

Overview of Trends in Alzheimer's Disease and Other Dementias Among Older Adults in Alameda County



A Community Conversation about Alzheimer's Disease and Other Dementias
Convening Sponsored by Alameda County Health Care Services Agency
September 21, 2018

- This slide set is an overview of what we have learned about Alzheimer's and other dementias in the older adult population of Alameda County. For our purposes this includes those 65 years and older.
- Some of these data raise more questions than they answer.

We'll Start with the Conclusion

- The population of older adults in Alameda County is growing due to aging of the baby boomers and the fact that they will live longer.
- Greatest impacts are among those 85 and older and among African Americans.
- Rates of death and hospital visits are increasing.
- The number of people living with Alzheimer's & dementia is likely to triple between 2020 and 2060.



We need to start now to plan, lobby, fund and create a system of care.

What We'll Talk About

- Our health equity lens
- The changing population
- How we defined Alzheimer's and dementia
- How many have it? (Prevalence)
- Who is dying from it? (Mortality)
- Who is visiting the hospital? (Morbidity)
- Hospital inpatient costs and who pays
- Recommendations



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- All of the information is based on Alameda County specific data.

Our Vision of Health Equity



EVERYONE in Alameda County –
no matter who you are,
where you live,
how much money you make,
or the color of your skin –
can lead a healthy,
fulfilling, and productive life.



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- At its core, the Public Health Department and our parent agency, Health Care Services Agency, operates within a health equity framework.

Our Values

Healthy People in Healthy Communities

Equity and Social Justice

Accountability and Quality

Leadership and Innovation

Trust and Transparency

Humility and Respect



HEALTH for All in Alameda County!

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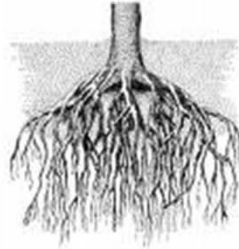
- These are our explicit values. Equity and social justice are our moral drivers.
- This is the frame through which we, in the CAPE Unit, analyze our public health data.

Our Health Equity Lens: Concentrated Poverty and Segregation Matter

Historical Roots of Racial Segregation and Concentrated Poverty

Discriminatory mortgage
underwriting
by FHA/VA

Racial redlining



Disinvestment and
urban decline

Middle class and white
flight to the suburbs

Racial steering
and block-busting

Displacement caused
by urban renewal



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- This approach allows us to place current social and health inequities within their historical context and explicitly recognize that health inequities were not created overnight. They have deep historical roots.
- This slide illustrates that racist *public* policies such as discriminatory mortgage underwriting and *private* practices such as racial redlining, set up the conditions for:
 - Neighborhood disinvestment.
 - Urban decline.
 - Displacement as a result of urban renewal and now skyrocketing housing costs
 - All of these contribute to an ongoing concentration of poverty and segregated neighborhoods.

Social Equity Matters for Health Equity & Differential Access to Health Resources



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- These historical drivers of poverty and segregation continue to shape how people access things like good health care, housing, education and transportation...in other words, that broad array of resources that enable good health.

Leading Causes of Death, Ages 65+, Alameda County

| Cause | Annual # | % |
|------------------------------------|--------------|---------------|
| Cancer (Malignant neoplasms) | 1,616 | 21.9% |
| Heart disease | 1,591 | 21.6% |
| Alzheimer's and other dementias | 1,041 | 14.1% |
| Stroke (Cerebrovascular diseases) | 612 | 8.3% |
| Chronic lower respiratory diseases | 378 | 5.1% |
| Diabetes | 256 | 3.5% |
| All other causes | 1,869 | 25.4% |
| Total | 7,363 | 100.0% |



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Source: CAPE, with data from Alameda County mortality files, 2015-2017.

- This slide shows leading causes of death among those 65 years and older in Alameda County
- We started this work two years ago when we observed Alzheimer's disease to be moving up in leading causes of death.
- We began to explore patterns of Alzheimer's disease and study the literature before zeroing on our definitions.
- We found that the vast majority of these deaths occurs among those 65+ years (98.5%).
- You can see here that Alzheimer's and dementia is now the third leading cause of death among older adults, with about 1041 deaths a year, accounting for 14% of deaths in the age group....only superseded by cancer and heart disease.

Alzheimer's Disease and Other Dementias among Older Adults

Current Inclusions:

- Alzheimer's
- Vascular dementia
- Frontotemporal dementia
- Dementia with Lewy bodies
- Corticobasal degeneration
- Alcohol- and drug-induced dementia

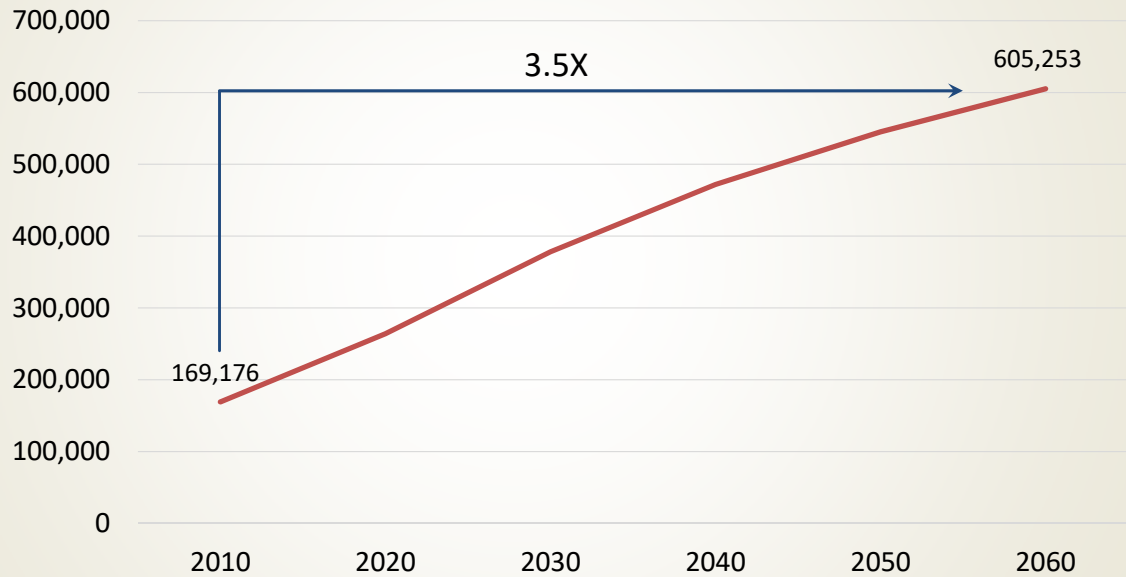


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Source: CAPE with data from Alzheimer's Association:
https://www.alz.org/documents_custom/2016-facts-and-figures.pdf

- Here are the diseases we included in our profile:
 - Alzheimer's
 - Vascular dementia
 - Frontotemporal dementia
 - Dementia with Lewy bodies
 - Corticobasal degeneration
 - Alcohol- and drug-induced dementia
- Dementias other than Alzheimer's were included if they were more common among older adults and found to be referenced commonly in the literature on older adults.
- **DETAIL:** A group of brain diseases marked by cognitive and behavioral impairment that interferes with a person's social and occupational functioning.
- Symptoms include a decline in memory, language, problem-solving, and other cognitive skills.
- We did not include Parkinson's disease, Creutzfeldt-Jakob disease, normal pressure hydrocephalus, Huntington's disease, or traumatic brain injury.

