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Executive Summary:
Community Health Needs Assessment of Stanislaus County, 2011
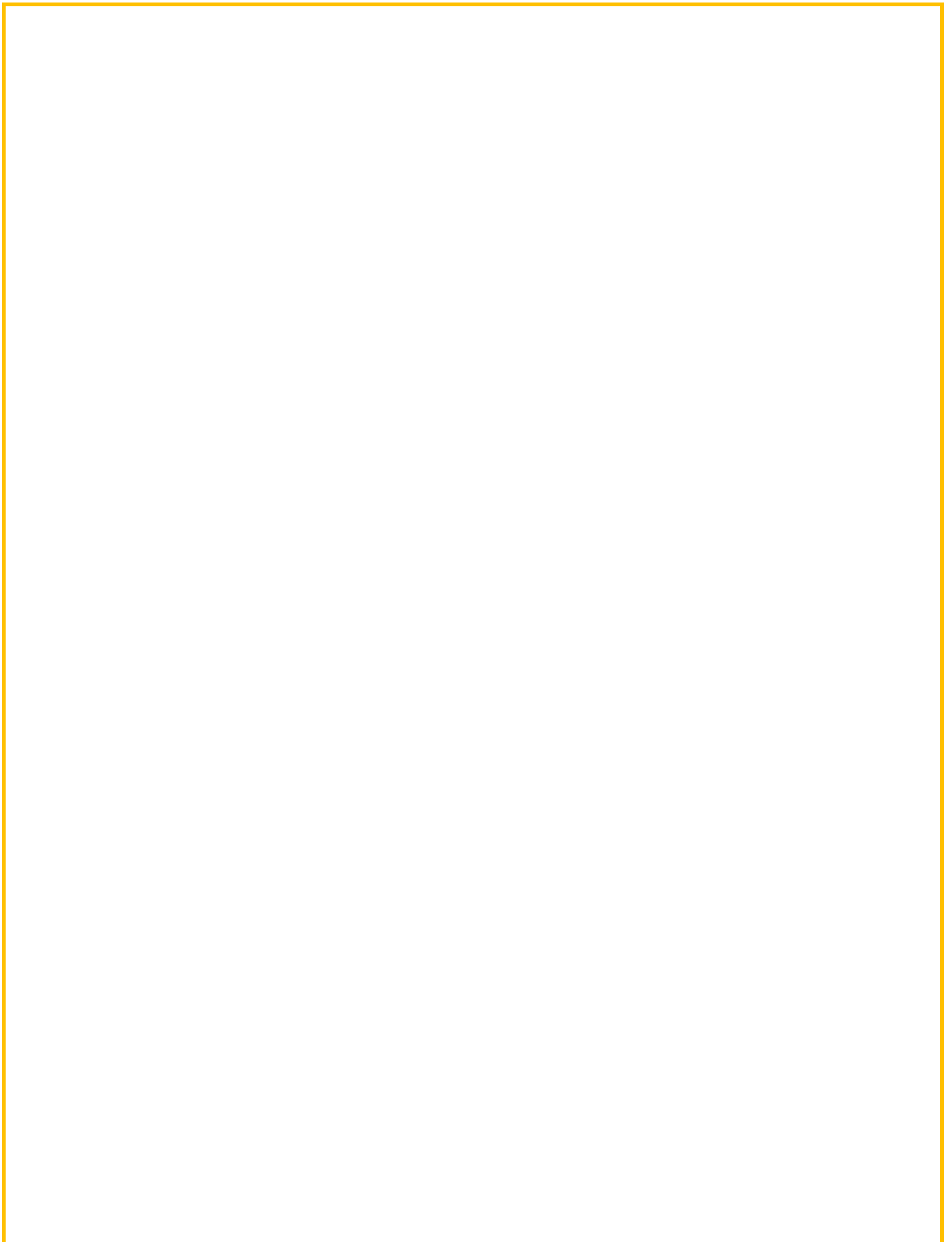
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Stanislaus County Health Services Agency

Public Health
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Stanislaus County
HEALTH SERVICES AGENCY

Executive Summary

Introduction

Under the Patient Protection and Affordable Care Act, nonprofit hospitals are required to conduct a community health needs assessment at least once every three years, publicize the assessment results and adopt an implementation strategy that addresses the identified needs. For purposes of this report, the community served by Memorial Medical Center (MMC) in Modesto, California is the Stanislaus County in its entirety.

Methodology

Health Indicators

A series of discussions with key stakeholders (e.g. hospital facilities, health plans, health and human services agencies, non-profit agencies and neighborhood groups) was held to select a priori issues of interest (health indicators), to be examined in this report. The issues selected were social and economic determinants of health, access to care, birth, pregnancy and perinatal outcomes, behavioral and environmental risk and protective factors, disease prevalence, hospitalizations, clinical quality measures and mortality (see Appendix A in the main report for a complete list).

Data

Primary and secondary data were used to assess the health status and health needs of Stanislaus County residents.

- A telephone survey (in both English and Spanish) was conducted in August 2010 by Applied Survey Research (ASR) for Kaiser Permanente's *Community Benefit Report*, in collaboration with Stanislaus County Health Services Agency/Public Health. Four hundred respondents 18 years or older completed the survey. ASR and Kaiser Permanente agreed to allow Memorial Medical Center to incorporate the findings in this report.
- Secondary (pre-existing) data was collected from a variety of sources, including but not limited to: the *U.S. Census*, the *American Community Survey* (ACS), the *California Health Interview Survey* (CHIS), birth and death statistical master files (obtained from the California Department of Public Health), hospitalization data (purchased from the Office of Statewide Health Planning and Development), Prevention Quality Indicators and the *Healthcare Effectiveness Data and Information Set* (HEDIS).
- The most updated data available from each source was used, unless trending was conducted or the sample size was too small for statistical stability. In the latter case, data was aggregated across the minimum number of years needed to create statistical stability. If two or more years of data were unavailable or could not be combined for some reason, statistically unstable data was presented and marked as such to alert the reader to be cautious in interpretation.

County Demographics

Population Size and Composition
- As of 2010, Stanislaus County had a population of 514,453 residents, an increase of 15.1% from 2000, when there were 446,997 residents (*2010 Census*).
- The average age in Stanislaus increased from 29.2 years in 1980 (*1980 Census)* to 32.8 years of age in 2010 (*2010 Census*). Despite this increase in median age, Stanislaus County residents are younger than California residents, for whom the median age was 35.2.
- The 2010 population of Stanislaus was predominantly White (65.6%), with a small percentage of Asian (5%) and African American (2.9%) residents.
- Stanislaus County has become more ethnically diverse over the past three decades: the proportion of Latinos grew from 15% in 1980 to 41.9% in 2010. Stanislaus has a higher percentage of Latinos than the State, where 37.6% of the population is Latino.

