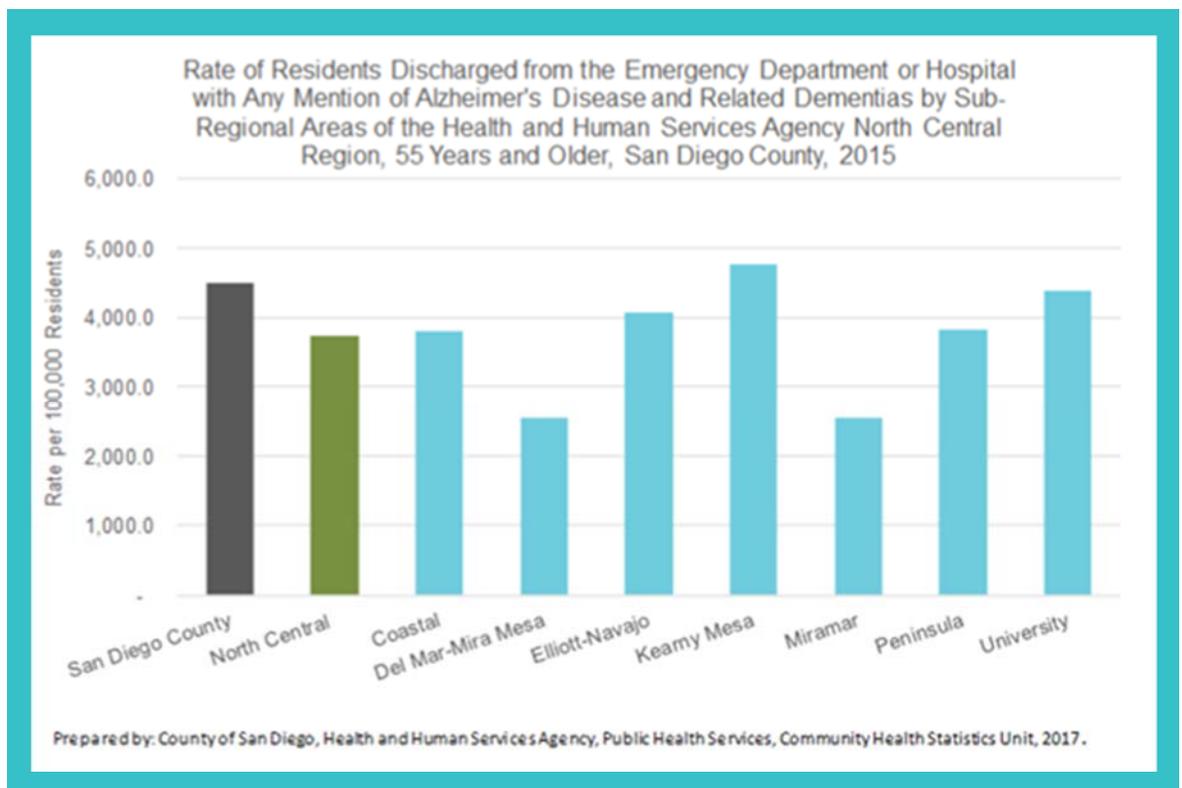
Alzheimer's Disease and Related Dementias in the Medical System

In 2015, just over 5,800 North Central Region residents were discharged from the emergency department (ED) or hospital with any mention of ADRD, accounting for 16.6% of the county's ED or hospital discharges among residents age 55 years and older with any mention of ADRD. This includes visits to the hospital or ED for ADRD, or for another reason with ADRD also noted during the visit.

Among North Central Region communities, Kearny Mesa had the greatest number of hospital or ED discharges

with any mention of ADRD. In fact, one in three North Central Region residents discharged from the hospital or ED with any mention of ADRD lived in Kearny Mesa in 2015.

In 2015, North Central Region had the lowest rate of discharge among residents age 55 years and older with any mention of ADRD compared to other HHSA regions, with 3,727 per 100,000. However, the community of Kearny Mesa had a higher rate than the county overall, with 4,765.7 per 100,000 per 100,000.



NORTH CENTRAL REGION

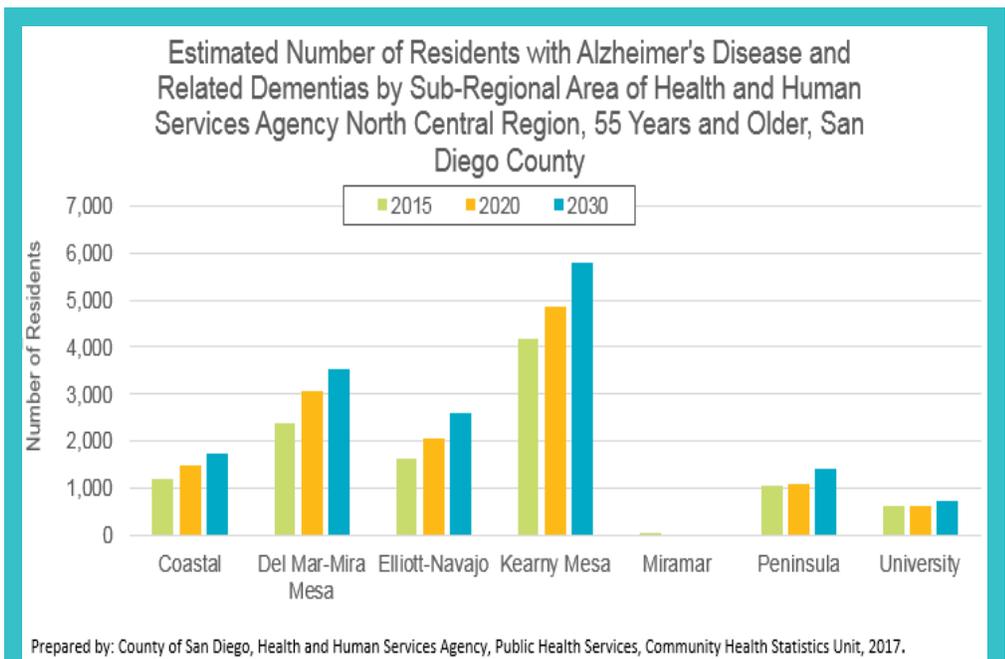


Projections of Alzheimer's Disease and Related Dementias in North Central Region

By 2020 and 2030, North Central Region will have the greatest proportion of 55 years and older residents compared to the other HHS regions in the county. The 55 years and older population of North Central Region is projected to grow to over 183,000 residents by 2020 and over 212,000 residents by 2030. Although the proportion of North Central Region residents living with ADRD will remain similar to 2015, the number of those living with ADRD will grow significantly. By 2030, there will be over 15,000 North Central Region residents 55 years and older, living with ADRD, a 41.2% increase from 2015. By 2030, of the 212,000 North Central Region residents aged 55 years and older, 7.1% are expected to have ADRD. Although this is lower than the estimated proportion for the county, North Central Region residents with ADRD will account for 13.1% of the county's total ADRD population in 2030.

By 2030, Del Mar-Mira Mesa is expected to become the community with the highest proportion of 55 years and older residents compared to other North Central Region communities. However, Kearny Mesa is expected to have the highest proportion of 55 years and older residents living with ADRD by 2030 among North Central Region communities. In fact, in 2030 an estimated 38.3% of North Central Region residents age 55 years and older with ADRD will be living in Kearny Mesa.

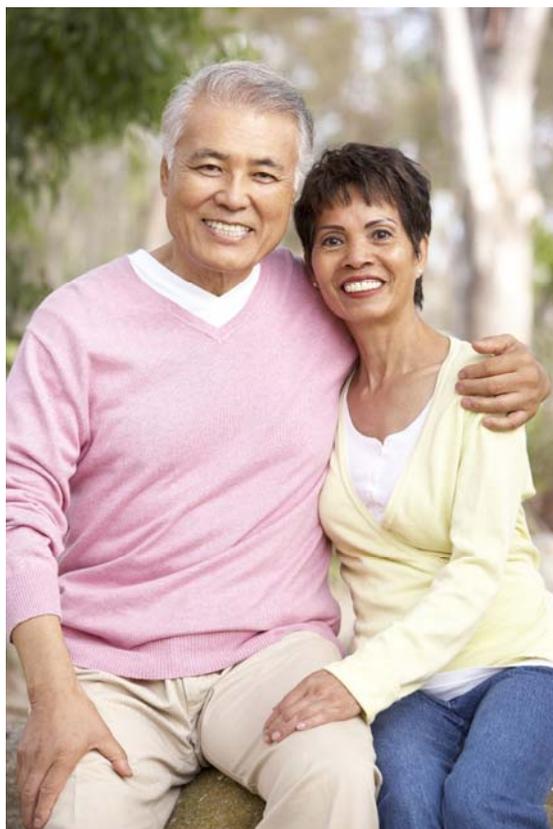
The proportion of San Diego County residents 55 years and older, discharged from the ED or hospital with any mention of ADRD living in North Central Region will remain the same between 2015 and 2030, at about 16.5%. In North Central Region, Kearny Mesa will account for the greatest percentage of ED or hospital discharged patients 55 years and older with any mention of ADRD in 2030. This proportion will decrease slightly for Peninsula and University and increase slightly for Coastal, Del Mar-Mira Mesa, and Elliott-Navajo within North Central San Diego.



NORTH COASTAL REGION



The Health and Human Services Agency (HHSA) North Coastal Region of San Diego County consists of both urban and suburban areas and includes the communities of Carlsbad, Oceanside, Pendleton, San Dieguito, and Vista. In 2015, roughly one in six San Diego County residents lived in North Coastal Region.⁴ Similarly, just over one in six San Diego County residents age 55 years or older lived in North Coastal Region. Oceanside and Carlsbad had the highest proportion of residents age 55 years and older, with 31.6% and 26.5% respectively.⁵



In 2015, about three in five North Coastal residents were white and nearly three in ten were Hispanic.⁴ Just over a quarter of households in North Coastal Region had an income of less than \$35,000; however, just over one third of households had an income of \$100,000 or greater.⁴ Just over one out of five adults age 65 years or older were living below 200% of the Federal Poverty Level, slightly lower than the overall proportion for the county.⁴ In 2015, just over one third of North Coastal older adults reported having some kind of disability, including 19.2% of the older adult population reported having difficulty walking or climbing stairs.⁶ Overall, North Coastal Region consists of both wealthy communities and communities of varying degrees of poverty. This may result in differences in health status among communities in the region.

Alzheimer's Disease and Related Dementias in North Coastal Region

Of the near 132,000 North Coastal residents age 55 years and older, approximately 10,626 had Alzheimer's disease and related dementias (ADRD) in 2015. Further, the ADRD population in North Coastal Region accounted for 12.6% of all San Diego County residents living with ADRD in 2015.

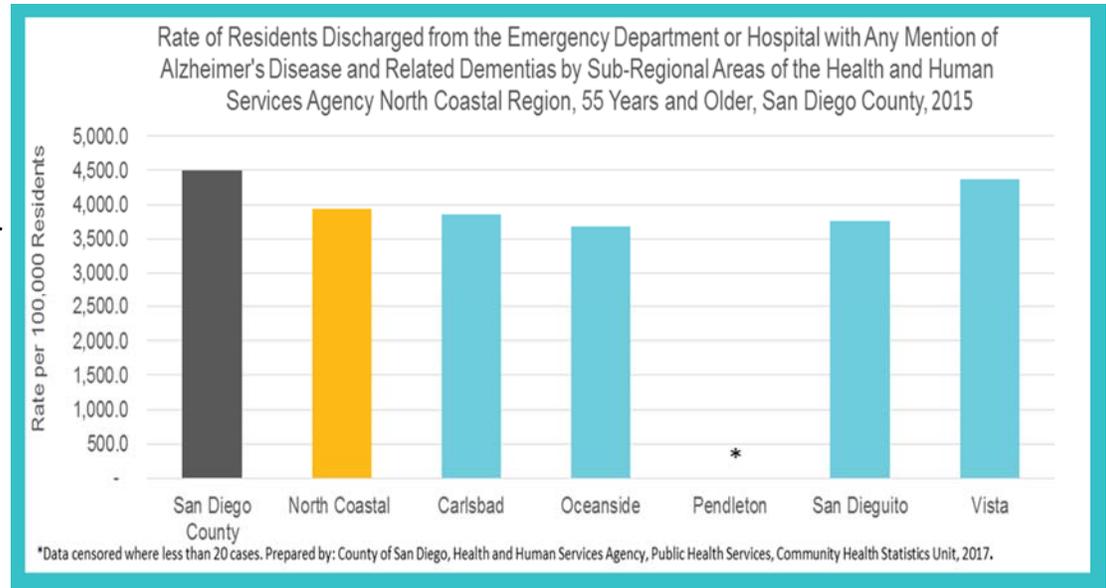
Within North Coastal Region, Vista had the highest proportion of residents 55 years and older living with ADRD in 2015. Specifically, 11.4% of Vista's 55 years and older population was living with ADRD. Oceanside had the second highest proportion of residents 55 years and older living with ADRD.

