HEALTH MATTERS

Riverside University Health System – Public Health

Epidemiology & Program Evaluation

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ALZHEIMER'S DISEASE AND RELATED DEMENTIAS (ADRD): MORTALITY AND HOSPITALIZATIONS IN RIVERSIDE COUNTY, CA

INTRODUCTION

What is ADRD?

ADRD encompasses Alzheimer's Disease and related dementias, progressive neurological disorders that gradually diminish cognitive and life-supporting abilities. It typically originates with minor brain changes occurring decades before diagnosis, often manifesting as mild cognitive impairment. Diagnosis usually follows the onset of symptoms that interfere with daily functioning.

Who is affected?

ADRD primarily impacts individuals aged 65 and older across all demographics, although early-onset dementia may occur before age 65 due to rare familial genetics, and in some people with Down Syndrome (AAFF, 2023). Members of underserved communities and those with lower socioeconomic status are disproportionately affected, due in part to barriers in diagnosis, treatment, and support services.

What is the impact?

Individuals with ADRD require increasing levels of care as the condition progresses, often requiring full-time assistance. Affecting approximately one out of three individuals over the age of 85 in the United States (Rajan et al., 2021), ADRD underscores the urgent need for adequately prepared healthcare and support systems to manage the anticipated surge in cases with an aging population. Disparities in prevalence, mortality rates, and caregiving responsibilities are evident, particularly burdening under-resourced communities. ADRD also heightens the risk of developing other medical conditions, complicating management further.

KEY FINDINGS

- Nearly 1,900 people 65+ died from ADRD in 2022.
- More women than men die from ADRD.
- The Black/African American population has the highest age-adjusted ADRD mortality rate.
- Since 2018, ADRD mortality rates have increased.

ADRD IS THE THIRD LEADING CAUSE OF DEATH IN THOSE 65+

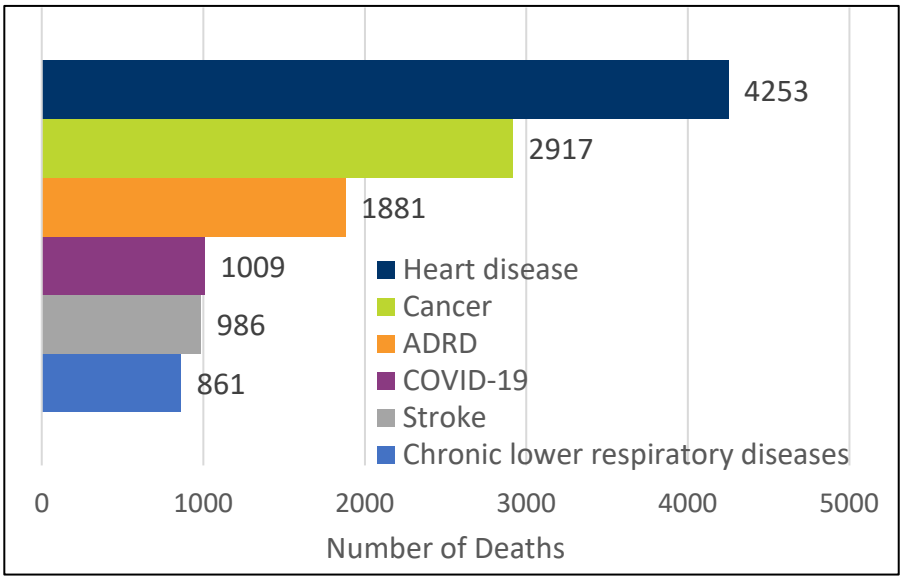
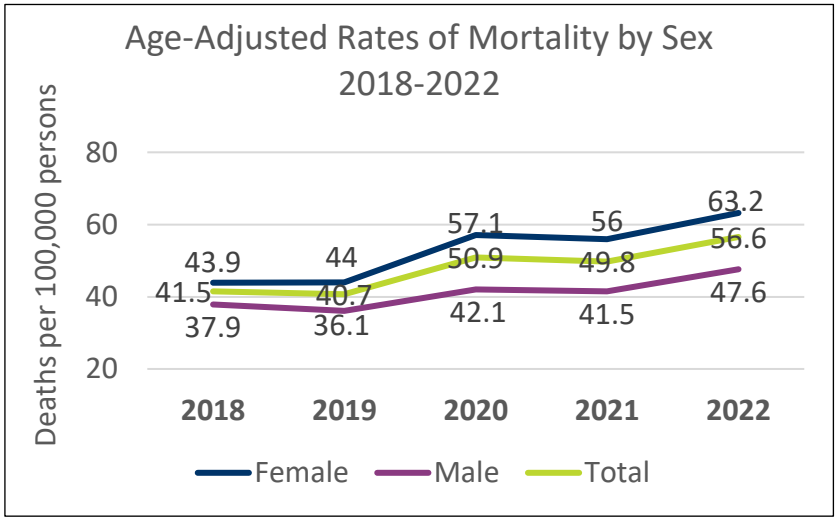