Socio-Economic Status and Economy
Stanislaus County, like other semi-rural Central Valley counties, has greater socio-economic challenges than California as a whole, including lower income, higher poverty, greater use of public assistance programs and greater unemployment. These factors affect individuals' health status and access to healthcare.
- The median household income in the county in 2010 was $48,044, a decrease from $50,375 in 2005-2007 (2010 and 2005-2007 *American Community Surve*y [ACS]). A higher percentage of Stanislaus individuals lived below the Federal Poverty Level (FPL) compared to California individuals (19.9% vs. 15.8%).
- Over the past six years, the unemployment rate almost doubled, from 8.5% in 2005 to 16.1% in December 2011.
- The median home sale price in Stanislaus decreased 61.7% from $339,000 in 2007 to $130,000 in 2011. Modesto ranked as 3rd worst among US cities for foreclosures in 2010 (RealtyTrac, 2011).

Access to Care

Health Insurance Coverage
Health insurance coverage increases a person's access to needed health care. Having inadequate health insurance and inability to find a needed health care professional in the County are frequent barriers to accessing medical care.
- In 2009, 88.9% of Stanislaus County residents had some type of health insurance coverage, compared with 88.5% for California residents (CHIS).
- While 91.9% of Non-Latinos had insurance coverage in 2009, while only 84.1% of Latinos had such coverage (CHIS).

- A higher percentage of Non-Latinos have employer-based coverage or self-pay insurance, while a higher percentage of Latinos have public insurance coverage (2007-2009 CHIS).
- Stanislaus residents without a high school diploma were more than three times more likely to lack health insurance than those with a Bachelor's degree (29.2% vs. 8.1%; 2010 ACS).

Type of Usual Source of Care
Income affects the type of care that a person can access.
- Residents living at or above 200% FPL were most likely to use a doctor's office as their usual source of care (2009 CHIS).
- A higher proportion of residents living at or below 100% of FPL reported having used an emergency room as their usual source of care than those living at 100-199% FPL (13.7% vs. 1.5%; 2009 CHIS).

Provider Shortage
The number of health care providers in an area affects residents' access to needed health care services.
- Stanislaus County has fewer primary care providers per residents than California or the US national benchmark (2011 County Health Rankings; see Table 1).

Table 1: Ratio of Population: Primary Care Providers by Jurisdiction

Jurisdiction	Ratio
Stanislaus	916 : 1
California	847 : 1
National Benchmark	613 : 1

Births in Stanislaus County

Healthy babies begin with healthy pregnancies and the steps a mother takes before conception. Behaviors such as taking folic acid, managing chronic medical conditions and maintaining a healthy weight prior to a pregnancy are important, as is entering prenatal care in the first trimester and receiving adequate prenatal care thereafter

Fertility and Birth Rates
- In 2009, 7,941 babies were born to Stanislaus mothers, with a general fertility rate of 69.4 per 1,000 women aged 15 to 44 (2009 *Birth Statistical Master File*).
- The annual general fertility rate in Stanislaus grew slowly over much of the past decade until 2007, when it began to decline. Despite this decline, Stanislaus County has a higher general fertility rate than California (2007-2009 *Birth Statistical Master Files*).

- Despite a steady decrease in the teen birth rate, Stanislaus continues to have a higher teen birth rate (adolescents ages 15-19) than California at 35.9 vs. 32.1 per 1,000 live births (2000-2009 *Birth Statistical Master Files*).

Prenatal Care

Timely and adequate prenatal care is important to a healthy pregnancy for both mother and fetus.
- In 2009, 77.3% of Stanislaus women who gave birth had timely prenatal care. This number does not meet the national Healthy People 2020 objective of at least 77.9%.
- The percentage of all Stanislaus County live births receiving first trimester prenatal care has been on a downward trend since 2005, with a slight improvement in 2009.

Pregnancy Outcomes

Being born at a healthy weight and full term reduces an infant's risk of encountering health problems like respiratory distress syndrome.

- In 2009, 6.5% of babies born in Stanislaus were low birth weight ($\leq$ 2500 grams), a risk factor for infant mortality and the development of chronic diseases. Between 2005 and 2009, the percentage of LBW babies in Stanislaus was lower than in California, giving Stanislaus infants a leg up on a healthy life (2005-2009 *Birth Statistical Master Files*).
- In 2009, 11.5% of babies born in Stanislaus were premature, another major risk factor for infant mortality and chronic disease. Between 2007 and 2009, California experienced a declining percentage of premature births, while Stanislaus saw an increase (2005-2009 *Birth Statistical Master Files*).

Non-Medically Indicated Induced Deliveries <39 Weeks

An elective induction of labor is defined as induced labor without a medical or obstetrical indication *before* the spontaneous onset of labor or rupture of membranes. Recent studies have shown that elective induction prior to 39 weeks may pose an increased risk of health complications to babies (California Maternal Quality Care Collaborative, 2010).
- The drug used to induce labor (pitocin), which is an oxytocin, may cause forceful labor contractions thereby lowering the baby's heart rate (March of Dimes, 2012).
- When an induction fails and the baby cannot be delivered naturally, a cesarean delivery will have to be performed (March of Dimes, 2012). Women who delivered their babies by cesarean section face longer hospital stays and longer recovery periods (March of Dimes, 2008).
- Babies scheduled for cesarean sections between 37 and 39 weeks gestation are at higher risk of complications (i.e. increased NICU admissions and respiratory distress syndromes) than babies delivered after 39 weeks (California Maternal Quality Care Collaborative, 2010).
- The brain continues developing after reaching "term" at 37 completed weeks; the brain at 37th week is only 80% of the weight at the 40th week (California Maternal Quality Care Collaborative, 2010).

Risk and Preventive Factors for Disease

Personal behavior and lifestyle choices such as fast food consumption can affect health, either by increasing the likelihood of disease (risk factors) or decreasing that likelihood (protective factors). In addition, particular health conditions, which do not themselves constitute a disease, may place a person at higher risk for developing a disease. Environmental and societal factors may also put individuals at higher risk of developing disease.

Physical Activity

Physical activity is important for maintaining a healthy weight, cardiovascular system and mental health. The Centers for Disease Control and Prevention recommends that adults need to perform at least 150 minutes of moderate intensity aerobic activity every week, or 75 minutes of vigorous intensity aerobic activity and muscle strengthening activities at least twice a week (CDC, 2011e). In 2010, a local telephone survey (ASR, 2010) found that

- 38.1% of respondents reported getting less than 120 minutes of exercise per week, failing to meet CDC minimum guideline;
- 21.1% of respondents reported 121 minutes to 240 minutes of physical activity each week, which would likely meet CDC minimum guidelines if it were of at least moderate intensity; and
- Fewer than 10% of respondents reported more than 960 minutes per week, well in excess of CDC minimum guidelines.