Changing Population in Alameda County, 65+ Years

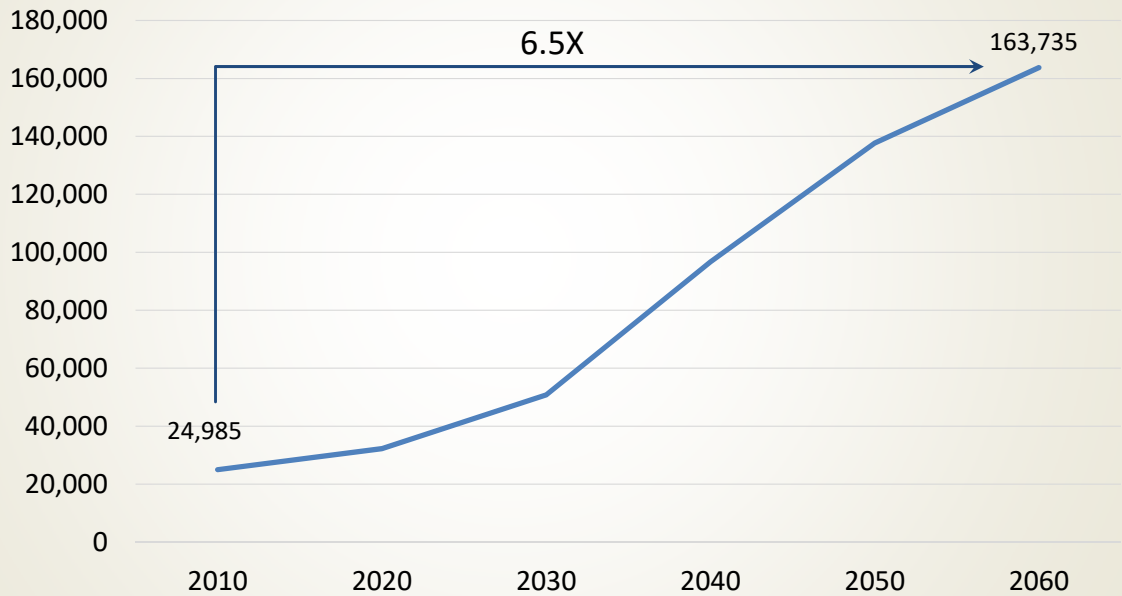


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Source: CAPE, with data from CA Dept. of Finance, 2017.

- Alameda County's older adult population is aging.
- The CA Department of Finance projects that the population 65+ years will grow from 169,000 in 2010 to 605,000 in 2060.
- This is 3.5 times the population of 2010.
- This means that in 2060 older adults will make up over 26% of the county's population compared to just 11% in 2010.

Changing Population in Alameda County, 85+ Years



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Source: CAPE, with data from CA Dept. of Finance, 2017.

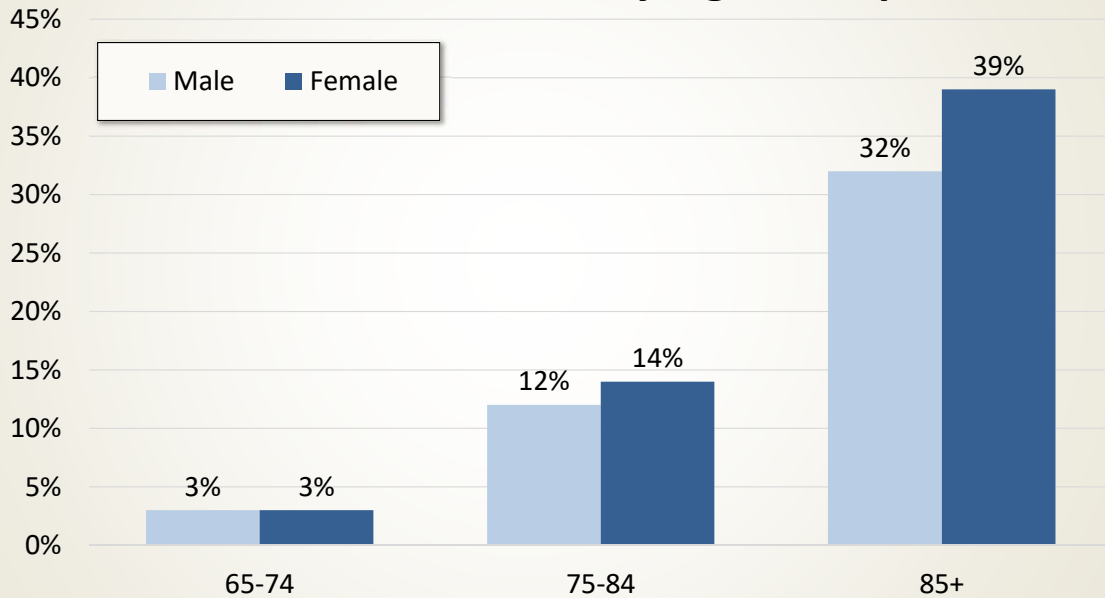
- This slide shows that the largest growth will be in the 85 and older population.
- It will increase a factor of 6.5 times over that same 50-year period
- More baby boomers will move into this age group and their life expectancy will continue to increase.

Health Impacts of Alzheimer's & Dementia on the Alameda County Older Adult Population



- Now we'll look at the health impacts of Alzheimer's and dementia on the older adult population in AC.

Percentage of Older Adult Population with Alzheimer's and Dementia by Age Group & Gender



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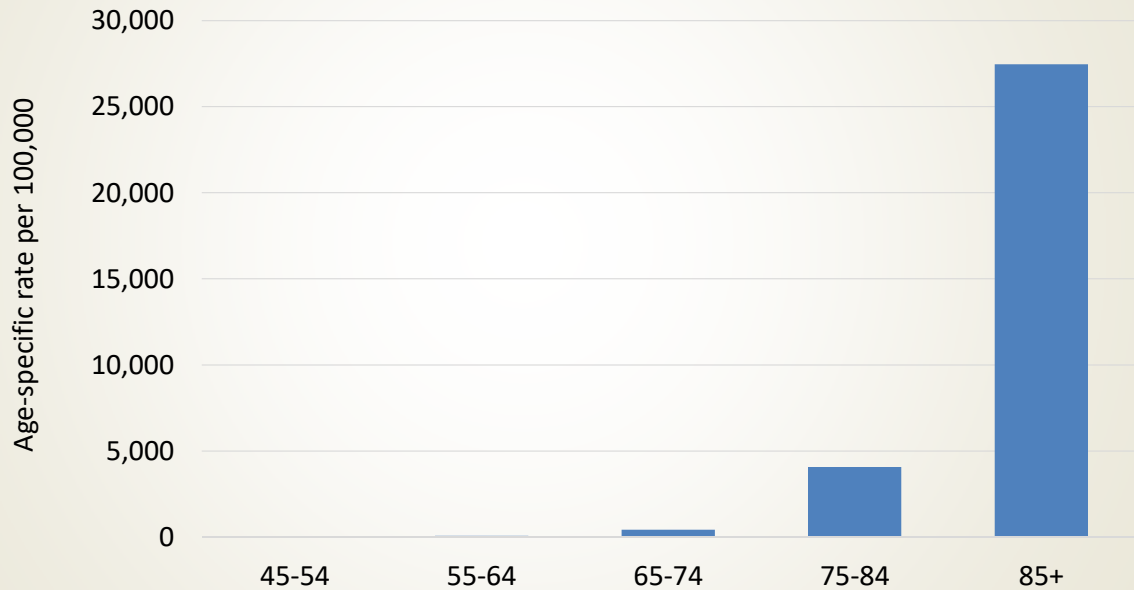
Source: CAPE, with 2015 data from Centers for Medicare and Medicaid Services data.

- This slide shows the federal government's estimate of the percentage of older adults in each of these three age groups who have been diagnosed with Alzheimer's or other dementias.
- This is called the prevalence and may be an underestimate since it is based on Medicare claims data.
- The prevalence in the 85+ age group may be 30 to 40% of the population.
- It is higher among women than men, likely due to women living to older ages, even within the age group.

