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TRENDS IN LIFE EXPECTANCY AND MORTALITY: A COMPARISON OF HISPANICS AND NON-HISPANICS IN THE SOUTHWEST UNITED STATES, 1990 TO 2010

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TRENDS IN LIFE EXPECTANCY AND MORTALITY: A COMPARISON OF HISPANICS AND NON-HISPANICS IN THE SOUTHWEST UNITED STATES, 1990 TO 2010

by

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Dedication

To my wife, Kathleen, our dogs Emma and Niko, and my family for all the years of support and putting up with my being a know-it-all while I pursued my interests. Hopefully, they'll stop asking when I'll get a 'real' job. Well, not the dogs. They're not talking to me. Yet.

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Trends in Life Expectancy and Mortality:

A comparison of Hispanics and non-Hispanics in the Southwest United States, 1990 to 2010

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This project uses data from the National Vital Statistic System to study trends in rates and causes of deaths among Hispanics compared to non-Hispanics in the Southwest United States. Denominators are from the Modified Age, Race/Ethnicity, and Sex file (1990) and Bridged Race Files (2000, 2010) while numerator data are from the mortality detail files and Linked Infant Birth and Death files. The study had three specific aims: 1) estimate life expectancy for Hispanics and non-Hispanics, 2) decompose life expectancy by cause-specific mortality, and 3) develop cohort and cause-specific mortality rates from 1990 to 2010. Analyses included evaluation, adjustment and correction of classification and age-reporting for data, development and evaluation of life tables and life expectancy, decomposition analysis, and development of cohorts and related cause-specific rates of mortality. Results of the lifetable analyses showed that Hispanics had a mortality advantage over non-Hispanic Whites and Blacks from 1990 to 2010 but that the advantage was shrinking, especially compared to non-Hispanic Whites. The decomposition analyses showed that compared to non-Hispanic Whites, homicide was the primary contributor to mortality for Hispanics in 1990 but dropped to the third leading cause by 2010. Diabetes rose from the third leading cause to the highest contributor from 1990 to 2010. Alternatively, non-Hispanic Whites had higher smoking related mortality from causes including lung cancer, heart diseases, and chronic lower respiratory disease. These effects differed through time, with the effects of smoking decreasing for Whites while diabetes was largely unchanged in effect. Compared to non-Hispanic Blacks, Hispanics had lower death rates from almost all causes and maintained a sizeable mortality advantage from 1990 to 2010. The cohort mortality rates showed confirmation of the patterns of life expectancy and cause-specific mortality, with Hispanics maintaining the lowest mortality rate of all groups as the cohorts aged. Hispanics have higher rates of diabetes than Whites, White have higher rates of smoking-related mortality than Hispanics, and non-Hispanic Blacks having the highest mortality rates amongst major causes. Analysis of nativity showed less persistent and meaningful patterns across time for native- and foreign-born Hispanics.

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List of Abbreviations

UTMB	University of Texas Medical Branch
GSBS	Graduate School of Biomedical Science
TDC	Thesis and Dissertation Coordinator
Bridged Race Files	U.S. Census Populations with Bridged Race Categories
ACS	American Community Survey
NCHS	National Center for Health Statistics
US	United States
MCD	Multiple Cause of Death
NDI	National Death Index
NHIS	National Health Interview Survey
LBID	Linked Birth and Infant Death
NVSS	National Vital Statistics System
NLMS	National Longitudinal Mortality Study
COPD	Chronic Obstructive Pulmonary Disease
NHANES	National Health and Nutrition Examination Survey
CVD	Cerebrovascular Disease
SALSA	San Antonio Longitudinal Study of Aging (SALSA)
HEPESE	Hispanic Established Populations for the Epidemiologic Study of the Elderly
OMB	Office of Management and Budget
IPUMS	Integrated Public Use Microdata Series
SW	Southwest non-Hispanic Whites

SH	Southwest Hispanics
CDC	Centers for Disease Control and Prevention
MNP	Malignant Neoplasm
HIV	Human Immunodeficiency Virus
CLRD	Chronic Lower Respiratory Disease

BACKGROUND AND INTRODUCTION

Chapter 1: Introduction

INTRODUCTION

The Hispanic paradox is often treated as a consistent un-evolving phenomenon. This is not a fault of the research but more the lack of large datasets which track multiple populations through time. Studies, therefore, often involve a snapshot of a given period and take the finding of a Hispanic advantage as a given. However, there is no reason to believe that this phenomenon is stable or unchanged through time. The populations in the United States is aging and will continue to do so (Ortman, Velkoff, & Hogan, 2014) and the composition of the Hispanic and non-Hispanic populations are also changing through time. (Colby & Ortman, 2015)

As the age and racial/ethnic composition of the United States continues to transform the effects of health and mortality will transform with them and the assumption of the Hispanic paradox as a background constant may put Hispanics at risk if researchers do not acknowledge these changes. Hummer and Hayward (Hummer & Hayward, 2015) have recently put out a call for the importance of tackling these issues for Hispanics, as well as other groups, in attempt to cut off the most serious effects in the future. An understanding of how these effects are already transforming are critical for policy makers, care providers, and researchers to approach health and mortality the demographics continue to evolve and the consequences of gaps in knowledge and, relatedly, policy could be serious. In part, the impetus of this project to understand these changes and effects through time feeds this need to understand how mortality has transformed providing clues for the future.

While it is known colloquially as the Hispanic paradox, evidence suggests that the Mexican Origin subpopulation is the primary driver of the findings of a Hispanic advantage. (Hummer, Rogers, Amir, Forbes, & Frisbie, 2000; Markides & Eschbach, 2005) In addition to understanding the Hispanic paradox, more recent work has begun to explore the effects of nativity on the mortality advantage displayed by Hispanics through time. (Markides & Eschbach, 2005, 2011) Understanding both the larger effects of the Hispanics paradox as well as potential effects of native and immigrant populations is essential for developing an understanding the evolution of the Hispanic paradox and the potential changing landscape of mortality driving the Hispanic paradox through time. Foreign status can be impactful on health behaviors and may be a major driver of health differences, especially from issues such as smoking. (Blue & Fenelon, 2011; Fenelon, 2013; Hummer & Hayward, 2015; Lariscy, Hummer, & Hayward, 2014; Markides & Eschbach, 2011) However, the foreign-born population for Hispanics of all countries declined in recent years and some evidence suggests that, at least in the case of Mexican-origin immigrants, that more immigrants are leaving the United States than coming in and it is unknown how this will affect the mortality advantage largely driven by this population. (Gonzalez-Barrera, 2015; López & Patten, 2015)

Overall, the Hispanic paradox may be more appropriately known as a Mexican paradox or even finer in scale, an immigrant paradox. The effects of foreign-born populations on health behaviors and mortality outcomes may be considerable drivers of lower mortality through time. As these populations have changed, however, it is unknown how the effects will evolve. This project provides insight into the evolution of an intriguing phenomenon and acts to inform on critical areas of potential concern and possible intervention for research, care provision, and policy standpoints to better grasp how these patterns have changed through time and to begin to identify potential problems in Hispanic health and mortality and point to where issues can be addressed further upstream.

Data for this project come from national vital statistics data and Bridged Race data for three periods: 1990, 2000, and 2010. The vital statistics data involves three-year period data (1989-1991, 1999-2001, and 2009-2011) to allow for stable estimates of mortality for each period. The Bridged Race data is treated as the midpoint and multiplied to match the three-year frame for mortality. Additional data is pulled from the Linked Birth and Infant Death files related to each respective period, Census data to supplement the age top-coding associated with the U.S. Census Population with Bridged Race Categories (Bridged Race) files, and American Community Survey (ACS) data to develop population counts related to nativity.

AIMS OF THIS RESEARCH

This dissertation is descriptive. Therefore, there are no traditional hypotheses to present. Instead, there is a primary question which frames this dissertation and its focus. The primary question is: Is there a Hispanic Mortality advantage in the Southwest United States and, more importantly, does this advantage evolve through time?

There are four specific aims for exploring this subject in this dissertation. First, in AIM 1, I determine if there is a Hispanic mortality advantage through the development of life tables for Hispanics and non-Hispanics in the Southwest United States. Most studies of the Hispanic paradox in recent years have been based on survey data due to limitations of previous methods for ascertaining the Hispanic population and Hispanic mortality. With the advances developed by Elizabeth Arias and colleagues, vital statistics and population level data are once again accessible and the ability to evaluate this problem from a population level across time is now possible. (Arias, 2010; Arias, Eschbach, Schauman, Backlund, & Sorlie, 2010; Arias, Schauman, Sorlie, & Backlund, 2008; Eschbach, Kuo, & Goodwin, 2006) From this approach, I develop life tables across time to evaluate life expectancy and signs of a Hispanic advantage as well as look at changing patterns of mortality for Hispanics and non-Hispanics.

For AIM 2, I further explore differences in mortality between Hispanics and non-Hispanics for each year by decomposing cause-specific contributors to differences in life expectancies in Hispanics and non-Hispanics for 1990, 2000, and 2010. Through the decomposition, the most influential causes of mortality are apportioned the most influence in the differences in life expectancy allowing for major contributors to be identified. These causes are then evaluated to determine what, if any, major themes emerge.

For AIM 3, I focus on the Hispanic population alone and explore the effects of nativity on life expectancy and the Hispanic paradox. Again, I develop life tables to determine mortality patterns of the populations and then decompose the differences in life expectancy to determine major contributors to differing patterns of mortality between native- and foreign-born Hispanics.

Finally, in AIM 4, I develop pseudo-cohorts to determine how age and period intersect to influence mortality related outcomes. The rates of interest are based on all-cause mortality for all groups and then the decompositions are used to identify major cause-specific contributors of interest to explore through the rates developed for the pseudo-cohorts.

SIGNIFICANCE OF THIS STUDY

While the Hispanic Paradox has been largely persistent for half of a century (Palloni & Arias, 2004) and scholarship on components of the paradox have been explored at different periods (Markides & Eschbach, 2005, 2011), understanding how this advantage has changed across time has not been explored in as great of detail. Overall, most approaches do not take the paradox as an evolving phenomenon that ebb and flows based on social and demographic impacts on health and well-being within subgroups and across the populations as a whole. Therefore, I aim to explore the Hispanic Paradox with this consideration in mind.

This study was proposed as a means to analyze the Hispanic Paradox in the Southwest United States. The emphasis on the Southwest United States is directly related to the high percentage of Mexican Origin adults in the Southwest. This population has been identified as the primary Hispanic subgroup that contributes to the Hispanic mortality advantage. The Southwest United States also has a higher percentage of foreign-born (Brown & Stepler, 2015) making the area ideal for studying larger population effects of nativity on the Hispanic (or immigrant) advantage in the United States. As aging, racial/ethnic, and immigration patterns change the effects on mortality the health and mortality of Hispanics will reverberate through the population as a whole as infrastructure attempts to address issues that arise.

STRUCTURE OF THE REMAINING DOCUMENT

For Chapter 2, I discuss the history of the Hispanic paradox, including its discovery and the controversy about its existence. I also discuss the patterns of mortality which appear to contribute to the Hispanic paradox and findings from both small scale and population wide analyses which identify a Hispanics mortality advantage. Finally, I discuss in detail the potential contributors to bias in the data to identify potential areas of concern from analyzing Hispanic mortality data and identify how best to overcome these limitations to allow for reliable estimates of mortality differences between Hispanics and non-Hispanics.

In Chapter 3, I present data and methodology for the development of life tables and decomposition for Hispanics and non-Hispanics in 1990, 2000, and 2010 in Chapters 4 and 5 and for native- and foreign-born Hispanics for the same years (Chapter 6) in an attempt to further investigate the source of the Hispanic paradox. I present the effects of the smoothing and adjustment factors on the probability of mortality (qx), a significant component of the development of the adjusted life tables. Finally, I discuss methods for the development of pseudo-cohorts (Chapter 7) to analyze cohort-based patterns of mortality rates for Hispanics and non-Hispanics, male and females, across all-cause mortality and cause-specific contributors of interest.

In Chapter 4, I present the results of the life table analyses for Hispanics, non-Hispanic Whites, and non-Hispanic Blacks for 1990, 2000, and 2010. I discuss the life expectancies in each respective group across time and compare life expectancy differences between the groups. In addition to life expectancy at birth, I also compare life expectancy at age 65 to see how older populations fair relative to one another. Finally, I examine the survival of each group from birth, based on the number left alive for each age group (lx) to evaluate the mortality trajectory for each population through time.

For Chapter 5, I decompose the differences in life expectancy for Hispanics and non-Hispanics in the Southwest United States for 1990, 2000, and 2010 between Hispanics and non-Hispanics for each of the respective years. I then identify the major contributors to the differentials as identified by the decomposition process. I then discuss the contribution these differences make to differences in overall life expectancy for each of the populations of interest at each time point.

In Chapter 6, I develop life tables for native- and foreign-born Hispanics in the Southwest United States for the years 1990, 2000, and 2010 and decompose the differences in life expectancy to identify how differences in nativity contribute to overall differences in mortality for Hispanics. As in Chapter 5, I use the decomposition to identify the major contributors to the differences in life expectancy for the populations through time.

Chapter 7 shows the cohort related mortality rates across time and the evolution of these rates as time progresses and the cohorts age. Rates of interest are determined through the all-cause mortality as well as cause-specific mortality as identified through the major contributors of differentials from the decompositions from Chapter 5 and Chapter 6. The cohort rates are used to identify how the intersection of age and the period of time lead to differing trends in mortality from 1990 to 2010. I discuss the changing patterns of mortality across each rate presented.

Finally, in Chapter 8, I discuss the findings from this project which will tie together both the life tables, decompositions, and mortality rates for both the Hispanics and non-Hispanics populations and the native- and foreign-born Hispanics within the Hispanic population.

Chapter 2: Background

HISPANIC PARADOX

The Hispanic Paradox is a longstanding epidemiological pattern of favorable health and mortality for profiles for Hispanics comparable to non-Hispanic Whites despite socioeconomic characteristics similar to non-Hispanic Blacks; a largely disadvantaged group. The emergence of this paradox has been highlighted at least to the 1960s (Palloni & Morenoff, 2001) and has continued to the present day.

In 2010, the first Hispanic Origin Life Table was released by the National Center for Health Statistics (NCHS). (Arias, 2010) These life tables, produced for the year 2006, showed that Hispanics had a life expectancy advantage of 2.5 years over non-Hispanic Whites and a 7.7 year advantage over non-Hispanic Blacks. Breaking this down, life expectancy was 83.1 for Hispanic females, 80.5 for non-Hispanic White females, 77.9 for Hispanic males, 76.3 for non-Hispanic Black females, 75.6 for non-Hispanic White males, and 69.3 for non-Hispanic Black males. (Arias, 2010) Subsequent life tables have shown a continued and growing advantage for Hispanics in the United States (Arias, 2011, 2012, 2014a, 2014b, 2015). By 2011, life expectancy for Hispanic males had risen to 79.0 and females increased to 83.8. Non-Hispanics also showed improvements with a life expectancy of 76.6 for White males and 81.3 for White females; Black males also improved with a life expectancy of 72.2 and Black females improved to 78.2. From 2006 to 2011, males made larger improvements than females and Hispanics maintained the highest life expectancy.

These analyses provide age specific estimates of life expectancy across each age group, but do not provide analyses for cause-specific contributions to mortality. Further, these analyses provide population level estimates for Hispanics, combining all Hispanic subgroups as one homogenous population. Despite these limitations, the results of these analyses indicate a continued and persistent Hispanic mortality advantage at the population level. This advantage has even shown slight growth in the few years that it has been tracked indicating that the Hispanic paradox is still an enigmatic process in the United States, especially where secular population trends have occurred including prevention campaigns and new medical technologies.

Though the Hispanic advantage has been identified in the recent US life tables, it is important to develop an understanding of trends for the subgroups that comprise the Hispanic category. Evidence from the Hispanic paradox literature indicates that the Hispanic advantage may not apply universally across all groups with few groups showing any advantage at all. In their 2005 update on the Hispanic Paradox, Eschbach and Markides highlight the shifting knowledge of the Hispanic Paradox, specifically the growing evidence that Mexican-Americans make up the bulk of the advantage. Of key importance in this review was the suggestion that “some recent research has begun to question whether, indeed, all Hispanic groups enjoy a mortality or health advantage, the majority of the evidence continues to support a mortality advantage, at a minimum for Mexican Americans, by far the largest component of the Hispanic American population.” (Markides & Eschbach, 2005).

Hummer and colleagues (2000) examined the phenomena in detail when they calculated mortality differentials for Hispanic subgroups and non-Hispanic Whites. In their study, they used data from the NCHS Multiple Cause of Death (MCD) linked files, which at the time of this study linked the cause of death to the population for 125,000 children and adults. The linked data are based on matches with the National Death Index (NDI). The data provides an advantage because the respondent contributes their own ethnic identification limiting errors based on misclassification that can occur in linking population data and vital statistics. This study examined five Hispanic subgroups in addition to non-Hispanic Whites, including Mexican Americans, Puerto Ricans, Cubans, Central and South Americans, and Other Hispanics. This study also included demographics and measures for nativity, economic factors, and geographic features (census regions and metropolitan or nonmetropolitan). Cox proportional hazard models were used to estimate association of ethnicity with mortality, exploring four main categories including circulatory diseases, cancers, external causes, and residual effects. These findings indicate that Mexican Americans are of note for their mortality advantage despite socioeconomic characteristics that are much worse than for other Hispanic subgroups. (Hummer et al., 2000)

Borrell and Lancet (2012) revisited all-cause mortality in relation to race and ethnicity in the United States. Using National Health Interview Survey (NHIS)-NDI linked mortality files for the years 1997 to 2004, they examined mortality for Whites, Blacks, and by Hispanic subgroups and nativity. Their findings indicate that Mexican Americans and Mexican born immigrants had lower adjusted mortality risk than non-Hispanic blacks in the study. The relationship with non-Hispanic Whites was more mixed. These results indicate that for the younger population (25-44) Mexican born men had a higher risk of mortality, but by middle age the risk was the same between Mexican born and non-Hispanic Whites, and by the oldest ages, there was a decreased risk of mortality. For US-born Mexicans, patterns were similar. For Mexican born females, risk was higher at younger ages and lower at the oldest ages, following patterns for men. US-born Mexican women showed a lower risk across all age groups, but there was a very large protective pattern for the 25-44 year olds. (Borrell & Lancet, 2012)

Nativity

While evidence of the Mexican advantage has grown, other research has examined the effects of nativity on mortality differences. Research from Dupre (2012) examined older adults in Medicare data developing period life tables for the year 1995 based on Medicare data linked with Social Security Administration data. Specifically, this study evaluated native- and foreign-born Whites and Blacks. In this study, foreign-born Whites and foreign-born Blacks were shown to have higher life expectancies than the US-born for both men and women. The findings here indicated that foreign-born men had similar life expectancies, while foreign-born Black women had higher life expectancy than foreign-born White women. (Dupre et al., 2012)

Similar research on Hispanics in the United States has found that the US-born population is at a much greater risk of mortality than the foreign born, putting them at a similar risk or a greater risk than non-Hispanic Whites. (Holmes, Driscoll, & Heron, 2015) In most cases, however, the foreign-born are found to be at lower risk of mortality than both US-born Hispanics and non-Hispanic Whites, indicating that instead of a Hispanic or Mexican advantage, the advantage may instead be classified as an immigrant advantage across all foreign populations in the United States. (Markides & Eschbach, 2011). The previously mentioned study by Hummer and colleagues (2000) also included a measure for nativity. Across all populations, accounting for nativity was linked to a shift in mortality advantage, indicating that nativity confers a protective effect, though the magnitude may not be large when considering the population, overall. The findings here indicate that despite the greatest effects appearing for Mexican Origin Hispanics, all Hispanic subgroups had a mortality advantage in this analysis.

Research on infant mortality indicates that foreign-born Hispanics women have a mortality advantage compared to the US-born. Using the NCHS Linked Birth and Infant Death (LBID) mortality cohort files, Hummer and colleagues (2007) found that foreign-born Hispanics had about 10% lower mortality than non-Hispanics White infants following birth. The US-born also show favorable patterns with a mortality pattern in infants similar to non-Hispanic Whites and better than non-Hispanic Blacks. (Hummer et al., 2007)

A study of immigrant mortality by Singh and Miller (2004) examined the effects of nativity on mortality differentials using the National Vital Statistics System (NVSS), with the denominators for the vital statistics taken from the decennial census, and NHIS. These data sets covered the years 1986 to 2000 and 1992-1995, respectively. Of interest here is the finding that foreign-born Black men and women had higher life expectancy than their native counterparts with 9.4 and 7.8 years longer life expectancy. Hispanics also showed a difference between the foreign and US-Born, though the gap was smaller with a 4.3-year advantage for males and 3 years for females. (Singh & Miller, 2004)

Secular Changes in Mortality

In the time that the Hispanic paradox has come to be a major area of research and interest, there have been other changes on the population level that must be understood. These changes in health are often described in what is termed the epidemiological transition. This is posited to occur when preventive measures and technological interventions increase to reduce and remove infectious disease from a population allowing for an aging population. The aging population then is more susceptible to chronic illnesses. This transition has occurred alongside a demographic transition with a growing older population and a decreased number of births. (Omran, 2005; Popkin, 1993) These demographic shifts have effects on many levels including politics and health. The focus here is on secular shifts in mortality and how this affects the population at large.

Cardiovascular Diseases

According to the 2010 report on heart diseases and stroke from the American Heart Association (2010), cardiovascular disease has been on the decline with a 29.2% decrease from 1996 to 2006. Coronary heart disease contributed 1 in 6 deaths and stroke contributed about 1 in 18 deaths in 2006. The same report also provides estimates for mortality prevalence in 2008. According to the report, the estimated prevalence of heart disease was 12.1% for Whites, 10.2% for Blacks, and 8.1% for Hispanics. Respectively, rates of chronic heart disease were 6.5%, 10.2%, and 5.7%. For hypertension, Whites had a prevalence of 23.3%, Blacks had 31.8% and Hispanics had 21%. For stroke, Blacks had the highest rates of strokes with 3.6%, while Whites and Hispanics were fairly similar around 2.7 and 2.6%, respectively. These results indicate that Blacks were the most at risk for most conditions while Hispanics showed better or similar rates compared to both non-Hispanics Blacks and Whites. (Lloyd-Jones et al., 2010) The similarities in stroke also mirror previous analyses from Howard and colleagues using the National Longitudinal Mortality Study (NLMS). In their analyses, Blacks were at significantly greater risk of stroke (greater than 4 times) at midlife, but by age 85 there is a crossover to lower risk (<1). For Hispanics, stroke risk at middle age is similar to non-Hispanic Whites with a risk around 1 but by age 85 there is a lower risk for the older Hispanics. Evidence from these two sources indicates that stroke for Blacks is distributed largely in the younger populations, while Whites experience stroke mostly at older ages. Hispanics appear to be protected against stroke-related mortality (Howard et al., 1994)

Research from Ford and Capewell (2007) examined chronic heart disease mortality in the United States using Vital Statistics for the United States from 1980 to 2002. In this time, overall mortality rate for men and women declined 52% and 49% after adjusting for age. In this same time, trend appear to vary by age and gender. For the younger populations declines in heart related mortality show a slowing through time. For 35-54-year-old men, declines were greatest from 1980 to 1989 but by the year 2000, trends had almost leveled off. Young women on the other hand showed declines from 1980 to 1989 and 1990 to 1999, but by the 2000 time period, they were actually estimated to have increased risk of coronary heart disease mortality. Older adults continued to show declining trends in heart related mortality for each period. (Ford & Capewell, 2007)

Zheng and colleagues (2001) examined mortality trends for sudden cardiac deaths in the United States from the years 1989-1998. Data were derived from the NCHS-MCD file. Rates were calculated for adults aged 35 and older and these rates were standardized with the 2000 standard population. Their analyses indicated that, overall, there was a 12% increase in sudden cardiac arrest as a proportion of all heart related mortality during the study period. Rates for non-Hispanics were also higher than Hispanic rates post adjustment. Whites had the highest deaths outside of a hospital while blacks had highest within. While the proportion increased, the rates of sudden cardiac death declined for all men, even when looking at different ethnic groups. Asians/Pacific Islanders showed the greatest declines (-15.8%) though only slightly more than American Indian/Alaskan Natives with 15.6% decline. For women, the story is more mixed. For the ages of 35-44, there was a 21.1% increase in sudden cardiac death. (Zheng et al., 2001)

Smoking

Smoking has been linked to multiple adverse outcomes including death, cancers, and chronic obstructive pulmonary disease (COPD). Therefore, the effects of smoking on a population will have a strong impact on many conditions in later life. In a study from Thun and associates (2013) smoking had decreased to about 9% in both males and females in the study samples used. In terms of mortality, all-cause death in smokers did not decline in women from the period of 1959-1965 until more recent times (2000-2010). Men who smoked, however, saw a decline of almost 24% in all-cause mortality in the same time. In the same time lung cancer deaths for female smokers saw a huge increase of 16.8 times higher risk of dying of lung cancer over the 50 years between the traditional and the contemporary cohorts. Examining the contemporary periods alone, risks of lung cancer deaths were basically identical for males and females. Rates of COPD also increased during this time for both male and female smokers as the number of overall deaths declined and smoker lived longer to gain chronic illnesses. Finally, cardiovascular mortalities declined less amongst smokers than non-smokers and when smokers did die, the cardiovascular deaths could be largely attributable to smoking. (Thun et al., 2013)

Obesity

Obesity has been a considerable health concern in the United States, as obesity rates have continued to climb in the United States and future health effects remain uncertain. Though one study has suggested a potential decline in life expectancy as obesity increases.

Olshanky and colleagues (2005) estimated mortality related to obesity by estimating the amount of life expectancy gained if everyone classified as obese lost enough weight to be considered "normal" in conjunction with data from the 2000 life tables. The findings of these estimates indicated that the life expectancy losses due to obesity may contribute to worse health and mortality outcomes for future generations as the life lost due to obesity begins to take its toll. (Olshansky et al., 2005)

In addition to rising obesity, there is concern about the rise of obesity linked comorbidities. Gregg and colleagues (2005) examined the issue of obesity related comorbidities through an analysis of the National Health Examination Survey and four National Health and Nutrition Examination Survey (NHANES) data sets relating to 1971-1975, 1976-1980,1988-1994, and 1999-2000. Samples for each data set were restricted to ages from 20 to 74 years of age leaving a sample size of 6257, 12911,11765, 14139, and 3601, respectively. Analysis for total diabetes was calculated using jacknife variance estimation and for diagnosed diabetes, high cholesterol, heart disease, and high blood pressure multiple logistic regression was used. Their analysis found that reductions in high cholesterol were greater for the overweight and obese compared to leaner persons over time, $p<.02$ and $p<.05$ respectively. Overweight and obese persons also showed a decline in high blood pressure, through overall they were still at greater risk than lean persons. While this research showed generally declining rates of most risk factors, obesity was positively associated with an increase in diabetes with 3.5-time higher prevalence for obese persons from 1960 to 2000. (Gregg et al., 2005)

Overall, then, the rise of obesity may be linked to potential declines in overall life expectancy. This may be true even as overweight and obese individuals are at less risk for heart-related mortality than in the past given the significant gains on markers of health. Despite this, they are still at higher levels of risk than non-obese individuals. The rise of diabetes related to obesity may create considerable problems as it brings its own risks to the population.

Diabetes

In the same time that obesity has grown as a public health concern, the rates of diabetes have also become a concern as the two conditions grow almost in unison. Cheng and associates (2013) studied changes in diabetes for a sample of 22,586 adults across three periods of the NHANES. In this study, they examined diabetes (defined here as self-report or fasting glucose greater than 126 or a hemoglobin A1C greater than 6.5%. Piecewise linear regression was used to fit a model accounting for changes in diabetes across age groups. From their study, the estimated growth of undiagnosed diabetes was 45% and total growth of diabetes was estimated to be 7% growth from 1988 to 2000 for the total population. (Cheng et al., 2013)

Diabetes is not only a concern as a disease itself, but it also affects changes for other conditions such as heart-related mortality. Gu, Cowie, and Harris (1999) studied a two cohorts aged 35 to 74 from the NHANES. The cohorts were from data for the years 1971-1975 and 1982-1984, respectively. Each of the cohorts was split according to diabetes status. Analysis was conducted by calculating age-specific mortality rates for each group. A percentage difference was then calculated for each group. From this study, they found that mortality rates from heart disease were higher for diabetes than non-diabetes across all cohorts even for men and women. Declining mortality was highest for non-diabetics. Non-diabetic men showed an almost 20% decline for all-cause heart mortality and almost 44% percent decrease for ischemic heart disease. Diabetic men also showed a decline but the changes were smaller, with barely over 1% decrease for all-cause heart mortality and 16.6% decline in ischemic. For women, non-diabetics had a 12.9% decline in all cause, 27% decrease in heart disease, and 20.4% decrease in ischemic. Unlike in men, diabetic women actually showed an increasing mortality. For ischemic heart disease, there was an almost 11% increase, while heart disease showed a roughly 20% increase. (Gu et al., 1999)

Other research from Gregg and associates (2007) also examined mortality changes for diabetics in the NHANES. In their study, they calculated mortality rates for two periods 1971-1986 and 1988 to 2000. Comparing the non-diabetic population, they found a decline of 1.4 to 9.5 deaths per 1000 for all-cause mortality while cardiovascular mortality rates halved from 7.0 to 3.4. Diabetics, however, showed little change with a decrease from 30 to 25.2 per 1000 during the second time period. Of note here is that mean showed similar effects in absolute mortality change for non-diabetic and diabetes, though diabetics still showed higher all cause and cerebrovascular disease (CVD) mortality. Women, on the other hand, showed no decline for either all cause or CVD mortality between the two time periods and differences between non-diabetic and diabetic women showed a doubling. (Gregg et al., 2007)

Homicide

One of the major contributors to mortality in youth is homicide. This is particularly true for minority populations like non-Hispanic Blacks and Hispanics. In a study by Fingerhut, Ingram and Feldman (1998), youth mortality for homicide from 1987 to 1995 was examined in Whites and Blacks. For the period of study, black youth homicide was primarily related to the use of firearms, with 92% of cases involving a firearm. For whites these rates were lower with only 88% of cases involving firearms. The total rate of firearm related mortality for black male youth was 119 out of 100,000 far outpacing other groups. For non-firearm related mortality blacks were still the highest but the rate was only 11 out of 100,000. In a study by Siahpush and Singh in 2001, data from the National Longitudinal Mortality Study were used to compare all-cause and cause specific mortality Hispanics were found to be at almost 230% higher risk of homicide compared to non-Hispanic Whites and non-Hispanic Blacks showed almost double that with almost 450% higher risk compared to non-Hispanic Whites. (Singh & Siahpush, 2001) Blacks and Hispanics were not compared, but these results would suggest that Hispanics are likely somewhere between non-Hispanic Whites and Blacks in terms of youth mortality.

Comorbidities

For many of the causes highlighted above, there is considerable overlap between conditions. The primary cause of death on death certificates often overshadows the underlying effects which contribute to the end cause of death. Comorbidities can also contribute to disparate changes in population trends for causes of concern. For instance, in one study, obesity and diabetes was estimated to account for an increase in deaths by coronary heart disease 8% and 10% respectively. (Ford & Capewell, 2007) Given this, the existence of comorbidities must be kept in mind even where there is no direct record of their existence.

CAUSE SPECIFIC PATTERNS OF HISPANIC AND BLACK MORTALITY

While Hispanics show an overall advantage in mortality, a breakdown of cause-specific contributors indicates that there are some areas where Hispanics are severely disadvantaged. In the seminal review by Markides and Coreil (1986), Hispanics were found to have a mortality profile similar to non-Hispanic Whites for infant mortality, life expectancy (all-cause mortality), cardiovascular mortality, and cancer, but were more at risk for diabetes and infectious disease. (Markides & Coreil, 1986) Research on Hispanic subgroups found that most Hispanic groups found favorable mortality conditions due to chronic disease mortality, while they were not advantaged for other factors such as external causes. (Hummer et al., 2000) Research has continued to investigate which conditions create an advantage for Hispanics and which conditions drive a disadvantage.

Obesity

While obesity rates have shown an increase in the United States, a review by Baskin, Ard, Franklin, and Anderson suggests that in general Hispanic men are more obese than non-Hispanic Whites and Blacks, while Black females are more obese than non-Hispanic Whites and Hispanics. (Baskin, Ard, Franklin, & Allison, 2005) And for both Hispanics and non-Hispanic Blacks, obesity rates are of greater magnitude than for non-Hispanic Whites through time. However, despite potential concerns for obesity and mortality, evidence suggests that there may not be a direct connection between the two. Fontaine and colleagues (2012) pooled data from several datasets that explore Hispanic health, including NHANES III, the San Antonio Longitudinal Study of Aging (SALSA), and the Hispanic Established Populations for the Epidemiologic Study of the Elderly (HEPESE) among others. From their analysis, they concluded that despite higher rates of obesity there was no clear relationship between mortality and being overweight or obese. Their study did find, however, that being underweight was associated with increased risk of mortality. (Fontaine et al., 2012) This is likely due to underweight persons being more prone to being sick and already on the decline.

Diabetes

Given the higher rates of obesity for minority populations, we would then expect that related conditions like diabetes would be higher in minority population compared to non-Hispanic Whites. Evidence seems to bear this out. A study from McBean, Li, Gilbertson, and Collins (2004) on non-Hispanic Whites, non-Hispanic Blacks, and Hispanics in Medicare based data showed that minorities were at the most risk of diabetes of all groups. This study based used data spanning 1992-2001. During this period, they found that diabetes prevalence was greater for Hispanics than non-Hispanic Blacks. Additionally, minorities had the greatest rates of incident cases with Hispanics showing the greatest increases followed by non-Hispanic Blacks. (McBean et al., 2004) While Hispanic show favorable outcomes for many conditions, they are at a considerable disadvantage for diabetes and diabetes related problems.

In the first review popularizing the Hispanic paradox Markides and Coreil (1986) highlight the considerable disadvantage of Hispanics for diabetes and since that time, evidence suggests that the impact of diabetes has only magnified. In a study by Black, Ray, and Markides (1999) examining 3,050 Mexican origin adults aged 65 and older from the HEPESE, diabetes prevalence was found to be 22%. These results when weighted represent about 500,000 Mexican origin older adults, presenting a considerable number of cases of diabetes in the elderly. This is especially important when examining the rates in older adults in general, as a 22% prevalence puts Hispanics at a 2 to 3 times greater rate than the general older population. (Black et al., 1999) The higher rates of diabetes also put the Hispanic population at increased risk of complications. Black and colleagues found for older diabetic Hispanics in the HEPESE that 13% had kidney problems, some 37% had eye problems, 38% had circulation problems, and about 9% reported some sort of amputation. Of the diabetic population, however, under 7% reported that they were not receiving some sort of treatment/diet change for their diabetes.

Beard and colleagues (2009) conducted a follow up study of Hispanics in the HEPESE, focusing on the prevalence of diabetes in populations aged 75 and older. In this study, they examined an analytic sample of 2,030 Hispanics taken from the original cohort and from a supplemental cohort added to the study in 2004/2005. Comparing the original cohort to the later cohort, Hispanics were found to have an increase in prevalence of diabetes, from 20.3% in 1993/1994 increasing to 30.7% in 2004/2005. In the same time, diabetes related complications were not statistically different across vascular conditions, but there were increases across disability metrics. (Beard et al., 2009)

Further evidence of an effect on quality of life apart from mortality comes from a study of amputations in 690 previously diagnosed diabetes in the Hispanic EPESE. Otiniano and colleagues (2003) examined the prevalence and incidence of diabetes related amputations from 1993/1994 through follow-ups in 1995-1996 and 1998-1999. In this study, they found that at baseline 60 respondents (about 8%) had an amputation across the five-year period. Of non-amputees, 5% had an amputation by the time of the first follow-up, while 33% of amputees had a second amputation. From the first follow-up to the second follow-up, 5% of non-amputees had an amputation, while 28% of amputees had a second amputation. Across five years from the baseline to the final follow-up, 12% of non-amputees had an amputation by the end of the study, while 40% of amputees had a second amputation. (Otiniano et al., 2003) This highlights the considerable risk to health experienced by elderly Hispanics with diabetes.

Other research supports the dangerous relationship between diabetes and complication risk in Hispanics. A review from Erving of the National Hispanic Council on Aging (2007) highlights the burdens to health and successful aging for Hispanics, of interest here is the research from the American Association of Clinical Endocrinologists. In the cited report, Hispanics had the highest rates of any complications due to diabetes of any group, with over 44% while non-Hispanic Whites and non-Hispanic Blacks showed similar rates with 30.9% and 30.4%, respectively. (Erving, 2007)

Health Behaviors

Health behaviors may contribute significantly to health and mortality profiles in later life. Understanding these trends and how they are tied to health and mortality can provide insight into potential trends to expect in the aging Hispanic population. In a 1996 review by Markides and Black (1996), they emphasize the importance of programs directed at reducing smoking and drinking behavior for Hispanics, and specifically for young and middle aged men who may be at increased risk from their health behaviors as they age. The effects of these behaviors may influence future Hispanic mortality profiles. (Markides & Black, 1996)

To understand how health behaviors contribute to differences in mortality profiles, several recent studies have focused on the effects of smoking on the Hispanic mortality advantage. Blue and Fenelon (2011) estimated smoking-related mortality for foreign and native born persons as well as for Hispanics and non-Hispanic Whites. In this study, they used all-cause mortality for the year 2000 and then estimated smoking related lung cancer based on estimates of population risk and smoking related lung cancer derived from external sources. Blue and Fenelon also estimated the changes in mortality after accounting for smoking behavior. They found that the Hispanic mortality advantage could be explained almost entirely by smoking, reducing the advantage substantially when smoking was taking into account. The mortality advantage was also found to be concentrated in the foreign- born population. US born males, at least on one estimated, were shown to be at a mortality disadvantage when smoking was addressed. (Blue & Fenelon, 2011)

Fenelon revisited the topic of smoking in a 2013 article, focusing directly on Mexican Americans. Using the NLMS, Fenelon found that foreign born Mexican Americans in the United States had similar smoking rates as Mexican born persons that have never left Mexico and some results indicate that smoking levels between foreign and US-born Hispanics are also similar. (Fenelon, 2013) A study by Tong and colleagues (2012) examined smoking behavior and migration for the Mexican Origin population utilizing multiple databases including the Mexican National Comorbidity Survey for Mexican population health and components of the Collaborative Psychiatric Epidemiology Surveys including the National Comorbidity Survey Replication, and the National Latino and Asian American Survey, to examine smoking in the United States. They found that the US-born had the highest prevalence of smoking at almost 47% while those born in Mexico and without a US migrant in the family had the lowest rates 13.7%. Smoking rates were almost halved for Mexicans without a migrant in the family at 4.4 cigarettes per day, while the US-born smoked 7.7 cigarettes on average. Migrants were also less likely than US-born Mexican Origin adults to take up smoking and more likely to give up smoking, explaining the lower rates of usage compared to the US-born. (Tong et al., 2012)

Despite these findings, estimates of smoking effects do not account for all differences. While smoking behavior may be a considerable health effect, it cannot entirely close the gaps in mortality, except in the most extreme of estimates, indicating that a mortality advantage, even for the US born may still exist.

Lariscy, Hummer, and Hayward (2014) found in their study of older Hispanics that SES effects are powerful enough to remove any mortality advantage from smoking differences. Lariscy and colleagues explore the issue of mortality and the Hispanic advantage focused on the older population (65+) in the NHIS Linked Mortality Files and similarly find that there is a Hispanic mortality advantage for both native- and foreign-born Hispanics though these effects are strongly related to nativity, with the foreign-born having better outcomes than native-born Hispanics. When adjusted for smoking and age alone, the models further indicate a foreign-born advantage with the foreign-born being 20% less likely to die compared to whites when accounting for smoking differences but native-born Hispanics showed no significant difference with non-Hispanic Whites. However, these advantages are countered by the effects of socioeconomic status with the effects of low SES removing the benefit of lower smoking in Hispanics. (Lariscy et al., 2014)

Other research has indicated that time in the United States impacts health behaviors, another link tying place of birth and time in the United States to health and mortality profiles for Hispanics. Abraido-Lanza, Chao, and Florez (2005) found that high acculturation (US Born or in the United States for greater than 15 years). For Hispanic women, acculturation is associated with higher rates of smoking and alcohol consumption, while acculturation for Hispanic men was linked to higher rates of alcohol consumption. (Abraído-Lanza et al., 2005)

DATA CONCERNS AND OTHER ISSUES

While the Hispanic Paradox literature is rich with examples of favorable health and mortality patterns for Hispanics, researchers have maintained some concerns about the meanings and assessment of these mortality patterns in the literature.

Assumptions of the Hispanic Paradox

One of the primary assumptions of the Hispanic Paradox is that SES is the primary driving force in health and mortality patterns. Specifically, the paradox literature assumes that the patterns in the relationship of SES and health and mortality for Blacks should be similar for Hispanics of similar socioeconomic standing. Palloni and Morenoff (2001) raise this as a potential issue toward the Hispanic Paradox, as the whole of the paradox rests on this assumption. There is some validity to the concerns about these assumptions as the effects of SES may not be so cut and dry when other factors such as racism and sociopolitical effects are taken into account. Despite this, the emphasis on understanding the Hispanic paradox is still a laudable goal and a goal which is of great importance to a continually growing and aging Hispanic population. The rise and maintenance of a Hispanic mortality advantage does appear paradoxical and supports further examination of this topic. Markides and Eschbach (2005) also raise the point that the original review by Markides and Coreil (Markides & Coreil, 1986) expressed effects in relation to Blacks and that research should really seek to understand why there are differences in these two populations. Vital statistics are often limited in the level of analysis that can be provided, but they can be a starting point for further research on trends and patterns that take into account more specific considerations.

Given these disparate trends for population, the Hispanic paradox still merits understanding and discussion. If we accept that the Hispanic Paradox is a relatively recent phenomenon as Palloni and Morenoff (2001) have claimed, then there is no reason to expect that it is a static process and to shake it off as a byproduct of faulty assumptions seems short-sighted.

Causes of the Hispanic Paradox

Definitional

One of the criticisms of the Hispanic Paradox literature is differences in definition across studies. (Palloni & Morenoff, 2001) Namely, that some literature on the Hispanic Paradox claims a finding is valid only when Hispanics show a greater health or mortality profile than non-Hispanic Whites. Examination of the review from Markides and Coreil (Markides & Coreil, 1986), where the emphasis on the Hispanic Paradox in research was spawned, highlights a definition where mortality and health profiles that are similar to health and mortality profiles in non-Hispanic Whites; greater advantages are then also paradoxical. While usage across research continues, the original Hispanic epidemiological paradox as described by Markides and Coreil should be treated as the correct representation of the paradox.

Data Quality

In demographic studies, there are always concerns about the effects of data quality on the findings from analyses. Traditionally, the main concerns in demography have been focused on effects related to age. Due to the nature of self-report and other errors, ages are often incorrectly stated for census data. Age heaping for instance can be a considerable problem in single year data. (Siegel & Swanson, 2004) Ethnicity can also influence reporting. Hispanics may be at increased risk for reporting errors after the age of 65 (Elo, Turra, Kestenbaum, & Ferguson, 2004) and researchers should be mindful that any corrections made accurately capture the mortality experience of this older population.

On top of age misreporting, Hispanics are at risk due to enumeration biases. These biases occur when Hispanics (particularly those who are older or live in a predominately White area) are incorrectly or incompletely recorded on either population or vital statistics data. In an analysis of death certificates, Patel and colleagues cautioned that the effects of data reporting and ascertainment drive effects to be considerably larger than the actual rates. These effects then could drive the Hispanic population rates to appear more favorable than they really are, leading to favorable or better outcomes where none exist. (Patel, Eschbach, Ray, & Markides, 2004a, 2004b)

Population estimates have become increasingly reliable since the late 1970s when the Office of Management and Budget (OMB) released recommendations for standards on Federal reporting of data for Hispanic origin and race/ethnicity. In 1980, the first Census was published using Hispanic origin data. These use of these metrics improved considerably with the reliability and validity of records improving across the country.

Despite this, the Hispanic origin information was limited as a metric for vital statistics analysis as widespread adoption of these new standards was slow coming. Despite the standard being created in 1977, by 1982 23 states had implemented a Hispanic origin question on death certificates, while only 22 had this item on birth certificates. (Trevino, 1982) And states like Oklahoma and New Hampshire did not have a Hispanic origin question until the 1990s, with New Hampshire finally adopting the standard in 1995. Due to the higher rates of Hispanics in other parts of the country, the slow adoption of the metrics by New Hampshire or Oklahoma would not likely have a serious effect on the overall Hispanic estimates. If specific regions apart from these two locations are in use, there is even less concern as coverage was already implemented.

The nature of these responses has become more complicated as a new metric was put into place in 1997 with the OMB developing new standards to address multiple ethnic and racial contingencies. (Office of Management and Budget, 1997) Despite these changes, the NCHS created a bridging estimate to allow for comparable populations using the 1977 standards. Therefore, information for Blacks, Whites, Asians, and Hispanic origin are comparable across time points.

Other researchers have also examined Hispanic ascertainment biases on vital statistics records. Eschbach, Kuo, and Goodwin (2006) examined California death certificates for the years 1990 and 2000. In this study, deaths for Hispanics were analyzed for native and foreign born Hispanics. To acquire information on deaths, records were linked to other information through the Social Security NUMIDENT database. Denominators were taken from the NCHS bridged race estimates and Hispanic origin files. Nativity was assessed by using the 5% Public-Use MicroData Sample to create estimates that could be applied to the population estimates. In their analysis, they calculated number of deaths and death ratios for the vital statistics records through country and birth or county and name and through reporting from the death file. Analyses were stratified by age, gender, education and quartiles of Hispanic density. Findings indicated that there was a 4.6% discrepancy of Hispanic deaths between methods, but this discrepancy was higher for the US-born at 7% versus 2% for the foreign born. (Eschbach et al., 2006)

With data quality issues in mind, Arias and colleagues (2010; 2008) examined the validity and reliability of death certificates in the United States. This project was a lead up to the development of the United States Hispanic Origin Life Table that was released in the year 2006. The primary findings from this analysis was that the misattribution in mortality was fairly consistent across time, with about a 5% percent classification bias. Similar to the findings of Eschbach and colleagues, the misclassification was higher for US-born Hispanics than the foreign born, 7% and 2% respectively. Classification for Mexicans improved from 17% to 7% and for Central and South Americans it improved from 26 to 8% as missing information declined and Hispanics were less likely to be lumped in as Other Hispanics. Age effects are another matter of concern, as Arias and colleagues report, the misclassification for 0-24 is about 5% but at older ages from 65-74, the misclassification jumps to 61%. (Arias, Schauman, et al., 2008) However, recent comments by Arias (personal communication) have indicated that there has been considerable improvement of vital statistics at older ages. These improvements are considerable enough that the traditional methods of supplementation with medicare data may no longer be necessary. (Personal Communication) These comments were directed toward analyses at the national level, and it is uncertain at how strongly these effects hold at the regional level, however.

Despite these overall favorable trends in reporting on Hispanic mortality and population estimates, there is some evidence that undercounts and misclassification can drive an artificial advantage for Hispanics. Howrey, Goodwin, Eschbach, and Freeman (2010) examined stroke related mortality for Hispanics using the NVSS MCD data for 1989-1991 and 1999-2001. They examined stroke by age, gender, and ethnicity and further stratified the Hispanic population by nativity, which they estimated through the use of the 5% public use microdata sample. They found that after correction, rates for foreign- and US-born Hispanics were increased in both 1990 and 2000. Foreign- and US-born non-Hispanic Whites had a drop in rates following adjustments. (Howrey et al., 2010)

Salmon Bias

The salmon bias hypothesis is the notion that recording of Hispanic deaths, especially in older populations which have smaller and more unstable population counts, may be incomplete or incorrect due to Hispanics leaving the United States when they are approaching death. These Hispanics then return to their home country or to family outside of the United States and die there, leaving their death unaccounted for in the United States. These persons are then enumerated for population counts but not for mortality. The salmon bias provides one of the most substantial concerns to researchers on Hispanic mortality. An analysis by Palloni and Arias found that a salmon bias could attribute for the findings of a mortality advantage for most Hispanic populations. (Palloni & Arias, 2004)

Hummer and associates, examining the infant mortality rates from LBID records found that infants born to Hispanics had a lower infant mortality rate compared to non-Hispanic Whites in the same time. (Hummer et al., 2007) The infants and their parents would likely not be able to make transborder travel during the first few hours and days of life which limits the possibility of unaccounted deaths, indicating that the Hispanic mortality advantage at least at birth is a real phenomenon. While Hummer's work examines the infant mortality rate, this does not address potential effects in older ages.

To address the potential of a salmon bias in older ages, Turra and Elo (2008) examined Social Security Master Beneficiary Record linked to NUDIMENT for the years 1995-2000. This data provides information about race/ethnicity, age, sex, nativity, and current and last place of residence. These analyses excluded people who lived in Puerto Rico at the beginning of the study period and those who were secondary beneficiaries (excluding primarily women in this case). Overall, their findings show support for a salmon bias but that the migration of older people flows into and out of the United States at about the same level, leaving small outgoing salmon bias for Hispanics out of the United States and not enough to account for the considerable mortality advantage maintained by Hispanics in the United States. (Turra & Elo, 2008)

The use of vital statistics then must be approached cautiously by a researcher, especially when matters of ethnicity and origin are concerned, as they compound upon other demographic sources of bias. Despite this, the improvements and advancements of surveillance systems and vital statistics registries have led to the development of records of high quality.

Research using vital statistics is also limited in the time between infancy and older ages above 65. There are few extensive records available for these populations and administrative data is sparse or incomplete. These middle years then are best understood using available population and mortality statistics through the underlying contributors must be understood as more theoretical outside of cohort-based studies.

CHALLENGES TO THE HISPANIC PARADOX

Beyond data quality and enumeration issues, there have also been challenges to the paradox through specific data sets. Of particular note are the studies based on the SALSA. Across multiple studies, Hispanics in the SALSA have been shown to be more disadvantaged than non-Hispanic Whites. In a study by, Hunt and colleagues (2002), US born Hispanics were at 66% higher risk of mortality than non-Hispanic Whites. Foreign-born Hispanics, however, were not significantly different. Despite this, they claim that the patterns for the US-born indicate evidence against the Hispanic paradox. (Hunt et al., 2002) Wei and associates (1996) found that Hispanics in the SALSA were at higher risk of all-cause mortality and cardiovascular disease and that there appeared to be no protective effects for Hispanics against health behaviors and chronic illnesses. Hunt and colleagues (2003) followed up to examine mortality in older Hispanics and Whites, finding that Hispanics were at greater risk of all-cause, cardiovascular, and coronary heart disease after controlling for age, gender, and health behaviors like smoking and comorbidities like diabetes. And diabetic US-Born Mexican Americans in the same study population were found to be at higher risk of mortality compared to non-Hispanics, though foreign-born showed similar rates. (Hunt et al., 2002) More recently, a study by Espinoza, Jung, and Hazuda (2013) examined Hispanic (N=394) and non-Hispanic Whites (N=355) aged 65 and older that had baseline measurements and for whom vital statistics information was available during follow up (mean: 8.2 years later). The main findings of interest here was that Mexican Americans were at 54% higher risk of mortality than non-Hispanic Whites after controlling for age and gender. (Espinoza et al., 2013)

Smith and Bradshaw (2006) have also raised concerns toward the Hispanic Paradox literature. In their paper from 2006, they re-estimate mortality for Hispanics and non-Hispanic Whites in Texas for the year 2000 based on the assumption that mortality rates inside and outside of the states should be similar. If the premises of these estimates are taken as true, the reclassification of deaths from Whites to Hispanics removes any Hispanic mortality advantage, with a half year deficit in life expectancy estimated for Hispanic females compared to non-Hispanic Whites and slightly over a year deficit for Hispanic males. (Smith & Bradshaw, 2006) The major concern with these estimates is their assumption that mortality rates are consistent inside Texas and outside Texas. There is no strong reason to believe that this holds true. These assumptions seem to ignore potential geographic factors and are more an exercise in what-ifs and less toward substantive methodological improvements for mortality records.

The results of the SALSA indicate that certain microcosms introduce their own issues and effects on populations. This dataset also provides a prime opportunity to understand how socio political effects may drive health and mortality effects across different locales; however, it is important to avoid applying the findings from the San Antonio area as an illustration of overall trends and it is also important to avoid treatment of the population level trends I am interested as applicable specific locales.

Overall, the Hispanic paradox remains an issue of considerable interest and seems to be maintained in the population at large. A recent meta-analysis confirms these results. Using data from data sets on Hispanic mortality including but not limited to the HEPESE and the SALSA, Ruiz, Steffan, and Smith (Ruiz, Steffen, & Smith, 2013), found that the overall, the combination of data pointed to a Hispanic mortality advantage, with better mortality outcomes compared to non-Hispanic Whites and non-Hispanic Blacks. Compared to Asians, however, mortality outcomes were not favorable for Hispanic. (Ruiz et al., 2013)

As the Hispanic population continues to grow and age, potential effects on the political system as well as the health infrastructure will be increasingly felt. As mentioned previously, the Hispanic paradox is likely not a static effect, instead it is likely dynamic and ever changing. Potential issues must be kept in mind when examining the paradox, but doing so can provide more confidence in the results of studies on the Hispanic population.

SUMMARY

With the development of the Hispanic Life Tables, vital statistics have once again become a vital tool for analyzing trends in the Hispanic populations for the United States. Extensive research has been conducted on the reliability and the validity of death records and population estimates for determining the extent of the Hispanic population in the United States. Research has found that underascertainment of Hispanics on mortality records is likely as high as 7% for US-Born Hispanics and as low as 2% for the foreign born. These rates are within acceptable limits and are easily surmountable through the use of proper adjustment metrics. Even after adjustment for these factors, Hispanics are estimated to have 20% lower mortality rates than non-Hispanic Whites, indicating that the Hispanic paradox continues to hold on. (Arias et al., 2010)

Despite the greater health and mortality advantage for Hispanics across most metrics, there is some concern. As the secular trends lead to a decrease in smoking and heart disease, obesity and diabetes appear to be increasing with a disparate amount of growth impacting Hispanics. Diabetes if unchecked could destabilize and reverse any advantages that Hispanics have experienced in the past, this is especially true as Hispanics have low rates of service usage, and the barriers to access appear to increase for those who are foreign born and Hispanic. As secular shifts in health and mortality have occurred through time, the Hispanic mortality advantage is not likely to remain static. Should causes such as diabetes continue to rise for Hispanics while smoking and heart related illnesses decrease in the general population through interventions, prevention and death in the older populations, Hispanics may again become a heavily disadvantaged group. This is especially true where Hispanics, especially the foreign-born, are more likely to face barriers to accessing health care and preventive services. (Wallace, Gutiérrez, & Castañeda, 2008)

If proper demographic considerations are taken into account, vital statistics for Hispanics are of great use to researchers that wish to understand the population trends that drive health and mortality for Hispanics. Understanding the populations can provide a considerable insight into research agendas as researchers can further delve into their local area population statistics to understand how local populations compare to national and regional populations and the use of these statistics is then a boon for researchers across multiple arenas.

PURPOSE

Large population studies using vital statistics have been limited in recent times due to the development of large population based surveys and the ease of use of this data compared to determining Hispanic origin through Spanish surname. No studies, to my knowledge have examined both mortality differentials in the Hispanic and non-Hispanic populations while at the same time examining the trends in the cause-specific contributions to the overall mortality differentials. This research, then, returns to population level analyses using vital statistics to examine mortality differentials across three time points and the mortality differentials are decomposed to examine the most contributory factors for each time point.

Given that the literature on the Hispanic Paradox primarily identifies Mexican Origin Hispanics as the primary benefactors of the Hispanic mortality advantage this research focuses on the Mexican origin population. One of largest groups of Hispanics, particularly in the Southwestern United States, is the Mexican origin population. The 2010 Integrated Public Use Microdata Series (IPUMS) shows that Mexican Origin persons make up 84% of all Hispanics in the Southwest United States. (Ruggles et al., 2010) Outside of the Southwest, the Mexican Origin population makes up roughly half of the Hispanic population. This research then is restricted to five Southwestern states: Arizona, California, Colorado, New Mexico, and Texas where the Mexican origin population is located.

Further, the Southwest United States has some of the highest concentrations of foreign-born persons in the United States (outside of major cities) (Brown & Stepler, 2015) which are likely predominately Hispanic Origin given the position of these states in regards to the border. Based on this, an analysis of nativity would also be of considerable use and interest for an analysis of Southwestern Hispanics.

Chapter 3: Data and Methods

This dissertation has four aims. The first is to develop and compare life tables for Hispanics, Blacks and Whites in the United States for three time periods, 1990, 2000 and 2010. The second is to decompose and compare life expectancy difference by group and time period, in order to understand the contribution of cause-specific differentials in mortality to all-cause ethnic differentials, and changes to these over time. The third aim further disaggregates the Hispanic population by nativity status, in view of the consistently reported finding that immigrant and U.S.-born Hispanics have different mortality profiles. The fourth aim tracks the mortality over time of pseudo-cohorts observed at each census. In this chapter, I will begin by describing the data sources, variable definitions and quality concerns, and techniques employed to address data quality concerns. The variables employed: age, race, Hispanic origin, country of birth, gender, and cause of death are all staple variables used in studies of population demography and epidemiology. Quality concerns, data edits in official sources, and treatment of missing data in both numerator and denominator data may influence estimated rates and need careful attention. I will discuss these concerns and analysis choices to address them.

The second focus of this chapter will be on describing the analytical methods used in the life table analysis and the decomposition analysis. These methods draw on standard textbook techniques for each. I will apply the NCHS method applied by Arias (2010) for estimates of national life tables to develop Hispanic life tables in the southwest United States, with a few modifications necessary because of differences in data availability. I will specify where I make deviations from the original methodology as necessary. It is important to pay careful attention to the assumptions built into the standard methods for the results of the analyses, and I review the assumptions as applied to this work.

The third and final focus of this chapter will be on describing cohort methods applied to the analysis of all-cause and cause-specific mortality rates in the Southwest United States. I apply a cohort structure on the population data and I specify deviations from a true cohort analysis where necessary. The distinctions between the pseudo-cohorts and true cohorts are of great importance and are necessary to understanding the extent of the findings from these analyses.

DATA: THE NATIONAL VITAL STATISTICS SYSTEM

The data for all four aims are from the NVSS. Numerator data in the NVSS come from the registration counts for deaths collected by state departments of health and supplied to the NCHS as part of data sharing agreements. Denominator data are from the MARS file and NVSS Bridged Race Population files that derive from the decennial census counts of population by age, sex, race and ethnicity, and modified by the NCHS for use in calculation of vital rates.

Defining the study area. All analyses focus on the five Southwestern States in the United States: Arizona, California, Colorado, New Mexico and Texas. The analyses focus on these states in order to narrow primary attention to mortality in the Mexican-origin Hispanic population. The "Hispanic" category is recognized as a "pan-ethnic" population encompassing disparate populations. While there may be many purposes for which it makes sense to treat Hispanics as a homogenous population, it is clear that population epidemiology is not one of them. It has long been understood that morbidity and mortality profiles are different for different Hispanic national origin sub-populations. (Bradshaw & Liese, 1991; Hummer et al., 2000; Rosenwaike, 1991) Research indicates that the prime beneficiaries of the Hispanic mortality advantage are person of Mexican origin and most

of the Hispanics in the Southwest are of Mexican origin, with the 2010 IPUMS indicating that 84% identified as Mexican Origin or having an ancestor of Mexican origin. Outside of these regions only about 50% of Hispanics are of Mexican origin. (Ruggles et al., 2010)
I use a geographic narrowing of the data to focus on the predominantly Mexican American population rather than using Hispanic sub-group reports because of concerns about the reliability and completeness of Hispanic sub-group identification in both census and vital statistics. Census data confirm that nearly 90 percent of the Hispanic population of the study area for this research are persons of Mexican origin. A majority of the remainder are persons of Central American origin, who may have similar health and mortality profiles to Mexican Americans. It seems reasonable to adopt a regional focus to define a relatively homogenous Hispanic population, and to set aside reliability issues concerning specific national origin identification by using data from the most expansive Hispanic origin category.

A second reason to focus on the Southwestern states is that it is clear that there are problems of inconsistency in report of Hispanic ethnicity on death certificates and in the Census in many states. Arias and colleagues addressed this issue and found discrepancies to be relatively modest in national data, but with larger discrepancies in areas with low Hispanic density. (Arias et al., 2010; Arias, Schauman, et al., 2008) Each of the five southwestern states has a large and visible Mexican origin population, reducing concern about consistency of reported numerator and denominator ethnicity.

Race and Hispanic origin in the NVSS. Race and Hispanic origin are the focal variables in the research for this dissertation. The analysis consists of the creation of life tables stratified by three of the three largest race/ethnic populations in the United States, the decomposition of differences in mortality between those lifetables by underlying cause of death, from several points of view—comparing among groups and over time. The vital statistics system supplies the materials for the construction of life tables, in the form of sub-group stratified population and event counts by age and sex. The race and Hispanic origin counts themselves are the least straightforward, because they require classifying persons by subjective criteria. Data for the three groups compared—Hispanics, Blacks and Whites—are, in general, reliable. However, the production of these counts depends on rules for enumeration, classification, and post-collection processing of census counts and death certificate entries. The classification rules used in the NVSS changed in the study period in ways that influence data reporting. This section describes this process.

Rules for collection and reporting race and ethnic data is governed in part in the NVSS by principles and rules enunciated for federal agencies by the OMB in its statistical directive #15, which was published in 1977 (Office of Management and Budget, 1977) and revised in 1997 (Office of Management and Budget, 1997). In the original rules, OMB rules mandated the collection of reporting of race and Hispanic origin using a minimum set of categories 4 race categories and two ethnic categories. The “minimum set” of race categories were White or Caucasian, Black or African American, American Indian or Alaska Native, Asian and Pacific Islanders. The 1997 revision disaggregated Asians and Pacific Islanders into separate groups. Hispanic origin is ascertained on a separate item, and is coded as Hispanic origin vs. not Hispanic origin. Hispanic origin and race are treated as separate concepts that vary independently.

Before the 1997 revision, the race item required that persons with multiracial ancestries be classified into one race category. Non-complaint classifications were re-assigned by rule to a single category on both the death certificate and census. The 1997 revision permitted the assignment of more than one racial category for persons with mixed racial ancestry. This revision was implemented in 2000 and 2010 on the U.S. census. Death certificates are in the first instance a state responsibility. A 2003 revision to the recommended standard death certificate concordant with OMB standards that adopts a race item concordant with the census race item has now been adopted by all states, but this adoption took place over the course of the subsequent decade.

To align with OMB rules, the Census Bureau issues an aggregated county-level MARS file that uses an imputation algorithm to assign non-conforming race reports to one of the five OMB recognized races (four races before the 1997 revision) in the minimum set, cross-classified with categorization as Hispanic origin versus not of Hispanic origin. The majority of reclassified cases on the race item pertain to Hispanic respondents who had reported a Hispanic category as their race. The MARS files are the base from which subsequent intercensal estimates are produced.

In addition to the MARS produced by the Census Bureau, the NCHS produces the U.S. Census with Bridged Race categories file. This file is produced using an algorithm based on survey identification of primary race identification (taking account of Hispanic origin) to re-allocate persons with more than one race to a single race category (Ingram et al., 2003). The NCHS produces the bridged race file each year as part of the estimation program. The bridged race counts supply the denominators used by the NCHS in vital rate calculations, and by the National Cancer Institute's Surveillance, Epidemiology, and End Results program in calculating race and ethnic specific incidence and mortality rates.

Denominator—Data sources and adjustments. The denominators for this research derive from the 1990 MARS file for the year 1990, and the Bridged Race files for the years 2000 and 2010. I use the MARS file for 1990 instead of the Bridged Race due to issues with misreporting for age and race (US Census Bureau, 1997). I then multiply the population estimates from the MARS and Bridged Race files by 3 and treat them as a midpoint population estimate. This methodology mirrors that used by NCHS in producing the decennial life tables each decade for data centered on the census year.

