Stanford MEDICINE

Neurology and Neurological Sciences

Stroke Subtypes Mortality Rates among Asian groups

Chan Ching Yin*[1,2], Ananya Lakshmi Ganesh*[1,3], Swara Reddy Kalva[1,4], Osika Tripathi[1,5,6]
Malathi Srinivasan MD[1,7], Shozen Dan[1], Lily Wenya Zhou MD[7], Nirali Vora MD[7]

1.Center for Asian Health Research and Education, Stanford University School of Medicine; Palo Alto, CA 2. Faculty of Medicine, The University of Hong Kong 3. Stanford University, School of Engineering 4. The University of Chicago Biological Sciences Division 5. The Herbert Wertheim School of Public Health and Human Longevity Science, University of California, San Diego; San Diego, CA 6. San Diego State University School of Public Health; San Diego, CA 7. Department of Medicine, Stanford University School of Medicine; Palo Alto, CA.

CARE Center for Asian Healthcare Research and Education

Background

Research Objective

To describe stroke mortality burden among Asian American groups by sex and characterize mortality trends across a 12-year period (2006-2017)

Stroke Subtypes

Ischemic Stroke – Blockage of brain-supplying blood vessel leads to clots

Intracerebral Hemorrhage – Bleeding into the brain parenchyma

Subarachnoid Hemorrhage – Bleeding into the subarachnoid space

Methods

Data Collection

- Stroke Death Counts – Death certificate data from the National Center for Health Statistics
- Population Counts – IPUMS American Community Survey

Analysis Plan

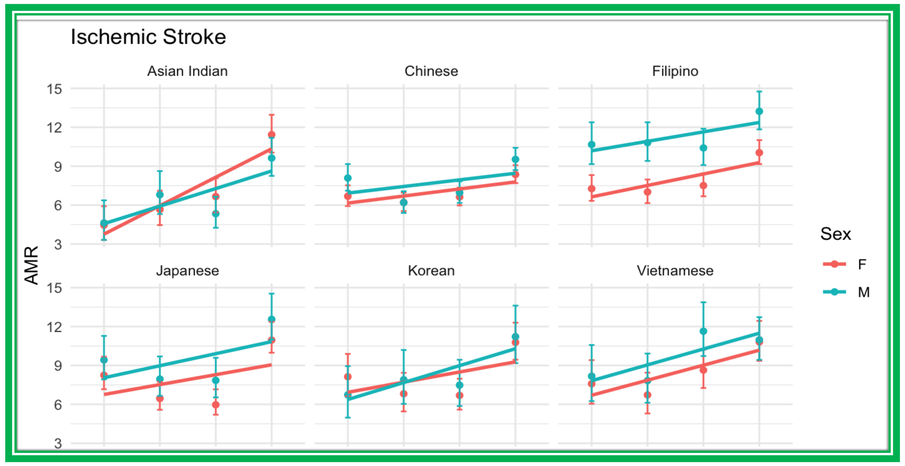
- Performed trend analysis and linear regression
- Calculated proportion of stroke subtypes