Figure 1: Leading causes of death for Riverside County residents ages 65+ in 2022 (Cal-IVRS, 2023). ADRD was the third leading cause of death.

The risk of death from ADRD increases with age. In 2022, ADRD was the third leading cause of death for people ages 65+ in Riverside County. Specifically, it was the eighth most common cause of death for ages 65-74, the third most common for ages 75-84, and the second most common (after heart disease) for ages 85+. As the population ages, ADRD deaths may continue to increase relative to other causes (Ross et al, 2021).

OVERALL MORTALITY RATES

Figure 2: Age-adjusted* rates of ADRD mortality by sex** and year for Riverside County residents. (Cal-IVRS, 2023)



*Age-adjustment is a statistical method for comparing populations that have different age distributions. In this case, mortality rates were age-adjusted to account for a higher proportion of women than men over 65 (NCHS, 2022). **Female/male are assigned as sex on death certificate. RUHS-Public Health fully supports the collection, analysis, and display of gender identity data. We continue to work with partners and advocate for the collection of this data for future reporting.

Women are disproportionately affected by ADRD (AAFF, 2023). In Riverside County, nearly two-thirds of ADRD-related deaths occurred among women. However, the exact reasons behind this disparity remain unclear due to mixed results in studies.

Proposed explanations (AAFF, 2023) for the increased risk of ADRD in women include:

- Survival bias, where more men with risk factors like heart disease die at a younger age, leading to a higher proportion of women surviving to older ages.
- Uneven distribution of risk factors, such as lower educational attainment and participation in the workforce, particularly among women born in earlier generations.
- A potential stronger effect of the APOE-e4 gene, a genetic risk factor for ADRD, in women compared to men.

MORTALITY DEMOGRAPHICS AND DISPARITIES

Racial and ethnic disparities in ADRD are not due to biological differences, but to structural racism and marginalization, which contribute to disparities in multiple health conditions and social determinants of health (SDOH) which are in themselves risk factors for ADRD (AAFF, 2023). In Riverside County, the White population experienced the highest crude rate of deaths (130.4 per 100,000 people) from ADRD in 2020-2022, due to a larger proportion of the White population being over 65 (Figure 3). When differences in age distribution are accounted for (age adjustment), the mortality rate is highest among the Black population, at 83.7 per 100,000 people, vs. 54.7 per 100,000 for the White population. Additionally, the distribution of age at death from ADRD shows varying median ages from 2018 to 2022 by race/ethnicity: 88 years old for Asian, Hispanic, and White, and 85 years for Black (Figure 4).

Figure 3: ADRD mortality rates per 100,000 people by race/ethnicity in Riverside County, 2020-2022 (Cal-IVRS, 2023).