One shortcoming of the MARS and Bridged Race files is that the files are top-coded at age 85 and above. For the purposes of my analyses, I extend the top-coded age 85 category out to age 100 based on data from the respective decennial censuses. This methodology is used to maintain the population counts aged 85 and above when expanding out the age groups. To extend the files out to age 100, I calculate the total population aged 85 and above for each census and then calculate the proportion of the population in each category by taking the population for each age above 85 over the total population at age 85 and above). These proportions are then applied to the summed population at age 85 in the top-coded files to extend out to age 100. The formula for this calculation is as follows:

$$prop^{c} = age_{x+1} \div \sum_{i=85}^{max} age,$$

where age is the population count at each given age starting at age 85 until the maximum age group. To get the distribution above age 85, I divide the population count by the summed total of the count at each age between 85 and the maximum age group in the Census giving the age distribution in that group. I then apply this population distribution to the age 85+ group in the MARS and Bridged Race files for the respective census years. The formula for this is as follows:

$$age_{x+1} = age_{85+}(prop^{c}),$$

where ages are calculated from x age 85 and up until the maximum age category in the corresponding census year.

Numerator—Data sources and adjustments. The numerator data of vital event counts for all aims comes from NVSS MCD files. Data for the three-year span surrounding each census were aggregated for the life table produced for each census year, that is, 1989-1991, 1999-2001, and 2009-2011. Datasets for years before 2005 were publically available. New rules restricting dissemination of geographic identifiers implemented in that year required approval through the National Association for Public Health Statistics and Information Systems ("NAPHSIS," n.d.).

For the multiple cause of death files used for the numerator counts, the National Center for Health Statistics bridges multiple-race reported data for those states that collect data using a race item permitting multiple race responses. Hispanic origin draws from the Hispanic Origin recode variable. The Hispanic origin recode file combines similar Hispanic groups together including Mexican, Puerto Rican, Cuban, Central or South American, and Other/Unknown Hispanics and also include non-Hispanic Whites, non-Hispanic Blacks, and other non-Hispanics. Finally, there is a category for Hispanic origin unknown. The individual categories from the Hispanic origin recode are maintained to impute Hispanic origin in the Origin Unknown group. I discuss this process further in the document.

Imputation of missing age, Hispanic origin and nativity. A small number of cases in the MCD were missing age, Hispanic origin, or nativity (U.S. vs. foreign birth). The volume of missing information—well less than 1 percent of records for all variables and years. To include these cases in rate calculations. I adopted a hotdeck imputation for missing age and ethnicity. Hotdeck imputation is a single imputation methodology that uses selected characteristics to replace missing information with information from a matching record. The hotdeck procedure uses similar characteristics to match records and then fills in missing data by randomly selecting a matched record. For age, the characteristics used for matching are cause of death and sex, and for Hispanic Origin, percent Hispanic in state of birth, and county of residence are used for matching. In addition, for nativity I use Hispanic Origin, age, race, state, and county as characteristics for matching.

Adjusting for Hispanic underreport. Mortality counts for Hispanics are expected to show ascertainment biases due to Hispanics being incorrectly classified by funeral directors and/or medical examiners upon their death. Despite the suspect nature of Hispanic mortality data in the 1980s and earlier, by the 1990s mortality data had improved considerably. (Arias et al., 2010; Arias, Schauman, et al., 2008) However, while data has improved, adjustments must still be made to provide the most accurate estimates of mortality for Hispanics in the United States.

I adjust the current data using the classification corrections supplied by Arias and colleagues (Arias, Schauman, et al., 2008) for Hispanic and non-Hispanic mortality in the Southwest United States. Similar corrections are available for non-Hispanic Blacks, but given that it is such a small population in the Southwest United States and that the Current Population Survey data applies to the whole U.S., I did not use these corrections for the non-Hispanic Black population given that they might introduce biases and possible overcorrection. This may influence estimates to a degree, but likely less so than applying a US wide correction to such a small population in the Southwest.

Bridging underlying cause of death. Between the years 1990 and 2000, the coding system for cause of death changed from the International Classification of Diseases (ICD) -9 to the ICD-10. The ICD-10 provides much more detail than the ICD-9 and includes several changes to the coding style and the rules used to classify the underlying cause of death. (Anderson, Miniño, Hoyert, & Rosenberg, 2001) To establish comparability across all three years, code from the NCHS is used to crosswalk (make similar) the coding structure for causes of death across the years.[1] The crosswalk code selected classifies the underlying causes of death based on the 113-cause recode system. I further combine these categories to establish a 74-cause coding system for the decomposition, which I discuss further in the document. Appendix G presents the original 113 categories and the modified 74-category classification used in this dissertation project.

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[1] The code for the crosswalk can be found at ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Datasets/Comparability/icd9_icd10/Classify_to_113_list.sas

Age smoothing of numerator and denominator counts. Smoothing of reported event counts and population counts is commonly used in producing life tables. Smoothing helps address valleys and spikes in mortality counts created through random fluctuation in death counts as well as data artifacts such as misreporting and age lumping. Once I correct for mortality by ethnicity, I then use a smoothing equation to create a smoother pattern in population and mortality counts from age zero to age 100. For the smoothing process, I combine the data into 5-year age groups and then multiply by the appropriate coefficients to interpolate a smoothed population and mortality distribution for single years of age. The application of these coefficients creates smoothed estimates of population counts by single years of age, moving from age 0 to age 100.

To smooth the population and mortality data for the Hispanic and non-Hispanic Life Tables, I used the Beers Ordinary Minimized Fifths formula that is used in producing the annual NCHS lifetables for the United States (Arias, 2010; Siegel & Swanson, 2004). The Beer's interpolation method preserves the population and death counts for each age group and therefore preserves the original total population and death counts after the interpolation.

Infant Mortality

Death rates at age 0 calculated directly from Bridged Race and NVSS MCD files do not provide an accurate estimation of Hispanic infant mortality leading to an overestimation of Hispanic mortality as well as the mortality for other racial/ethnic groups. In addition, infants born and deceased away from the census are not captured and deaths from infants born in one year may cross into the next dying within the new year which is difficult to capture. Finally, reporting errors lead to issues with the linkage of race/ethnicity in traditional vital statistics that contributes to an overestimation of mortality. Therefore, calculation of mortality from traditional numerators and denominators are not the best representation for capturing the complex nature of infant birth and mortality. (Arias, 2010; Heron et al., 2009; Miniño, Arias, Kochanek, Murphy, & Smith, 2002)

To address this limitation, I estimate infant mortality from the Linked Birth and Infant Death (LBID) file. The LBID is a dataset that tracks live infant births and matched death records for those infants who die before age one. The purpose of this dataset is to provide a more reliable estimate of mortality for infant than from death records linked to but not matched with actual population data. The linkage success rate for the LBID data is approximately 98-99%. ("Linked Birth/Infant Death Data Set," n.d.) Because this data matches records, it also addresses issues of enumeration where infants are not enumerated at the census time or where infants born late in the year die a few days within the new year.

In addition to these features, the LBID also collects a wide variety of statistics for infant mortality research including health behaviors of the mother, timing of birth, and cause of death, to name a few. ("NVSS - Linked Birth and Infant Death Data," n.d.) The LBID also has self-reported race/ethnicity of the mother, which is a better representation than what is reported on the death certificate that may or may not be reported by the mother, which increases risk of misclassification. For this project, then, the LBID is a more reliable data source and will contribute to better quality estimates of racial/ethnic patterns of mortality in infancy. (Heron et al., 2009) Further, unmatched records can be excluded from analyses, reducing estimation issues leading to more valid estimations of mortality patterns through time.

The LBID contains both numerator and denominator data necessary to estimate the probability of mortality for the ages 0-1. For the denominator data, place of birth, sex, mother's race, mother's Hispanic origin, and the mother's state of residence. For the numerator data, two additional factors were used, death year and record weight. Not all years used a record weight for the numerator data, but I apply the appropriate weights where necessary. I then use the values for live births (denominator) and infant deaths (numerator) to estimate the q_x at age 0.

CALCULATING LIFE TABLE FUNCTIONS (AIM 1)

For this dissertation, AIM 1 is to develop life tables based on NCHS methodology to calculate life expectancy for Hispanics and non-Hispanics for the years 1990, 2000, and 2010. In addition, this aim also seeks to calculate the difference in life expectancy between Hispanics and non-Hispanics at each time point and to evaluate the change in life expectancy for each racial/ethnic groups through time.

Probability of Mortality (q_x)

Calculating q_x for Age 0-1. Following the NCHS Life Table methodology to calculate q_x under age 1, I used the Linked Birth and Infant Death Files to calculate the numerator and denominator counts for the respective census years. From these counts, I calculate the separation factor (f) for each birth cohort. The separation factor is the proportion of infant deaths in a given year (t) which occur for infants born in the previous year (t-1). The formula for probability of death is:

$$q_0 = \frac{D_0(1-f)}{B^t} + \frac{D_0(f)}{B^{t-1}}.$$

Calculations of q_0 for 1990, 2000, and 2010 were made for three time groups to match the three year values (1989-1991, 1999-2001, 2009-2011) used to calculate the life tables. The q_x for each of the years in the groups is calculated and then it is then averaged for each three-year period to provide the q_x for their respective life tables. Values for D_0 is the number of infant deaths from the primary year of interest (e.g. 1990) while B^t is the count of live births from that year while B^{t-1} is the number of live births from the previous year.

Age 1-99. The probability of mortality, q_x, is calculated through taking the denominator (deaths at each age) over the numerator (population at each age, plus .5* death count at each age) where the formula for calculation is:

$$q_x = \frac{D_x}{N_x} = \frac{D_x}{P_x + \frac{1}{2} D_x}.$$

Use of Brass model to correct calculations of q_x at older ages. Calculations of q_x at older ages from NVSS data frequently yield questionable values because they are sensitive to small errors in age-reporting. In preparing national life tables, the National Center for Health Statistics has for some recent life tables supplemented NVSS data sources with data from the Medicare program, where age is more carefully vetted. Hispanic data, however, is not considered reliable in the Medicare file. (Arias, 2010)

To address this, in preparing Hispanic life tables, the NCHS corrects for implausible Hispanic mortality patterns at older ages using a Brass relational model of mortality. As described below, the Brass model creates an estimate of mortality for a population where data at older ages are questionable, by modelling the relationship of the q_x function to another population where mortality is estimated more accurately at all ages. (Arias, 2010)

In the absence of Medicare data for use in this project, I adjust the ${}_nq_x$ for the non-Hispanics Whites with the brass relational logit method using the ${}_nq_x$ available for non-Hispanic Whites in the decennial life tables. I used life table data available through the NCHS for the years 1989-1991 (Armstrong, 1997),1999-2001(Arias, Curtin, Wei, & Anderson, 2008) and the 2009-2011 US life tables. (Arias, 2014b)

This Brass model estimates the probability of mortality above the age of 75 for older non-Hispanic Whites based on the linear relationship between the logit for the probability of mortality of non-Hispanic Whites compared to the logit of the probability of mortality for Hispanics in the US decennial life tables from age 45 to 80. The formula is

$$\hat{Y}^{sw}(x) = \alpha + \beta Y^{s}(x),$$

where $\hat{Y}^{sw}(x)$ is the predicted logit of the probability of death (q_x) for non-Hispanic Whites in the Southwest where

$$\text{logit}[q^{sw}_x] = \ln\left[\frac{q_x^{sw}}{1-q_x^{sw}}\right].$$

$Y^s(x)$ is the logit of the probability of death (q^s_x) for non-Hispanic Whites in the United States Life Tables for each year of interest,

$$\text{logit}[q^{s}_x] = \ln\left[\frac{q_x^{s}}{1-q_x^{s}}\right].$$

Following this transformation, I use an ordinary least squares regression equation to find the parameters α and β for the $\hat{Y}^{SW}$ equation. In this equation (shown below), α is the predicted level of mortality for non-Hispanic Whites in the Southwest in relation to non-Hispanic Whites in the United States and β is the predicted slope of mortality for the Southwest non-Hispanic Whites in relation to non-Hispanic Whites for the United States. The parameters for each respective year are presented in Table 1.

The adjusted ${}_nq_x$ for Southwest non-Hispanic Whites (SW) are then used to estimate the probability of mortality for older Southwest Hispanics (SH) above age 75 by treating Hispanic mortality from age 45-80 as a function of the Southwest non-Hispanic White mortality patterns for the same ages. Similar to the description above, the formula is

$$\hat{Y}^{sh}(x) = \alpha + \beta Y^{sw}(x),$$

where $\hat{Y}^{sh}(x)$ is the predicted logit of the probability of death (q_x) for Hispanics in the Southwest United States where

$$\text{logit}[q^{sh}_x] = \ln\left[\frac{q_x^{sh}}{1-q_x^{sh}}\right].$$

$Y^{sw}(x)$ is the logit of the estimated probability of death (q^{sw}_x) for non-Hispanic Whites in the United States Life Tables for each year of interest,

$$\text{logit}[q^{sh}_x] = \ln\left[\frac{q_x^{sh}}{1-q_x^{sh}}\right].$$

I then apply an ordinary least squares regression to estimate $\hat{Y}_x^{sh}$ as was described above.

To calculate the predicted $\hat{q}_x$ for each of the populations of interest, the logit $\hat{Y}_x$ will be transformed back using the formula

$$\hat{q}_x = \frac{\exp[\hat{Y}(x)]}{1+\exp[\hat{Y}(x)]} = \frac{\exp[\alpha+\beta Y^s(x)]}{1+\exp[\alpha+\beta Y^s(x)]}.$$

The $_nq_x$ calculated from each of the populations, which I then blend with the estimated $_nq_x$ for ages 76-80 to create a better transition between vital statistics q_x and the predicted q_x. The formula for the blending procedure is as follows

$$q_x = \frac{1}{6}[(81-x)q_x^v + (x-75)\hat{q}_x],$$

when x= 76, 77, 78, 79, 80.

I close the table at age 100 and above and the corresponding q(x), $_\infty q_{100}$, is set to 1.0 because all survivors that made it to this group will eventually die. Once the $_nq_x$ is calculated for each population the remainder of the life table follows the standard life table methodology. (Arias, 2010, 2011, 2012; Preston, Heuveline, & Guillot, 2001)

Standard errors (Appendix B) are calculated up to age 80 based on the equation

$$S^2(q_x) = \frac{{q_x}^2(1-q_x)}{{D^*}_x}$$

from the 1989-1991 decennial life tables.

Age 80 is used as the cut-off due to age 80 being the cut off for the estimation of the parameters for the Brass relational model. Further, any values of q_x after age 79 are derived from the brass logit relational model. Note that the standard errors for q_x for age 76 to age 80 are only there for accounting as the values will not reflect the effects of the blending procedure for age 76 to age 79. The parameters and standard errors for the brass logit modeling are presented in Table 1 below.

Based on the methods described above, I compare the original probability of mortality (q_x) to the Brass Logit adjusted value to evaluate the effect of the Brass Logit adjustment on the mortality curve. The evaluation compares the original qx and the Brass adjusted q0 for Hispanics as a ratio to the non-Hispanic White qx. I then present the resulting curves produced for the 2010 Hispanic Origin life table to determine how well the method adjusts for mortality in older ages compared to Medicare data. I present this information using a graph showing the brass adjustment and how that affects mortality in the oldest ages and a survival curve (natural log of the qx) based on the original and brass adjusted data to show how the mortality at the end of life is affected by the introduction of brass over vital statistics. The purpose of this evaluation is to determine how the brass logit method affects the mortality curve at older ages, so the emphasis is on Hispanics and non-Hispanic Whites. Non-Hispanic Blacks are not evaluated as they are adjusted using only the US life table and are not adjusted based on other estimates in a similar fashion to Hispanics.

Table 1. Estimated Parameters for the Brass Relational Logit Model for non-Hispanics and Hispanic, by Sex, 1990-2010

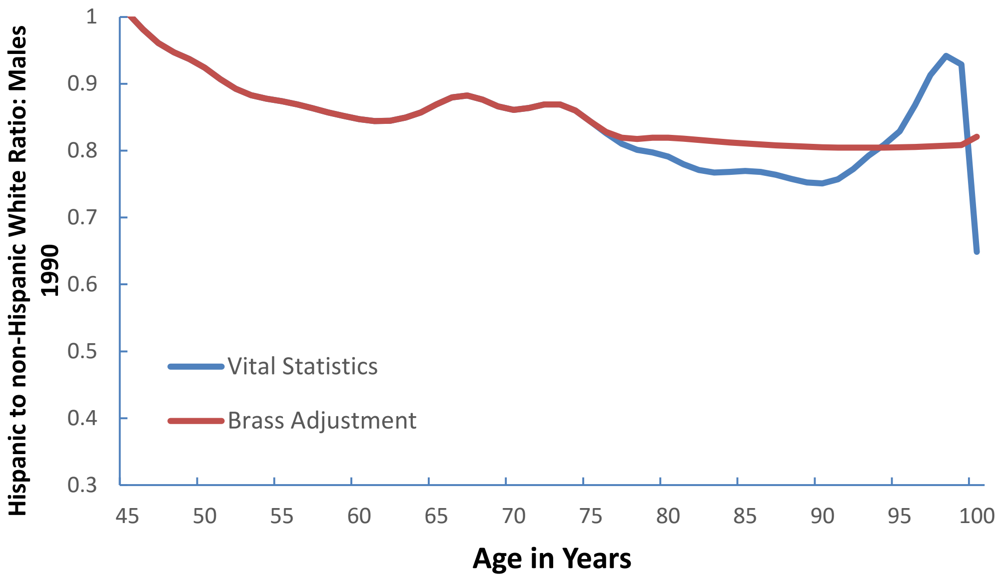
		Non-Hispanic White				Non-Hispanic Black				Hispanic			
		Male	**SE**	**Female**	**SE**	**Male**	**SE**	**Female**	**SE**	**Male**	**SE**	**Female**	**SE**
1990													
	α	-0.07316	0.006012	-0.05037	0.037274	0.038991	0.011794	0.00644	0.006854	-0.16628	0.011826	-0.10741	0.025447
	β	0.965194	0.0029	0.975806	0.015844	1.034222	0.006654	1.003474	0.003295	0.951629	0.005705	0.984107	0.010847
2000													
	α	-0.09377	0.004622	-0.05664	0.008239	0.034928	0.007173	0.019341	0.009231	-0.03432	0.006898	-0.05583	0.020503
	β	0.962908	0.002152	0.97566	0.003439	1.034256	0.003842	1.002006	0.004343	0.998457	0.003193	0.997854	0.00857
2010													
	α	-0.07367	0.010066	-0.06047	0.011017	0.028211	0.013165	0.009841	0.01408	0.046974	0.015919	0.058983	0.017542
	β	0.978046	0.00457	0.982629	0.004536	1.037473	0.006644	1.004775	0.006346	1.043347	0.007149	1.058811	0.00717

Data: CDC/NCHS, National Vital Statistics System: Linked Birth Infant Death Data (1988-1991; 1998-2001; 2008-2011)

Brass-Adjusted Probability of Mortality (ages 76-109)

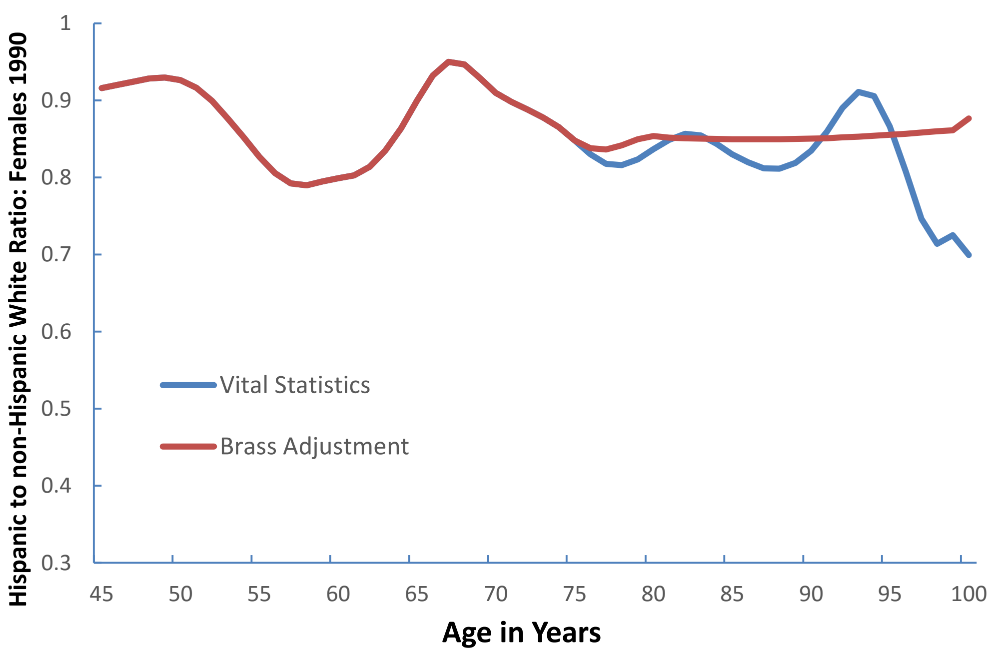
The development of any life table pivots on the development of the probability of mortality (qx). The data sources used and the way that a researcher uses these values can have a strong influence on the outcomes of the analyses. For the vital statistics data, there are problems with the data, particularly in older ages and for minorities. To refresh, to overcome this limitation, the data are adjusted using a logistic function to estimate probability of mortality in older ages in a population of interest (i.e., Hispanics) by the probability of mortality of a known and established standard population (i.e. non-Hispanic Whites). The mortality in the oldest ages for the population of interest is then estimated to better reflect mortality patterns in older ages, which is considered to be less reliable in older minority populations. Of note here, non-Hispanic Whites and non-Hispanic Blacks were also adjusted with the Brass logit method using US wide data to address a lack of Medicare data for this study. For more in depth detail, please return to the Data and Methods chapter.

Figure 1 shows the comparison of the Hispanic and non-Hispanic White probability of mortality (qx) in older ages. If a population were dying 'normally', that is if the records of mortality were more reliable, it would be expected that the ratio with non-Hispanic Whites would show a more stable pattern through time. However, as can be seen in the graph, Hispanic Males and non-Hispanic males show a rather unstable and inconsistent ratio of mortality especially in the oldest of ages. This may be due to poor records or age misstatement, but either way you would not expect that Hispanic mortality would be that substantially different through time. Using the brass relational logit adjustment, the new estimate values show a much improved ratio for the oldest ages, indicating an improved estimate of the probability of mortality over the vital statistics alone.



Data: Census, Census of Population and Housing 1990, Modified Age, Race, Sex and Hispanic Origin file, 1990; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991; U.S. Decennial Life Tables for 1989-1991

Figure 1. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Males and Brass Estimation for Hispanic Males, ages 45-100, 1990

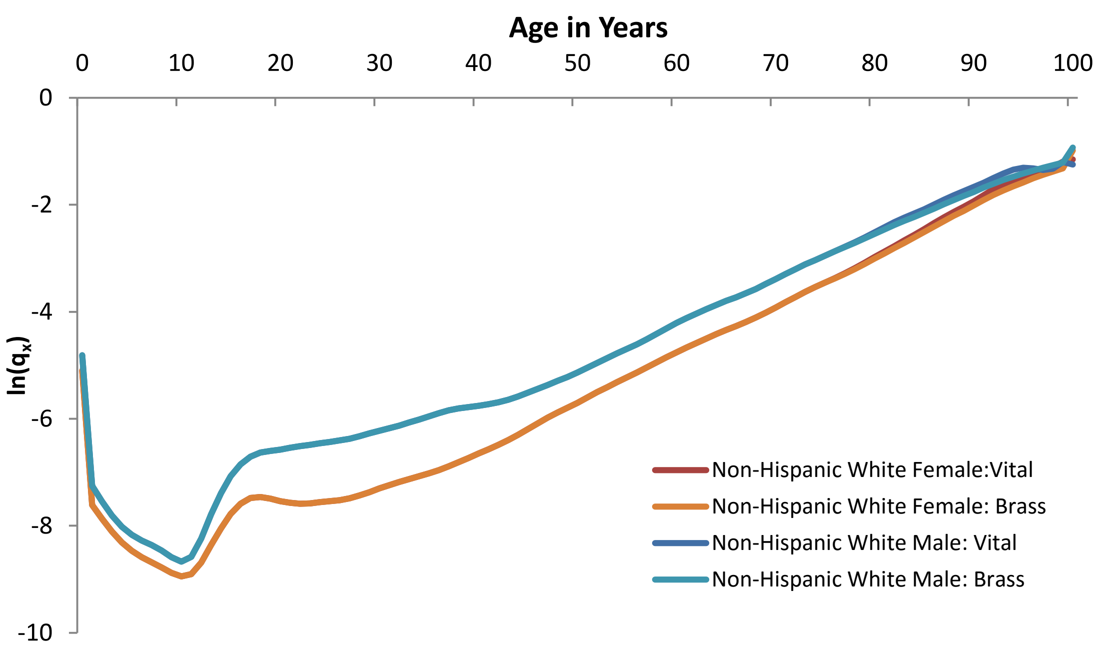


Data: Census, Census of Population and Housing 1990, Modified Age, Race, Sex and Hispanic Origin file, 1990; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991; U.S. Decennial Life Tables for 1989-1991

Figure 2. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Males and Brass Estimation for Hispanic Males, ages 45-100, 1990

Figure 2, which shows the ratio for Hispanic to non-Hispanic females in 1990 also shows a very turbulent ratio pattern in the oldest ages which improves dramatically through the use of the Brass relational model. The, brass relational model is, therefore, a much more reliable and more accurate representation of the relationship of mortality in the oldest ages and is used in the place of vital statistics. This is especially true at the tail end of the data for degradation of quality is especially evident.

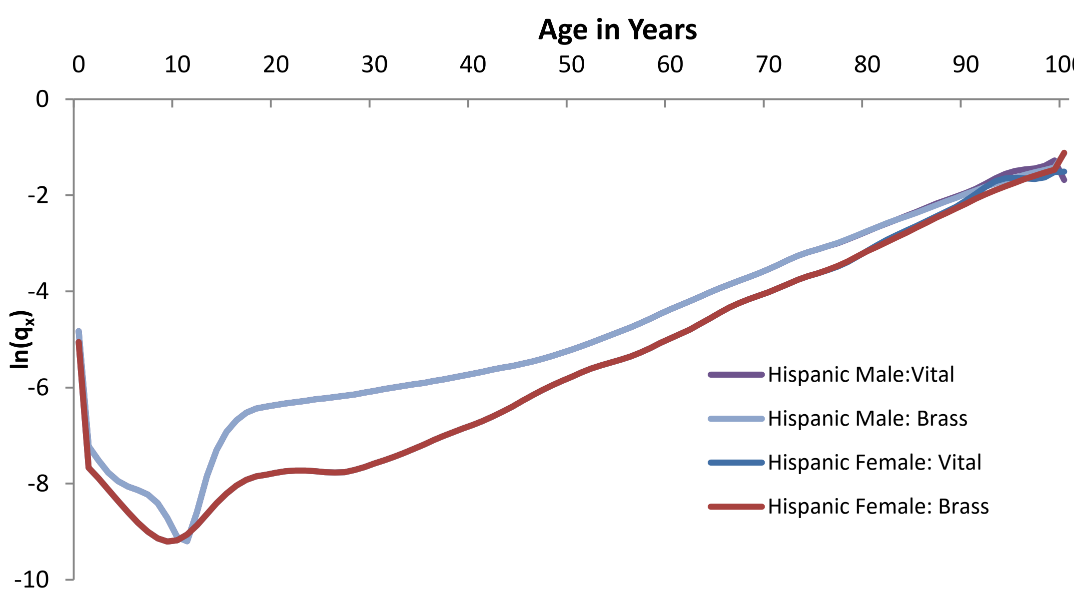
Figure 3,4, and 5 show the full survival curve for the populations after transformation with a natural log. First, non-Hispanic Whites and Hispanics are shown separated for the best visualization of the effects of the brass on mortality curves in later life. The figures are then combined in Figure 5 to show the lines next to one another for comparison.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991; U.S. Decennial Life Tables for 1989-1991

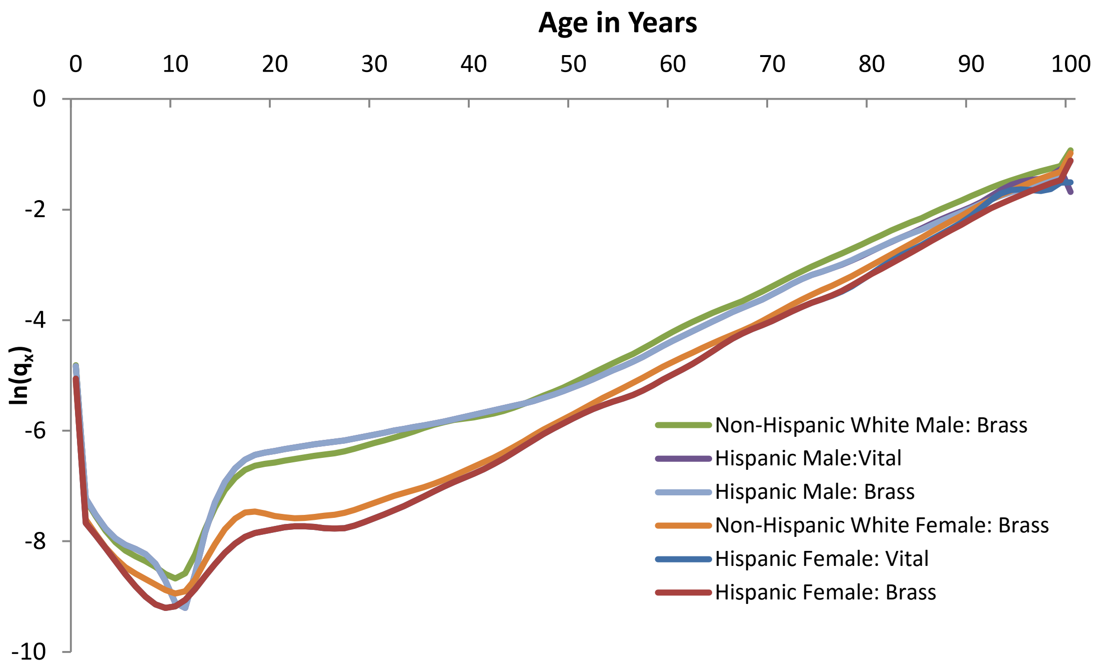
Figure 3. White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 1990

In Figure 3, the mortality curves show a slight difference in the oldest ages when the brass method is applied. However, overall, the data appears to be very strong and the brass correction for the lack of Medicare data at older ages only alters the trajectories slightly. In Figure 4, the effects shown are much more substantial with jags in the data being less pronounced after the Brass method is applied. Comparing non-Hispanic Whites to Hispanics in Figure 5, the more pronounced mortality bump for male teens can be seen for Hispanic and non-Hispanic White males. The difference in mortality for Hispanics and non-Hispanics, and males and females is also seen with Hispanics mortality having a lower mortality than their counterparts through most ages. Hispanic males experience a crossover and gain an advantage in older age and Hispanic females maintain an advantage across most ages. For women, the advantage over men is much clear with a persistent and fairly wide gap between the two sexes in mortality.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991; U.S. Decennial Life Tables for 1989-1991

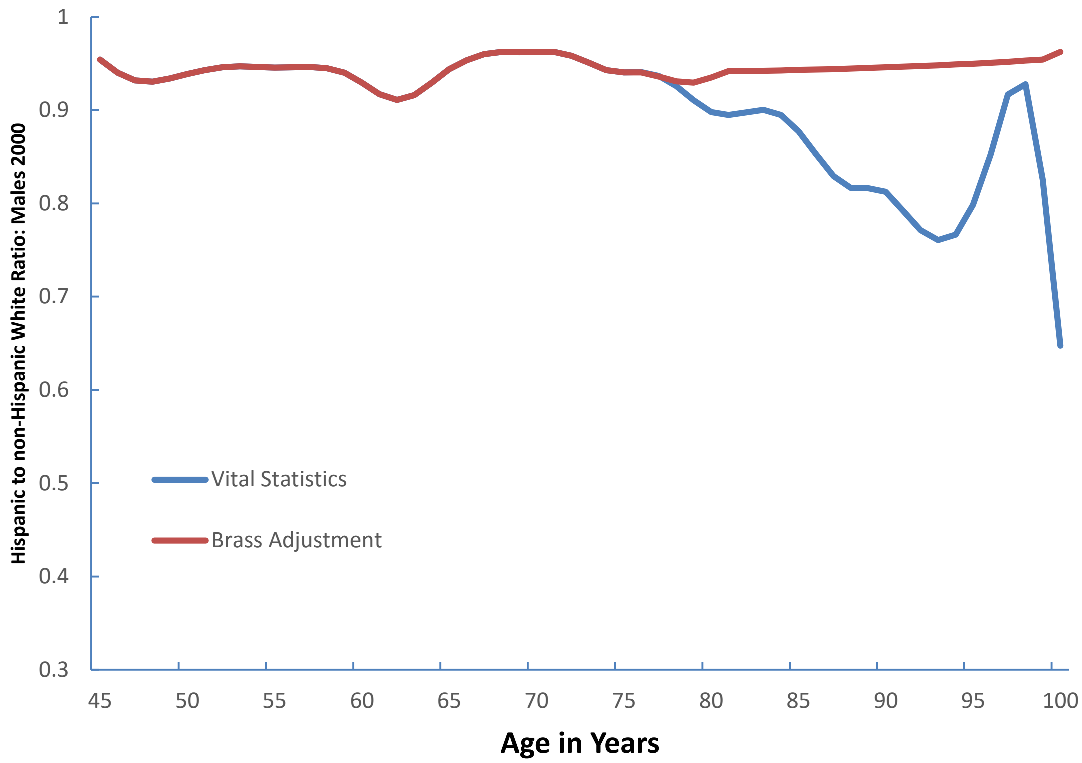
Figure 4. Hispanic Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 1990



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991; U.S. Decennial Life Tables for 1989-1991

Figure 5. Hispanic and White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 1990

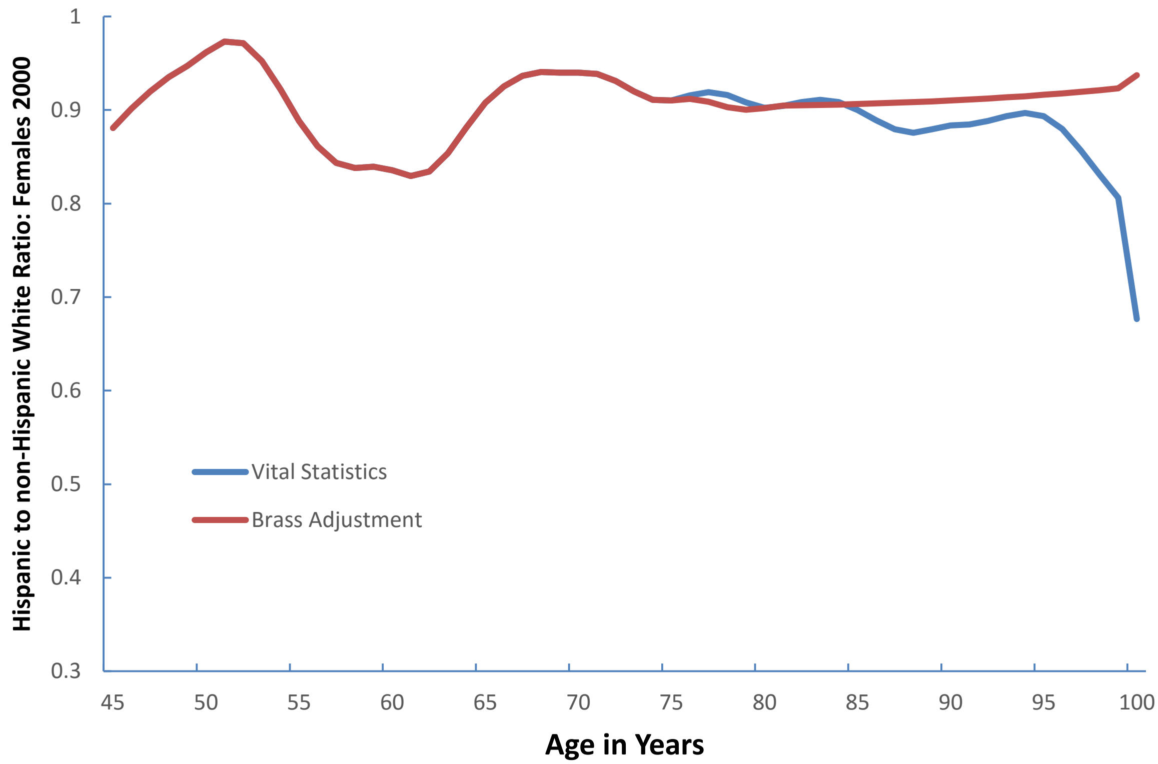
For the 2000 data, similar adjustments to the data were made and then the data were evaluated to determine if the brass relational model improved the data over vital statistics alone. As can be seen in Figure 6 and Figure 7, the vital statistics data appears to be very unstable, especially at the oldest ages. Figure 6, Hispanics to non-Hispanic White Males, shows several large and continuing dips in the oldest ages which are followed by a sudden spike and then a major drop. By using the Brass relational adjustment, the data shows an improved mortality pattern for later life which is much more reliable than the data from the vital statistics.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001; U.S. Decennial Life Tables for 1999-2001

Figure 6. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Males and Brass Estimation for Hispanic Males, ages 45-100, 2000

In Figure 7, below, the ratio for Hispanic and non-Hispanic White females shows a similar pattern of a dip followed by a rise in older ages before a large dip. This pattern, while not as extreme as for the Males in 2000, still shows issues with mortality data in the oldest populations for the year 2000. The brass relational adjustment shows a much better relationship for the mortality ratio at the older ages indicating the adjustment improves upon just the vital statistics records alone, especially where the records for Hispanics become very unreliable at older ages.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001; U.S. Decennial Life Tables for 1999-2001

Figure 7. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Females and Brass Estimation for Hispanic Females, ages 45-100, 2000

The full mortality curves for the 2000 data for Hispanics and non-Hispanic Whites are shown below. Figure 8 shows the vital statistics and Brass adjusted non-Hispanic Whites, Figure 9 shows Hispanics vital statistics and Brass adjustment, and Figure 10 shows the combined values to assess the patterns side-to-side.

In Figure 8, the survival curve for the non-Hispanic White data is visualized next to the non-Hispanic White Brass data. The vital statistics data for non-Hispanic Whites in 2000 shows to be a bit more unstable in older ages. With the Brass adjustment, the data makes a much smoother transition and the mortality curve shows a much more linear progression in older ages. A similar pattern emerges for Hispanics (Figure 9) with curve transitioning to the end much more smoothly, though the oldest ages still show an artifact of limited data at older ages with a sudden spike near age 100.

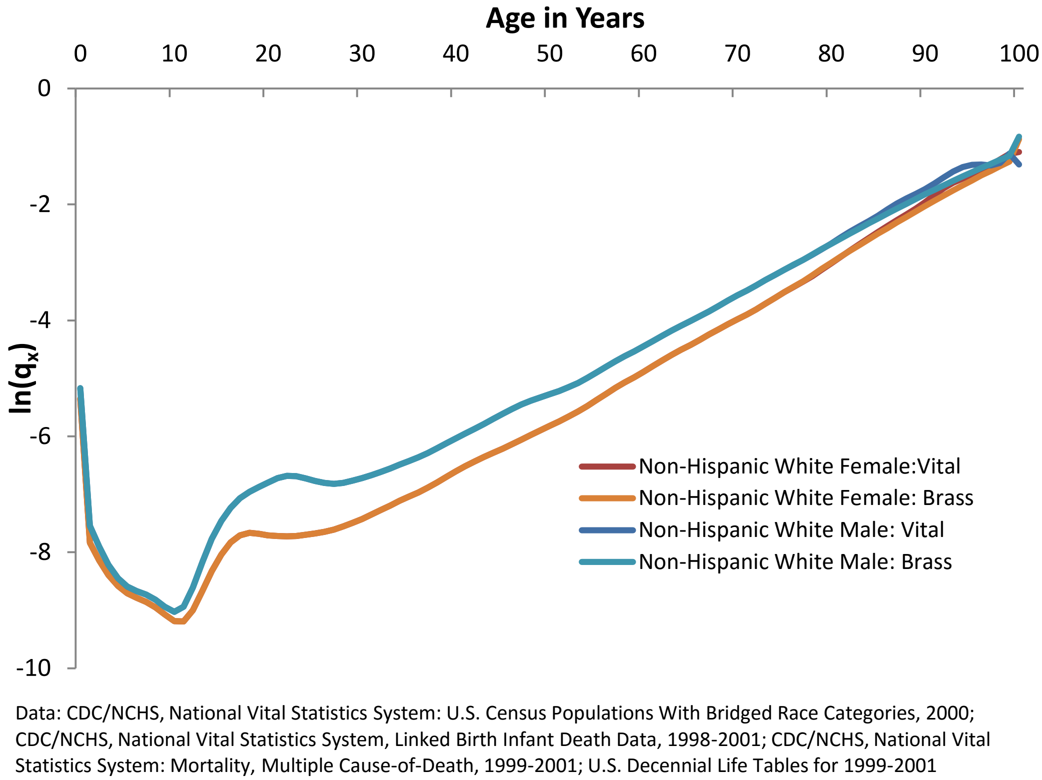


Figure 8. White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2000

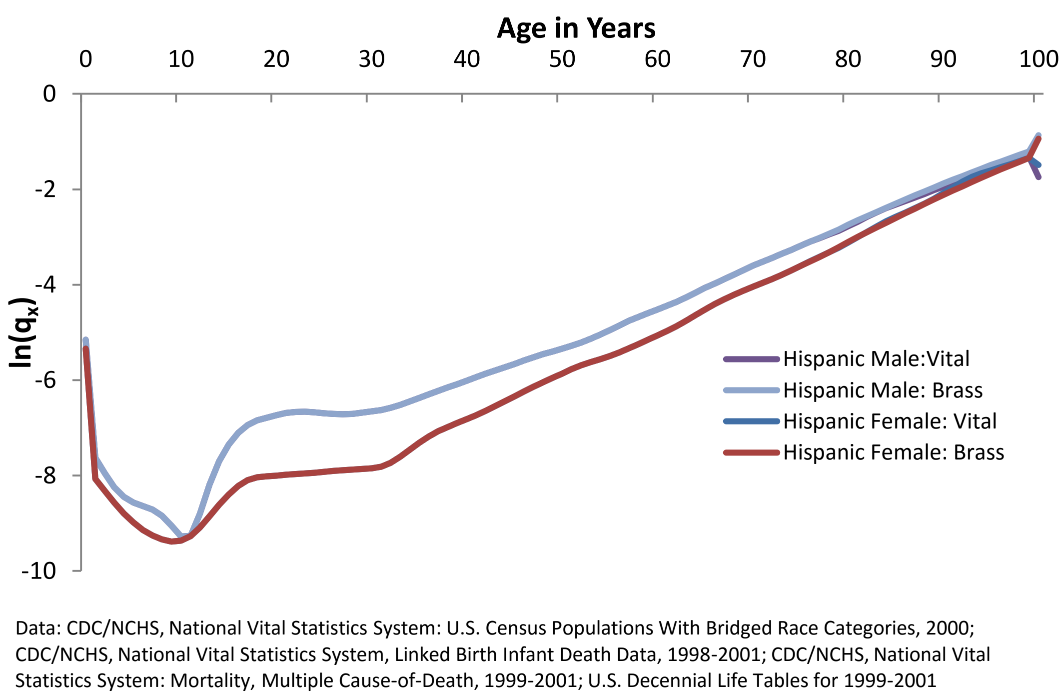
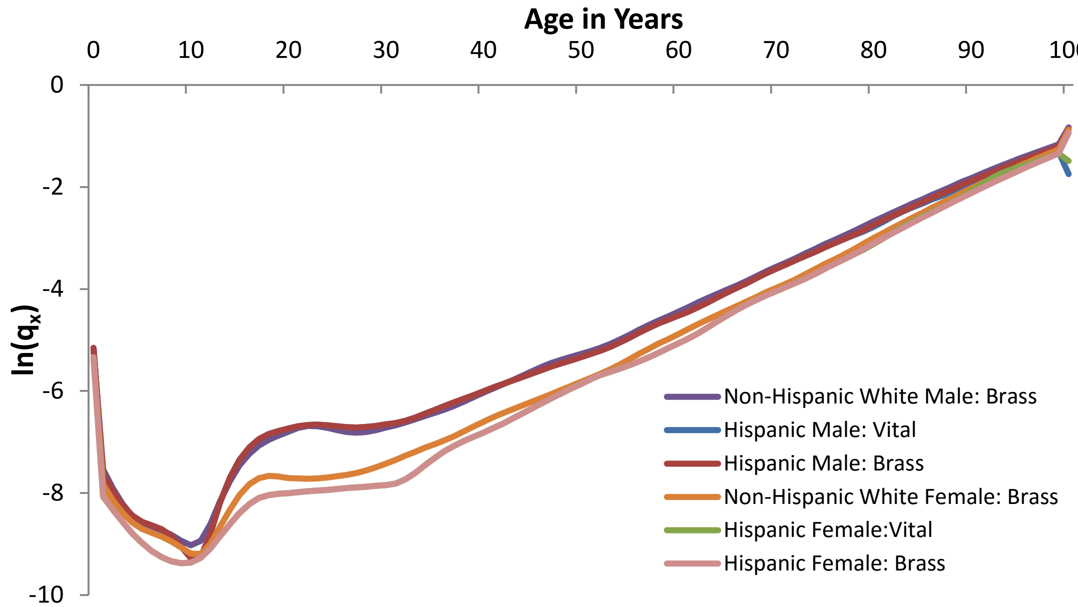


Figure 9. Hispanic Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2000



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001; U.S. Decennial Life Tables for 1999-2001

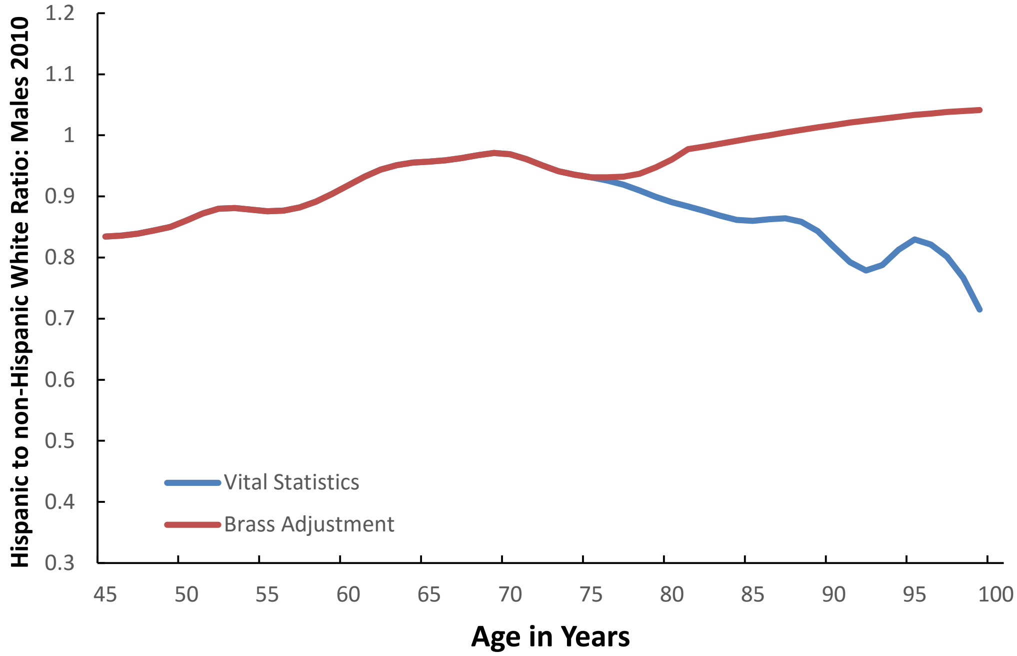
Figure 10. Hispanic and White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2000

In Figure 10, the mortality curves show a slight decrease in the sharpness of the mortality spike in teenage years. The decrease in the 'mortality bump' allows for increase survival of populations through time. More importantly, the data show a shrinking of the gap between males and females with the mortality curves moving slightly closer in the 2000 data. And for males, the gap between Hispanics and non-Hispanics has almost entirely disappeared with Hispanic males maintaining a slight advantage in mortality in life expectancy.

For the year 2010, the same methodology was used to match the previous years. However, there is one exception to be noted. The 2010 life table data for the United States is an estimated life table. The values for q_x of use for the brass logit model are only available to age 99, with age 100 classified as 1. Therefore, for my data, I can only estimate out to age 99. This may contribute to differences in the curves created by the Brass relational model. Figure 5 and 6 both show a systematic pattern in the mortality curve in older ages which seem to indicate an effect of the methodology and limited data for estimation. This may contribute to a slight over correction in older ages. In both figures, the relational model does improve the mortality curve compared to vital statistics alone, however, the ratio actually shows a very different pattern than for 1990 and 2000. Instead of a flat stable curve, the curve shows an upward tick which actually crosses 1 in older ages, suggesting a higher probability of mortality for Hispanics in the oldest ages. Methodology, age misstatement, data issues, or a combination of these things could contribute to this effect.

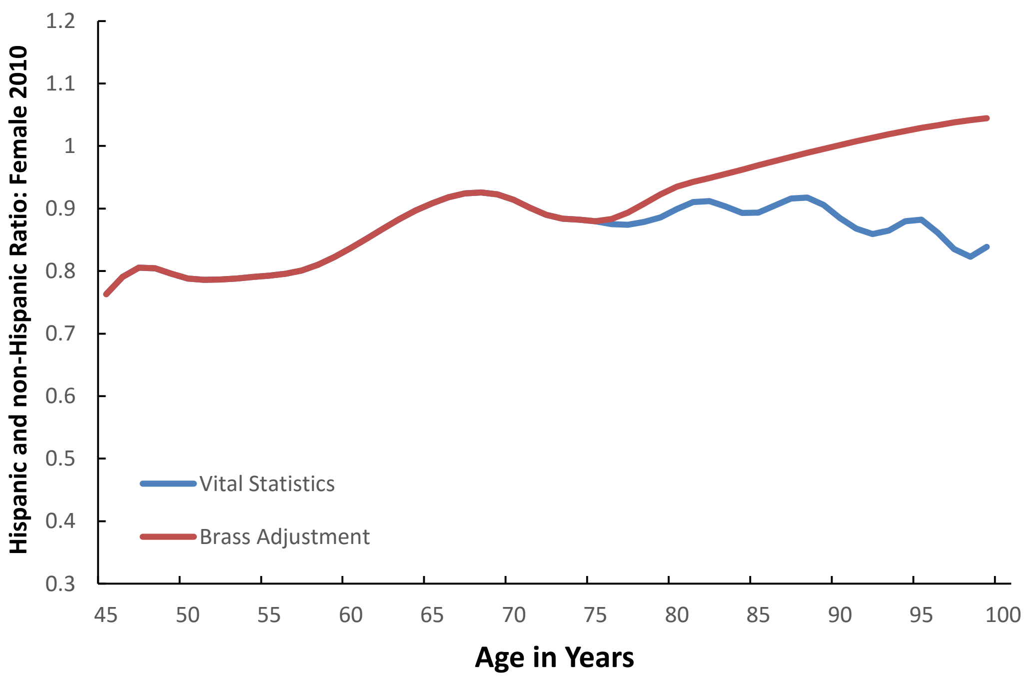
Arias has suggested that the 2010 data is of sufficiently improved quality that the use of Medicare may not be necessary and this model may also have overcorrected. However, it is unknown if that effect is true for specific regions like the Southwest United States. Further, the effect appears very late in the data and likely does not have a significant influence on the overall patterns. And despite the higher probability of mortality, the Hispanic population still shows a higher life expectancy. It the model does over adjust, it would signal a more conservative estimate of life expectancy for Hispanics crosses 1 and Hispanics, despite showing a higher probability of mortality after correction maintain a higher overall life expectancy.

In Figure 11, the vital statistics and the brass adjustment for Males in 2010 is shown. For the vital statistics, the data drops off steadily past age 75 and as older ages are reached, the values peak and dip until dropping off at the end. The data shows a sharp decrease in the vital statistics with several peaks and dips before dropping off in the vital statistics data. With the brass adjustment, the data show a more consistent relationship. However, as mentioned above, the ratio shows an upward trend through time with the values cross 1 around age 85. The data is likely a better representation of mortality than the vital statistics values. The limitation of the trajectory is that it may over correct mortality data. However,



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001; U.S. Decennial Life Tables for 1999-2001

Figure 11. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Males and Brass Estimation for Hispanic Males, ages 45-100, 2010



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001; U.S. Decennial Life Tables for 1999-2001

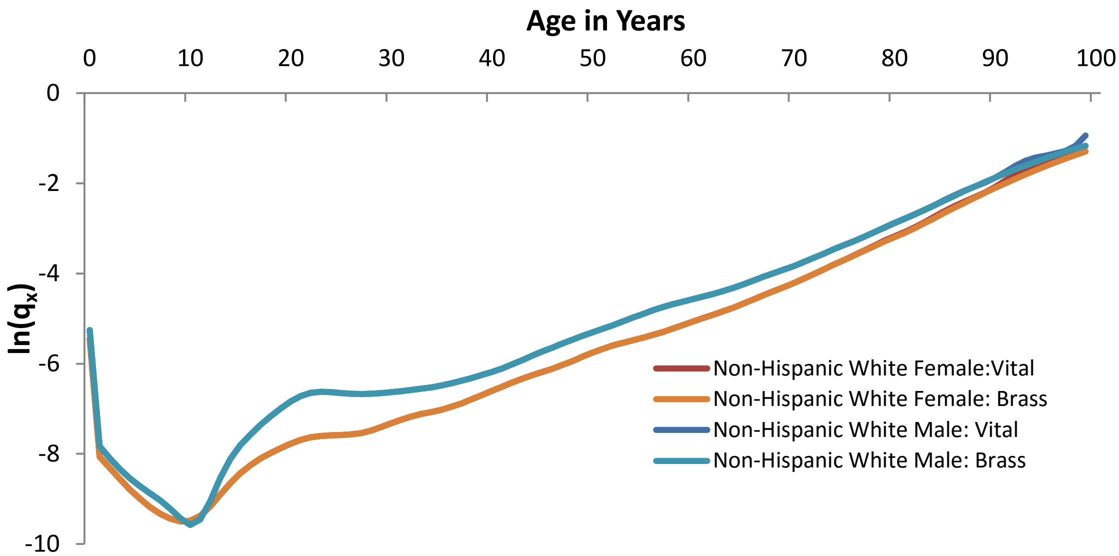
Figure 12. Ratio of Hispanic to White Age Patterns of Mortality Probability (q_x) for adjusted Life Table (Vital) Values for White Females and Brass Estimation for Hispanic Females, ages 45-100, 2010

the advanced age where the curve climbs will likely contribute to very little influence on the life table and following calculations.

For the Females in 2010 (Figure 12), the changing pattern of the ratio between the non-Hispanic White and Hispanic females is not as dramatic as seen in the male population. There is still a decline, however, with peaks and dips which become more dramatic as the population ages. As with the male population, the brass adjustment makes the values curve upward crossing 1 around age 90. With the upward adjustment, which appears for females as well as males, Hispanic females are also shown to have a higher probability of mortality in older ages compared to non-Hispanic Whites. Despite this, they still have a higher life expectancy. As with the ratio for the Hispanic and non-Hispanic White male populations, this may lead to a conservative estimate of life expectancy for Hispanics though the effects from the oldest ages should be minimal, overall.

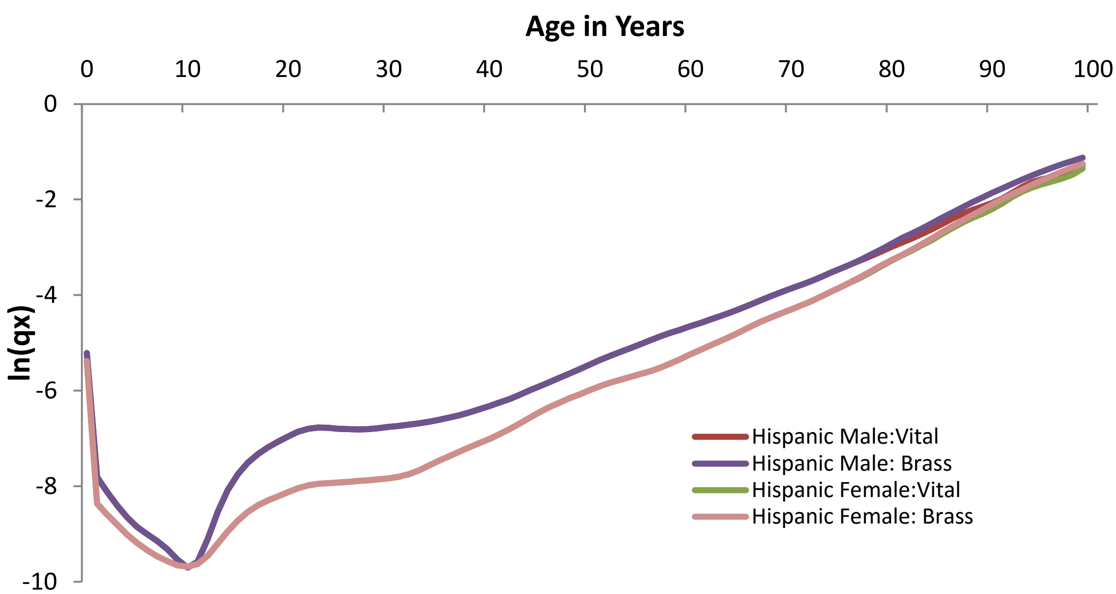
As with the other years, the survival curve was produced for non-Hispanic Whites and Hispanics to compare effects of the Brass estimate on Hispanic survival in later life versus vital statistics alone. For the non-Hispanic Whites (Figure 13), the use of the US life tables to estimate the probability of mortality does stabilize the mortality curves in the oldest ages, where dips and peaks for males are made into a more linear pattern and for females, an upward trend in the oldest ages is lowered slightly using the Brass. While the adjustments are less dramatic than in previous years, the change does create a more stable mortality curve in the oldest ages and it matches methods used previously, so it is retained here.

In Figure 14, the effect of the Brass estimates is shown very clearly. Instead of a dropping off of mortality as with the vital statistics for both Hispanic males and females, the Brass curve pushes the mortality curve to be more linear in older ages which better matches the expectation for mortality in later life. This evidence suggests that the brass model did correct for data issues in older ages. If the curve overcorrected the probability of mortality for Hispanics, the overall life expectancy remains higher for Hispanics than



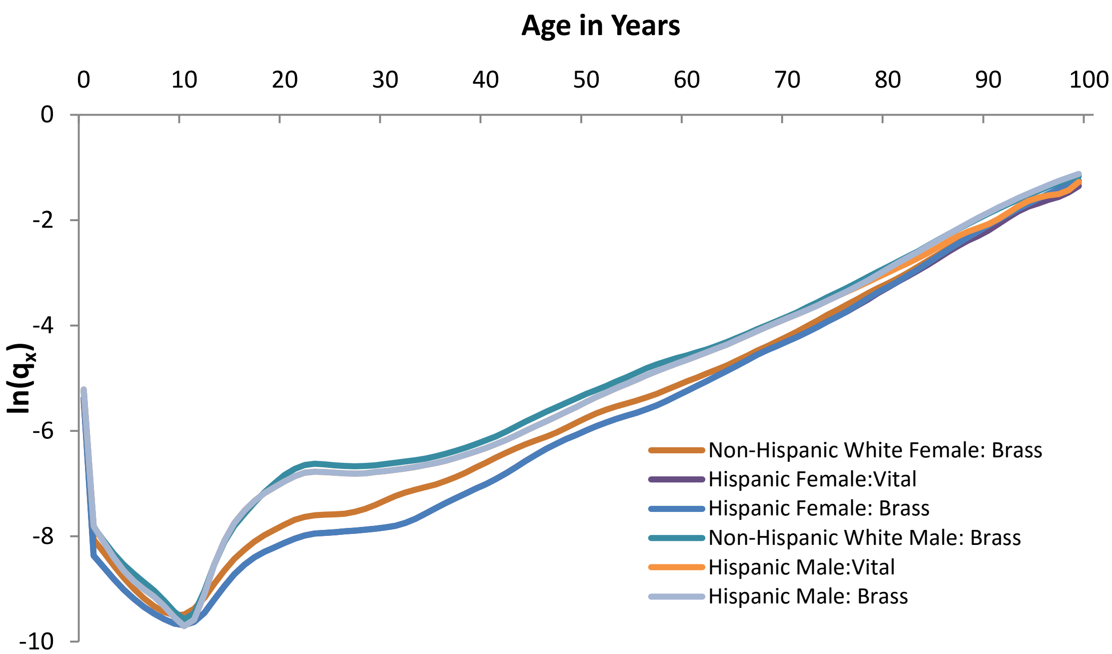
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011; U.S. Decennial Life Tables for 2009-2011

Figure 13. White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2010



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011; U.S. Decennial Life Tables for 2009-2011

Figure 14. Hispanic Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2010



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011; U.S. Decennial Life Tables for 2009-2011

Figure 15. Hispanic and White Age Patterns of Mortality Probability (q_x) (transformed with natural log) for Life Table (Vital) Values and Brass Estimation for Men and Women, 2010

non-Hispanics so any effects are minimal and the differences in Hispanics and non-Hispanic Whites are considered conservative.

In Figure 15, comparing Hispanics to non-Hispanics shows that males are relatively similar in their mortality trajectory with non-Hispanic Whites experiencing more mortality in middle age and a crossover in mortality in the very oldest of ages. Also of not here is that the gap between men and women continues to decline, though moreso for non-Hispanic White Women than Hispanic women. The mortality bump of teenage years is also less pronounced in 2010.

Remaining Life Table Functions

Survivor function (l_x) – This is the hypothetical cohort that is followed through until their death. The radix (l_0) is set at 100,000. The values for l_x above age 0 are calculated as

$$l_x = l_{x-1}(1 - q_{x-1}),$$

where the value of the l_x for next age group is equal to the l_x for the previous age group multiplied by the proportion survivors ($1-q_x$) for the previous age group.

For the year 2010, the decennial life table is not yet available. Therefore, I used the estimated life table for 2010 for reference for the probability of mortality. The estimated life table is capped at age 100 compared to age 110 for the decennial life tables. To estimate mortality beyond age 100, I calculate the survivor function (lx) up to age 100 using the previous methods and then I extrapolate lx beyond age 100 using the Gompertz equation (Preston et al., 2001, pp. 192–194). This equation treats mortality as a linear process and calculates out remaining death based on the relationship between the last survivor function in the last years of life. The Gompertz equation is as follows:

$$l(x) = C * a^{b^x}, \text{ where}$$

$$b = \left(\frac{ln\frac{l(y+2n)}{l(y+n)}}{ln\frac{l(y+n)}{l(y)}}\right)^{\frac{1}{n}}, a = exp\left(\frac{ln\frac{l(y+2n)}{l(y)}}{b^y(b^n-1)}\right), \text{ and}$$

$$C = l(y) * \exp(-b^y * \ln a).$$

For this equation, the last three values of the life tables are used: y is the youngest age(x), y+1 = the second position, and y+2 is the third. My starting position is age 98 (y), ending at 100 (y+2), which means n =1. Values were extrapolated out to age 130 and then any value under 1 was converted to zero (around age 115-120, depending on the population) before the values were collapsed and summed to age 100.

Comparison of survival of synthetic cohorts (lx)

For the life tables developed here, it is important to evaluate how the data compares to the national life table. One way to accomplish this is to compare how the synthetic cohort in the Southwest life table survives across each age group (lx) compared to the NCHS life table. To this end, the lx for the national life tables for non-Hispanic Whites and non-Hispanic Blacks is compared for the three years of the data 1990, 2000, and 2010. Specifically, a ratio for the surviving population (lx+1/lx) between each successive age (0-99) is calculated across years and then the difference in these ratios is calculated (e.g., 1990-2000, 2000-2010, and 1990-2010) (lxratiosw-lxratio) between years to evaluate potential issues in patterning.