Diet

A healthy diet supports the body's growth and a strong immune system. Poor diet contributes to overweight/obesity, lowered immunity and vulnerability to certain infectious and chronic diseases.

- In 2010, 51.3% of Stanislaus telephone survey respondents reported that they did not eat the recommended 5 or more servings of fruits and vegetables per day (ASR 2010).
- 31.8% of survey respondents said that fruits and vegetables require too much time to prepare; 23.1% said fruits and vegetables are too expensive; 15% said they didn't like fruit and vegetables (ASR 2010).
- In 2007 and 2009, 72.4% of Stanislaus residents ate fast food at least once in the previous week, compared to 64.7% in California (CHIS). While subgroup estimates were statistically unstable due to small sample size, it appears that fast food consumption was higher in the low-income population and in Latinos.

Retail Food Environment

The neighborhood environment affects a person's diet and risk of obesity and chronic disease. The Retail Food Environment Index (RFEI) is a measure of the healthiness of the neighborhood in terms of access to food (California Center for Public Health Advocacy, 2008). RFEI is the ratio of unhealthy venues (e.g. fast-food restaurants and convenience stores) to healthy venues (e.g. grocery stores and produce vendors). Researchers have

found that the higher an area's RFEI, the higher the prevalence of obesity and diabetes in that area (California Center for Public Health Advocacy, 2008).

- In 2007, Stanislaus had the second highest RFEI (5.48) and the highest obesity prevalence (31.5%) in the State (California Center for Public Health Advocacy, 2008).
- In 2007, there were 5.3 fast food restaurants per 10,000 residents in Stanislaus, higher than many of our neighbors (ASR, 2008).

Obesity

Obesity has been shown to be a risk factor for multiple chronic diseases including cancer, heart disease, stroke and diabetes. In addition, obesity has been linked to depression, an increased risk of Alzheimer's disease and of severe complications of pneumonia and influenza (Fitzpatrick et al, 2009; Kornum, et al, 2010; Luppino et al, 2010).

- A higher percentage of Stanislaus adults than Californian adults are overweight or obese (2001-2009, CHIS).
- For 2003 & 2005 and 2007 & 2009, CHIS estimates of overweight and obesity prevalence among ethnic and racial groups were statistically unreliable. While not statistically significant, it appears that the overweight/obesity prevalence
  - o Was similar in Latinos and Non-Latinos;
  - o Was higher in Blacks than Whites, and in Whites than Asians; and
  - o Increased in Asians.

Children who are obese are more likely to have high blood pressure, high cholesterol, joint problems, fatty liver disease and are more likely to become obese adults (CDC, 2011c).

- In 2009, a slightly, but not statistically significantly, higher percentage of children aged 2 to 11 in Stanislaus were overweight for their age, compared to California (15.7% vs. 11.9%; CHIS).
- However, between 2003 & 2005 and 2007 & 2009
  - o The prevalence of children overweight for their age decreased for both jurisdictions—23% in Stanislaus and 17.4% in California.
  - o There was no significant change in teen (ages 12 to 17) overweight and obesity for either jurisdiction.
  - o These findings may reflect the success of community initiatives to increase children's physical activity, such as SCOE's *Fit for the Future* initiative, the Safe Communities Coalition's *Walk to School Day* and the HEART Coalition's *Walking School Bus* program.
- During the 2010-2011 school year, between 40% and 55% of school children in 5th, 7th and 9th grade had a body mass composition not in the Healthy Fitness Zone (HFZ; California Department of Education, 2012).
  - o Higher percentages of individuals with a body mass composition outside the HFZ were found in Latino, Black, male and economically disadvantaged students.
  - o Ominously for future health outcomes, the youngest children (5th graders) had the highest percentage of students outside the HFZ.

Tobacco Use

Smoking is a known risk factor for several diseases, including cancers (especially lung cancer), stroke, asthma and heart disease (CDC, 2011f). Historically, the prevalence of smoking in Stanislaus residents has been higher than that of California residents (2000-2009 CHIS).

- The percentage of Stanislaus residents who smoke decreased 32.4% over the past decade (between 2001 and 2009), a rate faster than for California (18.3% decrease).
- Between 2003 & 2005 and 2007 & 2009, local smoking prevalence:
    o Increased in men and decreased in women; and
    o More than doubled in Latinos (CHIS).
- In Stanislaus County, smoking prevalence is higher among men and among residents living at or below the Federal Poverty Level.

Air Quality

Air pollution increases the risks of heart and lung illnesses such as asthma, chronic obstructive pulmonary disease, lung cancer and heart failure (Health Canada, 2006). Within California, the San Joaquin Valley is second only to the Los Angeles basin in poor air quality (Bedford, 2004), and is among the nation's most polluted areas (American Lung Association, 2011). The American Lung Association reported that

- In 2011, Stanislaus County earned an F for air quality, ranking 12th worst among over 3,000 US counties for annual particle pollution(annual $PM_{2.5}$), 14th worst for (short-term particle pollution (24-hour $PM_{2.5;}$) and 21st worst for ozone pollution.
- In 2011, Modesto ranked 10th worst among 277 large US Metropolitan Statistical Areas for year-round particle pollution (annual $PM_{2.5}$), 12th worst for short-term particle pollution (24-hour $PM_{2.5;}$) and 14th worst for ozone pollution.

Disease Prevalence

Chronic disease has reached global epidemic proportions (World Health Organization, 2005). The cost of chronic diseases in the United States is enormous. A study released by the Milken Institute calculated the total US economic impact of seven of the most common chronic diseases to be $1.3 trillion annually, with $1.1 trillion accounting for lost productivity and $277 billion being spent on medical treatments (Milken Institute, 2007).

Diabetes

- The percentage of Stanislaus adults that were ever diagnosed with diabetes fluctuated from 6.6% in 2001 to 9.4% in 2005 and 7.6% in 2009 (CHIS), while the percentage of Californians ever diagnosed with diabetes slowly increased from 6.2% in 2001 to 8.5% in 2009 (CHIS).
- Type I diabetes in Stanislaus adults increased 62.2%, from 20.1% in 2005 to 32.4% in 2009. The reason for this increase is unknown (CHIS).
- Type II diabetes decreased 23.2%, from 79.9% in 2005 to 61.4% in 2009 (CHIS).

- Between 2003 & 2005 and 2007 & 2009, the percentage of women with diagnosed diabetes nearly doubled (4.3% to 8.0%) (CHIS).

