

## SOCIAL AND ENVIRONMENTAL DETERMINANTS OF POPULATION HEALTH IN THE SAN JOAQUIN VALLEY

### Longevity for Older Adults in the San Joaquin Valley: An Analysis of Individual and Neighborhood Characteristics 2009-2013

The United States and other industrialized countries have experienced notable improvements in the length of life, and about 81% of US residents are expected to live past age 65. Public health initiatives, such as improvements in sanitation, control of infectious disease and improved nutrition have been key factors. Improvements in life expectancy, since the 1930's, are attributed to health care access and lifestyle behaviors. Despite overall increases in the length and quality of life for older people, broad differences across gender racial/ethnic, social class, neighborhood design and rural-urban residence have been found. Findings on the influence of diverse potentially modifiable factors on elder health outcomes indicate the potential for continued improvements. This report examines the determinants of longevity for San Joaquin Valley (SJV) persons aged 65 and older in relation to individual, health care, and neighborhood factors. Although examining patterns of survival and death for elders does not provide a complete picture of the overall health of older adults in the region, understanding longevity determinants can help identify priorities for public health.

#### Older Adult Longevity: Multiple Determinants

The number of years a person is likely to live (life expectancy) has been examined from multiple perspectives. Although there is consensus that genetic factors are determinants of longevity, specific pathways have not been identified. Further, there is increasing evidence for epigenetic (interactions of genes with environment or behavior factors) determination of longevity and thus the continuing attention to other potential causes. Four groups of determinants have been highlighted in prior studies:

- **Individual demographics:** For older adults in this country, individual factors such as gender, race/ethnicity, education and wealth have been linked to longevity, functional status, and quality of life. Populations with greater economic security live longer and report greater health and well-being including Asian Americans, older whites, women and those with more education. Notably, consideration of other factors, such as individual health behaviors or health care use, tends to reinforce the influence of demographic differences. For elders, demographic categories serve as proxy measures of a life-time of differential exposure to living condition, health events and interventions, social supports, and other sources of stress and resilience, all closely associated with different demographic positions in the society.
- **Health related behaviors:** Current and lifetime health risk behaviors, such as smoking, diet, exercise, substance use, and social support have been consistently linked to health outcomes. The influence of these factors appears smaller for elders than for younger persons; they are increasingly recognized as at least partially a response to neighborhood stressors. Health risk behaviors can change even in old age, and there is convincing evidence that smoking cessation, weight management and physical activity interventions can improve health and survival.

- Health services use:** For older adults, the accessibility and quality of medical care has been associated with longevity and quality of life. Older adults who receive higher frequency and quality of primary medical care experience lower mortality. Older persons with greater access to primary care are less likely to have avoidable hospitalizations. There are broad social group and market-area differences in rates for surgeries both elective and mandatory that may better reflect differences in practice patterns or insurance than underlying medical necessity.
- Neighborhood environment:** Because individual demographic and health risk behaviors in elders reflect both cumulative life experiences and current exposures, they have been found to be the most powerful predictors of longevity among elders. Researchers, nonetheless, have consistently found impacts of multiple neighborhood features on longevity. Neighborhood socio-economic status has been found to be an independent predictor of heart disease mortality and all-cause mortality. Racial/ethnic and economic segregation at the neighborhood level has also been linked to life expectancy and mortality for elders.

### Older Adult Longevity and Public Health Departments

San Joaquin Valley Public Health Consortium (SJVPHC) member local health departments have extensive primary prevention and related programming aimed at improving the length and quality of life for older adults. Area Agencies on Aging, long-term care providers across a continuum, and other human services systems also serve elders with health-related needs. Table 1, lists some of the key activities addressing elder health of SJVPHC local health departments.

**Table 1. Selected SJV Public Health Initiatives to Improve Elder Health**

County	Examples of Current Initiatives
Kings	<ul style="list-style-type: none"> <li>Kings County Diabetes Coalition: providing ongoing education and resource services for health promotion, obesity, and diabetes prevention for families and the communities of Kings County</li> <li>Targeted case management, immunizations, communicable disease investigation, coast 2 coast Rx prescription discount cards, tobacco control, environmental health services, and Kings County Asthma Coalition</li> <li>Tobacco free living, prevent drug abuse and excessive alcohol use, healthy eating, active living, injury and violence free living, and mental and emotional well-being</li> </ul>
Fresno	<ul style="list-style-type: none"> <li>Voluntary smoke-free policies in multi-unit housing complexes</li> <li>Ordinances to reduce tobacco, alcohol, and sugary drink advertising at convenience stores</li> <li>Increased community opportunities for no to low-cost physical activity</li> <li>Training for seniors to engage in community-driven health initiatives</li> </ul>
Madera	<ul style="list-style-type: none"> <li>Building capacity of seniors through outreach and engagement in emergency preparedness at Senior Centers and retirement communities</li> <li>Nutrition education/physical activity/food demonstration presentations at senior</li> </ul>