To allow for a comparison of the Southwest life tables developed in this project and the NCHS decennial and estimated life tables, the change in the survival ratio between each year of age is calculated from age zero up to age 99. For the NCHS decennial life tables, values are available for ages above 100 but for the 2010 data are not. For comparability between the life tables developed in this project, each table was capped out at age 100. The difference in the ratio between each year was then calculated to evaluate how the patterns of survival shifted between each life table. These values were then compared between the NCHS tables and the tables developed through this project.

A general discussion of patterns is presented. Overall, the pattern of survival between each age for the 1990, 2000, and 2010 life tables were comparable between NCHS data and the Southwest Life tables. Small differences did exist in the overall survival but these differences might be contributed to the deviations in methods and moreso issues of age misstatement, especially as the data quality deteriorates in the oldest ages. Smaller effects in younger ages may be due to data quality but minor differences may be due to the data or regional differences. These trends are for non-Hispanic Whites and non-Hispanic Blacks only.

Life tables were not available for Hispanics prior to the 2006 Hispanic origin life table so a comparison of patterns over time is not possible. The data for the non-Hispanic White and non-Hispanic Black population should indicate, overall, the deviance in survival patterns and indicate any serious problems. For the Hispanic data the effects in older ages, especially for non-Hispanic Whites, is the most salient factors in potential deviations as the probability of mortality for Hispanic populations I modeled off the non-Hispanic White populations.

The differences in the ratios are compared side-to-side to show how the patterns of survival differed between the NCHS data and the project here. Throughout most of the data, the patterns of survival follow a similar path across each of the data sources. The most significant deviation is in older age and this is particularly true for non-Hispanic Black women and non-Hispanic White men. Non-Hispanic Black women show a survival rate which is higher in 2010 than 2000 which does not appear in the NCHS data while non-Hispanic White men show the opposite effect with a lower survival in 2010 than in 2000 which differs from the NCHS. Given the effect found in older ages, possible age misstatement and related issues at the oldest ages is a strong culprit.

Decrement function (d_x) – The number of deaths occurring between each age group (x to x+1) is calculated by:

$$d_x = l_x - l_{x+1} = l_x q_x,$$

At age 100+, ${}_{\infty}d_{100} = {}_{\infty}l_{100}$, since ${}_{\infty}q_{100} = 1.0$.

Person-Years lived (Lx) – From age 1-99, Lx is calculated under the assumption that survival declines linearly between each age. The formula for this is

$$L_x = \frac{1}{2}(l_x + l_{x+1}) = l_x - \frac{1}{2}d_x,$$

For age 0-1, the separation factor for each respective grouping is averaged for the 1990, 2000, and 2010 life tables to calculation L0. The general formula for calculating this value is

$$L_0 = fl_0 + (1 - f)l_1,$$

where the separation factor is multiplied by the survivor function at age 0 and at age 1, the survivor function is subtracted from 1 and then multiplied by the survivor function at age 1. For age 100+ (${}_{\infty}L_{100}$) the value is the sum of the Lx values estimates for ages 100 and above.

Person-years lived at and above age x (T_x) – This value is estimated by summing L_x values at and above age x

$$T_x = \sum_{x=0}^{\infty} L_x,$$

where $T_x = L_x$ at age 100+.

Life expectancy at age x (e_x) – This value is calculated as

$$e_x = \frac{T_x}{l_x},$$

where person-years lived at each age (T_x) is divided by the survivor function(l_x) for the same age.

To facilitate the decomposition analysis, one additional value is calculated here, m_x. This value is the calculation of the mortality rate at each age. Due to the estimation of the mortality in older ages for each of the populations, m_x cannot be calculated for each age through the traditional formula $m_x = D_x/P_x$. Instead, I calculate m_x based on life table functions to allow for accurate decomposition calculations. The formula for this calculation is:

$$m_x = \frac{dx}{Lx},$$

which takes the hypothetical number of deaths from the synthetic cohort at age x (dx) and divides this by the hypothetical number of person-years at age x (Lx) giving the estimated mortality rate for each age. A comparison of the m_x calculated by the traditional means and the m_x calculated through the life table functions for ages below age 76 provides identical results, indicating that they are equivalent calculations.

DECOMPOSITION OF MORTALITY DIFFERENTIALS (AIM 2)

AIM 2 of the dissertation is the decomposition of differentials in life expectancy between ethnic group by sex at each time point and within each ethnic and sex grouping across time for the three time points. While the expected pattern of lower age-sex specific Hispanic all-cause mortality may be found in the data, it is important to understand if the Hispanic Paradox remains due to stable factors. For example, the Hispanic Paradox could be due to continued heart disease differences through time. However, it is also possible that the Hispanic Paradox will exist despite shifting patterns of mortality that contribute to a changing mortality through time. That is, mortality patterns may shift from heart disease to cancer differences, but these shifts may still present a Hispanic advantage.

To address the first part of this aim, I use a descriptive analysis of the mortality patterns of each population. The life expectancies for the populations of interest will then be decomposed to calculate what cause-specific contributions influence any differences in life expectancy between non-Hispanic Whites and Hispanics at each time point and within each ethnic group across time.

I use the Arriaga method for the decomposition analysis. The Arriaga method allows for the interdependence of age groups and the estimation of life expectancy. The Arriaga method is further used to calculate differentials in cause specific mortality between two groups of interest. (Arriaga, Ruzicka, Wunsch, & Kane, 1989; Preston et al., 2001)

Before decomposition is conducted, the 113 ICD recode of the underlying cause of death is further categorized to make analyses more manageable and to focus on the most important contributors to mortality.

Cause of Death Recode

Once the mortality data is hot-decked and cross-walked, the causes of death are recoded to create categories that are more manageable. Using the ICD 113 as the starting point, I further categorize the values to create 74 unique categories (as presented previously) of death for analyses. This classification system is meant to maintain major causes of death including such items as injuries, heart related mortality, diabetes, COPD, and various types of malignant neoplasms to allow for the most information possible during the decomposition analyses.

Arriaga Decomposition

Arriaga decomposition is one of many methodologies that exist for decomposing contributions to differentials in life expectancy. Another popular method that could be selected, for instance, is the Pollard methodology. These two methods comprise the two main methods of decomposition in demography. (Preston et al., 2001, p. 64)
The Pollard method (1988) is a continuous calculation methodology which is more exact in its end estimations of contributors to mortality across different causes. The Arriaga method (1989) is a discrete analysis which utilizes approximations in its calculation of

contributions to differentials in life expectancy. These differences in methodology do create some disparities in the overall estimates, but they are usually very small; though some concern remains in older ages. (Beltran-Sanchez, Preston, & Canudas-Romo, 2008) Preston, Heuveline, and Guillot (2001) indicate that the Pollard and Arriaga methods are almost identical in their calculations of differentials, and that the ease of calculation of the Arriaga justifies its use (Preston et al., 2001, p. 64). This is especially true where single years of age are used to calculate the decompositions.

The analysis for the full life tables uses single years, so the use of the Arriaga estimation technique is supported in this context. When larger age groups are used, the Arriaga method may be less preferable because of the approximations made in each age interval. For comparability of methods across aims, however, the Arriaga decomposition will be used for both the total population life table which does not differentiate nativity and uses single ages and an abridged life table developed for the nativity life tables which is discussed later in this chapter.

For the cause-specific decomposition of differences in life expectancy is

$$ {}_n\Delta_x^i = {}_n\Delta_x * \frac{{}_nm_x^i(2) - {}_nm_x^i(1)}{{}_nm_x(2) - {}_nm_x(1)} = $$

$$ {}_n\Delta_x * \frac{{}_nR_x^i(2) * {}_nm_x(2) - {}_nR_x^i(1) * {}_nm_x(1)}{{}_nm_x(2) - {}_nm_x(1)} . $$

${}_n\Delta_x$ is the contribution of all-cause mortality differences for each age group to differences in life expectancy at age 0, the formula for calculating the value is

$$ {}_n\Delta_x = \frac{l_x^1}{l_0^1} * \left(\frac{{}_nL_x^2}{l_x^2} - \frac{{}_nL_x^1}{l_x^1}\right) + \frac{T_{x+n}^2}{l_0^1} * \left(\frac{l_x^1}{l_x^2} - \frac{l_{x+n}^1}{l_{x+n}^2}\right) $$

At age 100+, the formula is

$$_{\infty}\Delta_x = \frac{l_x^1}{l_0^1} * \left(\frac{T_x^2}{l_0^1} - \frac{T_x^1}{l_x^1}\right)$$

The difference in life expectancy in the two populations equals the sum of the $_n\Delta_x$.

$_nm_x = \frac{D_x}{P_x}$ is the mortality rate in each population of interest and $_nR_x^i$ is the proportion of deaths from each cause for the population of interest. I then sum the differentials for each cause by age group to determine the total contribution to differentials in life expectancy for each cause. A check for this process is to evaluate the total of all the cause-specific contributors to make sure it matches the difference in life expectancy between non-Hispanic Whites and Hispanics and non-Hispanic Blacks and Hispanics, respectively.

I calculate the decompositions for Hispanics and non-Hispanic Whites and Hispanics and non-Hispanic Blacks within each life year period to examine mortality differentials for Hispanics and non-Hispanics. This calculation is completed for each of the time periods. I use the estimated decompositions to highlight several important pieces of information. First, for each time year, I highlight which causes of mortality contribute most to differences in life expectancy at any point. Second, because the decompositions use Hispanics as the reference group, I present the effects of specific cause of mortality on life expectancy differences for Hispanics and non-Hispanics by comparing differentials for Whites and Blacks against Hispanics at each time point. Third, I compare the differences in mortality differentials for Hispanics versus non-Hispanic Whites and Blacks for each time point to highlight the changing contributions to mortality through time.

LIFE TABLE AND DECOMPOSITION ANALYSIS BY NATIVITY (AIM 3)

For AIM 3, I reproduce the life table and the decomposition analysis comparing immigrant and native US-born Hispanics. The analysis is the same as that for aims 1 and 2, with a few differences because of differences in available data. As discussed in the background discussion in chapter 2, there is lower mortality for immigrants; however, health behaviors across the world are changing. Specifically, there is a rise in obesity as drastic dietary changes have occurred across the world. (Cohen, Chavez, & Chehimi, 2010; Popkin, 2009) The disaggregation of mortality differentials should help to understand how nativity influences the mortality patterns expressed in the United States Hispanic population at large.

The denominators for the native and foreign-born data Hispanics were calculated using information available through the IPUMS available for all of the years of interest. (Ruggles et al., 2010) Rather than directly aggregating sample estimates of denominator counts, I calculated the proportion of native and foreign born based on reported US or foreign-birth. I then applied these estimates to allocate the age-by-sex counts of Hispanics taken from the 1990 MARS and 2000 and 2010 Bridged race files. The IPUMS data are top coded at age 90 for 1990, so for consistency across years all data are set to top-code of 90. I then apply these proportions to the population data from the Census to create the two population groups. I classified persons who were born abroad to U.S. citizen parents as foreign-born in deriving both numerator and denominator counts.

For 1990 and 2000, IPUMS data was based on the 5% sample from the Census data but in 2010 data was collected through the ACS data, a continuous annual survey that collects information through the United States. The estimates of native and foreign birth for the ACS data may not be as comparable with the data previously collected. In the data for the United States, the ACS shows a significant increased representation of Asians and a decreased representation of Hispanics. In the larger population, this effect is expected to be minimal but an underrepresentation of foreign-born Hispanics could have a significant impact on the values calculated for 2010 for the Southwest United States. (Raglin, Leslie, Griffin, & others, 2003) I use estimations of nativity to create a consistent point of comparison but with the acknowledgement that the results may not represent the full extent of change through time.

Adjustments of Age and Ethnicity. As in the AIM 1 and AIM 2 analysis, I adjust Hispanic counts for under-report of Hispanic ethnicity on the death certificate using classification ratios reported by Arias et al. The classification ratios for nativity provided by Arias are 1.07 for native-born Hispanics and 1.02 for foreign-born Hispanics. I then apply the Arias coefficients to the counts of death for each native and foreign group, with the same values across sexes, for single year of age. To determine best methods, I collapse and totaled the data and then applied the correction to the total but expanding the data back with the original proportion led to heavily skewed values so I abandoned this approach.

Use of Abridged Life Table. Unlike in the previous aims, I do not use the Beers Ordinary Minimized Fifths formula to smooth numerators and denominators for the native- and foreign-born Hispanic population. The reason that the smoothing is not done for the native and foreign- Hispanic data is that in the 2010 population the foreign-born data is too sparse to smooth correctly across age groups leading to unrealistic negative numbers at about age 9 for the number of deaths in the foreign born population. To allow for comparability between groups, then, I do not utilize the Beers smoothing formula. Instead, I collapse the data and develop an abridged life table to allow for comparison of the data.

COMPARISON OF MORTALITY RATES BY AGE COHORTS (AIM 4)

Cohort-based Mortality

In recent literature, there has been a reemergence of cohort analyses with the development of a new class of analysis. (Reither, Masters, et al., 2015) Cohorts provide a snapshot of the differential effects of birth placement on mortality through time and reflect both the effects of the age of a person and the effects of the period they were born in on mortality differences. Examination of cohorts then is used to tease out the changing patterns of health and mortality in history as they affect differing groups through time. Despite the interest in cohorts, however, potential problems with this approach remain.

Of most concern about examining cohorts over time is the age-period-cohort (APC) problem. Age, period, and cohort all represent unique facets of the demographic experience that contribute to differential exposures, accesses, and outcomes. However, when treated in a linear fashion, age period and cohort are linearly dependent. That is all three elements cannot be included at once in a linear regression because any two elements estimated in a model can be used to determine the third. Figure 16 above shows how these elements overlap.

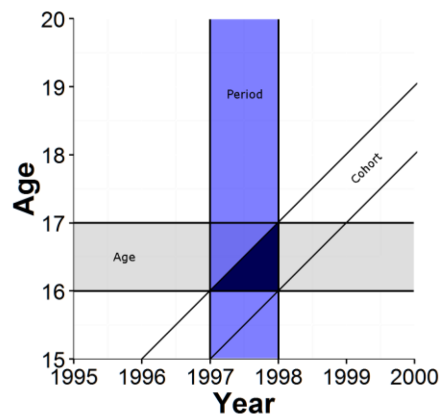


Figure 16. Lexis Diagram of Exposures by Age, Period, and Cohort

For each age group, then there is a combined experience (age effect; grey row), a unique experience of those living within a certain year (period effect; blue column), and the intersection of age and time which influences how a group experiences things is the cohort (angled lines). The overlap of period, age, and cohort is indicated by the dark blue triangle.

This linear overlap makes separating the effects of each component difficult and while attempts have been made through time (especially non-parametric methods) no one answer has been satisfactory (Bell & Jones, 2015; Kupper, Janis, Karmous, & Greenberg, 1985; Luo, 2013; Reither, Masters, et al., 2015). Most recently, attempts have been made to use modeling to address these difficulties using estimators or with hierarchical random mixed effects models in analyses. (R. Masters, 2012; R. K. Masters, Hummer, & Powers, 2012; Yang, 2006; Yang, Fu, & Land, 2004; Yang, Schulhofer-Wohl, Fu, & Land, 2008) Despite these attempts, recent scholarship still casts doubt on the ability to solve this problem, at least in the case of estimators (Bell & Jones, 2013) and the debate about which approach to adopt still rages on. (Bell & Jones, 2015; Reither, Land, et al., 2015; Reither, Masters, et al., 2015) No matter the issues with the cohort approach and the APC problem, research on cohorts remains of great interest and even as a crude measure, they can provide some insight into population trends through time.

The data here cannot be used to create a true cohort analysis as the population and mortality data cannot be truly linked to a stable and consistent population through time. Specifically, the current data accepts the whole population of the Southwestern United States and ignores changes in population through in and outmigration that affect the population changes through times. These differences may contribute to changing population compositions and mortality effects, though for the purposes here populations are treated as stable and of similar composition to track changes through time.

For this aim, I created pseudo-cohorts to develop rates across the Hispanic and non-Hispanic populations and for the native- and foreign-born populations. The creation of crude cohorts can help provide insight into the differences in population mortality trends across groups through time. The cohorts developed for this analysis are selected based on 1990 data and are represented through four groups: Pre-1926 (age 65 and older), 1926-1945 (age 45-64), 1946-1975 (age 15-44), and 1976 to 1990 (Age 0 to 14). Table 2 below provides a visual representation of the cohort groups and their ages through time.

Once the cohort rates are calculated for each time period, the cohorts will be followed through time from 1990 to 2010 to examine how mortality patterns (established

Table 2. Age Cohorts by Period (and age at each period)

Age Cohort (Age of Cohort)	Year: 1990	2000	2010
	1976-1990 (0-14)	---	---
	1946-1975 (15-44)	1976-1990 (10-24)	---
	1926-1945 (45-64)	1946-1975 (25-54)	1976-1990 (20-34)
	Pre-1926 (65+)	1926-1945 (55-74)	1946-1975 (35-64)
	---	Pre-1926 (75+)	1926-1945 (65-84)
	---	---	Pre-1926 (85+)

through rates) change through time as population level health changes occur as well as shifts in cultural effects.

In the next several chapters, I discuss the results of the analyses presented above. The discussion is separated into two major topics, namely Hispanic and non-Hispanic populations and native-and foreign-born Hispanics. Under each major topic, the data is

discussed in the order presented above: Life Tables for Total Populations, Decompositions for Total Populations, Abridged Life Tables for the Native- and Foreign-born populations, Native- and Foreign- born decompositions, and Native- and Foreign-born cohort rates. Data is presented for each year.

SUMMARY

To analyze the Hispanic Paradox in the Southwest United States, three approaches were utilized. First, for Aim 1, I develop life tables for Hispanics and non-Hispanic and native- and foreign-born Hispanics for the years 1990-2010. For the life tables, two methods were utilized. For the Hispanic and non-Hispanic Southwest populations, I develop single-year life tables using mortality adjustments developed by Arias and colleagues which are applied to the Hispanic Origin life table for the year 2006 and used in every life table produced by the National Center for Health Statistics thereafter. Before the mortality adjustments, I impute age, Hispanic Origin, and nativity for the mortality data using the hotdeck imputation procedure, a single imputation method which used random selection of a missing value from matching characteristics in other records to assign missing values. Following the imputation and the Arias mortality, the mortality data were then smoothed to address age lumping and age misstatement issues. Population data was also smoothed to address these issues.

For the native- and foreign-born Hispanic life tables, abridged life tables were developed based on five year ages groupings with separate categories for age 0, age 1-4, and top-coded at age 95+ due to limited data. The mortality data was not smoothed due to using the abridged methodology which collapses the deaths and populations together, so the need to redistribute the deaths for a smooth curve was not necessary. However, these tables did not provide realistic values for life expectancy and are therefore not treated as reliable for representing actual mortality (particularly in older ages). However, the differences were treated as informative and allowed for the decomposition of cause-specific contributors related to nativity.

For both the Hispanic and non-Hispanic life tables and the native- and foreign-born life tables, life expectancy was decomposed to apportion contributors to the differences in life expectancy to the cause-specific causes of mortality and the differences in overall age-specific mortality rates between Hispanics and non-Hispanics and between native- and foreign-born Hispanics. For the decomposition, the Arriaga decomposition, a discrete approach, was used.

Finally, the top cause-specific contributors to differentials in life expectancy from the decompositions are used to identify cause-specific rates of interest for the pseudo-cohort mortality rates developed for Hispanics and non-Hispanics and native- and foreign-born Hispanics for the years 1990, 2000, and 2010.

RESULTS

Chapter 4: Hispanic and non-Hispanic Life Tables for the Southwest United States

This chapter presents the life tables for Hispanics and non-Hispanics in the Southwest United States in 1990, 2000, and 2010 to address Aim 1. The life tables were developed to address three questions that are associated with this aim. First, what is the life expectancy of Hispanics and non-Hispanics in the Southwest United States? Second, how does life expectancy change for Hispanics and non-Hispanics in the Southwest from 1990 to 2010? Finally, do the findings support the findings of a Hispanic mortality advantage in the research literature and the United States life tables?

To this end, first, I present the findings for each Arias adjusted and brass smoothed life table. Then I evaluate life expectancy by highlighting the life expectancy of the Hispanic and non-Hispanic men and women at age 0 and age 50 to see how mortality in early life and mid-life evolves through time. In addition to evaluating the values at each period, I also evaluate the changes and differences within and between populations by calculating the difference in years between group and the percent of change in life expectancy within each group through time. Finally, I evaluate the survivorship of each population to evaluate how quickly each population experiences mortality at the end of life.

For the Southwestern life tables, three years of data are presented: 1990, 2000, and 2010. For each of the years, the life tables are presented as single year life tables and a top-coded category of 100 years of age to constrain the higher end of the data. A critical element for the developed of the life tables is the assessment of data quality and the methodology for preparing the data for life table development. To assess the methodology and data quality, two issues are examined before the data are presented.

For the life tables, first, the values for the overall life table are presented visually and in a tabular fashion to help parse out the important values. For the life table, first, the life expectancy of each group is shown. This is done both visually and through tabulation. Then the differences between each of the populations (i.e. Hispanics and non-Hispanic Whites) are presented visually to show the differences in each time period across groups. This also allows for temporal patterns in the differences to be shown visually.

I then present the survivorship of the populations for each life table are presented both tabularly and graphically to allow for easier comprehension of survival of the populations. For the tabular presentation, the survival of the population at each age (l_x) is presented in an abridged fashion with an emphasis on five-year age groups, except for age 0 and age 1. This allows for the transition between each population to be seen numerically. Following the tabular presentation, the data are presented visually by presented the percent surviving to each age. The percent surviving is calculated by the surviving population at each age (l_x) over the hypothetical population surviving at age 0 (l_0 =100,000). This allows for the patterns of mortality change to be presented visually and shows transition in survival patterns between populations and across populations through time.

LIFE TABLES

For the Southwest life tables, the data are compared in two ways. First, the populations of the Southwest US life table are described and the life expectancy compared between groups within each life table and across years within populations to one another at each year. Second, the data for the Southwest is compared to NCHS life tables for available years. This allows for the populations to be compared to one another to evaluate how each Hispanic and non-Hispanic group fairs within the Southwest and also allows for a comparison of patterns of the Southwest United States with patterns for the United States as a whole. In addition, the average life expectancy is presented visually and in a tabular fashion for each of the groups within the Southwest United States. Note that for 1990 and

2000, only non-Hispanic Whites and non-Hispanic Blacks are compared as Hispanic origin tables are unavailable prior to 2006.

LIFE EXPECTANCY BY HISPANIC ORIGIN, RACE, SEX, AND AGE

Figure 17 shows the average life expectancy broken down by Hispanic origin, race, and sex. The data are shown across 1990, 2000, and 2010. For all three years, the highest life expectancy is for Hispanic females. In 1990, Hispanic females had a life expectancy of 81.1, by 2000 it had increased slightly to 81.4 but still remained the higher life expectancy, and by 2010 the life expectancy for Hispanic females had increased to 82.8, still above all other populations. The second highest life expectancy was for non-Hispanic White Females. They maintained the second highest life expectancy across all three time periods. For non-Hispanic White Females, the average life expectancy in 1990 was 79.4 years, by 2000 life expectancy had increased to 80.2 years, and by 2010 it had increased to 81.6 years average life expectancy. While non-Hispanic White females made a slight gain related to Hispanic females between 1990 and 2000, from 2000, to 2010, the Hispanic advantage remained stable. For non-Hispanic Black women, the average life expectancy was the lowest for all females, with a life expectancy of 74 years of age. In 1990, all women had an advantage over men in life expectancy but by 2000 and 2010, non-Hispanic Black women fell below Hispanic men.

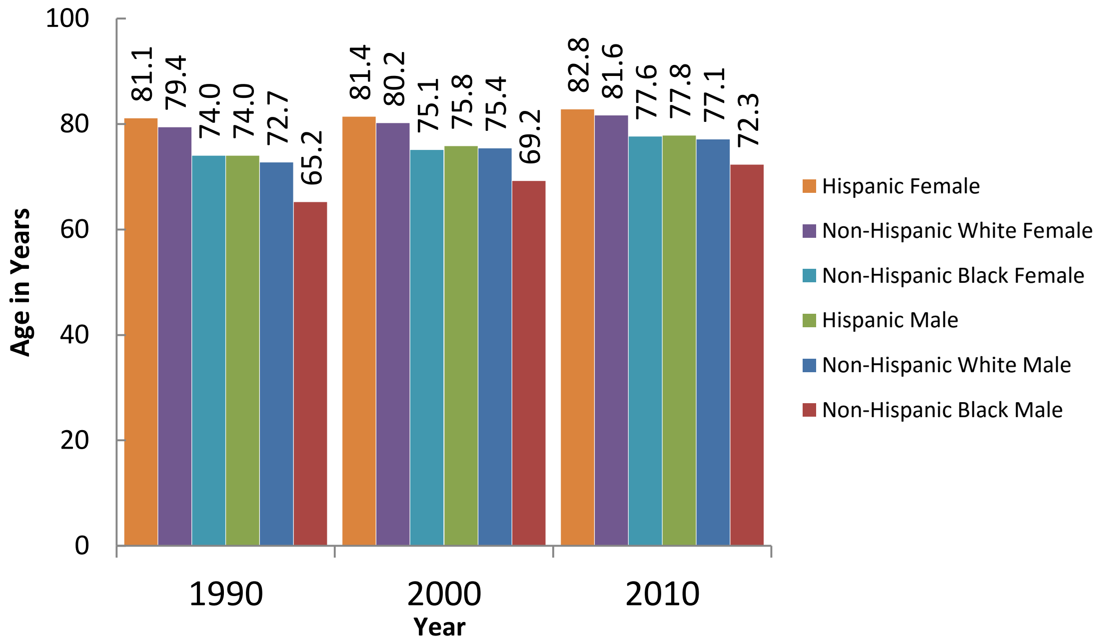
For males (Figure 17), Hispanics had the highest average life expectancy across all years. In 1990, Hispanics had an average life expectancy of 74.0 years, by 2000 the life expectancy for Hispanic males had increased to 75.8 years, and by 2010 the average life expectancy had increased to 77.8-years average life expectancy. Non-Hispanic White men had the second highest life expectancy for all males at each time period. In 1990, the average life expectancy for non-Hispanic White men was 72.7 years. By 2000, their average life expectancy had increased to 75.4 years and, in 2010, the average life expectancy had increased to 77.1 years. Of all groups, non-Hispanic Black men had the lowest average life expectancy, showing the worst life expectancy at each age across all groups and all times. In 1990, the average life expectancy was 65.2-years average life expectancy. By 2000, the average life expectancy had increased to 69.2 years. And by 2010 the average life expectancy had continued to improve to 72.3 years, though they still remained the population with the lowest life expectancy.

While there are racial and ethnic patterns of life expectancy mentioned above, another important element of the patterns of life expectancy is a gendered difference in improvement through time. While, Hispanic and non-Hispanic females improve through time, they do not improve at the same pace as males. However, males have much more ground to gain, given their much lower life expectancy through time. This difference in the groups may then reflect a ceiling effect for females who have already better mortality profile and life expectancy compared to males.

In Figure 18, the differences in the average life expectancy at birth are presented for each time period. Comparing Hispanic females to non-Hispanic females in 1990, Hispanic females had a 1.7-year advantage in life expectancy over non-Hispanic White females. By 2000, this advantage had dropped to 1.2-years difference which remained stable in 2010.

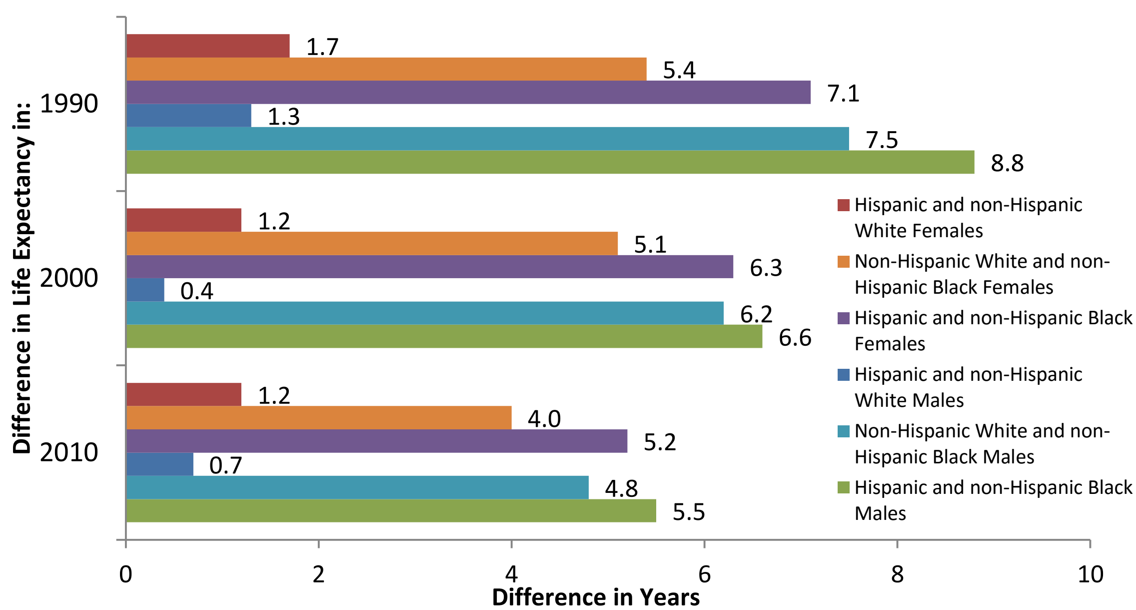
Comparing Hispanic females to non-Hispanic Blacks females, the difference in average life expectancy is 7.1 years in 1990. By 2000, the difference had declined to 6.3 years, and by 2010 it dropped to 5.2 years. And for non-Hispanic Whites and non-Hispanic Blacks, the difference was a 5.4 years in 1990, 5.1 years in 2000, and 4.0 years by 2010.

For males, the difference in life expectancy between Hispanics and non-Hispanic Whites was 1.3 years in 1990. 0.4 years in 2000, and the gap widened slightly to 0.7 years by 2010. For Hispanics and non-Hispanic Black males, the difference was 8.8 years in 1990, down to 6.6 years in 2000, and by 2010 it had dropped to 5.5 years. For non-Hispanic



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 17. Average Life Expectancy by Hispanic Origin, Race, and Sex in 1990, 2000, and 2010



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 18. Difference in Life Expectancy at Birth for Hispanics and non-Hispanics: Southwest United States, 1990-2010

Whites and non-Hispanic Blacks, the difference was 7.5 years in 1990, 6.2 years in 2000, and 4.8 years by 2010.

I also evaluated life expectancy within groups to assess how much groups improved across time. To make this assessment, I calculated the percent growth in life expectancy for each Hispanic and non-Hispanic group across time at age 0 and at age 65 to evaluate early and later life patterns of mortality. First, I present the percent change in life expectancy for each group from 1990 to 2010. In the period from 1990 to 2010, non-Hispanic Black males and females made the largest improvements for their respective racial/ethnic and gender groups with 10.9% growth for males and 5.1% growth for females. Non-Hispanic Whites showed the next greatest growth with an improvement of 6.1% for males and 2.8% for females. Finally, Hispanics, while the highest group overall life expectancy, showed the lowest growth of 5.1% and 2.1% for males and females, respectively.

Examining the data across the periods from 1990 to 2000 and 2000 to 2010 indicates differential patterns of change across time. For non-Hispanic Black men and women, the percent growth from 1990 to 2000 was 6.1% and 1.5%, respectively. And for the period of 2000-2010, males showed slower growth with 4.5% growth while females showed higher growth with 3.3% growth. Non-Hispanic White growth also differed between periods with males showing growth of 3.7% from 1990 to 2000 and females showed only a 1.0% growth. In the next ten-year period, males had an estimated growth of 2.3% while females improved 1.8%. Finally, Hispanic males showed a slight change in growth from 2.4% in 1990 to 2000 and a 2.6% growth from 2000 to 2010. In the same time, Hispanic females improved from 0.4% from 1990 to 2000 to a 1.7% growth from 2000 to 2010.

At age 65, life expectancy also showed changes for Hispanics and non-Hispanics across time but the patterns of growth were much different than for life expectancy age 0. Overall, at age 65 non-Hispanic Black males made the largest gains compared to their counterparts within each race/ethnicity. From 1990 to 2010, non-Hispanic Black males made the most significant increase with a 20.15% increase in life expectancy followed second by non-Hispanic White males at 17.31% and Hispanic males made the smallest gains for males across time with an 8.77% increase. For women, increases in life expectancy were much less striking than those shown by males. Like the males, however, non-Hispanic Black females showed the largest increase over time with a 9.77% increase in life expectancy. Non-Hispanic White females showed the next highest increase at 7.77% and Hispanic females were the lowest with 3.90 % increase.

Breaking these numbers down a bit, the picture changes somewhat. At age 65 the most significant gains from 1990 to 2000 were made by non-Hispanic White males and females with males gaining 7.69% and females gaining 1.04%. The second highest growth was for non-Hispanic Black males with a 6.72% increase in life expectancy and non-Hispanic Black females were flat at 0%. The lowest gains were for Hispanic Males with a 1.17% increase while Hispanic females showed decreasing life expectancy at 65 with growth of -1.46%. For the period of 2000 to 2010, non-Hispanic Blacks showed the most significant increases with males having a 20.15% increase in life expectancy and women increasing 9.77%. Non-Hispanic White males and females made the second largest increases with males increasing 8.93% from 2000 to 2010 and females increasing 6.67% in the same time. Hispanics again showed the smallest increases with males gaining 7.51% and females gaining 5.45%. Of note, however, is that Hispanic females showed a reversal in trends rebounding to almost a five and a half percent increase by 2010 even though the pattern from 1990 to 2000 showed a decreasing life expectancy at old age.

In addition to life expectancy from birth, the expectation of life (Table 2) for age 0, 1, and five-year age groups thereafter is tabulated by Hispanic origin, race, and sex for each life table period. The low life expectancy at birth has already been highlighted above.

However, other interesting trends can be seen in the early years of life. Most notably, for non-Hispanic Blacks in 1990, the first year of life shows a similar trend to second year of life, with either the same life expectancy or slightly better odds. This indicates a very high infant mortality in 1990 for non-Hispanic Blacks for that year. By 2000 and 2010, this extreme pattern no longer appears in the data likely due to the improvement in the probability of survival (q_0) with a decrease from 1.7% chance of mortality for males at age 0-1 and a 1.4% chance of mortality for females in 1990, to 1.2% and 1.0%, respectively, in 2000, which dropped slightly to 1.1% for males in 2010 and .09% for females. These values are still higher than their counterparts but the improvements in infant mortality are fairly substantial through time. Other factors in older ages may also have an effect in overall life expectancy gains through time for non-Hispanic Blacks.

Looking at the life tables for the Southwest United States (Table 3), the expectation of life at age 65 also provides insight into how each of the populations experiences mortality. For non-Hispanic White males and females in 1990, life expectancy is 15.6 years expected life left at age 65 for males and for females it is 19.3 years. By 2000, the expected life remaining is 16.8 years and 19.5 years for non-Hispanic White males and females, respectively. And, by 2010, that had increased to 18.3 years remaining for non-Hispanic White males and 20.8 years expected life remaining for females.

For non-Hispanic Blacks, the remaining expectation of life at age 65 in 1990 was 13.4 for males and 17.4 for females. By 2000, this had increased to 14.3 for males and remained level at 17.4 for females. In 2010, there was a continued improvement to 16.1 years expected life remaining at age 65 for males and an increase for females to 19.1 years expected life remaining.

Finally, Hispanics in 1990 had an expectation of life expectancy at age 65 of 17.1 and 20.5 years for males and females, respectively. By 2000, the expected life remaining at age 65 had increased to 17.3 years for males and actually saw a slight decrease for females, dropping to 20.2 years expected life remaining. In 2010, the expectation of life one again saw an improvement for males, increasing to 18.6 years expected life remaining at age 65. Hispanic females saw an increase in expected life at age 65, improving to 21.3

Table 3. Expectation of life by age, Hispanic origin, race, sex, and year for the Southwest United States

	1990					
	Non-Hispanic White		Non-Hispanic Black		Hispanic	
Age	Male	Female	Male	Female	Male	Female
0..........	72.7	79.4	65.2	74.0	74.0	81.1
1..........	72.3	78.9	65.3	74.0	73.6	80.6
5..........	68.5	75.0	61.5	70.2	69.7	76.8
10..........	63.5	70.1	56.6	65.3	64.8	71.8
15..........	58.6	65.2	51.7	60.4	59.9	66.9
20..........	54.0	60.3	47.3	55.6	55.3	62.0
25..........	49.4	55.5	43.0	50.9	50.8	57.1
30..........	44.8	50.6	38.8	46.1	46.3	52.2
35..........	40.2	45.8	34.6	41.5	41.8	47.4
40..........	35.8	41.0	30.5	37.0	37.4	42.6
45..........	31.3	36.3	26.5	32.6	33.1	37.8
50..........	27.0	31.8	22.7	28.4	28.8	33.3
55..........	22.9	27.4	19.2	24.4	24.6	28.8
60..........	19.1	23.2	16.1	20.7	20.7	24.5
65..........	15.6	19.3	13.4	17.4	17.1	20.5
70..........	12.5	15.6	11.0	14.3	13.9	16.8
75..........	9.8	12.3	8.8	11.5	11.1	13.4
80..........	7.5	9.4	7.0	9.0	8.7	10.3
85..........	5.6	6.9	5.5	7.0	6.6	7.7
90..........	4.1	4.9	4.1	5.2	5.0	5.6
95..........	3.1	3.5	3.3	3.9	3.8	4.1
100........	2.4	2.6	2.5	2.9	3.0	3.0

	2000					
	Non-Hispanic White		Non-Hispanic Black		Hispanic	
Age	Male	Female	Male	Female	Male	Female
0..........	75.4	80.2	69.2	75.1	75.8	81.4
1..........	74.8	79.5	69.0	74.9	75.3	80.8
5..........	70.9	75.6	65.2	71.0	71.4	76.9
10..........	66.0	70.7	60.3	66.1	66.4	71.9
15..........	61.0	65.7	55.3	61.2	61.5	66.9
20..........	56.3	60.9	50.7	56.3	56.8	62.0
25..........	51.6	56.0	46.2	51.5	52.1	57.1
30..........	46.9	51.1	41.7	46.7	47.4	52.2
35..........	42.2	46.3	37.2	42.0	42.7	47.4
40..........	37.5	41.5	32.7	37.4	38.1	42.5
45..........	33.0	36.8	28.5	32.9	33.7	37.8
50..........	28.7	32.3	24.5	28.7	29.3	33.2
55..........	24.5	27.8	20.8	24.7	25.0	28.7
60..........	20.5	23.5	17.4	20.9	21.0	24.4
65..........	16.8	19.5	14.3	17.4	17.3	20.2
70..........	13.5	15.8	11.5	14.2	13.9	16.5
75..........	10.5	12.4	9.1	11.3	10.9	13.0
80..........	8.0	9.3	7.1	8.8	8.3	9.9
85..........	5.9	6.9	5.5	6.7	6.2	7.3
90..........	4.3	4.9	4.2	5.0	4.5	5.3
95..........	3.1	3.4	3.2	3.7	3.2	3.7
100........	2.2	2.4	2.4	2.7	2.3	2.6

	2010					
	Non-Hispanic White		Non-Hispanic Black		Hispanic	
Age	Male	Female	Male	Female	Male	Female
0..........	77.1	81.6	72.3	77.6	77.8	82.8
1..........	76.5	81.0	72.1	77.3	77.3	82.2
5..........	72.6	77.0	68.2	73.4	73.4	78.3
10..........	67.6	72.1	63.3	68.5	68.4	73.3
15..........	62.7	67.1	58.4	63.5	63.4	68.3
20..........	57.8	62.2	53.6	58.6	58.6	63.4
25..........	53.2	57.4	49.1	53.8	53.9	58.5
30..........	48.5	52.5	44.5	49.0	49.2	53.6
35..........	43.8	47.7	40.0	44.3	44.5	48.7
40..........	39.2	42.9	35.5	39.6	39.8	43.9
45..........	34.6	38.3	31.0	35.1	35.2	39.1
50..........	30.3	33.7	26.8	30.8	30.8	34.5
55..........	26.1	29.3	22.9	26.6	26.5	29.9
60..........	22.2	25.0	19.3	22.8	22.4	25.5
65..........	18.3	20.8	16.1	19.1	18.6	21.3
70..........	14.8	16.9	13.1	15.6	15.0	17.3
75..........	11.5	13.3	10.3	12.4	11.6	13.5
80..........	8.6	10.1	7.9	9.5	8.6	10.2
85..........	6.2	7.3	5.9	7.1	6.1	7.3
90..........	4.4	5.1	4.3	5.2	4.3	5.0
95..........	3.0	3.5	3.2	3.7	2.9	3.4
100........	2.0	2.2	2.2	2.5	1.9	2.1

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

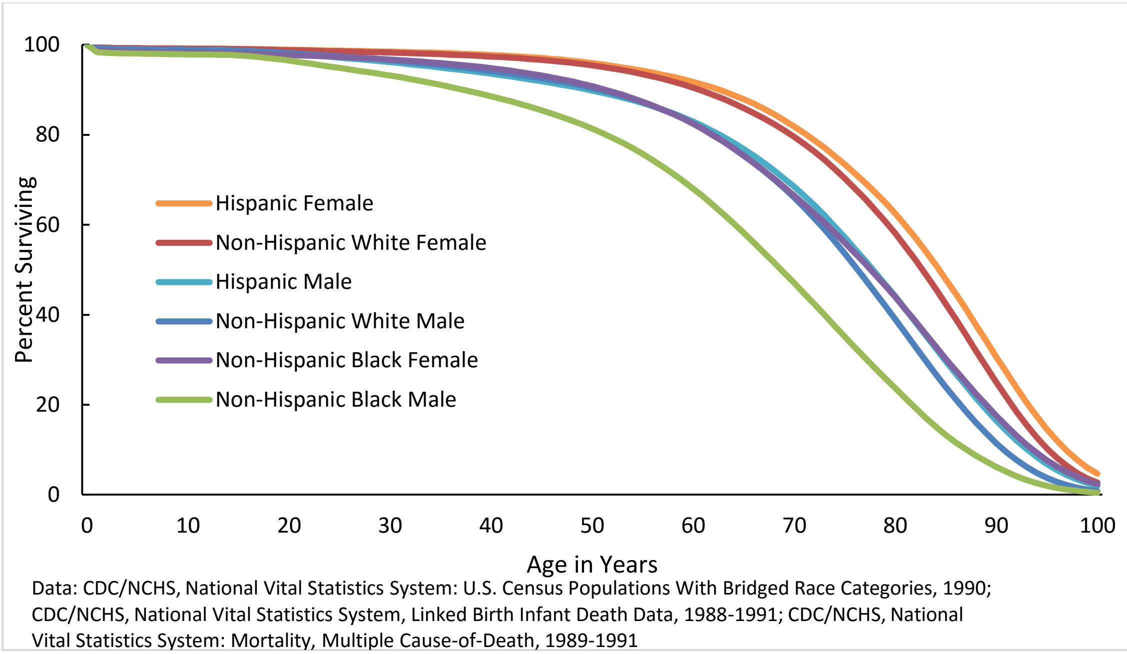


Figure 19. Percent Surviving by Age, Hispanic Origin, Race, and Sex: Southwest United States, 1990

years in 2010. Overall, all groups improved through time, though males, especially in minority populations showed the most improvement.

SURVIVORSHIP BY HISPANIC ORIGIN, RACE, SEX, AND AGE

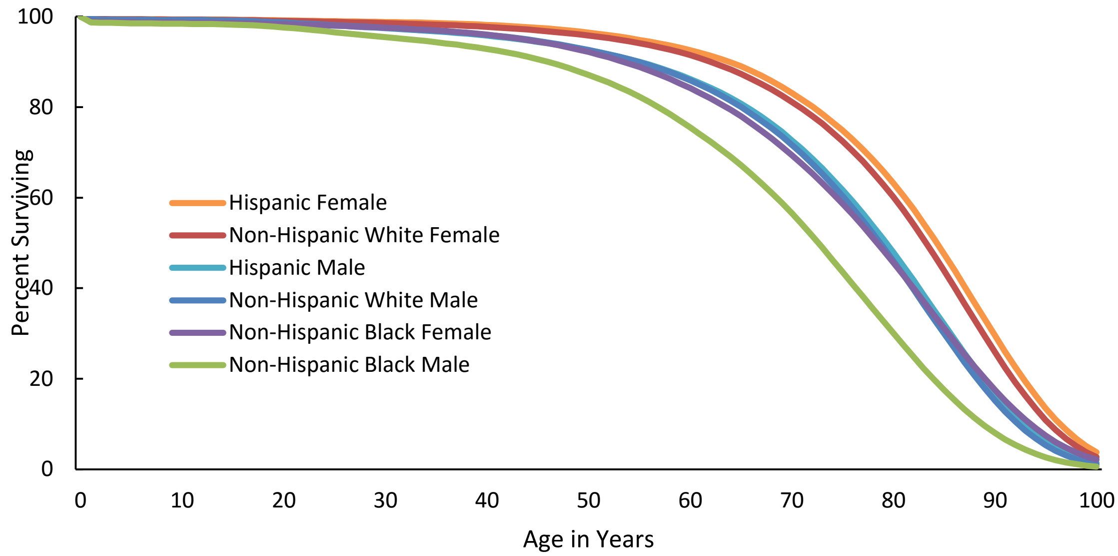
Related to the probability of mortality and life expectancy is the survivorship of the population. Indeed, survivorship drives the components of the life table that contribute to life expectancy. In addition to the function it provides in the life table, understanding survivorship also allow for an understanding of when a population dies. The percent surviving is presented and discussed below for each time period to allow comparison between groups through time.

Figure 19 shows the curve for the percent surviving for the year 1990. The higher survival in early life can be seen for Hispanic and non-Hispanic White females. These two groups begin to diverge noticeably about age 50 with Hispanics showing a growing advantage. Non-Hispanic Black females, non-Hispanic White males, and Hispanic males show very similar pattern of survival until about age 60 to age 70.

Hispanic males begin to differentiate from non-Hispanic White Males who continue to show a sharp decline in survivorship and non-Hispanic Black females show patterns similar to Hispanic men, converging near non-Hispanic White females by the end of life. Non-Hispanic Black males do the worst of all groups showing a much lower survival through all ages, even in arly life and sharply declining through time. In very late life, near age 100, non-Hispanic Black males begin to converge with non-Hispanic White males.

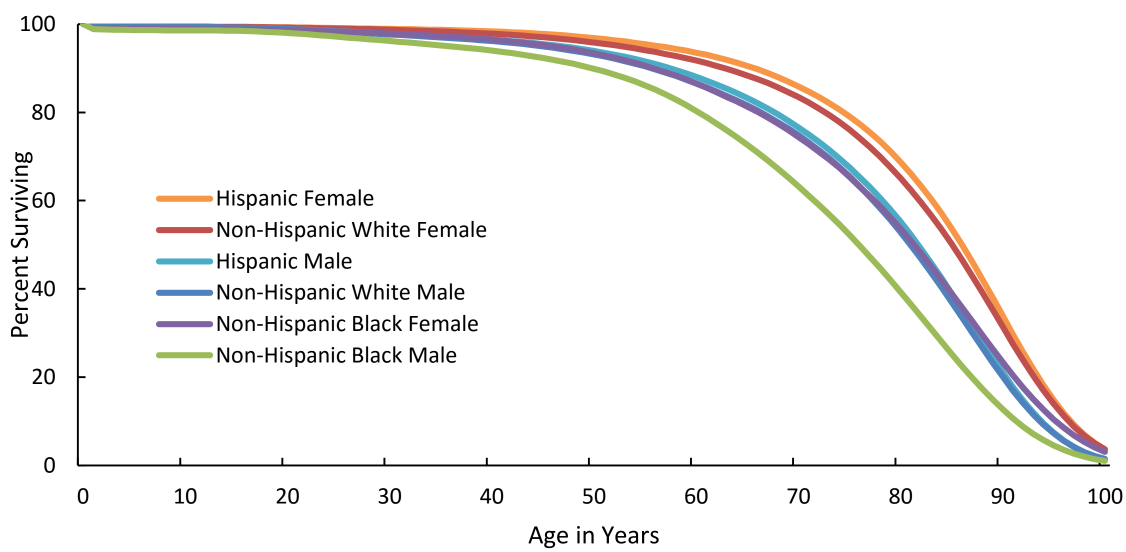
By 2000 (Figure 20), the curves begin to show a compression of mortality in later life for all groups compared to 1990. Like in the 1990 data, Hispanic and non-Hispanic White females both have a higher survival compared to the other groups and show a very similar pattern of survival. Compared to 1990, the difference in survival between Hispanic and non-Hispanic White females is much smaller, though the onset is about the same at age 60. As with 1990, non-ispanic White and Hispanic males are fairly similar in their survival and non-Hispanic Black females show patterns that match these groups. For Hispanic males, there is a slight advantage from the early 50s over non-Hispanic White males which continues until age 100. Non-Hispanic Black females show a sharp decline in survivorship in the late-middle ages which begins to cross over into the late ages which more closely matches Hispanics and non-Hispanic White females.

Like in the 1990 data, non-Hispanic Black males continue to show the lowest survivorship of all groups in the 2000 data. Of note, however, is that they are surviving more into older ages and showing a lower decline as evidenced by the compression of the curve across between 1990 and 2000. This effect occurs for all groups but is most noticeable for non-Hispanic Blacks males.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 20. Percent Surviving by Age, Hispanic Origin, Race, and Sex: Southwest United States, 2000



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Figure 21. Percent Surviving by Age, Hispanic Origin, Race, and Sex: Southwest United States, 2010

In the 2010 graph (Figure 21), the data continues to show a compression of mortality, with survivorship pushing further into older ages for all groups. Non-Hispanic White and Hispanic females continue to show the highest levels of survivorship across all groups, though a separation between the groups again appears. However, unlike in previous data, the two groups begin to converge in survivorship in the oldest ages. For Hispanic Males and non-Hispanic White males, the two groups are basically one for one with Hispanic males showing a slight advantage in adulthood which grows slightly in the 80s before converging again. Non-Hispanic Black females again show lower survivorship in the late-middle and early-older ages but those that survive past age 80 show an uptick in the pattern of survivorship. Non-Hispanic Black men again show gains in survivorship with the decline in survival pushing further toward middle age. Despite these gains, however, the survival of the non-Hispanic Black population remains the lowest of all groups.

SUMMARY

In this chapter, I used life tables to identify patterns of mortality in Hispanics and non-Hispanics in the Southwest United States. After developing the life tables, I evaluated the output of the life tables to provide more depth of meaning for the findings. From the analyses and the post analyses of the life tables, I found that male and female Hispanics had the highest life expectancy compared to their non-Hispanic counterparts. Despite this advantage, Hispanics made some of the lowest growths in life expectancy compared to non-Hispanic Whites and Blacks. Non-Hispanic White males and females in this analysis gained sufficient life expectancy through time to be within a year of Hispanics by 2010. Non-Hispanic Black males and females, despite being showing the lowest life expectancy for respective groups across time, showed the largest gains in life expectancy of groups This section has provided an examination of Hispanic and non-Hispanic mortality and survival for the periods of 1990 to 2010.

For the Hispanic and non-Hispanic life tables, both Hispanic males and females had a higher life expectancy than their non-Hispanic counterparts at all time. In 1990, 2000, and 2010 the life expectancy for Hispanic females was 81.1, 81.4 and 82.6 years, and Hispanic males had life expectancies of 74.0 years, 75.8 years, and 77.8 years, respectively. Non-Hispanic females and males had the second highest life expectancies overall with females having life expectancies of 79.4, 80.2, and 81.6 years average life expectancy for 1990, 2000, and 2010, respectively while non-Hispanic White males had life expectancies of 72.7, 75.4 and 77.1, respectively. Non-Hispanic Black males and females had the lowest life expectancies of all, overall, with non-Hispanic Black females having life expectancies of 74.0, 75.1, and 77.6 years of average life expectancy for the years 1990, 2000, and 2010. Non-Hispanic Black males had the lowest life expectancies of all groups with 65.2, 69.2, and 72.3-years average life expectancy in 1990, 2000, and 2010, respectively.

The change in growth across time showed that males make much stronger improvements than females over time. Non-Hispanic Black males and females also showed the largest gains comparatively with much greater growth in life expectancy than their counterparts through time; though males make some of the largest gains, overall, despite remaining the group with the lowest life expectancy. Hispanics, despite their much higher life expectancy, showed much less growth through time allowing the other groups to make large gains to close the gap between the groups.

While general patterns and trends of overall mortality are elucidated, knowledge of the specific patterns of cause-specific contributors through time is also important for establishing how mortality has changed across three decades. Building off of the life tables and related elements developed in this chapter, the next chapter explores differences in cause-specific mortality between Hispanics and non-Hispanics at each time through the decomposition of life expectancy based on differentials in cause.

Chapter 5: Decomposition of Life Expectancy for Hispanics and non-Hispanics

In the previous chapter, I developed life tables for Hispanics and non-Hispanics in the Southwest United States for the years 1990, 2000, and 2010. While life tables are invaluable for understanding mortality patterns in the populations here, it does not provide clues about the underlying currents which contribute to deaths and the changing patterns of death. To identify the specific contributors to death, Arriaga decomposition is applied to account for cause-specific patterns of mortality in the populations for comparison. For the decomposition analysis, the values are calculated using the difference in mortality rates, the difference in mortality trajectory and then the difference in specific-contributors to mortality in each year. These values are then combined against the difference in mortality to attribute the magnitude of specific causes contributing to the difference in life expectancy between populations.

From this Aim, there are three questions of interest. First, how does the differential in life expectancy change, 2) do the cause-specific contributors change in effect through time, and 3) which contributors show the most effect between populations? To develop the decomposition, first, I evaluate and present the age-specific death rates for Hispanics and non-Hispanics for each year. I evaluate the death rates through graphing the values first to visualize the transformation of the vital statistics against the adjusted mortality to make sure it reflects the mortality probability from the life tables. Second, I present the adjusted death rates for Hispanics and non-Hispanics tabularly for each year to show the data. Finally, I present the top contributors to differentials in the decompositions for Hispanics compared to non-Hispanics in 1990, 2000, and 2010.

While differences in mortality drive the impetus for this project, it is the finer detail about specific causes pushing trends through time that are of importance here. Specifically, understanding how mortality is impacted by changing causes for differing populations across three decades. This provides not only an understanding of the Hispanic paradox and how it changes through time but how the forces of mortality change as well and how these contributions push the differences between the populations.

To this end, a decomposition of the cause-specific contributors to life expectancy is developed here. There are two major elements of the decomposition that warrant mention for this section. First, the mortality rate (${}_nm_x$) is calculated to understand how each of the populations is dying within each time period. The mortality rate is normally calculated as the number of deaths divided by the total population at each age. However, because of the introduction of the brass adjusted probability of mortality (q_x), the formula was altered to use the life table elements to calculate the ${}_nm_x$. Instead of using the deaths and the population from the vital statistics, the mortality rate is calculated based on the deaths in the synthetic cohort and the number of person years lived at each time. The original ${}_nm_x$ values are calculated and compared to the ${}_nm_x$ from the respective years to show how the patterns are affected by the calculation of the new values from the Brass-adjusted life table.

Following a comparison of the unadjusted and adjusted mortality rates for the respective years, the decomposition for each year are shown and discussed. As a quick refresher, the decomposition considers difference in the mortality rate for each group, the survival of each group and the proportion of death contributed to each cause of death for each population to apportion the amount of contribution each cause has to the difference in life expectancy between populations. A more detailed discussion of this method can be found in the Data and Methods section (Chapter 3).

Due to the incredible number of categories (74) the top 5 differentials in life expectancy between Hispanics and non-Hispanics are presented visually for each year. All cause-specific contributors are presented tabularly within the text and the complete table of values by cause is presented in Appendix C, Tables C4-C9. The top differentials are presented visually for each time period to allow for comparisons of contributors through time.

Mortality Rate. In a traditional life table, the age-specific death rate (${}_{n}m_{x}$) is approximated from the count of deaths (${}_{n}D_{x}$) over the population (${}_{n}N_{x}$) at each age or age group for each year. The formula for this equation is:

$$ {}_{n}m_{x} \cong {}_{n}M_{x} = \frac{{}_{n}D_{x}}{{}_{n}N_{x}} $$

For the decomposition, however, the interest is in the age-specific death rates for the populations after they have been adjusted using the Brass Relational Logit model. This means that these values must be developed through the life tables themselves. To calculate the age-specific death rates (${}_{n}m_{x}$) from the Brass-adjusted life tables, two values are needed. First, the number of deaths (${}_{n}d_{x}$) for the synthetic cohort at each age is needed and, second, the number of person years (${}_{n}L_{x}$) lived by the synthetic cohort at each age. The formula for this is:

$$ {}_{n}m_{x} = \frac{{}_{n}d_{x}}{{}_{n}L_{x}} $$

A check of the values is then conducted for age 0 to age 74 (before the Brass adjusted data takes effect) to evaluate how close the approximated values of ${}_{n}M_{x}$ and ${}_{n}m_{x}$ are to one another. As can be seen in Figures 22-31, the values are an identical match from age 1 up to age 75 where the Brass data begins. The divergence is to be expected given the adjustment of data at age 0 based on the Linked Birth and Infant Death estimation of qx at age 0 and also for the adjustment of qx in older ages to help address misstatement and other potential data issues.

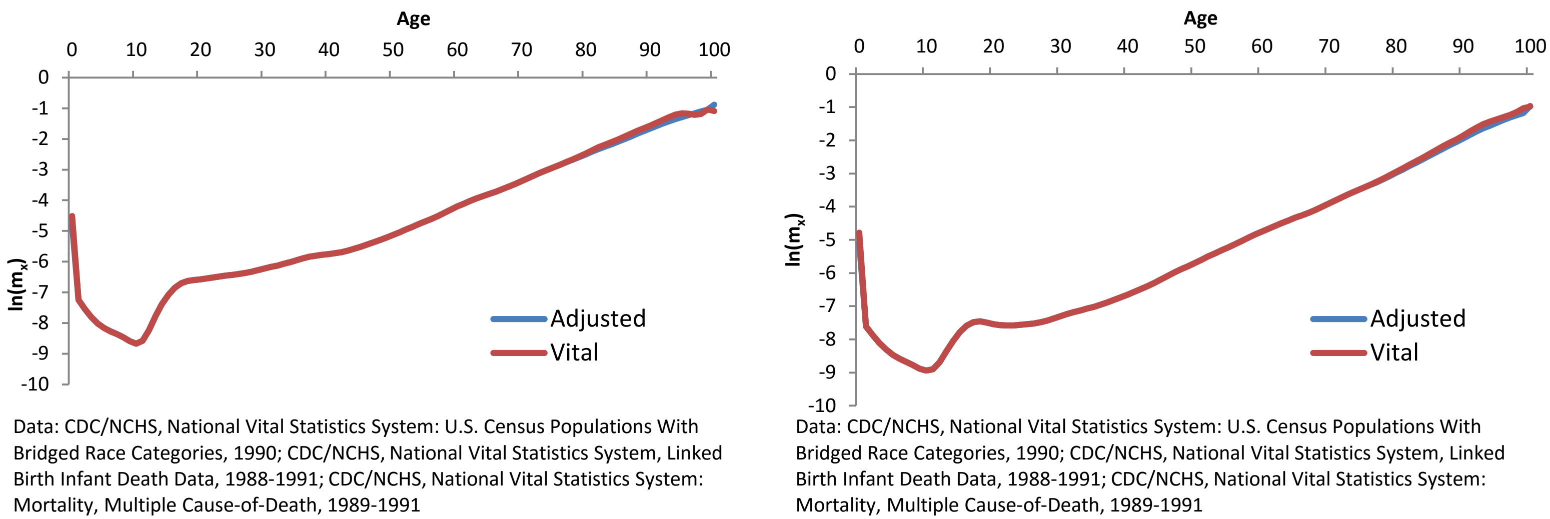


Figure 22. Age-Specific Death Rate Curves (m_x with log transformation) for Non-Hispanic White Males (left) and Females (right) in 1990

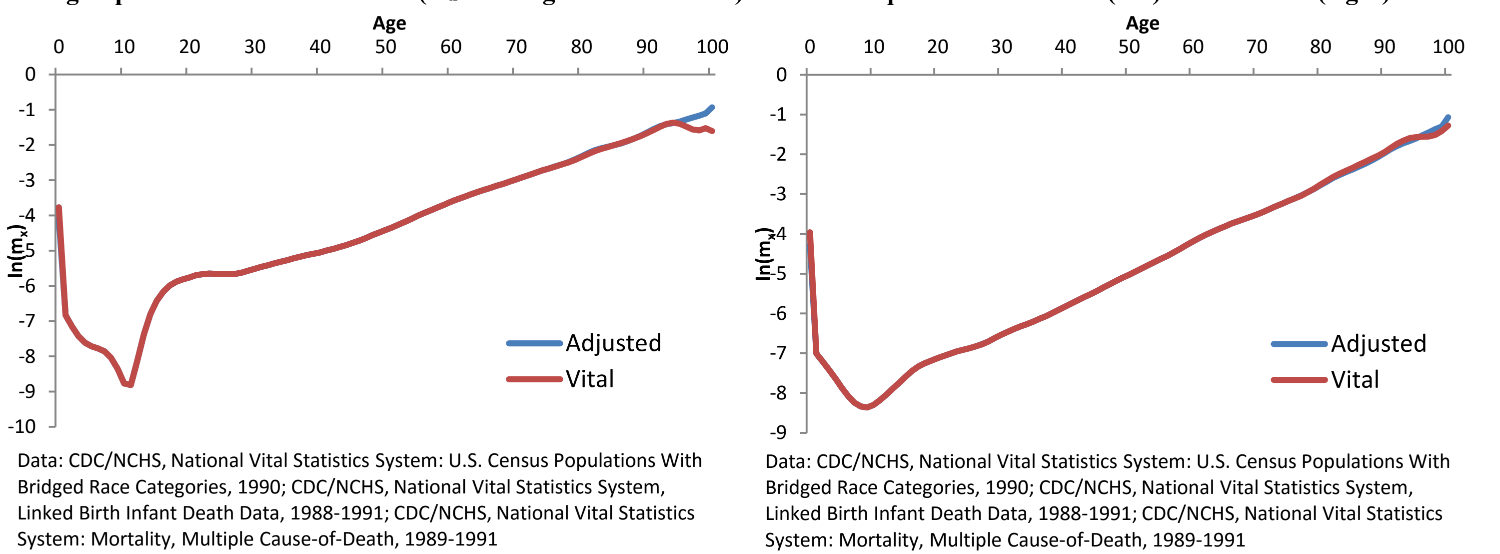
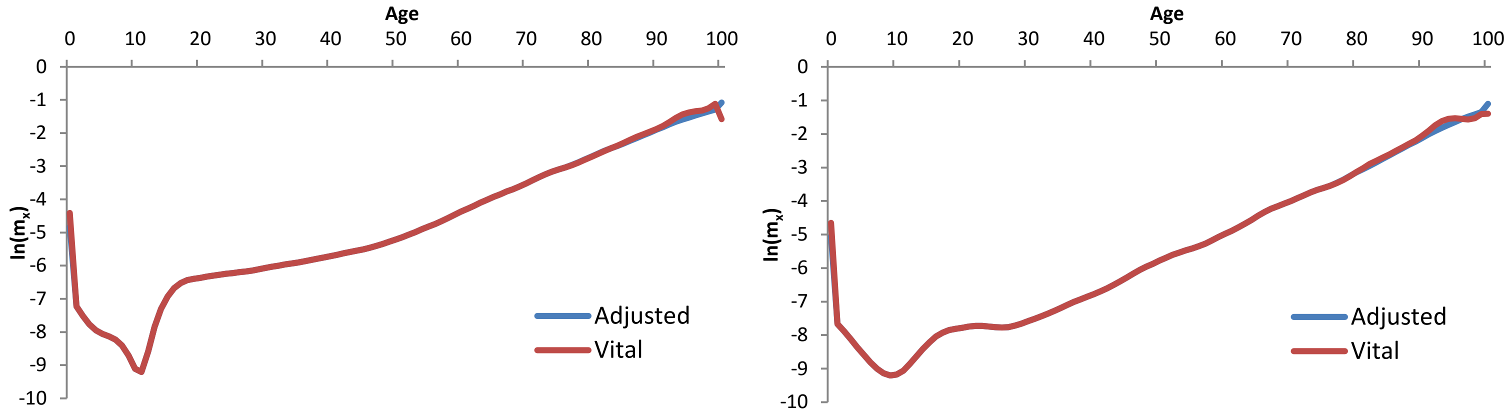


Figure 23. Age-Specific Death Rate Curves (m_x with log transformation) for Non-Hispanic Black Males (left) and Females (right) in 1990



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991

Figure 24. Age-Specific Death Rate Curves (m_x with log transformation) for Hispanic Males (right) and Females (left) in 1990

Of interest is how the use of the life table mortality rate affects survival compared to the vital statistics data. It would be expected that the death rate should match patterns of the adjusted q_x discussed above and become more stable in older ages. To evaluate this, the data is graphed visually to determine how the values diverge in the oldest ages for each year of data. While the values are not 1:1 ${}_nm_x$(${}_nM_x$) should be similar in pattern to q_x. The adjusted values for each year and age group are presented in Appendix C, Table C1-C3.