Heart Disease
- Between 2001 and 2009, heart disease prevalence:
  - Was consistently higher in California than Stanislaus; and
  - Decreased 40.0% in men while it increased 52.6% in women, so that women overtook men in heart disease prevalence by 2009 (CHIS).
- County wide CHIS data stratified by race, ethnicity and poverty level was too unstable to provide reliable estimates of heart disease prevalence in these groups.

High Blood Pressure
- Between 2001 and 2009, the percentage of Stanislaus adults ever been diagnosed with high blood pressure (HBP) increased 31.2% (CHIS).
- By 2007, HBP prevalence in Stanislaus surpassed the State (CHIS).
- Prevalence in men and women was similar, except in 2007 when prevalence in men (40.7%) exceeded that in women (25.1%; CHIS)
- Prevalence is highest in Blacks (2007 & 2009 CHIS).
- Data from 2003 & 2005 and 2007 & 2009 CHIS also showed that HBP prevalence:
  - Is higher in Non-Latinos; and
  - Increased in both Latinos and Non-Latinos.

Asthma
- The percentage of adults who report ever being diagnosed with asthma stayed approximately the same in Stanislaus between 2001 and 2007, with a slight increase in 2009 (CHIS).
- Stanislaus females suffer from asthma more frequently than males, although this trend is reversed for the youngest individuals (CHIS).
- Data from 2003 & 2005 and 2007 & 2009 CHIS also showed that lifetime asthma prevalence:
  - Is higher in non-Latinos;
  - Increased in both Latinos and non-Latinos; and
  - Is higher in residents living below the FPL.

Hospitalization

Between 2008 and 2010, residents of Stanislaus County were hospitalized in California hospitals (some more than once), for a total of 185,822 hospitalizations, or an average of 61,941 hospitalizations per year (*Patient Discharge Data Files*, 2008-2010). Table 2 shows the relative importance of 15 major causes of hospitalization. To make clear that these categories of disease/conditions are precisely defined by ICD 9 codes, these category names are capitalized throughout this section of the report.

Table 2: Selected Causes of Hospitalization in Stanislaus County, 2008-2010

Primary Cause*	Total Number	Average Number per Year	Percentage of all Hospital-izations	Age-Adjusted Rate# (95% CI^)
Injury and Other Accidents	27,659	9,220	14.9%	2,342.4 (2314.8-2370.0)
Childbirth	18.380	6,127	9.9%	573.0 (564.7-581.3)
Ischemic Heart Disease$	6,833	2,278	3.7%	616.7 (601.1-630.3)
Influenza/Pneumonia	6,216	2,072	3.3%	639.8 (623.9-655.7)
Chronic Obstructive Pulmonary Disease (COPD)	4,726	1,575	2.5%	387.8 (276.8-398.9)
Cancer (any type)	4,691	1,564	2.5%	376.5(265.7-387.2)
Cerebrovascular Disease (Stroke)	3,866	1,289	2.1%	452.6 (438.3-466.9)
Depression	3,306	1,102	1.8%	117.3 (113.3-121.3)
Diabetes, Type I or Type II	2,448	816	1.3%	146.0 (140.2-151.7)
Schizophrenia	2,209	736	1.0%	78.0 (74.8-81.3)
Overweight/Obesity	1,494	498	0.8%	54.2 (51.4056.9)
Chronic Liver Disease	930	310	0.5%	50.5 (47.3-53.8)
Hypertension/Hypertensive Disease	806	269	0.4%	73.2 (69.1-78.2)
Asthma@	709	236	0.4%	52.1 (48.3-56.0)
Alcohol or Other Drug Dependence	250	83	0.1%	9.1 (7.9-10.2)
ANY CAUSE	**185,822**	**61,941**	**100%**	12,424.7 (12368.3-12481.2)

*As determined by the primary diagnosis (see Appendix A for ICD-9 codes used) in order of frequency
$Average annual crude rate of hospitalizations per 100,000 population using the US Census Bureau's *2005 American Community Survey* as the midpoint population figure; note childbirth rate denominator is also all Stanislaus residents, not just females.
#Average annual age-adjusted rate of hospitalizations per 100,000 population using the US Census Bureau's *2005 American Community Survey* as the midpoint population figure and using the 2000 US Census as the standard population
^95% Confidence Interval around the rate
$Includes myocardial infarction (heart attack)
@Hospitalizations for Asthma are also included in the category for COPD

Disparities in frequency of hospitalization as well as causes of hospitalization were found based on gender, race, ethnicity and age (*Patient Discharge Data Files*, 2006-2010).

Gender
- Females were hospitalized at a higher rate than males, partly, but not completely, due to the fact that childbirth was the second most frequent cause of hospitalization.
- Males had a statistically significantly higher rate of hospitalization for Ischemic Heart disease, Schizophrenia, Diabetes (Type I or II), Chronic Liver Disease and Alcohol or Other Drug Dependence.
- Females had a statistically significantly higher rate of hospitalization for Injury and Other Accidents, Cancer (any type), Chronic Obstructive Pulmonary Disease [COPD], Stroke, Depression, Overweight/Obesity, Hypertension/Hypertensive Disease and Asthma.

Age
The overall hospitalization rate increased with age, though the relationship between age and hospitalization rates differed for different types of causes.

- Hospitalization rates generally increased with age for most chronic diseases (Cancer, Stroke, Ischemic Heart Disease, Hypertension and Hypertensive Disease, COPD and Diabetes). A notable exception was Asthma, for which the youngest age group (0-17 years) were hospitalized at a higher rate than those 18-44 years.
- Hospitalization for Influenza/Pneumonia was highest in the oldest (65+ years) and youngest (0-17 years) age groups.
- Hospitalization for mental and behavioral causes (e.g. Schizophrenia, Depression and Alcohol or Other Drug Dependence) increased with age until dropping off in the oldest age group (65+ years). This same pattern was witnessed for Injury and Other Accidents.

Ethnicity
Non-Latinos were hospitalized at more than twice the rate of Latinos (even after age-adjustment).

- The only examined cause for which Latinos had significantly higher hospitalization rates than Non-Latinos was childbirth.
- Possible reasons for these differences are addressed in the ***Discussion*** section.

Race
Overall, Whites had a statistically significantly higher rate of hospitalization than Blacks, but both of these groups had nearly double the hospitalization rate of Asians.

- Hospitalization rates for Depression, Schizophrenia, Diabetes, Asthma and COPD were significantly elevated for Blacks.
- Whites and Blacks did not differ in hospitalization rates (but had higher rates than Asians) for Overweight/Obesity, Chronic Liver Disease.
- Possible reasons for these differences are addressed in the ***Discussion*** section.