North Coastal Region accounted for 12.6% of the County's overall ADRD population.

NORTH COASTAL REGION

Alzheimer's Disease and Related Dementias in the Medical System

Approximately 5,195 North Coastal Region residents age 55 years and older were discharged from the emergency department (ED) or hospital with any mention of ADRD in 2015. This accounted for about 14.7% of the county's 55 years and older residents discharged from the ED or hospital with any mention of ADRD. This includes visits to the hospital or ED for ADRD or for another reason with ADRD also noted.



In 2015, Oceanside had the greatest number of ED or hospital discharges among residents age 55 years and older with any mention of ADRD, followed by Carlsbad. Nearly three in ten North Coastal Region residents discharged from the hospital or ED with any mention of ADRD lived in Oceanside, and an additional 25.9% lived in Carlsbad.

Overall, North Coastal Region had a lower rate of discharge from the ED or hospital with any mention of ADRD among its 55 years and older residents compared to the county. Specifically, North Coastal Region's rate was 3,945.6 per 100,000 compared to 4,499 per 100,000 for the county. All communities within North Coastal Region had lower rates of discharge from the ED or hospital with any mention of ADRD among those 55 and older than the county overall.

In 2015, 14.7% of the county's 55 years and older residents discharged from the ED or hospital with any mention of ADRD lived in North Coastal.

Projections of Alzheimer's Disease and Related Dementias in North Coastal Region

The 55 years and older population of North Coastal Region is projected to grow to 149,000 residents by 2020 and 167,600 residents by 2030. Although the proportion of North Coastal Region residents living with ADRD will remain around 8%, the number of those living with ADRD will grow significantly.

NORTH COASTAL REGION



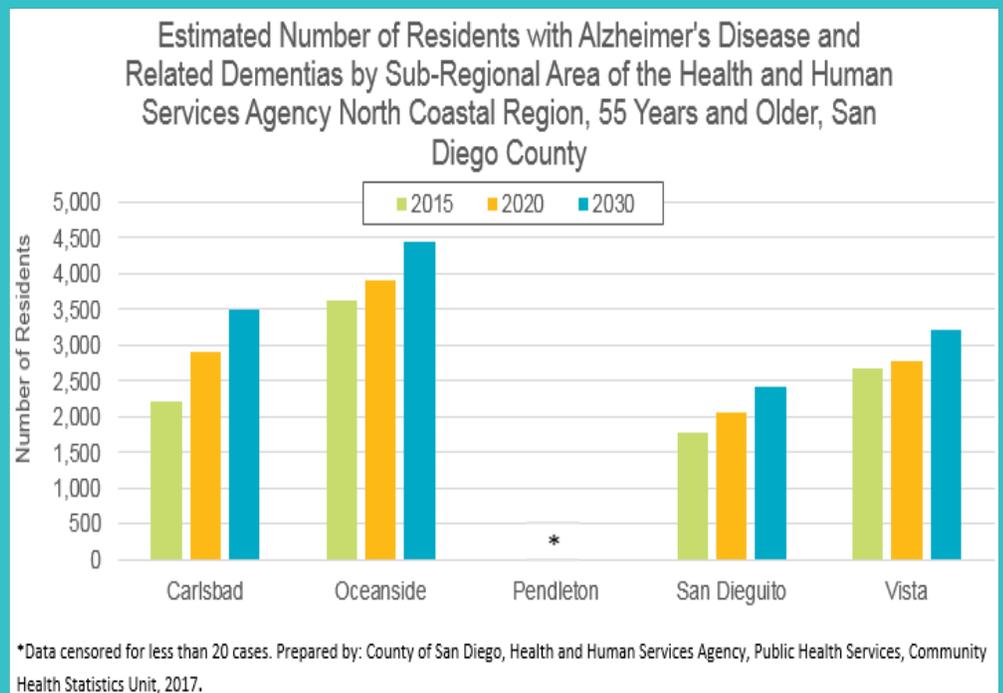
By 2030, there will be an estimated 13,800 North Coastal Region residents, 55 years and older, living with ADRD, a 30.6% increase from 2015. By 2030, the projected 13,800 North Coastal residents living with ADRD will account for 12% of the county's total population living with ADRD.

Within North Coastal Region, Oceanside is expected to have the greatest number of 55 years and older residents by 2030. While Oceanside will still have the greatest number of residents with ADRD, Carlsbad is expected to have the greatest increase in its ADRD population, with an increase of 57.4% from 2015 to 2030.

From 2015 to 2030, a slight decrease in the proportion of San Diego County residents discharged from the ED or hospital with any mention of ADRD age 55 years and older living in North Coastal Region is projected.

However, the number of North Coastal residents discharged from the hospital or ED with any mention of ADRD is expected to increase, from approximately 5,200 in 2015 to 7,900 in 2030. Carlsbad residents will account for approximately 32.4% of those discharges in 2030, while Oceanside will account for an additional 25.5%.

The number of residents living with ADRD in North Coastal Region will increase by 30.6% between 2015 and 2030.



NORTH INLAND REGION



The Health and Human Services Agency (HHSRA) North Inland Region of San Diego County is the largest geographical region in the county, consisting of urban, suburban, rural, and remote areas. It includes the communities of Anza-Borrego Springs, Escondido, Fallbrook, North San Diego, Palomar-Julian, Pauma, Poway, Ramona, San Marcos, and Valley Center. In 2015, there were nearly 592,000 North Inland Region residents, accounting for 18.4% of the county's population that year.⁴ One in five of the county's 55 years and older residents lived in North Inland Region in 2015. Within North Inland Region, Escondido and North San Diego had the greatest 55 years and older populations at about 41,000 and 30,000 residents, respectively.⁵

In 2015, just over half of North Inland residents were white, one in ten were Asian or Pacific Islander and nearly one third were Hispanic.⁴ Compared to the county overall, North Inland Region residents had slightly higher household incomes. In 2015, just over one third of North Inland Region households had an income of \$100,000 or greater.⁴ That same year, 24.1% of North Inland residents 65 years and older were living below 200% of the Federal Poverty Level, a slightly lower proportion compared to the county overall.⁴ Additionally, a little over one in three North Inland older adults reported having some type of disability, including 22.6% reporting a difficulty with walking or going up stairs, in 2015.⁶

Alzheimer's Disease and Related Dementias in North Inland Region

Compared to the other HHSRA regions, North Inland Region had the third lowest proportion of residents 55 years and older living with Alzheimer's disease and related dementias (ADRD) in 2015 (approximately 15.8%). Nearly one in six San Diego County residents living with ADRD lived in North Inland Region in 2015.

Within North Inland Region, the communities of Escondido and Valley Center had the highest proportion of residents 55 years and older living with ADRD (both approximately 10.5%).

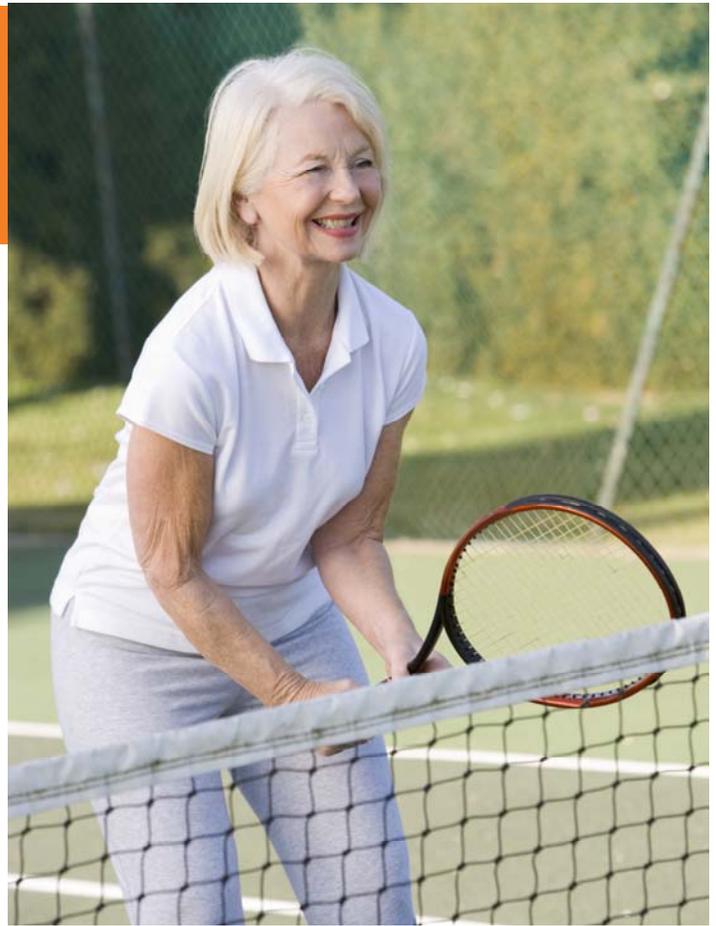


In 2015, one in six San Diego County residents living with ADRD lived in North Inland Region.

NORTH INLAND REGION

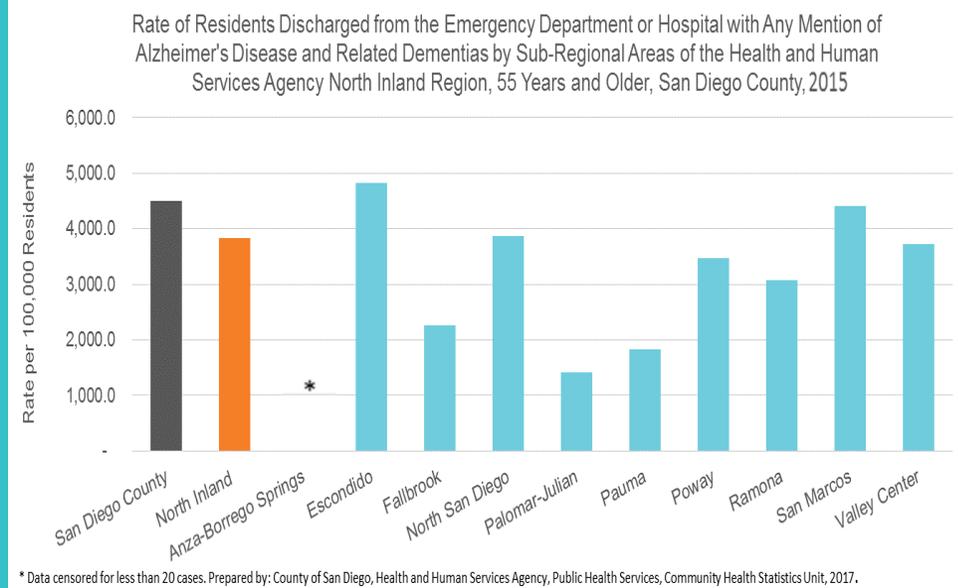
Alzheimer's Disease and Related Dementias in the Medical System

In 2015, 17.3% of San Diego County residents age 55 years and older, discharged from the hospital or emergency department (ED) with any mention of ADRD lived in North Inland Region. This includes visits to the hospital or ED for ADRD, or for another reason with ADRD also noted. In a single year, this accounted for 6,099 people. Within North Inland Region, one in three residents age 55 years and older discharged from the ED or hospital with any mention of ADRD lived in Escondido. An additional 19.1% of North Inland residents discharged from the ED or hospital with any mention of ADRD lived in North San Diego.



In 2015, the rate of North Inland residents age 55 years and older discharged with any mention of ADRD was 3,823.8 per 100,000, which was less than the countywide rate of 4,499 per 100,000. The communities of Escondido and San Marcos had higher rates of discharge from the ED or hospital with any mention of ADRD among residents 55 years and older compared to North Inland Region, with rates of 4,822.9 per 100,000 and 4,413 per 100,000, respectively.

In 2015, one in three North Inland Region residents over 55 years of age discharged from the ED or hospital with any mention of ADRD lived in Escondido.



