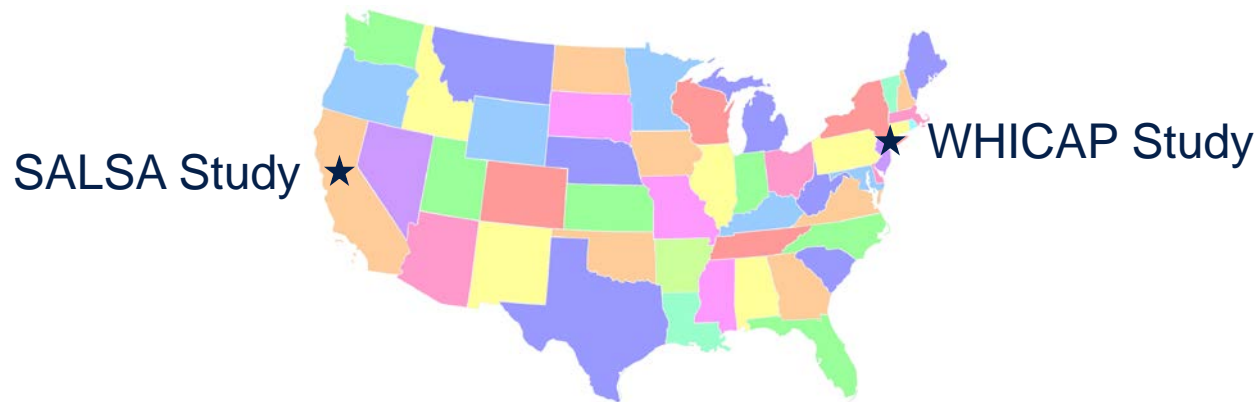# Racial and Ethnic Inequalities in Dementia: What Can We Learn from a Healthcare System Cohort?

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Racial/ethnic disparities in dementia

- Reducing racial/ethnic disparities in dementia identified as a national priority by the National Alzheimer's Plan

- No studies of dementia incidence in samples representing diversity of the U.S.

  - Most studies include 1-2 racial/ethnic groups

  - Dementia rates sensitive to diagnostic criteria

  - Geographic patterns may contribute to differences across studies

SALSA Study ★

★ WHICAP Study

Haan *et al., Am J Clin Nutr* 2007; Tang *et al., Neurology* 2001

Objectives

- To what extent are there racial/ethnic inequalities in dementia incidence?

  - Mayeda *et al., Alzheimer's & Dementia* 2016

  - Mayeda *et al., Alzheimer Disease & Associated Disorders* In press

- How long do people live with dementia?

  - Mayeda *et al., Alzheimer's & Dementia* 2017

Kaiser Permanente Northern California

Sacramento

San Francisco

San Jose

• Fresno

- Integrated healthcare delivery system

- 3.8 million members

- Members representative of the overall population of the region

- Long-term membership

- Electronic medical records starting in 1996

Measures

- **Self-reported race/ethnicity** from health plan member surveys

- **Dementia diagnosis** identified from visits in primary care, neurology, and psychiatry (ICD-9 codes for Alzheimer's disease, vascular dementia, nonspecific dementia)

- **Healthcare utilization**: ≥1 healthcare visit per year

- **Death** identified from medical records, California State Mortality File, and Social Security Death Records

Study sample

January 1, 1996: health plan member age 60+
n=372,925

Study base:
Still a health plan member, no dementia diagnosis as of January 1, 2000
n=280,147

1996   2013

January 1, 1996 – December 31, 1999
- Washout period

January 1, 2000 – December 31, 2013
- Followed for incident dementia and death

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To what extent are there racial/ethnic inequalities in dementia incidence?