As expected, for all years of data the curves for ${}_nm_x$ show similar patterns to those in the q_x values for the life tables in Chapter 4. Further, the values for the ${}_nM_x$ and the ${}_nm_x$ do match where vital statistics and the q_x are unadjusted indicating that the estimation of the life tables is correct and matches the data used for the creation of the synthetic cohorts.

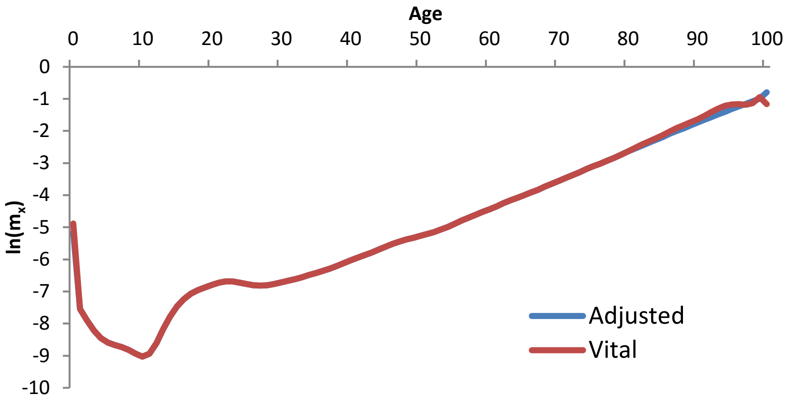
In 1990, Non-Hispanic White males and females (Figure 22) both show a decreased mortality rate following the adjustment of the data and the values show improved stability toward the top-coded age 100+ category. Non-Hispanic Blacks do not show a lower survival with the use of the Brass Method for adjusting the data. For non-Hispanic Blacks males (Figure 23) the values for the adjusted death rate from vital statistics and from the Brass life table are rather similar except where the rate drops off in vital statistics at older ages due to poor data quality and the adjusted data pushes the line to be linear to age 100. Non-Hispanic Black females (Figure 23) show a similar trend as well with the age-specific death curve matching up to the vital statistics curve at older ages (with a small amount of oscillation) until the vital statistics data begins to falter at the oldest ages then the adjusted values trend up in a linear fashion until age 100. Hispanic males and females (Figure 24) also show a similar pattern with the rate decreasing with the adjusted data compared to the vital statistics data. However, there is a crossover effect in the oldest ages due to the degradation of the data in the oldest ages which is also corrected with the adjusted data from the life table.

For 2000 data, Non-Hispanic White males and females (Figure 25) show a slightly lower age-specific death rate based on the adjusted data compared to the vital statistics data. Again, the largest difference in the groups is at the oldest ages where the data diverges due to the poorer data at the oldest ages in the vital statistics. For non-Hispanic Black males and females (Figure 26), the data shows a similar pattern as in 1990 with the adjusted data matching the vital statistics fairly closely except at the oldest of ages where the vital statistics data is less stable. For Hispanics (Figure 27), the data shows a fairly similar pattern between the vital statistics data and the adjusted data. In the very oldest ages, like in previous data, where vital statistics data declines sharply the curves begin to diverge with the adjusted data showing a more stable pattern.

For the 2010 data, non-Hispanic Whites, both males and females (Figure 28), show a fairly similar pattern between the vital statistics and adjusted data. As with previous years the data for non-Hispanic White males diverges at the oldest ages due to instability in data due to data issues that emerge at the oldest ages. For non-Hispanic White females the data show a lower mortality rate at older ages but a trend up at the oldest ages. As with the q_x data, this relationship is potentially due to the brass estimation only to age 99 and survival being estimated out beyond age 100 using the Gompertz equation due to estimated data for the NCHS intercensal life tables being capped at age 100. Mortality then spikes up due to a lack of complete data at the oldest ages. All other groups show a similar pattern at the end of life further supporting the idea that the methodology used to estimate survival at age 100 is the contributor.

Non-Hispanic Black males and females (Figure 29) show differential patterns with males showing an increased mortality rate following the Brass adjustment. For males the divergence grows slowly beginning around age 90. Females also show an increased mortality rate but it is not as dramatic as is shown for males.

Hispanic males and females (Figure 30) also show increased mortality rates after the Brass adjustment. The data shows that the vital statistics and Brass data diverge noticeably toward the very oldest ages (age 90 and up) and continue to trend up. This



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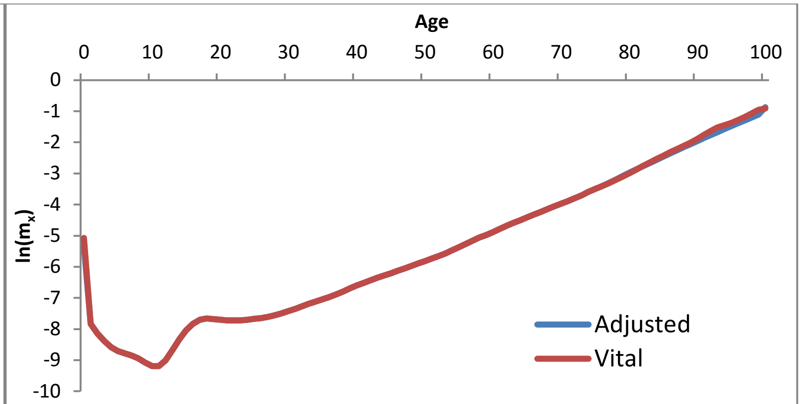
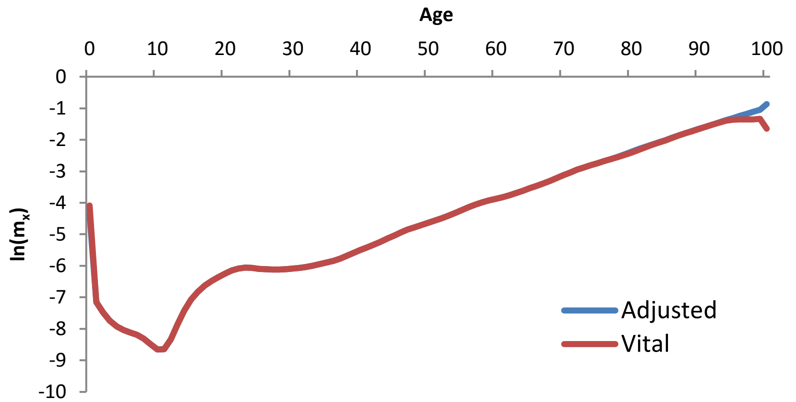
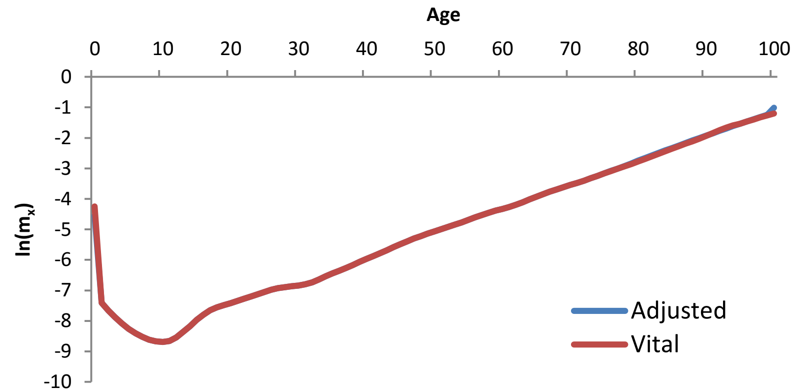


Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 25. Age-Specific Death Rate Curves (m_x with log transformation) for Non-Hispanic White Males (left) and Females (right) in 2000

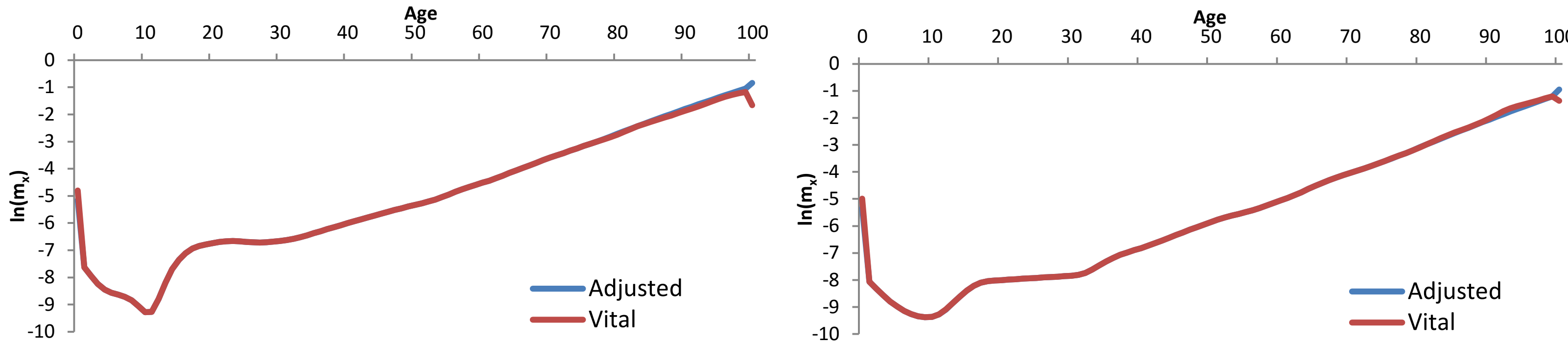


Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 26. Age-Specific Death Rate Curves (mx with log transformation) for Non-Hispanic Black Males (left) and Females (right) in 2000



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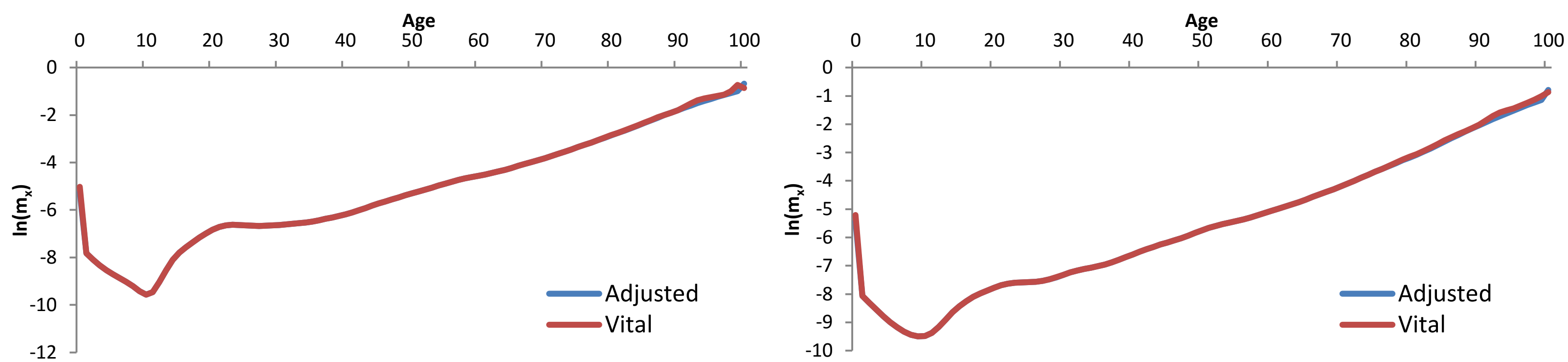
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 27. Age-Specific Death Rate Curves (m_x with log transformation) for Hispanic Males (left) and Females (right) in 2000



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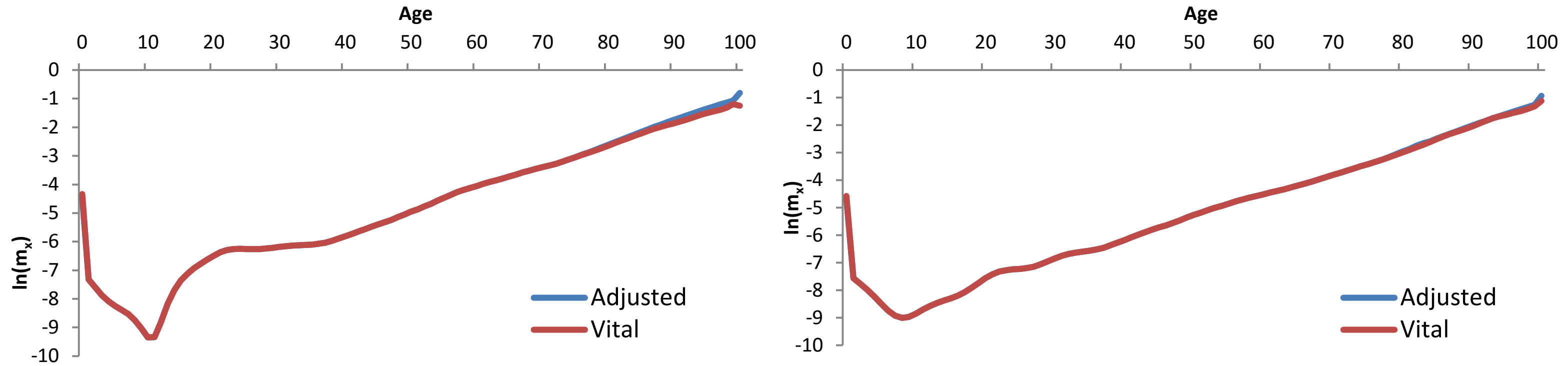
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 28. Age-Specific Death Rate Curves (m_x with log transformation) for non-Hispanic White Males (left) and Females (right) in 2010



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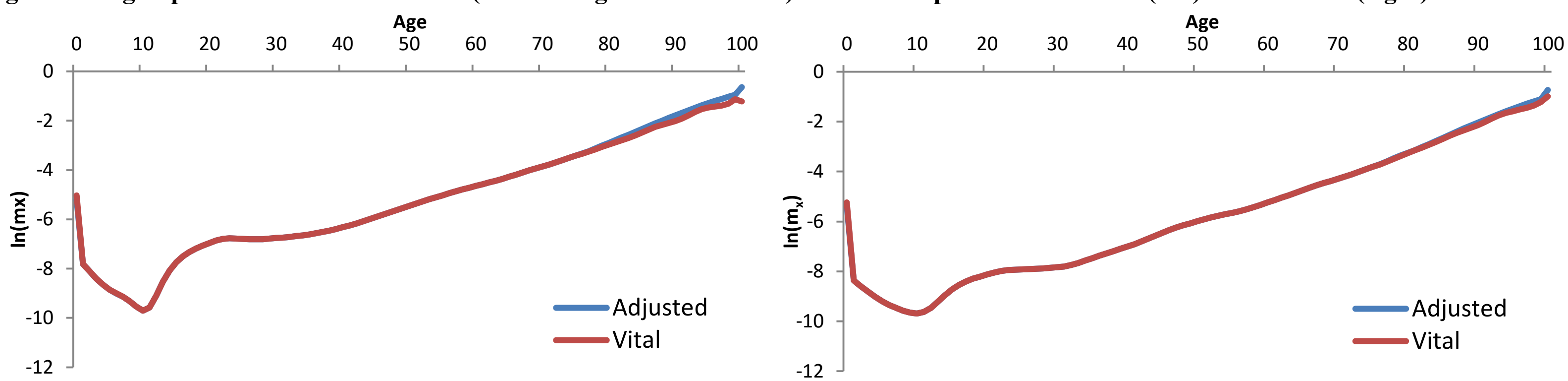
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Figure 29. Age-Specific Death Rate Curves (m_x with log transformation) for non-Hispanic Black Males (left) and Females (right) in 2010



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Figure 30. Age-Specific Death Rate Curves (m_x with log transformation) for Hispanic Males (left) and Females (right) in 2010

pattern is most noticeable for the Hispanic males. Hispanic females also show a pattern of increase with the higher mortality rate after the brass but the divergence is less dramatic.

DECOMPOSITION

For the decomposition of life expectancy, Hispanics were used as the reference group. The decomposition is based off of the contribution of the differences in the age-specific total mortality rates (Appendix C, Table C1-C3) to the differences in life expectancy. The values for life expectancy are not covered in great detail here as they were presented in the previous chapter. They are discussed in brief below and a table is presented to show the total differences in life expectancy which will feed the decomposition (Table 4). The comparisons are between Hispanics and non-Hispanic White and non-Hispanic Blacks and are presented for each time period.

For the decomposition itself, values in the decomposition tables then correspond to Hispanics as the reference group. These differences are based on the differences between Hispanics and non-Hispanics at each age and add up to the total difference in life expectancy between groups. Positive values represent life expectancy that could be gained by Hispanics compared to the comparison group if life expectancy were equivalent between the groups. Alternatively, a negative value is the life expectancy the comparison group has lost compared to Hispanics because life expectancy is unequal between groups. For brevity, only the top five differentials for each year are presented visually and differentials with a value greater than .10 are discussed. However, all differentials are provided in Appendix C.

Table 4. Difference in Life Expectancy Between Hispanics and non-Hispanics in the Southwest United States, 1990-2010

Year	Hispanic and non-Hispanic White Difference in Life Expectancy		Hispanic and non-Hispanic Black Difference in Life Expectancy	
	Male	Female	Male	Female
1990	1.3	1.7	8.8	7.1
2000	0.4	1.2	6.6	6.3
2010	0.7	1.2	5.5	5.2

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Non-Hispanics Whites vs. Hispanics

As a refresher, in 1990, the life expectancy (Appendix A, Table A1) for non-Hispanic Whites was lower than Hispanics with Hispanic females and males having life expectancies of 81.1 and 74.0, respectively, compared to non-Hispanic White females and males who had life expectancies of 79.4 and 72.7. By 2000 (Appendix A, Table A2), life expectancy increased for all groups with 81.4 and 75.8 for Hispanic females and males and 80.2 and 75.4 for non-Hispanic White females and males, respectively. And by 2010 (Appendix A, Table A3), life expectancy for Hispanic females and males had increased to 82.8 and 77.8, respectively, and for non-Hispanic White females and males it had increased to 81.6 and 77.1.

In 1990, the difference in life expectancy (Table 4) between Hispanics and non-Hispanic Whites was 1.3 years lower life expectancy for non-Hispanic White males and 1.7 years lower life expectancy for non-Hispanic White females. The biggest contributors to differentials in life expectancy for Hispanic males (Figure 31; Appendix C, Table C4) were assault (homicide), alcoholic liver disease, diabetes, and Transport and non-Transport accidents, which contributed .55, .21, .21, .14 and .11 years lost life expectancy compared to non-Hispanic Whites.

Non-Hispanic White Males in 1990 (Figure 31; Appendix C, Table C4) showed the highest differentials in life expectancy for malignant neoplasms of the trachea, bronchus, and lung, all other chronic ischemic heart disease, chronic lower respiratory disease, ischemic heart disease, intentional self-harm(suicide) and HIV with .52, .44, .30, .28, .28, and .20 years of potential life expectancy lost, respectively.

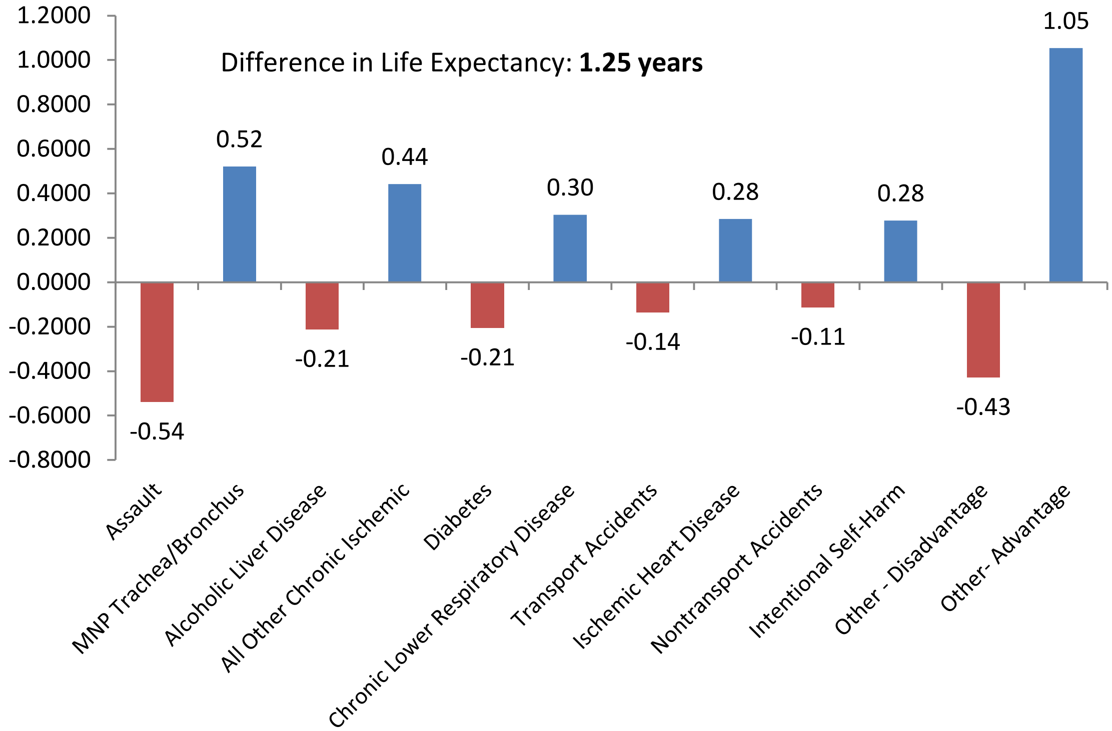
Hispanic women and non-Hispanic White women showed over a year different in average life expectancy with non-Hispanic White women (Table 4) having an average life expectancy 1.69 years lower than Hispanic women in 1990. For Hispanic females, the top differentials were for Diabetes (.37) all other potential causes fell below the .10 threshold.

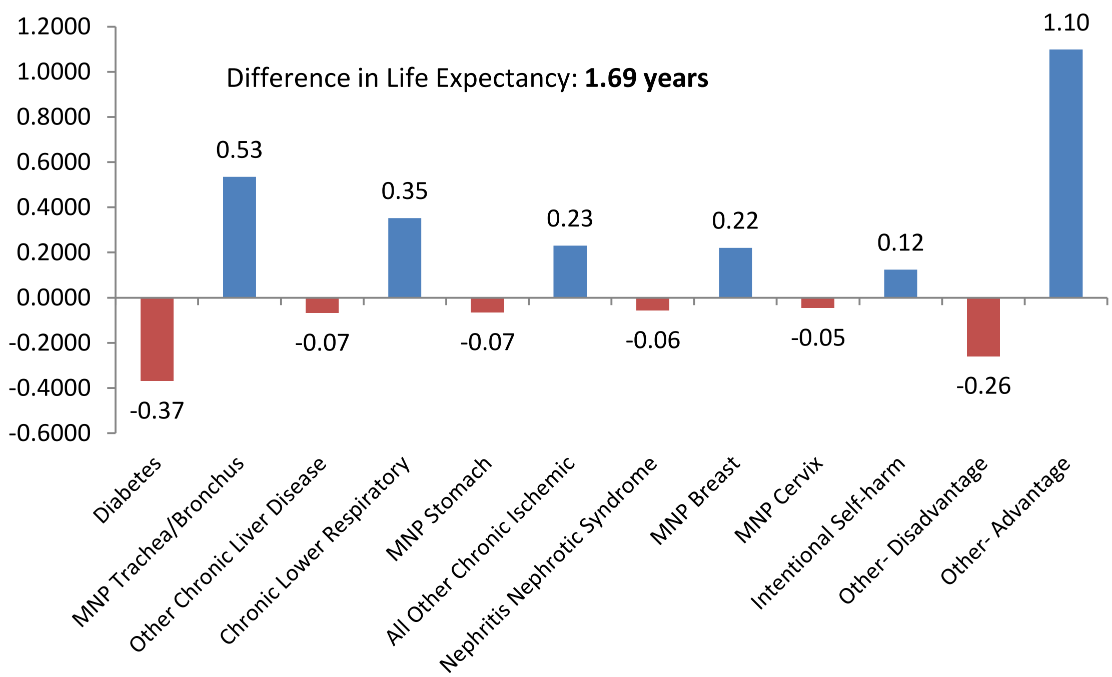
Alternatively, for non-Hispanic White women in 1990 (Figure 31; Appendix C, Table C4), the major contributors to differentials are malignant neoplasms of the trachea, bronchus, and lung (.53), chronic lower respiratory diseases (.35), all other chronic ischemic heart disease (.23), malignant neoplasm of the breast (.22), suicide (.12) malignant neoplasm of the colon (.11), and ischemic heart disease (.10).

For the year 2000, the difference in estimated life expectancy for Hispanic males and non-Hispanic Whites males (Table 4) shrunk to .48 years. The major contributors to differentials (Figure 32; Appendix C, Table C6) in life expectancy for non-Hispanic White males were malignant neoplasm of the trachea bronchus, and lung (.42), chronic lower respiratory disease (.34), suicide (.26), and all other chronic ischemic heart disease (.19).

For Hispanic males, the differentials (Figure 32; Appendix C, Table C6) that contributed the most to life expectancy differences were diabetes, homicide, alcoholic liver disease, cerebrovascular disease, and other chronic liver disease with .34, .27, .19, .11, and .11 years of life expectancy differences from these causes, respectively.

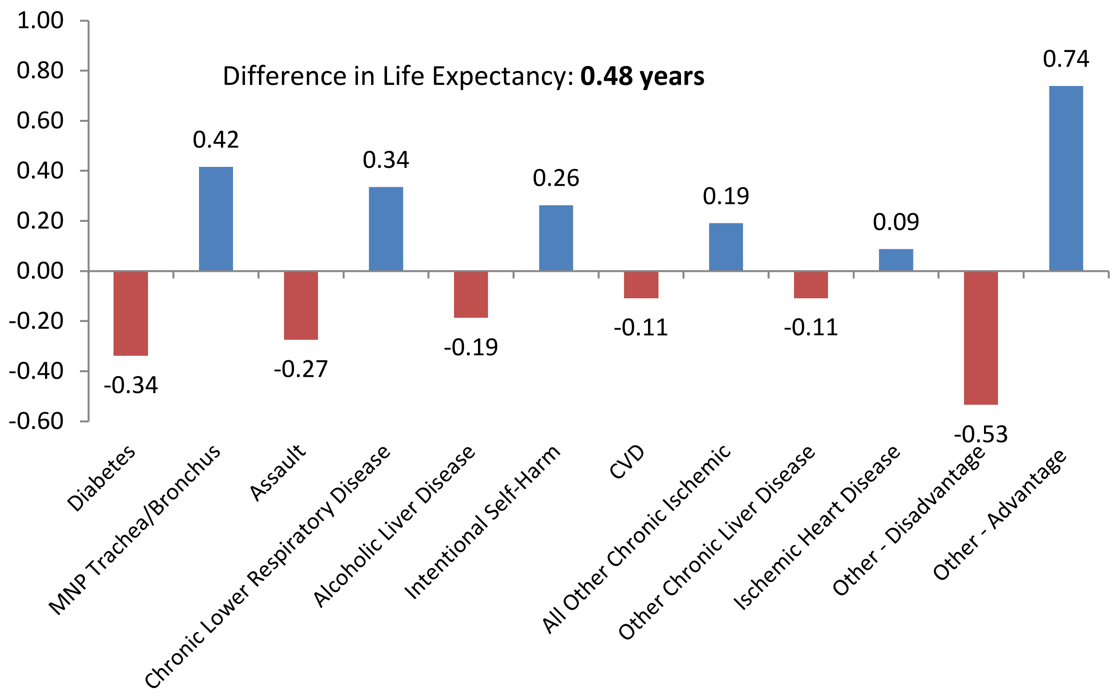
The difference between Hispanic and non-Hispanic women for 2000 (Table 4) was 1.24 years with non-Hispanic White women having a lower average life expectancy than Hispanic women.

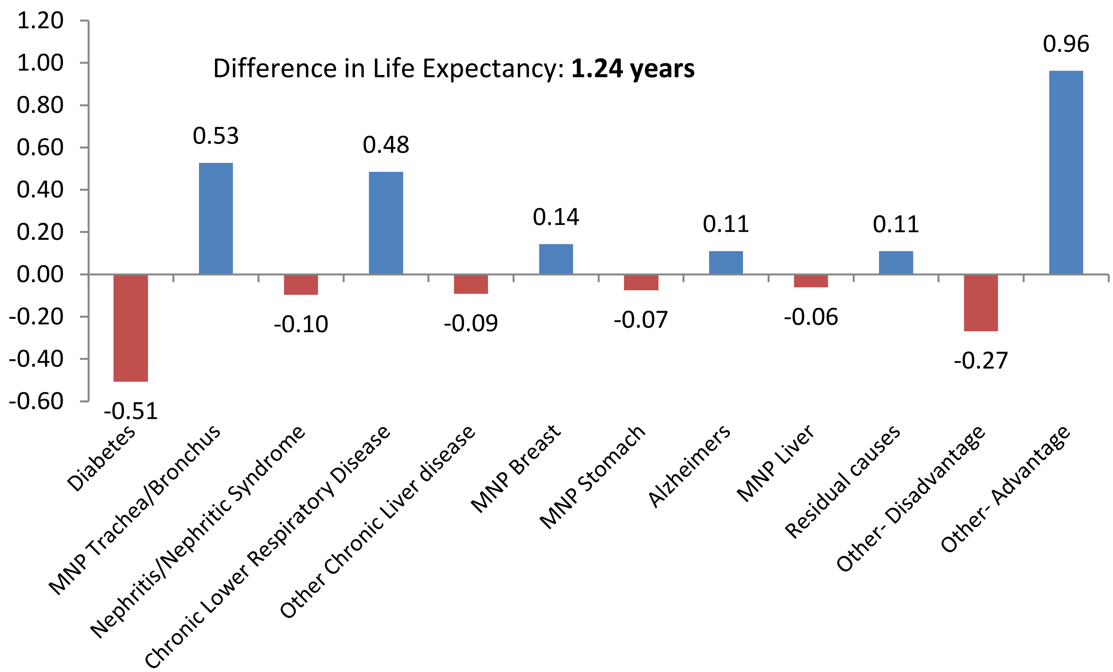




*Hispanic Advantage (Positive); Non-Hispanic White Advantage (Negative); MNP – Malignant Neoplasm
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991

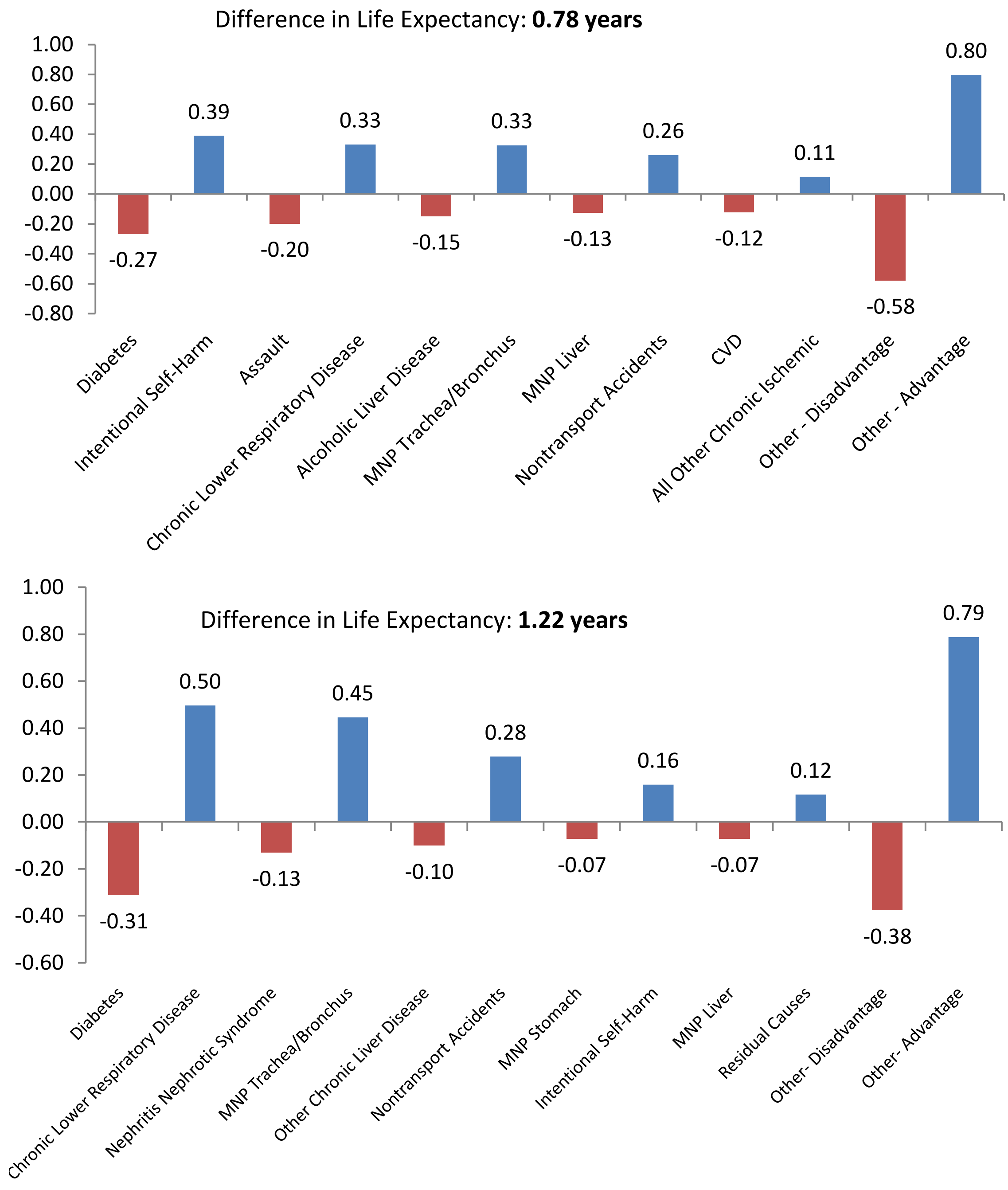
Figure 31. Top Cause-Specific Differentials for Hispanics and non-Hispanic White Males (Top) and Females (Bottom), 1990





*Hispanic Advantage (Positive); Non-Hispanic White Advantage (Negative); MNP- Malignant Neoplasms
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 32. Top Cause-Specific Differentials for Hispanics and non-Hispanic White Males (Top) and Females (Bottom), 2000



*Hispanic Advantage (Positive); Non-Hispanic White Advantage (Negative); MNP – Malignant Neoplasms
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Figure 33. Cause-Specific Differentials for Hispanics and non-Hispanic White Males (Top) and Females (Bottom), 2010

For non-Hispanic White women (Figure 32; Appendix C, Table C6) in 2000, major differentials in life expectancy were associated with malignant neoplasms of the trachea, bronchus, and lung, chronic lower respiratory disease, malignant neoplasms of the breast, Alzheimer's disease, suicide, and other heart disease with .53, .48, .14, .11, and .11, respectively. Hispanics women (Figure 32; Appendix C, Table C6), meanwhile, had two major contributors to differentials with diabetes (.52) and nephritis/nephritic syndrome (.10) in 2000.

Finally, in 2010 the difference in life expectancy for Hispanic and non-Hispanic Whites (Table 4) was .78. For non-Hispanic Whites males, the major contributors to differentials (Figure 33; Appendix C, Table C8) in mortality were suicide, chronic lower respiratory disease, malignant neoplasm of trachea, bronchus, and lung, non-transport accidents, all other chronic ischemic heart disease, and other heart disease with .39, .33, .33, .26, .11, and .11, respectively. Hispanic males on the other hand showed the highest differentials for diabetes (.27), homicide (.20), alcoholic liver disease (.15), cerebrovascular disease (.12), and nephritis/nephritic syndrome (.11).

For 2010, the difference in life expectancy for non-Hispanic White Females and Hispanic Females (Table 4) was 1.22 years. For non-Hispanic White Females (Figure 33; Appendix C, Table C8), the major cause-specific contributors to differentials in mortality were chronic lower respiratory disease (.50), malignant neoplasms of the trachea, bronchus, and lung (.45), non-transport accidents (.28), suicide (.16), residual causes (.12), Alzheimer's disease (.11), malignant neoplasms of the breast (.11) and other heart disease (.10). For Hispanic females, the major contributors to differentials were diabetes (.31), nephritis/nephritic syndrome (.13), and other chronic liver disease (.10).

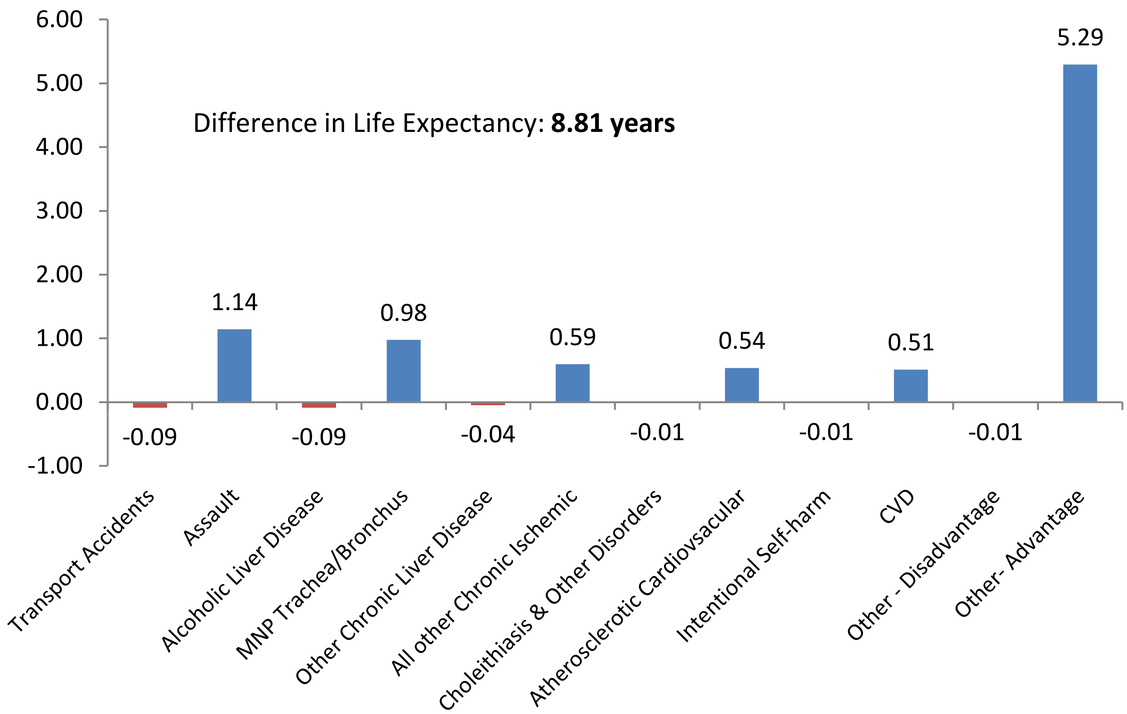
Non-Hispanic Blacks vs. Hispanics

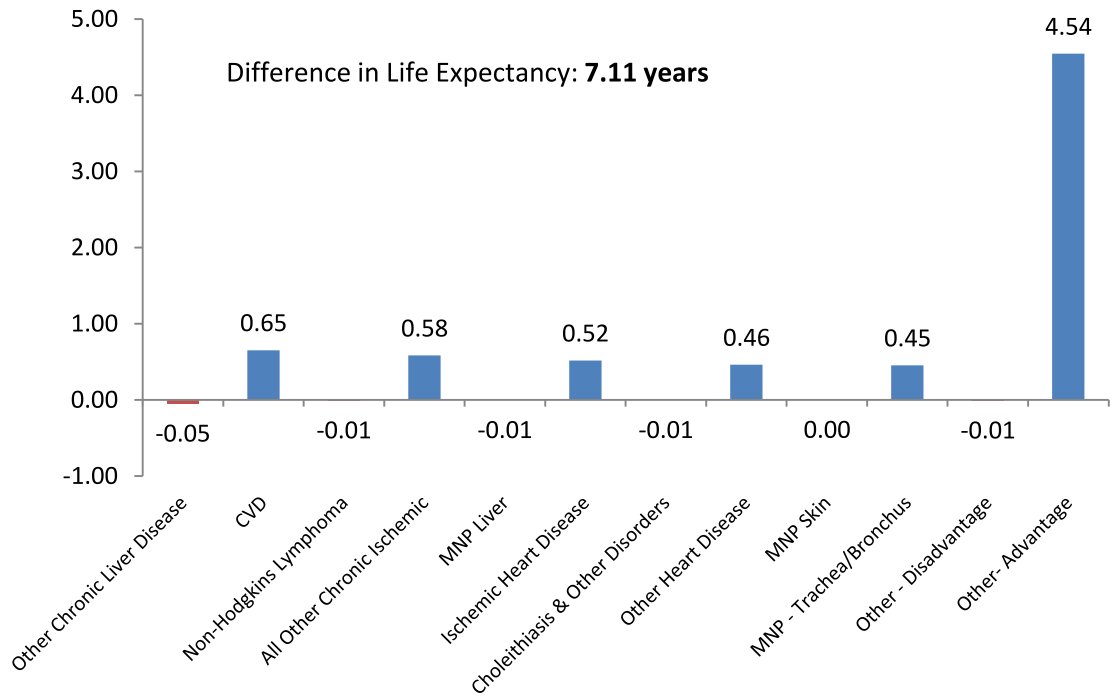
In 1990, the life expectancy (Appendix A, Table A1) for non-Hispanic Blacks was lower than Hispanics with Hispanic females and males having life expectancies of 81.1

and 74.0, respectively, compared to non-Hispanic Black females and males who had life expectancies of 74 .0 and 65.2. By 2000, life expectancy (Appendix A, Table A2) increased for all groups with 81.4 and 75.78 for Hispanic females and males and 75.1 and 69.2 for non-Hispanic Black females and males, respectively. For 2010, the life expectancy (Appendix A, Table A3) of Hispanics had increased to 82.8 and 77.8, respectively, for females and males while for non-Hispanic Black females and males, life expectancy had increased to 77.6 and 72.3, respectively.

For 1990, the difference in life expectancy (Table 4) for Hispanics and non-Hispanic black males was 8.81-years lower life expectancy for non-Hispanic Blacks. Hispanic males (Figure 34; Appendix C, Table C5) had no differentials in mortality over the .10 threshold. Non-Hispanic Blacks, however, showed considerable burden with several contributors over the .10 threshold. The major contributors to differentials for non-Hispanic Blacks were homicide (1.14), malignant neoplasms of the trachea, bronchus, and lung (.98), all other chronic ischemic heart disease (.59), atherosclerotic cardiovascular disease (.54), cerebrovascular disease (.51), HIV (-.51), other heart disease (-.50), malignant neoplasm of the prostate(-.41), residual causes(-.40), ischemic heart disease (-.37), certain conditions (-.35), hypertensive heart disease (-.31), chronic lower respiratory disease (-.22), malignant neoplasms of the colon (-.18), influenza (-.17), all other malignant neoplasms (-.16), abnormal clinical (-.16), non-transport accidents (-.15), malignant neoplasm of esophagus (-.11). These conditions combined contribute to 7 ¾ lower years of life expectancy for non-Hispanic Black males compared to Hispanic males.

Comparing non-Hispanic Black and Hispanic Females (Table 4), the difference in life expectancy was 7.11-years lower life expectancy for non-Hispanic Blacks. Like Hispanic males in 1990, Hispanic females showed no differentials above the .10 threshold.

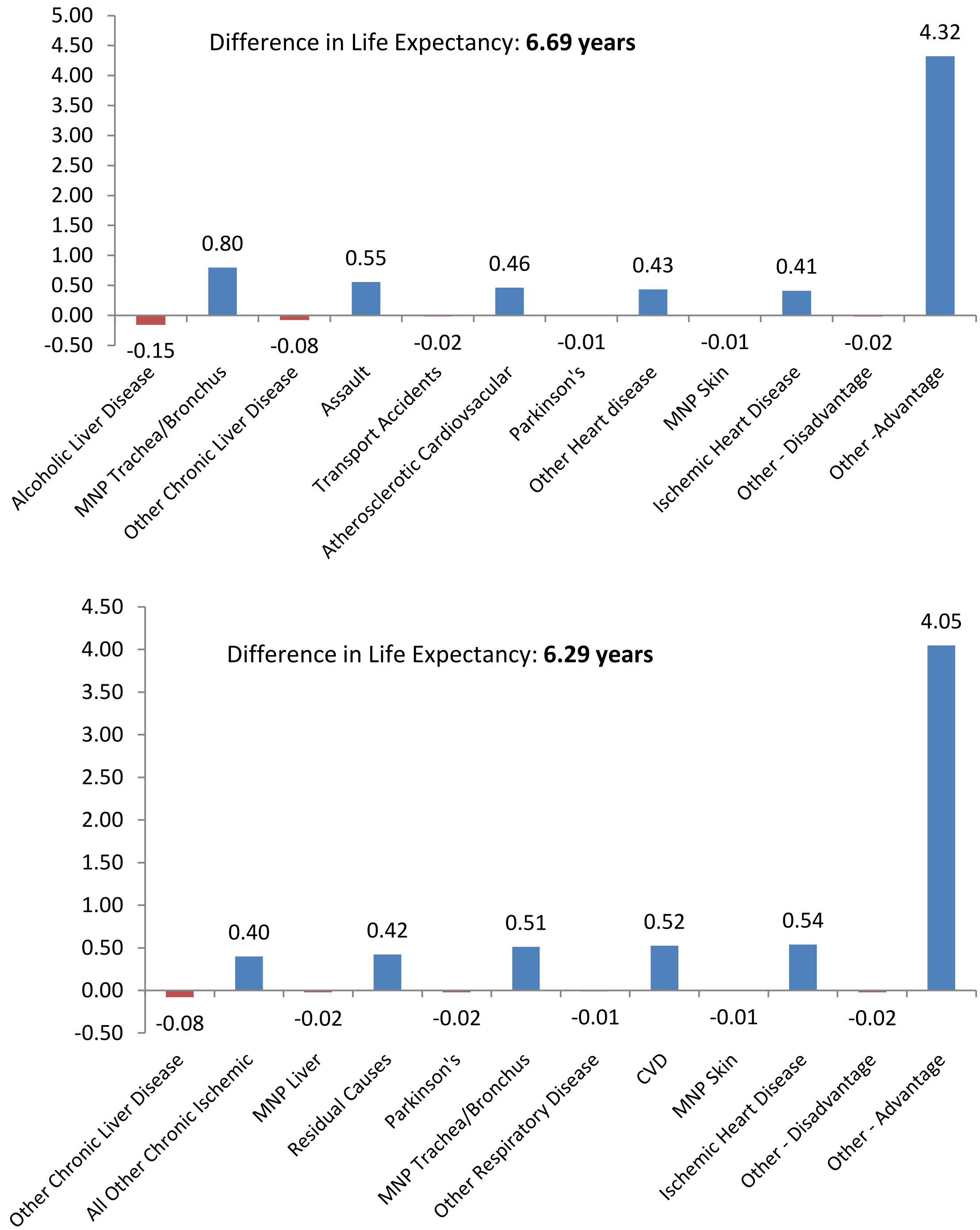




*Hispanic Advantage (Positive); Non-Hispanic Black Advantage (Negative); CVD - Cerebrovascular Disease; MNP - Malignant Neoplasms

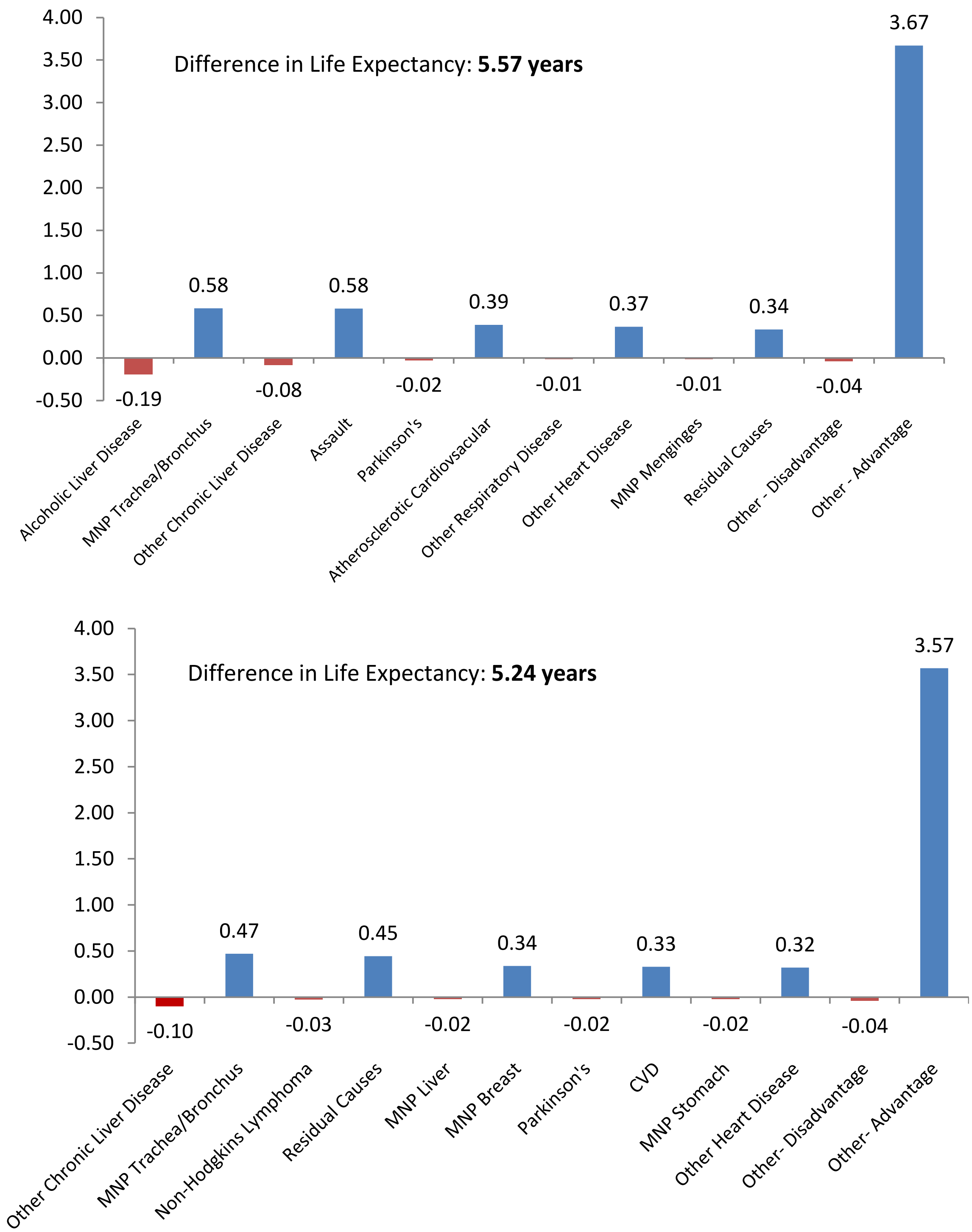
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991

Figure 34. Top Cause-Specific Differentials for Hispanics and non-Hispanic Black Males (Top) and Females (Bottom), 1990



*Hispanic Advantage (Positive); Non-Hispanic Black Advantage (Negative)
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 35. Top Cause-Specific Differentials for Hispanics and non-Hispanic Black Males (Top) and Females (Bottom), 2000



*Hispanic Advantage (Positive); Non-Hispanic Black Advantage (Negative)
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 2009-2011

Figure 36. Top Cause-Specific Differentials for Hispanics and non-Hispanic Black Males (Top) and Females (Bottom), 2010

Non-Hispanic Black females, like males, in 1990 (Figure 34; Appendix C, Table C5) showed large differentials. The major contributors to differentials in life expectancy for non-Hispanic Black females were cerebrovascular disease (-.65), all other chronic ischemic heart diseases (-.58), ischemic heart disease (-.51) other heart disease (-.46), malignant neoplasms of the trachea, bronchus, and lungs (-.45), residual causes (-.42), atherosclerotic cardiovascular (-.42), hypertensive heart disease (-.36), homicide (-.34), malignant neoplasm of the breast (-.34), certain conditions (-.30), malignant neoplasm of the colon (-.26), abnormal clinical (-.17), non-transport accidents (-.17), diabetes (-.12), and essential hypertension (-.11).

In the year 2000, the difference in life expectancy (Table 4) for non-Hispanic Black males and Hispanic males was 6.7 years while the difference for Hispanic and non-Hispanic Black females was an estimated 6.3 years lower average life expectancy for non-Hispanic Black females.

Comparing non-Hispanic Black males against Hispanic males in 2000 (Figure 35; Appendix C, Table C7), the biggest differentials for non-Hispanic Black males were malignant neoplasm of the trachea, bronchus, or lung (.80), homicide (.55), atherosclerotic cardiovascular disease (.46), other heart disease (.43), ischemic heart disease (.41), cerebrovascular disease (.39), HIV (.38), malignant neoplasm of the prostate (.34), all other chronic ischemic heart disease (.33), certain conditions (.28), residual causes (.27), chronic lower respiratory diseases (.25), hypertensive heart disease (.24), abnormal clinical (.20), malignant neoplasms of the colon (.19), essential hypertension (.13) and all other malignant neoplasms (.12).

Hispanic Males (Figure 35; Appendix C, Table C7) had only one condition that met the .10 threshold, alcoholic liver disease (.15).

In 2000, Hispanic females (Figure 35; Appendix C, Table C7) had no differentials that met the .10 threshold. Alternatively, non-Hispanic Black females had 18 conditions that met the differential threshold. These conditions included ischemic heart disease (.54), cerebrovascular disease (.52), malignant neoplasm of the trachea, bronchus, or lung (.51), residual causes (.42), all other chronic ischemic cardiovascular disease (.40), other heart disease (.38), atherosclerotic cardiovascular disease (.35), malignant neoplasms of the breast (.32), hypertensive heart disease (.27), certain conditions (.25), malignant neoplasm of the colon (.22), HIV (.19), abnormal clinical (.19), chronic lower respiratory disease (.16), essential hypertension (.15), homicide (.12), nephritis/nephritic syndrome (.11), and non-transport accidents (.11).

Finally, in 2010, life expectancy for Hispanic females was 82.5, 5.2 years higher than the life expectancy for non-Hispanic Black females (77.6) while Hispanic males (77.8) had a life expectancy 5.6 years higher than non-Hispanic Black males (71.9) in 2010.

In 2010, Hispanic males only had one differential (Figure 36; Appendix C, Table C9) that met the .10 years of life expectancy lost threshold, Alcoholic liver disease (.19). Alternatively, non-Hispanic Black males had considerable differentials for malignant neoplasms of the trachea, bronchus, and lungs (.58), homicide (.58), atherosclerotic cardiovascular disease (.39), other heart disease (.37), residual causes (.34), malignant neoplasm of the prostate (.28), cerebrovascular disease (.28), all other chronic ischemic heart disease (.27), hypertensive heart disease (.27), chronic lower respiratory disease (.24), certain conditions (.24), ischemic heart disease (.21), HIV (.22), malignant neoplasm of the colon (.15), abnormal clinical (.15), nephritis/nephritic syndrome (.13), essential hypertension (.12), diabetes (.10), and non-transport accidents (.10).

In 2010, Hispanic females had one differential (Figure 36; Appendix C, Table C9) that met the .10 threshold: other chronic liver disease (.10). For non-Hispanic White females, the differentials that contribute most significantly to life expectancy differences were malignant neoplasm of the trachea, bronchus, and lung (.47), residual causes (.45), malignant neoplasm of the breast (.34), cerebrovascular disease (.33), other heart disease (.32) , ischemic heart disease (.26), all other chronic ischemic heart diseases (.24), hypertensive heart disease (.24), certain conditions (.22), atherosclerotic cardiovascular disease (.22), malignant neoplasm of the colon (.19), chronic lower respiratory disease (.18), diabetes (.15), essential hypertension (.15), HIV (.14), nephritis/nephritic syndrome (.14), homicide (.12), non-transport accidents (.12), abnormal clinical (.12), and septicemia (.10).

This section has examined differentials in cause-specific contributors to life expectancy for Hispanics and non-Hispanics in the Southwest Untied States for the years 1990, 2000, and 2010. I applied the Arriaga decomposition to estimate differentials in the Hispanic and non-Hispanic life tables for 1990, 2000, and 2010.

SUMMARY

For the decomposition, the biggest contributors to mortality for non-Hispanic White males and females compared to Hispanic females were smoking related mortality like chronic lower respiratory disease and malignant neoplasms of the trachea, bronchus and lung. Alternatively, Hispanic females had higher rates of mortality for diabetes across all years and nephritis grew as a contributor to differentials through time compared to non-Hispanic White Females. For non-Hispanic White males, the biggest contributors to differentials compared to Hispanics was malignant neoplasms of the trachea, bronchus and lung, all other chronic ischemic heart disease, and chronic lower respiratory disease. By 2000 and 2010, malignant neoplasms of the trachea, bronchus and lung, and suicide became the top contributors to differentials and remained so for 2010, though suicide became the primary contributor for non-Hispanic Whites males overtaking chronic lower respiratory disease and malignant neoplasms of the trachea, bronchus, and lung. For Hispanics, however, the biggest contributors to mortality were homicide (assault), alcoholic liver disease, and diabetes in 1990. By 2000 and 2010, these causes remained major contributors to the decomposition with diabetes overtaking homicide and alcoholic liver disease as the top contributors through time.

Comparing Hispanics and non-Hispanic Whites, I found that Hispanics, especially males, showed a transformation in major contributors with Homicide (assault) being largest contributor of lost life expectancy in 1990, which is overtaken by diabetes by 2000, and remains the second highest cause in 2000 and 2010. For Hispanics, Alcoholic Liver disease also declined from the second highest contributor in 1990 to the third highest by 2000 and 2010. Hispanic women showed much lower effects than for men but lost life expectancy most consistently from diabetes across all years and nephritis grew as a contributor through time.

For Hispanics compared to non-Hispanic Blacks, Blacks showed almost universally more negative effects than Hispanics. For non-Hispanic Black men, Homicide, Lung Cancer (MNP Trachea, Bronchus, and Lung), and cardiovascular diseases were major contributors in all years though homicide was overtaken by Lung Cancer deaths after 1990. Hispanic males were more likely to die of liver disease and transportation mortality, though transportation effects diminished by 2000 and no longer registered in 2010.

For non-Hispanic Black women, cardiovascular and circulatory illnesses were the major contributors in 1990 and remained major through time. However, the effect of lung cancer also increased across time becoming the top contributor by 2010 for non-Hispanic Black women. Chronic liver disease was the top contributor to worse life expectancy for Hispanic women compared non-Hispanic Blacks, but the effects remained negligible until 2010 where the effect accounted for about 1/10 of a year.

While this section provides an analysis of patterns for the populations at large, the next section revisits life tables and decompositions through analyses of the foreign- and native-born Hispanic population. Only these two groups are compared due to a lack of data for adjustment and corrections to best approximate the life tables developed in the previous chapters. The decompositions remain the same, but use the life tables developed from unadjusted data. As such, the next section is treated as informative about patterns of mortality and life expectancy but is not used to ascertain values which are thought to be representative of actual patterns in the populations.

Chapter 6: Life Tables and Decomposition of Life Expectancy for Native- and Foreign-Born Hispanics

In the previous chapters, life table and decompositions were presented for Hispanics and non-Hispanics in the Southwest United States. The findings from each year indicated that Hispanics (predominantly Mexican Origin) maintained an advantage in life expectancy over non-Hispanic Whites and non-Hispanic Blacks (though the advantage was closing or closed depending on gender and race). More recent literature has indicated that the Hispanic advantage in mortality may be more appropriately thought of as an immigrant advantage whereby those born outside the United States have gain advantages in health and mortality as compared to those who are born within the United States. This chapter focuses on native- and foreign-born status as relates to life expectancy and to the decomposition of life expectancy.

When attempting to develop single-year life tables for nativity, foreign born mortality data for males in the year 2010 had too few deaths in the early years of life between age 5 and age 15. This data issue lead to the creation of negative deaths for the years 2010 for the foreign born male population post smoothing. An abridged table was developed but the life expectancy for those tables were unreliable due to the inability to adjusted the data with the brass method. After I calculated the abridged tables, it became clear that the life expectancies were unreliable. Therefore, an extended coverage of these tables is not provided though I briefly discuss the life expectancies below. While the life expectancies are unreliable, I treat the differences in life expectancy between the respective groups of interest as informative and decompose life expectancy for these populations. From these decompositions, I select causes of interest to follow through time.

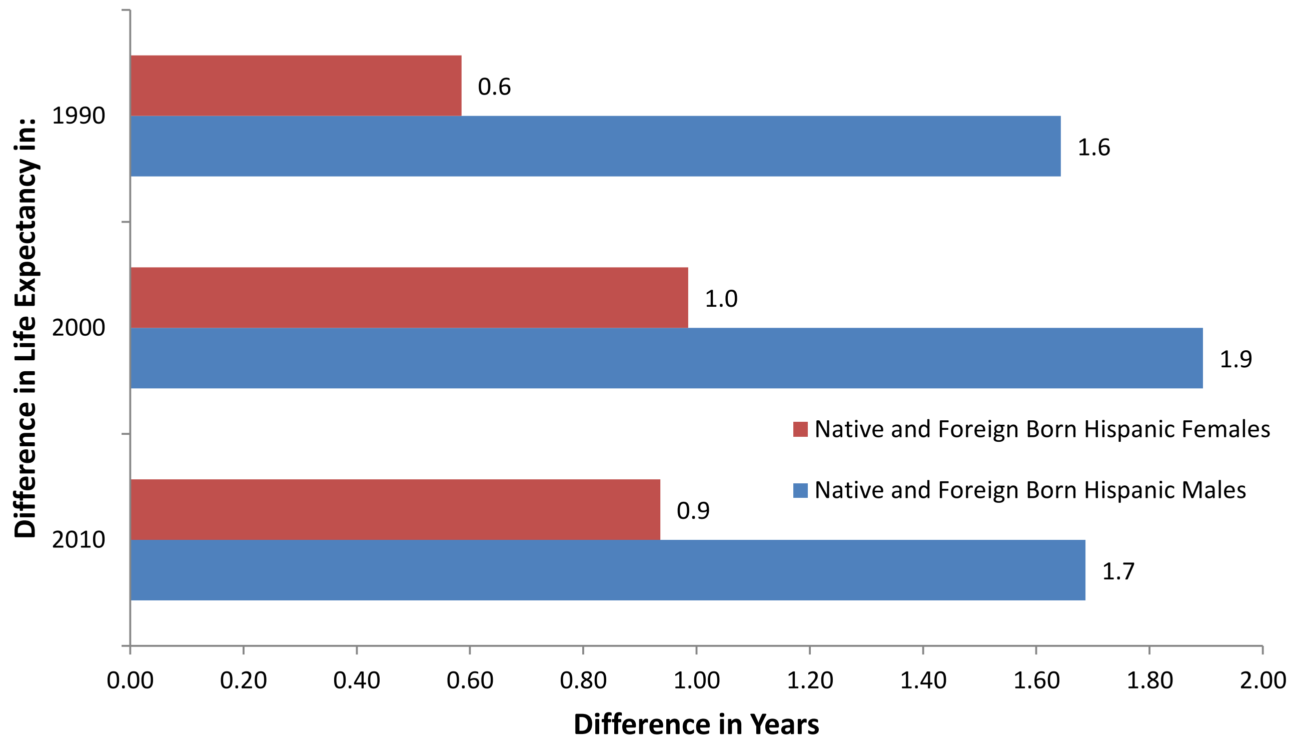
Life Expectancy

For the native- and foreign born Hispanics foreign-born females had a life expectancy of 93.6 which increased to approximately 94 years in 2000 and 94.6 years by 2010. Native females had life expectancies of 93 years in 1990, 93 years in 2000, and 93.7 years in 2010. For the male population, in 1990, foreign-born Hispanic males had an estimated life expectancy of 91.5, 92.4 in 2000, and 93.2 by 2010. Native-born Hispanic males had an estimated life expectancy of 89.8 in 1990, 90.5 by 2000, and 91.5 by 2010. For native- and foreign-born females, the differences between life expectancies for females (Figure 37) were minimal with the highest difference of 1 year in 2000 but less than 1 year in 1990 and 2010. Males showed a larger difference (Figure 37) across time with about 1 ½ years advantage for the foreign born in 1990 and 2010 and almost 2-years advantage in 2000.