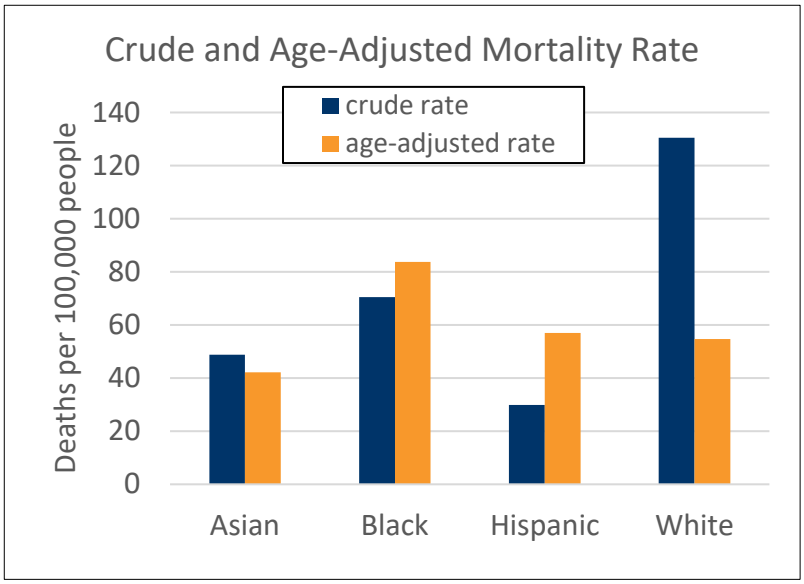
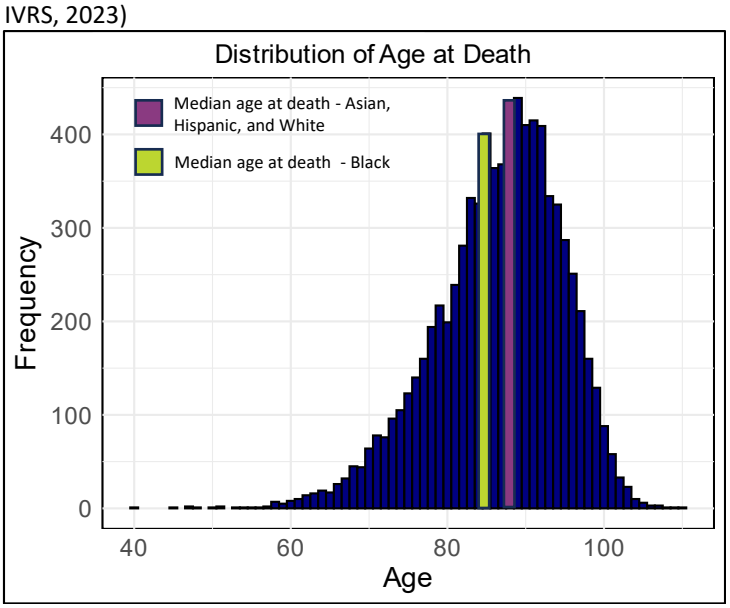


Figure 4: Distribution of age at death from ADRD with median age of death by race/ethnicity in Riverside County, 2018-2022 (Cal-IVRS, 2023)



PRIMARY AND SECONDARY CAUSES OF DEATH

Individuals diagnosed with ADRD often experience typical age-related health conditions; however, management of these conditions becomes more complex when they co-occur with ADRD. In cases where ADRD is listed as a secondary cause of death, it frequently co-occurs with primary causes such as cardiovascular diseases (e.g., heart disease and stroke), pulmonary diseases, and in recent years, COVID-19 (Figure 5). Additionally, factors contributing to death from ADRD may include conditions like cardiac arrest, diabetes mellitus, and respiratory failure. Understanding these primary causes and contributing conditions is essential for developing comprehensive care strategies aimed at enhancing outcomes and improving quality of life for individuals affected by ADRD (Figure 6).

Figure 5: Leading primary causes of death with ADRD as a contributing factor.
Riverside County, 2021 (CCB, 2024)

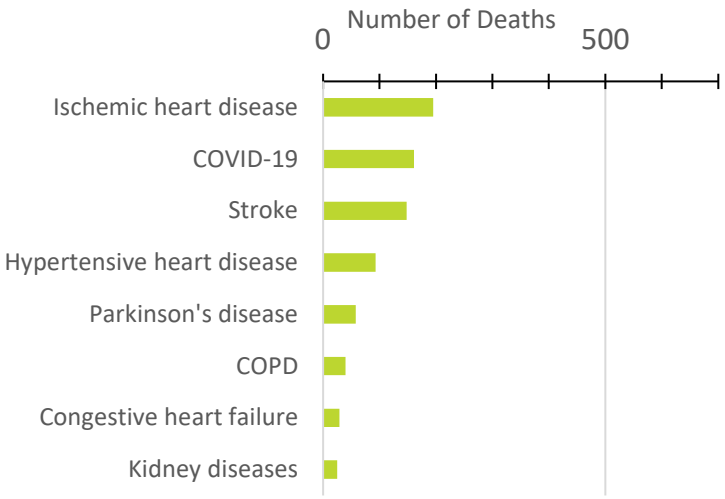
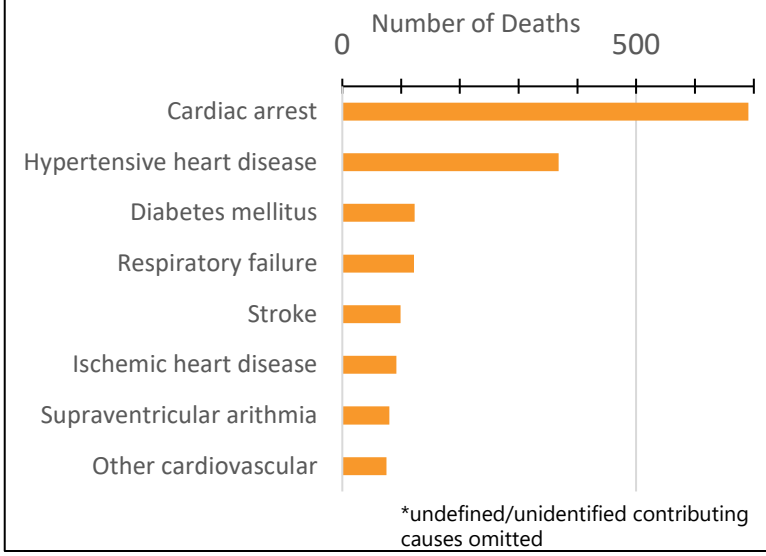