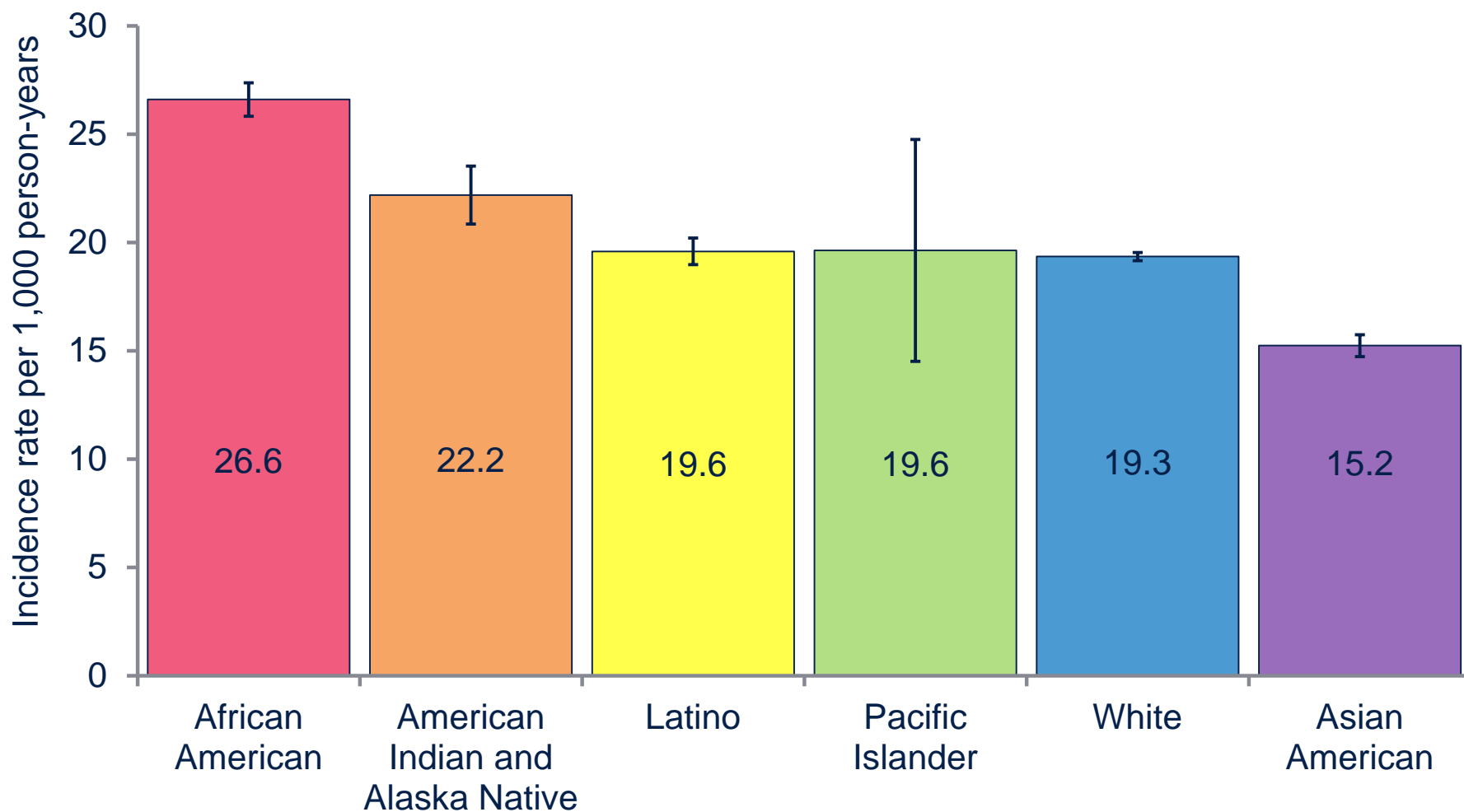Mayeda *et al., Alzheimer's & Dementia* 2016