Decomposition

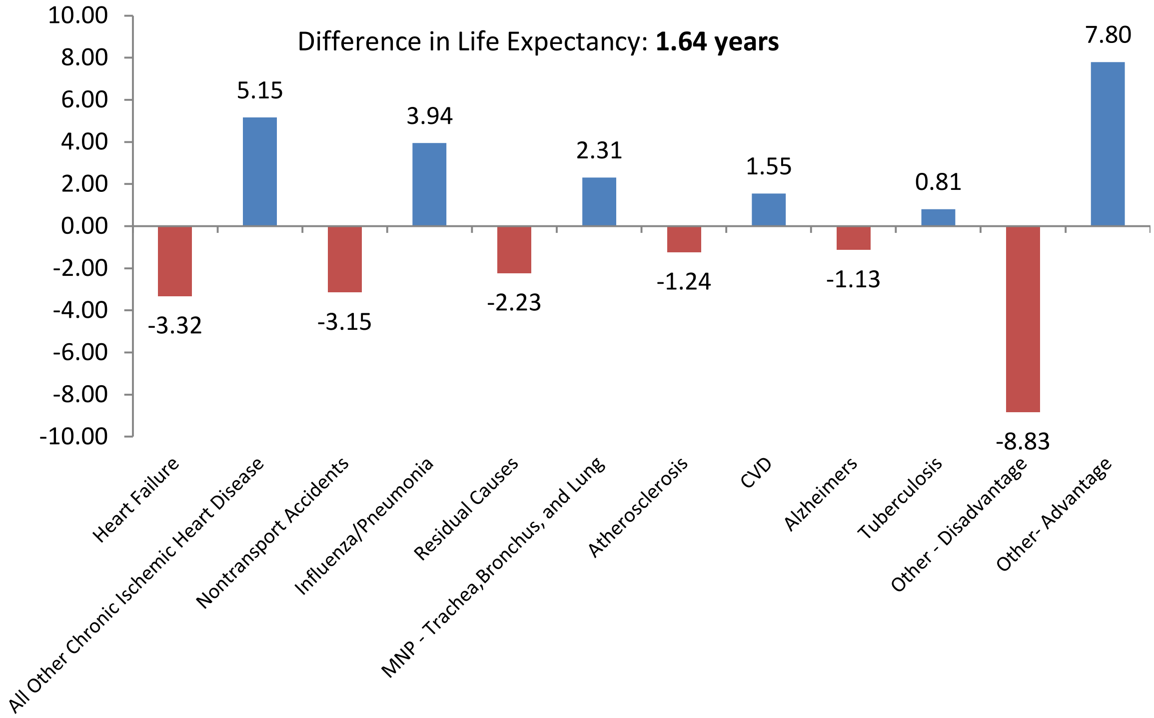
Because the life tables were developed in a separate manner due to data issues, the nativity decomposition is based only on the native- and foreign-born Hispanics populations and is used only for comparison of what the decomposition identifies as major contributors of differentials in life expectancy between the populations. The decomposition is conducted similarly as was done with the Hispanic and non-Hispanics life tables.

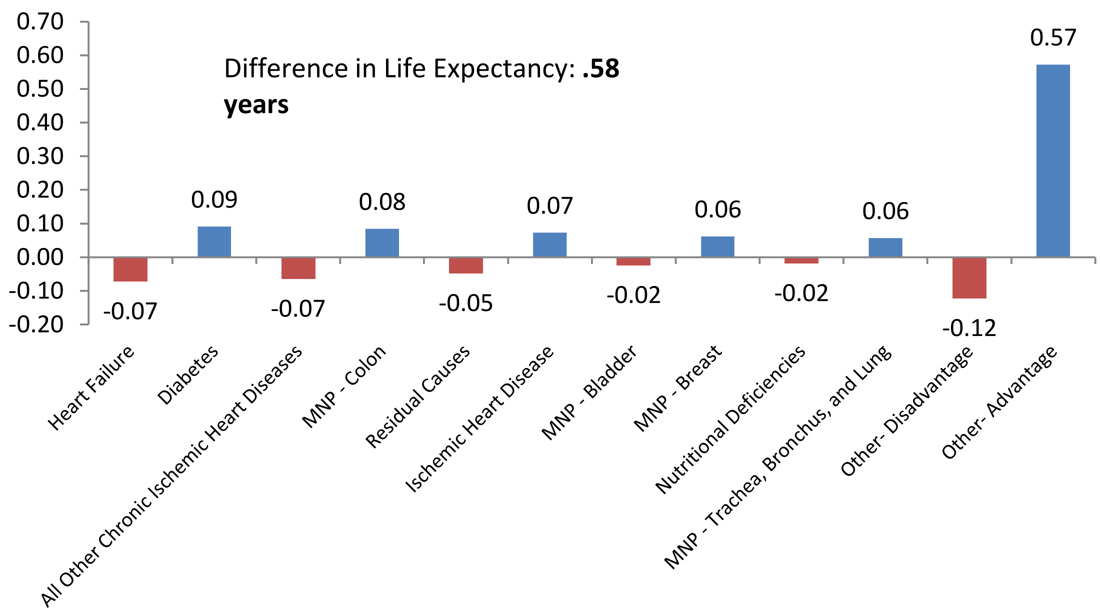
For the decomposition, the methodology is similar to the Hispanic and non-Hispanic life tables; however, because the data are not adjusted with the Brass method as was done in the Hispanic and non-Hispanic tables, the ${}_nm_x$ is based on the original vital statistics data instead of on values derived from the adjusted table.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 37. Difference in Life Expectancy for Native- and Foreign-Born Hispanics in the Southwest United States, 1990-2010

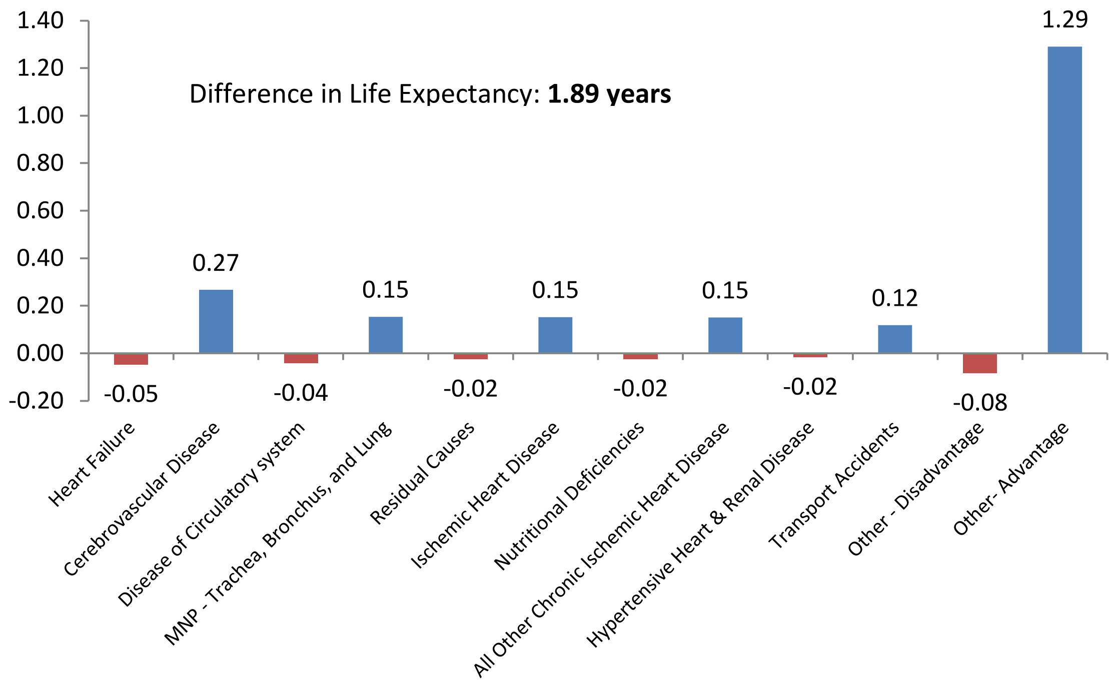


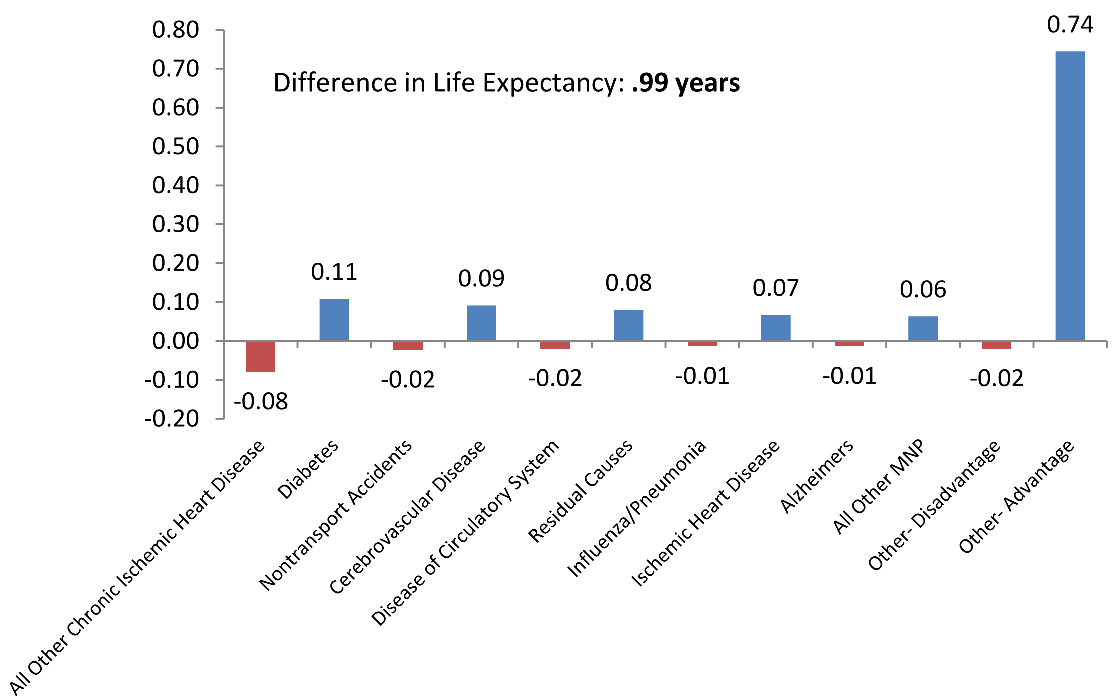


*Foreign-Born Advantage (Positive); Foreign-Born Disadvantage(Negative); MNP - Malignant Neoplasms; CVD – Cerebrovascular Disease

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-1991; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991

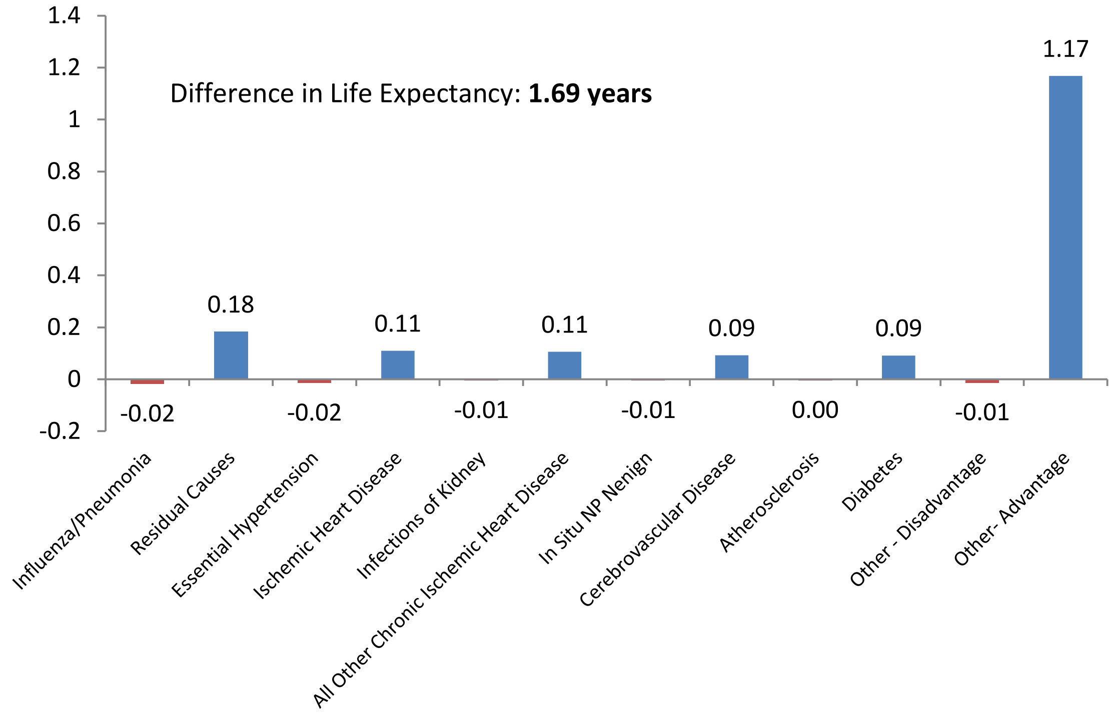
Figure 38. Decomposition of Life Expectancy for native- and foreign-born male (top) and female (bottom) Hispanics in the Southwest United States, 1990

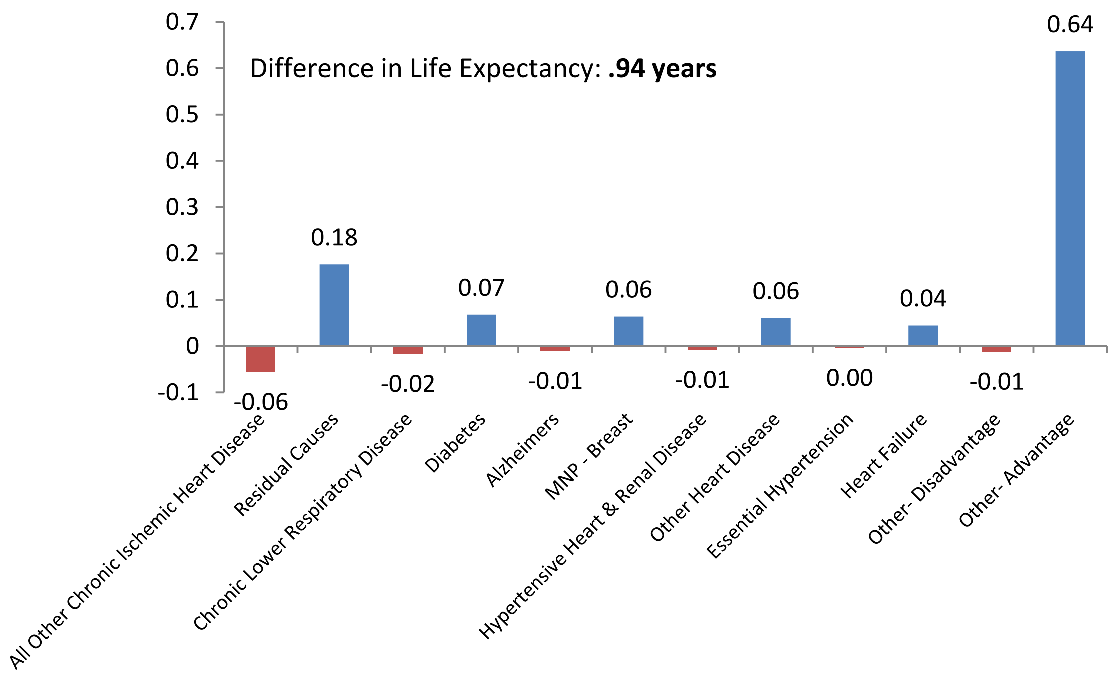




*Foreign-Born Advantage (Positive); Foreign-Born Disadvantage(Negative); MNP - Malignant Neoplasms
Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 39. Decomposition of Life Expectancy for native- and foreign-born male (top) and female (bottom) Hispanics in the Southwest United States, 2000





*Foreign-Born Advantage (Positive); Foreign-Born Disadvantage(Negative); MNP - Malignant Neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 2000; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1998-2001; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1999-2001

Figure 40. Decomposition of Life Expectancy for native- and foreign-born male (top) and female (bottom) Hispanics in the Southwest United States, 2010

The calculation for the mortality rate ($_{n}m_{x}$) is calculated as the deaths over the population for the period,

$$_{n}m_{x} = \frac{_{n}D_{x}}{_{n}N_{x}}.$$

The differentials are presented for the cause-specific contributors in a tabular form (Appendix D, Table D1-D3) with the top contributors for the native- and foreign-born Hispanics at each time period presented visually in Figures 38-40. For the native- and foreign-born Hispanic differentials the reference group is the foreign-born population so negative values in the table are a mortality advantage for the native population and the positive values are where the foreign-born could gain life expectancy. The sum of the values that both benefit and inflict the different nativity groups then sum to the total difference in life expectancy. In the visualization, the values are reversed to be more intuitive visually with the positive values being beneficial for the foreign-born and negative showing benefits for the native-born.

For 1990 (Figure 38; Appendix D, Table D1), foreign-born Hispanic males show an advantage of 1.64 years in life expectancy over native-born males. The most significant contributors to the advantage for foreign-born males were All Other Chronic Ischemic Heart Disease (5.15), Influenza/Pneumonia (3.94), Lung Cancer (2.31), Stroke (1.55), and Tuberculosis (.81). The largest disadvantages for the foreign-born compared to the native-born were Heart Failure (-3.32), Non-transportation Accidents (-3.15), Residual Causes (-2.23), Atherosclerosis (-1.24), and Alzheimer's disease (-1.23).

For the native- and foreign-born Hispanic females (Figure 38; Appendix D, Table D1), the difference in life expectancy and the differentials in 1990 are much less extreme with a difference in life expectancy of .31 years. The largest advantages for foreign-born Hispanics in 1990 was Heart Failure (.07), All Other Chronic Ischemic Heart Disease (.07), Residual Causes (.05), Bladder Cancer (.02) and Nutritional Deficiencies (.02). The largest disadvantages for the foreign-born compared to native-born Hispanics in 1990 was Diabetes (-.09), Colon Cancer (-.08), Ischemic Heart Disease (-.07), Breast Cancer (-.06), and Lung Cancer (-.06).

By 2000, the differentials for native- and foreign-born Hispanic males (Figure 39; Appendix D, Table D2) became more stable even though the difference in life expectancy increased to an advantage of 1.9 years for foreign-born males. The largest estimated advantages in life expectancy based on the decomposition was Stroke (.27), Lung Cancer (.15), Ischemic Heart Disease (.15), All Other Ischemic Heart Disease (.15), and Transport Accidents (.12) while the largest disadvantages for foreign-born Hispanics compared to native-born Hispanics was Heart Failure (-.05), Disease of the Circulatory System (-.04), Residual Causes (-.02), Nutritional Deficiencies (-.02), and Hypertensive and Renal Diseases (-.02).

For native- and foreign-born females in 2000 (Figure 39; Appendix D, Table D2), the difference in life expectancy increased to about a 1 year advantage for the foreign- born with the foreign-born showing the highest advantages in differentials for Diabetes (.11), Stroke (.09), Residual Causes (.08), Ischemic Heart Disease (.07), and All Other Cancers (.06). The foreign-born showed the highest disadvantages for All-Other Chronic Ischemic Heart Diseases (-.08), non-Transportation Accidents (-.02), Disease of Circulatory System (-.02), Influenza/Pneumonia (-.01), and Alzheimer's disease (-.01).

Native- and foreign-born Hispanic males in 2010 (Figure 40; Appendix D, Table D3) the difference in life expectancy decreased to about the same difference as in 1990 with a 1.69-year advantage for foreign-born Hispanic males over native-born males. For the foreign-born male population, the biggest advantages in mortality were Residual Causes (.18), Ischemic Heart Disease (.11), All Other Chronic Ischemic Heart Diseases (.11), Stroke (.09), and Diabetes (.09). Foreign-born Hispanic males showed very minimal disadvantages compared to native-born males with the largest disadvantages for

Influenza/Pneumonia (-.02), Essential Hypertension (-.02), Infection of the Kidney (-.01), In Situ NP Benign (-.01), and Atherosclerosis (< -.001).

In 2010, the native- and foreign-born females (Figure 40; Appendix D, Table D3) showed a difference of about .9 years in life expectancy with the foreign-born females still showing an advantage in life expectancy. The biggest advantages in life expectancy for the foreign-born females were, according to the decomposition of life expectancy, Residual Causes (.18), Diabetes (.07), Breast Cancer (.06), Other Heart Disease (.06), and Heart Failure (.04). The biggest disadvantages for the foreign-born females compared to the native-born females were All Other Chronic Ischemic Heart Disease (-.06), Chronic Lower Respiratory Disease (-.02), Alzheimer's disease (-.01), Hypertensive Heart and Renal Disease (-.01), and Essential Hypertension (< -.001).

From this chapter, chronic conditions were identified as the most consistent contributors to differentials in life expectancy between native- and foreign-born Hispanics through time.

SUMMARY

For the decompositions, few patterns were of note. The native- and foreign-born populations showed very few major differences except in the very earliest period and that were only for males. Chronic illnesses associated with age and issues like transportation were the most consistent through across older cohorts at each time period. Issues like diabetes, stroke, and Alzheimer's were also selected as they were also more common in the decompositions which further reflect the impact of chronic illnesses on mortality differences. In 1990, the impact of differences in mortality rates and life expectancy between native- and foreign-born males led to very large differentials which had diminished by 2000. By 2010, the small effects in differentials remained. Native-born males most often showed circulatory problems as contributing to greater mortality than the foreign-born population. Alternatively, the foreign-born males showed much lower disadvantage than their native counterparts across time. A similar patterns emerged with females, with the native-born losing life expectancy more from chronic illnesses across time including cancers, diabetes, and circulatory diseases. The foreign-born showed much lowers effects and the values were less consistent due to the low impacts.

In the next chapter, the data for the decomposition for the total life tables and the nativity life tables are used to develop cause-specific rates across time. Instead of rates for single age groups or for the age groups in the nativity life tables, the rates are created for pseudo-cohorts. The causes of interested are based on the decompositions for the total populations and emphasizes all-cause mortality and cause-specific mortality rates based on the largest contributors to advantages and disadvantages created from the population and death data for Hispanics and non-Hispanics for the years 1990, 2000, and 2010. Rates are also created for the native- and foreign-born populations but because the values from the decomposition are less impactful and consistent through time, the values for the nativity tables are selected based on all-cause mortality and specific diseases of interest that emerge in early, middle, and late life to present rate patterns through time.

Chapter 7: Cohort Mortality Rates for All-Cause and Select Causes for Hispanics and non-Hispanics and Native-and Foreign-Born Hispanics in the Southwest United States, 1990-2010

In this chapter, I develop all-cause and cause- specific cohort-based mortality rates for Hispanics and non-Hispanics and for native- and foreign-born Hispanics in the Southwest United States from 1990 to 2010. The cohorts are pseudo-cohorts which are identified by age groups to develop four cohorts to track through time for each respective group. The purpose of this aim is to following patterns of mortality for all-cause and select cause-specific contributors across time. The first question is do the rates of mortality change through time as the cohorts age, second, how do the specific racial/ethnic/nativity cohorts change across time? And, third, how do the racial/ethnic and nativity rates compare between the respect groups of analyses? Finally, what, if anything, do these patterns tell us about changing mortality through time?

To achieve these aims, first I develop the cohorts based on age groupings which approximate distinct stages of life development, then I calculate the cohort specific rates for each respective group for all causes. After this, I create a tabular representation of rates for all-cause mortality and select-causes of cause-specific mortality (based on the life tables and decompositions) for each respective group across time and then I graph the resulting rates for each respective cohort across time to allow for visual comparison and presentation of the rates.

The life tables and the decompositions were used to identify mortality differences overall through life expectancy and the cause-specific contributors which were identified as the primary contributors to differences between populations across time. For the decompositions, there were some 74 (Appendix F, Table F1-F3) categories which were used to identify the contributors to life expectancy differences. The rates were calculated for the cohorts across both the total populations and within the Hispanic populations focused on native- and foreign-born populations using the 74 categories. However, for the purposes of this project only the top contributors to differentials are used with 8 rates being presented including all-cause mortality for both the total populations and the nativity groups and 7 select contributors which uniquely impact the total and nativity groups. Before discussing the rates specifically, the age cohorts developed to create the rates are discussed again in brief as a refresher. The Data and Methods section includes more details for those interested.

Age cohorts were created for each racial/ethnic group (or Native- and Foreign-Born Hispanic groups) and each sex within. Given that there were four age cohorts created in the initial 1990 data for ages 0-14, 15-44, 45-64, and 65 and older who were evaluated over three decades, twenty-four unique groups were created for analyses. These groups represented a population born from 1976-1990, a population from 1946-1975, a population born from 1926-1945, and a population born prior to 1926. The layout of the cohort (Table 5) was presented in the earlier methods but is reproduced here for reference.

Table 5. Pseudo-Cohorts for Calculation of Rates in the Southwest United States, 1990-2010

	Year		
Age Cohort (Age of Cohort)	**1990**	**2000**	**2010**
	1976-1990 (0-14)	---	---
	1946-1975 (15-44)	1976-1990 (10-24)	---
	1926-1945 (45-64)	1946-1975 (25-54)	1976-1990 (20-34)
	Pre-1926 (65+)	1926-1945 (55-74)	1946-1975 (35-64)
	---	Pre-1926 (75+)	1926-1945 (65-84)
	---	---	Pre-1926 (85+)

For the Hispanic and non-Hispanic cohorts, rates were calculated for all-cause mortality, chronic lower respiratory disease, lung cancer, diabetes, homicide, suicide, HIV, and transportation accidents. The native- and foreign-born decompositions showed much less consistency across time. Using data from the 1990 life tables, causes of death of potential interest were identified for various points across early, middle, and older ages along with all-cause mortality to examine how rates changed for each group as the cohorts from the native- and foreign-born groups aged. The cause-specific contributors of interest for the native- and foreign-born cohorts are chronic lower respiratory disease, diabetes, lung cancer, transport accidents, non-transport accidents, HIV, and heart failure.

HISPANIC AND NON-HISPANIC COHORT RATES

ALL-CAUSE MORTALITY

For the Hispanic and non-Hispanic population, Hispanics had the lowest all-cause mortality rates (Figure 41; Appendix E, Table E1), overall, across all cohorts through time. Of note, however, is that in the 0-14 cohort non-Hispanic Whites fare better than Hispanics in 1990 but by 2000 and 2010, Hispanics begin to show the lowest rates of all groups. This trend continues, overall, for other cohort groups. At the very oldest ages, the data shows a crossover effect for the non-Hispanic White and non-Hispanic Black populations where non-Hispanic Whites in the oldest cohort begin to show higher mortality rates than non-Hispanic Blacks by 2010.

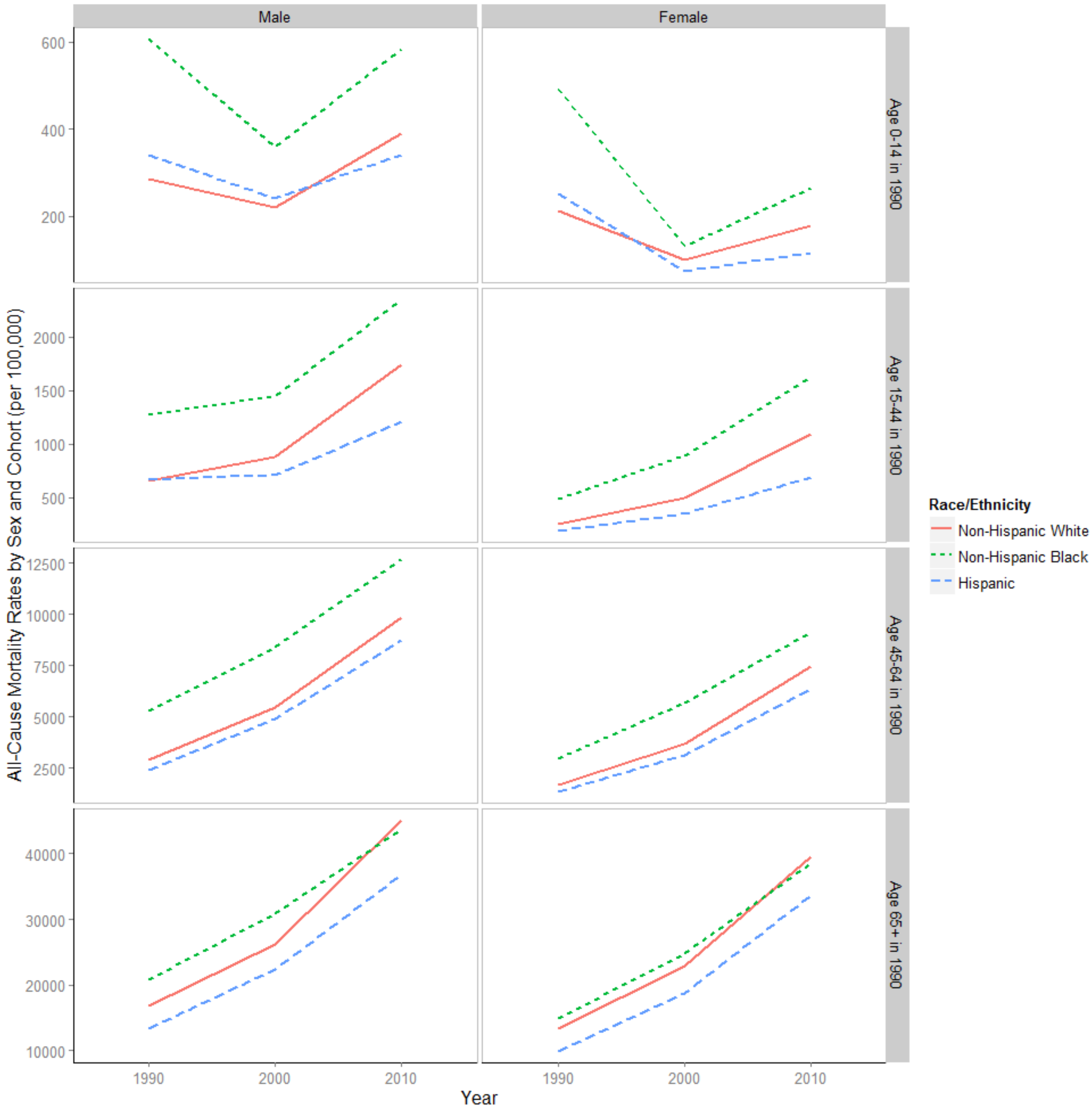
Non-Hispanic Whites

The all-cause rates are discussed in brief for each group below. For non-Hispanic White Males, the all-cause death mortality rate for the 0-14 cohort was 286.11 deaths per 100,000 in 1990. By 2000, this cohort (now aged 10-24) had a diminished rate of 220.77 deaths per 100,000 and by 2010 (20-34) the rate rose to 391.12 deaths per 100,000. For the non-Hispanic White male cohort aged 15-44 the mortality rate was 658.30 per 100,000 in 1990. The rate increased to 879.12 per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to increase to 1,738.91 per 100,000. Non-Hispanics White males in the 44 to 64 cohort in 1990 have an all-cause mortality rate of 2,885.97 per 100,000. This rate increases to 5,445.42 per 100,000 by 2000 where the cohort is now age 55-74 and by 2010 when the cohort is aged 65 to 84 the mortality rate is 9,857.97 per 100,000. In the Age 65+ non-Hispanic White male cohort in 1990 the mortality rate was 16,744.04 per 100,000. By 2000 this rate had increased to 26,172.15 for the cohort now aged 75+ and by 2010 the rate was at 45154.48 per 100,000 for the cohort now age 85 and older.

The non-Hispanic White female cohort aged 0-14 in 1990 had an all-cause mortality rate of 213.85 per 100,000. This rate dropped to 100.16 per 100,000 for the cohort (10-24 years old) in 2000 with an increase to 177.62 per 100,000 by 2010 (aged 20-34). For the age 15-44 cohort of the non-Hispanic White female population, the mortality rate was 251.72 per 100,000 in 1990. By 2000, the rate for the 15-44 cohort (now age 25-54) had increased to 498.74 deaths per 100,000 non-Hispanic White females and the rate continued to climb by 2010 (age 35 to 64) where the mortality rate was 1,091.66 per 100,000. The 45-64 non-Hispanic White female cohort had a mortality rate of 1,691.61 in 1990 which increased to 3,683.52 by 2000 (age 55-74). By 2010 (age 65-84), the rate had continued to climb for the cohort to a rate of 7,483.19 per 100,000. For the non-Hispanic White female 65+ cohort in 1990, the mortality rate was 13,371.29 per 100,000. By 2000 the rate for this cohort had increased to 22,814.15 per 1000,000 when the cohort was age 75+ and by 2010 the rate had risen to 39,526.88 per 100,000.

Non-Hispanic Blacks

For the non-Hispanic black male cohort aged 0-14 in 1990 the mortality rate was 606.37 per 100,000. The rate for this cohort declined to 360.19 per 100,000 by 2000 (aged



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 41. All-Cause Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

10-24) and increased to 583.53 per 100,000 by the year 2010 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a mortality rate of 1,276.63 per 100,000 in 1990. The rate for the cohort increased to 1443.07 per 100,000 by the year 2000 (25-54) and by 2010 the rate was 2,352.54 per 100,000 when the cohort was aged 35-64. The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 5,282.03 per 100,000. By the year 2000, the rate for this cohort had increased to 8,417.29 per 100,000 and by 2010 the rate had continued to rise to 12,669.03 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 20,743.62 per 100,000. This cohort saw an increase in the rate in 2000 with a rate of 30,808.10 per 100,000 which continued to increase for the cohort in 2010 with a rate of 43,692.87 per 100,000.

For the non-Hispanic Black female population, the mortality rate for the 0 to 14 cohort in 1990 was 492.20. This rate decreased in 2000 to a rate of 132.10 per 100,000 when the cohort was age 10 to 24 and in 2010 the rate rose to 266.29 per 100,000 when the cohort was 20-34 years old. The 15 to 44-year-old non-Hispanic Black female cohort had a rate of 484.70 per 100,000 in 1990. The rate for this cohort increased to 893.82 per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 1,626.40 deaths per 100,000. The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 2,965.99 per 100,000. By the year 2000, the mortality rate for this cohort was 5,677.54 per 100, 000 and by 2010 it had increased to 9,127.87 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 1,4971.37 per 100,000. This rate increased to 24,889.64 by 2000 and continued to increase in 2010 to a rate of 38,566.09 per 100,000 persons.

Hispanics

For the Hispanic male 0-14 cohort, the mortality rate for 1990 was 340.09 deaths per 100,000. By 2000, the rate had decreased to 240.46 per 100,000 and in 2010 the rate continued to decrease to 340.78 deaths per 100,000. The Hispanic male 15 to 44 cohort had a rate of 670.53 deaths per 100,000 in 1990. This rate increased to 707.55 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 the mortality rate was 1,212.62 deaths per 100,000. The 45 to 64 cohort of the Hispanic male population had a mortality rate of 2,406.53 in 1990. This rate increased to 4,873.52 per 100,000 by the year 2000 and in 2010 the rate continued to climb to 8,711.09 deaths per 100,000 persons when the cohort was age 65 to 84. For the age 65+ cohort of the Hispanic male population in 1990 the mortality rate was 13,303.92 deaths per 100,000. The rate in 2000 for the cohort increased to 22,393.92 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate was 36,726.29 deaths per 100,000 persons.

In the 0 to 14 Hispanic female cohort, the mortality rate for 1990 was 250.96 deaths per 100,000. The rate for the cohort dropped to 74.90 deaths per 100,000 persons by 2000 and increased to 114.89 deaths per 100,000 by 2010 when the cohort was aged 20 to 34. For the 15 to 44 Hispanic female cohort, the mortality rate for 1990 was 184.72 deaths per 100,000. By 2000, the cohort mortality rate increased to 343.56 deaths per 100,000 and continued to rise to 690.31 deaths per 100,000 in 2010. The Hispanic female cohort for ages 45-64 had a mortality rate of 1,359.39 deaths per 100,000 in 1990. This rate increased to 3,137.37 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate was 6,344.59 deaths per 100,000 when the cohort was aged 65 to 84. In the 65+ cohort of the Hispanic female population, the mortality rate in 1990 was 9,866.30 deaths per 100,000. By 2000, the mortality rate for the cohort had increased to 18,679.72 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 33,603.27 deaths per 100,000.

CHRONIC LOWER RESPIRATORY DISEASE MORTALITY RATES

As with the all-cause mortality rate, the Hispanic cohorts showed the lowest mortality rates for chronic lower respiratory diseases (CLRD) (Figure 42; Appendix E,

Table E1), overall. For the youngest, CLRD was very miniscule in effect so the rates are not reported here. Instead, the rates are reported for the cohort born in 1946-1975 or earlier. The highest rates, overall, are for the non-Hispanic White cohorts even compared to non-Hispanic Blacks. However, it should be noted that there is a crossover effect where non-Hispanic Blacks in the 1946 to 1975 (age 15-44 in 1990) cohorts have higher rates in 1990 and 2000 before non-Hispanic Whites overtake them. This effect appears for both males and females in the cohort. Females, Hispanic or non-Hispanic showed lower rates than their counterparts, though Hispanics and non-Hispanic Blacks showed much lower rates overall, and especially in to older ages.

Non-Hispanic Whites

For the non-Hispanic White male cohort aged 15-44 the mortality rate was 1.20 deaths per 100,000 in 1990. The rate increased to 9.77 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to increase to 56.54 deaths per 100,000. Non-Hispanics White males in the 44 to 64 cohort in 1990 have an all-cause mortality rate of 97.55 deaths per 100,000. This rate increased to 380.34 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the CLRD rate is 841.52 deaths per 100,000. In the Age 65+ non-Hispanic White male cohort in 1990 the mortality rate was 1,126.54 deaths per 100,000. By 2000 this rate had increased to 1,946.56 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate was at 2,852.67 deaths per 100,000 for the cohort now age 85 and older.

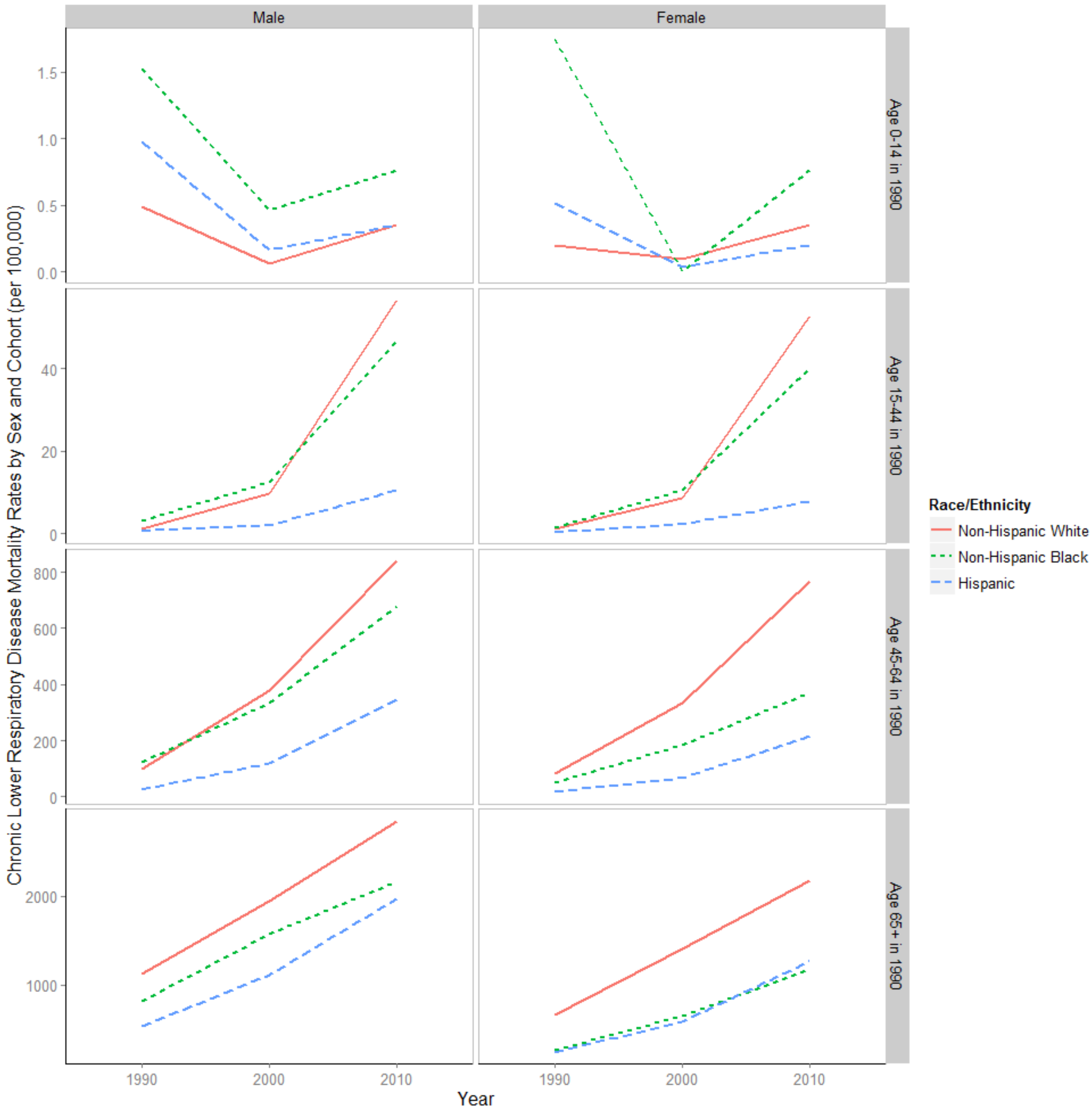
For the age 15-44 cohort of the non-Hispanic White female population, the mortality rate was 1.03 deaths per 100,000 in 1990. By 2000, the rate for the 15-44 cohort (now age 25-54) had increased to 8.61 deaths per 100,000 non-Hispanic White females and the rate continued to climb by 2010 (age 35 to 64) where the mortality rate was 52.60 per 100,000. The 45-64 non-Hispanic White female cohort had a mortality rate of 81.16 deaths per 100,000 in 1990 which increased to 334.55 by 2000 (age 55-74).

By 2010 (age 65-84), the rate had continued to climb for the cohort to a rate of 766.12 deaths per 100,000. For the non-Hispanic White female 65+ cohort in 1990, the mortality rate was 662.83 deaths per 100,000. By 2000 the rate for this cohort had increased to 1,408.06 deaths per 100,000 when the cohort was age 75+ and by 2010 the rate had risen to 2,177.73 deaths per 100,000.

Non-Hispanic Blacks

The 15 to 44 non-Hispanic Black male cohort had a CLRD rate of 3.13 per 100,000 in 1990. The rate for the cohort increased to 12.36 per 100,000 by the year 2000 (25-54) and by 2010 the rate was 46.53 per 100,000 when the cohort was aged 35-64. The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 124.09 deaths per 100,000. By the year 2000, the rate for this cohort had increased to 333.48 deaths per 100,000 and by 2010 the rate had continued to rise to 678.54 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 816.79 deaths per 100,000. This cohort saw an increase in the rate in 2000 with a rate of 1,578.56 deaths per 100,000 which continued to increase for the cohort in 2010 with a rate of 2,162.26 per 100,000.

The 15 to 44-year-old non-Hispanic Black female cohort had a rate of 1.34 deaths per 100,000 in 1990. The rate for this cohort increased to 10.67 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 40.00 deaths per 100,000. The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 52.00 per 100,000. By the year 2000, the mortality rate for this cohort was 185.03 deaths per 100, 000 and by 2010 it had increased to 371.39 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 266.59 deaths per 100,000. This rate increased to 650.47 deaths per 100,000 by 2000 and continued to increase in 2010 to a rate of 1,174.90 deaths per 100,000 persons.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 42. Chronic Lower Respiratory Disease Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

Hispanics

The Hispanic male ages 15-to-44-year-old cohort had a rate of 0.64 deaths per 100,000 in 1990. This rate increased to 1.84 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 the mortality rate was 10.55 deaths per 100,000. The 45 to 64 cohort of the Hispanic male population had a mortality rate of 27.06 in 1990. This rate increased to 120.44 per 100,000 by the year 2000 and in 2010 the rate continued to climb to 345.44 deaths per 100,000 persons when the cohort was age 65 to 84. For the age 65+ cohort of the Hispanic male population in 1990 the mortality rate was 539.01 deaths per 100,000. The rate in 2000 for the cohort increased to 1,110.97 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate was 1,973.76 deaths per 100,000 persons.

For the 15 to 44 Hispanic female cohort, the mortality rate for 1990 was .41 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate increased to 2.36 deaths per 100,000 and continued to rise to 7.75 deaths per 100,000 in 2010 (age 35-64). The Hispanic female cohort for ages 45-64 had a mortality rate of 16.64 deaths per 100,000 in 1990. This rate increased to 66.51 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate was 217.07 deaths per 100,000 when the cohort was aged 65 to 84. In the 65+ cohort of the Hispanic female population, the mortality rate in 1990 was 238.06 deaths per 100,000. By 2000, the mortality rate for the cohort had increased to 590.80 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 1,260.69 deaths per 100,000.

MALIGNANT NEOPLASM OF THE TRACHEA, BRONCHUS, AND LUNG MORTALITY RATES

For Malignant Neoplasms of the Trachea, Bronchus and Lung (Lung Cancer) (Figure 43; Appendix E, Table E1), the rates in the youngest cohort 1976-1990 (Age 0 to 14) were negligible so they are not presented here. Of all groups, Hispanic males and females showed the lowest rates of all groups across time. The highest rates of all groups are for non-Hispanic Black Males compared to their counterparts. Females, however, show a pattern where non-Hispanic Blacks and non-Hispanic Whites are fairly close in rates with a cross over in the highest rates between the younger and oldest cohorts.

Non-Hispanic Whites

For the non-Hispanic White male cohort aged 15-44 the mortality rate was 7.36 deaths per 100,000 in 1990. The rate increased to 36.75 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to increase to 110.94 deaths per 100,000. Non-Hispanics White males in the 44 to 64 cohort in 1990 have an all-cause mortality rate of 357.71 deaths per 100,000. This rate increased to 665.90 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for lung cancer was 906.89 deaths per 100,000. In the age 65+ non-Hispanic White male cohort in 1990 the mortality rate was 1,368.90 deaths per 100,000. By 2000 this rate had increased to 1468.14 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate was at 1,376.67 deaths per 100,000 for the cohort now age 85 and older.

For the age 15-44 cohort of the non-Hispanic White female population, the mortality rate was 6.08 deaths per 100,000 in 1990. By 2000, the rate for the 15-44 cohort (now age 25-54) had increased to 28.45 deaths per 100,000 non-Hispanic White females and the rate continued to climb by 2010 (age 35 to 64) where the mortality rate was 86.10 deaths per 100,000. The 45-64 non-Hispanic White female cohort had a mortality rate of 226.51 deaths per 100,000 in 1990 which increased to 462.03 by 2000 (age 55-74). By 2010 (age 65-84), the rate had continued to climb for the cohort to a rate of 672.84 deaths per 100,000. For the non-Hispanic White female 65+ cohort in 1990, the mortality rate was 623.81 deaths per 100,000. By 2000 the rate for this cohort had increased to 831.10 deaths per 100,000 when the cohort was age 75+ and by 2010 the rate had risen to 836.34 deaths per 100,000.

Non-Hispanic Blacks

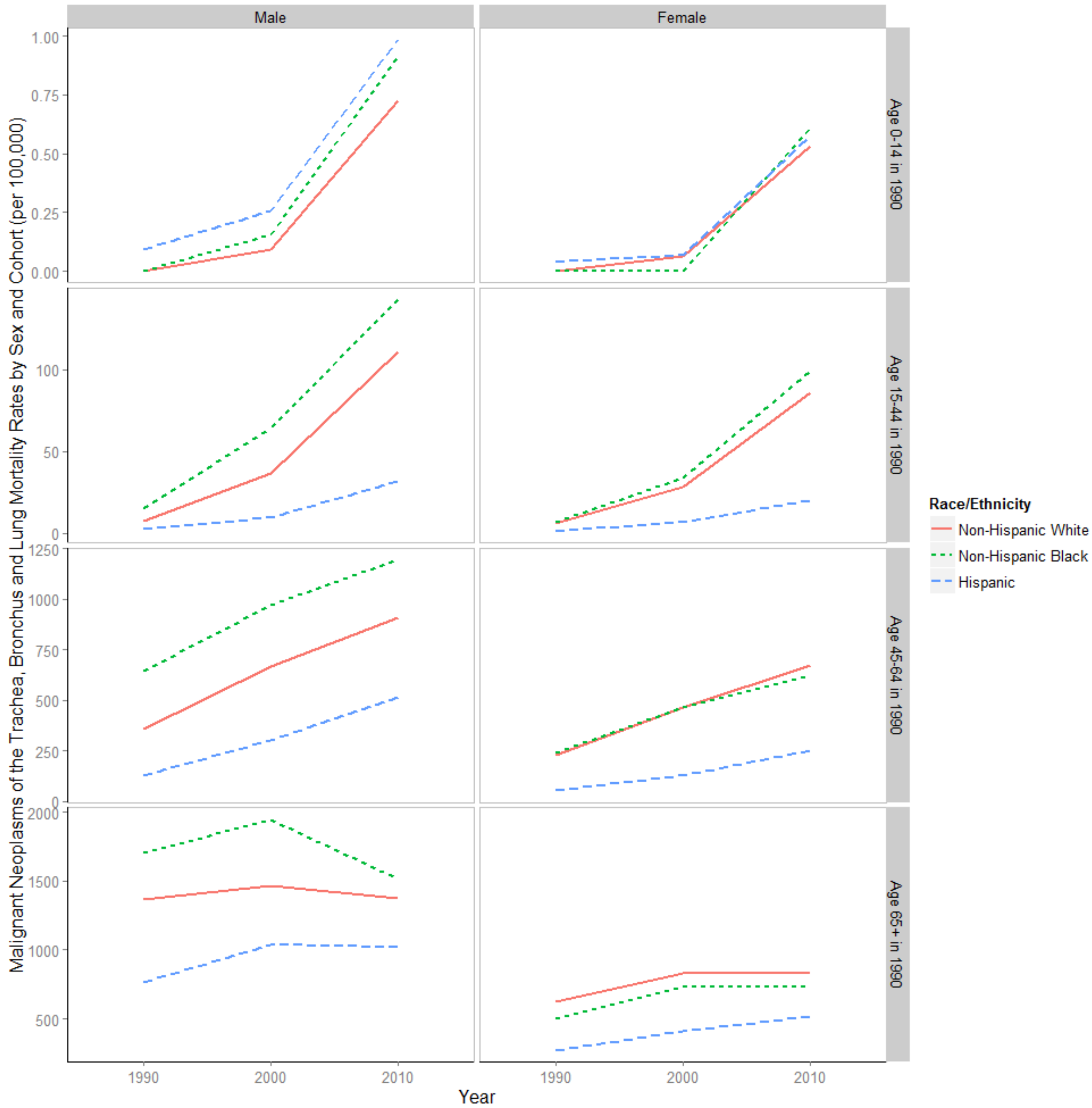
The 15 to 44 non-Hispanic Black male cohort had a lung cancer rate of 15.49 deaths per 100,000 in 1990. The rate for the cohort increased to 64.27 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate was 142.69 deaths per 100,000 when the cohort was aged 35-64. The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 645.20 deaths per 100,000. By the year 2000, the rate for this cohort had increased to 972.04 deaths per 100,000 and by 2010 the rate had continued to rise to 1,195.97 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 1,709.26 deaths per 100,000. This cohort saw an increase in the rate in 2000 with a rate of 1,949.68 deaths per 100,000 which decreased sharply for the cohort in 2010 with a rate of 1,512.95 deaths per 100,000.

The 15 to 44-year-old non-Hispanic Black female cohort had a rate of 7.06 deaths per 100,000 in 1990. The rate for this cohort increased to 33.74 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 99.00 deaths per 100,000.

The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 239.84 per 100,000. By the year 2000, the mortality rate for this cohort was 461.44 deaths per 100, 000 and by 2010 it had increased to 620.59 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 499.92 deaths per 100,000. This rate increased to 734.37 deaths per 100,000 by 2000 and continued to increase in 2010 to a rate of 734.31 deaths per 100,000 persons.

Hispanics

The Hispanic male 15 to 44 cohort had a rate of 2.65 deaths per 100,000 in 1990. This rate increased to 9.28 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 the mortality rate was 31.82 deaths per 100,000. The 45 to 64 cohort of the Hispanic male population had a mortality rate of 127.14 deaths per 100,000 in 1990. This



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 43. MNP -Trachea, Bronchus, and Lung Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

rate increased to 303.76 deaths per 100,000 by the year 2000 and in 2010 the rate continued to climb to 516.66 deaths per 100,000 persons when the cohort was age 65 to 84. For the age 65+ cohort of the Hispanic male population in 1990 the mortality rate was 763.75 deaths per 100,000. The rate in 2000 for the cohort increased to 1,039.80 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased slightly to 1,021.00 deaths per 100,000 persons.

For the 15 to 44 Hispanic female cohort, the mortality rate for 1990 was 1.50 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate increased to 6.85 deaths per 100,000 and continued to rise to 19.74 deaths per 100,000 in 2010 (age 35-64). The Hispanic female cohort for ages 45-64 had a mortality rate of 51.58 deaths per 100,000 in 1990. This rate increased to 128.03 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate was 249.39 deaths per 100,000 when the cohort was aged 65 to 84. In the 65+ cohort of the Hispanic female population, the mortality rate in 1990 was 268.40 deaths per 100,000. By 2000, the mortality rate for the cohort had increased to 409.32 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 512.88 deaths per 100,000.

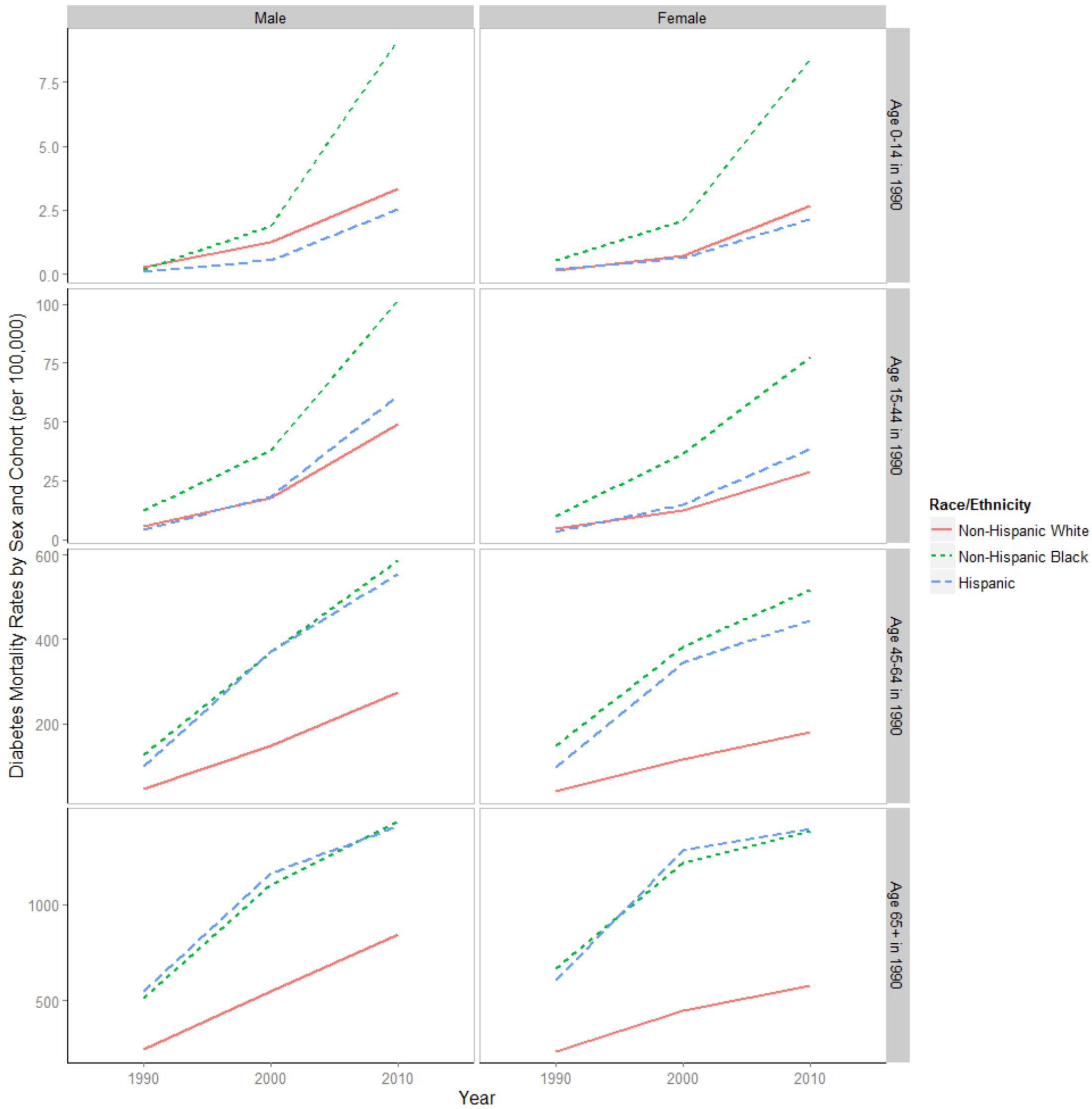
DIABETES MORTALITY RATES

For Diabetes (Figure 44; Appendix E, Table E1), Non-Hispanic Blacks show the highest rates of all group with a growing divergence between the groups through time. Hispanics and non-Hispanic Whites shows similar rates in the youngest cohort but begin to closely mirror rates in the non-Hispanic Black population within the oldest cohorts. Non-Hispanic Whites show a divergence in the 1946-1975 cohort (age 15-44 in 1990) with a marked separation from Hispanics and non-Hispanic Blacks as the groups ages. The pre 1946-1975 cohorts show markedly lower rates for non-Hispanic Whites than other groups and a fairly consistent rate pattern for males and females between groups and across time.

Non-Hispanic Whites

The 1976-1990 cohort (age 0-14 in 1990), non-Hispanic Whites males had a diabetes mortality rate of 0.27 deaths per 100,000, by 2000 (age 10-24) the rate had increased to 1.24 deaths per 100,000 and continued to grow to 3.32 deaths per 100,000 by 2010 (age 20-34). For the non-Hispanic White male 1946-1975 cohort (age 15-44 in 1990) the mortality rate was 5.77 deaths per 100,000 in 1990. The rate increased to 17.42 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to increase to 48.89 deaths per 100,000. Non-Hispanics White males in the 1926-1945 cohort (age 44 to 64 in 1990) had an all-cause mortality rate of 45.40 deaths per 100,000. This rate increased to 147.53 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for lung cancer was 275.34 deaths per 100,000. In the pre-1926 cohort (Age 65+ in 1990) non-Hispanic White male cohort in 1990 the mortality rate was 247.74 deaths per 100,000. By 2000 this rate had increased to 550.64 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate was at 845.92 deaths per 100,000 for the cohort now age 85 and older.

For the 1976-1990 cohort of the non-Hispanic White female population, the diabetes mortality rate was 0.12 deaths per 100,000 in 1990. By 2000, the rate for the cohort (now age 25-54) had increased to 0.73 deaths per 100,000 non-Hispanic White females and the rate continued to climb by 2010 (age 35 to 64) where the mortality rate was 2.65 deaths per 100,000. The 1946-1975 non-Hispanic White female cohort (age 15-44) had a mortality rate of 4.49 deaths per 100,000 in 1990 which increased to 12.41 deaths per 100,000 by 2000 (age 25-54). By 2010 (age 35-64), the rate had continued to climb for the cohort to a rate of 28.84 deaths per 100,000. For the non-Hispanic White female 1926-1945 cohort (age 45-64), the mortality rate was 38.85 deaths per 100,000. By 2000 (age 55-74) the rate for this cohort had increased to 114.21 deaths per 100,000 and by 2010 (age 65-85) the rate had risen to 180.91 deaths per 100,000.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 44. Diabetes Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

For the non-Hispanic White female cohort in the pre-1926 cohort (age 65+ in 1990), the rate was 235.33 deaths per 100,000. By 2000 (age 75+) the rate for the cohort was 449.47 deaths per 100,000 and which continued to climb by 2010 (age 85+) with a rate of 575.68 deaths per 100,000.

Non-Hispanic Blacks

For the 1976-1990 (age 0-14) non-Hispanic Black male cohort, the diabetes-specific death rate in 1990 was .17 deaths per 100,000. By 2000 (age 10-24), the rate for this cohort increased to 1.86 deaths per 100,000 and jumped to 9.13 deaths per 100,000 by 2020 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a diabetes death rate of 12.18 deaths per 100,000 in 1990. The rate for the cohort increased to 37.91 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate was 101.66 deaths per 100,000 when the cohort was aged 35-64. The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 127.10 deaths per 100,000. By the year 2000, the rate for this cohort had increased to 368.95 deaths per 100,000 and by 2010 the rate had continued to rise to 587.71 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 514.89 deaths per 100,000. This cohort saw an increase in the rate in 2000 with a rate of 1,101.16 deaths per 100,000 which decreased sharply for the cohort in 2010 with a rate of 1,437.31 deaths per 100,000.

For the 1976-1990 non-Hispanic Black cohort (age 0-14), the diabetes-specific mortality rate was 0.51 deaths per 100,000 in 1990. By 2000 (age 10-24), the rate had increased to 2.09 deaths per 100,000 persons and continued to climb to 8.41 deaths per 100,000 by 2010 when the cohort had aged to 20-34 years old. The 1946-1975 (15 to 44-year-old) non-Hispanic Black female cohort had a rate of 10.10 deaths per 100,000 in 1990. The rate for this cohort increased to 36.71 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 77.66 deaths per 100,000. The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 146.94 deaths per 100,000. By the year 2000, the mortality rate for this cohort was 383.02 deaths per 100, 000 and by 2010 it had increased to 518.35 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 669.28 deaths per 100,000. This rate increased to 1,215.16 deaths per 100,000 by 2000 and continued to increase in 2010 to a rate of 1,380.51 deaths per 100,000 persons.

Hispanics

The Hispanic 1976-1990 cohort (age 0-14) had a rate of .09 deaths per 100,000. This rate increased to .52 deaths per 100,000 in 2000 (age 10-24) and increased to 2.52 deaths per 100,000 by 2010 (age 20-34). The Hispanic male 1946-1975 (age 15 to 44) cohort had a rate of 4.01 deaths per 100,000 in 1990. This rate increased to 18.30 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 (age 35-54) the mortality rate was 61.18 deaths per 100,000.

The 1926-1945 (age 45 to 64) cohort of the Hispanic male population had a mortality rate of 98.35 deaths per 100,000 in 1990. This rate increased to 372.15 deaths per 100,000 by the year 2000 and in 2010 the rate continued to climb to 555.26 deaths per 100,000 persons when the cohort was age 65 to 84. For the pre-1926 cohort (age 65+ in 1990) cohort of the Hispanic male population the mortality rate was 548.86 deaths per 100,000. The rate in 2000 for the cohort increased to 1,163.56 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased slightly to 1,407.76 deaths per 100,000 persons.