Trends
Between 2000 and 2010, hospitalization rates significantly decreased for Ischemic Heart Disease, Stroke and Cancer, as well as for Alcohol and Other Drug Dependence and Childbirth.   On the other hand, hospitalization rates significantly increased for Schizophrenia, Injury and Other Accidents and Diabetes.

Mortality

Between 2005 and 2009, 18,053 Stanislaus County residents died, an average of just over 3,600 individuals per year (*Death Statistical Master Files*).

- Almost equal numbers of decedents were males (50.5%) and females (49.5%).
- Ethnically, 13.8% of decedents were Latino, while 86.1% were Non-Latino, and 1% was of unknown ethnicity.

- 93.1% of decedents were White, 2.8% were Asian/Native Hawaiian/Pacific Islander, 2.4% were Black, and 1.5% was of another race, two or more races, or unknown race.
- For 2007-2009, Stanislaus County had a statistically significantly higher age-adjusted all cause mortality rate than California (772.0 vs. 647.2 deaths per 100,000 residents; California Department of Public Health, 2011).
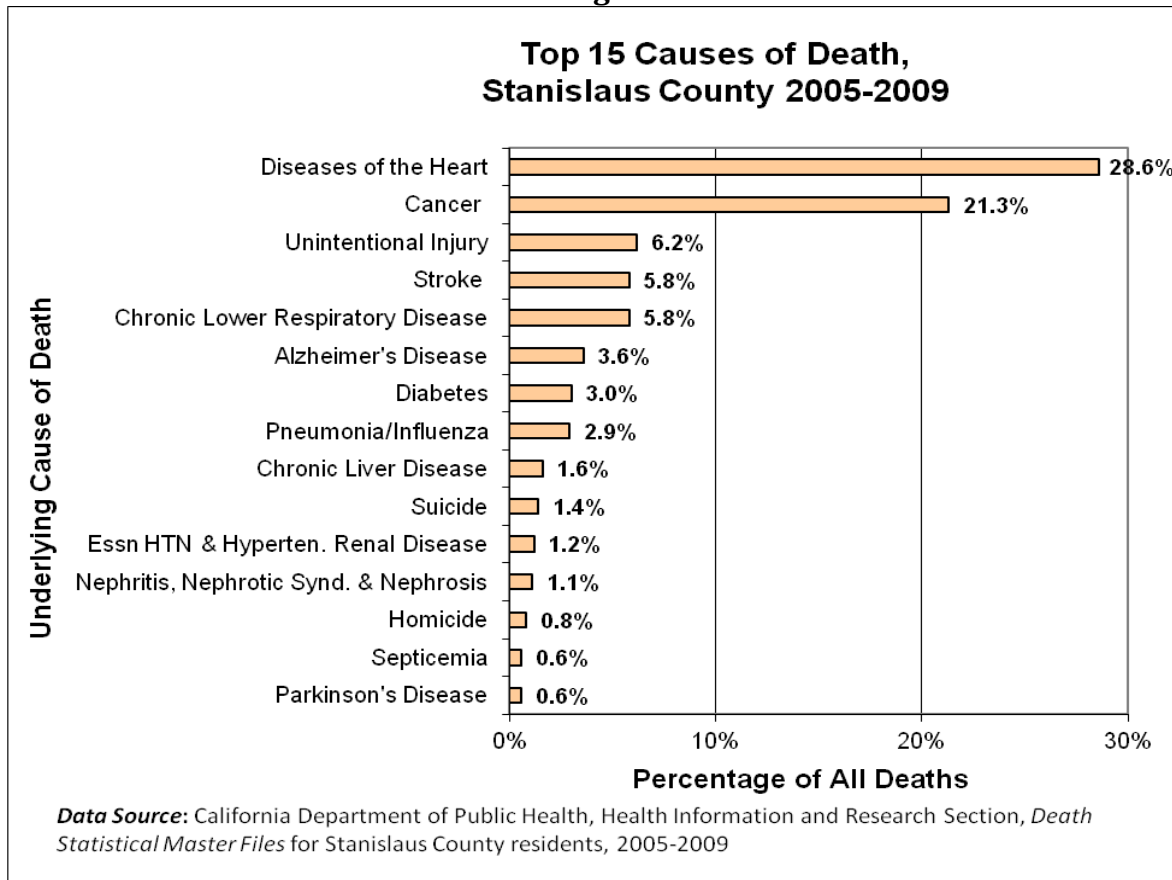
Manner of Death
The manner of death is a classification of the type of agent causing death. Examination of the manner of death allows understanding of broad patterns of mortality.
- Nearly 90% of the Stanislaus County residents who died between 2005 and 2009 died from natural causes (i.e. caused by a natural disease process), 7% from unintentional injuries (e.g. from motor vehicle crash, fall, drowning) and 2.3% from intentional injuries (e.g. suicide, homicide), while 0.7% died in an unknown manner.
- A higher percentage of males than females died from injuries (13% vs. 6%), both intentional (4% vs. 1%) and unintentional (9% vs. 5%), while a higher percentage of females died from natural causes (93% vs. 87%).
- A much higher proportion of individuals aged between 18 and 44 died of injuries (both unintentional and intentional) than individuals of younger and older age groups. A natural manner of death was the least common for the 18-44 age group.
- For those who died of unintentional injuries, the specific type of injury (e.g. motor vehicle crash vs. fall) differed by age group, with motor vehicle accidents contributed more to deaths in the 18-44 group, while falls contributed more to deaths in the 65+ group.
- A higher percentage of Latinos than Non-Latinos died from injuries (16% vs. 8%), both intentional (5% vs. 2%) and unintentional (11% vs. 6%), while a higher percentage of Non-Latinos died from natural causes (91% vs. 83%).
- A slightly higher percentage of Asians died of natural causes than either Whites or Blacks (91% vs. 90% vs. 86%). A higher percentage of Blacks died of intentional injuries than either Whites or Asians (9% vs. 7% vs. 6%).

Underlying Cause of Death
Chronic diseases kill the vast majority of Stanislaus County residents (see Figure 1). To make clear that these categories of disease/conditions are precisely defined by ICD 10 codes, these category names are capitalized throughout this section of the report.

Figure 1.

**Top 15 Causes of Death,
Stanislaus County 2005-2009**

Data Source: California Department of Public Health, Health Information and Research Section, *Death Statistical Master Files* for Stanislaus County residents, 2005-2009

Individuals of different ages and demographic groups show strikingly different patterns of underlying cause of death.

Gender Differences
- Males have a statistically significantly higher age-adjusted all cause mortality rate than females: 945.7 vs. 692.3 deaths per 100,000 residents.
- Females have higher mortality rates from Stroke and Alzheimer's disease.
- Males have higher mortality rates from Unintentional Injury, Chronic Liver Disease, Suicide, Homicide and Parkinson's disease.