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Statistical analysis

- Age-standardized dementia incidence rates by race/ethnicity

  - Using 2000 US Census as standard

- Cumulative 25-year dementia risk estimates at age 65
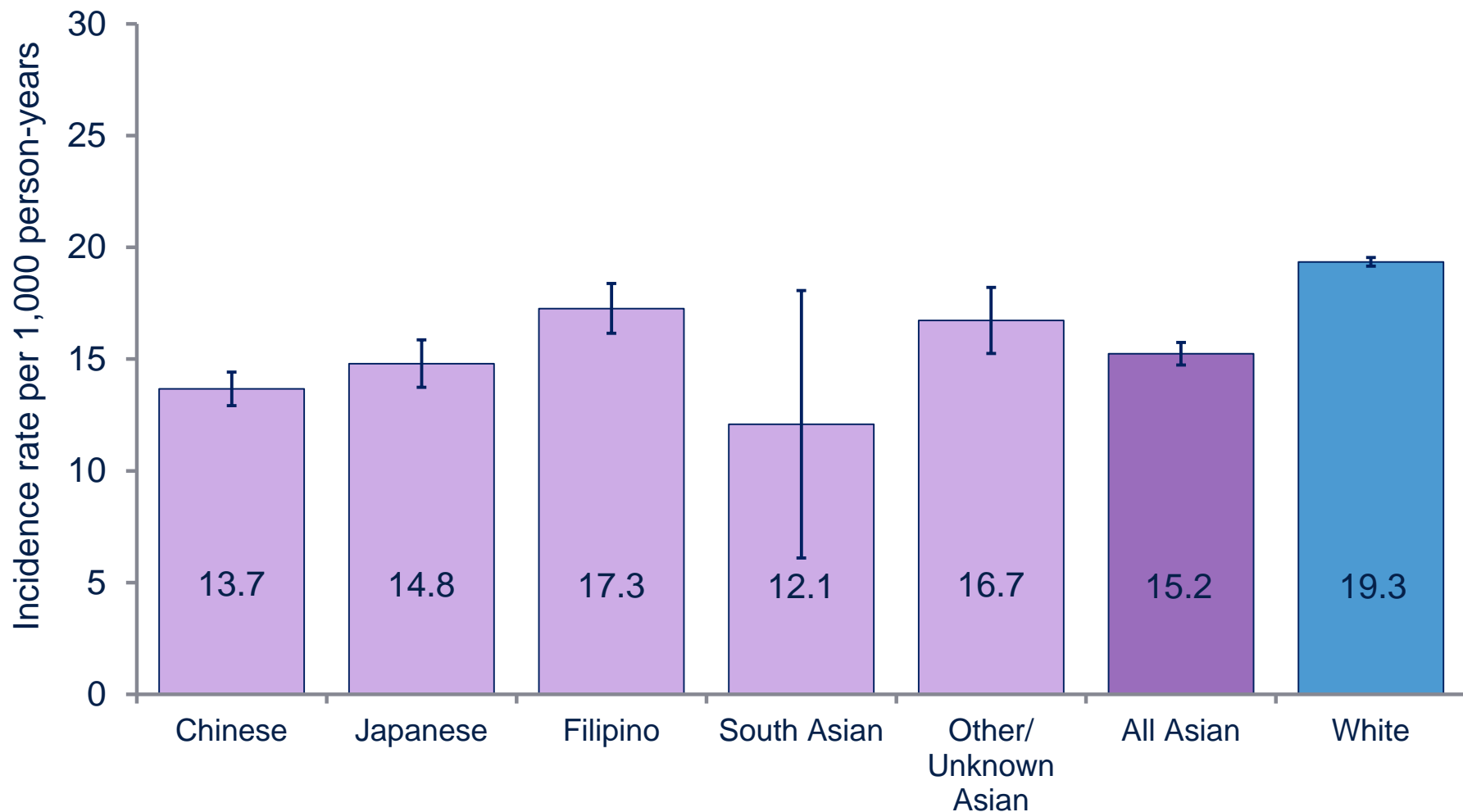
  - Practical Incidence Estimator Macro

Beiser *et al., Stat Med* 2000

UC_{SF}

Characteristics of the sample

	African American	American Indian/ Alaska Native	Latino	Pacific Islander	White	Asian American
N	18,778	4,543	21,000	440	206,490	23,032
Mean age, years	72.7	73.5	71.9	71.5	73.9	71.7
Female, %	54.9	54.3	52.4	49.8	54.9	53.1
≥1 heathcare visit/year, %	80.5	87.5	81.6	58.0	82.3	78.9
Total person-years	157,118	41,182	195,686	3,246	1,750,252	224,120

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Age-standardized dementia incidence rates by race/ethnicity, 2000-2013

Bar chart showing incidence rate per 1,000 person-years by race/ethnicity:
- African American: 26.6
- American Indian and Alaska Native: 22.2
- Latino: 19.6
- Pacific Islander: 19.6
- White: 19.3
- Asian American: 15.2

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Age-standardized dementia incidence rates by Asian American group, 2000-2013

Mayeda *et al., Alzheimer Dis Assoc Disord* In Press

Cumulative 25-year dementia risk by race/ethnicity, conditional on dementia-free survival to age 65

Race/ethnicity	Cumulative risk (95% CI)
African American	37.6 (36.4, 38.6)
American Indian/Alaska Native	34.7 (32.4, 36.4)
Latino	32.4 (31.2, 33.3)
Pacific Islander	25.1 (14.8, 31.4)
White	29.8 (29.5, 30.1)
Asian American	28.2 (27.0, 29.1)

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Summary: Dementia incidence

- Dementia incidence: Marked racial/ethnic inequalities

  - Dementia incidence 70% higher among African Americans than Asian Americans

  - Dementia incidence in every Asian American subgroup was lower than among whites