For the female cohort born 1976-1990, the rate in 1990 (age 0-14) was .16 deaths per 100,000 persons. By 2000 (age 10-23), the Hispanic population had increased to a mortality rate of .63 deaths per 100,000 which increased to 2.15 deaths per 100,000 by 2010 (age 20-34). For the 1946-1975 (age 15 to 44) Hispanic female cohort the mortality rate in 1990 was 3.31 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate increased to 14.95 deaths per 100,000 and continued to rise to 38.54 deaths per 100,000 in 2010 (age 35-64).

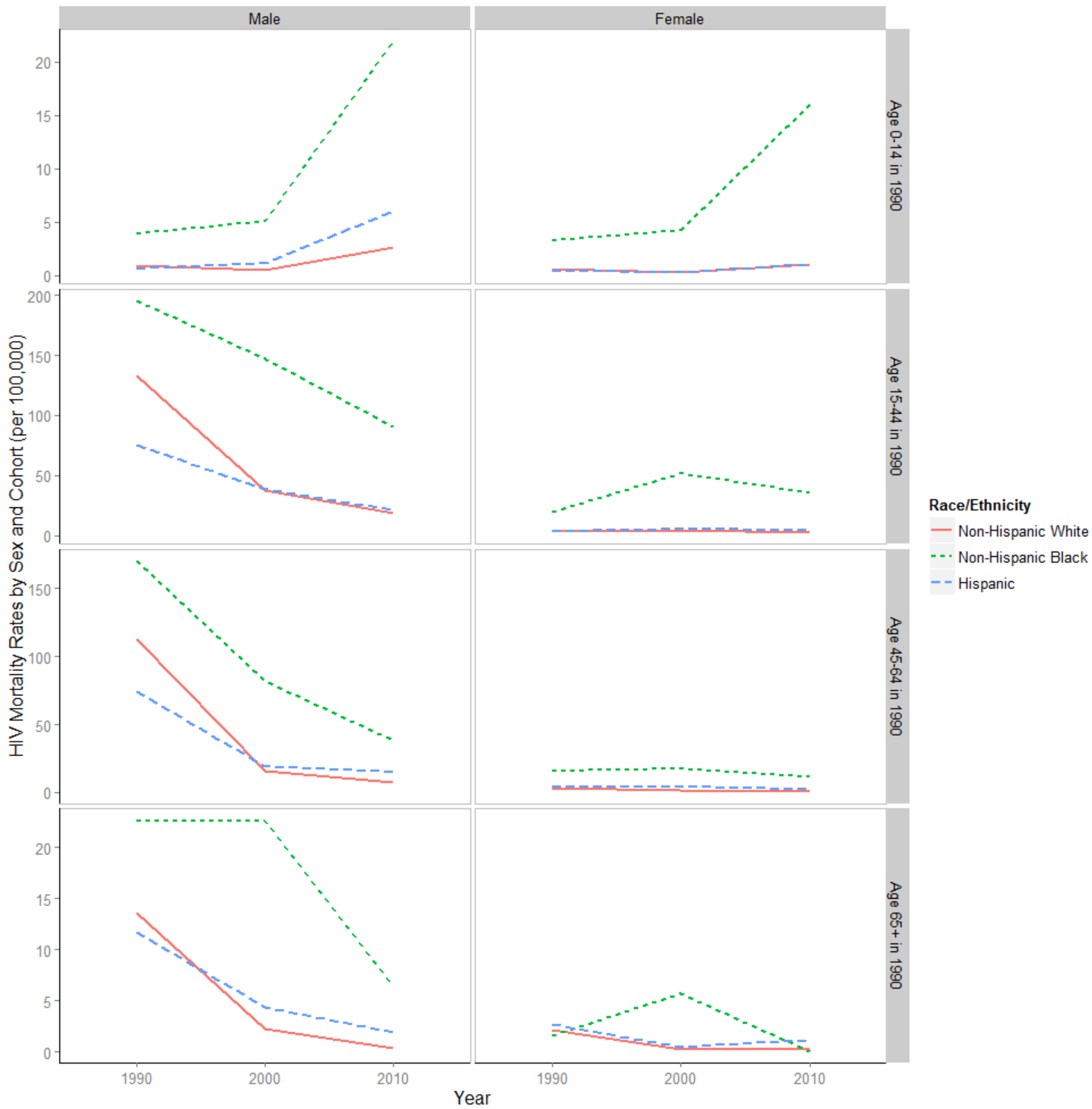
The 1926-1945 Hispanic female cohort (ages 45-64) had a mortality rate of 97.32 deaths per 100,000 in 1990. This rate increased to 345.79 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate was 444.72 deaths per 100,000 when the cohort was aged 65 to 84. In the pre-1926 (age 65+) cohort of the Hispanic female population, the mortality rate in 1990 was 610.14 deaths per 100,000. By 2000, the mortality rate for the cohort had increased to 1,278.46 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 1,393.06 deaths per 100,000.

HIV MORTALITY RATES

For HIV (Figure 45; Appendix E, Table E1), Non-Hispanic Blacks had the highest rates of all groups. Hispanics and non-Hispanic Whites shows similar rates in most of the cohorts through there are some differences in the patterns through time. Females had much lower rates of HIV compared to males, though non-Hispanic Black females maintained the highest rates across groups. Across time, males also showed a decreased in mortality rates from HIV for all of the cohorts except the youngest. Females did not show a similar pattern likely due to the much lower rates experienced by the group already.

Non-Hispanic Whites

The 1976-1990 cohort (age 0-14 in 1990), non-Hispanic Whites males had a HIV mortality rate of 0.97deaths per 100,000, by 2000 (age 10-24) the rate had decreased to .45 deaths per 100,000 and then shot back up to 2.65 deaths per 100,000 by 2010 (age 20-34). For the non- Hispanic White male 1946-1975 cohort (age 15-44 in 1990) the mortality rate was 133.48 deaths per 100,000 in 1990. The rate decreased to 37.23 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to decline to



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 45. Human Immunodeficiency Virus (HIV) Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

18.84 deaths per 100,000. Non-Hispanics White males in the 1926-1945 cohort (age 44 to 64 in 1990) had an all-cause mortality rate of 112.56 deaths per 100,000.

This rate decreased to 15.67 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for HIV was 7.89 deaths per 100,000. In the pre-1926 cohort (Age 65+ in 1990) non-Hispanic White male cohort in 1990 the mortality rate was 13.60 deaths per 100,000. By 2000 this rate decreased to 2.27 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate declined to .32 deaths per 100,000 for the cohort now age 85 and older.

For the 1976-1990 cohort of the non-Hispanic White female population, the diabetes mortality rate was 0.61 deaths per 100,000 in 1990. By 2000, the rate for the cohort (now age 25-54) had increased to 0.29 deaths per 100,000 non-Hispanic White females and the rate continued to climb by 2010 (age 35 to 64) where the mortality rate was 1.07 deaths per 100,000. The 1946-1975 non-Hispanic White female cohort (age 15-44) had a mortality rate of 3.40 deaths per 100,000 in 1990 which increased to 4.08 deaths per 100,000 by 2000 (age 25-54). By 2010 (age 35-64), the rate declined for the cohort to a rate of 2.89 deaths per 100,000.

For the non-Hispanic White female 1926-1945 cohort (age 45-64), the mortality rate was 2.97 deaths per 100,000 in 1990. The rate for the 1926-1945 non-Hispanic White female cohort (age 55-74) increased to 1.44 deaths per 100,000 by 2000 and by 2010 (age 65-85) the rate had risen to .52 deaths per 100,000. For the non-Hispanic White female cohort in the pre-1926 cohort (age 65+ in 1990), the rate was 2.14 deaths per 100,000 and by 2000 (age 75+) the rate for the cohort declined to .26 deaths per 100,000. The rate for the cohort continued to decline to .18 deaths per 100,000 by 2010 (age 85+).

Non-Hispanic Blacks

For the 1976-1990 (age 0-14) non-Hispanic Black male cohort, the diabetes-specific death rate in 1990 was 3.90 deaths per 100,000. By 2000 (age 10-24), the rate for this cohort increased to 5.10 deaths per 100,000 and jumped to 21.92 deaths per 100,000 by 2020 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a diabetes death rate of 195.25 deaths per 100,000 in 1990. The rate for the cohort then decreased to 147.54 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate further declined to 94.95 deaths per 100,000 when the cohort was aged 35-64.

The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 170.25 deaths per 100,000. By the year 2000, the rate for this cohort declined to 81.60 deaths per 100,000 and by 2010 the rate further declined to 38.39 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 22.62 deaths per 100,000. This cohort stayed fairly stagnant in mortality by 2000 with a rate of 22.65 deaths per 100,000 which decreased sharply for the cohort in 2010 with a rate of 6.30 deaths per 100,000.

For the 1976-1990 non-Hispanic Black female cohort (age 0-14), the HIV-specific mortality rate was 3.31 deaths per 100,000 in 1990. By 2000 (age 10-24), the rate had increased to 4.17 deaths per 100,000 persons and continued to climb to 16.06 deaths per 100,000 by 2010 when the cohort had aged to 20-34 years old. The 1946-1975 (15 to 44 years old) non-Hispanic Black female cohort had a rate of 19.84 deaths per 100,000 in 1990. The rate for this cohort increased to 51.40 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 36.01 deaths per 100,000.

The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 15.48 deaths per 100,000. By the year 2000, the mortality rate for this cohort was 17.82 deaths per 100, 000 and by 2010 it had increased to 11.58 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 1.54 deaths per 100,000. This rate increased to 5.66 deaths per 100,000 by 2000 and the dropped by 2010 to a rate of 0 deaths per 100,000 persons.

Hispanics

The Hispanic 1976-1990 cohort (age 0-14) had a rate of .56 deaths per 100,000. This rate increased to 1.16 deaths per 100,000 in 2000 (age 10-24) and increased to 5.98 deaths per 100,000 by 2010 (age 20-34). The Hispanic male 1946-1975 (age 15 to 44) cohort had a rate of 74.95 deaths per 100,000 in 1990. This rate dropped to 38.50 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 (age 35-54) the mortality rate further fell to 21.58 deaths per 100,000.

The 1926-1945 (age 45 to 64) cohort of the Hispanic male population had a mortality rate of 74.48 deaths per 100,000 in 1990. This rate declined to 19.12 deaths per 100,000 by the year 2000 and in 2010 the rate continued to decline to 14.9 deaths per 100,000 persons when the cohort was age 65 to 84. For the pre-1926 cohort (age 65+ in 1990) cohort of the Hispanic male population the mortality rate was 11.70 deaths per 100,000. The rate in 2000 for the cohort declined to 4.29 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased further to 1.88 deaths per 100,000 persons.

For the female cohort born 1976-1990, the rate in 1990 (age 0-14) was .37 deaths per 100,000 persons. By 2000 (age 10-23), the Hispanic population had decreased slightly to .34 deaths per 100,000 and then increased to 1.03 deaths per 100,000 by 2010 (age 20-34). For the 1946-1975 (age 15 to 44) Hispanic female cohort the mortality rate in 1990 was 3.54 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate increased to 5.52 deaths per 100,000 and declined to 4.04 deaths per 100,000 in 2010 (age 35-64).

The 1926-1945 Hispanic female cohort (ages 45-64) had a mortality rate of 4.41 deaths per 100,000 in 1990. This rate increased slightly to 4.41 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate declined to 2.48 deaths per 100,000 when the cohort was aged 65 to 84. In the pre-1926 (age 65+) cohort of the Hispanic female population, the mortality rate in 1990 was 2.63 deaths per 100,000. By 2000, the mortality rate for the cohort had declined to .47 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 1.10 deaths per 100,000.

HOMICIDE MORTALITY RATES

For Homicide (Figure 46; Appendix E, Table E1), Non-Hispanic Blacks had the highest rates of all groups. Hispanics and non-Hispanic Whites shows similar rates for females though for men Hispanics fall between non-Hispanic Blacks and non-Hispanic Whites. Females had much lower rates for homicide compared to males, though non-Hispanic Black females maintained the highest rates for females. Except for in the earliest age cohort, males also showed a decrease in mortality rates from homicide from 1990 to 2010. Females, overall, showed a fairly consistent pattern of homicide mortality likely due to the already lower rates.

Non-Hispanic Whites

The 1976-1990 cohort (age 0-14 in 1990), non-Hispanic Whites males had a homicide mortality rate of 5.68 deaths per 100,000, by 2000 (age 10-24) the rate increased to 15.01 deaths per 100,000 and then increased further to 20.86 deaths per 100,000 by 2010 (age 20-34). For the non-Hispanic White male 1946-1975 cohort (age 15-44 in 1990) the mortality rate was 36.01 deaths per 100,000 in 1990. The rate decreased to 19.34 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate continued to decline to 16.01 deaths per 100,000.

Non-Hispanics White males in the 1926-1945 cohort (age 44 to 64 in 1990) had an all-cause mortality rate of 26.69 deaths per 100,000. This rate decreased to 11.06 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for homicide was 7.85 deaths per 100,000. In the pre-1926 cohort (Age 65+ in 1990) non-Hispanic White male cohort in 1990 the mortality rate was 15.77

deaths per 100,000. By 2000 this rate decreased to 9.68 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate declined to 7.61 deaths per 100,000 for the cohort now age 85 and older.

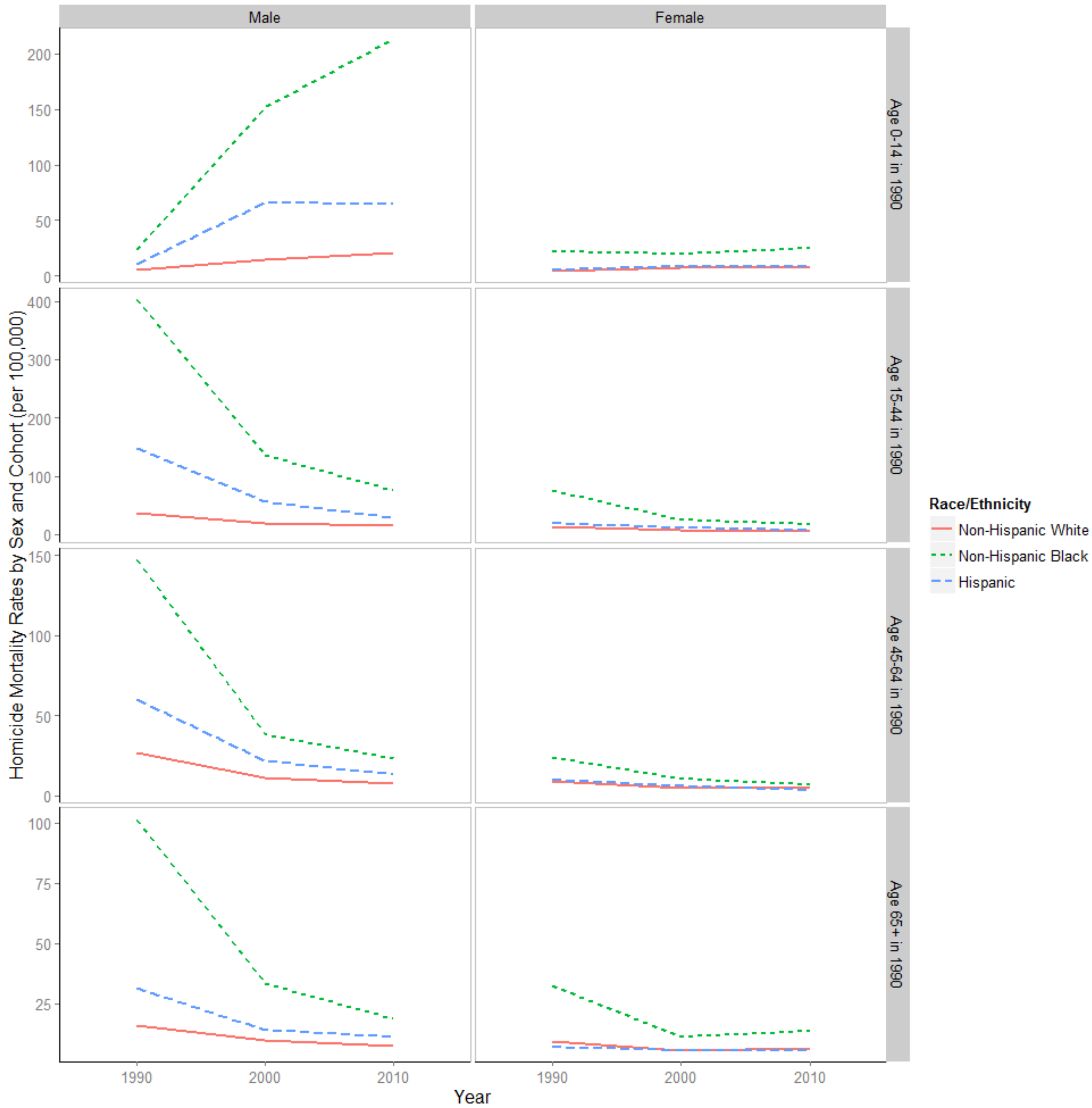
For the 1976-1990 cohort of the non-Hispanic White female population, the homicide mortality rate was 4.47 deaths per 100,000 in 1990. By 2000, the rate for the cohort (now age 25-54) had increased to 7.31 deaths per 100,000 non-Hispanic White females and the rate rose slightly more by 2010 (age 35 to 64) where the mortality rate was 7.51 deaths per 100,000. The 1946-1975 non-Hispanic White female cohort (age 15-44) had a mortality rate of 13.84 deaths per 100,000 in 1990 which fell to 7.87 deaths per 100,000 by 2000 (age 25-54). By 2010 (age 35-64), the rate declined further for the cohort to a rate of 6.18 deaths per 100,000.

For the non-Hispanic White female 1926-1945 cohort (age 45-64), the mortality rate was 9.20 deaths per 100,000 in 1990. The rate for the 1926-1945 non-Hispanic White female cohort (age 55-74) fell to 5.13 deaths per 100,000 by 2000 and by 2010 (age 65-85) the rate fell further to 4.92 deaths per 100,000. For the non-Hispanic White female cohort in the pre-1926 cohort (age 65+ in 1990), the rate was 9.32 deaths per 100,000 and by 2000 (age 75+) the rate for the cohort declined to 5.61 deaths per 100,000. The rate for the cohort continued to decline to 6.36 deaths per 100,000 by 2010 (age 85+).

Non-Hispanic Blacks

For the 1976-1990 (age 0-14) non-Hispanic Black male cohort, the homicide death rate in 1990 was 23.42 deaths per 100,000. By 2000 (age 10-24), the rate for this cohort increased to 151.80 deaths per 100,000 and jumped to 212.68 deaths per 100,000 by 2020 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a homicide rate of 402.86 deaths per 100,000 in 1990.

The rate for the cohort then decreased to 135.54 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate further declined to 76.11 deaths per 100,000 when the



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 46. Homicide Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

cohort was aged 35-64. The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 147.50 deaths per 100,000. By the year 2000, the rate for this cohort declined to 37.80 deaths per 100,000 and by 2010 the rate further declined to 23.25 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 101.42 deaths per 100,000. This cohort stayed fairly stagnant in mortality by 2000 with a rate of 33.11 deaths per 100,000 which decreased sharply for the cohort in 2010 with a rate of 18.91 deaths per 100,000.

For the 1976-1990 non-Hispanic Black female cohort (age 0-14), the homicide-specific mortality rate was 21.77 deaths per 100,000 in 1990. By 2000 (age 10-24), the rate decreased to 19.42 deaths per 100,000 persons and then climbed to 25.39 deaths per 100,000 by 2010 when the cohort had aged to 20-34 years old. The 1946-1975 (15 to 44-year-old) non-Hispanic Black female cohort had a rate of 75.52 deaths per 100,000 in 1990. The rate for this cohort increased to 25.35 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had increased to 16.31 deaths per 100,000.

The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 23.96 deaths per 100,000. By the year 2000, the mortality rate for this cohort was 10.37 deaths per 100, 000 and by 2010 it had increased to 7.18 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 32.24 deaths per 100,000. This rate increased to 11.31 deaths per 100,000 by 2000 and the dropped by 2010 to a rate of 13.35 deaths per 100,000 persons.

Hispanics

The Hispanic 1976-1990 cohort (age 0-14) had a rate of 10.40 deaths per 100,000. This rate increased to 66.03 deaths per 100,000 in 2000 (age 10-24) and decrease slightly to 64.76 deaths per 100,000 by 2010 (age 20-34). The Hispanic male 1946-1975 (age 15 to 44) cohort had a rate of 147.00 deaths per 100,000 in 1990. This rate dropped to 56.00

deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 (age 35-54) the mortality rate further fell to 29.91 deaths per 100,000.

The 1926-1945 (age 45 to 64) cohort of the Hispanic male population had a mortality rate of 60.17 deaths per 100,000 in 1990. This rate declined to 21.60 deaths per 100,000 by the year 2000 and in 2010 the rate continued to decline to 13.26 deaths per 100,000 persons when the cohort was age 65 to 84. For the pre-1926 cohort (age 65+ in 1990) cohort of the Hispanic male population the mortality rate was 31.51 deaths per 100,000. The rate in 2000 for the cohort declined to 13.99 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased further to 11.26 deaths per 100,000 persons.

For the female cohort born 1976-1990, the rate in 1990 (age 0-14) was 5.80 deaths per 100,000 persons. By 2000 (age 10-23), the Hispanic population had decreased slightly to 8.31 deaths per 100,000 and then increased to 8.92 deaths per 100,000 by 2010 (age 20-34). For the 1946-1975 (age 15 to 44) Hispanic female cohort the mortality rate in 1990 was 18.48 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate increased to 10.77 deaths per 100,000 and declined to 6.99 deaths per 100,000 in 2010 (age 35-64).

The 1926-1945 Hispanic female cohort (ages 45-64) had a mortality rate of 10.06 deaths per 100,000 in 1990. This rate increased slightly to 5.93 deaths per 100,000 when the cohort was aged 55-74 and in 2010 the rate declined to 3.16 deaths per 100,000 when the cohort was aged 65 to 84. In the pre-1926 (age 65+) cohort of the Hispanic female population, the mortality rate in 1990 was 6.98 deaths per 100,000. By 2000, the mortality rate for the cohort had declined to 5.64 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 5.48 deaths per 100,000.

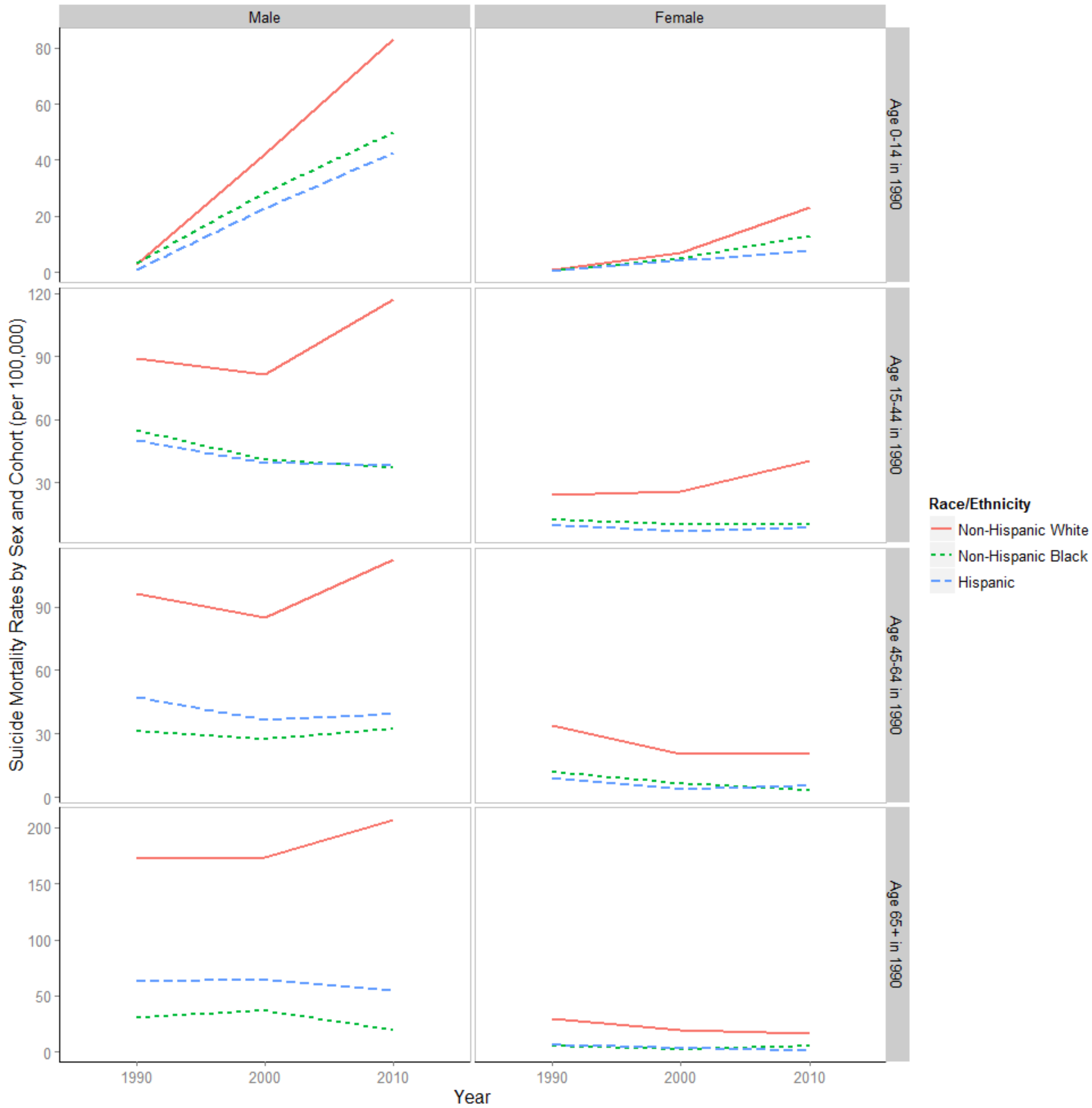
SUICIDE MORTALITY RATES

For Suicide (Figure 47; Appendix E, Table E1), Non-Hispanic Whites had the highest rates of all groups. Hispanics and non-Hispanic Blacks shows similar rates for men and women though for men, the rates begin to diverge in the oldest cohort. Females had much lower rates for suicide compared to males, though non-Hispanic White females maintained the highest rates for females while non-Hispanic Black females and Hispanic females showed very low rates for most cohorts. Except for in the earliest age cohort where suicide rates increased for males across time, suicide rates for most groups stayed stable through time for each cohort. Non-Hispanic Black men showed lower mortality rates from suicide than both non-Hispanic Whites and Hispanics in the oldest cohorts which persisted as the cohorts aged.

Non-Hispanic Whites

The 1976-1990 cohort (age 0-14 in 1990), non-Hispanic Whites males had a suicide mortality rate of 3.05 deaths per 100,000, by 2000 (age 10-24) the rate increased to 42.14 deaths per 100,000 and then increased further to 82.88 deaths per 100,000 by 2010 (age 20-34). For the non-Hispanic White male 1946-1975 cohort (age 15-44 in 1990) the mortality rate was 88.76 deaths per 100,000 in 1990. The rate decreased to 81.29 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate rose again to 117.00 deaths per 100,000.

Non-Hispanics White males in the 1926-1945 cohort (age 44 to 64 in 1990) had suicide-related mortality rate of 96.17 deaths per 100,000. This rate decreased to 84.77 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for suicide increased to 112.38 deaths per 100,000. In the pre-1926 cohort (age 65+ in 1990) non- Hispanic White male cohort in 1990 the mortality rate was 172.39 deaths per 100,000. By 2000 this rate increased slightly to 173.89 deaths



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 47. Suicide Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

per 100,000 for the cohort now aged 75+ and by 2010 the rate rose further to 207.54 deaths per 100,000 for the cohort now age 85 and older.

For the 1976-1990 cohort of the non-Hispanic White female population, the suicide mortality rate was .97 deaths per 100,000 in 1990. By 2000, the rate for the cohort (now age 25-54) had increased to 6.93 deaths per 100,000 non-Hispanic White females and the rate rose by 2010 (age 35 to 64) to 23.24 deaths per 100,000. The 1946-1975 non-Hispanic White female cohort (age 15-44) had a mortality rate of 24.04 deaths per 100,000 in 1990 which increased to 26.01 deaths per 100,000 by 2000 (age 25-54). By 2010 (age 35-64), the rate rose further for the cohort to a rate of 40.30 deaths per 100,000.

For the non-Hispanic White female 1926-1945 cohort (age 45-64), the mortality rate was 34.21 deaths per 100,000 in 1990. The rate for the 1926-1945 non-Hispanic White female cohort (age 55-74) fell to 20.55 deaths per 100,000 by 2000 and by 2010 (age 65-85) the rate rose again slightly to 21.02 deaths per 100,000. For the non-Hispanic White female cohort in the pre-1926 cohort (age 65+ in 1990), the rate was 29.68 deaths per 100,000 and by 2000 (age 75+) the rate for the cohort declined to 19.45 deaths per 100,000. The rate for the cohort continued to decline to 16.53 deaths per 100,000 by 2010 (age 85+).

Non-Hispanic Blacks

For the 1976-1990 (age 0-14) non-Hispanic Black male cohort, the suicide death rate in 1990 was 3.22 deaths per 100,000. By 2000 (age 10-24), the rate for this cohort increased to 28.60 deaths per 100,000 and jumped to 49.78 deaths per 100,000 by 2010 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a suicide rate of 55.06 deaths per 100,000 in 1990. The rate for the cohort then decreased to 40.73 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate further declined to 36.91 deaths per 100,000 when the cohort was aged 35-64.

The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 31.44 deaths per 100,000. By the year 2000, the rate for this cohort declined to 27.59 deaths per 100,000 and by 2010 the rate further declined to 32.44 deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 30.43 deaths per 100,000. This cohort increased in mortality by 2000 with a rate of 36.59 deaths per 100,000 then dropped sharply for the cohort in 2010 with a rate of 18.91 deaths per 100,000.

For the 1976-1990 non-Hispanic Black female cohort (age 0-14), the suicide-specific mortality rate was .52 deaths per 100,000 in 1990. By 2000 (age 10-24), the rate rose to 4.98 deaths per 100,000 persons and then climbed to 13.15 deaths per 100,000 by 2010 when the cohort had aged to 20-34 years old. The 1946-1975 (15 to 44-year-old) non-Hispanic Black female cohort had a rate of 12.25 deaths per 100,000 in 1990. The rate for this cohort dropped slightly to 10.14 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate was fairly stationary with 10.15 deaths per 100,000.

The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 11.98 deaths per 100,000. By the year 2000, the mortality rate for this cohort was 6.80 deaths per 100, 000 and by 2010 it had increased to 3.19 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 5.12 deaths per 100,000. This rate fell to 1.89 deaths per 100,000 by 2000 and the rebounded by 2010 to a rate of 5.34 deaths per 100,000 persons.

Hispanics

The Hispanic 1976-1990 cohort (age 0-14) had a rate of 1.10 deaths per 100,000. This rate increased to 22.70 deaths per 100,000 in 2000 (age 10-24) and rose further to 42.80 deaths per 100,000 by 2010 (age 20-34). The Hispanic male 1946-1975 (age 15 to 44) cohort had a rate of 50.24 deaths per 100,000 in 1990. This rate dropped to 39.21 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 (age 35-54) the mortality rate fell slightly to 38.40 deaths per 100,000.

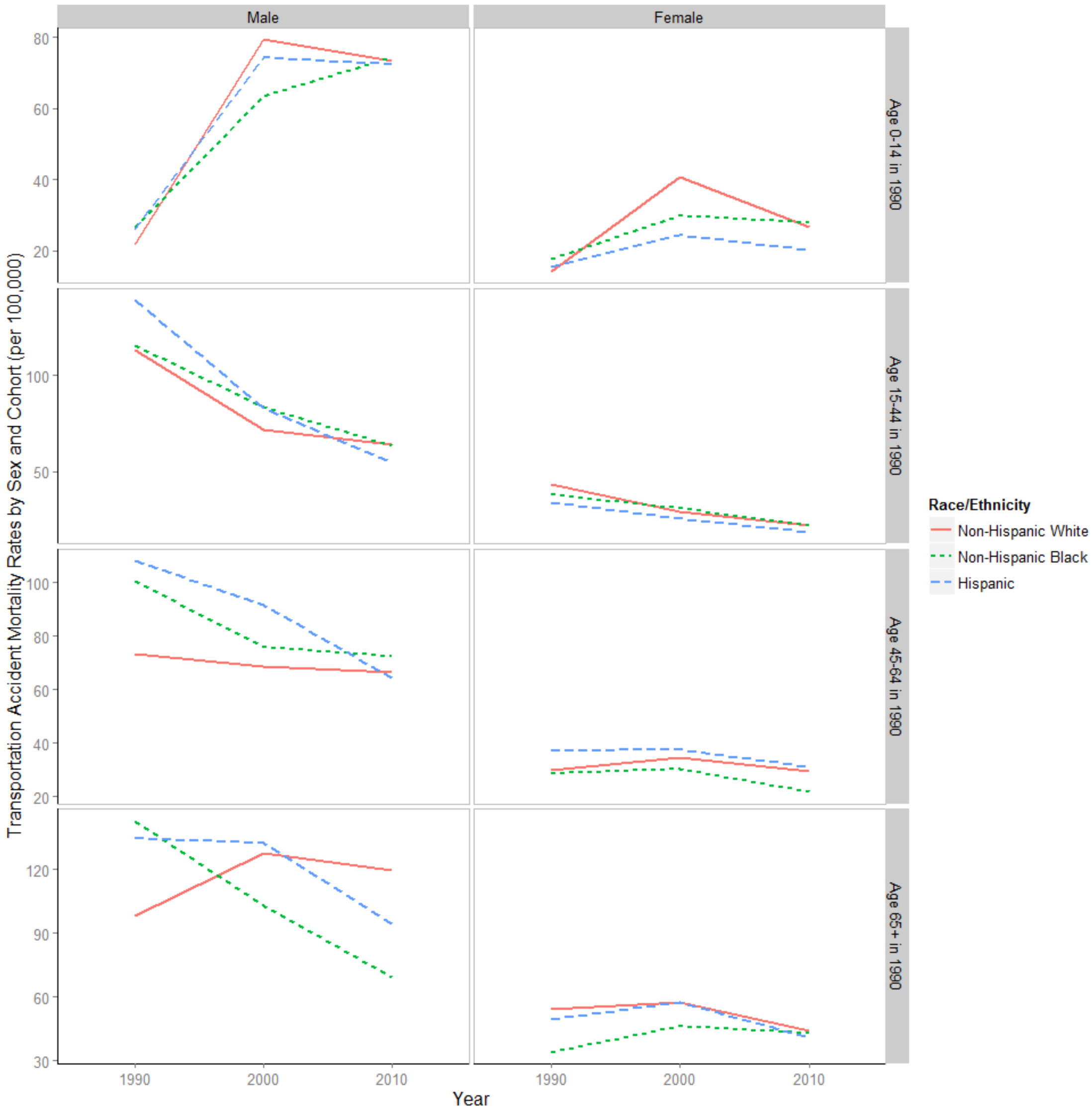
The 1926-1945 (age 45 to 64) cohort of the Hispanic male population had a mortality rate of 47.34 deaths per 100,000 in 1990. This rate declined to 36.56 deaths per 100,000 by the year 2000 and in 2010 the rate rose to 39.51 deaths per 100,000 persons when the cohort was age 65 to 84. For the pre-1926 cohort (age 65+ in 1990) cohort of the Hispanic male population the mortality rate was 62.92 deaths per 100,000. The rate in 2000 for the cohort declined to 63.71 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased further to 54.70 deaths per 100,000 persons.

For the female cohort born 1976-1990, the rate in 1990 (age 0-14) was .54 deaths per 100,000 persons. By 2000 (age 10-23), the cohort rate had increased to 4.33 deaths per 100,000 and then increased to 7.86 deaths per 100,000 by 2010 (age 20-34). For the 1946-1975 (age 15 to 44) Hispanic female cohort the mortality rate in 1990 was 9.82 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate decreased to 7.02 deaths per 100,000 and then increased to 8.64 deaths per 100,000 in 2010 (age 35-64).

The 1926-1945 Hispanic female cohort (ages 45-64) had a mortality rate of 9.33 deaths per 100,000 in 1990. This rate dropped to 3.95 deaths per 100,000 in 2000 when the cohort was aged 55-74 and in 2010 the rate rose to 5.37 deaths per 100,000 when the cohort was aged 65 to 84. In the pre-1926 (age 65+) cohort of the Hispanic female population, the mortality rate in 1990 was 5.82 deaths per 100,000. By 2000, the mortality rate for the cohort had declined to 2.84 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older had a mortality rate of 1.10 deaths per 100,000.

TRANSPORTATION MORTALITY RATES

For Transport Accidents (Figure 48; Appendix E, Table E1), there were mixed patterns for mortality across cohorts, time, and genders. There were several points of cross-over amongst the different cohorts with no discernible consistent pattern for any one population.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 48. Transportation Accident Mortality Rates (per 100,000) for Hispanics and non-Hispanics by Sex and Cohort

Females had much lower rates for transportation mortality compared to males, with non-Hispanic Black females showing some of the lowest rates in the oldest cohorts.

Non-Hispanic Whites

The 1976-1990 cohort (age 0-14 in 1990), non-Hispanic Whites males had a suicide mortality rate of 2.97 deaths per 100,000, by 2000 (age 10-24) the rate increased to 79.30 deaths per 100,000 and then increased further to 73.53 deaths per 100,000 by 2010 (age 20-34). For the non-Hispanic White male 1946-1975 cohort (age 15-44 in 1990) the mortality rate was 113.01 deaths per 100,000 in 1990. The rate decreased to 71.73 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate fell again to 63.91 deaths per 100,000. Non-Hispanics White males in the 1926-1945 cohort (age 44 to 64 in 1990) had suicide-related mortality rate of 73.18 deaths per 100,000. This rate decreased to 68.49 deaths per 100,000 by 2000 where the cohort is now aged 55-74 and by 2010 when the cohort is aged 65 to 84 the rate for suicide fell again to 66.47 deaths per 100,000. In the pre-1926 cohort (age 65+ in 1990) non-Hispanic White male cohort in 1990 the mortality rate was 98.15 deaths per 100,000. By 2000 this rate increased to 127.64 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate dropped to 119.32 deaths per 100,000 for the cohort now age 85 and older.

For the 1976-1990 cohort of the non-Hispanic White female population, the suicide mortality rate was 14.21 deaths per 100,000 in 1990. By 2000, the rate for the cohort (now age 25-54) had increased to 40.74 deaths per 100,000 non-Hispanic White females and the rate fell by 2010 (age 35 to 64) to 26.66 deaths per 100,000. The 1946-1975 non-Hispanic White female cohort (age 15-44) had a mortality rate of 43.21 deaths per 100,000 in 1990 which dropped to 28.86 deaths per 100,000 by 2000 (age 25-54). By 2010 (age 35-64), the rate fell further for the cohort to a rate of 21.79 deaths per 100,000. For the non-Hispanic White female 1926-1945 cohort (age 45-64), the mortality rate was 29.68 deaths per 100,000 in 1990. The rate for the 1926-1945 non-Hispanic White female cohort (age 55-

74) rose to 34.64 deaths per 100,000 by 2000 and by 2010 (age 65-85) the rate rose again slightly to 29.44 deaths per 100,000. For the non-Hispanic White female cohort in the pre-1926 cohort (age 65+ in 1990), the rate was 54.26 deaths per 100,000 and by 2000 (age 75+) the rate for the cohort increased to 57.31 deaths per 100,000. The rate for the cohort declined to 43.76 deaths per 100,000 by 2010 (age 85+).

Non-Hispanic Blacks

For the 1976-1990 (age 0-14) non-Hispanic Black male cohort, the death rate for transportation in 1990 was 26.81 deaths per 100,000. By 2000 (age 10-24), the rate for this cohort increased to 63.8 deaths per 100,000 and jumped to 74.45 deaths per 100,000 by 2010 (age 20-34). The 15 to 44 non-Hispanic Black male cohort had a suicide rate of 115.31 deaths per 100,000 in 1990. The rate for the cohort then decreased to 83.64 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate further declined to 63.56 deaths per 100,000 when the cohort was aged 35-64.

The cohort of non-Hispanic Black males aged 45-64 in 1990 had a mortality rate of 100.34 deaths per 100,000. By the year 2000, the rate for this cohort declined to 75.68 deaths per 100,000 and by 2010 the rate dropped slightly to 72.45deaths per 100,000 people. For the age 65+ cohort of the non-Hispanic Black male population, the mortality rate was 142.76 deaths per 100,000. This cohort dropped in mortality by 2000 with a rate of 102.80 deaths per 100,000 then dropped again for the cohort in 2010 with a rate of 69.34 deaths per 100,000.

For the 1976-1990 non-Hispanic Black female cohort (age 0-14), the transport-related mortality rate was 17.77 deaths per 100,000 in 1990. By 2000 (age 10-24), the rate rose to 29.86 deaths per 100,000 persons and then dropped to 27.99 deaths per 100,000 by 2010 when the cohort had aged to 20-34 years old. The 1946-1975 (15 to 44-year-old) non-Hispanic Black female cohort had a rate of 37.99 deaths per 100,000 in 1990. The rate for this cohort dropped slightly to 30.51 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate continued to decline to a rate of 21.61 deaths per 100,000.

The non-Hispanic Black female cohort aged 45-64 in 1990 had a mortality rate of 28.34 deaths per 100,000. By the year 2000, the mortality rate for this cohort was 30.14 deaths per 100, 000 and by 2010 it had increased to 21.57 deaths per 100,000. For the 65+ cohort of the non-Hispanic Black female population, the mortality rate in 1990 was 33.77 deaths per 100,000. This rate increased to 46.19 deaths per 100,000 by 2000 and the rebounded by 2010 to a rate of 42.73 deaths per 100,000 persons.

Hispanics

The Hispanic 1976-1990 cohort (age 0-14) had a rate of 25.94 deaths per 100,000. This rate increased to 74.24 deaths per 100,000 in 2000 (age 10-24) and decreased slightly to 72.32 deaths per 100,000 by 2010 (age 20-34). The Hispanic male 1946-1975 (age 15 to 44) cohort had a rate of 139.19 deaths per 100,000 in 1990. This rate dropped to 83.04 deaths per 100,000 in 2000 when the cohort was age 25-54 and by 2010 (age 35-54) the mortality rate fell further to 54.50 deaths per 100,000.

The 1926-1945 (age 45 to 64) cohort of the Hispanic male population had a mortality rate of 108.24 deaths per 100,000 in 1990. This rate declined to 91.71 deaths per 100,000 by the year 2000 and in 2010 the rate dropped to 64.44 deaths per 100,000 persons when the cohort was age 65 to 84. For the pre-1926 cohort (age 65+ in 1990) cohort of the Hispanic male population the mortality rate was 134.26 deaths per 100,000. The rate in 2000 for the cohort declined slightly to 132.34 deaths per 100,000 when the cohort was aged 75 and older and by 2010 when the cohort was aged 85 and older the rate decreased further to 94.34 deaths per 100,000 persons.

For the female cohort born 1976-1990, the rate in 1990 (age 0-14) was 15.63 deaths per 100,000 persons. By 2000 (age 10-23), the cohort rate had increased to 24.58 deaths per 100,000 and then dropped to 20.26 deaths per 100,000 by 2010 (age 20-34). For the

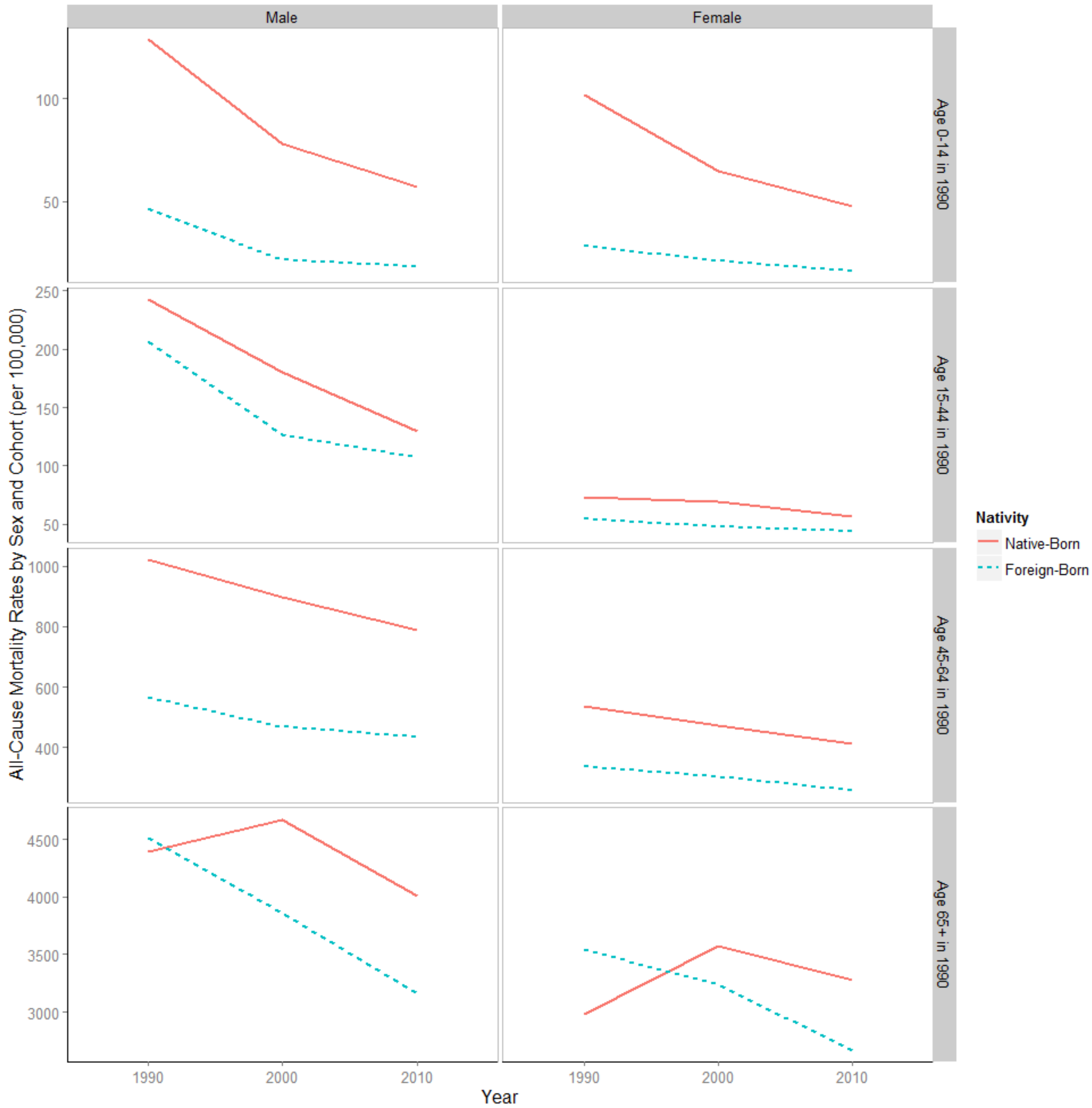
1946-1975 (age 15 to 44) Hispanic female cohort the mortality rate in 1990 was 33.95 deaths per 100,000. By 2000 (age 25-54), the cohort mortality rate decreased to 25.24 deaths per 100,000 and then fell further to 18.45 deaths per 100,000 in 2010 (age 35-64).

The 1926-1945 Hispanic female cohort (ages 45-64) had a mortality rate of 37.25 deaths per 100,000 in 1990. This rate remained fairly stable at 37.37 deaths per 100,000 in 2000 when the cohort was aged 55-74 and in 2010 the rate dropped to 31.05 deaths per 100,000 when the cohort was aged 65 to 84. In the pre-1926 (age 65+) cohort of the Hispanic female population, the mortality rate in 1990 was 49.48 deaths per 100,000. By 2000, the mortality rate for the cohort had increased to 57.29 deaths per 100,000 when the cohort was aged 75 and older and in 2010 the cohort now aged 85 and older decreased to a mortality rate of 40.60 deaths per 100,000.

Due to the differences in methodology between the native- and the foreign-born life tables, corrections to age misstatement and other data problems would not be corrected. The life expectancies for the native- and foreign-born were much higher than the values found for the Hispanic population in each of the respective years. Because of the higher estimates, the life expectancy is not considered to be representative of Hispanic mortality. However, the differences between the groups are used as informative for the decomposition of causes.

NATIVE- AND FOREIGN-BORN HISPANICS

The life table for the native and foreign-born population were developed based on abridged data and therefore did not have the same methodological adjustments applied to the data. This fact combined with a split in the populations and deaths for native- and foreign born Hispanics (review the Data and Methods section for more details) lead to much higher life expectancies than were found in the regular life tables. Due to these differences, the native- and foreign-born populations are discussed only in relation to each other.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 49. All-Cause Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

ALL-CAUSE MORTALITY RATES

For native-born and foreign-born Hispanics, the native-born had a higher all-cause mortality rate (Figure 49; Appendix F, Table F1) across time compared to the foreign-born. Across all cohorts, females had lower rates than males. However, in the earliest cohort, females had a lower rate than males but the rates were much more similar in number and pattern compared to their male counterparts in the earliest cohort, indicating an overall similar risk of mortality for the 1976-1990 cohort for both males and females across time.

Native-Born

For native-born Hispanic Male, the all-cause death mortality rate for the 0-14 cohort was 128.82 deaths per 100,000 in 1990. By 2000, this cohort (now aged 10-24) had decreased to a rate of 78.11 deaths per 100,000 and by 2010 (20-34) the rate fell further to 57.24 deaths per 100,000. For the native-born Hispanic male cohort aged 15-44 the mortality rate was 242.52 deaths per 100,000 in 1990. The rate dropped to 180.58 per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate decreased to 129.76 deaths per 100,000.

Native-born Hispanic males in the 44 to 64 cohort in 1990 had an all-cause mortality rate of 1,022.16 deaths per 100,000. The rate decreased to 898.61 deaths per 100,000 by 2000 where the cohort is now age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate dropped to 790.00 deaths per 100,000. In the Age 65+ native-born Hispanic male cohort in 1990 the mortality rate was 4,397.95 deaths per 100,000. By 2000 this rate had increased to 4674.71 for the cohort now aged 75+ and by 2010 the rate fell to 4,009.25 deaths per 100,000 for the cohort now age 85 and older.

The native-born Hispanic female cohort aged 0-14 in 1990 had an all-cause mortality rate of 101.93 deaths per 100,000. This rate dropped to 64.56 deaths per 100,000 for the cohort (10-24 years old) in 2000 and then fell to 47.67 deaths per 100,000 by 2010 (age 20-34). For the age 15-44 cohort of the native-born Hispanic female population, the mortality rate was 73.61 deaths per 100,000 in 1990. By the year 2000 (age 25-54) the decreased to 69.78 deaths per 100,000 native-born Hispanic females. The rate continued to fall by 2010 (age 35 to 64) where the mortality rate was 56.74 deaths per 100,000. The 45-64 native-born Hispanic female cohort had a mortality rate of 537.02 deaths per 100,000 in 1990 which fell to 472.12 by 2000 (age 55-74). By 2010 (age 65-84), the rate decreased further to 411.44 deaths per 100,000. For the native-born Hispanic female 65+ cohort in 1990, the mortality rate was 2976.76 deaths per 100,000. By 2000 the rate for this cohort had increased to 3577.29 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate declined to 3278.88 deaths per 100,000.

Foreign-Born

For the foreign-born male Hispanic cohort aged 0-14 in 1990 the mortality rate was 46.53 deaths per 100,000. The rate for this cohort declined to 21.49 deaths per 1000,000 by 2000 (age 10-24) and decreased further to 18.10 deaths per 100,000 by the year 2010 (age 20-34). The 15 to 44 foreign-born male cohort had a mortality rate of 206.50 deaths per 100,000 in 1990. The rate for the cohort decreased to 126.66 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate was 106.99 deaths per 100,000 when the cohort was aged 35-64.

The cohort of foreign-born Hispanic males aged 45-64 in 1990 had a mortality rate of 566.17 deaths per 100,000. By the year 2000, the rate for this cohort fell to 470.72 deaths per 100,000 and by 2010 the rate fell to 436.08 deaths per 100,000 people. For the age 65+ cohort of the foreign-born male population, the mortality rate was 4,512.33 deaths per 100,000. This cohort saw decrease in the rate in 2000 which fell to 3,863.23 deaths per 100,000 and then a further decrease in the mortality rate for the cohort in 2010 with a rate of 3,158.14 deaths per 100,000.

For the foreign-born Hispanic females, the mortality rate for the 0 to 14 cohort in 1990 was 28.42 deaths per 100,000. This rate decreased in 2000 to a rate of 21.15 deaths per 100,000 when the cohort was age 10 to 24 and in 2010 the rate dropped again to 15.99 per 100,000 when the cohort was 20-34 years old. The 15 to 44-year-old foreign-born Hispanic female cohort had a rate of 55.09 deaths per 100,000 in 1990. The rate for this cohort dropped to 48.33 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate had fallen to 44.41 deaths per 100,000.

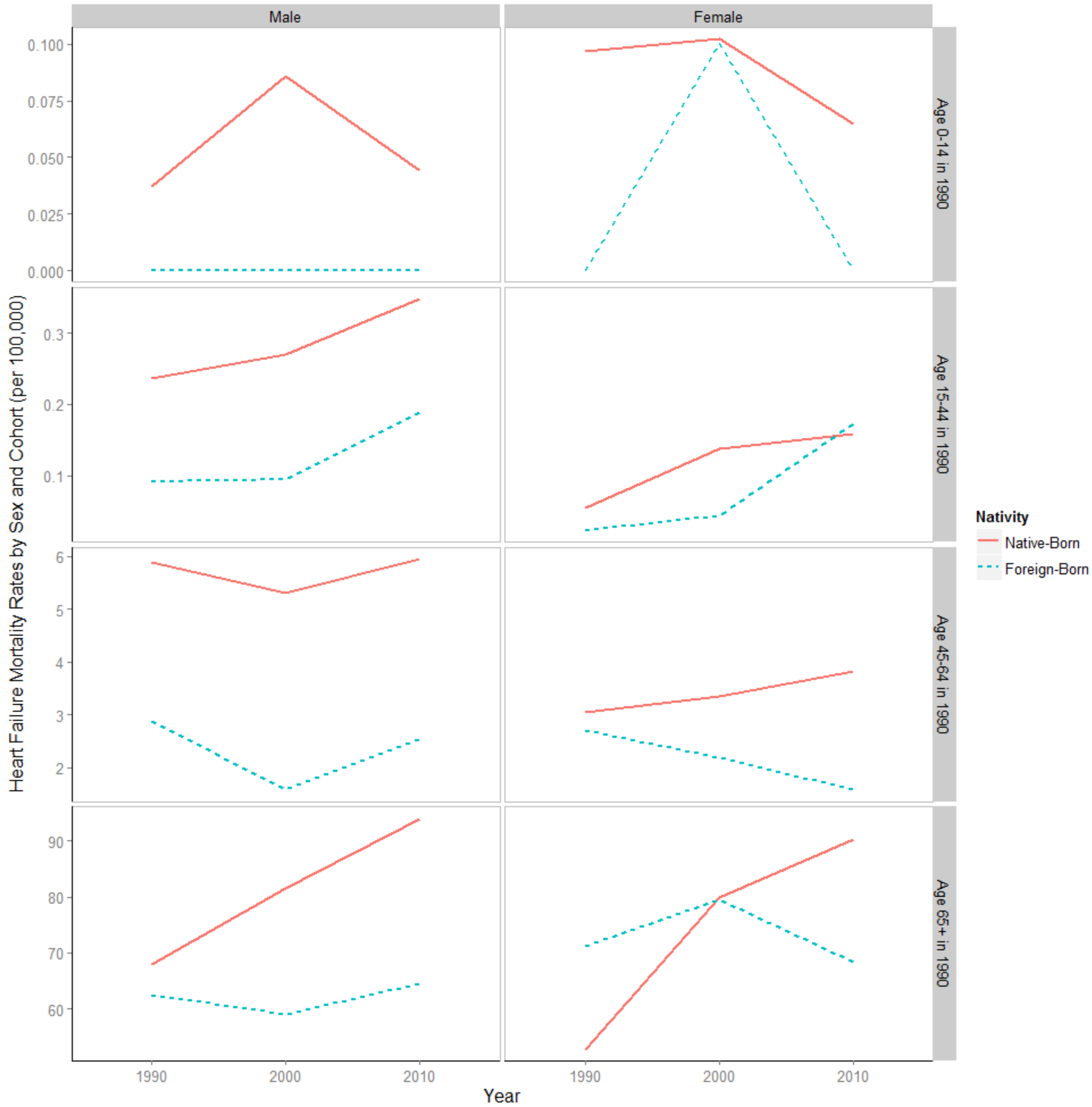
The foreign-born female cohort aged 45-64 in 1990 had a mortality rate of 339.35 deaths per 100,000. By the year 2000, the mortality rate for this cohort dropped to 303.10 deaths per 100, 000 and by 2010 it had fallen to 257.63 deaths per 100,000. For the 65+ cohort of the foreign-born female population, the mortality rate in 1990 was 3,546.60 deaths per 100,000. This rate fell to 3,243.00 by 2000 and continued to decrease in 2010 to a rate of 2,665.12 per 100,000 persons.

HEART FAILURE MORTALITY RATES

For native-born and foreign-born Hispanics, all but the oldest cohort had very low rates for heart failure as the disease is usually most present in oldest ages. Due to the very low rates for the youngest cohorts, I only present the oldest two cohorts here (Figure 50; Appendix F, Table F1). However, in the earliest cohort, females had a lower rate than males but the rates were much more similar in number and pattern compared to their male counterparts in the earliest cohort, indicating an overall similar risk of mortality for the 1976-1990 cohort for both males and females across time.

Native-Born

For native-born Hispanic males, the heart failure mortality rate for the 1926-1945 cohort (age 45 to 64) in 1990 was 5.89 deaths per 100,000. The rate decreased slightly to 5.3 deaths per 100,000 by 2000 where the cohort is now age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate rose again to 5.96 deaths per 100,000. In the pre-1926 cohort (age 65+) native-born Hispanics had a rate of 67.97 in 1990 the mortality



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 50. Heart Failure Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

rate was 4,397.95 deaths per 100,000. By 2000 this rate had increased to 81.61 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate rose to 94.03 deaths per 100,000 for the cohort now age 85 and older.

The 1926-1945 (45-64) native-born female cohort had a mortality rate of 3.04 deaths per 100,000 in 1990 which rose slightly to 3.35 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate increased again to 3.82 deaths per 100,000. For the pre-1926 (65+) cohort in 1990, the mortality rate was 52.74 deaths per 100,000. By 2000 the rate for this cohort had increased to 79.85 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate climbed to 90.33 deaths per 100,000.

Foreign-Born

The cohort of foreign-born Hispanic males born 1926-1945 (aged 45-64) in 1990 had a mortality rate of 2.89 deaths per 100,000. By the year 2000, the rate for this cohort fell to 1.59 deaths per 100,000 and by 2010 the rate increased again to 2.54 deaths per 100,000 people. For the pre-1926 (age 65+) cohort of the foreign-born male population, the mortality rate was 62.55 deaths per 100,000. This cohort saw decrease in the rate in 2000 which fell to 59.05 deaths per 100,000 and then an increase in the mortality rate for the cohort in 2010 with a rate of 64.45 deaths per 100,000.

The foreign-born female cohort aged 45-64 in 1990 had a mortality rate of 2.71 deaths per 100,000. By the year 2000, the mortality rate for this cohort dropped to 2.19 deaths per 100, 000 and by 2010 it had fallen to 1.58 deaths per 100,000. For the 65+ cohort of the foreign-born female population, the mortality rate in 1990 was 71.12 deaths per 100,000. This rate increased to 79.48 deaths per 100,000 by 2000 and then dropped in 2010 to a rate of 68.34 deaths per 100,000 persons.

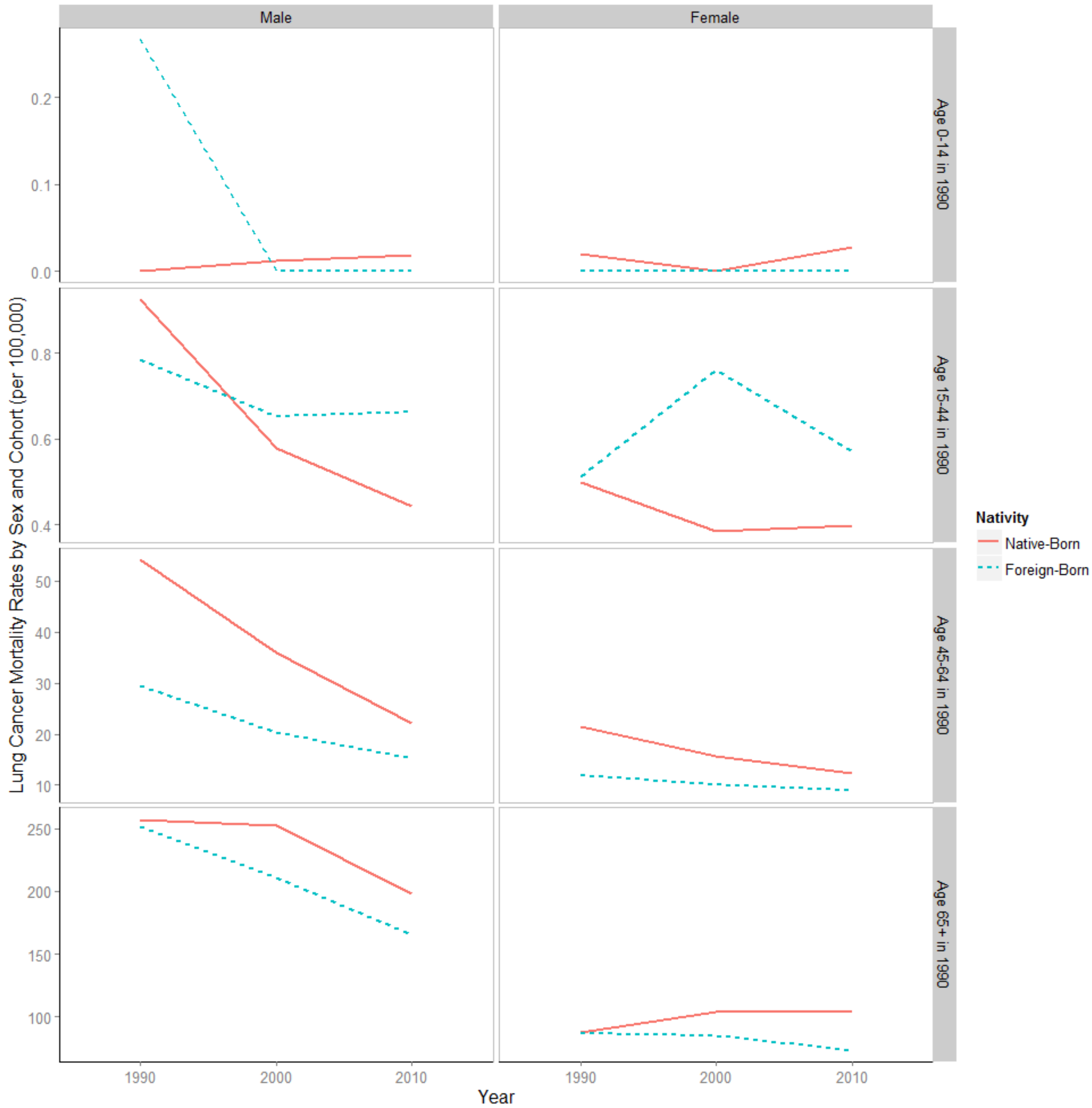
Malignant Neoplasm of the Trachea, Bronchus, and Lung Mortality (Lung Cancer) Rates

As with Heart Failure, all but the oldest cohort had very low rates for lung cancer as the disease is usually most present in older ages where chronic disease sets in. Due to the very low rates for the youngest cohorts, I only present the oldest two cohorts here (Figure 51; Appendix F, Table F1). In the 1926-1945 cohorts, native-born Hispanics show higher rates than their foreign counterparts across time, though both groups show a decline for both males and females as the cohort ages. Males in the two oldest cohorts showed higher rates for lung cancer deaths than females. This was especially true in the oldest cohort where the divergence between males and females is quite large.