Ethnic Differences
- Non-Latinos have a statistically significantly lower age-adjusted all cause mortality rate than Non-Latinos: 504.5 vs. 1,680.2 deaths per 100,000 residents.
- Latinos had a statistically significantly higher age-adjusted mortality rate for chronic liver disease.
- There were no ethnic differences in mortality rates for Diabetes, Homicide or Congenital Abnormality.

- Non-Latinos had significantly higher age-adjusted average annual mortality rates for the other 12 top causes of death.

Racial Differences
- Small numbers of deaths due to particular causes make comparing mortality rates across race groups challenging.
- Blacks and Whites have statistically significantly higher age-adjusted all cause mortality rates than Asians, but do not differ significantly from each other (Black: 1,673.3 White: 1,737.7, Asian: 937.5 deaths per 100,000).
- For three top causes of death, Whites and Blacks had similar mortality rates but higher than Asians: Disease of the Heart, Cancer, and Alzheimer's disease.
- Whites had a significantly higher mortality rate from Stroke than Blacks and Asians.
- Blacks had a significantly higher mortality rate from Diabetes than Whites and Asians.

Age at Death and Years of Potential Life Lost
It is common within the field of public health to calculate how many years of potential life (YPLLs) are lost to particular causes of disease to determine which conditions or events cause death early in life versus those that cause death later in life. The standard method is to subtract the average age at death for those who died of a particular cause from a standard age (usually 65 or 75) to determine the years of potential life lost or gained (for those causes where the average age at death is higher than the standard). In this report, the standard age used was 75.
- Congenital Abnormality, Unintentional Injury and Homicide were the underlying causes of death with the highest average number of YPLLs.
- Parkinson's disease and Alzheimer's disease had the highest average YPLLs.
- Males had a significantly higher average YPLL than females, and also had a significantly younger mean age at death than females (67.3 vs. 74.6 years).
- Latinos had a significantly higher mean YPLL than Non-Latinos and had a significantly younger mean age at death than Non-Latinos (57.9 vs. 73.6 years).
- Blacks had the highest average YPLL, followed by Asians, then Whites. This finding corresponded to significantly different average ages at death: 61.2 years for Blacks, 66.6 years for Asians and 71.5 years for Whites.

Many of these differences are related to the fact that subpopulations in the County have different age distributions. For example, Latinos are younger, on average, than Non-Latinos. Other possible reasons are addressed in the ***Discussion*** section.

Mortality Trends
Over the past decade, the age-adjusted all cause mortality rate in Stanislaus County decreased 10.2% (California Department of Public Health, 2011).
- Mortality rates for coronary heart disease, cancer and stroke all declined during this period: 27.6%, 9.5% and 25.7% respectively.
- No significant change was observed in the mortality rate due to diabetes.

Clinical Care and Management

Avoidable Hospitalizations – Prevention Quality Indicators (PQIs)
Prevention Quality Indicators (PQIs) are measures developed by the federal Agency for Healthcare Research and Quality (AHRQ) to assess the quality of the healthcare system in preventing medical complications. Hospitalization rates are used to assess the quality of outpatient care for "ambulatory care sensitive conditions" (ACSCs), which are conditions for which early intervention and good outpatient care could have prevented hospitalizations (Office of Statewide Health Planning and Development, 2010).

- Thirteen medical conditions were assessed:

  - Diabetes short-term complications
  - Perforated Appendix
  - Diabetes long-term complications
  - Chronic obstructive Pulmonary Disease
  - Hypertension (high blood pressure)
  - Congestive heart failure
  - Dehydration
  - Bacterial pneumonia
  - Urinary tract infections
  - Angina without procedure (chest pains)
  - Uncontrolled diabetes
  - Adult asthma
  - Lower-extremity amputations among diabetics

- Hospitalization rates for all 13 conditions were higher in Stanislaus than in California (Office of Statewide Health Planning and Development, 2010).

- In 2009, the top five avoidable hospitalizations in Stanislaus were due to (Office of Statewide Health Planning and Development, 2010):
  - Bacterial pneumonia
  - Congestive heart failure
  - Chronic obstructive pulmonary disease (COPD)
  - Urinary Tract Infection
  - Diabetes long term complications

Chronic Disease Management
An important aspect in managing chronic diseases such as heart disease, high blood pressure, asthma and diabetes is having a health care provider work with the patient to develop a plan so that patient knows how to take care of his or her condition. Taking prescribed medication as directed by the medical provider is important as well in managing chronic conditions, along with lifestyle and dietary changes.

Heart Disease Management Plan
- In 2009, 79.7% of Stanislaus residents diagnosed with heart disease had health professionals who provided them with a heart disease management plan, compared to 70.9 Statewide (CHIS).

High Blood Pressure Management
- In 2007 and 2009, 65.5% of patients with high blood pressure take medication to control their condition (CHIS).

Asthma Management Plan
- According to the CDC, all asthmatics should have an asthma action plan which describes a patient's daily medication, how to control asthma long term, how to handle asthma attacks, and when to go to the emergency room (Centers for Disease Control and Prevention, n.d.a)
- Pooled 2007 & 2009 CHIS data showed that in Stanislaus, 44.4% of adults with asthma had health professionals who provided them with an asthma management plan, a 49.4% increase from 2003 & 2005.

Asthma Medication
- Asthma can be managed with daily medication (Centers for Disease Control and Prevention, n.d.b)
- Pooled 2007 & 2009 CHIS data showed that in Stanislaus, 54.0% of adults with asthma took daily medications, a 36.7% increase from 2003 & 2005.

Healthcare Effectiveness Data and Information Set (HEDIS)
HEIDS is a set of performance measures developed by the National Committee for Quality Assurance (NCQA) as a tool to measure health plans' performance on various dimensions of care and service. HEDIS measures in this report were extracted from the *2010 Aggregate Report for the Medi-Cal Managed Care Program in California* (Department of Health Care Services,).

The three HEDIS categories included in this report are:
1) Prenatal and Postpartum Care
2) Weight Assessment and Counseling for Nutrition and for Physical Activity for Children/Adolescents
3) Comprehensive Diabetic Care

Prenatal and Postpartum Care
Timely prenatal care is essential in ensuring a healthy pregnancy. Postpartum care is important as well, as this period is when postpartum depression is assessed, family planning/contraceptive needs are discussed, inter-conception counseling is offered and medical complications associated with the delivery are monitored (NYSDOH 2010).
- *Timeliness of Prenatal Care* measure reports the percentage of women who received prenatal care in the 1st trimester or within 42 days of enrolling into the health plan.