DETAIL

- Approximately 21,640 residents of Alameda County ages 65+ were diagnosed with dementia in 2015. This is probably an undercount since this is only cases who were picked up by CMS claims records.
- Pattern holds for the US overall, higher for women than for men.
- How prevalence rates were determined are here: <https://www.cms.gov/About-CMS/Agency-Information/OMH/Downloads/Mapping-Technical-Documentation.pdf>

Death Rate from Alzheimer's and Dementia by Age Group

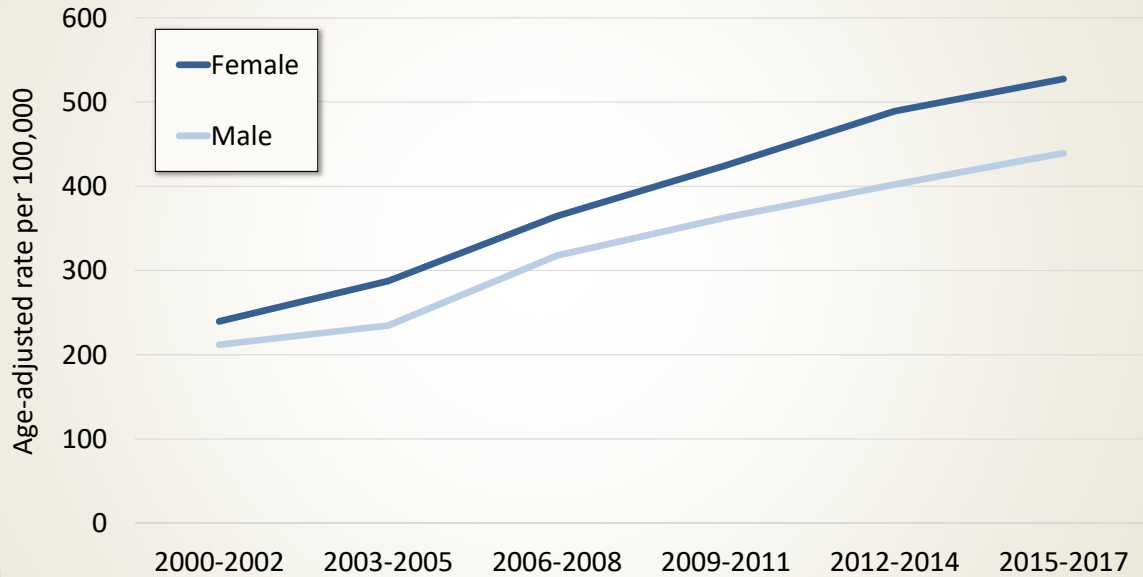


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Source: CAPE, with data from Alameda County mortality files, 2015-2017.

- This slide shows the rate of death from Alzheimer's and dementia by age group, and you can see that this group of diseases largely affects those 85+ years and to a much lesser degree those 65 to 84.
- Identifying the true number of people who die from Alzheimer's and dementia is difficult due to the use of different definitions and coding practices. For this slide set, we capture all deaths in which Alzheimer's and dementia was coded as the *underlying cause* of death. This method excludes people who may have had Alzheimer's and dementia coded on their death certificates as a *contributing cause*, such as some cases of pneumonia.

Death Rate from Alzheimer's and Dementia 65+ Years, 2000-2017

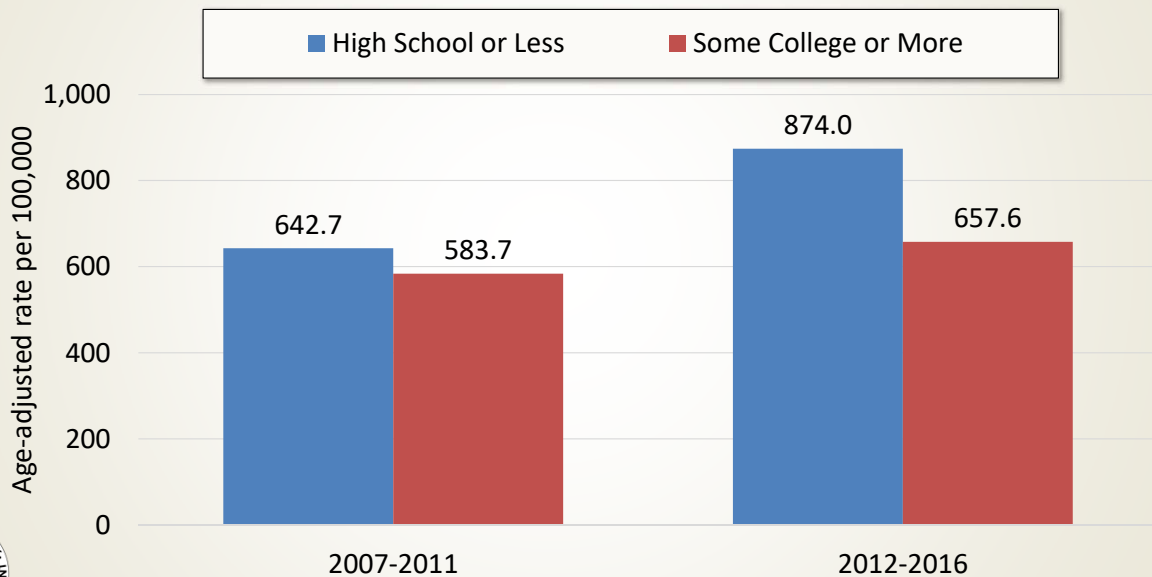


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Source: CAPE, with data from Alameda County mortality files, 2000-2017.

- Death rates have increased over time a bit more for females than males.
- Again, we attribute this largely to the growth in the older adult population and to people in the very elderly population living to older ages.
- Due to medical advances in the treatment of cancer and heart disease, death rates from these diseases have declined, allowing older adults to live longer.
- As they live longer, and as the cohort of baby boomers grows older (those born right after the war are now in their early 70s) the death rate from Alzheimer's and dementia is increasing.

Death Rate from Alzheimer's and Dementia 65+ Years by Education Level, 2007-11 and 2012-16

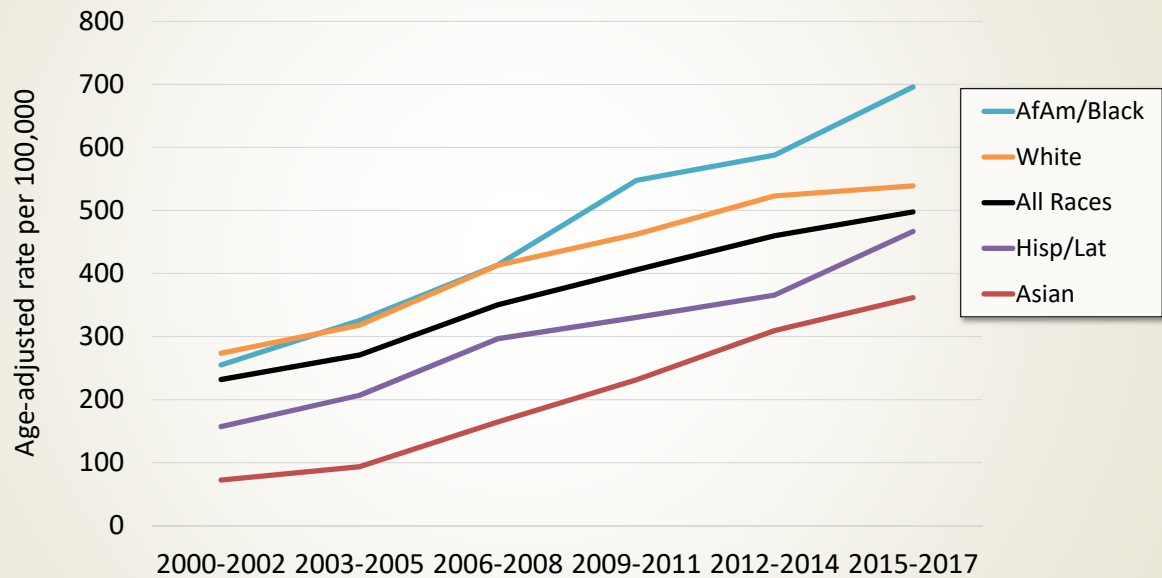


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Source: CAPE, with data from Alameda County mortality files, 2007-2016.