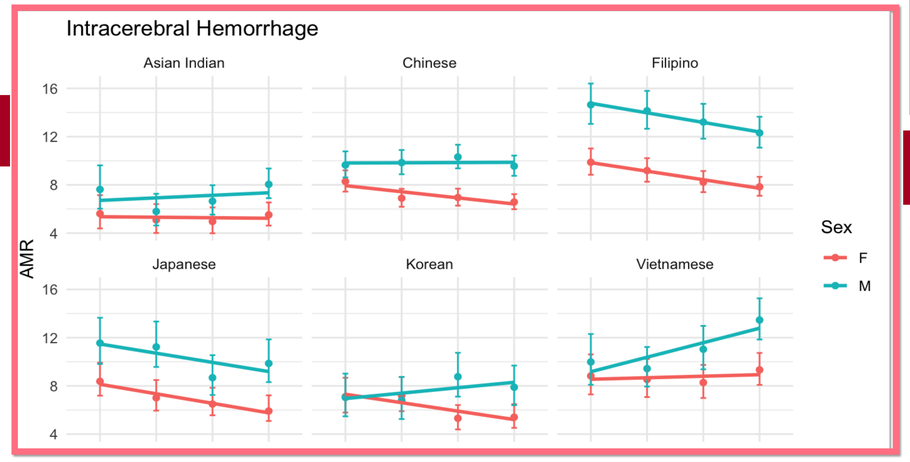
AMR Calculations

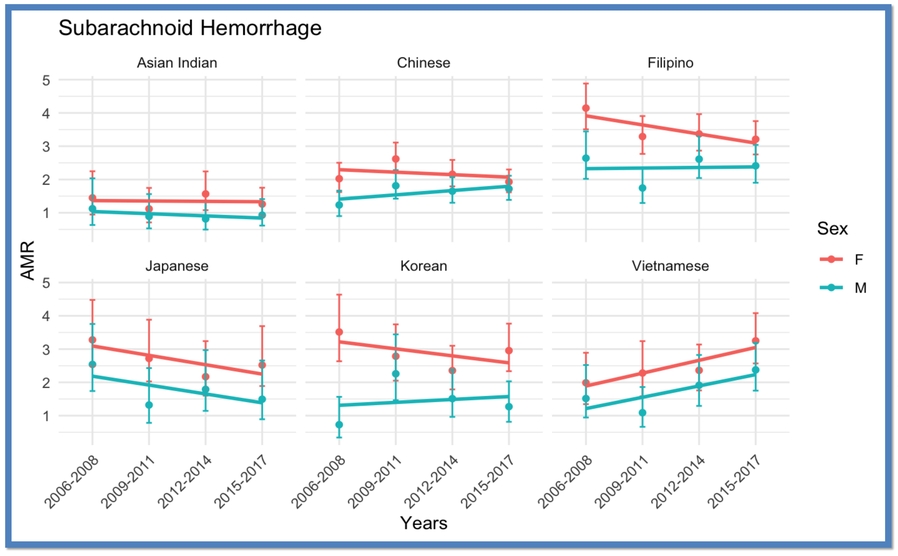
- 3 year age standardized mortality rates (AMR). Calculated using direct methods by using 2010 standard population

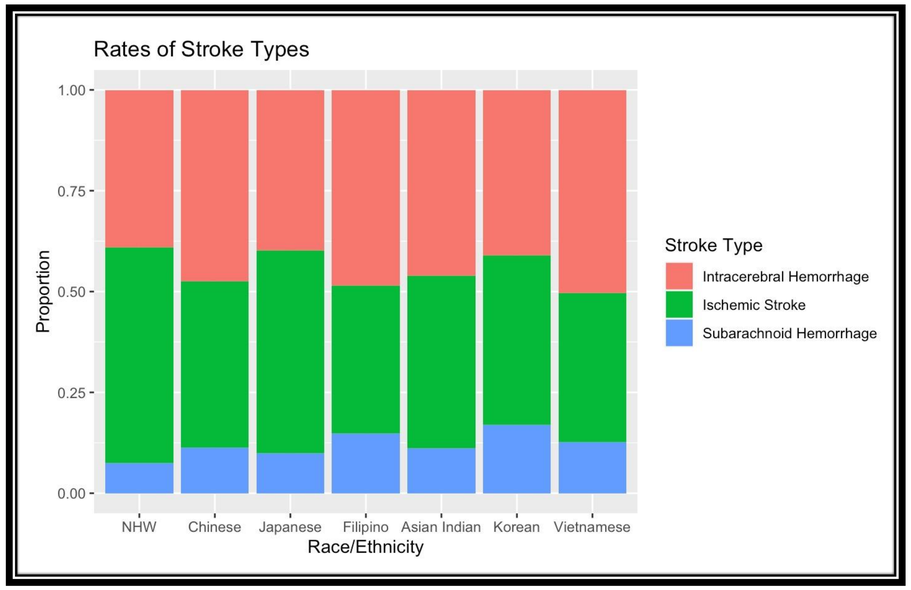
$$\text{AMR} = \sum \frac{\text{\# Stroke Deaths per Age Group}}{\text{Population Size per Age Group}} \times \text{\% of age group in standard population (2010 Census)}$$

Results









Discussion

Conclusion

- Overall Ischemic deaths increased for all groups
- Overall intracerebral and subarachnoid deaths reduced, except for the Vietnamese
- Proportions for deadlier hemorrhagic strokes are higher amongst Asians than NHWs
- Differences in stroke mortality rates could be attributed to the prevalence of risk factors for strokes
- Controlling such risk factors can reduce stroke mortality rates

Limitations

- Diagnostic errors
- Racial reporting bias
- Lack of data on mixed race groups

Next Steps

- 12 year AMR and SMRs stratified by sex, race, stroke subtype and nativity
- Apply a similar framework to Pacific Islander Subgroups