	<p>centers with “Get Fresh”</p> <ul style="list-style-type: none"> <li>• Labs at reduced rates, seasonal flu shots, blood pressure and body mass index check, sexually transmitted disease clinic, and tuberculosis clinic</li> </ul>
Merced	<ul style="list-style-type: none"> <li>• Multipurpose Senior Service Program (MSSP) provides social and health care management for elderly who wish to remain in the community</li> <li>• Older Adult System of Care Program (OASOC) provides services to seniors that may be unserved, underserved, homeless, or at risk of homelessness, institutionalization, or hospitalization</li> <li>• Building capacity of seniors through outreach and engagement in emergency preparedness at Senior Centers and retirement communities</li> <li>• Nutrition education/physical activity/food presentations at senior centers with “Get Fresh”</li> <li>• Chronic Disease Self-Management Program (CDSMP) classes focus on helping individuals manage their chronic health conditions</li> </ul>
San Joaquin	<ul style="list-style-type: none"> <li>• “Get Fresh” is a Senior Nutrition Education Program that provides classes at local community centers to teach seniors about healthy eating options as well as physical activity</li> <li>• Lifetime of Wellness is a project that focuses on 15 intersecting strategies to prevent diabetes, heart disease, and stroke</li> <li>• Partnerships have been formed with senior advocacy and service organizations to educate and encourage county and city public works and planning departments to address senior concerns with the built environment</li> </ul>
Stanislaus	<ul style="list-style-type: none"> <li>• Promote wellness and healthy lifestyles,</li> <li>• Prevent illness and injury,</li> <li>• Provide quality care and treatment, and</li> <li>• Preserve access to healthcare for the underserved</li> </ul>
Tulare	<ul style="list-style-type: none"> <li>• Multipurpose Senior Service Program (MSSP) provides social and health care management for elderly who wish to remain in the community</li> <li>• Tulare County Aging Services and the Kings/Tulare Area Agency on Aging help provide nutritious tasty meals to seniors and provides services to isolated seniors</li> <li>• Health Insurance Counseling and Advocacy Program (HICAP) conducts community presentations and conferences as well as individual counseling sessions</li> </ul>

### Methods

This report utilizes data from a variety of statewide governmental agencies. Death Statistical Master Files for the years 2009-2013 were obtained from the California Department of Public Health (CDPH). Emergency department (ED) visits and patient discharge data (hospitalizations) were gathered from the Office of Statewide Health Planning and Development (OSHPD), 2009-2011. The Walk Score® generated by walkscore.com was used to analyze walkability. Approval from the California Department of Public Health Vital Statistics Advisory Committee (VSAC) and the California Health and Human Services Agency’s Committee for the Protection of Human Subjects (CPHS) was obtained. All data files mentioned

above provided information on place of residence (county and zip code), age, gender, and other non-identifiable demographics. All rates and population estimates were based on 2010 Census files. Self-reported data is reported from UCLA’s California Health Interview Survey (CHIS).

There are several ways to measure longevity, including life expectancy at age 65. We used gender-specific years of potential life lost compared to all Californians as a measure of premature mortality. This method allows for the adjustment of gender and age differences in life expectancy. In order to address morbidity, several indicators were developed including hospitalization and emergency department rates for ambulatory care-sensitive conditions (ACSC) and scheduled elective procedures.

### Findings

Figure 1 illustrates the cumulative percentage of death by age and race/ethnicity between the years 2009 and 2013. Individuals living in the SJV suffer from premature death at a greater rate than those living in other regions of the state. Within every age group, the SJV has a greater proportion of accumulated deaths compared to the rest of California. Most notably, 40% of all deaths in African Americans, Latinos, and “other” race categories occur to individuals younger than 60 years of age. In contrast, less than 20% of white deaths are of individuals less than 60 years of age. These regional and racial/ethnic differences in premature mortality shape the context for examining longevity in the SJV and highlight the need to focus on the determinants of premature mortality in the region.