Native-Born

For native-born Hispanic males, the lung cancer mortality rate for the 1926-1945 cohort (age 45 to 64) in 1990 was 55.27 deaths per 100,000. The rate decreased to 36.04 deaths per 100,000 by 2000 where the cohort was age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate fell to 22.21 deaths per 100,000. In the pre-1926 cohort (age 65+) native-born Hispanics had a rate of 257.24 deaths per 100,000. By 2000 this decreased to 252.29 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate dropped to 197.91 deaths per 100,000 for the cohort now age 85 and older.

The 1926-1945 (45-64) native-born female cohort had a mortality rate of 21.37 deaths per 100,000 in 1990 which fell to 15.74 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate fell further to 12.39 deaths per 100,000. For the pre-1926 (65+) cohort in 1990, the mortality rate was 88.13 deaths per 100,000. By 2000 the rate for this cohort had increased to 103.63 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate remained stable with 103.66 deaths per 100,000.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 51. Malignant Neoplasms of the Trachea, Bronchus, and Lung Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

Foreign-Born

The cohort of foreign-born Hispanic males born 1926-1945 (aged 45-64) in 1990 had a mortality rate of 29.40 deaths per 100,000. By the year 2000, the rate for this cohort fell to 20.24 deaths per 100,000 and by 2010 the rate dropped again to 15.17 deaths per 100,000 people. For the pre-1926 (age 65+) cohort of the foreign-born male population, the mortality rate was 251.47 deaths per 100,000. This cohort saw decrease in the rate in 2000 which fell to 211.12 deaths per 100,000 and then a further decline in the mortality rate for the cohort in 2010 with a rate of 165.06 deaths per 100,000.

The foreign-born female cohort aged 45-64 in 1990 had a mortality rate of 11.78 deaths per 100,000. By the year 2000, the mortality rate for this cohort dropped to 10.09 deaths per 100, 000 and by 2010 it had fallen to 8.90 deaths per 100,000. For the 65+ cohort of the foreign-born female population, the mortality rate in 1990 was 86.92 deaths per 100,000. This rate fell to 84.91 deaths per 100,000 by 2000 and then dropped in 2010 to a rate of 73.25 deaths per 100,000 persons.

DIABETES MORTALITY RATES

For the native- and foreign born populations, diabetes mortality was low in the very youngest cohort and will not be reported. The rate is still fairly low in the 1946-1975 cohort and the rates increase for older cohorts as the effects of chronic illness set in. Due to the very low rates for the youngest cohort, I present rates for only the three older cohorts (Figure 52; Appendix F, Table F1). The patterns for the rates differ depending on cohort with the 1976 to 1990 (age 0-14) cohort showing fairly low rates but where native-born Hispanics have higher rates than native-born Hispanics. As the populations age, however, the rates converge. In the older cohorts, the native-born have higher rates than the native born but the trends through time appear to be fairly similar for both native- and foreign-born Hispanics.

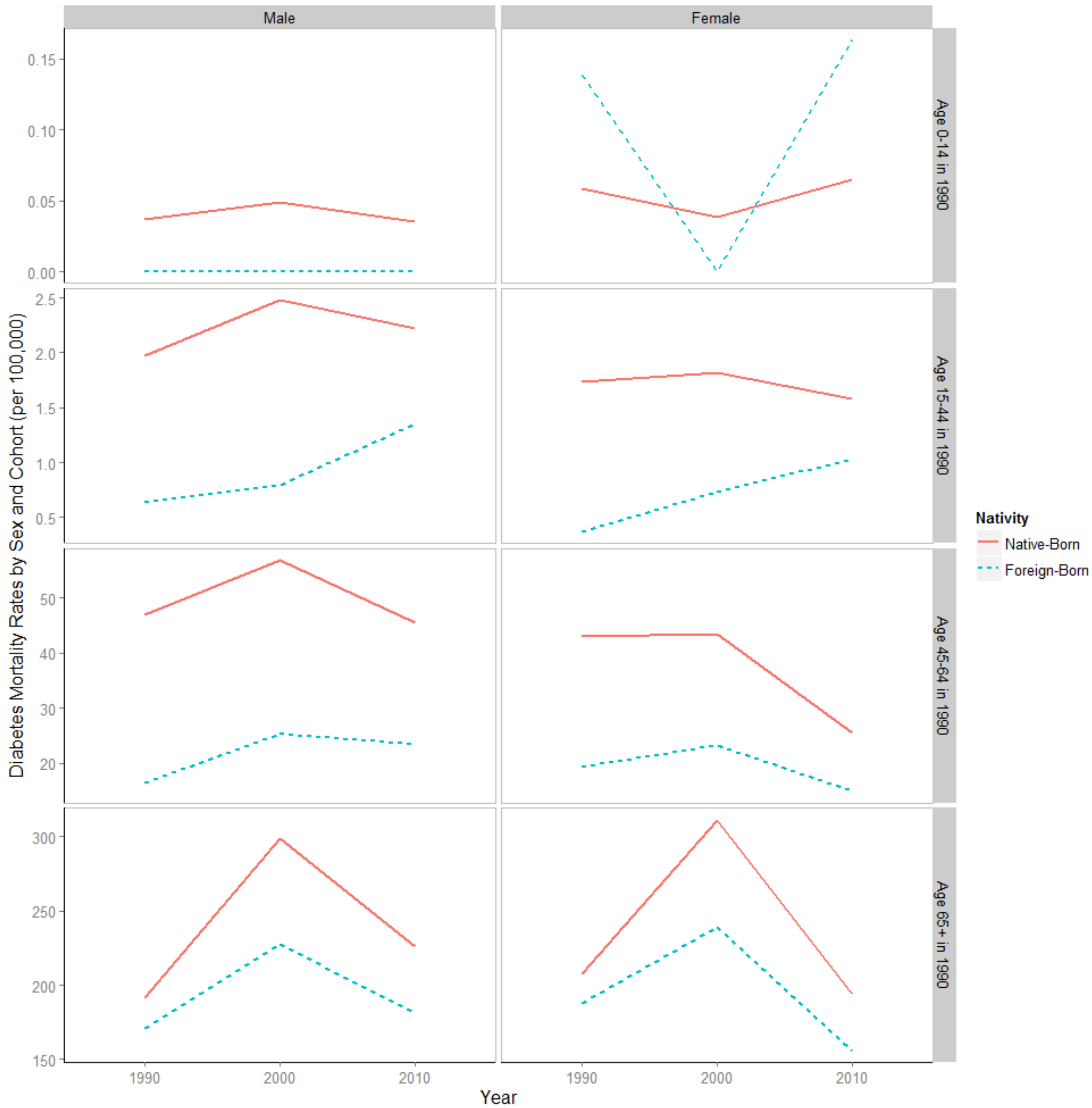
Native-Born

For native-born Hispanic males, the diabetes mortality rate for the1946-1975 cohort (age 15-44) was 1.98 deaths per 100,000. These rates increased to 2.48 deaths per 100,000 in 2000 and then decline to 2.22 deaths per 100,000 persons. For the 1926-1945 cohort (age 45 to 64) in 1990 the diabetes rate for native- born males was 46.93 deaths per 100,000. The rate rose to 56.90 deaths per 100,000 by 2000 where the cohort was age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate fell to 45.47 deaths per 100,000. In the pre-1926 cohort (age 65+) native-born Hispanics had a rate of 46.93 deaths per 100,000. By 2000 the rate rose to 298.65 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate dropped to 225.74 deaths per 100,000 for the cohort now age 85 and older.

For foreign-born Hispanic males, the diabetes mortality rate for the1946-1975 cohort (age 15-44) was 1.73 deaths per 100,000. This rate increased to 1.82 deaths per 100,000 in 2000 and then declines to 1.58 deaths per 100,000 persons. The 1926-1945 (45-64) native-born female cohort had a mortality rate of 42.97 deaths per 100,000 in 1990 which rose slightly to 43.45 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate fell further to 25.61 deaths per 100,000. For the pre-1926 (65+) cohort in 1990, the mortality rate was 207.80 deaths per 100,000. By 2000 the rate for this cohort had increased to 311.33 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate dropped to 193.60 deaths per 100,000.

Foreign-Born

The foreign-born Hispanic cohort born 1946-1975 (age 15-44) had a diabetes related mortality rate of .64 deaths per 100,000 in 1990. This rate increased to .80 deaths per 100,000 in 2000 and then rose further to 1.35 deaths per 100,000 persons. The cohort of foreign-born Hispanic males born 1926-1945 (aged 45-64) in 1990 had a mortality rate



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

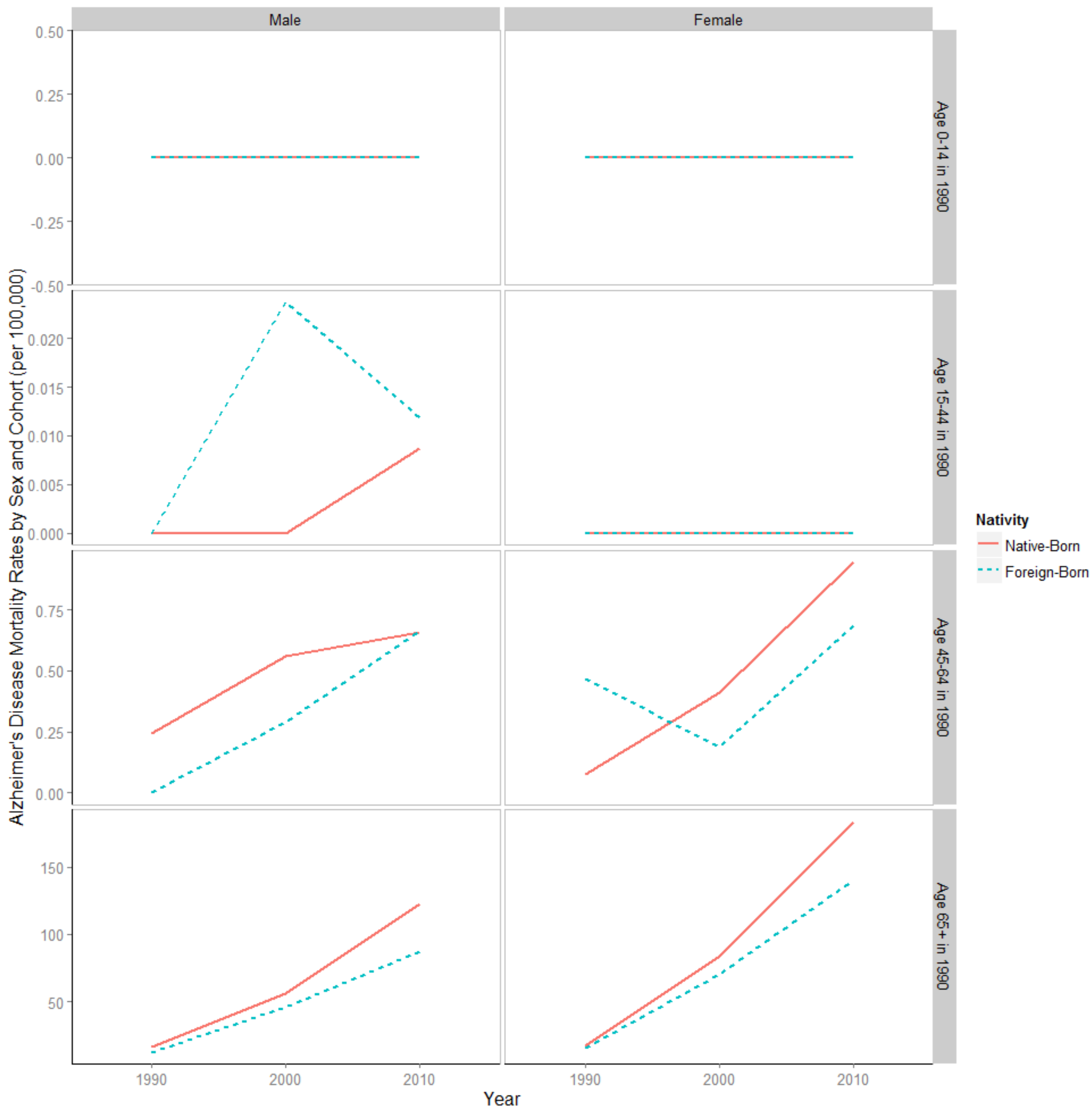
Figure 52. Diabetes Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

of 16.49 deaths per 100,000. By the year 2000, the rate for this cohort rose to 25.24 deaths per 100,000 and by 2010 the rate dropped to 23.39 deaths per 100,000 people. For the pre-1926 (age 65+) cohort of the foreign-born male population, the mortality rate was 171.32 deaths per 100,000. The rate for the cohort rose to 227.32 deaths per 100,000 in 2000 and then declined in 2010 with a rate of 180.62 deaths per 100,000.

The foreign-born Hispanic female cohort born 1946-1975 (age 15-44) had a diabetes related mortality rate of .37 deaths per 100,000 in 1990. This rate increased to .73 deaths per 100,000 in 2000 and then rose further to 1.04 deaths per 100,000 persons. The 1926-1945 foreign-born female cohort (aged 45-64 in 1990) had a mortality rate of 19.36 deaths per 100,000. By the year 2000, the mortality rate for this cohort rose to 23.24 deaths per 100, 000 and by 2010 it had fallen to 14.43 deaths per 100,000. For the 65+ cohort (pre-1926) of the foreign-born female population, the mortality rate in 1990 was 187.67 deaths per 100,000. This rate rose to 238.72 deaths per 100,000 by 2000 and then dropped in 2010 to a rate of 155.61 deaths per 100,000 persons.

ALZHEIMER'S DISEASE MORTALITY RATES

For the native- and foreign born populations, Alzheimer's disease was very minimal in all but the oldest cohort. Therefore, the data discussed here just focuses on the pre-1926 cohort where Alzheimer's was prevalent enough for meaningful rates to be calculated (Figure 53; Appendix F, Table F1). The patterns for the rates appear to be fairly close in 1990 for both males and females but as the cohort ages the native- and foreign-born populations diverge in mortality rates for Alzheimer's disease. Alzheimer's appear to have a larger impact on females than males. As the populations age, the rates for each cohort grows but there is a divergence in native- and foreign-born mortality rates with native-born faring worse the foreign-born across time.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 53. Alzheimer's Disease Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

Native-Born

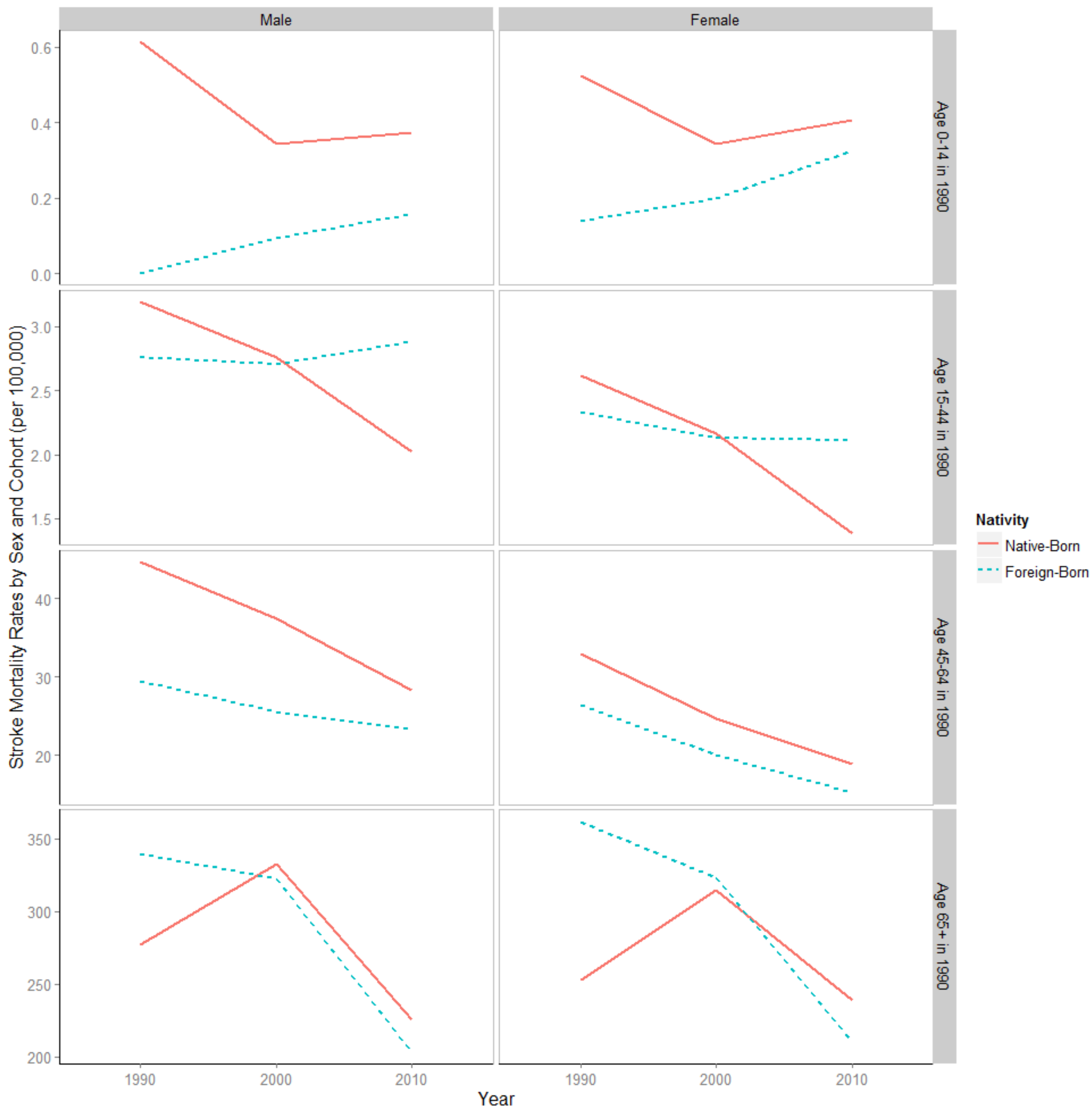
In the pre-1926 cohort (age 65+) native-born Hispanic males had an Alzheimer's' rate of 16.17 deaths per 100,000. By 2000 the rate rose to 56.31 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate jumped to 123.07 deaths per 100,000 for the cohort now age 85 and older. For the pre-1926 (65+) cohort in 1990, the mortality rate was 17.69 deaths per 100,000. By 2000 the rate for this cohort had increased to 84.17 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate rose to 183.74 deaths per 100,000.

Foreign-Born

For the pre-1926 (age 65+) cohort of the foreign-born male population, the mortality rate for Alzheimer's was 12.26 deaths per 100,000. The rate for the cohort rose to 46.21 deaths per 100,000 in 2000 and increased in 2010 with a rate of 87.56 deaths per 100,000. For the 65+ cohort (pre-1926) of the foreign-born female population, the mortality rate in 1990 was 15.80 deaths per 100,000. This rate rose to 70.43 deaths per 100,000 by 2000 and then rose again in 2010 to a rate of 140.26 deaths per 100,000 persons.

STROKE MORTALITY RATES

For the native- and foreign born populations, the rates for stroke(CVD) in the earliest cohort were considerably low so they are not reported here. For the remaining cohorts (Figure 54; Appendix F, Table F1), the patterns are variable. In the second youngest cohort the foreign born appear to maintain a fairly consistent rate through time while the native-born begin with a higher rate than the foreign-born which crosses over and is under the rate for the foreign-born by 2010. In the second oldest cohort the native- and foreign-born populations show a decline in rates through time though native-born Hispanics have a higher rate than their counterparts. In the oldest cohort, the foreign-born have a higher



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 54. Stroke Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

rate than the native-born in 1990 but by 2010 the rates have crossed over with the native-born having higher rates for stroke.

Native-Born

For native-born Hispanic males, the stroke mortality rate for the1946-1975 cohort (age 15-44) was 3.19 deaths per 100,000. These rates increased to 2.76 deaths per 100,000 in 2000 and then declined to 2.03 deaths per 100,000 persons in 2010. For the 1926-1945 cohort (age 45 to 64) in 1990 the stroke mortality rate for native- born males was 44.67 deaths per 100,000. The rate dropped to 37.43 deaths per 100,000 by 2000 where the cohort was age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate fell to 28.26 deaths per 100,000. In the pre-1926 cohort (age 65+) native-born Hispanics had a rate of 277.56 deaths per 100,000. By 2000 the rate rose to 332.58 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate dropped to 225.33 deaths per 100,000 for the cohort now age 85 and older.

For foreign-born Hispanic males, the stroke mortality rate for the1946-1975 cohort (age 15-44) was 2.62 deaths per 100,000. This rate increased to 2.16 deaths per 100,000 in 2000 and then dropped to 1.39 deaths per 100,000 persons. The 1926-1945 (45-64) native-born female cohort had a mortality rate of 32.95 deaths per 100,000 in 1990 which fell to 24.67 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate fell further to 18.80 deaths per 100,000. For the pre-1926 (65+) cohort in 1990, the mortality rate was 253.36 deaths per 100,000. By 2000 the rate for this cohort had increased to 314.87 deaths per 1000,000 when the cohort was age 75+ and by 2010 the rate dropped to 238.69 deaths per 100,000.

Foreign-Born

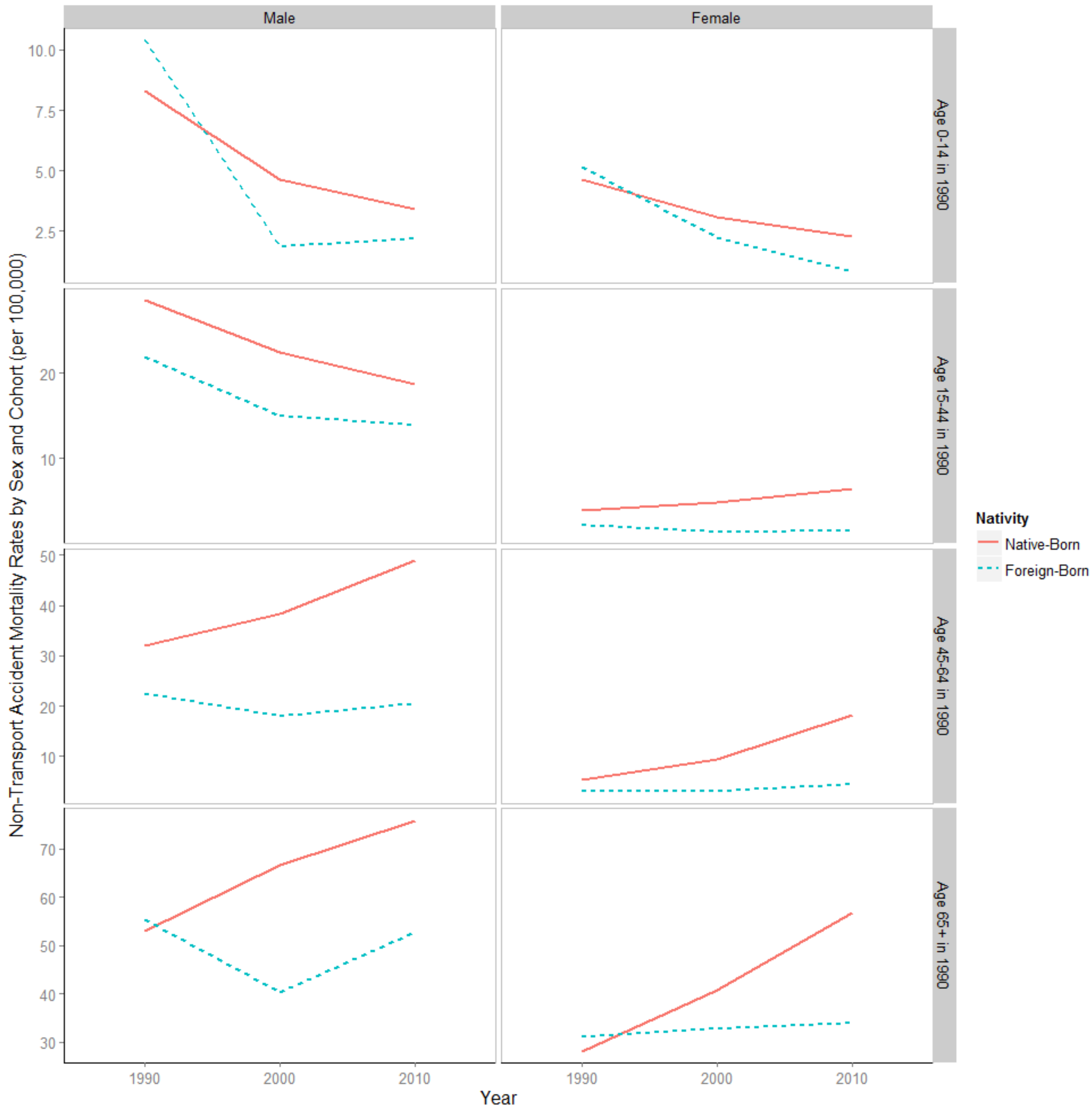
The foreign-born Hispanic cohort born 1946-1975 (age 15-44) had a stroke-related mortality rate of 2.76 deaths per 100,000 in 1990. This rate increased to 2.71 deaths per

100,000 in 2000 and then rose further to 2.88 deaths per 100,000 persons. The cohort of foreign-born Hispanic males born 1926-1945 (aged 45-64) in 1990 had a mortality rate of 29.40 deaths per 100,000. By the year 2000, the rate for this cohort dropped to 29.39 deaths per 100,000 and by 2010 the rate fell further to 23.41 deaths per 100,000 people. For the pre-1926 (age 65+) cohort of the foreign-born male population, the mortality rate was 339.49 deaths per 100,000. The rate for the cohort fell to 322.51 deaths per 100,000 in 2000 and then declined in 2010 with a rate of 203.02 deaths per 100,000.

The foreign-born Hispanic female cohort born 1946-1975 (age 15-44) had a stroke related mortality rate of 2.33 deaths per 100,000 in 1990. This rate declined to 2.13 deaths per 100,000 in 2000 and then fell slightly more to 2.11 deaths per 100,000 persons. The 1926-1945 foreign-born female cohort (aged 45-64 in 1990) had a mortality rate of 26.37 deaths per 100,000. By the year 2000, the mortality rate for this cohort dropped to 20.03 deaths per 100, 000 and by 2010 it had fallen to 15.19 deaths per 100,000. For the 65+ cohort (pre-1926) of the foreign-born female population, the mortality rate in 1990 was 361.95 deaths per 100,000. This rate dropped to 323.08 deaths per 100,000 by 2000 and then dropped in 2010 to a rate of 209.68 deaths per 100,000 persons.

NON-TRANSPORTATION ACCIDENT MORTALITY RATES

For native-born and foreign-born Hispanics, the native-born had a higher non-transport mortality rate (Figure 55; Appendix F, Table F1) across time compared to the foreign-born. However, in the youngest cohort and the oldest cohort there is a higher mortality rate for the foreign-born in 1990 which then cross over with the native-born through time leading to a higher rate in the native-born populations. Males and females in the earliest cohort and males in the 1946-1975 cohort both showed a declining mortality rate through time, though the effect is minimal in the early cohort due to the smaller scale.



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 55. Non-Transport Accident Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

Native-Born

For native-born Hispanic Male, the non-transport mortality rate for the 0-14 cohort was 8.31 deaths per 100,000 in 1990. By 2000, this cohort (now aged 10-24) had decreased to a rate of 4.65 deaths per 100,000 and by 2010 (20-34) the rate fell to 3.41 deaths per 100,000. For the native-born Hispanic male cohort aged 15-44 the mortality rate was 28.56 deaths per 100,000 in 1990. The rate dropped to 22.45 per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate decreased to 18.77 deaths per 100,000.

Non-Hispanics White males in the 44 to 64 cohort in 1990 had a non- transportation mortality rate of 32.09deaths per 100,000. The rate rose to 38.38 deaths per 100,000 by 2000 where the cohort was age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate rose to 48.99 deaths per 100,000. In the Age 65+ non-Hispanic White male cohort in 1990 the mortality rate was 53.11 deaths per 100,000. By 2000 this rate had increased to 66.69 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate climbed to 75.96 deaths per 100,000 for the cohort now aged 85 and older.

The native-born Hispanic female cohort aged 0-14 in 1990 had a non-transport mortality rate of 4.65 deaths per 100,000. This rate dropped to 3.08 deaths per 100,000 for the cohort (10-24 years old) in 2000 and then fell to 2.29 deaths per 100,000 by 2010 (age 20-34). For the age 15-44 cohort of the native-born female population, the mortality rate was 3.96 deaths per 100,000 in 1990. By 2000 (age 25-54), the non-transport mortality rate for the foreign-born female cohort increased to 4.79 deaths per 100,000 persons. The rate in 2010 continued to rise (age 35 to 64) to 6.46 deaths per 100,000.

The 45-64 native-born female cohort had a mortality rate of 5.34 deaths per 100,000 in 1990 which increased to 9.34 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate rose further to 18.25 deaths per 100,000. For the native-born Hispanic female 65+ cohort in 1990, the mortality rate was 28.04 deaths per 100,000. By 2000 the rate for this cohort had increased to 40.81 deaths per 100,000 when the cohort was age 75+ and by 2010 (85+) the rate rose to 56.88 deaths per 100,000.

Foreign-Born

For the foreign-born male cohort aged 0-14 in 1990 the non-transport rate was 10.40 deaths per 100,000. The rate for this cohort declined to 1.86 deaths per 100,000 by 2000 (age 10-24) and then bumped up to 2.18 deaths per 100,000 by the year 2010 (age 20-34). The 15 to 44 foreign-born male cohort had a mortality rate of 21.89 deaths per 100,000 in 1990. The rate for the cohort decreased to 15.03 deaths per 100,000 by the year 2000 (25-54) and by 2010 the rate was 13.86 deaths per 100,000 when the cohort was aged 35-64.

The cohort of foreign-born Hispanic males aged 45-64 in 1990 had a mortality rate of 22.43 deaths per 100,000. By the year 2000, the rate for this cohort fell to 17.93 deaths per 100,000 and by 2010 the rate fell to 20.42 deaths per 100,000 people. For the age 65+ cohort of the foreign-born male population, the mortality rate was 55.32 deaths per 100,000. This cohort saw decrease in the rate in 2000 which fell to 40.29 deaths per 100,000 and then bumped up to 52.78 deaths per 100,000 for the cohort in 2010.

For the foreign-born Hispanic females, the non-transport mortality rate for the 0 to 14 cohort in 1990 (1976-1990) was 5.13 deaths per 100,000. This rate decreased in 2000 to a rate of 2.21 deaths per 100,000 when the cohort was age 10 to 24 and in 2010 the rate dropped again to less than 1 per 100,000 when the cohort was 20-34 years old. The 15 to 44-year-old foreign-born female cohort had a rate of 2.17 deaths per 100,000 in 1990. The rate for this cohort dropped to 1.41deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate rose slightly to 1.49 deaths per 100,000.

The foreign-born female cohort aged 45-64 in 1990 had a mortality rate of 3.09 deaths per 100,000. By the year 2000, the mortality rate for this cohort stayed fairly stable at 3.02 deaths per 100, 000 and by 2010 it increased to 4.40 deaths per 100,000. For the

65+ cohort of the foreign-born female population, the mortality rate in 1990 was 31.17 deaths per 100,000. This rate increased to 32.85 by 2000 and continued to rise in 2010 to a rate of 33.90 per 100,000 persons.

TRANSPORTATION MORTALITY RATES

For the transportation accident rates (Figure 56; Appendix F, Table F1) from the native- and foreign cohorts, foreign-born Hispanic males show a higher mortality rate in 1990 for the youngest cohort which cross over with the native-born before overtaking the native born again in 2010. Males in the 1946-1975 cohort and the 1926-1945 cohort also show a crossover where foreign males have a higher transportation accident rate in 1990 but then are over taken by native-born males as the cohorts age.

For the native- and foreign-born females, there is a crossover in the youngest cohort except that the foreign-born overtake the native-born females. Native and foreign-born females in the second youngest cohort show fairly similar rates with the native-born showing disadvantage compared to the foreign-born and the second oldest cohort shows very similar rates between native- and foreign-born females with the rates crossing over. In the oldest cohort, foreign-born females have a higher transportation accident rate than the native-born across time though the gap shrinks as the cohorts age.

Native-Born

For native-born Hispanic males, the transportation mortality rate for the 0-14 cohort was 8.96 deaths per 100,000 in 1990. By 2000, this cohort (now aged 10-24) had decreased to a rate of 5.86 deaths per 100,000 and by 2010 (20-34) the rate fell to 3.05 deaths per 100,000. For the native-born Hispanic male 1946-1975 cohort (aged 15-44 in 1990) the mortality rate was 44.07 deaths per 100,000 in 1990. The rate dropped to 32.46 deaths per 100,000 by 2000 when the population was aged 25 to 55 and by 2010 the rate decreased to 21.95 deaths per 100,000. Native-born males in the 1926-1945 (age 45 to 64) cohort in

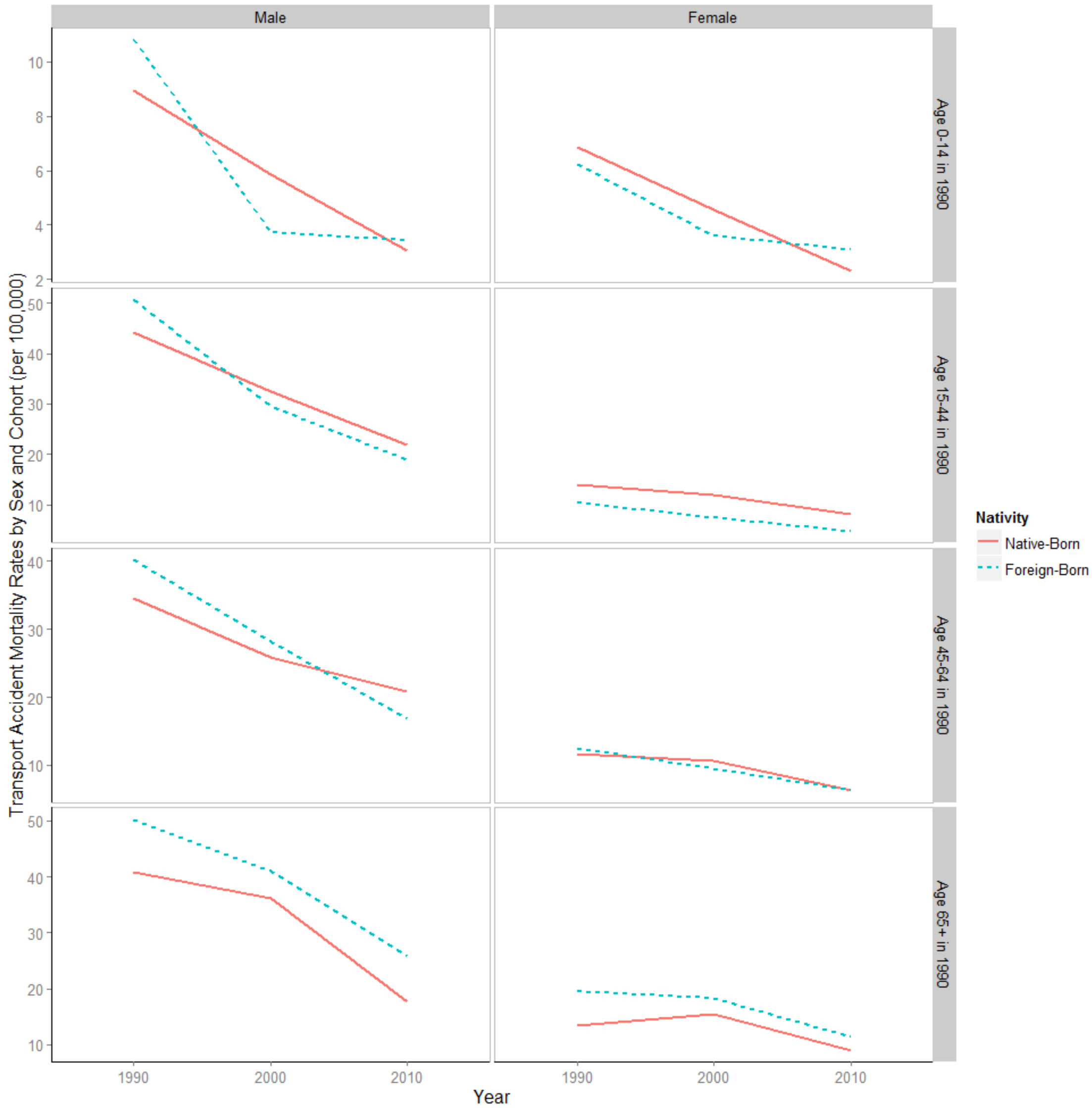
1990 had a transportation mortality rate of 34.51 deaths per 100,000. The rate fell to 25.83 deaths per 100,000 by 2000 where the cohort was age 55-74 and by 2010 when the cohort was aged 65 to 84 the mortality rate dropped to 20.76 deaths per 100,000. For the pre-1926 native-born Hispanic cohort (age 65+) in 1990 the mortality rate was 40.87 deaths per 100,000. By 2000 this rate had fallen to 36.12 deaths per 100,000 for the cohort now aged 75+ and by 2010 the rate decreased to 17.77 deaths per 100,000 for the cohort now aged 85 and older.

The native-born Hispanic female cohort aged 0-14 in 1990 had a transportation mortality rate of 6.84 deaths per 100,000. This rate dropped to 4.58 deaths per 100,000 for the cohort (10-24 years old) in 2000 and then fell to 2.31 deaths per 100,000 by 2010 (age 20-34). For the age 15-44 cohort of the native-born female population, the mortality rate was 13.97 deaths per 100,000 in 1990. By 2000 (age 25-54), the transport mortality rate for the foreign-born female cohort fell to 11.96 deaths per 100,000 persons. The rate in 2010 continued to fall (age 35 to 64) to 8.08 deaths per 100,000.

The 45-64 native-born female cohort had a mortality rate of 11.72 deaths per 100,000 in 1990 which increased to 10.68 deaths per 100,000 by 2000 (age 55-74). By 2010 (age 65-84), the rate rose further to 6.32 deaths per 100,000. For the native-born Hispanic female 65+ cohort in 1990, the mortality rate was 13.52 deaths per 100,000. By 2000 the rate for this cohort had increased to 15.52 deaths per 100,000 when the cohort was age 75+ and by 2010 (85+) the rate dropped to 8.94 deaths per 100,000.

Foreign-Born

For the foreign-born male cohort aged 0-14 in 1990 the transportation accident rate was 10.80 deaths per 100,000. The rate for this cohort declined to 3.72 deaths per 100,000 by 2000 (age 10-24) and then fell again to 3.43 deaths per 100,000 by the year 2010 (age 20-34). The 15 to 44 foreign-born male cohort had a mortality rate of 50.68 deaths per 100,000 in 1990. The rate for the cohort decreased to 29.42 deaths per 100,000 by the year



Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Figure 56. Transportation Accident Mortality Rates (per 100,000) for Native- and Foreign-Born Hispanics by Sex and Cohort

2000 (25-54) and by 2010 the rate was 18.83 deaths per 100,000 when the cohort was aged 35-64.

The cohort of foreign-born Hispanic males aged 45-64 in 1990 had a mortality rate of 40.26 deaths per 100,000. By the year 2000, the rate for this cohort fell to 28.18 deaths per 100,000 and by 2010 the rate fell to 16.79 deaths per 100,000 people. For the age 65+ cohort of the foreign-born male population, the mortality rate was 50.29 deaths per 100,000. This cohort saw decrease in the rate in 2000 which fell to 41.08 deaths per 100,000 and then bumped up to 25.76 deaths per 100,000 for the cohort in 2010.

For the foreign-born Hispanic females, the transport mortality rate for the 0 to 14 cohort in 1990 (1976-1990) was 6.24 deaths per 100,000. This rate decreased in 2000 to a rate of 3.61 deaths per 100,000 when the cohort was age 10 to 24 and in 2010 the rate dropped again to 3.10 deaths per 100,000 when the cohort was 20-34 years old. The 15 to 44-year-old foreign-born female cohort had a rate of 10.38 deaths per 100,000 in 1990. The rate for this cohort dropped to 7.35 deaths per 100,000 by the year 2000 when the cohort was aged 25-54 and by 2010 the rate fell to 4.80 deaths per 100,000.

The foreign-born female cohort aged 45-64 in 1990 had a mortality rate of 12.53 deaths per 100,000. By the year 2000, the mortality rate for this cohort stayed fairly stable at 9.48 deaths per 100, 000 and by 2010 it increased to 6.23 deaths per 100,000. For the 65+ cohort of the foreign-born female population, the mortality rate in 1990 was 19.54 deaths per 100,000. This rate decreased to 18.24 deaths per 100,000 by 2000 and continued to fall in 2010 to a rate of 11.45 per 100,000 persons.

SUMMARY

This chapter presented all-cause and select cause-specific mortality rates for pseudo-cohorts created for total Hispanic and non-Hispanic populations and for the native- and foreign-born Hispanic populations in the Southwest United States for the years 1990 to 2010. From this chapter, rates of all-cause and cause-specific mortality were presented for Hispanics and non-Hispanics and native- and foreign-born Hispanics. For the rates for Hispanics and non-Hispanics, Hispanic males and females in all but the youngest cohort show a lower rate of mortality across time for both males and females and non-Hispanic Blacks in the oldest cohort show a crossover with non-Hispanic whites where White mortality rates are higher by 2010.

For CLRD mortality, Hispanics and non-Hispanic Whites show the lowest effect in early life. Beyond the first cohort, Hispanics show the lowest rates overall with non-Hispanic Whites and non-Hispanic Black males showing comparable rates in middle cohorts while non-Hispanic females diverge with White overtaking blacks and retaining the highest rates until death and Blacks and Hispanics having the lowest rates through time. The high rate of mortality and the cross over appears for males as well but the effect is less pronounced in difference for non-Hispanics, except for in the oldest ages.

Lung cancer, unlike CLRD, seems to impact blacks more in the male population (except for the youngest cohort). In these cohorts, Black males show the highest impact followed by whites, followed by Hispanics. Females show much more similar patterns for Whites and blacks, while Hispanics show the lowest rates across each period.

Diabetes is highest amongst non-Hispanics Blacks most consistently across year but this pattern shifts through time for both male and female cohorts with Hispanics matching and even overtaking non-Hispanic Blacks in later life. Non-Hispanics White males and females maintain much lower rates through time but unlike Hispanics there is not as dramatic an increase as the populations age.

For HIV, the non-Hispanic black population is the most consistently impacted across all cohort and sexes. Hispanics and non-Hispanic Whites, on the other hand, show lower rates that largely mirror across time.

Non-Hispanic Blacks and Hispanics show the highest rates of homicide mortality for males with non-Hispanic Blacks having the highest rates and Hispanics the second highest for all cohorts across time. Females have much lower rates than males though non-Hispanic Blacks show higher rates than their counterparts across each cohort.

Suicide is one major cause which impacts White more than Blacks and Hispanics. White have the highest rates for all groups with Hispanics being second highest for males and for females Hispanics and Blacks the rates are largely similar.

Transportation rates are the most inconsistent across all groups. Each population shows a different position and effect across cohorts and groups depending on the population and year.

For the nativity rates, the effects of most interest appear to be condensed into older age cohorts. For instance, the native born had higher rates of all-cause mortality across almost all cohorts for each year. In the oldest cohort, there is an exception with the native- and foreign-born populations showing a potential crossover effect from 1990 to 2000 thereafter the foreign-born population has a lower rate of mortality overall compared to the native-born.

For heart failure the effect of most importance are in the older cohorts where the native-born seem to have a higher rate overall with the female oldest cohort showing a crossover effect from 1990 to 2010 where native-born show a higher rate by 2010. Lung cancer rates are also largely condensed to the older ages as expected with the native-born showing a divergence from the foreign-born and a higher rate of mortality.

Diabetes again shows an age effect with the oldest cohorts showing meaningful rates for comparison with the native-born again showing the most effect with higher diabetes rates than the foreign-born. Within this though, there does appear to be a diminishing rate in the oldest population, though if the contributor is die-off or improved population health resources is unknown.

Alzheimer’s was another cause of interest which appeared in the decomposition. These effects appear to be isolated in the oldest age cohort and the two populations are largely similar though there is a growing divergence from 1990 to 2010 with a gap between the native- and foreign-born populations which appears for both males and females.

Stroke is also age related and shows the second oldest cohort with the native-born having higher mortality rates than the foreign born and in the oldest cohort there is a cross-over with the foreign born having higher rates in 1990 but by 2010, the native-born shows higher mortality rates.

Finally, accidents show differential effects with native-born Hispanics showing higher risk of mortality for non-transportation accidents through time while the foreign-born maintain lower rates. Alternatively, transportation accidents show crossovers in the middle cohorts with the foreign-born having the highest rates in the oldest cohorts. Females show higher native-rates in early life which transition in each cohort to a higher foreign-born rate in the oldest cohort.

Hispanic and non-Hispanic Cohorts

In the cohort rates, non-Hispanic Whites and Hispanics had lower all-cause mortality than non-Hispanic Blacks. Hispanics had the lowest rates of all groups across time and this effect was found for all cohorts except for the very youngest. Non-Hispanic Blacks had the highest rates of all groups across time, reflecting their much lower life expectancy compared to Hispanics and non-Hispanic Whites. Non-Hispanic White and Hispanic mortality also showed the effects of rates through time, though the rates show a much larger divergence than the life expectancy due to the combining of data and the lack of weighting as was done with the life tables. Non-Hispanic Whites may have had a lower mortality rate across most cohorts but in the very oldest cohort, there appears to be a cross-over effect where non-Hispanic Blacks show a lower mortality rate than non-Hispanic Whites in the very oldest ages for all-cause mortality for male and females.

For Hispanics and non-Hispanic Blacks, homicide rates were much higher than for non-Hispanic Whites. Alternatively, rates for suicide were lower for Hispanics and non-

Hispanics Blacks while non-Hispanic Whites had much higher rates, reflecting differences in mortality due to violence from interpersonal effects and self-harm. Non-Hispanic Blacks showed the highest rates of mortality for HIV for all groups while Hispanics and non-Hispanic Whites were largely similar in rates across cohorts.

Native- and Foreign-Born Cohorts

When examining the decompositions for the native- and foreign-born, very few causes stood out as major contributors to life expectancy differences through time. So, for the cohorts, the causes of interest were selected at random as potentially interesting contributors to mortality in early, middle, and older ages to hopefully provide some insight into how the native- and foreign subpopulations under the Hispanic umbrella. Transportation related accidents were the only major cause of the select causes which showed the foreign-born with a consistently higher mortality rate for a cause.

DISCUSSION AND RECOMMENDATIONS

Chapter 8: Discussion

This project sought to estimate life expectancy for Hispanics and non-Hispanics and for native- and-foreign born Hispanics in the Southwest United States across the years 1990 to 2010. These estimates were based on the findings from life tables developed by the Census to include Hispanic mortality and to address the unique and complex issues related to Hispanic mortality records in the United States. In addition to the estimation of life expectancy for the populations of the Southwest United States, this project also set out to understand which cause-specific contributors to mortality significantly influenced the difference in mortality for Hispanics and non-Hispanics and native- and foreign-born Hispanics.

To this end, two approaches were used to understand how cause-specific contributors influenced these populations. First, related to the life expectancy, a decomposition of life expectancy was conducted which apportions the differences in life expectancy to the top contributors to cause-specific mortality differences. Finally, pseudo-cohorts were created with the population and mortality data for each of the respective periods for 1990, 2000, and 2010.

The Hispanic Paradox has been studied at great length across the last quarter century. With increased focus on Hispanic health and mortality, researchers have discovered the incredible complexity of the Hispanic paradox and have begun to identify very important cause specific contributors which appear to be major driving factors for the phenomenon. However, while the subject has garnered great focus and attention, there remains room for further examination and exploration.

To this end, my work expands upon previous research in several ways. First, this research is focused primarily on the Southwest United States. While the national estimates of life expectancy have been developed for the United States as a whole, research on the Hispanic paradox has led to a better understanding of the contributing factors which create this phenomenon. Through this research Mexican Origin population have been found to be largely advantaged in mortality, and while other Hispanic sub-populations have an advantage in some studies, the most consistent findings have been for a Mexican Origin population.(Elo et al., 2004; R.A. Hummer, Benjamins, & Rogers, 2004; Markides & Coreil, 1986; Markides & Eschbach, 2005, 2011) An examination of the Southwest then is a logical point of inquiry given the large, primarily Mexican-origin, Hispanic population in the Southwest United States (Ruggles et al., 2010)

The current study shows a consistent but shrinking advantage for Hispanics across each time period. Hispanic women had the highest life expectancy of all groups but white women made gains upon Hispanic women in each successive period. Additionally, Hispanic men were advantaged over white men in the same time. This matches the findings of similar or advantageous mortality profiles for Hispanics found in smaller scale studies and the findings from the yearly life tables which include Hispanic origin beginning with 2006 data.(R.A. Hummer et al., 2004; Lariscy et al., 2014; Markides & Eschbach, 2005, 2011) The decline in the mortality advantage in the Southwest may be related to differing data quality through time or there may be real secular changes which have impacted the mortality of the populations. Given patterns from the larger life tables of the United States, the former appears to have some support though effects of the latter in this analysis also cannot be discounted.

Additionally, given the secondary aim of identifying potential effects related to nativity in Hispanics, the Southwest United States is again advantageous given the large foreign-born Hispanic population in the Southwest. (Brown & Stepler, 2015). Though the analysis for Hispanic nativity groups would benefit from aggregation of data by nativity status and not gender, the findings indicate that there are differences in the cause-specific contributors, specifically heart and cardiovascular mortality between nativity groups in the Southwest. This pattern, while lesser in magnitude, does appear to be maintained across time which is in line with other research on reported health conditions for immigrant and native populations which found lower rates for conditions like cardiovascular diseases (Cunningham, Ruben, & Venkat Narayan, 2008; Franzini, Ribble, & Keddie, 2001; Huh, Prause, & Dooley, 2007; Singh & Siahpush, 2001) As to the cause of this outcome, research has indicated that differential cultural patterns may come into play as well as possible effects related to better genetics. (Cho, Frisbie, Hummer, & Rogers, 2004; Siahpush & Singh, 2002)

Second, this study expands upon previous work through an extensive follow-up to *Mortality of Hispanic Populations,* a volume published in 1991. (Rosenwaike, 1991) This work marked one of the last major examinations of Hispanic mortality that emphasized the use of Census and vital statistics mortality data before large population data fell to the wayside due to data issues and replaced by smaller cohort- and survey-based approaches which have become the standard to address issues of health and mortality over the last two decades. Through emphasis on the life course and a focus on population data as a whole this work aimed to fill in that 20-year gap using comparable data (and improved methodology) to evaluate the trends and patterns of life expectancy and cause-specific contributors to understand mortality for Hispanics and non-Hispanics.

The findings here indicate that there are in fact major changes in mortality across time in both terms of overall mortality change with mostly increasing life expectancy for all groups, though race, ethnicity, and gender all intersect in differing mortality patterns in this current work. The major contributors to mortality have also shifted through time with smoking emerging as a major contributor of mortality, especially for Whites (and Blacks as well though research less focused that direction in understanding Hispanic advantage) while Hispanics and Blacks both show large increases in diabetes related mortality.

The effects of smoking have recently been the point of great interest and emphasis as these effects are believed to contribute a great deal to the differences in mortality profiles for Hispanics and Whites. (Blue & Fenelon, 2011) Further, while the effects of smoking did not have a strong impact in the analysis of nativity here, other research has indicted smoking as a major effect on differences in mortality for native- and foreign-born Hispanics. (Fenelon, 2013) However, in this work, the effects of smoking appear to lose some of their power as other contributors, especially the rise of chronic illnesses in other populations continue to increase.

This then provides support to the contention that Hispanics may be living longer but their quality of life may not be as great as diabetes continues to rise. Further, the effects of smoking may also be declining as the populations most impacted by smoking and related mortality age out of the population. As these populations age and die out, the advantage that Hispanics once showed may be lost.

To put this in perspective, Lariscy and colleagues (2014) in a recent publication found that the effects of smoking in the White population are so great that they are actually offsetting the effects of low SES in the Hispanic population. That is, there is no paradoxical better health of Hispanics, the effects of SES seem to be driving poorer mortality as we might expect; however, the effects of smoking are so strong in the White population that these detrimental effects of SES are being masked. As smoking weeds itself out of the aging White population, the effects of SES will remain and the impact on the Hispanic population could show its true magnitude in time.

While the emphasis of the life tables and decompositions is primarily on the evolution of the Hispanic Paradox, there is a feature of mortality for non-Hispanic Blacks that must be pointed out, specifically. In the Southwest data, the results showed a greater than 1% probability of mortality for non-Hispanic Black males and females age 0-1 in 1990. The probability dropped through time but still remained much higher than for their counterparts in other populations. This result is not an anomaly. Checking the life tables for the United States as a whole, this finding is not an aberration of the data or the Southwestern United States. Instead, this trend also appears at the national level indicating the high risk of infant mortality for non-Hispanic Blacks is prevalent around the country and that it has improved through time but still remains so high requires more focus toward the issue.

The native- and foreign-born life tables do not have the appropriate corrections to put them at a level comparable to the Hispanic and non-Hispanic life tables, overall, they still provide insight into Hispanic mortality through time. Specifically related to differences between the populations and the decomposition of mortality. On almost all select-contributors to mortality, the native-born showed much worse mortality rates than the foreign-born. The only exception to this was for transportation-related accidents. While the native-born showed higher mortality for non-transport accidents, the foreign-born had higher transportation accident related mortality, likely a reflection of the more-occupation oriented nature of the foreign-born as well as potential issues related to transportation safety and upkeep. For females, the difference between the native- and foreign-born Hispanics was fairly consistent and the differences in the decomposition were very small, reflecting the very similar patterns of mortality, overall, for the two groups.

While the Hispanic mortality advantage is a prevailing phenomenon, it is evolving and the primary contributors to differentials in mortality have shifted through time. In this analysis, violence in youth, while still a contributor has dropped as a major influence for Hispanics versus non-Hispanic Whites replaced by more chronic illnesses associated with aging. Non-Hispanic Blacks, while making considerable strides in life expectancy, still fall far behind their counterparts on almost all causes, highlighting the extreme disparities that plague that population. Diabetes has continually grown for Hispanics (only outpaced by non-Hispanic Blacks) and could seriously impact the Hispanics population and their longevity in the future. This may be particularly true as the population of the Southwest, and the United States, shows a considerable shift in disease profiles, with smoking-related illnesses declining in Whites leaving Blacks and Hispanics to be more effected by major chronic illnesses in older ages.

Finally, this research sought to investigate the Hispanic Paradox as an evolving phenomenon and to understand how causes of death contribute to the differences in mortality across time. Communities, culture, policies and other facets of the social existence change and alter across time and with this health patterns change as well. Keeping this in mind, this work attempted to examine overall and cause-specific contributors to mortality by examining the trends in contributors to overall life expectancy and cause specific contributors. To achieve this, a decomposition of mortality was applied to the life expectancy estimations as well as a calculation of rates for age cohorts across time. Other work has been done examining non-Hispanic White and non-Hispanic Black populations (Firebaugh, Acciai, Noah, Prather, & Nau, 2014) but to my knowledge the examination of the Hispanic population against other groups in this research is the first major examination of this kind.

In line with other research, I found that smoking-related mortality was a major contributor to the Hispanic mortality advantage. With the examination of trends and the contribution of smoking across time, however, I also found that the share of mortality differentials is shrinking through time as chronic illness, especially diabetes, increases in the Hispanic populations. Additionally, the examination of the Hispanic native and foreign-born populations also found patterns of shifting contributors to differentials though more examination is needed to better understand the complexities and limitations of these data.
A Hispanic mortality advantage was identified across each time point with both males and females showing higher life expectancy than non-Hispanics.

This finding supports the findings of smaller survey studies as well as the original findings of the Hispanic Origin life table for 2006 and every period identified some of the similar effects including a smoking related mortality as a strong contributor to a Hispanic mortality advantage over non-Hispanic Whites but it also showed the influence of diabetes growing through time as the differences in life expectancy between Hispanics and non-Hispanic Whites shrank through time. The gap between Hispanics and non-Hispanics also shrank but, overall, non-Hispanic Blacks were almost universally more disadvantaged than Hispanics through time due to causes such as smoking related mortality, heart disease, and stroke-related contributors to mortality.

Research has previously discovered the importance of smoking-related mortality for the immigrant advantage discovered in the Hispanic mortality advantage but the present analysis goes beyond that as it examines how smoking-related mortality is apportioned to the difference in life expectancy across time. (Blue & Fenelon, 2011; Fenelon, 2013; Lariscy et al., 2014)That is, how influential the differences are as the populations age and change. This analysis also takes into account all the other contributors to mortality through time and their influence on the differences in mortality and life expectancy. Like the previous study by Blue and Fenelon, however, this study only addresses differences in mortality based on the existing gaps between populations. When accounting for these contributors, Hispanics and non-Hispanic Whites would then have almost equivalent mortality profiles leaving open the very important question of why?

The cohort rates do allow for some understanding of the changes in mortality rates for the populations through time but there is still much more work that needs to be done. There still remains a large area of study for Hispanic and non-Hispanic mortality to understand how policy and changing culture influence health and mortality through time for Hispanics and non-Hispanic populations. Non-Hispanic Whites and Hispanics occupy very different socioeconomic positions on average but would be fairly equivalent even after addressing health behaviors. Non-Hispanic Blacks, however, found a very large disadvantage which continues through time. The mechanisms in play require much more analysis and theoretical development to truly address.

Minorities show very high rates of mortality based on interpersonal violence while non-Hispanic Whites show higher risks for self-harm. These findings reflect a pattern which was found previously in the late 1980s. (Smith, Mercy, & Rosenberg, 1986; Smith, Mercy, & Warren, 1985) In this study, only suicide is higher in a group other than non-Hispanic Blacks. Non-Hispanic Whites in fact show a higher impact of suicide in the decomposition and the effect of these differences is also born out in the higher cohort suicide related mortality rates compared to Hispanics and non-Hispanic Blacks.

Also evident when examining differences between Hispanics and non-Hispanics, is the effect of gender on violent outcomes across time. Males are higher on both suicide and homicide across Hispanics and non-Hispanic groups while females show a much lower rate of suicide and homicide across time. This pattern reflects the fact that males are at higher risk for violent death or self-inflicted harm than their counterparts, a pattern also previously identified. (Smith et al., 1986, 1985)

Following the Hispanic population through time, mortality from homicide decreases from the top differential contributing to lost life expectancy in Hispanics to follow behind diabetes. This matches findings from the CDC which indicates that Hispanics show an uptake in diabetes diagnoses across time a trend is driven primarily by Puerto Ricans and Mexican Americans. (Centers for Disease Control and Prevention, 2015) In the Southwest, then, Mexican Americans would be the primary population experiencing diabetes and related mortality across time.

The aging of the Hispanic population (Ortman, Velkoff, & Hogan, 2014) and the rise of obesity (Flegal, Carroll, Kit, & Ogden, 2010) only increases the risk of mortality from diabetes over homicide but the effects of both are still shown through the decompositions and mirror previous studies showing that homicide and diabetes were higher in Hispanics than non-Hispanic Whites. (Sorlie, Backlund, Johnson, & Rogot, 1993)

In the same time, the risk of mortality for health behaviors associated with drinking and diet are also higher in mortality while non-Hispanics Whites show higher risks of respiratory illness and chronic diseases due to smoking related mortality highlighting the differential behaviors and effects which emerge through status and socioeconomic status.

As the populations age, the impact of smoking on life expectancy appears to decrease in effect while the effect of diabetes across populations increases. This lowers the differential between Hispanics and non-Hispanics, especially non-Hispanics Whites but Hispanics still maintain much higher rates of diabetes than non-Hispanic Whites. Non-Hispanic Blacks improve on life expectancy but still maintain the worst life expectancy and the rates reflect this on almost all causes and contributors.

Despite these trends, these shifts will likely be glacial as other population effects have emerged which may slow any gains Whites have been making and therefore which may slow any shifts for other populations. First, while populations have aged considerably as life expectancy has continued to creep up, the rates of improvement seen through the latter half of the 20th century have slowed and flattened. (Ma, Ward, Siegel, & Ahmedin, 2015) In addition to these ceiling effects, there are specific concerns emerging toward the White middle age population where, for the first time, non-Hispanic White women have shown a decrease (though only slight at a 1/10 of a year decrease) in the estimated life expectancy from 2013 to 2014 (Arias, 2016) which has raised alarm at a potential declining life expectancy and what factors, beyond potential statistical noise, contributed to such a decline.

A more in depth analyses of the underlying contributors to this shift have largely been linked to issues such as suicide, drug and alcohol related deaths, and chronic liver disease (often drinking related) in the White middle age population which has impacted women more than men as decreasing cardiovascular related mortality effects have more impacted men than women allowing for the offset of the drug and alcohol related mortality. (Case & Deaton, 2015; Kodjak, 2016) diseases that cause mortality and more toward diseases the cause long periods of disablement and lower quality of life before the end of life. And as the effects of smoking leave the population, it is unknown which contributors will rise up to replace them. Non-Hispanic Whites have shown an increase in diabetes but not at a level seen by the other two groups in this study. The effects of this cause alone could have a significant impact on mortality disparities in the near future. Only time will tell.

STRENGTHS AND LIMITATIONS

Strengths

This study has several strengths which warrant mentioning. First, this study applies the most up to date methodology for estimating Hispanic life expectancy on a population level and applies it to Hispanics and non-Hispanics in the Southwest United States based on the calculations from Arias and colleagues and the production of life tables from the Census Bureau and the National Center for Health Statistics. Given the influence of Mexican-origin Hispanics on the Hispanic Paradox and the concentration of Mexican-Origin Hispanics in the Southwest United States, the analyses here provide important insight into the differences between Hispanics and-non-Hispanics in the Southwest United States based on this methodology.

Second, the numerators and denominator data and the adjustment values are derived from decennial censuses (except for 2010) which provide actual enumerated data for the time points of interest and are the official un-estimated values for those years providing the best count of people for the years 1990 and 2000.

Third, the mortality data is derived from the NVSS which is a fairly accurate and up to date account of mortality data within the United States. It may miss some deaths in the United States for those not found or reported but, overall, the data should be a strong source of mortality information for the Southwest region of the United States.

Fourth, the values for life expectancy are based on the most up to date data for each time period and provides both values of life expectancy at each specific point and more importantly allows for trends to be established for both overall mortality of each but also for patterns of mortality across and between groups both based on race/ethnicity and gender. The establishment of patterns across time allows for an understanding of how the Hispanic Paradox evolves and how the Hispanic advantage has changed across time.

Fifth, this study provides a unique perspective on the evolution of the Hispanic paradox through the application of the decomposition to the life tables created here. This allows for an insight into how contributors to mortality across populations evolve along with larger populations patterns of mortality and life expectancy.

Finally, the rates for the pseudo-cohorts represent the most up-to-date mortality data and provide estimates of rates for both Hispanics and non-Hispanics and the native- and foreign-born Hispanics populations. This data provides both period patterns of mortality and shows trends for all-cause and cause-specific deaths through time.

Limitations

While the study has numerous strengths to address the topic at hand, it is not without fault. First, this analysis does not adjust data for the oldest ages in non-Hispanic Whites and non-Hispanics Blacks using Medicare data. Instead, the probability of mortality (q_x) for 1990, 2000, and 2010 is adjusted using the brass relational logit model for all ages above age 75 for non-Hispanic Whites and non-Hispanics Blacks based on the United States q_x values. This is especially an issue for the non-Hispanic Whites as the adjusted mortality for the non-Hispanic Whites in the Southwest United States are then used to adjust the mortality for Hispanics. In addition, the data for 2010 is based on the estimated life table for the United States. The values for the estimated table may not be as representative as the values derived from the decennial life tables. However, the data is the most up-to-data available and so the values estimated based on that data represent the most up-to-date data.