- Here we look at two adjacent five-year periods, 2007-2011 compared to 2012-2016.
- You can see from the blue bars that the largest increase from the first period to the next is among those decedents with lower levels of education (high school or less).
- This is a 36% increase, compared to a 13% increase for those with higher levels (the red bars).
- The research suggests that more years of education may be protective due to what is called cognitive reserve, or additional neural pathways. The clinical experts here can no doubt talk more about that.
- It may also be that those with less education have other comorbidities that increase risk of Alzheimer's and dementia.
- Clearly what we see here is not the effect of education alone but the host of impacts related to social class and root causes.

Death Rate from Alzheimer's and Dementia 65+ Years by Race/Ethnicity, 2000-2017



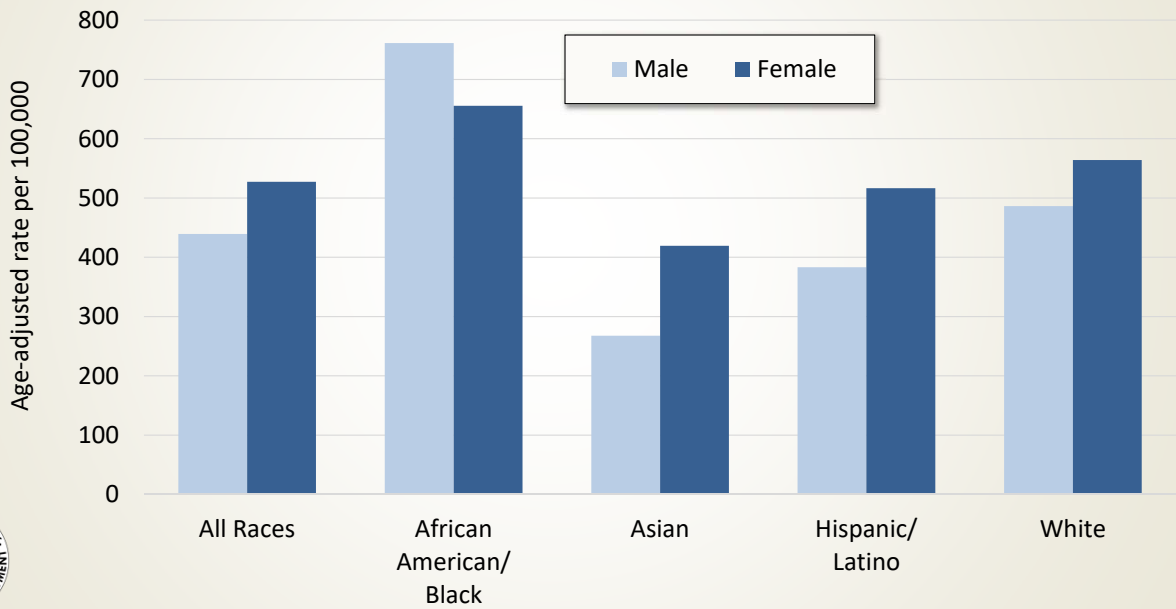
17

Source: CAPE, with data from Alameda County mortality files, 2000-2017.

- This slide shows trends in mortality by racialðnic group.
- For all the reasons discussed earlier, the rate for every group is increasing.
- The black line shows that the average rate of death for all races combined essentially doubled from 232 deaths per 100,000 to 498 over the last 17 years.
- The white rate appears to be leveling some.
- Asians have the lowest rates but they have also experienced the largest change, the rate in 2015-2017 being five times that of 2000-2002..

| | Change |
|------------|--------|
| All Races | 2.1X |
| White | 2.0X |
| AfAm/Black | 2.7X |
| Asian | 5.0X |
| Hisp/Lat | 3.0X |

Death Rate from Alzheimer's and Dementia 65+ Years by Gender & Race/Ethnicity

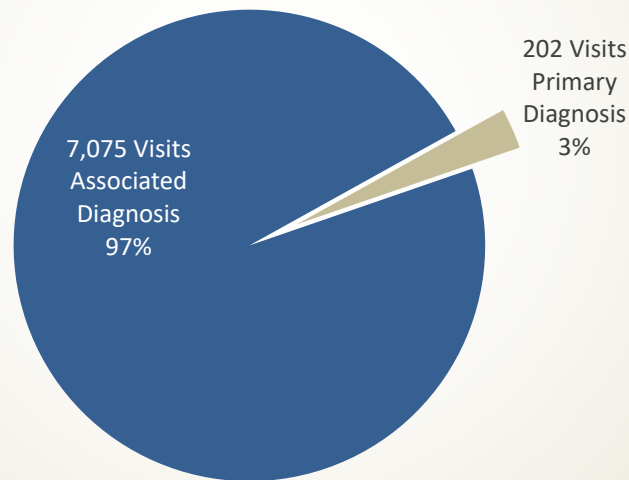


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Source: CAPE, with data from Alameda County mortality files, 2015-2017.

- This slide breaks out the mortality rates by both race/ethnicity and gender.
- What you will see is that the rate of death for African American males is higher than that for females, a pattern not seen in the other groups.
- This difference is not statistically significant. It is worth noting however that there are 90 African American males deaths represented here over the three-year time frame compared to 212 female deaths.
- The male decedents were on average younger than the females. So in this case the higher male rate does not appear to due to greater longevity.

Hospital Inpatient Visits, 2016 Alzheimer's and Dementia as Primary vs. Associated Diagnoses (N=7,277)



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Source: CAPE , with data from Office of Statewide Health Planning and Development, 2013-3Q2015

- Now we transition to hospital utilization.
- Data come from the California Office of Statewide Health Planning and Development and represent all Alameda County residents regardless of where in California they are admitted.
- This slide shows inpatient visits for Alzheimer's and dementia. You can see that the vast majority, 97%, have an A or D code not as primary diagnosis but as secondary or associated diagnosis.

Top 10 Primary Diagnoses for Inpatients with Alzheimer's and Dementia as an *associated* diagnosis

- Sepsis
- Urinary tract disorders
- Fracture of femur
- Pneumonitis
- Heart failure
- Cerebral infarction
- Pneumonia
- Acute kidney failure
- Respiratory failure
- Disorders of fluid, electrolyte, & acid-base balance