- 92.3% of women in Health Net and 86.1% of women in Anthem Blue Cross received timely prenatal care.
- *Postpartum care* measure reports the percentage of women who delivered a live birth who received a postpartum visit on or between 21 days and 56 days after delivery.
- Both Health Net Stanislaus and Anthem Blue Cross Stanislaus performed below the Minimum Performance Level (2009 national Medicaid 25th percentile), with 54.9% and 54.3% of women receiving timely postpartum visits.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents

Childhood overweight and obesity is a growing concern for pediatricians. Therefore it is very important that children and adolescents receive adequate weight assessment and counseling for nutrition and physical activity from pediatricians (California Department of Health Care Services, 2010). Beginning in 2010, Medi-Cal managed care plans are required to track and report three new HEDIS measures for enrolled members between 3 and 17 years of age who had an outpatient visit with a personal care physician or an OB/GYN: 1) BMI Assessment 2) Nutrition Counseling and 3) Physical Activity Counseling.

- *BMI Assessment*: 40.4% of children and adolescents in Health Net and 34.0% in Anthem Blue Cross received a BMI Assessment.
- *Nutrition Counseling*: 50.6% of children and adolescents in Health Net and 40.9% in Anthem Blue Cross received nutrition counseling.
- *Physical Activity Counseling*: 20.2% of children and adolescents in Anthem Blue Cross and 19.5% in Health net received physical activity counseling.

Comprehensive Diabetes Care

Examining HEDIS measures for comprehensive diabetes care is an important component of assessing the clinical management of diabetes for Medi-Cal managed health plans. Table 3 lists the eight types of screenings and exams that should be conducted in health plan members who have diabetes (California Department of Health Care Services, 2010). It also shows the percentage of diabetic health plan members who have received the recommended screenings and exams.

Table 3: Diabetes-Related HEDIS Measures

Measure	% of Members 18 through 75 years of Age with Diabetes	
	Health Net	**Anthem Blue Cross**
HbA1C		
• HbA1c Testing	86.5%	80.5%◊
• Poor HbA1c Control (>9.0%)	29.0%*	30.0%
• HbA1c Control (<8.0%)‡	60.1%	43.2%◊
Lipids		
• LDL Screening	79.5%	78.0%◊
• LDL Control (<100 mg/dL)	38.6%	29.8%◊
Eye Exam (Retinal)	57.1%	38.5%†
Medical Attention for Nephropathy	81.8%	75.6%◊
Blood Pressure Control (<140/90 mmHg)‡	68.6%	56.6%◊

‡ = New 2010 HEDIS Measure
◊ = Below Weighted Average
* = Above High Performance Level (2009 national Medicaid 90th Percentile)
† = Below Minimum Performance Level (2009 national Medicaid 25th Percentile)

Discussion

Trends
- The percentage of women receiving timely prenatal care has decreased (2005-2009).
- While the percentage of women receiving timely prenatal care was satisfactory compared nationally, there is room for improvement for timely postpartum care.
- The prevalence of heart disease has decreased in the County (2001-2009), so have hospitalizations for Ischemic Heart Disease and mortality due to Coronary Heart Disease.
- The prevalence of obesity and diabetes increased in the County (2001-2009); hospitalizations for diabetes also increased (2000-2010) while mortality rates for diabetes remained unchanged (2000-2002 to 2007-2009).
- The schizophrenia hospitalization rate also increased from 2000 to 2010.

Disparities
Gender Differences
- Even though a higher percentage of men are overweight or obese than women in Stanislaus, women are more likely to be hospitalized for overweight/obesity than men.
- Women have a higher prevalence of asthma, and are more likely to be hospitalized for respiratory diseases such as asthma, COPD and pneumonia/influenza; however

there is no gender difference in the age-adjusted mortality rate for Chronic Lower Respiratory Disease.

- Diabetes prevalence is increasing faster among women than men; however men are more likely to be hospitalized for diabetes, and males have a slightly, but not statistically significantly, higher rate of mortality from diabetes.
- Males had significantly higher age-adjusted average annual mortality rates for Unintentional Injury, Chronic Liver Disease, Suicide, Homicide and Parkinson's disease.
- Females had significantly higher age-adjusted average annual mortality rates for Stroke and Alzheimer's disease.
- Males die at a younger average age than females and lose more potential years of life. Gender differences in YPLL are at least partly due to the fact that several causes of death with high average YPLLs, including Unintentional and Intentional (e.g. Suicide, Homicide) Injury and Chronic Liver Disease, are more common causes of death for males than females.

Ethnic Differences
- The prevalence of diabetes is the same in Latinos and non-Latinos. However, non-Latinos are more likely to be hospitalized for diabetes. There is no ethnic difference in the age-adjusted diabetes mortality rate.
- Non-Latinos have a hospitalization rate for Alcohol and Other Drug Dependence nearly four times that of Latinos, however, Latinos have a statistically significantly higher age-adjusted mortality rate for Chronic Liver Disease. This fact may reflect differences in access to healthcare. Latinos are less likely to have health insurance coverage and a usual source of care than Non-Latinos, so have less opportunity to be diagnosed or hospitalized.
- The prevalence of diagnosed heart disease, high blood pressure and asthma is higher in Non-Latinos than Latinos. Non-Latinos are also more likely to be hospitalized for Ischemic Heart Disease and respiratory disease such as Asthma, COPD and Pneumonia/Influenza. These two facts may be related to ethnic differences in access to healthcare, as discussed above.
- However, despite facing more obstacles to healthcare access, Latinos have a significantly lower age-adjusted all cause mortality rate than Non-Latinos. Latinos die at a younger average age than Non-Latinos and lose more potential years of life. These facts, taken together, are likely due to the much younger population for Latinos. Other factors may contribute, including different patterns of risk and protective factors, cultural beliefs in the nature of disease, and the willingness to visit doctors or hospitals.
- It is likely that overall lower rates of hospitalization for Latinos do not reflect a higher prevalence of chronic diseases among Non-Latinos, but rather reflect less access to care by Latinos, including lower rates of health insurance coverage.