NORTH INLAND REGION

Projections of Alzheimer’s Disease and Related Dementias in North Inland Region

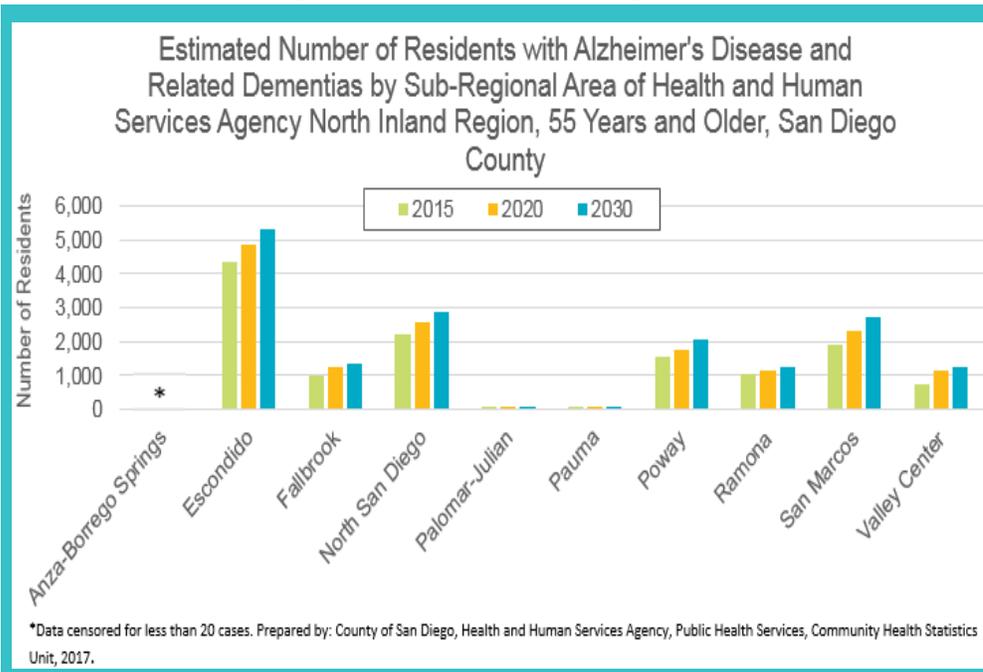
The 55 years and older population of North Inland Region is projected to grow to nearly 188,500 residents by 2020 and 208,300 residents by 2030. The estimated proportion of residents living with ADRD among this age group will remain relatively constant, at about 8.4%. By 2030, there will be more than 17,500 North Inland Region residents age 55 years and older living with ADRD. This is a 31.7% increase in the North Inland ADRD population from 2015.



The 17,500 North Inland Region residents age 55 years and older living with ADRD in 2030 will account for 15.3% of the county’s 55 years and older ADRD population in that year.

Within North Inland Region, Escondido and North San Diego will remain the communities with the greatest number of 55 years and older residents from 2015 to 2030. Further, Escondido and North San Diego are expected to have the highest proportions of 55 years and older residents living with ADRD by 2030. In 2030, an estimated 30.2% of North Inland Region residents age 55 years and older with ADRD will be living in Escondido and an additional 16.3% will be living in North San Diego.

The proportion of 55 years and older San Diegans discharged from the ED or hospital with any mention of ADRD living in the North Inland Region will continue to hover around 17% in 2020 and 2030.



However, there will be a projected 51.8% increase in the number of residents discharged with any mention of ADRD among residents 55 years and older within the region overall. Compared to other North Inland communities, Escondido will have the greatest percentage of ED or hospital discharged patients, 55 years and older with any mention of ADRD, by 2030. However, Valley Center will experience the greatest increase in the number of those discharged, with a 96% increase from 2015 to 2030.

SOUTH REGION



The Health and Human Services Agency (HHSRA) South Region of San Diego County is made up of five communities: Chula Vista, Coronado, National City, South Bay and Sweetwater. In 2015, the population was nearly 495,000, accounting for 15.3% of the county's total population.⁴ There were 108,000 residents aged 55 and older in 2015, and within the South Region, Sweetwater had the greatest population 55 years and older representing 27% of all residents 55 years and older in the South Region overall.⁵

Three in five South Region residents were Hispanic and 19.7% were white.⁴ One in three South region households made under \$35,000 in 2015, and one third of the older adult households were living under 200% of the Federal Poverty Level.⁴ Two in five of South Region's older adult population reported having some kind of disability, including 28.2% reporting difficulty with walking or going up stairs and 22.3% having difficulty with independent living.⁶

Alzheimer's Disease and Related Dementias in South Region

In 2015, there were approximately 13,616 South Region residents age 55 years and older with Alzheimer's disease and related dementias (ADRD), accounting for 16.1% of the county's ADRD 55 years and older population.

Of the 108,000 South Region residents age 55 years and older, 12.6% were living with ADRD in 2015. National City had the largest proportion of residents age 55 years and older with ADRD with 18.8%, followed by South Bay with 13.7%.

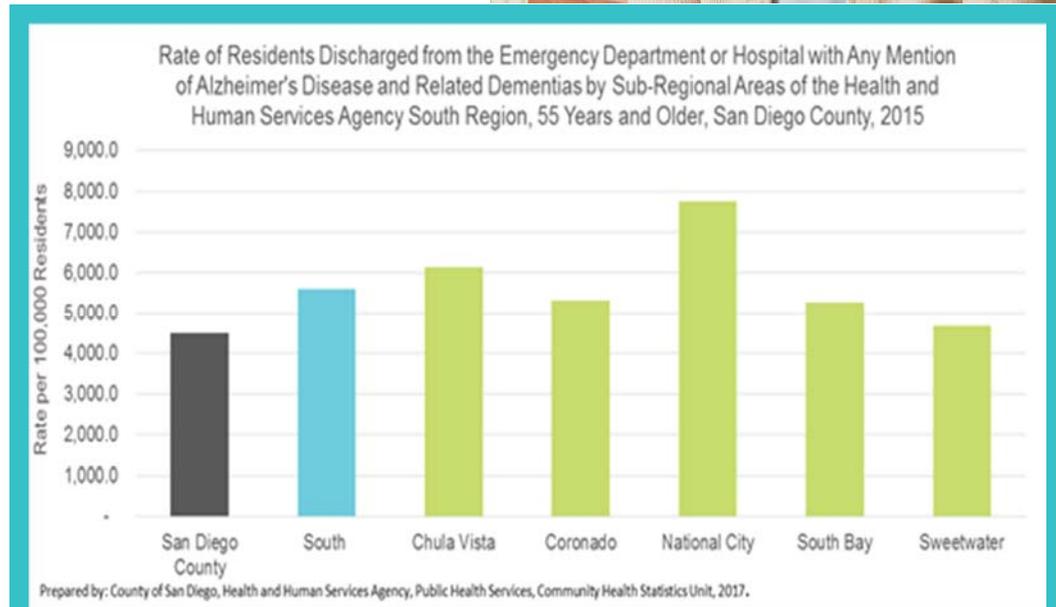


SOUTH REGION

Alzheimer's Disease and Related Dementias in the Medical System

In 2015, there were more than 6,000 South Region residents age 55 years and older discharged from the emergency department (ED) or hospital with any mention of ADRD. This accounted for 17.1% of all residents discharged with any mention of ADRD from the ED or hospital countywide. Of these discharges, nearly three in ten were Chula Vista residents and nearly one quarter were to residents living in South Bay. Chula Vista had the largest number of residents age 55 years and older discharged from the ED or hospital with any mention of ADRD compared to all communities in South Region in 2015.

The rate of South Region residents age 55 years and older discharged from the ED or hospital discharges with any mention of ADRD was 5,606.7 per 100,000. This rate was higher than the overall county rate of 4,499 per 100,000. All five South Region communities had higher rates than the county overall. The highest rate fell within the community of National City, at 7,746.9 residents age 55 years and older discharged from the ED or hospital with any mention of ADRD per 100,000 population.



National City had the highest rate of residents age 55 years and older discharged from the ED or hospital with any mention of ADRD compared to all other communities in South Region in 2015.

SOUTH REGION



Projections of Alzheimer's Disease and Related Dementias in South Region

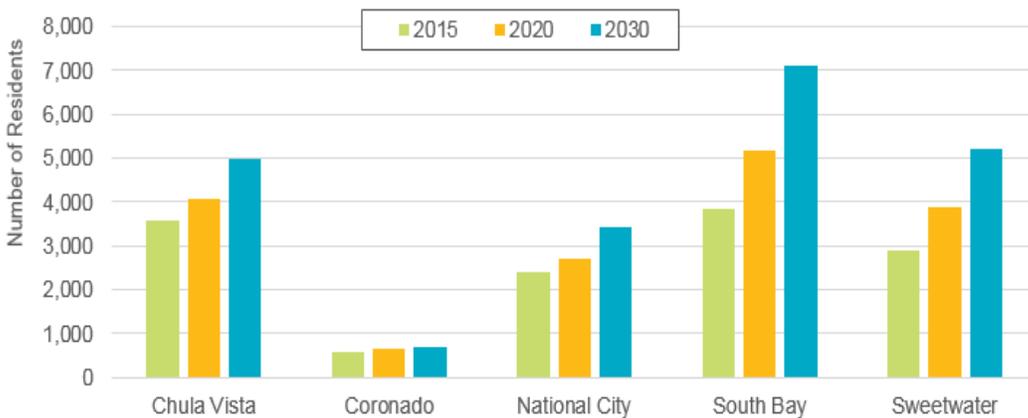
By 2030, the 55 years and older population living in South Region will increase to more than 168,700 residents, of which three in ten will be living in Sweetwater and South Bay. The proportion of the residents with ADRD in these communities will remain around 8.4% each, which is less than the county overall. However, the number of residents living with ADRD in South Region is projected to increase by nearly 60% between 2015 and 2030.

South Region's 55 years and older population living with ADRD is projected to increase from 13,616 residents in 2015 to over 21,400 residents by 2030. The proportion of these residents living in Chula Vista will decline from 26.4% in 2015 to 23.3% by 2030, while the proportion living in South Bay will increase from 28.3% to 33.3% by 2030.

Of the residents age 55 years and older discharged from the

ED or hospital with any mention of ADRD in San Diego County, the proportion living in the South Region is expected to increase from 17.1% in 2015 to 18.1% in 2030. This represents nearly 10,000 South Region residents discharged with any mention of ADRD in 2030. Of these residents, 30% are expected to live in South Bay and more than one quarter will live in Chula Vista.

Estimated Number of Residents with Alzheimer's Disease and Related Dementias by Sub-Regional Area of Health and Human Services Agency South Region, 55 Years and Older, San Diego County



Prepared by: County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit, 2017.

The number of residents living with ADRD in South Region is projected to increase by nearly 60% between 2015 and 2030.

CAREGIVERS IN SAN DIEGO COUNTY

In 2015, there were more than 214,300 San Diegans providing unpaid care for an estimated 84,405 people living with ADRD in San Diego County. These caregivers provided an estimated 244 million hours of unpaid care, valued at \$3.09 billion dollars (in 2015 dollars).^{3,7}