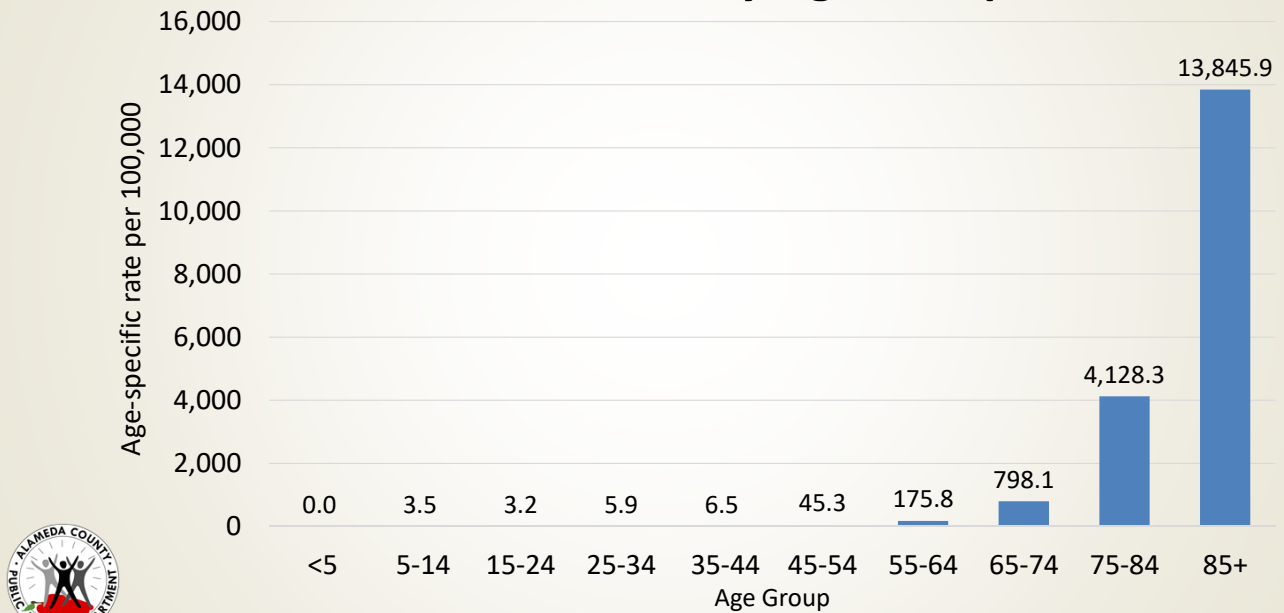


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Source: CAPE , with data from Office of Statewide Health Planning and Development, 2016

- For those who are hospitalized with Alzheimer's or dementia as an associated diagnosis, what are the most common primary diagnoses, sometimes referred to as qualifying diagnoses, for admission?

Rate of Hospitalizations for Alzheimer's and Dementia-Related Illnesses by Age Group

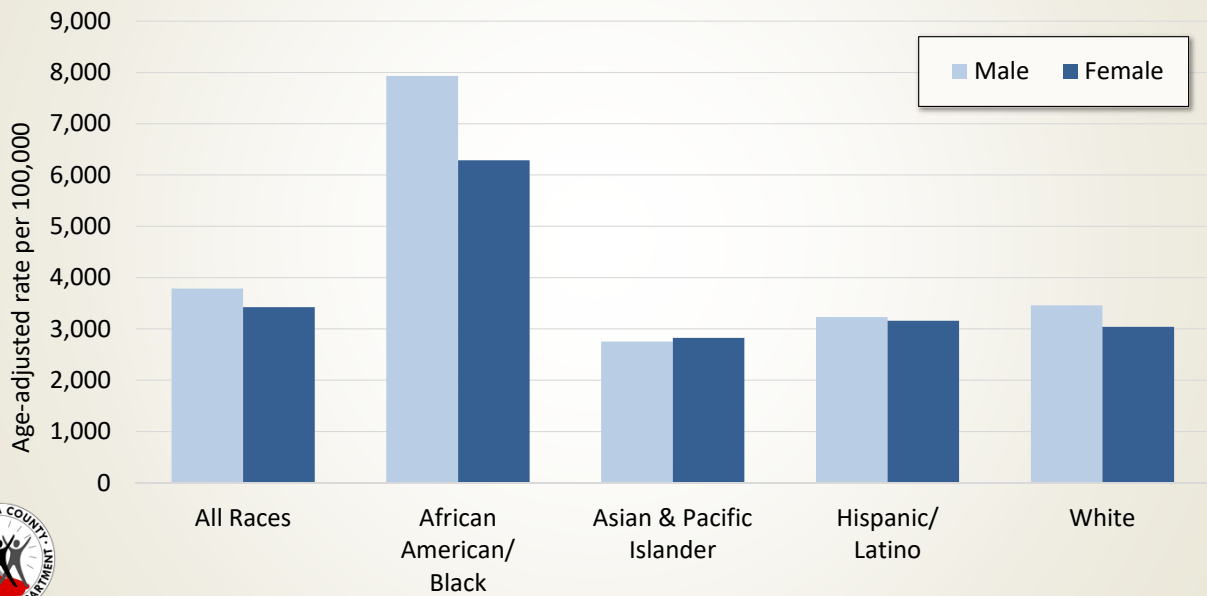


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Source: CAPE, with data from Office of Statewide Health Planning and Development, 2016

- This slide is titled Alzheimer's and dementia-related illnesses because we capture all those visits regardless of whether the conditions are coded as primary or associated diagnoses.
- You'll see that the pattern of hospitalization by age group is the same as that for mortality with those 85 and older experiencing by far the largest burden of disease.
- All age groups are shown here to demonstrate that there is a low level of morbidity at younger ages.

Rate of Hospitalizations for Alzheimer's and Dementia-Related Illnesses, Ages 65+ by Gender and Race/Ethnicity

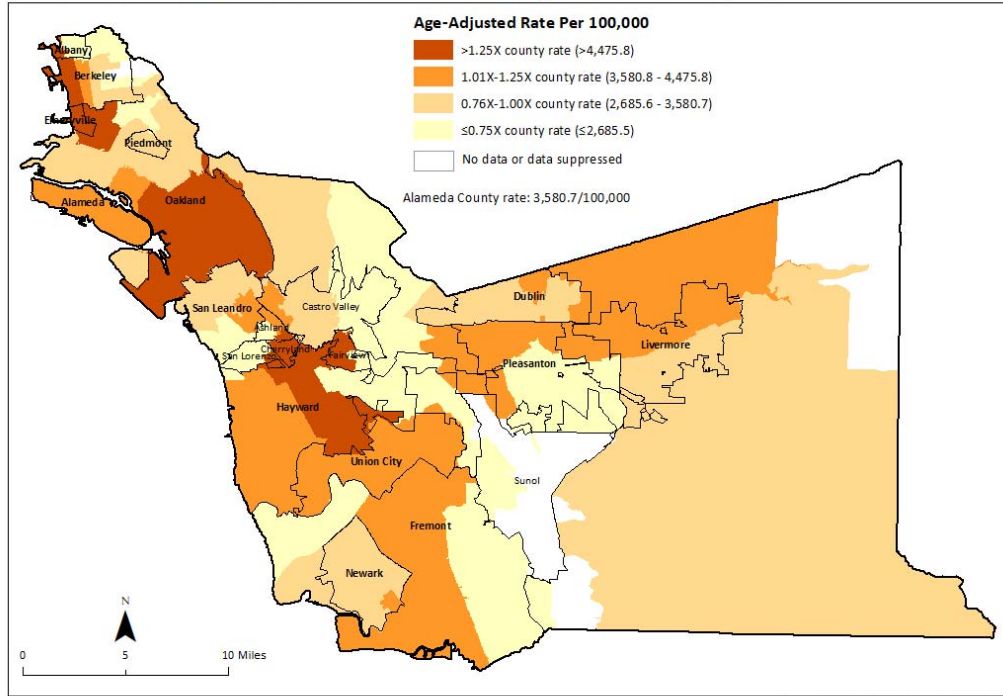


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Source: CAPE , with data from Office of Statewide Health Planning and Development, 2016

- This graphic shows rates of inpatient hospital visits by race/ethnicity and gender.
- Rates among African Americans, and in particular African American males, are at least twice those in the other groups.