- Lifetime risk is high in all racial/ethnic groups

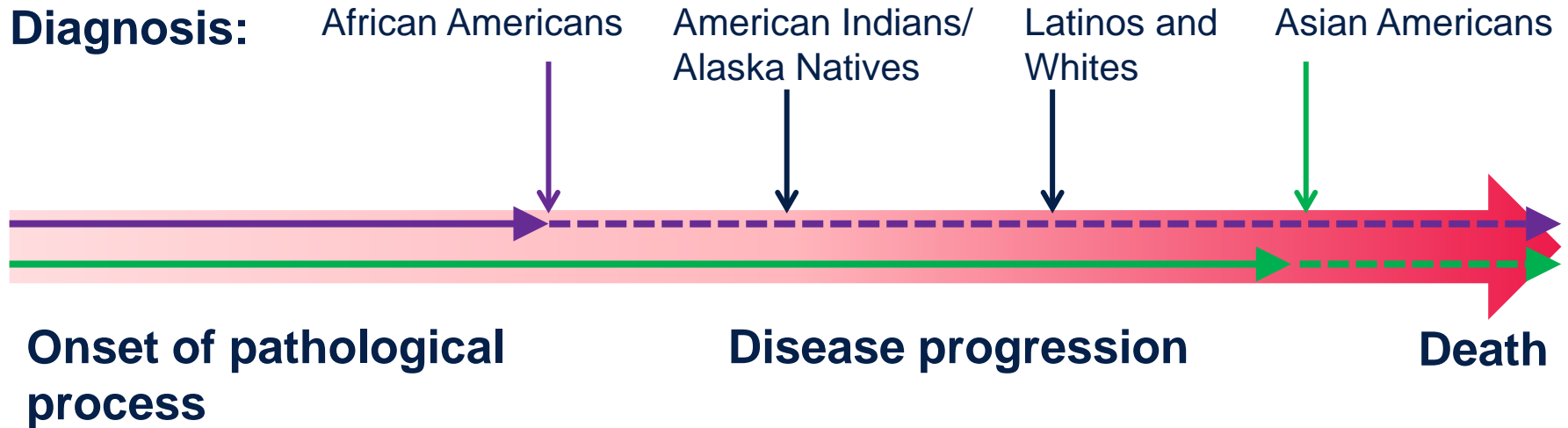# Conclusions and implications: Dementia incidence

- First study to directly compare dementia incidence in a sample representing the diversity of the U.S.

- Findings substantiate and extend findings from previous studies

- If social and behavior factors are the primary pathways, findings suggest substantial reductions in dementia incidence are possible

- Given high lifetime risk in all groups, dementia research is high priority for the health of all racial/ethnic groups