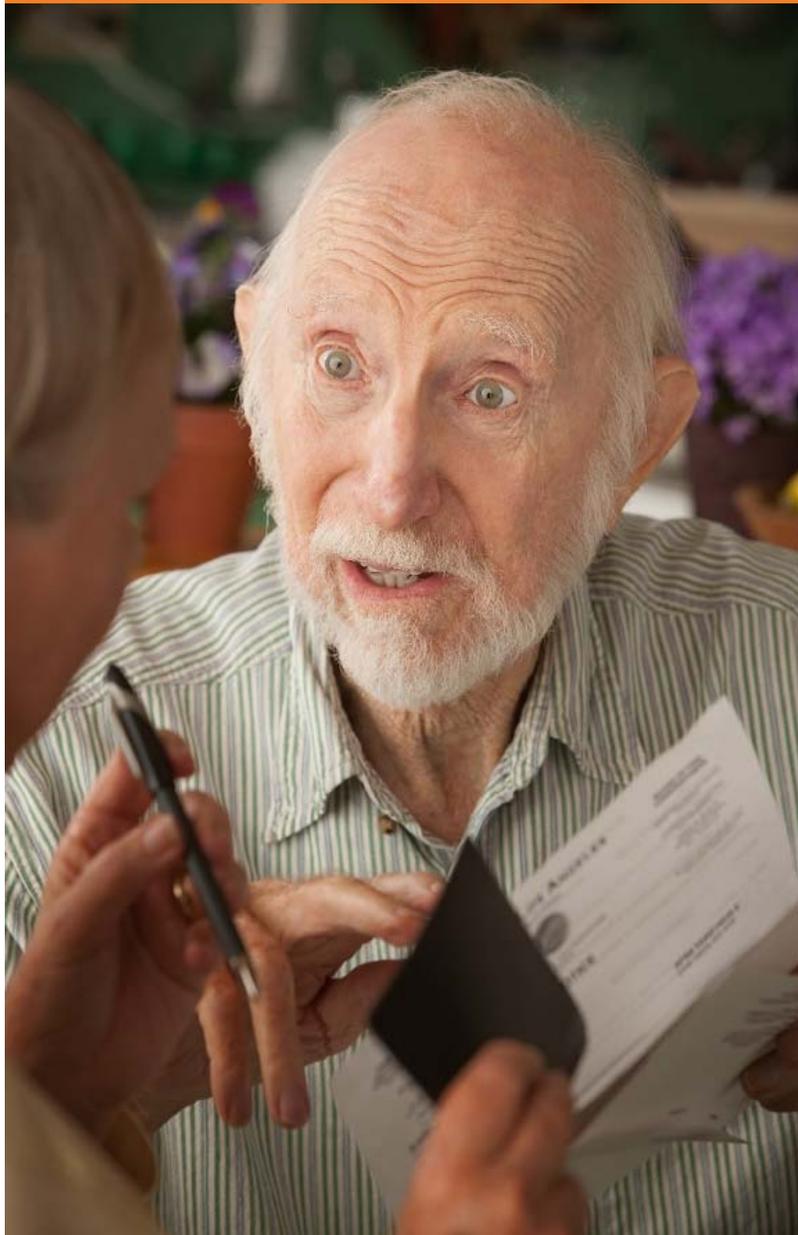
ADRD affects individuals in different ways, thus requiring different degrees and types of care for each person. Generally, caregiving often involves assistance with one or more activities of daily living (ADLs), such as bathing and dressing.³ Other ADLs that caregivers often become responsible for include household chores, shopping, and meal preparation. As ADRD progresses, there are other activities that many caregivers eventually take over, including management of medications and medical care to organizing legal affairs and managing finances.³ Furthermore, in the late stages of ADRD, those affected often require around-the-clock care.

Caregivers face unique challenges and often have more than one person for which they provide care. Nationally, over half of ADRD caregivers were taking care of their own parents and 25% of all ADRD caregivers had children still living at home.³ These caregivers are referred to as “sandwich generation caregivers” because they have both children and parents dependent on them.



More than 214,300 caregivers in San Diego County provided 244 million hours of unpaid care to those living with ADRD, worth nearly \$3 billion dollars in 2015.

CAREGIVERS IN SAN DIEGO COUNTY



The work required of all caregivers, including the physical tasks, organization and planning required can lead to increased emotional stress, depression and financial hardships.³ Financial hardships can result from both personal finances used to cover costs of care as well as loss of wages due to missing work. These stressors can result in poor health for the caregivers and the demands on caregivers of people living with ADRD can leave little time for managing their own health.³ In San Diego County, the health care costs to caregivers due to the physical and emotional impact of caregiving were approximately \$133.8 million dollars in 2015. By 2030, if nothing else changes, the health care costs of unpaid caregivers will increase to \$182.7 million dollars a year (in 2015 dollars).⁷

By 2030, there will be over 115,000 people age 55 years and over with ADRD in San Diego County. The increase in the number of San Diegans living with ADRD will require about 292,500 caregivers to provide 333 million hours of unpaid care a year. The value of this care is estimated to be worth \$4.2 billion in 2015 US dollars. The health care costs of unpaid caregivers will increase to nearly \$183 million a year.⁷

Many caregivers benefit from accessing resources such as respite care and utilizing services such as adult day care for those they are caring for.³ The County of San Diego Health and Human Service Agency [Aging & Independence Services](#) provides services to older adults, to people with disabilities and their family members, to help keep clients safely in their homes, and to promote healthy and vital living. For more information on resources for those living with ADRD and their caregivers, call 800-510-2020. More services can be found by contacting Alzheimer's San Diego (<https://www.alzsd.org/>).

By 2030, about 292,500 caregivers will be needed to provide care to nearly 115,000 San Diegans living with ADRD.

EARLY SIGNS AND SYMPTOMS

Alzheimer's disease and related dementias affect individuals in different ways. However, there are 10 early signs and symptoms, as described by the Alzheimer's Association, that are typical of the disease. These are not meant to replace a consultation with a doctor, but rather serve as a tool to help identify potential symptoms. Individuals should see a doctor if they notice any of these signs.⁸

1

Memory loss that disrupts daily life.

This may include forgetting recently learned information or important dates and events, repeatedly asking for the same information, or relying on memory aides or family members for things they typically used to manage on their own.

2

Challenges in planning or solving problems.

Individuals may have difficulty developing a plan and following through. They may also have trouble working with numbers, such as keeping track of monthly bills.

3

Difficulty completing familiar tasks at home, at work, or at leisure.

Daily tasks, such as driving to a familiar place, may be difficult to complete.

4

Confusion with time or place.

This may include losing track of dates or the passage of time. Individuals with Alzheimer's disease may forget where they are or how they got there.

5

Trouble understanding visual images and spatial relationships.

Individuals with Alzheimer's disease may have trouble reading, judging distance, or determining color and contrast. They may also have difficulty with perception, such as passing a mirror and not recognizing their reflection.

EARLY SIGNS AND SYMPTOMS

6

New problems with words in speaking or writing.

Following or joining a conversation may be difficult. Individuals with Alzheimer's may also have problems with vocabulary, such as not being able to find or use the right words.

7

Misplacing things and losing the ability to retrace steps.

This may also include placing things in unusual places.

8

Decreased or poor judgment.

Examples include using poor judgment when handling money, or paying less attention to daily tasks such as grooming and bathing.

9

Withdrawal from work or social activities.

Individuals with Alzheimer's disease may start to detach themselves from hobbies, social activities, work projects, or sports. They may also avoid being social because of the changes they are experiencing.

10

Changes in mood and personality.

This may include becoming confused, suspicious, depressed, or fearful. Individuals with Alzheimer's disease may also be easily upset, especially in places out of their comfort zone.



HEALTHY BRAIN STRATEGIES

Some risk factors for Alzheimer's disease and related dementias (ADRD), such as age and genetics, cannot be controlled or prevented. However, there is growing evidence that it may be possible to delay, slow down, or even prevent ADRD.⁹ Studies suggest that individuals who keep their brains healthy by practicing some of the following strategies may be able to delay or prevent the onset of ADRD.¹⁰



Eat a Healthy Diet

A heart and brain-healthy diet reduces the risk of heart disease and diabetes, stimulates blood flow to the brain, and is low in fat and cholesterol.¹¹

- Eat dark-skinned vegetables, such as spinach, broccoli, bell peppers, beets, and onions.
- Choose fruits with high antioxidant levels, such as oranges, strawberries, plums, red grapes, and cherries.

Connect with Family, Friends, and Community

Studies have shown that regular social interaction helps to maintain brain vitality.¹²

- Volunteer with community organizations.
- Join clubs and social groups.
- Spend time with loved ones.
- Stay active in the workplace.
- Attend local events.

Get Active and Stay Active

Exercise maintains good blood flow to the brain, stimulates the growth of new brain cells, and has been shown to reduce brain cell loss.¹³

- Walk, bike, garden, practice tai chi, or engage in another physical activity for at least 30 minutes per day.
- Avoid injury by being aware of medications that may cause side effects, using appropriate protective equipment, recognizing physical limitations, and taking precautions to avoid falls (i.e. using handrails, watching for tripping hazards, wearing appropriate footwear).¹⁴

Manage Chronic Conditions

There is emerging evidence that the presence of chronic disease may increase the risk of Alzheimer's and cognitive decline.⁹

- Manage chronic conditions such as vascular disease, high blood pressure, heart disease, and type 2 diabetes.⁹

HEALTHY BRAIN STRATEGIES

Learn New Things

Research has shown that keeping the brain active may increase its vitality, maintain brain cell reserves and connections, and even generate new brain cells.¹⁴ Keep the brain active by:

- Reading, writing, and working on puzzles.
- Playing games and trying memory exercises.
- Enrolling in courses at a local adult education center or other community group.
- Attending lectures and plays.



Sleep 7 to 8 Hours Each Night

Insufficient sleep has been shown to increase the risk of chronic diseases, such as diabetes and cardiovascular disease.¹⁵

- Adults (including the elderly) are recommended to sleep seven to eight hours each night.

Drink Alcohol Moderately

Excessive alcohol consumption may lead to persistent brain deficits and has also been linked to unintentional injuries, violence, and chronic diseases such as liver cirrhosis and cancer.¹⁶ Limit alcohol intake by drinking moderately.

- Moderate alcohol consumption is defined as no more than one drink per day for women or two drinks per day for men.



WHAT'S GOOD FOR THE BODY IS GOOD FOR THE BRAIN!

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DATA GUIDE AND DEFINITIONS

Data Guide

Caution must be used when exploring data from multiple sources or even the same data prepared by different analysts; comparisons may not be appropriate. Attention to accompanying information is important in order to note differences, including, but not limited to: data sources, data preparation, diagnoses/case definitions, rate constant (i.e. per 100,000 or 1,000), geographic units, persons included in the data (i.e. location of occurrence vs. location of residence, or among live births not total pregnancies).

Geography: Understanding Geographic Units Used in Health Data

Many different geographic units are used throughout San Diego County. In this document, Health and Human Service Agency Region (HHSR) and Subregional area (SRA) boundaries are based on zip codes. Additionally, data has been provided for supervisorial districts and city municipality geographies.

Data Aggregation:

Harbison Crest/El Cajon

Due to data aggregation methods, health data for the Harbison Crest SRA may be misleading. Health data are presented as an aggregate of two SRAs, Harbison Crest and El Cajon for better data stability and representation of the area.

Number, Proportion, Prevalence, and Rate

The data in this report includes numbers, proportions, and crude rates (from this point forward referred to as rates) for all level data:

- The number and proportion (or percent) represent the burden to the community of which the data is being reported.
- The prevalence is the estimated number of people with a particular condition. In the case of this report, prevalence is the estimated number of people living with Alzheimer's disease and related dementias (ADRD).
- 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 multiplied by 100,000 would be a rate of 150.8 per 100,000 population. The rate can be interpreted as an individual's risk and the odds of an outcome occurring.

DATA GUIDE AND DEFINITIONS

Methods

Medical Encounters

Any mention of ADRD in a medical record refers to review of the 25 diagnosis fields within a medical record to find if any of the identified International Classification of Diseases (ICD) 9 or ICD 10 codes associated with ADRD were reported in any of the 25 fields. A principal diagnosis of ADRD was determined using the principal diagnosis field in the 2015 patient discharge database (PDD). A secondary diagnosis of ADRD was determined using the 24 other diagnosis fields in the PDD. The same was done using the 2015 emergency department database (ED). Emergency department (ED) discharges refers to patients who were treated in the ED and then either discharged home or to another facility, such as a skilled nursing facility or a rehabilitation unit. Patients who were treated in the ED and then admitted into a hospital for further treatment and care are not included in the ED database. The numbers of unique individuals discharged from the ED or from the hospital were summed to provide an estimate of total number of unique users with ADRD.

It is important to note the difference between a discharge and the number of people discharged. One person may be discharged from the ED or hospital multiple times in a year. Throughout the report, the words “discharge” or “hospitalization” are used to discuss the actual numbers of discharges from the ED or hospital. When referring to the number of people who were discharged, terms such as “unique users”, “unique individuals”, and other similar phrases are used to emphasize that the data is talking about the people discharged from the ED or hospital.

Population Estimates and Projections

Population estimates and projections were obtained from the San Diego Association of Governments (SANDAG) website at <http://www.sandag.org/>.

Prevalence Estimates

Analysis of local data shows that individuals visit the emergency department at least once every five years. Additionally, using median survival time and age, individuals with ADRD can live between five years (post-diagnosis) and ten years after symptoms first appear.¹ Utilizing this information, seven years was established as the mid-point for the median survival time. Emergency department discharges (EDD) and patient discharges with any mention of ADRD were merged to find the number of unique number of San Diego County residents, treated in San Diego County, with ADRD over a five-year period. An average number of unique users per year was calculated and multiplied by seven (for the seven year survival time) to estimate the prevalence of San Diego County residents, age 55 and over, currently living with ADRD. This analysis yielded 84,405 individuals. The distribution of individuals with hospital discharges and emergency department discharges with any mention of ADRD in 2015 was applied to the county-wide estimate of 84,405 individuals to estimate the prevalence of residents currently living with ADRD by Health and Human Services Agency Regions and sub-regional areas, as well as supervisorial districts and city municipal boundaries.