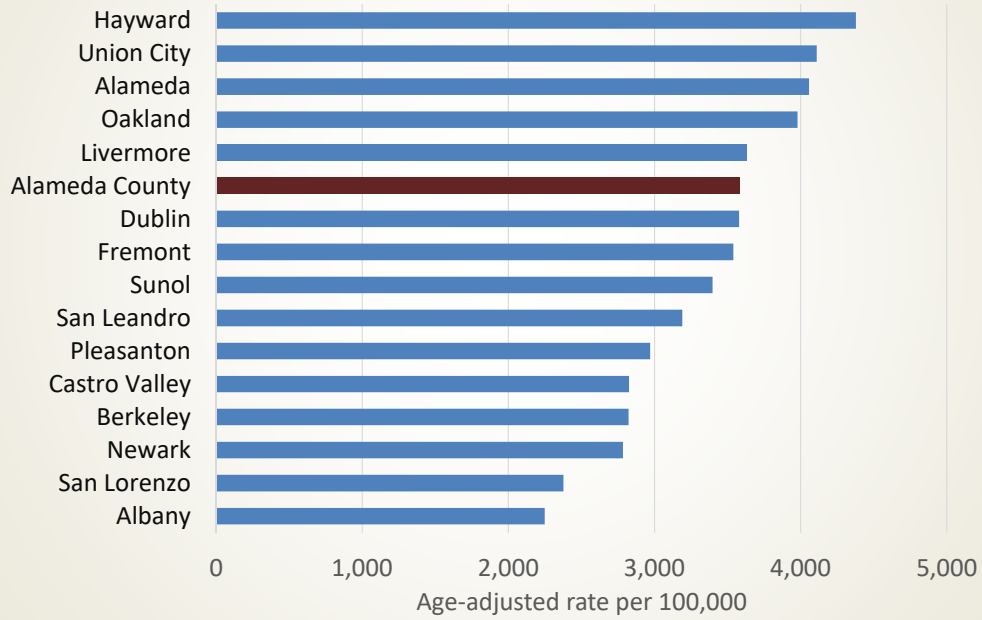
Alzheimer's/Dementia-related Hospitalizations, Ages 65+



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- This slide is a map of hospitalization rates by Alameda County zip code
- The darker areas reflect rates of hospitalization that are 25% or more above the county background rate.
- What stands out is north Oakland, Emeryville, west Berkeley, east Oakland, and parts of Hayward and unincorporated areas.

Rate of Hospitalization for Alzheimer's and Dementia-related Illness by City, Ages 65+

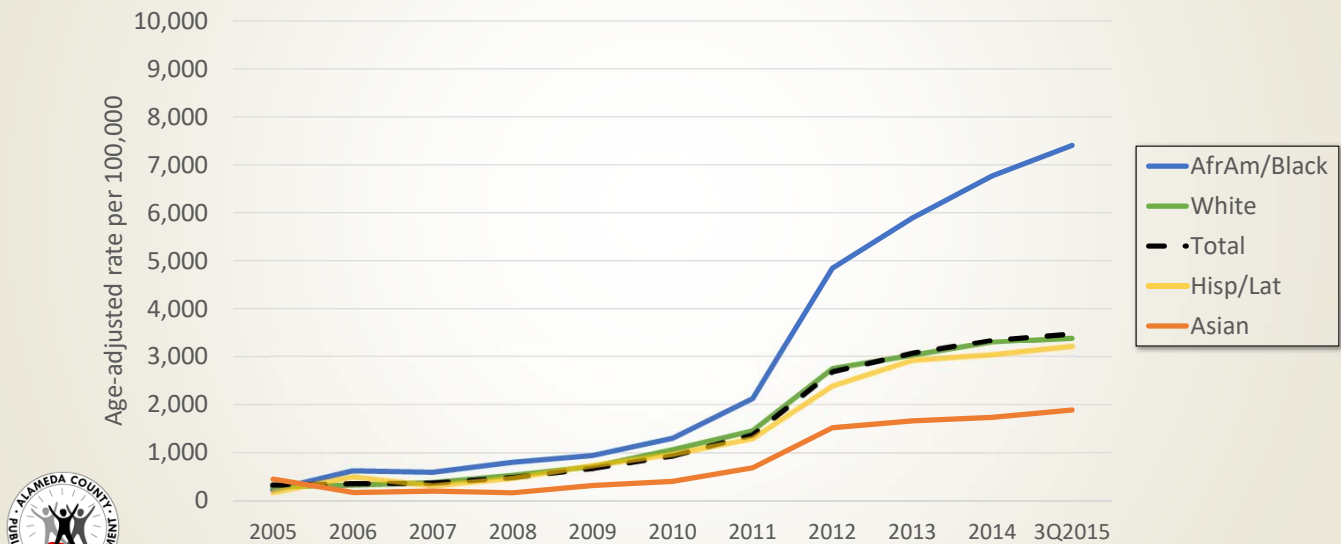


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Source: CAPE, with data from Office of Statewide Health Planning and Development, 2016

- Hospitalization rates by city show Hayward, Union City, Alameda and Oakland with rates exceeding the county rate.

Rate of ED Visits for Alzheimer's and Dementia-related Illnesses, Ages 65+, 2005-2016, by Race/Ethnicity



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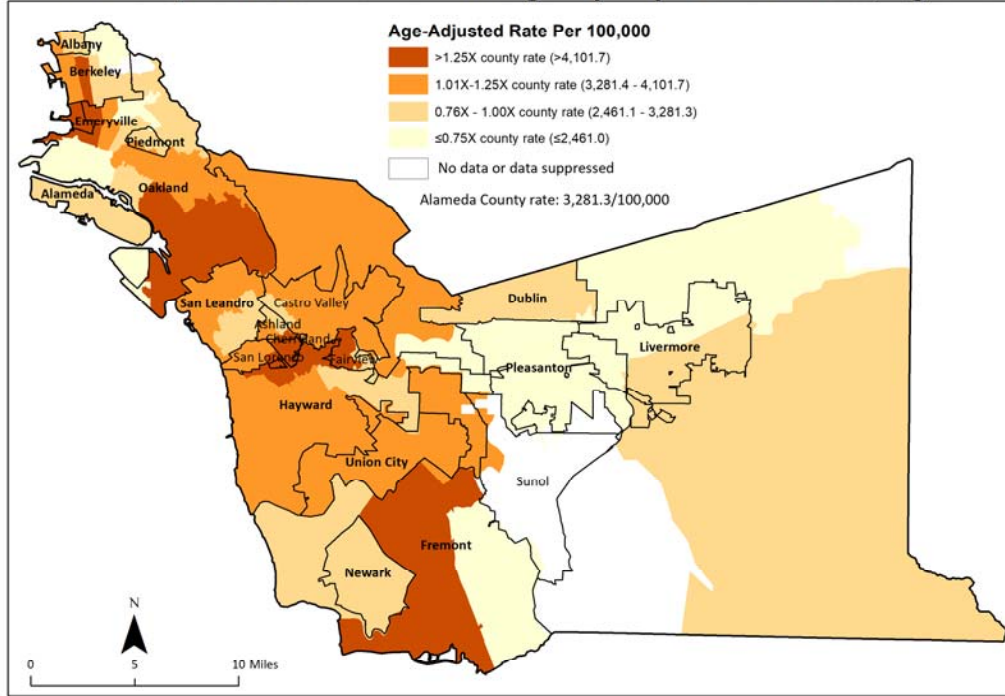
- This slide shows rates of emergency department visits over time by race/ethnicity. These visits are largely reflective of patients treated and released, not admitted. A few may be transferred to other facilities.
- What immediately jumps out at us again is the high rate for African Americans, which indicates that the African American rate has increased more rapidly than other racial/ethnic groups and was at least two to three times that of others' in 2015.
- We do not know what happened in 2011 and 2012 to spur the increases.
 - Were there administrative hospital based changes, perhaps in coding, billing and reimbursement?
 - Or might there have been medical diagnostic changes?