**Figure 1. Cumulative Percentage of Age of Death by Race/Ethnicity in the SJV, 2009-2013**

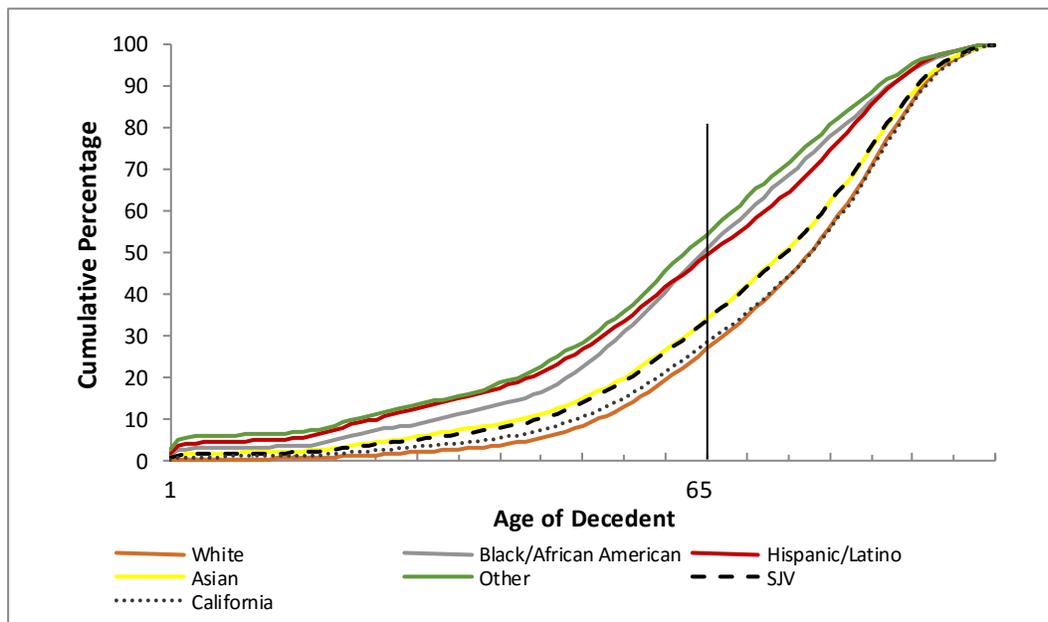
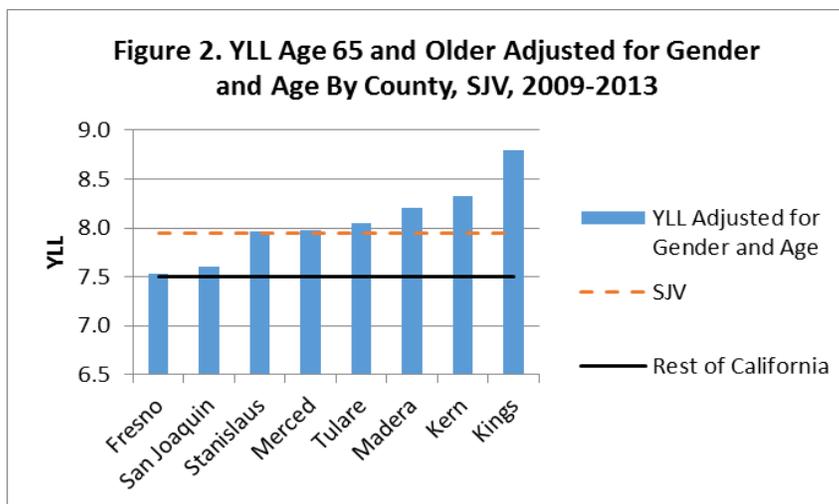


Figure 2 highlights the regional and county differences that remain after such adjustment. Unfortunately, each individual county, and the SJV region as a whole, have greater YLL than the rest of California. These differences in YLL are, at the very least, attributable to factors beyond the influence of an individual's gender and age. Further, a multivariate analysis showed that neighborhood walkability, poverty, rate of ACSC ED utilization, and the rate of scheduled elective procedures are significantly and independently associated with YLL beyond individual demographics. Poverty and the rate of ACSC ED visits are both associated with higher levels of YLL compared to areas of affluence and low ACSC ED rates, respectively. The walkability of a neighborhood and the rate of scheduled elective procedures proved to be protective factors associated with YLL.



### Discussion and Recommendations

This analysis of 2009-2013 data indicates that Valley residents are more likely to die before age 65 and lose more years of life after age 65 than do other Californians. There were notable gender and race/ethnicity differences, with women and whites experiencing greater longevity than do men, Latinos, and African Americans. At the same time, the findings indicate that elders in the San Joaquin Valley have higher use of avoidable hospitalizations and lower use of planned elective surgeries than their peers in the rest of California. Even after accounting for individual differences in race/ethnicity, gender, and education, elder San Joaquin Valley residents who lived in more walkable neighborhoods with more frequent planned surgeries had more years of life after 65, while those who lived in neighborhoods with increased higher poverty rates and higher rates of unplanned ER visits lost more years after age 65.

Although the local public health departments that make-up the San Joaquin Public Health Consortium do not receive specific funding for eldercare preventive and care management programming, many have sought to engage elders in chronic disease self-management, health care and medications access

initiatives, nutrition, and other preventive care initiatives. They have also sought elder involvement in a range of initiatives that address the social determinants of health by improving neighborhood conditions and strengthening networks of support for treatment and disease management. While this two-pronged approach seems responsive to the data, the notable variability across racial/ethnic groups and neighborhoods in elder outcomes, also suggests the need for more concentrated attention to elders' engagement in health care and prevention in the least well-served neighborhoods, using culturally tailored strategies for engaging elders in prevention and treatment.

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