DATA GUIDE AND DEFINITIONS

Projections

SANDAG series 13 forecasted projections for 2020 and 2030 were used to calculate the percent change in population from 2015, by age group. The 2015 to 2020 percent change for the 55-64, 65-74, 75-84, and 85 years and older age group populations of each sub-regional (SRA) was applied to the 2015 ADRD prevalence estimates and ADRD medical encounters for the corresponding SRA to obtain the 2020 ADRD prevalence estimates and ADRD discharges by SRA and Health and Human Services Agency Regions. ADRD projections for SRAs within each region were summed to find the projection for the corresponding HHS Region. The regions' populations were summed to determine the projection for San Diego County. This method was repeated using the 2030 population projections to obtain the 2030 ADRD prevalence estimates. The same methodology was applied to the hospitalizations and emergency department discharges to obtain medical encounter projections for 2030. Additionally, the same methodology was applied to caregiving to find the 2030 projections of caregiving costs, value of care, and caregiver health care costs for San Diego County and the Health and Human Services Agency Regions.

International Classification of Disease (ICD) 9 and ICD 10 Codes

The ICD-9 CM codes used to define Alzheimer's disease and related dementias are listed in the table below:

ICD-9 Code	Disease Name
290	DEMENTIAS
294	PERSISTENT MENTAL DISORDERS DUE TO CONDITIONS CLASSIFIED ELSEWHERE
331	OTHER CEREBRAL DEGENERATIONS
332	PARKINSON'S DISEASE
797	SENILITY WITHOUT MENTION OF PSYCHOSIS

The ICD-10 CM and ICD 10 Mortality codes used to define Alzheimer's disease and related dementias are listed in the tables on the next page.

DATA GUIDE AND DEFINITIONS

International Classification of Disease (ICD) 9 and ICD 10 Codes Continued

The ICD-10 CM codes used to define Alzheimer's disease and related dementias are listed in the table below:

ICD-10 Codes	ICD-10 Name
A81.00-.09	CREUTZFELDT-JAKOB DISEASE
F01	VASCULAR DEMENTIA
F02	DEMENTIA IN OTHER DISEASES CLASSIFIED ELSEWHERE
F03	UNSPECIFIED DEMENTIA
F04	AMNESTIC DISORDER DUE TO KNOWN PHYSIOLOGICAL CONDITION
F06.0	PSYCHOTIC DISORDER WITH HALLUCINATIONS DUE TO KNOWN PHYSIOLOGICAL CONDITION
F06.8	OTHER SPECIFIED MENTAL DISORDERS DUE TO KNOWN PHYSIOLOGICAL CONDITION
G10	HUNTINGTON'S DISEASE
G20	PARKINSON'S DISEASE
G21.11	NEUROLEPTIC INDUCED PARKINSONISM
G21.19	OTHER DRUG INDUCED SECONDARY PARKINSONISM
G21.8	OTHER SECONDARY PARKINSONISM
G30	ALZHEIMER'S DISEASE
G31.01-.09	FRONTOTEMPORAL DEMENTIA
G31.1	SENILE DEGENERATION OF BRAIN, NOT ELSEWHERE CLASSIFIED
G31.83	DEMENTIA WITH LEWY BODIES
G31.84	MILD COGNITIVE IMPAIRMENT, SO STATED
G91.2	(IDIOPATHIC) NORMAL PRESSURE HYDROCEPHALUS
G94	OTHER DISORDERS OF BRAIN IN DISEASES CLASSIFIED ELSEWHERE
R41.81	AGE-RELATED COGNITIVE DECLINE

The ICD-10 mortality codes used to define Alzheimer's disease and related dementias are listed in the table below:

ICD-10 Codes	ICD-10 Name
A81.0	CREUTZFELDT-JAKOB DISEASE
F01	VASCULAR DEMENTIA
F03	UNSPECIFIED DEMENTIA
F04	ORGANIC AMNESIC SYNDROME, NOT INDUCED BY ALCOHOL/OTHER PSYCHOACTIVE SUBSTANCES
F05.1	DELIRIUM SUPERIMPOSED ON DEMENTIA
F06.7	MILD COGNITIVE DISORDER
F06.8	OTHER SPECIFIED MENTAL DISORDERS DUE TO BRAIN DAMAGE AND DYSFUNCTION AND TO PHYSICAL DISEASE
F06.9	UNSPECIFIED MENTAL DISORDER DUE TO BRAIN DAMAGE AND DYSFUNCTION AND TO PHYSICAL DISEASE
G10	HUNTINGTON'S DISEASE
G20-G21	PARKINSON'S DISEASE & SECONDARY PARKINSONISM
G30	ALZHEIMER'S DISEASE
G31	OTHER DEGENERATIVE DISEASES OF NERVOUS SYSTEM, NOT ELSEWHERE CLASSIFIED
G91.2	NORMAL-PRESSURE HYDROCEPHALUS
R54	SENILITY

APPENDIX A

Geography	2015	2020	2030
San Diego County	84,405	98,610	115,194
Central Region	14,235	17,081	20,489
Central San Diego	5,696	6,652	8,176
Mid-City	4,175	4,599	5,352
Southeastern San Diego	4,699	5,663	6,749
East Region	21,901	24,636	27,894
Alpine	366	430	565
El Cajon	7,587	7,718	8,269
Harbison Crest-El Cajon	8,389	9,121	10,054
Jamul	394	456	564
La Mesa	3,425	3,918	4,430
Laguna-Pine Valley	28	39	59
Lakeside	2,808	3,256	3,825
Lemon Grove	1,449	1,639	1,900
Mountain Empire	101	140	212
Santee	1,911	2,164	2,391
Spring Valley	2,751	2,978	3,345
North Central Region	10,674	12,535	15,074
Coastal	1,195	1,482	1,737
Del Mar-Mira Mesa	2,387	3,053	3,541
Elliott-Navajo	1,621	2,047	2,597
Kearny Mesa	4,193	4,853	5,779
Miramar	22	<20	<20
Peninsula	1,039	1,101	1,423
University	613	621	724
North Coastal Region	10,626	12,063	13,875
Carlsbad	2,224	2,914	3,499
Oceanside	3,615	3,911	4,448
Pendleton	<20	<20	<20
San Dieguito	1,768	2,053	2,427
Vista	2,670	2,769	3,203
North Inland Region	13,353	15,785	17,590
Anza-Borrego Springs	<20	<20	<20
Escondido	4,351	4,871	5,313
Fallbrook	977	1,234	1,350
North San Diego	2,221	2,570	2,871
Palomar-Julian	52	64	92
Pauma	30	29	43
Poway	1,540	1,758	2,048
Ramona	1,015	1,151	1,240
San Marcos	1,900	2,292	2,730
Valley Center	743	1,129	1,243
South Region	13,616	16,558	21,408
Chula Vista	3,591	4,077	4,995
Coronado	566	650	680
National City	2,390	2,715	3,412
South Bay	3,850	5,181	7,121
Sweetwater	2,898	3,901	5,214

Alzheimer's Disease and Related Dementias (ADRD) Prevalence Estimates and Projections by Geography, 2015

Geographies include:

San Diego County

HSA Regions

Sub-regional Areas (SRAs)

In 2015, there were an estimated 84,405 residents living with ADRD in the County.

2015 Regions in order of Highest to Lowest Estimates:

- East Region
- Central Region
- South Region
- North Inland Region
- North Central Region
- North Coastal Region

2030 Regions in order of Highest to Lowest Estimates:

- East Region
- South Region
- Central Region
- North Inland Region
- North Central Region
- North Coastal Region

Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates and Series 13 Population Forecasts, Released 03/2017

APPENDIX A

Alzheimer's Disease and Related Dementias (ADRD) Prevalence Estimates and Projections by Geography, 2015

Geographies include:

San Diego County
Supervisor Districts
City Municipalities

Geography	2015	2020	2030
San Diego County	84,405	98,610	115,194
Supervisory District 1	16,320	20,617	26,388
Supervisory District 2	25,650	28,906	32,985
Supervisory District 3	11,855	14,093	15,906
Supervisory District 4	17,578	19,734	23,240
Supervisory District 5	13,001	15,125	17,382

Geography	2015	2020	2030
San Diego County	84,405	98,610	115,194
City of Carlsbad	1,998	2,445	2,892
City of Chula Vista	6,223	7,789	10,027
City of Coronado	566	650	680
City of Del Mar	21	23	36
City of El Cajon	6,292	6,184	6,539
City of Encinitas	1,099	1,311	1,591
City of Escondido	3,934	4,205	4,515
City of Imperial Beach	254	351	492
City of La Mesa	3,359	3,759	4,269
City of Lemon Grove	1,299	1,446	1,668
City of National City	2,398	2,762	3,480
City of Oceanside	3,738	4,165	4,796
City of Poway	960	1,035	1,214
City of San Diego	31,201	37,049	44,190
City of San Marcos	1,636	1,879	2,284
City of Santee	1,965	2,216	2,451
City of Solana Beach	120	143	195
City of Vista	2,472	2,496	2,837
Unincorporated	14,513	17,574	20,007

In 2015, there were an estimated 84,405 residents living with ADRD in the County.

2015 Geographies with Highest Estimates:

- By District: Supervisor District 2, followed by Supervisor District 4 had the highest estimates of ADRD.
- By City: the City of San Diego, followed by the City of El Cajon and the City of Chula Vista had the highest estimates of ADRD outside of the unincorporated areas.

2030 Geographies with Highest Estimates:

- By District: Supervisor District 2, followed by Supervisor District 1 had the highest estimates of ADRD.
- By City: the City of San Diego, followed the City of Chula Vista had the highest estimates of ADRD outside of the unincorporated areas.

Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates and Series 13 Population Forecasts, Released 03/2017

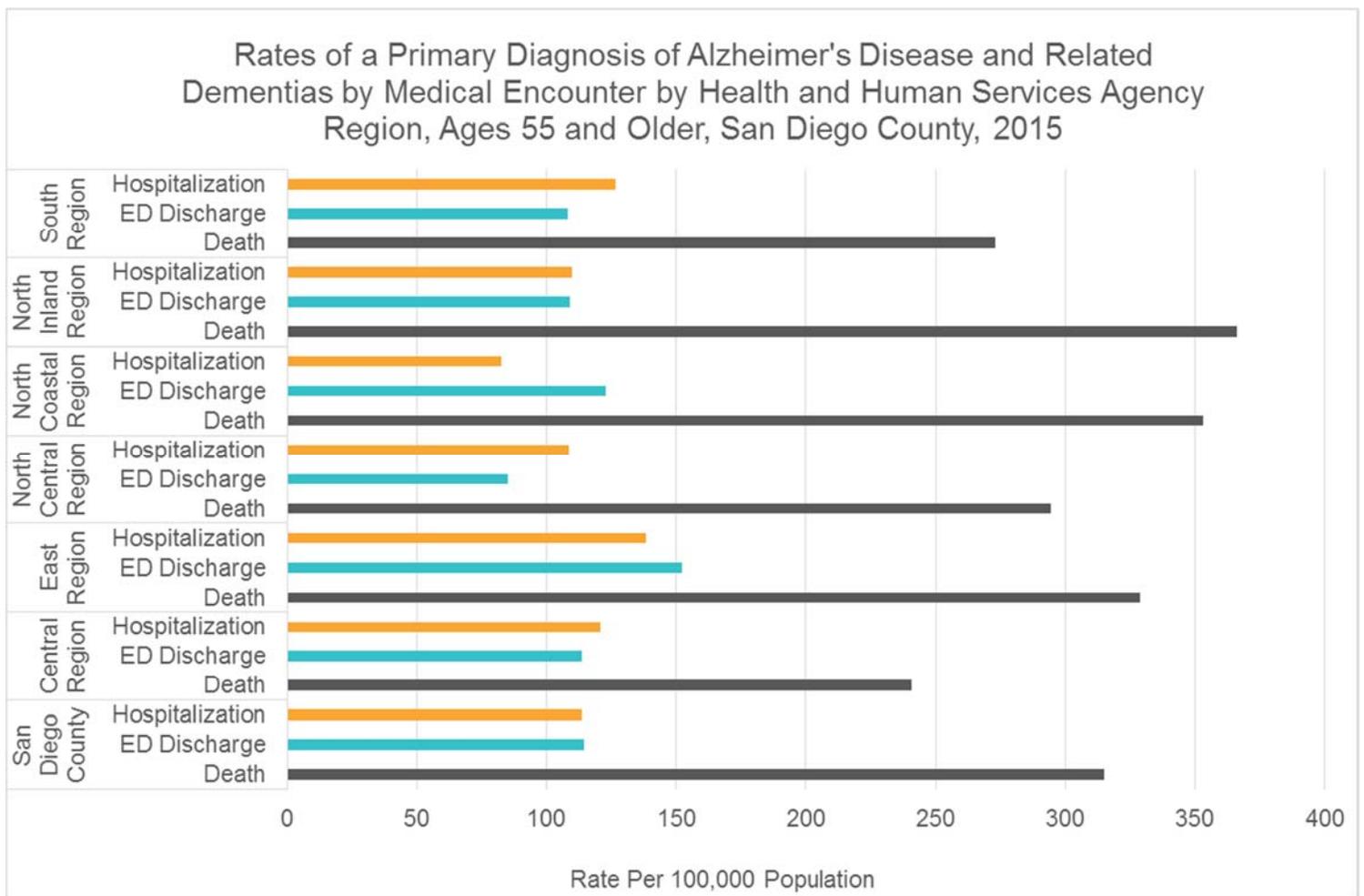
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

Geographies include:

- San Diego County
- Supervisory Districts
- HHSA Regions
- City Municipalities
- Sub-regional Areas (SRAs)

The following graphs display rates for the primary diagnosis, or the principle reason someone was admitted to the hospital or emergency department (ED), or their underlying cause of death. This is different compared to the rest of the report where cases were determined if there was any mention of ADRD. Deaths were not included elsewhere in the report.



Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

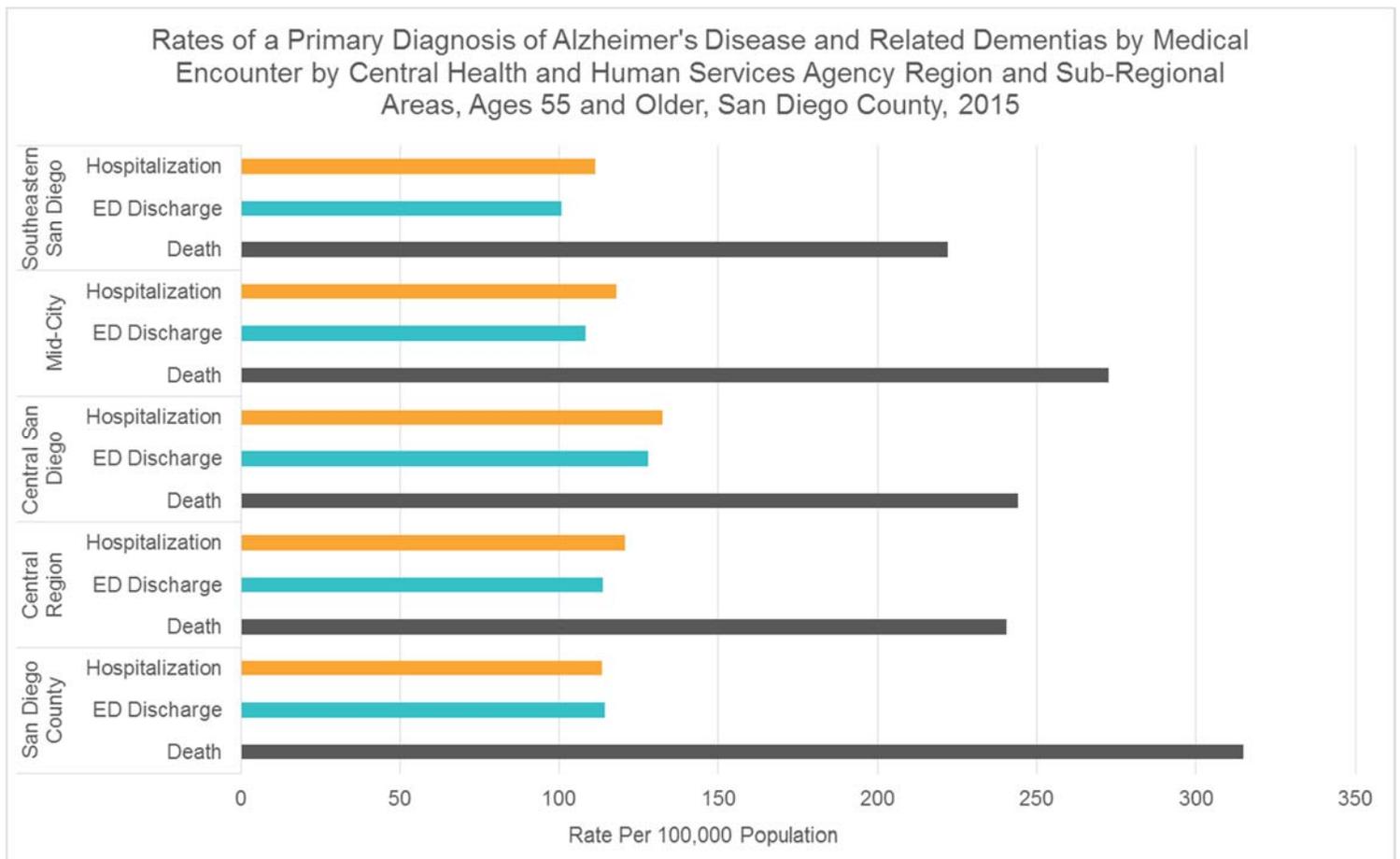
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

Central Region

Among the Central Region Communities:

- Central San Diego had the highest hospitalization and ED rates.
- Mid-City had the highest rate of deaths at 272.4 deaths per 100,000 population.

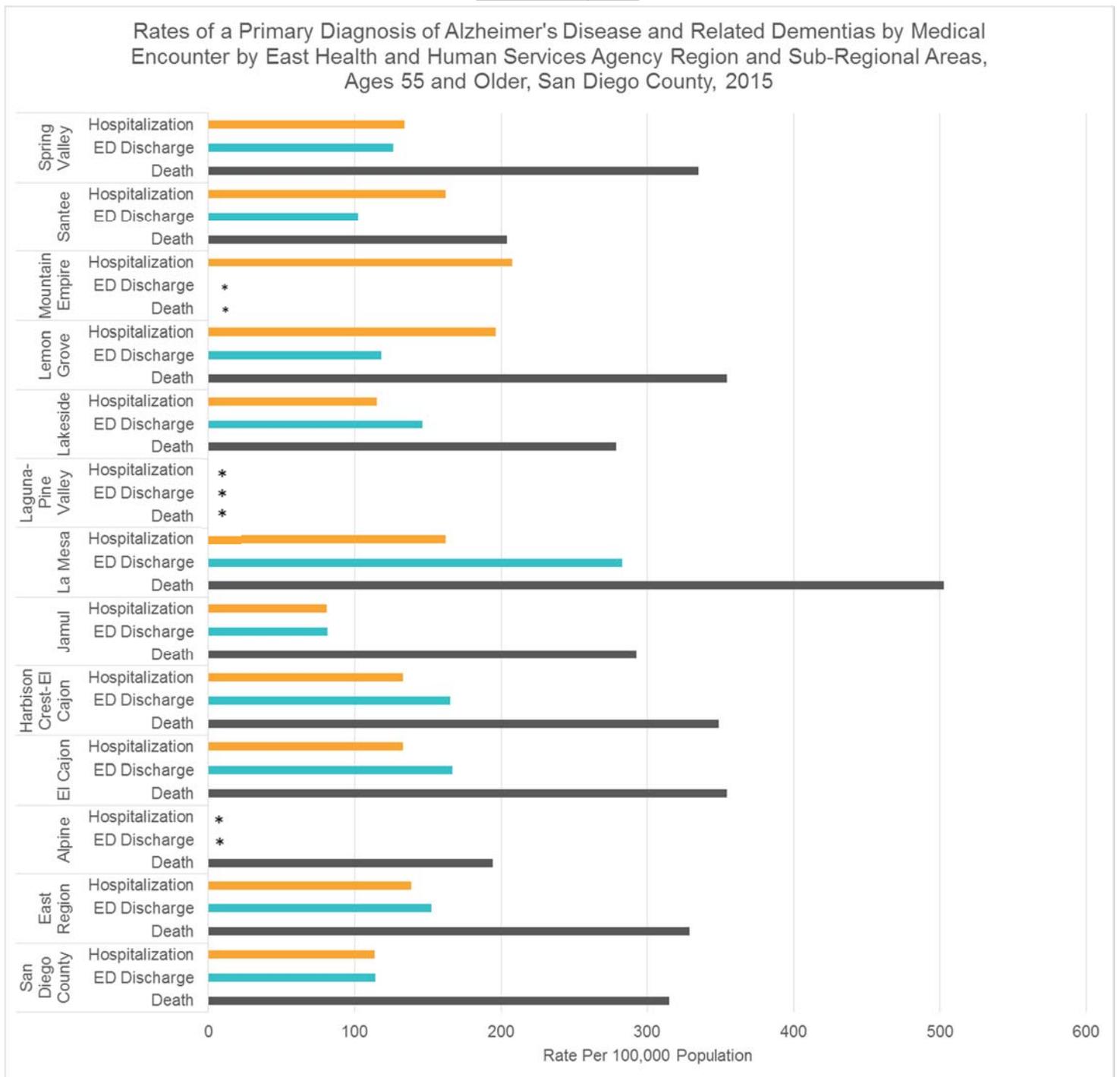


Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

East Region



*Data censored where cases less than 5. Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

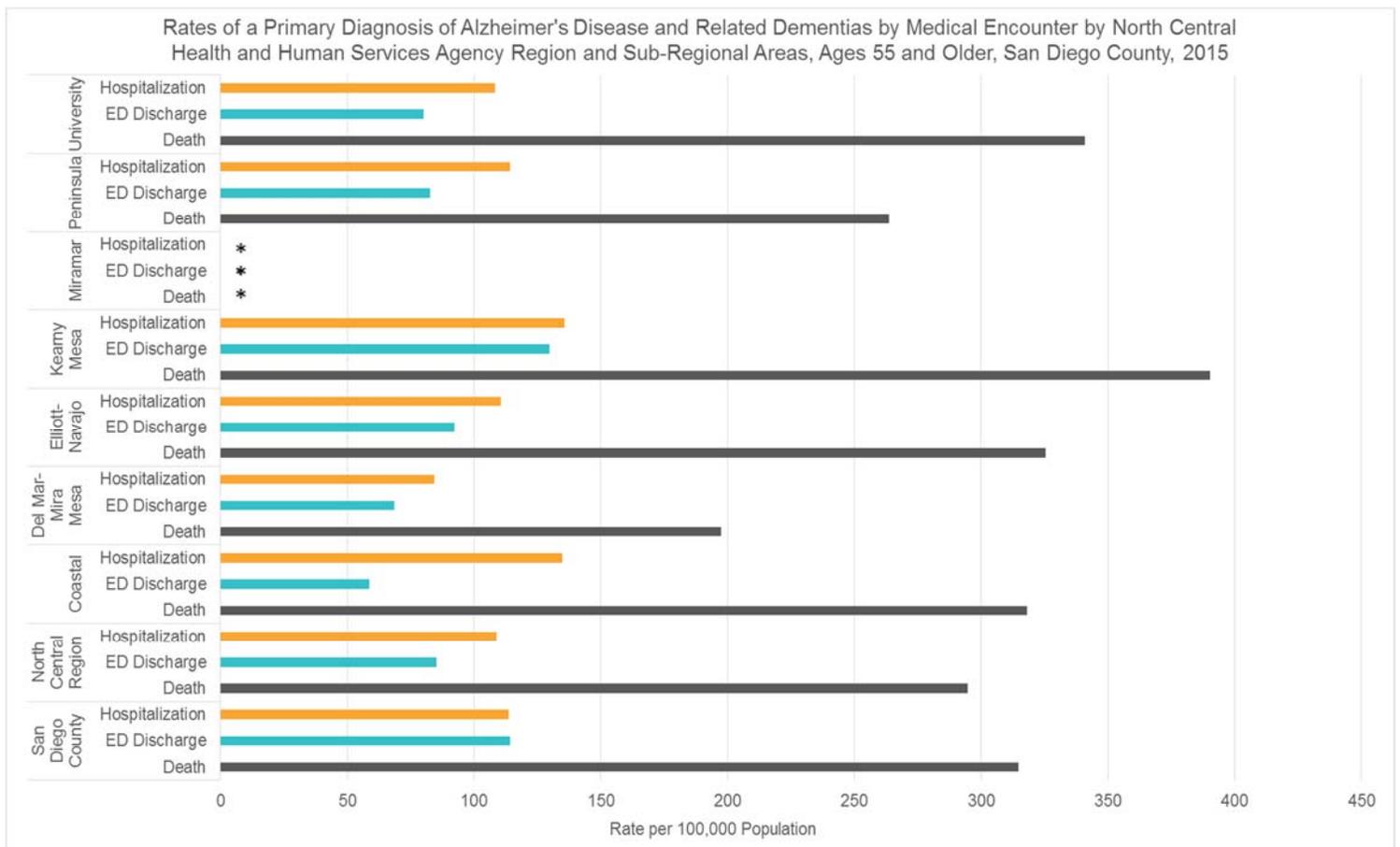
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

North Central Region

Among the North Central Region Communities:

- Kearny Mesa had the highest hospitalization and ED rates.
- Kearny Mesa also had the highest rate of deaths at 390.4 deaths per 100,000 population.