No doubt the reasons for African Americans' higher rates of contact with the hospital system are complex. Some questions we need to ask ourselves are:

- Why are the rates of disease so much higher among African Americans?
- Are they sicker when they get to the Hospital?
- Are there gaps in primary care management?
- Is it a lack of access to quality care? (even though these are largely Medicare-covered patients?)
- Is there a delay in seeking care, possibly driven by bias among health care providers and resulting mistrust of medical establishments?
- Is there a need for additional resources for home-based care management?

More research is needed in partnership with clinicians to understand what is going on.

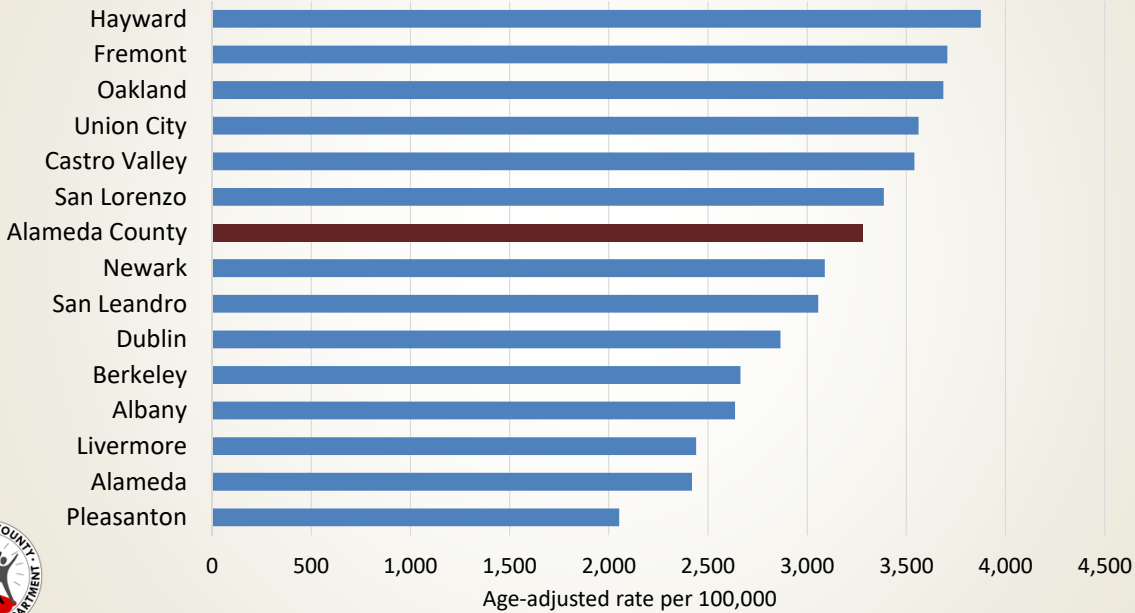
Alzheimer's/Dementia-related Emergency Department Visits, Ages 65+



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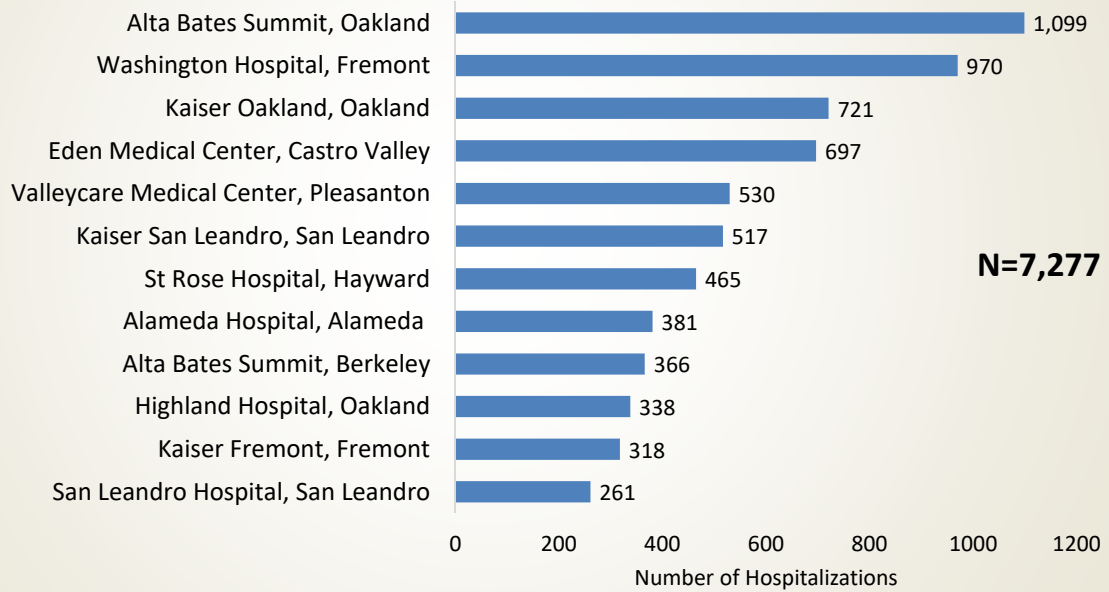
- This map shows rated of emergency department visits by zip code.
- The darker areas have the highest rates. Some of the same areas show up as for inpatient visits; the main difference observed is high rates in Fremont and not in Hayward.

Rate of ED Visits for Alzheimer's and Dementia-related Illnesses, by City, Ages 65+



- In emergency department visits by city, Hayward and Fremont and Union City are at the top.

Number of Inpatient Visits for Alzheimer's and Dementia-related Illnesses by Facility, Ages 65+

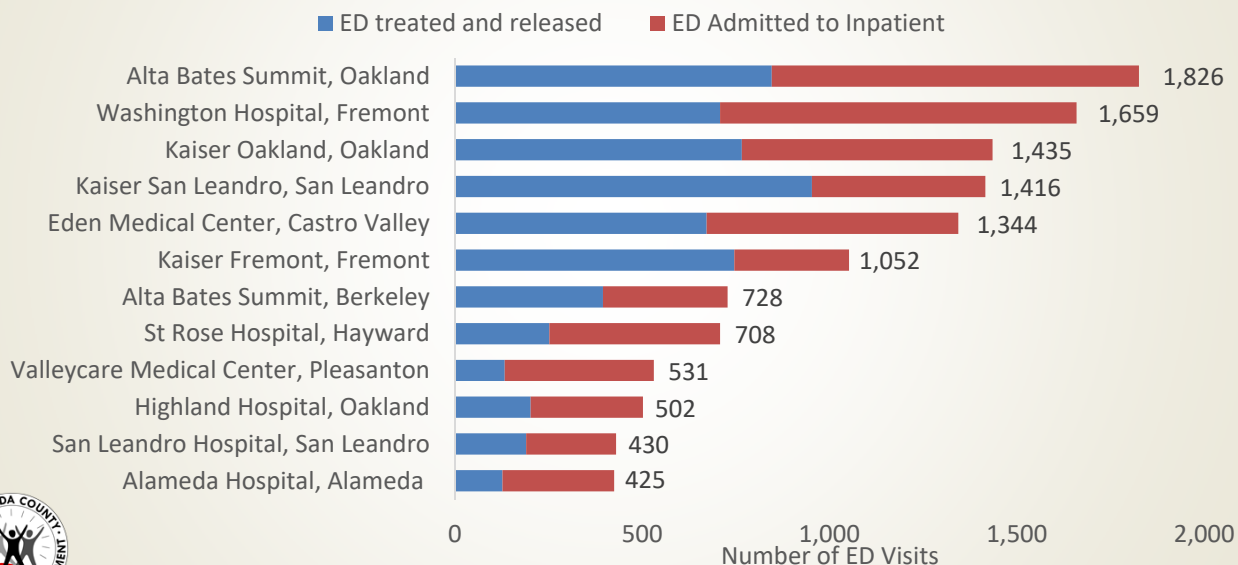


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Source: CAPE , with data from Office of Statewide Health Planning and Development, 2016

- These next two slides show the volume of visits for Alzheimer's and dementia-related illnesses to acute care facilities in Alameda County. You can see here that the number of inpatient visits was highest at Alta Bates Summit in Oakland and Washington Hospital in Fremont.