Figure 6: Top causes contributing to death from ADRD*.
Riverside County, 2021 (CCB, 2024)



HOSPITALIZATIONS

Hospitalizations among patients with ADRD represent a significant aspect of healthcare management and pose unique challenges. These individuals often require hospital care due to complications arising from their cognitive impairment, such as falls, infections, and sepsis (AAFF, 2023). Effective management of hospitalizations for individuals with ADRD requires a comprehensive approach that prioritizes person-centered care, tailored interventions to address their specific needs, and collaboration among healthcare professionals, caregivers, and family members to ensure continuity of care and minimize the risk of adverse events.

Figure 7: The most common primary reasons for hospitalizations of patients with dementia in Riverside County, 2020-2022, by CCSR category (Clinical Classifications Software Refined). (HCAI, 2023; AHRQ, 2024)

Category	Hospitalizations	% of Hospitalizations
Septicemia	6199	17.7
COVID-19	2379	6.8
Fracture of the hip	1626	4.6
Urinary tract infections	1435	4.1
Heart failure	1429	4.1
Cerebral infarction	1062	3.0
Acute and unspecified renal failure	1046	3.0
Nervous system disorders (non-hereditary/degenerative)	864	2.5
Neurocognitive disorders	816	2.3
Pneumonia (non-tuberculosis)	813	2.3
Traumatic brain injury (TBI); concussion	805	2.3

DISCUSSION

In Riverside County, ADRD is a significant and growing health concern with disproportionate effects on specific demographic groups. In recent years, Black African Americans have experienced a higher age-adjusted rate of death from ADRD in Riverside County than other larger race/ethnicity groups, as well as an earlier median age at death from ADRD. These issues may be exacerbated by disparities in availability and utilization of caregiving resources (AA, 2023). Further analysis is required to assess needs and outcomes for smaller race/ethnicity groups and under-resourced or marginalized populations. As the population ages, prevalence and mortality rates of ADRD are expected to increase (Ross et al., 2021). The White non-Hispanic population has had the highest ADRD deaths per capita in recent years, likely due to that population being older than other groups (Goldmann & Bojorquez, 2024). Women in Riverside County are also disproportionately affected by ADRD compared to men. This brief highlights inequities in ADRD mortality that are driven by a complex set of environmental and behavioral risk factors. These, in turn, reflect disparities in environmental health and social determinants of health (AA, 2023; Ross et al., 2021). Effectively addressing ADRD disparities would involve addressing multiple risk factors and complex social determinants of health that underlie them. These include cardiovascular health, diabetes, smoking, educational opportunities, and socioeconomic disparity (AA, 2023). These risk factors are inequitably perpetuated by structural racism. Public health interventions aimed at reducing population-level risk of ADRD and disparities in ADRD must center equity if these interventions are to be effective.

COMMUNITY RESOURCES

- Alzheimer's Association of the Inland Empire: 800-272-3900 (staffed 24/7); https://www.alz.org/socal
- Inland Caregiver Resource Center: https://inlandcaregivers.org/
- Riverside County Office on Aging: https://rcaging.org/
- In-Home Supportive Services (IHSS) Program: https://www.cdss.ca.gov/in-home-supportive-services
- Paid Family Leave: https://legalaidatwork.org/wp-content/uploads/2023/08/PFL_Caregiver_Resource_9.pdf
    - For undocumented workers: https://legalaidatwork.org/guides/undocumented-workers-guide-to-applying-for-california-disability-insurance-paid-family-leave/

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