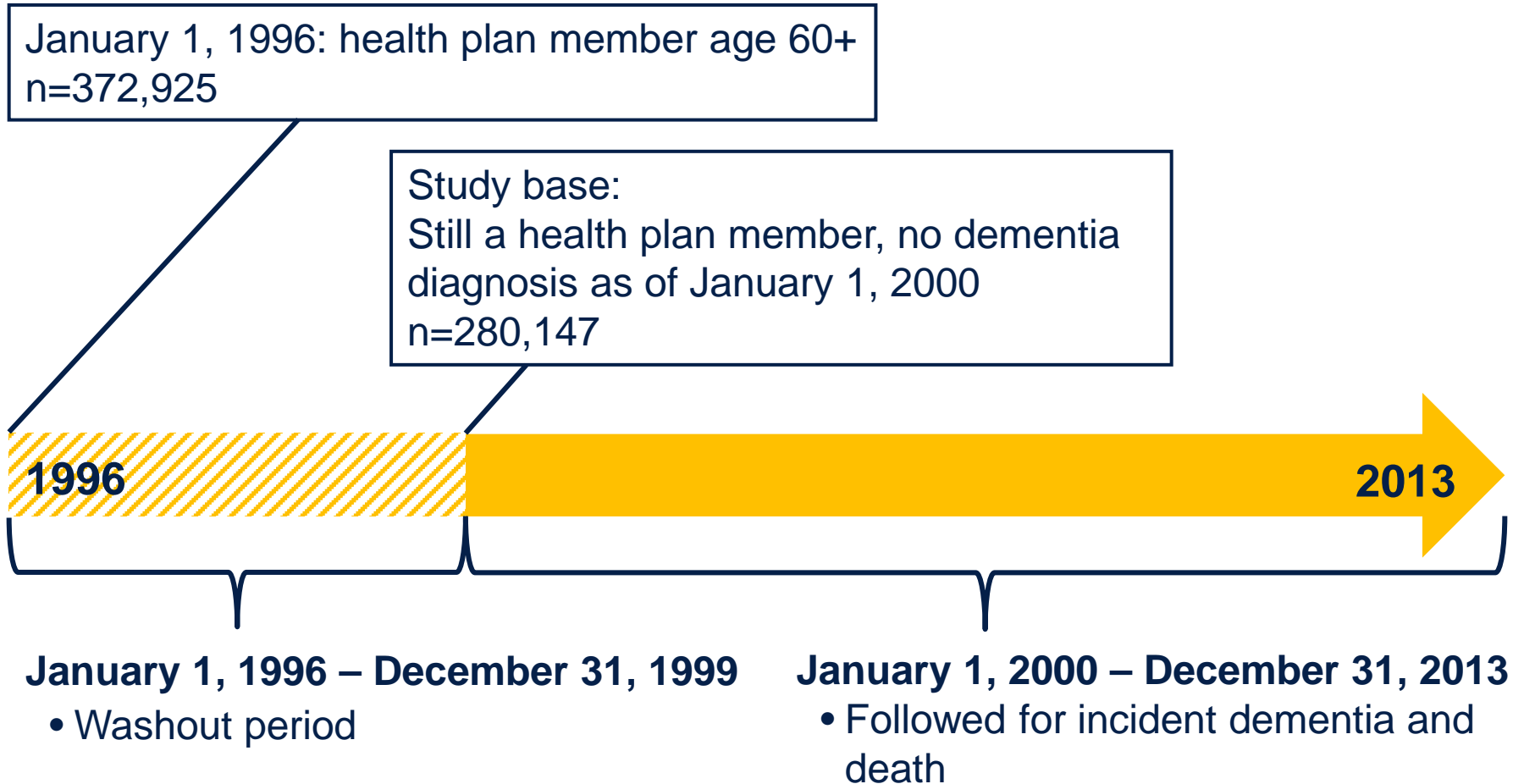- Caveat: Is this just a difference in dementia diagnosis?

How long do people live with dementia?

Mayeda *et al., Alzheimer's & Dementia* 2017

Timing of dementia diagnosis could contribute to estimated differences in dementia incidence

Diagnosis:

African Americans

American Indians/ Alaska Natives

Latinos and Whites

Asian Americans

Onset of pathological process

Disease progression

Death

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Statistical analysis

- Among people with *incident dementia*:

  - Median Kaplan-Meier survival times *after dementia diagnosis*:

    - Time from diagnosis until death, end of health plan membership, or end of study

Survival after diagnosis by race/ethnicity

Race/ethnicity	N	Person-years	Median (Q1, Q3) survival years
Asian American	3,847	5,704	4.4 (1.4, 8.6)
Latino	4,942	6,898	4.1 (1.3, 8.2)
African American	4,371	7,780	3.7 (1.1, 7.6)
American Indian/Alaska Native	1,224	2,113	3.4 (1.2, 6.7)
White	45,110	75,138	3.1 (0.9, 6.3)

Longer ← → Shorter

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What is the most likely explanation for racial/ethnic differences in survival after dementia diagnosis?

- Approach: Compare racial/ethnic mortality patterns among people with dementia to patterns among dementia-free older adults

- Finding: Racial/ethnic mortality patterns among people with dementia tended to parallel patterns among dementia-free older adults

- Implication: Same factors driving racial/ethnic mortality differences in people without dementia account for mortality differences in people with dementia

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Summary and conclusions: Dementia survival

- Most people live for years after dementia diagnosis

- Substantial differences in post-diagnosis survival by race/ethnicity
  - Survival shortest in Whites, longest in Asian Americans

- Racial/ethnic mortality patterns among people with dementia paralleled patterns among dementia-free older adults

- Suggest timing of diagnosis not major driver of estimated racial/ethnic inequalities in dementia incidence

Limitations & Strengths

- Limitations

  - Dementia diagnosis from medical records
    - No continuous cognitive measures
    - No neuroimaging or pathology data

  - Define diverse individuals within broad groups

  - Social & economic factors?

- Strengths

  - Diversity of member cohort

    - First study to directly compare dementia incidence and survival in a sample representing the diversity of the U.S.

      - First study to examine multiple Asian American subgroups

  - Stability of membership and long follow up

Future directions

Modifiable lifecourse mechanisms and solutions

Acknowledgements

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