Number of ED Visits for Alzheimer's and Dementia-Related Illnesses by Facility, Ages 65+



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Source: CAPE, with data from Office of Statewide Health Planning and Development, 2016

- This slide shows the volume of emergency department visits, both those treated and released in blue and those admitted to that facility in red. For most hospitals, at least half are admitted. Some may be transferred for admission as may be the case with Kaiser facilities.
- Highest volumes overall:
 - Alta Bates Summit in Oakland.
 - Washington Hospital in Fremont.
 - Kaiser Oakland.
 - Kaiser San Leandro.
 - Eden Medical Center, Castro Valley.

Costs and Payments for Inpatient Visits



- This section includes cost data of residents of Alameda County with Alzheimer's/dementia hospitalizations listed as their *primary diagnosis*.

Alzheimer's and Dementia-Related Hospitalization Costs* Ages 65+, Alameda County, 2016

- Cost info for 75% of non-Kaiser patients.
- Number of non-Kaiser inpatient visits: **5,485**
- Estimated cost: **\$191,780,481**
- Median cost per visit: **\$48,385**
- Median length of hospital stay: **4 days**

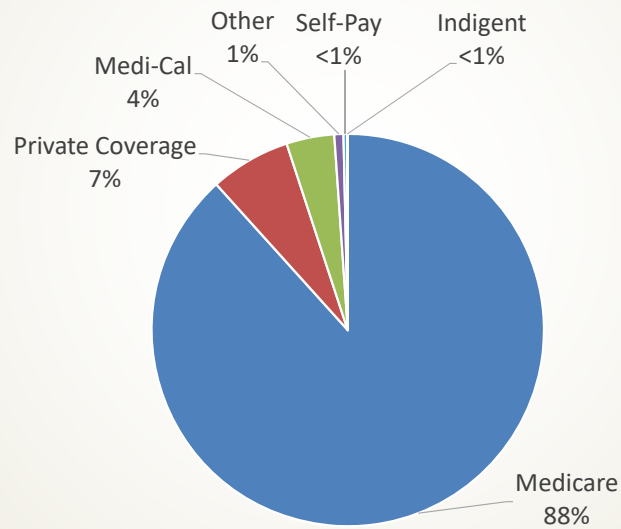


*Cost, excluding Kaiser patients, was estimated using adjustment from chargemasters charge data (cost to charge ratio of 0.2906).
Source: CAPE , with data from Office of Statewide Health Planning and Development, 2016

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- CA OSHPD provides charges associated with each inpatient visit (excluding Kaiser). We adjust this amount down by a cost-to-charge ratio (29 cents on the dollar) to reflect what the major insurers pay.
- In 2016, there were 5,485 non-Kaiser inpatient visits, for an estimated cost of over \$191 million
- The median cost per hospitalization was about \$48,385.
- The median length of stay was 4 days.
- The total number of inpatient visits was 7,277

Payer Source for 7,277 Alzheimer's and Dementia-related Inpatient Visits, Ages 65+, Alameda County, 2016



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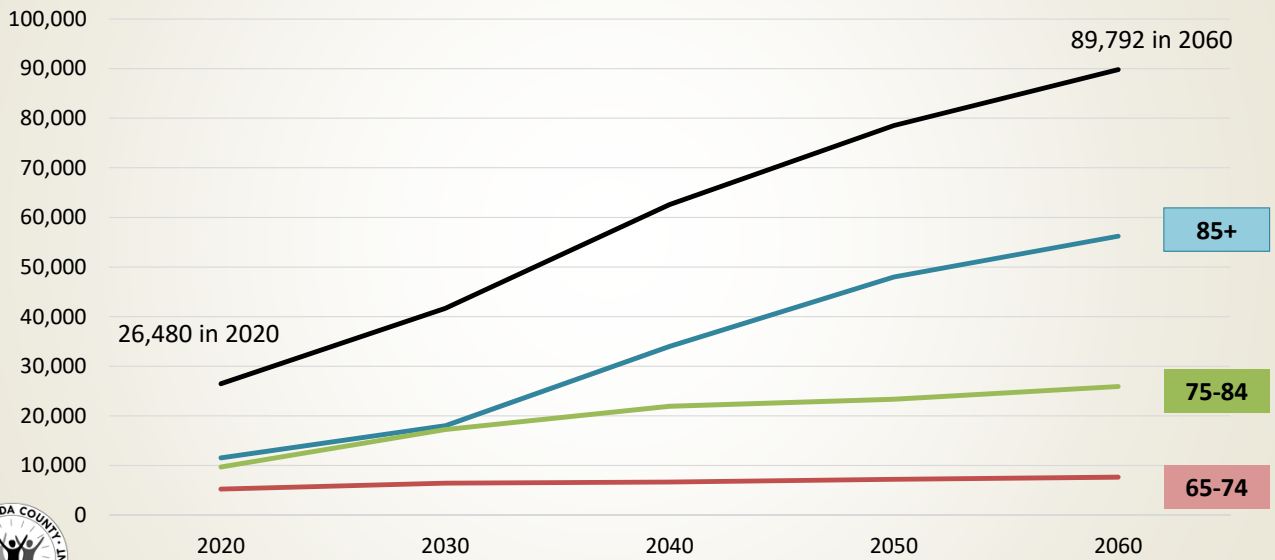
Source: CAPE , with data from Office of Statewide Health Planning and Development, 2016

- This chart shows the payer source for these visits. Medicare paid for 88% of inpatient visits.

Future Outlook



Projected Number of People Living with Alzheimer's and Dementia in Alameda County by 2060



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Source: CAPE, with data from CA Dept. of Finance, 2017 and Centers for Medicare and Medicaid

- We used the federal prevalence estimates of how many people are living with Alzheimer's and dementia and applied them to the CaliforniaDOF population projections out to 2060.
- Combining the across all three age groups, we can expect to see our local population of older adults living with Alzheimer's and dementia grow from over 26,000 in 2020 to almost 90,000 in 2060.
- This is assuming current incidence rates continue. Major advances in prevention or treatment can alter this.
- Clearly the time to plan is now and this projection would suggest that we should have a system in place within 12 years by 2030, given that the post-war generation will begin to enter the 85+ population.

Recommendations for Policy Makers

- Create an **Alzheimer's and related disorders commission** in line with the US DHHS and the California State Plan.
- Produce a **coordinated county or regional collaborative plan** among public and private entities that addresses health and social inequities.
- Create a **fully funded, culturally responsive, system of care** to support people living with Alzheimer's/dementia, their families, and their caregivers.
- Advocate for additional **funding for research on, and treatment** of, Alzheimer's disease and other dementias.
- **Lobby for a national policy agenda** of strategies to improve financial support and create workforce reform for caregivers.



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- Finally, our recommended next steps that draw from work that LA County has done.

Conclusions

- The population of older adults in Alameda County is growing due to aging of the baby boomers and the fact that they will live longer.
- Greatest impacts are among those 85 and older and among African Americans.
- Rates of death and hospital visits are increasing.
- The number of people living with Alzheimer's & dementia is likely to triple between 2020 and 2060.
- We need to start now to plan, lobby, fund and create a system of care.



Questions or Comments?

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