*Data censored where cases less than 5. Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

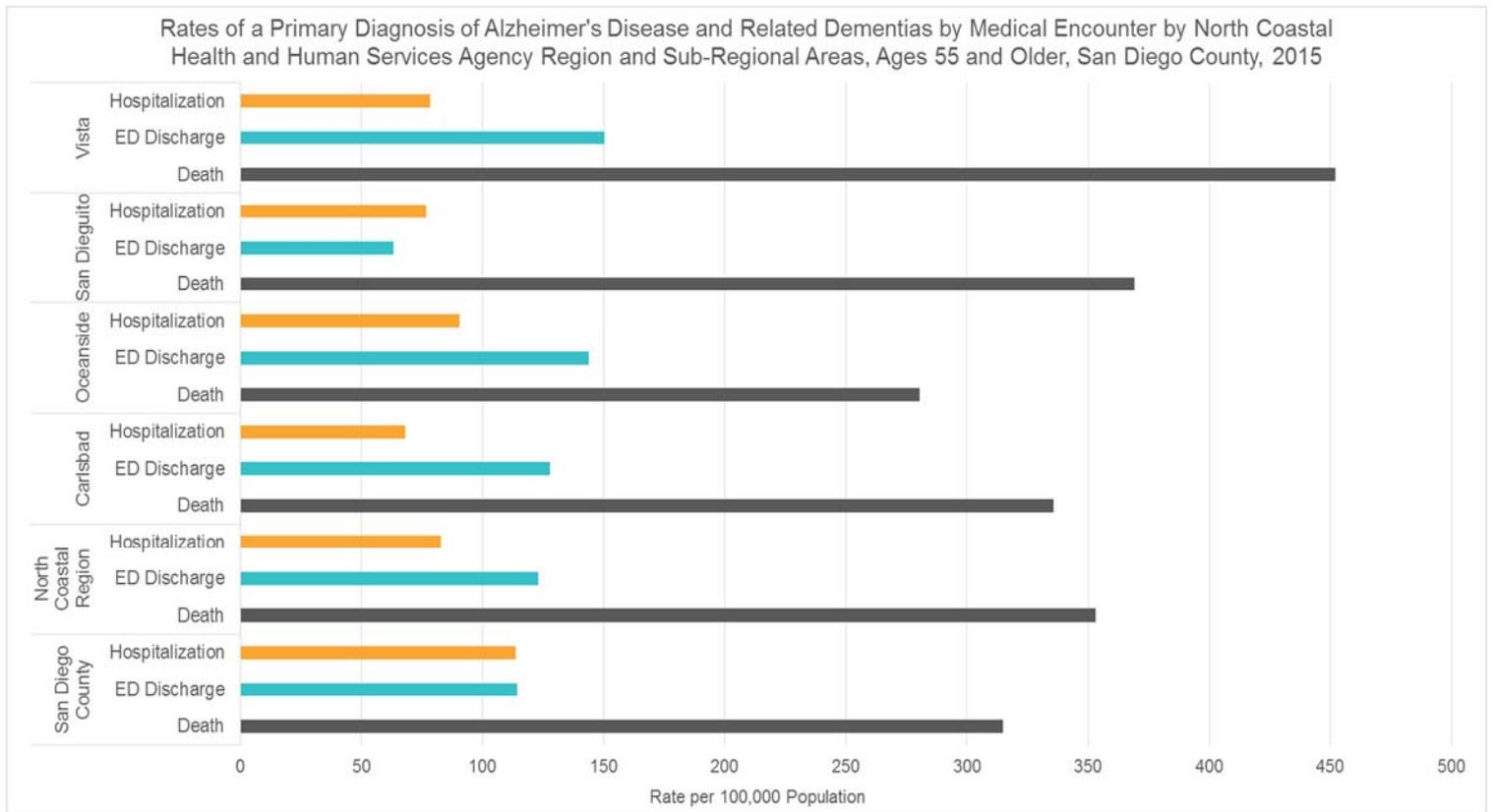
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

North Coastal Region

Among the North Coastal Region Communities:

- Oceanside had the highest hospitalization rate and Vista had the highest ED rates.
- Vista also had the highest rate of deaths at 452.1 deaths per 100,000 population.

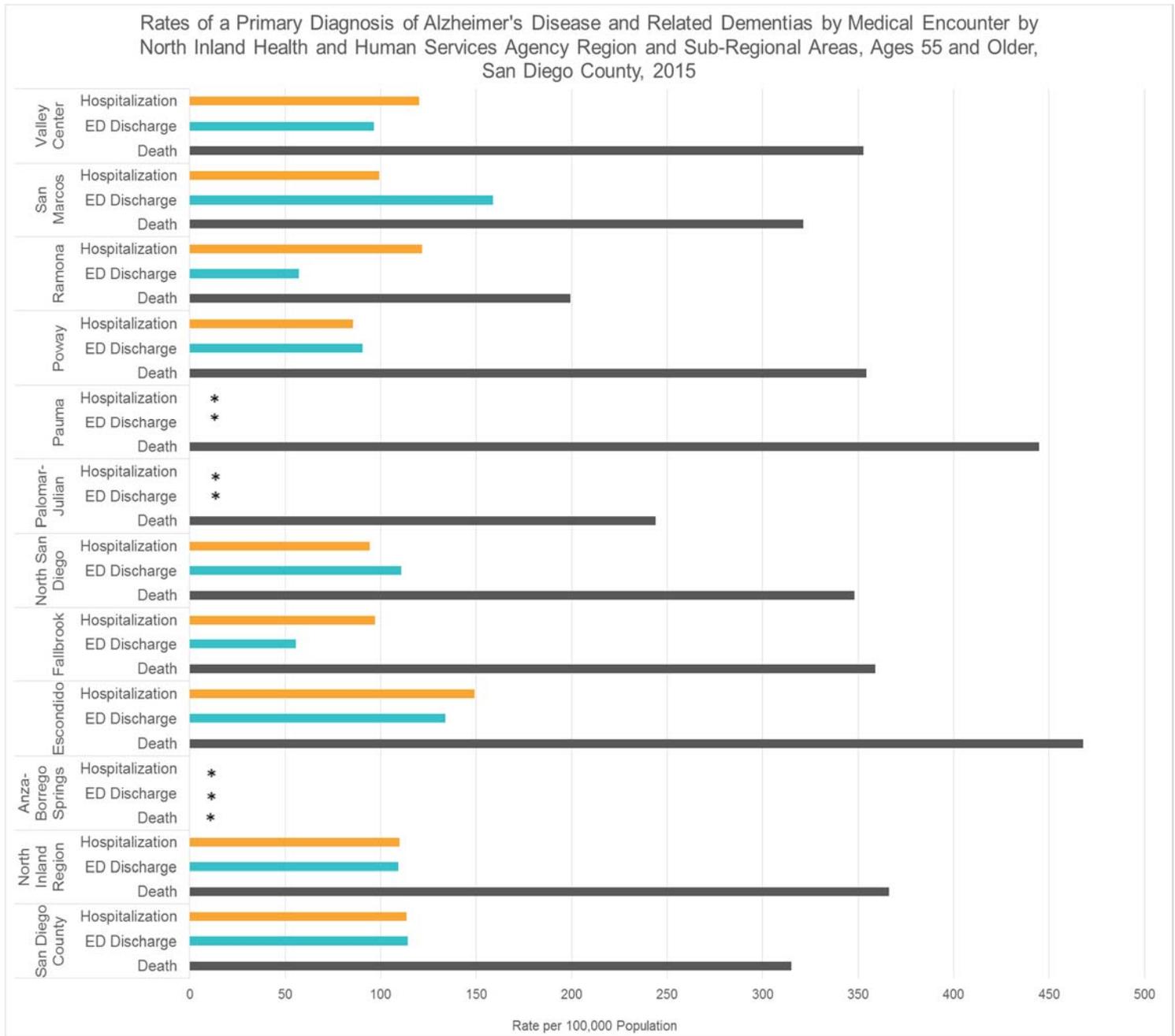


Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

North Inland Region



*Data censored where cases less than 5. Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

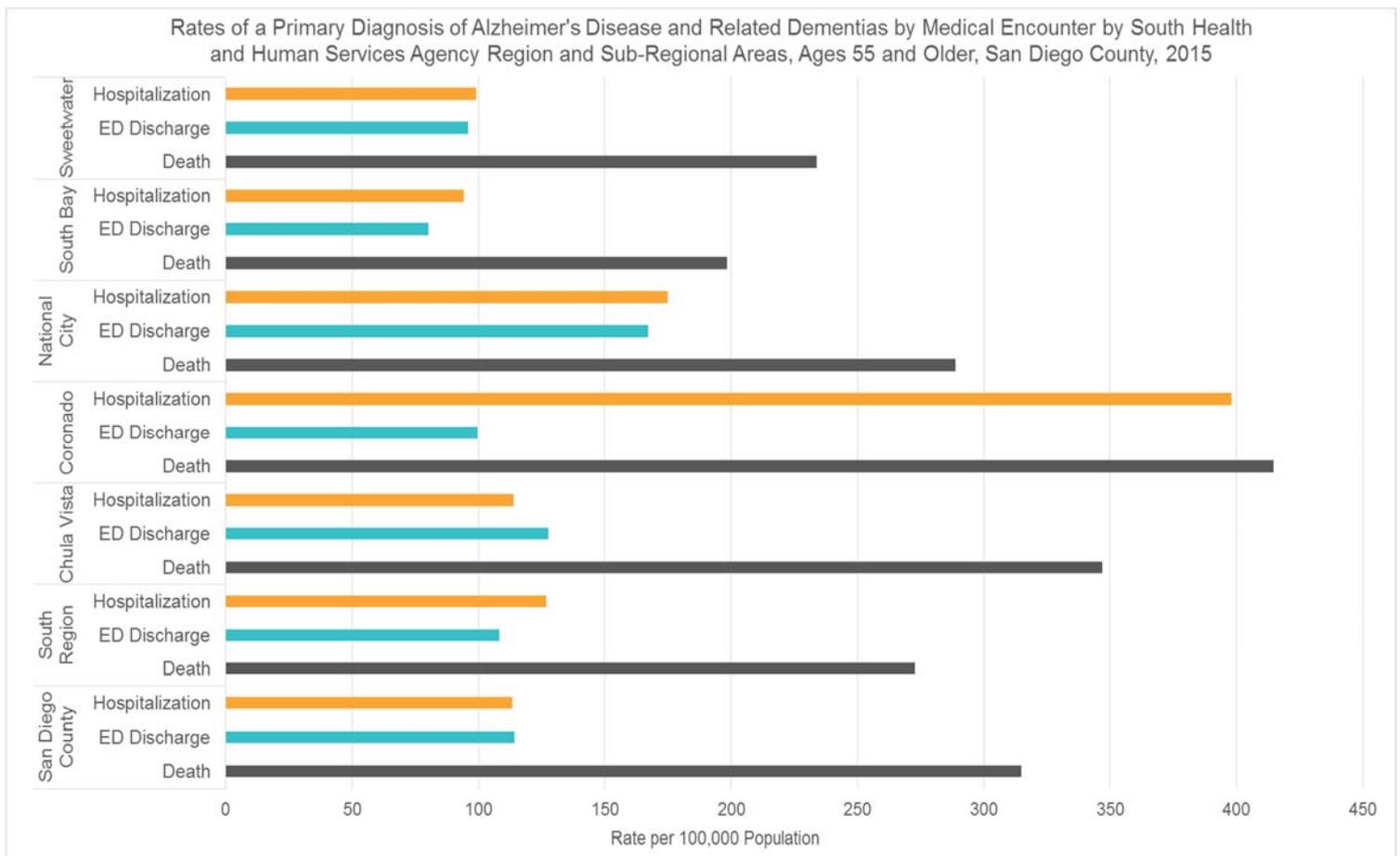
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

South Region

Among the South Region Communities:

- Coronado had the highest hospitalization rates and National City had the highest ED rates.
- Coronado also had the highest rate of deaths at 414.6 deaths per 100,000 population.



Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

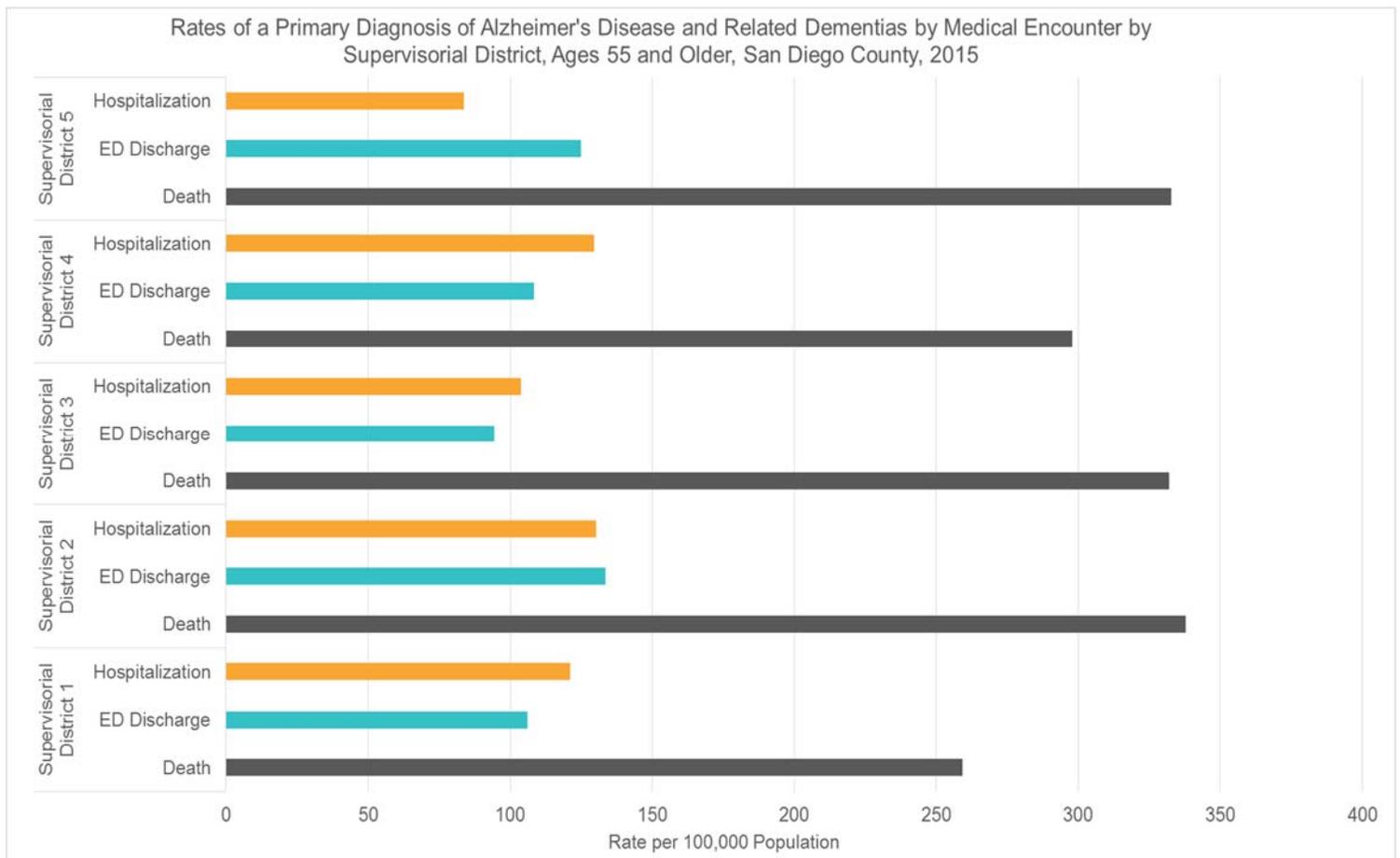
APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

Supervisory Districts

Among the Supervisor Districts:

- District 2 had the highest hospitalization rates and ED rates.
- District 2 also had the highest rate of deaths at 337.8 deaths per 100,000 population, followed closely by Districts 3 and 5 with death rates of 332 per 100,000 population.

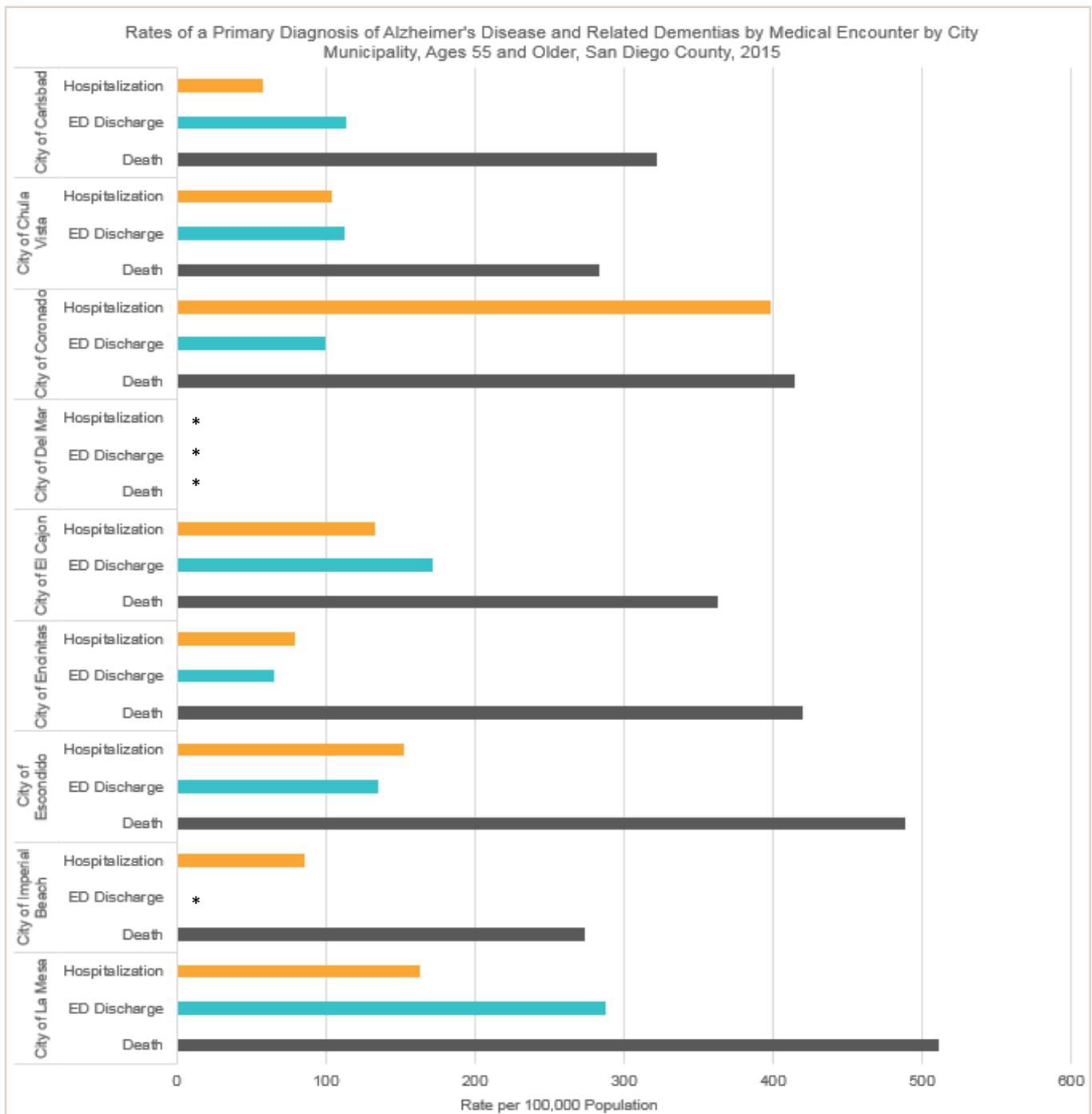


Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ADRD) Medical Encounter Rates by Geography, 2015

City Municipalities: Carlsbad-La Mesa

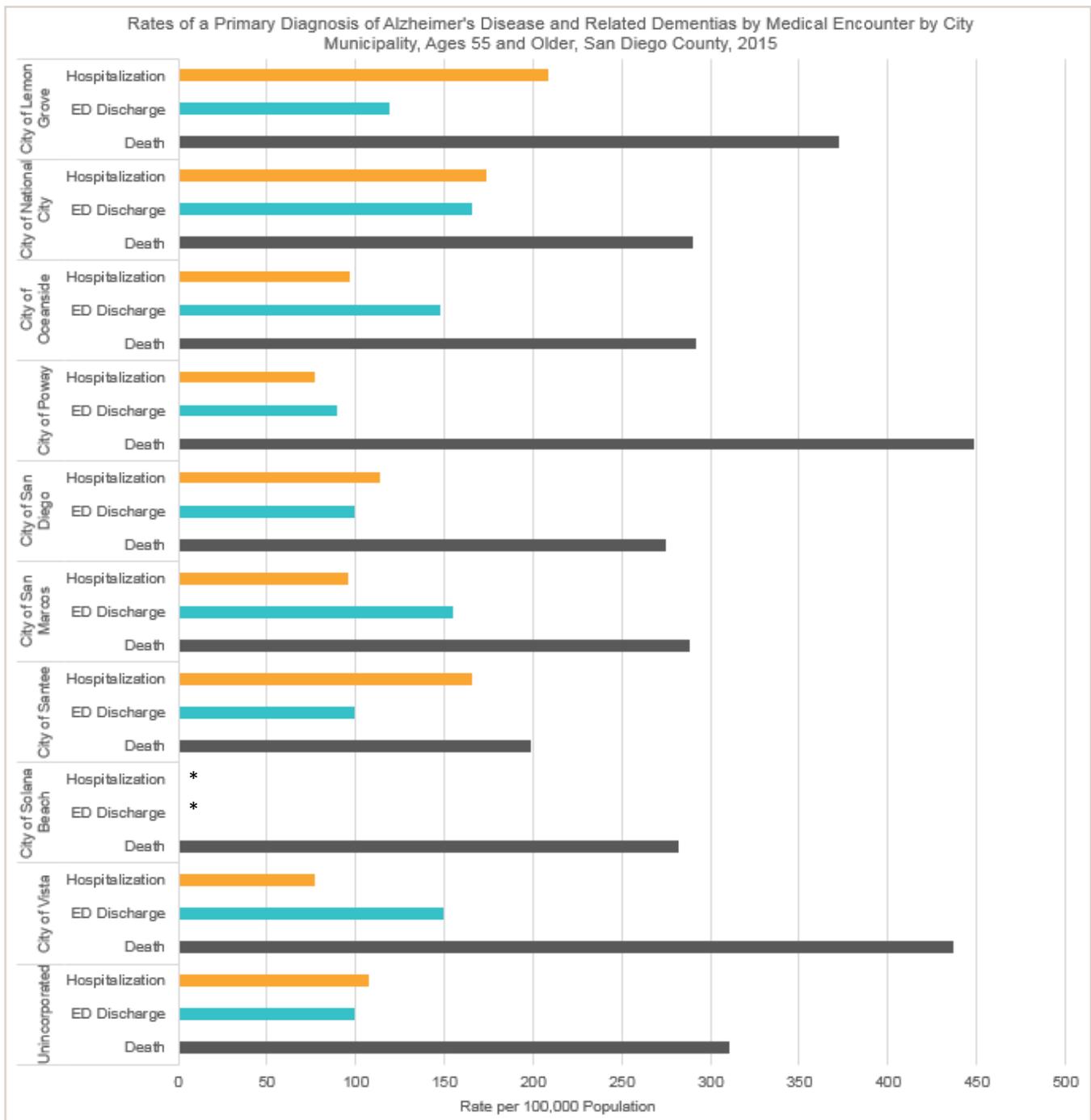


*Data censored where cases less than 5. Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

APPENDIX B

Primary Diagnosis Alzheimer's Disease and Related Dementias (ARD) Medical Encounter Rates by Geography, 2015

City Municipalities: Lemon Grove-Unincorporated



*Data censored where cases less than 5. Source: 2015 Patient Discharge and Emergency Department Discharge Databases, (CA OSHPD); Vital Records Business Intelligence System Death Database (VRBIS); County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit; SANDAG, Current Population Estimates, Released 03/2017

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