Racial Differences

- Evidence for racial differences in risk and protective factor prevalence is mostly non-existent, due to small sizes in CHIS. However, data from school children showed that Asians were the least likely to have a body composition outside the Healthy Fitness Zone. In addition, Asians do have lower heart disease prevalence than Blacks or Asians. Taken together, these facts may indicate that, in the County, Asians are at lower risk of chronic disease than Blacks and Whites. Asians have the lowest hospitalization rates overall and for chronic diseases (with the exception of Hypertension/Hypertensive Disease). Asians also have the lowest mortality rates overall and due to chronic diseases. Whites and Blacks do not differ significantly in age-adjusted mortality rate.
- The hospitalization rate for Diabetes is highest in Blacks, as is the age-adjusted mortality rate for Diabetes.
- Blacks are also hospitalized at significantly higher rates for Asthma and COPD as a whole than are Whites or Asians. Whites and Blacks have similar age-adjusted mortality rates from Chronic Lower Respiratory Disease, both of which are statistically significantly higher than Asians.
- While Whites have the highest all cause age-adjusted mortality rate, Blacks had the highest average YPLL, followed by Asians, then Whites. This finding corresponded to significantly different average ages at death: 61.2 years for Blacks, 66.6 years for Asians and 71.5 years for Whites. These facts, taken together, are likely due to the fact that a higher percentage of deaths in minority individuals are from diseases with high average YPLL, such as Unintentional and Intentional Injury, while a higher percentage of Whites die from chronic diseases with small average YPLLs.
- In addition, stress caused by lifelong exposure to racism and prejudice, especially by Blacks in the US, has been shown to have physiological impact, increasing the likelihood of chronic diseases and certain behavioral illnesses, and the likelihood of developing them at earlier ages (Geronimus, 1992; Geronimus et al, 2006).

Priority Issues

- Access to Care
  - Healthcare provider shortage
  - Healthcare insurance coverage disparities
- Healthy Foundation: Prenatal and perinatal health
  - Prenatal and postpartum care
  - Non-medically indicated elective inductions prior to 39 weeks gestation
- Chronic Diseases on the Rise: Diabetes, heart disease, asthma and depression
  - Behavioral Risk Factors: Overweight/obesity, tobacco use
  - Environmental Risk Factors: Poor air quality, retail food environment
  - Clinical Care and management
- Injury
  - Motor vehicle collisions
  - Suicide

Recommendations

- Support efforts to increase the number of healthcare providers per capita.
- Consider strategies to increase healthcare access, particularly among those with lower incomes, working adults, and racial and ethnic minorities.
- Support efforts to increase the quality of care, particularly concentrating on prenatal care and postpartum care, BMI assessments, management plans, diabetes quality indicators, pre and postpartum care.
- Support initiatives involving policy and infrastructure change (e.g. CTG) to reduce risk factors and increase protective factors for chronic diseases.
- Adopt social marketing campaigns to change group behavioral norms to increase healthy choices and public support for policy and infrastructural improvements that will help make the healthy choice the easy choice.
- Focus on addressing health disparities by addressing inequalities in the broad determinants of health (e.g. support the *Framework for a Thriving Stanislaus*, see http://www.schsa.org/PublicHealth/mainpages/coalitionPartnerships/framework.html.)
- Increase mental and behavioral health preventive and treatment services and support initiatives to increase the prevalence of protective factors than can reduce the need for such services (e.g. promotores and community health workers).
- Help educate individuals about motor vehicle, bicycle and pedestrian safety to reduce injuries from motor vehicle collisions.
- Support initiatives involving policy and infrastructure change to reduce injuries due to motor vehicle collisions, by, for example, reducing reliance on cars, making roadways safer for bicyclists and pedestrians (e.g. Safe Routes to Schools grants, changes to city and county general plans).

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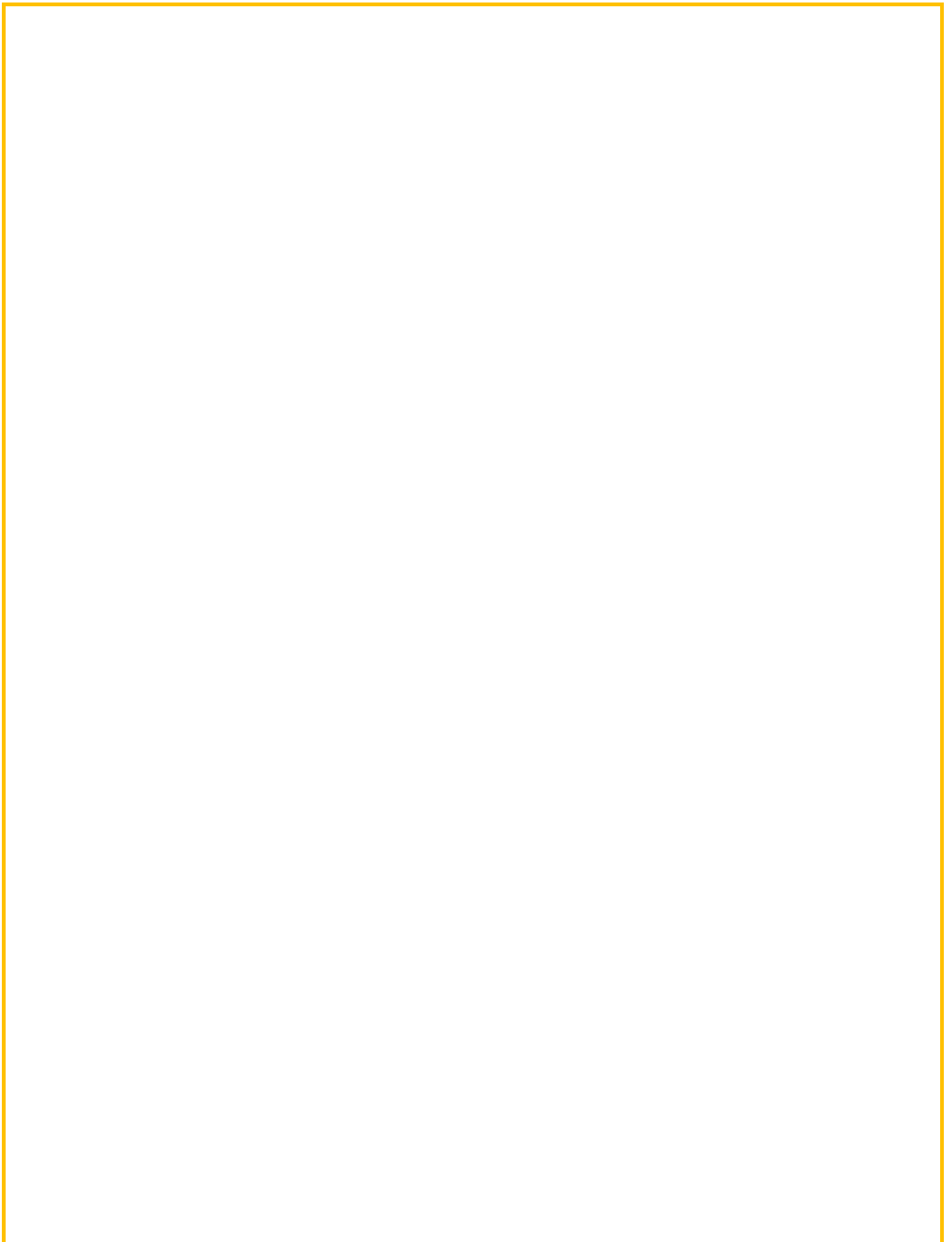
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