Second, the analysis uses data from 1990 and 2000 and 2010. These years were prior to the first life tables developed for Hispanics for the year 2006. According to the work of Elizabeth Arias and colleagues the data for the years 1990 and 2000 should be acceptable for Hispanics, as their analysis of death certificates found remarkably accurate records for Hispanics in the 1990s and beyond where data had been of much poorer validity in the previous decades. However, this research was on a national level.

The Southwest United States, having a large Hispanic population may be more likely to have good records for Hispanics who are foreign-born or have more traditional Hispanic-sounding names but native-born Hispanics, especially those who have inter-married, may be harder to correctly identify in records. Therefore, using national adjustments for Hispanics and non-Hispanic mortality and the adjustments specifically for native- and foreign-born Hispanic mortality may not be as effective for values from the Southwest United States.

Third for the native- and foreign-born Hispanic populations, the data is very sparse, especially in 2010 as deaths dropped further for all groups but especially for foreign-born Hispanic males. The effects of this may lead to very unstable and unreliable estimations of life expectancy, even with abridged age groups in the Southwest United States.

Fourth, the life expectancies for the native- and foreign-born populations because of the abridged data and the lack of adjustment lead to much larger values of life expectancy than was found in the Hispanic total population life expectancy. The differentials in life expectancy are believed to be representative of potential differences in contributors to mortality but the differences in life expectancy itself are only illustrative as the value for life expectancy are considerably higher than what was calculated for the total populations.

Finally, the cohort rates calculated here are not based on actual cohorts. Instead, they are pseudo-cohorts based on period population and mortality data which does not account for in- and out-migration of populations through time. This means that the rates are unbounded and therefore not representative of actual cohort values for the time periods. The difference in rates between the Hispanic and non-Hispanics populations and the native- and foreign-born Hispanics is thought to be meaningful and shows trends within the data but the differing patterns between the cohort rates for the total populations and the native- and foreign-born patterns highlights potential data issues related to the sparseness of the data, overall.

RECOMMENDATIONS AND FUTURE RESEARCH

The current analysis does not address how mortality may look in the future. This analysis and previous analyses which have found similar effects have only accounted for current mortality trends and what contributes to the gaps between groups. Hispanics and non-Hispanic Whites show the most similar mortality and as behavioral patterns change, along with their influence on mortality, the effects could have profound effects on the needs of future populations.

In the present analysis, the mortality data for Hispanic nativity is only suggestive but it shows that the foreign-born engage in less deleterious behaviors than the native-born populations and that the female populations, as in the larger population, are much more alike and less prone to adverse outcomes than their male counterparts. However, as mentioned previously, it is important to understand how the decline in mortality is related to quality of life improvement. If mortality is replaced by poorer quality of life while at-risk populations are living longer then there is a chance that the burden on these populations is only magnified.

Additionally, the rise of chronic conditions as major contributors to mortality are highlighted strongly in this project. While smoking appears to give Hispanics an 'advantage' over Whites, the fact is that other chronic conditions like diabetes continue to grow and this will negatively impact the health of the Hispanic population in the future. Identifying where these issues emerge in the life course and identifying which factors are related to this emergence is of great value to stem the effects of chronic illnesses later in life. In older age where these diseases manifest, there is little that can be done to reverse the damage so identifying and correcting issues earlier along the path to disease is better not only for the Hispanic (or any) population but also for improving costs down the road.

CONCLUSIONS

This research shows that Hispanics have a higher life expectancy than non-Hispanic Whites and non-Hispanic Blacks living in the Southwest United States across all years. While Hispanics have an advantage across all years, the gap between Hispanics and non-Hispanics is closing. The most considerable change in mortality is for males of any race/ethnicity. For females, there appears to be more of a ceiling effect on improvement of mortality and life expectancy, especially for the Hispanics and non-Hispanic Whites. Because non-Hispanic Black females had a much lower life expectancy, they appeared to make more gains through time.

Hispanics and non-Hispanic Whites saw the most significant differences in life expectancy due to diabetes in Hispanics and smoking related mortality for non-Hispanic Whites. Hispanics and non-Hispanic Blacks were very similar on their rates for Diabetes, but diseases like HIV saw non-Hispanic Blacks having much higher rates through time, though Whites were generally lower than both. This indicates that the behavioral risks differ along racial/ethnic lines with behaviors such as smoking impacting non-Hispanic Whites while behaviors such as sexual practices are more influential on non-Hispanic Blacks and diet and obesity-related mortality is higher in both Hispanics and non-Hispanic Blacks.

Differences in health behaviors and cultural norms may be at the heart of the differences in life expectancy and mortality but the shrinking gap in life expectancy leaves open an indeterminate future where Hispanics may lose their advantage and gain even further declines in quality of life as diseases like diabetes grows in the population.

Appendix A. Complete Life Tables for the Southwestern United States, 1990-2010

Table A1. Complete Life Tables for non-Hispanic White Males in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.008131	100,000	813	99,322	7,273,283	72.7
1-2..................	0.000710	99,187	70	99,152	7,173,961	72.3
2-3..................	0.000529	99,117	52	99,090	7,074,809	71.4
3-4..................	0.000407	99,064	40	99,044	6,975,719	70.4
4-5..................	0.000330	99,024	33	99,007	6,876,675	69.4
5-6..................	0.000283	98,991	28	98,977	6,777,667	68.5
6-7..................	0.000255	98,963	25	98,950	6,678,690	67.5
7-8..................	0.000234	98,938	23	98,926	6,579,740	66.5
8-9..................	0.000211	98,915	21	98,904	6,480,814	65.5
9-10................	0.000186	98,894	18	98,885	6,381,909	64.5
10-11.............	0.000171	98,875	17	98,867	6,283,025	63.5
11-12.............	0.000188	98,858	19	98,849	6,184,158	62.6
12-13.............	0.000265	98,840	26	98,827	6,085,309	61.6
13-14.............	0.000416	98,814	41	98,793	5,986,482	60.6
14-15.............	0.000617	98,773	61	98,742	5,887,689	59.6
15-16.............	0.000845	98,712	83	98,670	5,788,946	58.6
16-17.............	0.001057	98,628	104	98,576	5,690,276	57.7
17-18.............	0.001222	98,524	120	98,464	5,591,700	56.8
18-19.............	0.001317	98,404	130	98,339	5,493,236	55.8
19-20.............	0.001361	98,274	134	98,207	5,394,897	54.9
20-21.............	0.001395	98,140	137	98,072	5,296,690	54.0
21-22.............	0.001440	98,003	141	97,933	5,198,618	53.0
22-23.............	0.001483	97,862	145	97,790	5,100,685	52.1
23-24.............	0.001526	97,717	149	97,643	5,002,895	51.2
24-25.............	0.001572	97,568	153	97,491	4,905,253	50.3
25-26.............	0.001612	97,415	157	97,336	4,807,761	49.4
26-27.............	0.001652	97,258	161	97,177	4,710,425	48.4
27-28.............	0.001709	97,097	166	97,014	4,613,248	47.5
28-29.............	0.001788	96,931	173	96,844	4,516,233	46.6
29-30.............	0.001883	96,758	182	96,667	4,419,389	45.7
30-31.............	0.001981	96,576	191	96,480	4,322,722	44.8
31-32.............	0.002078	96,384	200	96,284	4,226,242	43.8
32-33.............	0.002186	96,184	210	96,079	4,129,958	42.9
33-34.............	0.002308	95,974	222	95,863	4,033,879	42.0
34-35.............	0.002444	95,752	234	95,635	3,938,016	41.1
35-36.............	0.002599	95,518	248	95,394	3,842,381	40.2

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.002759	95,270	263	95,139	3,746,987	39.3
37-38.............	0.002900	95,007	275	94,869	3,651,848	38.4
38-39.............	0.003005	94,732	285	94,589	3,556,979	37.5
39-40.............	0.003085	94,447	291	94,301	3,462,390	36.7
40-41.............	0.003163	94,156	298	94,007	3,368,089	35.8
41-42.............	0.003261	93,858	306	93,705	3,274,082	34.9
42-43.............	0.003384	93,552	317	93,393	3,180,377	34.0
43-44.............	0.003549	93,235	331	93,070	3,086,984	33.1
44-45.............	0.003763	92,904	350	92,729	2,993,914	32.2
45-46.............	0.004026	92,555	373	92,368	2,901,185	31.3
46-47.............	0.004328	92,182	399	91,983	2,808,816	30.5
47-48.............	0.004666	91,783	428	91,569	2,716,834	29.6
48-49.............	0.005029	91,355	459	91,125	2,625,265	28.7
49-50.............	0.005422	90,895	493	90,649	2,534,140	27.9
50-51.............	0.005885	90,403	532	90,137	2,443,491	27.0
51-52.............	0.006438	89,871	579	89,581	2,353,354	26.2
52-53.............	0.007050	89,292	630	88,977	2,263,773	25.4
53-54.............	0.007705	88,662	683	88,321	2,174,796	24.5
54-55.............	0.008405	87,979	739	87,610	2,086,475	23.7
55-56.............	0.009139	87,240	797	86,841	1,998,865	22.9
56-57.............	0.009959	86,443	861	86,012	1,912,024	22.1
57-58.............	0.010936	85,582	936	85,114	1,826,012	21.3
58-59.............	0.012109	84,646	1,025	84,133	1,740,898	20.6
59-60.............	0.013440	83,621	1,124	83,059	1,656,765	19.8
60-61.............	0.014836	82,497	1,224	81,885	1,573,706	19.1
61-62.............	0.016255	81,273	1,321	80,612	1,491,821	18.4
62-63.............	0.017732	79,952	1,418	79,243	1,411,209	17.7
63-64.............	0.019258	78,534	1,512	77,778	1,331,966	17.0
64-65.............	0.020832	77,022	1,604	76,220	1,254,188	16.3
65-66.............	0.022409	75,417	1,690	74,572	1,177,968	15.6
66-67.............	0.024045	73,727	1,773	72,841	1,103,396	15.0
67-68.............	0.025897	71,955	1,863	71,023	1,030,555	14.3
68-69.............	0.028119	70,091	1,971	69,106	959,532	13.7
69-70.............	0.030765	68,120	2,096	67,072	890,426	13.1
70-71.............	0.033786	66,025	2,231	64,909	823,354	12.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.037079	63,794	2,365	62,611	758,445	11.9
72-73.............	0.040648	61,428	2,497	60,180	695,833	11.3
73-74.............	0.044352	58,932	2,614	57,625	635,653	10.8
74-75.............	0.048163	56,318	2,712	54,962	578,029	10.3
75-76.............	0.052243	53,605	2,800	52,205	523,067	9.8
76-77.............	0.056644	50,805	2,878	49,366	470,862	9.3
77-78.............	0.061347	47,927	2,940	46,457	421,496	8.8
78-79.............	0.066454	44,987	2,990	43,492	375,039	8.3
79-80.............	0.072038	41,997	3,025	40,485	331,547	7.9
80-81.............	0.078349	38,972	3,053	37,445	291,062	7.5
81-82.............	0.085203	35,919	3,060	34,388	253,617	7.1
82-83.............	0.092892	32,858	3,052	31,332	219,229	6.7
83-84.............	0.100406	29,806	2,993	28,310	187,897	6.3
84-85.............	0.107729	26,813	2,889	25,369	159,587	6.0
85-86.............	0.116072	23,925	2,777	22,536	134,218	5.6
86-87.............	0.125943	21,148	2,663	19,816	111,682	5.3
87-88.............	0.136598	18,484	2,525	17,222	91,866	5.0
88-89.............	0.147784	15,959	2,359	14,780	74,644	4.7
89-90.............	0.159513	13,601	2,170	12,516	59,864	4.4
90-91.............	0.172206	11,431	1,969	10,447	47,348	4.1
91-92.............	0.186213	9,463	1,762	8,582	36,901	3.9
92-93.............	0.200888	7,701	1,547	6,927	28,319	3.7
93-94.............	0.215480	6,154	1,326	5,491	21,392	3.5
94-95.............	0.229309	4,828	1,107	4,274	15,901	3.3
95-96.............	0.242421	3,721	902	3,270	11,627	3.1
96-97.............	0.256921	2,819	724	2,457	8,358	3.0
97-98.............	0.270534	2,095	567	1,811	5,901	2.8
98-99.............	0.284039	1,528	434	1,311	4,090	2.7
99-100............	0.298259	1,094	326	931	2,779	2.5
100+...............	1.000000	768	768	1,848	1,848	2.4

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A2. Complete Life Tables for non-Hispanic White Males in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1.................	0.005684	100,000	568	99,513	7,536,623	75.4
1-2.................	0.000530	99,432	53	99,405	7,437,110	74.8
2-3.................	0.000370	99,379	37	99,360	7,337,705	73.8
3-4.................	0.000270	99,342	27	99,329	7,238,344	72.9
4-5.................	0.000214	99,315	21	99,305	7,139,016	71.9
5-6.................	0.000186	99,294	18	99,285	7,039,711	70.9
6-7.................	0.000172	99,276	17	99,267	6,940,426	69.9
7-8.................	0.000162	99,259	16	99,251	6,841,159	68.9
8-9.................	0.000148	99,242	15	99,235	6,741,909	67.9
9-10................	0.000131	99,228	13	99,221	6,642,673	66.9
10-11.............	0.000120	99,215	12	99,209	6,543,452	66.0
11-12.............	0.000131	99,203	13	99,196	6,444,243	65.0
12-13.............	0.000182	99,190	18	99,181	6,345,047	64.0
13-14.............	0.000284	99,172	28	99,158	6,245,866	63.0
14-15.............	0.000422	99,144	42	99,123	6,146,708	62.0
15-16.............	0.000577	99,102	57	99,073	6,047,585	61.0
16-17.............	0.000723	99,045	72	99,009	5,948,512	60.1
17-18.............	0.000852	98,973	84	98,931	5,849,503	59.1
18-19.............	0.000953	98,889	94	98,842	5,750,572	58.2
19-20.............	0.001032	98,795	102	98,744	5,651,730	57.2
20-21.............	0.001117	98,693	110	98,637	5,552,987	56.3
21-22.............	0.001203	98,582	119	98,523	5,454,349	55.3
22-23.............	0.001250	98,464	123	98,402	5,355,826	54.4
23-24.............	0.001244	98,341	122	98,279	5,257,424	53.5
24-25.............	0.001201	98,218	118	98,159	5,159,145	52.5
25-26.............	0.001148	98,100	113	98,044	5,060,986	51.6
26-27.............	0.001109	97,988	109	97,933	4,962,942	50.6
27-28.............	0.001093	97,879	107	97,825	4,865,008	49.7
28-29.............	0.001109	97,772	108	97,718	4,767,183	48.8
29-30.............	0.001153	97,664	113	97,607	4,669,465	47.8
30-31.............	0.001208	97,551	118	97,492	4,571,858	46.9
31-32.............	0.001268	97,433	124	97,371	4,474,366	45.9
32-33.............	0.001341	97,310	130	97,244	4,376,994	45.0
33-34.............	0.001424	97,179	138	97,110	4,279,750	44.0
34-35.............	0.001518	97,041	147	96,967	4,182,640	43.1
35-36.............	0.001616	96,893	157	96,815	4,085,673	42.2

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.001725	96,737	167	96,653	3,988,858	41.2
37-38.............	0.001856	96,570	179	96,480	3,892,205	40.3
38-39.............	0.002017	96,391	194	96,294	3,795,724	39.4
39-40.............	0.002202	96,196	212	96,090	3,699,431	38.5
40-41.............	0.002398	95,984	230	95,869	3,603,340	37.5
41-42.............	0.002600	95,754	249	95,630	3,507,471	36.6
42-43.............	0.002822	95,505	269	95,371	3,411,841	35.7
43-44.............	0.003070	95,236	292	95,090	3,316,470	34.8
44-45.............	0.003346	94,943	318	94,785	3,221,381	33.9
45-46.............	0.003654	94,626	346	94,453	3,126,596	33.0
46-47.............	0.003980	94,280	375	94,092	3,032,143	32.2
47-48.............	0.004297	93,905	404	93,703	2,938,051	31.3
48-49.............	0.004584	93,501	429	93,287	2,844,348	30.4
49-50.............	0.004849	93,073	451	92,847	2,751,061	29.6
50-51.............	0.005116	92,621	474	92,384	2,658,214	28.7
51-52.............	0.005418	92,148	499	91,898	2,565,829	27.8
52-53.............	0.005777	91,648	529	91,384	2,473,931	27.0
53-54.............	0.006231	91,119	568	90,835	2,382,548	26.1
54-55.............	0.006794	90,551	615	90,243	2,291,713	25.3
55-56.............	0.007473	89,936	672	89,600	2,201,470	24.5
56-57.............	0.008238	89,264	735	88,896	2,111,870	23.7
57-58.............	0.009061	88,528	802	88,127	2,022,974	22.9
58-59.............	0.009895	87,726	868	87,292	1,934,846	22.1
59-60.............	0.010747	86,858	933	86,392	1,847,554	21.3
60-61.............	0.011703	85,925	1,006	85,422	1,761,163	20.5
61-62.............	0.012822	84,919	1,089	84,375	1,675,741	19.7
62-63.............	0.014043	83,830	1,177	83,242	1,591,366	19.0
63-64.............	0.015340	82,653	1,268	82,019	1,508,124	18.2
64-65.............	0.016709	81,385	1,360	80,705	1,426,105	17.5
65-66.............	0.018124	80,025	1,450	79,300	1,345,400	16.8
66-67.............	0.019660	78,575	1,545	77,803	1,266,099	16.1
67-68.............	0.021423	77,030	1,650	76,205	1,188,297	15.4
68-69.............	0.023488	75,380	1,771	74,495	1,112,092	14.8
69-70.............	0.025824	73,609	1,901	72,659	1,037,597	14.1
70-71.............	0.028235	71,708	2,025	70,696	964,938	13.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.030723	69,684	2,141	68,613	894,242	12.8
72-73.............	0.033518	67,543	2,264	66,411	825,629	12.2
73-74.............	0.036712	65,279	2,397	64,081	759,218	11.6
74-75.............	0.040260	62,883	2,532	61,617	695,137	11.1
75-76.............	0.043967	60,351	2,653	59,024	633,520	10.5
76-77.............	0.047797	57,697	2,758	56,319	574,496	10.0
77-78.............	0.052122	54,940	2,864	53,508	518,178	9.4
78-79.............	0.057089	52,076	2,973	50,590	464,670	8.9
79-80.............	0.062673	49,103	3,077	47,564	414,080	8.4
80-81.............	0.068749	46,026	3,164	44,444	366,516	8.0
81-82.............	0.075069	42,861	3,218	41,253	322,073	7.5
82-83.............	0.081990	39,644	3,250	38,019	280,820	7.1
83-84.............	0.089487	36,393	3,257	34,765	242,801	6.7
84-85.............	0.097597	33,137	3,234	31,520	208,036	6.3
85-86.............	0.106356	29,903	3,180	28,313	176,516	5.9
86-87.............	0.115800	26,722	3,094	25,175	148,204	5.5
87-88.............	0.125964	23,628	2,976	22,140	123,029	5.2
88-89.............	0.136882	20,652	2,827	19,238	100,889	4.9
89-90.............	0.148586	17,825	2,649	16,501	81,651	4.6
90-91.............	0.161103	15,176	2,445	13,954	65,150	4.3
91-92.............	0.174459	12,731	2,221	11,621	51,196	4.0
92-93.............	0.188673	10,510	1,983	9,519	39,575	3.8
93-94.............	0.203760	8,527	1,738	7,659	30,057	3.5
94-95.............	0.219727	6,790	1,492	6,044	22,398	3.3
95-96.............	0.236572	5,298	1,253	4,671	16,354	3.1
96-97.............	0.254289	4,045	1,028	3,530	11,683	2.9
97-98.............	0.272857	3,016	823	2,605	8,153	2.7
98-99.............	0.292250	2,193	641	1,873	5,548	2.5
99-100.............	0.312429	1,552	485	1,310	3,676	2.4
100+................	1.000000	1,067	1,067	2,366	2,366	2.2

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A3. Complete Life Tables for non-Hispanic White Males in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1.................	0.005239	100,000	524	99,548	7,706,799	77.1
1-2.................	0.000398	99,476	40	99,456	7,607,251	76.5
2-3.................	0.000307	99,436	31	99,421	7,507,795	75.5
3-4.................	0.000241	99,406	24	99,394	7,408,374	74.5
4-5.................	0.000196	99,382	19	99,372	7,308,980	73.5
5-6.................	0.000164	99,363	16	99,354	7,209,607	72.6
6-7.................	0.000141	99,346	14	99,339	7,110,253	71.6
7-8.................	0.000120	99,332	12	99,326	7,010,914	70.6
8-9.................	0.000100	99,320	10	99,315	6,911,587	69.6
9-10................	0.000080	99,310	8	99,306	6,812,272	68.6
10-11.............	0.000070	99,303	7	99,299	6,712,965	67.6
11-12.............	0.000078	99,296	8	99,292	6,613,666	66.6
12-13.............	0.000118	99,288	12	99,282	6,514,375	65.6
13-14.............	0.000197	99,276	20	99,266	6,415,093	64.6
14-15.............	0.000302	99,257	30	99,242	6,315,826	63.6
15-16.............	0.000410	99,227	41	99,206	6,216,585	62.7
16-17.............	0.000516	99,186	51	99,160	6,117,379	61.7
17-18.............	0.000638	99,135	63	99,103	6,018,218	60.7
18-19.............	0.000776	99,071	77	99,033	5,919,115	59.7
19-20.............	0.000920	98,995	91	98,949	5,820,082	58.8
20-21.............	0.001073	98,904	106	98,850	5,721,133	57.8
21-22.............	0.001210	98,797	120	98,738	5,622,283	56.9
22-23.............	0.001301	98,678	128	98,614	5,523,545	56.0
23-24.............	0.001331	98,550	131	98,484	5,424,931	55.0
24-25.............	0.001317	98,418	130	98,354	5,326,447	54.1
25-26.............	0.001290	98,289	127	98,225	5,228,094	53.2
26-27.............	0.001273	98,162	125	98,099	5,129,868	52.3
27-28.............	0.001264	98,037	124	97,975	5,031,769	51.3
28-29.............	0.001271	97,913	124	97,851	4,933,794	50.4
29-30.............	0.001292	97,789	126	97,725	4,835,943	49.5
30-31.............	0.001320	97,662	129	97,598	4,738,218	48.5
31-32.............	0.001350	97,533	132	97,468	4,640,620	47.6
32-33.............	0.001385	97,402	135	97,334	4,543,152	46.6
33-34.............	0.001422	97,267	138	97,198	4,445,818	45.7
34-35.............	0.001466	97,129	142	97,057	4,348,620	44.8
35-36.............	0.001527	96,986	148	96,912	4,251,563	43.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37............	0.001607	96,838	156	96,760	4,154,651	42.9
37-38............	0.001700	96,682	164	96,600	4,057,891	42.0
38-39............	0.001806	96,518	174	96,431	3,961,290	41.0
39-40............	0.001928	96,344	186	96,251	3,864,859	40.1
40-41............	0.002066	96,158	199	96,059	3,768,608	39.2
41-42............	0.002231	95,959	214	95,852	3,672,549	38.3
42-43............	0.002437	95,745	233	95,629	3,576,697	37.4
43-44............	0.002688	95,512	257	95,384	3,481,068	36.4
44-45............	0.002968	95,255	283	95,114	3,385,685	35.5
45-46............	0.003255	94,973	309	94,818	3,290,571	34.6
46-47............	0.003548	94,663	336	94,496	3,195,753	33.8
47-48............	0.003867	94,328	365	94,145	3,101,257	32.9
48-49............	0.004218	93,963	396	93,765	3,007,112	32.0
49-50............	0.004598	93,567	430	93,351	2,913,347	31.1
50-51............	0.004988	93,136	465	92,904	2,819,996	30.3
51-52............	0.005388	92,672	499	92,422	2,727,092	29.4
52-53............	0.005827	92,172	537	91,904	2,634,670	28.6
53-54............	0.006322	91,635	579	91,346	2,542,766	27.7
54-55............	0.006873	91,056	626	90,743	2,451,420	26.9
55-56............	0.007478	90,430	676	90,092	2,360,677	26.1
56-57............	0.008112	89,754	728	89,390	2,270,585	25.3
57-58............	0.008737	89,026	778	88,637	2,181,195	24.5
58-59............	0.009314	88,248	822	87,837	2,092,558	23.7
59-60............	0.009853	87,426	861	86,996	2,004,721	22.9
60-61............	0.010397	86,565	900	86,115	1,917,725	22.2
61-62............	0.010991	85,665	942	85,194	1,831,610	21.4
62-63............	0.011651	84,723	987	84,230	1,746,416	20.6
63-64............	0.012431	83,736	1,041	83,216	1,662,186	19.9
64-65............	0.013362	82,695	1,105	82,143	1,578,971	19.1
65-66............	0.014469	81,590	1,181	81,000	1,496,828	18.3
66-67............	0.015724	80,410	1,264	79,778	1,415,828	17.6
67-68............	0.017093	79,145	1,353	78,469	1,336,050	16.9
68-69............	0.018514	77,793	1,440	77,072	1,257,581	16.2
69-70............	0.020004	76,352	1,527	75,589	1,180,509	15.5
70-71............	0.021663	74,825	1,621	74,014	1,104,920	14.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.023626	73,204	1,729	72,339	1,030,906	14.1
72-73.............	0.025897	71,475	1,851	70,549	958,567	13.4
73-74.............	0.028498	69,624	1,984	68,631	888,018	12.8
74-75.............	0.031388	67,639	2,123	66,578	819,386	12.1
75-76.............	0.034424	65,516	2,255	64,389	752,808	11.5
76-77.............	0.037686	63,261	2,384	62,069	688,419	10.9
77-78.............	0.041469	60,877	2,524	59,615	626,350	10.3
78-79.............	0.045877	58,352	2,677	57,014	566,736	9.7
79-80.............	0.050685	55,675	2,822	54,264	509,722	9.2
80-81.............	0.055895	52,854	2,954	51,376	455,457	8.6
81-82.............	0.061466	49,899	3,067	48,366	404,081	8.1
82-83.............	0.067804	46,832	3,175	45,244	355,715	7.6
83-84.............	0.074849	43,657	3,268	42,023	310,471	7.1
84-85.............	0.083427	40,389	3,370	38,704	268,448	6.6
85-86.............	0.092810	37,020	3,436	35,302	229,743	6.2
86-87.............	0.103052	33,584	3,461	31,853	194,442	5.8
87-88.............	0.114189	30,123	3,440	28,403	162,588	5.4
88-89.............	0.126245	26,683	3,369	24,999	134,185	5.0
89-90.............	0.139236	23,315	3,246	21,691	109,186	4.7
90-91.............	0.153163	20,068	3,074	18,532	87,495	4.4
91-92.............	0.168012	16,995	2,855	15,567	68,963	4.1
92-93.............	0.183753	14,139	2,598	12,840	53,396	3.8
93-94.............	0.200337	11,541	2,312	10,385	40,556	3.5
94-95.............	0.217696	9,229	2,009	8,225	30,171	3.3
95-96.............	0.235743	7,220	1,702	6,369	21,946	3.0
96-97.............	0.254372	5,518	1,404	4,816	15,577	2.8
97-98.............	0.273463	4,114	1,125	3,552	10,761	2.6
98-99.............	0.292879	2,989	875	2,551	7,210	2.4
99-100............	0.312476	2,114	660	1,783	4,658	2.2
100+................	1.000000	1,453	1,453	2,875	2,875	2.0

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A4. Complete Life Tables for non-Hispanic White Females in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1.................	0.006082	100,000	608	99,486	7,943,330	79.4
1-2.................	0.000496	99,392	49	99,367	7,843,844	78.9
2-3.................	0.000382	99,343	38	99,324	7,744,477	78.0
3-4.................	0.000301	99,305	30	99,290	7,645,154	77.0
4-5.................	0.000246	99,275	24	99,262	7,545,864	76.0
5-6.................	0.000210	99,250	21	99,240	7,446,602	75.0
6-7.................	0.000187	99,229	19	99,220	7,347,362	74.0
7-8.................	0.000169	99,211	17	99,202	7,248,142	73.1
8-9.................	0.000154	99,194	15	99,186	7,148,939	72.1
9-10...............	0.000139	99,179	14	99,172	7,049,753	71.1
10-11.............	0.000130	99,165	13	99,159	6,950,581	70.1
11-12.............	0.000136	99,152	14	99,145	6,851,422	69.1
12-13.............	0.000169	99,139	17	99,130	6,752,277	68.1
13-14.............	0.000234	99,122	23	99,110	6,653,147	67.1
14-15.............	0.000319	99,099	32	99,083	6,554,037	66.1
15-16.............	0.000418	99,067	41	99,046	6,454,954	65.2
16-17.............	0.000507	99,026	50	99,001	6,355,907	64.2
17-18.............	0.000564	98,975	56	98,948	6,256,907	63.2
18-19.............	0.000575	98,920	57	98,891	6,157,959	62.3
19-20.............	0.000556	98,863	55	98,835	6,059,068	61.3
20-21.............	0.000531	98,808	52	98,782	5,960,233	60.3
21-22.............	0.000516	98,755	51	98,730	5,861,451	59.4
22-23.............	0.000508	98,704	50	98,679	5,762,722	58.4
23-24.............	0.000511	98,654	50	98,629	5,664,042	57.4
24-25.............	0.000521	98,604	51	98,578	5,565,413	56.4
25-26.............	0.000532	98,552	52	98,526	5,466,835	55.5
26-27.............	0.000542	98,500	53	98,473	5,368,309	54.5
27-28.............	0.000562	98,447	55	98,419	5,269,836	53.5
28-29.............	0.000592	98,391	58	98,362	5,171,417	52.6
29-30.............	0.000630	98,333	62	98,302	5,073,055	51.6
30-31.............	0.000674	98,271	66	98,238	4,974,753	50.6
31-32.............	0.000718	98,205	71	98,170	4,876,515	49.7
32-33.............	0.000762	98,134	75	98,097	4,778,345	48.7
33-34.............	0.000804	98,060	79	98,020	4,680,248	47.7
34-35.............	0.000846	97,981	83	97,939	4,582,228	46.8
35-36.............	0.000894	97,898	88	97,854	4,484,289	45.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000951	97,810	93	97,764	4,386,435	44.8
37-38.............	0.001020	97,717	100	97,668	4,288,671	43.9
38-39.............	0.001101	97,618	107	97,564	4,191,003	42.9
39-40.............	0.001193	97,510	116	97,452	4,093,439	42.0
40-41.............	0.001293	97,394	126	97,331	3,995,987	41.0
41-42.............	0.001401	97,268	136	97,200	3,898,656	40.1
42-43.............	0.001524	97,132	148	97,058	3,801,456	39.1
43-44.............	0.001668	96,984	162	96,903	3,704,399	38.2
44-45.............	0.001838	96,822	178	96,733	3,607,496	37.3
45-46.............	0.002043	96,644	197	96,545	3,510,763	36.3
46-47.............	0.002279	96,447	220	96,337	3,414,218	35.4
47-48.............	0.002529	96,227	243	96,105	3,317,881	34.5
48-49.............	0.002781	95,983	267	95,850	3,221,776	33.6
49-50.............	0.003040	95,716	291	95,571	3,125,926	32.7
50-51.............	0.003338	95,426	319	95,266	3,030,355	31.8
51-52.............	0.003691	95,107	351	94,931	2,935,089	30.9
52-53.............	0.004074	94,756	386	94,563	2,840,157	30.0
53-54.............	0.004479	94,370	423	94,159	2,745,594	29.1
54-55.............	0.004910	93,947	461	93,717	2,651,436	28.2
55-56.............	0.005372	93,486	502	93,235	2,557,719	27.4
56-57.............	0.005887	92,984	547	92,710	2,464,484	26.5
57-58.............	0.006473	92,436	598	92,137	2,371,774	25.7
58-59.............	0.007137	91,838	655	91,510	2,279,637	24.8
59-60.............	0.007860	91,183	717	90,824	2,188,127	24.0
60-61.............	0.008599	90,466	778	90,077	2,097,302	23.2
61-62.............	0.009362	89,688	840	89,268	2,007,225	22.4
62-63.............	0.010189	88,848	905	88,396	1,917,957	21.6
63-64.............	0.011090	87,943	975	87,456	1,829,561	20.8
64-65.............	0.012051	86,968	1,048	86,444	1,742,106	20.0
65-66.............	0.013033	85,920	1,120	85,360	1,655,662	19.3
66-67.............	0.014042	84,800	1,191	84,205	1,570,302	18.5
67-68.............	0.015158	83,609	1,267	82,976	1,486,097	17.8
68-69.............	0.016469	82,342	1,356	81,664	1,403,121	17.0
69-70.............	0.018035	80,986	1,461	80,256	1,321,457	16.3
70-71.............	0.019856	79,525	1,579	78,736	1,241,202	15.6

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.021907	77,946	1,708	77,093	1,162,466	14.9
72-73.............	0.024185	76,239	1,844	75,317	1,085,373	14.2
73-74.............	0.026576	74,395	1,977	73,406	1,010,056	13.6
74-75.............	0.029030	72,418	2,102	71,367	936,650	12.9
75-76.............	0.031568	70,316	2,220	69,206	865,283	12.3
76-77.............	0.034172	68,096	2,327	66,932	796,077	11.7
77-78.............	0.037133	65,769	2,442	64,548	729,145	11.1
78-79.............	0.040658	63,327	2,575	62,039	664,597	10.5
79-80.............	0.044795	60,752	2,721	59,391	602,558	9.9
80-81.............	0.049423	58,031	2,868	56,597	543,166	9.4
81-82.............	0.054368	55,163	2,999	53,663	486,570	8.8
82-83.............	0.060136	52,164	3,137	50,595	432,907	8.3
83-84.............	0.066404	49,027	3,256	47,399	382,312	7.8
84-85.............	0.073283	45,771	3,354	44,094	334,913	7.3
85-86.............	0.081178	42,417	3,443	40,695	290,819	6.9
86-87.............	0.090180	38,973	3,515	37,216	250,124	6.4
87-88.............	0.099845	35,459	3,540	33,689	212,908	6.0
88-89.............	0.109986	31,919	3,511	30,163	179,219	5.6
89-90.............	0.120868	28,408	3,434	26,691	149,056	5.2
90-91.............	0.133437	24,974	3,333	23,308	122,365	4.9
91-92.............	0.147676	21,642	3,196	20,044	99,057	4.6
92-93.............	0.162323	18,446	2,994	16,949	79,013	4.3
93-94.............	0.176598	15,452	2,729	14,087	62,064	4.0
94-95.............	0.190850	12,723	2,428	11,509	47,977	3.8
95-96.............	0.205738	10,295	2,118	9,236	36,468	3.5
96-97.............	0.221652	8,177	1,812	7,271	27,232	3.3
97-98.............	0.237208	6,364	1,510	5,610	19,962	3.1
98-99.............	0.252474	4,855	1,226	4,242	14,352	3.0
99-100............	0.267564	3,629	971	3,143	10,110	2.8
100+...............	1.000000	2,658	2,658	6,967	6,967	2.6

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A5. Complete Life Tables for non-Hispanic White Females in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.004744	100,000	474	99,590	8,016,606	80.2
1-2..................	0.000396	99,526	39	99,506	7,917,016	79.5
2-3..................	0.000292	99,486	29	99,472	7,817,510	78.6
3-4..................	0.000226	99,457	22	99,446	7,718,038	77.6
4-5..................	0.000187	99,435	19	99,425	7,618,592	76.6
5-6..................	0.000166	99,416	16	99,408	7,519,166	75.6
6-7..................	0.000153	99,400	15	99,392	7,419,759	74.6
7-8..................	0.000143	99,384	14	99,377	7,320,367	73.7
8-9..................	0.000130	99,370	13	99,364	7,220,989	72.7
9-10................	0.000115	99,357	11	99,352	7,121,625	71.7
10-11.............	0.000102	99,346	10	99,341	7,022,274	70.7
11-12.............	0.000102	99,336	10	99,331	6,922,933	69.7
12-13.............	0.000123	99,326	12	99,320	6,823,602	68.7
13-14.............	0.000173	99,313	17	99,305	6,724,283	67.7
14-15.............	0.000242	99,296	24	99,284	6,624,978	66.7
15-16.............	0.000323	99,272	32	99,256	6,525,693	65.7
16-17.............	0.000397	99,240	39	99,221	6,426,437	64.8
17-18.............	0.000450	99,201	45	99,179	6,327,216	63.8
18-19.............	0.000469	99,156	46	99,133	6,228,038	62.8
19-20.............	0.000462	99,110	46	99,087	6,128,905	61.8
20-21.............	0.000450	99,064	45	99,042	6,029,818	60.9
21-22.............	0.000445	99,019	44	98,997	5,930,776	59.9
22-23.............	0.000442	98,975	44	98,953	5,831,779	58.9
23-24.............	0.000445	98,932	44	98,910	5,732,826	57.9
24-25.............	0.000454	98,888	45	98,865	5,633,916	57.0
25-26.............	0.000465	98,843	46	98,820	5,535,051	56.0
26-27.............	0.000478	98,797	47	98,773	5,436,231	55.0
27-28.............	0.000497	98,750	49	98,725	5,337,458	54.1
28-29.............	0.000523	98,700	52	98,675	5,238,733	53.1
29-30.............	0.000557	98,649	55	98,621	5,140,059	52.1
30-31.............	0.000596	98,594	59	98,564	5,041,437	51.1
31-32.............	0.000642	98,535	63	98,503	4,942,873	50.2
32-33.............	0.000695	98,472	68	98,438	4,844,369	49.2
33-34.............	0.000752	98,403	74	98,366	4,745,932	48.2
34-35.............	0.000814	98,329	80	98,289	4,647,565	47.3
35-36.............	0.000875	98,249	86	98,206	4,549,276	46.3

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000942	98,163	92	98,117	4,451,069	45.3
37-38.............	0.001022	98,071	100	98,021	4,352,952	44.4
38-39.............	0.001119	97,971	110	97,916	4,254,931	43.4
39-40.............	0.001231	97,861	120	97,801	4,157,015	42.5
40-41.............	0.001354	97,741	132	97,675	4,059,214	41.5
41-42.............	0.001479	97,608	144	97,536	3,961,540	40.6
42-43.............	0.001605	97,464	156	97,386	3,864,004	39.6
43-44.............	0.001732	97,308	169	97,223	3,766,618	38.7
44-45.............	0.001863	97,139	181	97,049	3,669,395	37.8
45-46.............	0.002006	96,958	195	96,861	3,572,346	36.8
46-47.............	0.002167	96,764	210	96,659	3,475,485	35.9
47-48.............	0.002344	96,554	226	96,441	3,378,827	35.0
48-49.............	0.002536	96,328	244	96,205	3,282,386	34.1
49-50.............	0.002743	96,083	264	95,951	3,186,180	33.2
50-51.............	0.002963	95,820	284	95,678	3,090,229	32.3
51-52.............	0.003203	95,536	306	95,383	2,994,551	31.3
52-53.............	0.003475	95,230	331	95,064	2,899,169	30.4
53-54.............	0.003795	94,899	360	94,719	2,804,104	29.5
54-55.............	0.004175	94,539	395	94,341	2,709,385	28.7
55-56.............	0.004633	94,144	436	93,926	2,615,044	27.8
56-57.............	0.005154	93,708	483	93,466	2,521,118	26.9
57-58.............	0.005715	93,225	533	92,959	2,427,652	26.0
58-59.............	0.006288	92,692	583	92,401	2,334,693	25.2
59-60.............	0.006881	92,109	634	91,792	2,242,293	24.3
60-61.............	0.007555	91,475	691	91,130	2,150,500	23.5
61-62.............	0.008343	90,784	757	90,406	2,059,370	22.7
62-63.............	0.009190	90,027	827	89,613	1,968,965	21.9
63-64.............	0.010077	89,200	899	88,750	1,879,352	21.1
64-65.............	0.011008	88,301	972	87,815	1,790,601	20.3
65-66.............	0.012014	87,329	1,049	86,804	1,702,787	19.5
66-67.............	0.013129	86,280	1,133	85,713	1,615,983	18.7
67-68.............	0.014356	85,147	1,222	84,536	1,530,269	18.0
68-69.............	0.015702	83,924	1,318	83,265	1,445,734	17.2
69-70.............	0.017163	82,607	1,418	81,898	1,362,468	16.5
70-71.............	0.018631	81,189	1,513	80,432	1,280,571	15.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.020206	79,676	1,610	78,871	1,200,138	15.1
72-73.............	0.022102	78,066	1,725	77,203	1,121,267	14.4
73-74.............	0.024415	76,341	1,864	75,409	1,044,064	13.7
74-75.............	0.027062	74,477	2,015	73,469	968,655	13.0
75-76.............	0.029813	72,461	2,160	71,381	895,186	12.4
76-77.............	0.032683	70,301	2,298	69,152	823,804	11.7
77-78.............	0.036024	68,003	2,450	66,779	754,652	11.1
78-79.............	0.039980	65,554	2,621	64,243	687,873	10.5
79-80.............	0.044542	62,933	2,803	61,531	623,630	9.9
80-81.............	0.049581	60,130	2,981	58,639	562,099	9.3
81-82.............	0.054995	57,148	3,143	55,577	503,460	8.8
82-83.............	0.060793	54,006	3,283	52,364	447,883	8.3
83-84.............	0.067158	50,722	3,406	49,019	395,519	7.8
84-85.............	0.074138	47,316	3,508	45,562	346,499	7.3
85-86.............	0.081778	43,808	3,583	42,017	300,937	6.9
86-87.............	0.090130	40,226	3,626	38,413	258,921	6.4
87-88.............	0.099243	36,600	3,632	34,784	220,508	6.0
88-89.............	0.109166	32,968	3,599	31,168	185,724	5.6
89-90.............	0.119949	29,369	3,523	27,607	154,556	5.3
90-91.............	0.131640	25,846	3,402	24,145	126,948	4.9
91-92.............	0.144284	22,444	3,238	20,825	102,803	4.6
92-93.............	0.157921	19,205	3,033	17,689	81,979	4.3
93-94.............	0.172588	16,172	2,791	14,777	64,290	4.0
94-95.............	0.188312	13,381	2,520	12,121	49,513	3.7
95-96.............	0.205113	10,861	2,228	9,748	37,392	3.4
96-97.............	0.223002	8,634	1,925	7,671	27,644	3.2
97-98.............	0.241975	6,708	1,623	5,897	19,973	3.0
98-99.............	0.262019	5,085	1,332	4,419	14,076	2.8
99-100............	0.283102	3,753	1,062	3,221	9,658	2.6
100+...............	1.000000	2,690	2,690	6,436	6,436	2.4

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A6. Complete Life Tables for non-Hispanic White Females in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.004315	100,000	432	99,621	8,161,483	81.6
1-2..................	0.000315	99,568	31	99,553	8,061,862	81.0
2-3..................	0.000246	99,537	25	99,525	7,962,309	80.0
3-4..................	0.000193	99,513	19	99,503	7,862,784	79.0
4-5..................	0.000153	99,493	15	99,486	7,763,281	78.0
5-6..................	0.000124	99,478	12	99,472	7,663,796	77.0
6-7..................	0.000103	99,466	10	99,461	7,564,324	76.0
7-8..................	0.000089	99,456	9	99,451	7,464,863	75.1
8-9..................	0.000080	99,447	8	99,443	7,365,412	74.1
9-10................	0.000075	99,439	7	99,435	7,265,969	73.1
10-11..............	0.000076	99,431	8	99,427	7,166,534	72.1
11-12..............	0.000085	99,424	8	99,419	7,067,107	71.1
12-13..............	0.000105	99,415	10	99,410	6,967,687	70.1
13-14..............	0.000136	99,405	14	99,398	6,868,277	69.1
14-15..............	0.000176	99,391	17	99,383	6,768,879	68.1
15-16..............	0.000218	99,374	22	99,363	6,669,497	67.1
16-17..............	0.000261	99,352	26	99,339	6,570,134	66.1
17-18..............	0.000303	99,326	30	99,311	6,470,794	65.1
18-19..............	0.000343	99,296	34	99,279	6,371,483	64.2
19-20..............	0.000380	99,262	38	99,243	6,272,204	63.2
20-21..............	0.000420	99,224	42	99,204	6,172,961	62.2
21-22..............	0.000458	99,183	45	99,160	6,073,757	61.2
22-23..............	0.000486	99,137	48	99,113	5,974,597	60.3
23-24..............	0.000500	99,089	50	99,064	5,875,484	59.3
24-25..............	0.000506	99,040	50	99,014	5,776,419	58.3
25-26..............	0.000509	98,989	50	98,964	5,677,405	57.4
26-27..............	0.000517	98,939	51	98,914	5,578,441	56.4
27-28..............	0.000534	98,888	53	98,862	5,479,527	55.4
28-29..............	0.000564	98,835	56	98,807	5,380,666	54.4
29-30..............	0.000607	98,779	60	98,749	5,281,858	53.5
30-31..............	0.000661	98,719	65	98,687	5,183,109	52.5
31-32..............	0.000718	98,654	71	98,619	5,084,422	51.5
32-33..............	0.000772	98,583	76	98,545	4,985,803	50.6
33-34..............	0.000814	98,507	80	98,467	4,887,258	49.6
34-35..............	0.000852	98,427	84	98,385	4,788,790	48.7
35-36..............	0.000896	98,343	88	98,299	4,690,405	47.7

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000955	98,255	94	98,208	4,592,106	46.7
37-38.............	0.001030	98,161	101	98,111	4,493,898	45.8
38-39.............	0.001125	98,060	110	98,005	4,395,787	44.8
39-40.............	0.001235	97,950	121	97,889	4,297,782	43.9
40-41.............	0.001358	97,829	133	97,762	4,199,893	42.9
41-42.............	0.001490	97,696	146	97,623	4,102,130	42.0
42-43.............	0.001630	97,550	159	97,471	4,004,507	41.1
43-44.............	0.001775	97,391	173	97,305	3,907,036	40.1
44-45.............	0.001924	97,219	187	97,125	3,809,731	39.2
45-46.............	0.002067	97,031	201	96,931	3,712,606	38.3
46-47.............	0.002219	96,831	215	96,723	3,615,675	37.3
47-48.............	0.002404	96,616	232	96,500	3,518,952	36.4
48-49.............	0.002631	96,384	254	96,257	3,422,452	35.5
49-50.............	0.002892	96,130	278	95,991	3,326,195	34.6
50-51.............	0.003173	95,852	304	95,700	3,230,204	33.7
51-52.............	0.003449	95,548	330	95,383	3,134,504	32.8
52-53.............	0.003709	95,219	353	95,042	3,039,120	31.9
53-54.............	0.003945	94,865	374	94,678	2,944,078	31.0
54-55.............	0.004173	94,491	394	94,294	2,849,400	30.2
55-56.............	0.004412	94,097	415	93,889	2,755,106	29.3
56-57.............	0.004687	93,682	439	93,462	2,661,217	28.4
57-58.............	0.005014	93,243	468	93,009	2,567,755	27.5
58-59.............	0.005404	92,775	501	92,524	2,474,746	26.7
59-60.............	0.005846	92,274	539	92,004	2,382,221	25.8
60-61.............	0.006325	91,734	580	91,444	2,290,218	25.0
61-62.............	0.006829	91,154	623	90,843	2,198,773	24.1
62-63.............	0.007365	90,532	667	90,198	2,107,931	23.3
63-64.............	0.007950	89,865	714	89,508	2,017,733	22.5
64-65.............	0.008612	89,150	768	88,766	1,928,225	21.6
65-66.............	0.009403	88,383	831	87,967	1,839,459	20.8
66-67.............	0.010324	87,552	904	87,100	1,751,492	20.0
67-68.............	0.011330	86,648	982	86,157	1,664,392	19.2
68-69.............	0.012387	85,666	1,061	85,135	1,578,235	18.4
69-70.............	0.013515	84,605	1,143	84,033	1,493,100	17.6
70-71.............	0.014807	83,461	1,236	82,843	1,409,067	16.9

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.016351	82,226	1,344	81,553	1,326,223	16.1
72-73.............	0.018129	80,881	1,466	80,148	1,244,670	15.4
73-74.............	0.020142	79,415	1,600	78,615	1,164,522	14.7
74-75.............	0.022380	77,815	1,741	76,944	1,085,907	14.0
75-76.............	0.024788	76,074	1,886	75,131	1,008,963	13.3
76-77.............	0.027383	74,188	2,031	73,172	933,832	12.6
77-78.............	0.030308	72,157	2,187	71,063	860,659	11.9
78-79.............	0.033612	69,970	2,352	68,794	789,596	11.3
79-80.............	0.037193	67,618	2,515	66,360	720,803	10.7
80-81.............	0.040823	65,103	2,658	63,774	654,442	10.1
81-82.............	0.044746	62,445	2,794	61,048	590,668	9.5
82-83.............	0.049835	59,651	2,973	58,165	529,620	8.9
83-84.............	0.055815	56,678	3,164	55,097	471,455	8.3
84-85.............	0.062468	53,515	3,343	51,843	416,358	7.8
85-86.............	0.070501	50,172	3,537	48,403	364,515	7.3
86-87.............	0.078972	46,635	3,683	44,793	316,112	6.8
87-88.............	0.088305	42,952	3,793	41,055	271,318	6.3
88-89.............	0.098548	39,159	3,859	37,230	230,263	5.9
89-90.............	0.109744	35,300	3,874	33,363	193,033	5.5
90-91.............	0.121928	31,426	3,832	29,510	159,670	5.1
91-92.............	0.135122	27,594	3,729	25,730	130,160	4.7
92-93.............	0.149334	23,866	3,564	22,084	104,430	4.4
93-94.............	0.164556	20,302	3,341	18,631	82,346	4.1
94-95.............	0.180760	16,961	3,066	15,428	63,715	3.8
95-96.............	0.197898	13,895	2,750	12,520	48,287	3.5
96-97.............	0.215898	11,145	2,406	9,942	35,767	3.2
97-98.............	0.234667	8,739	2,051	7,714	25,824	3.0
98-99.............	0.254091	6,688	1,699	5,839	18,111	2.7
99-100............	0.274036	4,989	1,367	4,305	12,272	2.5
100+...............	1.000000	3,622	3,622	7,967	7,967	2.2

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A7. Complete Life Tables for non-Hispanic Black Males in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1..................	0.016539	100,000	1,654	98,604	6,516,854	65.2
1-2..................	0.001085	98,346	107	98,293	6,418,250	65.3
2-3..................	0.000787	98,239	77	98,201	6,319,957	64.3
3-4..................	0.000598	98,162	59	98,133	6,221,756	63.4
4-5..................	0.000495	98,103	49	98,079	6,123,623	62.4
5-6..................	0.000446	98,055	44	98,033	6,025,544	61.5
6-7..................	0.000420	98,011	41	97,991	5,927,511	60.5
7-8..................	0.000386	97,970	38	97,951	5,829,521	59.5
8-9..................	0.000324	97,932	32	97,916	5,731,570	58.5
9-10................	0.000235	97,900	23	97,889	5,633,653	57.5
10-11..............	0.000156	97,877	15	97,870	5,535,765	56.6
11-12..............	0.000149	97,862	15	97,855	5,437,895	55.6
12-13..............	0.000294	97,848	29	97,833	5,340,040	54.6
13-14..............	0.000633	97,819	62	97,788	5,242,207	53.6
14-15..............	0.001107	97,757	108	97,703	5,144,419	52.6
15-16..............	0.001630	97,649	159	97,569	5,046,716	51.7
16-17..............	0.002112	97,489	206	97,387	4,949,147	50.8
17-18..............	0.002515	97,284	245	97,161	4,851,760	49.9
18-19..............	0.002800	97,039	272	96,903	4,754,599	49.0
19-20..............	0.002991	96,767	289	96,623	4,657,696	48.1
20-21..............	0.003170	96,478	306	96,325	4,561,074	47.3
21-22..............	0.003350	96,172	322	96,011	4,464,749	46.4
22-23..............	0.003466	95,850	332	95,684	4,368,738	45.6
23-24..............	0.003508	95,518	335	95,350	4,273,054	44.7
24-25..............	0.003504	95,182	333	95,016	4,177,704	43.9
25-26..............	0.003469	94,849	329	94,684	4,082,689	43.0
26-27..............	0.003452	94,520	326	94,357	3,988,004	42.2
27-28..............	0.003496	94,194	329	94,029	3,893,647	41.3
28-29..............	0.003628	93,864	341	93,694	3,799,619	40.5
29-30..............	0.003828	93,524	358	93,345	3,705,925	39.6
30-31..............	0.004048	93,166	377	92,977	3,612,580	38.8
31-32..............	0.004257	92,789	395	92,591	3,519,603	37.9
32-33..............	0.004472	92,394	413	92,187	3,427,011	37.1
33-34..............	0.004686	91,981	431	91,765	3,334,824	36.3
34-35..............	0.004905	91,550	449	91,325	3,243,059	35.4
35-36..............	0.005151	91,101	469	90,866	3,151,734	34.6

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.005422	90,631	491	90,386	3,060,868	33.8
37-38.............	0.005688	90,140	513	89,884	2,970,483	33.0
38-39.............	0.005935	89,627	532	89,361	2,880,599	32.1
39-40.............	0.006174	89,095	550	88,820	2,791,238	31.3
40-41.............	0.006435	88,545	570	88,260	2,702,418	30.5
41-42.............	0.006740	87,975	593	87,679	2,614,158	29.7
42-43.............	0.007081	87,382	619	87,073	2,526,479	28.9
43-44.............	0.007465	86,764	648	86,440	2,439,406	28.1
44-45.............	0.007903	86,116	681	85,776	2,352,966	27.3
45-46.............	0.008406	85,435	718	85,076	2,267,190	26.5
46-47.............	0.008991	84,717	762	84,336	2,182,114	25.8
47-48.............	0.009662	83,956	811	83,550	2,097,777	25.0
48-49.............	0.010411	83,144	866	82,712	2,014,227	24.2
49-50.............	0.011223	82,279	923	81,817	1,931,515	23.5
50-51.............	0.012081	81,355	983	80,864	1,849,698	22.7
51-52.............	0.013015	80,373	1,046	79,850	1,768,834	22.0
52-53.............	0.014066	79,327	1,116	78,769	1,688,985	21.3
53-54.............	0.015275	78,211	1,195	77,613	1,610,216	20.6
54-55.............	0.016632	77,016	1,281	76,376	1,532,603	19.9
55-56.............	0.018076	75,735	1,369	75,051	1,456,227	19.2
56-57.............	0.019572	74,366	1,456	73,638	1,381,176	18.6
57-58.............	0.021167	72,911	1,543	72,139	1,307,538	17.9
58-59.............	0.022876	71,367	1,633	70,551	1,235,399	17.3
59-60.............	0.024698	69,735	1,722	68,874	1,164,848	16.7
60-61.............	0.026602	68,012	1,809	67,108	1,095,974	16.1
61-62.............	0.028581	66,203	1,892	65,257	1,028,866	15.5
62-63.............	0.030653	64,311	1,971	63,325	963,609	15.0
63-64.............	0.032789	62,340	2,044	61,318	900,283	14.4
64-65.............	0.034953	60,296	2,108	59,242	838,966	13.9
65-66.............	0.037146	58,188	2,161	57,108	779,724	13.4
66-67.............	0.039353	56,027	2,205	54,924	722,616	12.9
67-68.............	0.041599	53,822	2,239	52,703	667,692	12.4
68-69.............	0.043988	51,583	2,269	50,449	614,989	11.9
69-70.............	0.046641	49,314	2,300	48,164	564,541	11.4
70-71.............	0.049622	47,014	2,333	45,847	516,377	11.0

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
71-72.............	0.052934	44,681	2,365	43,498	470,529	10.5
72-73.............	0.056537	42,316	2,392	41,120	427,031	10.1
73-74.............	0.060202	39,923	2,403	38,722	385,911	9.7
74-75.............	0.063781	37,520	2,393	36,323	347,189	9.3
75-76.............	0.067324	35,127	2,365	33,944	310,866	8.8
76-77.............	0.071244	32,762	2,334	31,595	276,922	8.5
77-78.............	0.075464	30,428	2,296	29,280	245,327	8.1
78-79.............	0.080431	28,132	2,263	27,000	216,047	7.7
79-80.............	0.086423	25,869	2,236	24,751	189,046	7.3
80-81.............	0.093745	23,633	2,215	22,526	164,295	7.0
81-82.............	0.102003	21,418	2,185	20,326	141,770	6.6
82-83.............	0.109976	19,233	2,115	18,176	121,444	6.3
83-84.............	0.116644	17,118	1,997	16,120	103,269	6.0
84-85.............	0.121684	15,121	1,840	14,201	87,149	5.8
85-86.............	0.126407	13,281	1,679	12,442	72,948	5.5
86-87.............	0.132367	11,602	1,536	10,835	60,506	5.2
87-88.............	0.139787	10,067	1,407	9,363	49,671	4.9
88-89.............	0.149624	8,659	1,296	8,012	40,308	4.7
89-90.............	0.161951	7,364	1,193	6,768	32,297	4.4
90-91.............	0.176367	6,171	1,088	5,627	25,529	4.1
91-92.............	0.191783	5,083	975	4,595	19,902	3.9
92-93.............	0.206637	4,108	849	3,684	15,307	3.7
93-94.............	0.217827	3,259	710	2,904	11,623	3.6
94-95.............	0.225111	2,549	574	2,262	8,719	3.4
95-96.............	0.232955	1,975	460	1,745	6,457	3.3
96-97.............	0.244905	1,515	371	1,330	4,711	3.1
97-98.............	0.257458	1,144	295	997	3,382	3.0
98-99.............	0.270635	850	230	735	2,385	2.8
99-100............	0.284466	620	176	532	1,650	2.7
100+...............	1.000000	443	443	1,119	1,119	2.5

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A8. Complete Life Tables for non-Hispanic Black Males in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.012412	100,000	1,241	98,916	6,915,918	69.2
1-2..................	0.000783	98,759	77	98,720	6,817,001	69.0
2-3..................	0.000565	98,681	56	98,654	6,718,281	68.1
3-4..................	0.000434	98,626	43	98,604	6,619,628	67.1
4-5..................	0.000360	98,583	36	98,565	6,521,023	66.1
5-6..................	0.000322	98,547	32	98,532	6,422,458	65.2
6-7..................	0.000298	98,516	29	98,501	6,323,926	64.2
7-8..................	0.000276	98,486	27	98,473	6,225,425	63.2
8-9..................	0.000244	98,459	24	98,447	6,126,953	62.2
9-10................	0.000206	98,435	20	98,425	6,028,505	61.2
10-11..............	0.000174	98,415	17	98,406	5,930,080	60.3
11-12..............	0.000175	98,398	17	98,389	5,831,674	59.3
12-13..............	0.000240	98,381	24	98,369	5,733,285	58.3
13-14..............	0.000388	98,357	38	98,338	5,634,916	57.3
14-15..............	0.000602	98,319	59	98,289	5,536,578	56.3
15-16..............	0.000845	98,260	83	98,218	5,438,289	55.3
16-17..............	0.001085	98,177	107	98,123	5,340,071	54.4
17-18..............	0.001319	98,070	129	98,005	5,241,947	53.5
18-19..............	0.001530	97,941	150	97,866	5,143,942	52.5
19-20..............	0.001720	97,791	168	97,707	5,046,076	51.6
20-21..............	0.001927	97,623	188	97,529	4,948,369	50.7
21-22..............	0.002135	97,435	208	97,331	4,850,841	49.8
22-23..............	0.002279	97,227	222	97,116	4,753,510	48.9
23-24..............	0.002329	97,005	226	96,892	4,656,394	48.0
24-25..............	0.002305	96,779	223	96,668	4,559,502	47.1
25-26..............	0.002256	96,556	218	96,447	4,462,835	46.2
26-27..............	0.002218	96,338	214	96,231	4,366,388	45.3
27-28..............	0.002193	96,124	211	96,019	4,270,156	44.4
28-29..............	0.002196	95,914	211	95,808	4,174,137	43.5
29-30..............	0.002225	95,703	213	95,596	4,078,329	42.6
30-31..............	0.002263	95,490	216	95,382	3,982,733	41.7
31-32..............	0.002308	95,274	220	95,164	3,887,351	40.8
32-33..............	0.002381	95,054	226	94,941	3,792,187	39.9
33-34..............	0.002483	94,828	235	94,710	3,697,246	39.0
34-35..............	0.002613	94,592	247	94,469	3,602,536	38.1
35-36..............	0.002751	94,345	260	94,215	3,508,067	37.2

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.002908	94,086	274	93,949	3,413,852	36.3
37-38.............	0.003115	93,812	292	93,666	3,319,903	35.4
38-39.............	0.003387	93,520	317	93,361	3,226,237	34.5
39-40.............	0.003717	93,203	346	93,030	3,132,876	33.6
40-41.............	0.004075	92,857	378	92,667	3,039,846	32.7
41-42.............	0.004449	92,478	411	92,272	2,947,178	31.9
42-43.............	0.004864	92,067	448	91,843	2,854,906	31.0
43-44.............	0.005330	91,619	488	91,375	2,763,063	30.2
44-45.............	0.005856	91,131	534	90,864	2,671,688	29.3
45-46.............	0.006458	90,597	585	90,304	2,580,824	28.5
46-47.............	0.007118	90,012	641	89,692	2,490,520	27.7
47-48.............	0.007787	89,371	696	89,023	2,400,828	26.9
48-49.............	0.008423	88,675	747	88,302	2,311,805	26.1
49-50.............	0.009033	87,928	794	87,531	2,223,503	25.3
50-51.............	0.009670	87,134	843	86,713	2,135,972	24.5
51-52.............	0.010385	86,292	896	85,844	2,049,259	23.7
52-53.............	0.011182	85,395	955	84,918	1,963,415	23.0
53-54.............	0.012104	84,441	1,022	83,930	1,878,497	22.2
54-55.............	0.013173	83,419	1,099	82,869	1,794,568	21.5
55-56.............	0.014429	82,320	1,188	81,726	1,711,699	20.8
56-57.............	0.015826	81,132	1,284	80,490	1,629,973	20.1
57-58.............	0.017230	79,848	1,376	79,160	1,549,483	19.4
58-59.............	0.018469	78,472	1,449	77,747	1,470,323	18.7
59-60.............	0.019529	77,023	1,504	76,271	1,392,576	18.1
60-61.............	0.020508	75,519	1,549	74,744	1,316,305	17.4
61-62.............	0.021598	73,970	1,598	73,171	1,241,561	16.8
62-63.............	0.022895	72,372	1,657	71,544	1,168,389	16.1
63-64.............	0.024549	70,715	1,736	69,847	1,096,846	15.5
64-65.............	0.026548	68,979	1,831	68,064	1,026,998	14.9
65-66.............	0.028672	67,148	1,925	66,185	958,935	14.3
66-67.............	0.030837	65,223	2,011	64,217	892,749	13.7
67-68.............	0.033285	63,212	2,104	62,160	828,532	13.1
68-69.............	0.036124	61,108	2,207	60,004	766,372	12.5
69-70.............	0.039374	58,900	2,319	57,741	706,368	12.0
70-71.............	0.043002	56,581	2,433	55,364	648,628	11.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.046891	54,148	2,539	52,878	593,263	11.0
72-73.............	0.050917	51,609	2,628	50,295	540,385	10.5
73-74.............	0.054851	48,981	2,687	47,638	490,090	10.0
74-75.............	0.058633	46,294	2,714	44,937	442,452	9.6
75-76.............	0.062452	43,580	2,722	42,219	397,515	9.1
76-77.............	0.066497	40,858	2,717	39,500	355,295	8.7
77-78.............	0.070963	38,141	2,707	36,788	315,795	8.3
78-79.............	0.076081	35,435	2,696	34,087	279,007	7.9
79-80.............	0.081934	32,739	2,682	31,398	244,920	7.5
80-81.............	0.088439	30,057	2,658	28,727	213,523	7.1
81-82.............	0.095399	27,398	2,614	26,091	184,795	6.7
82-83.............	0.102309	24,785	2,536	23,517	158,704	6.4
83-84.............	0.109659	22,249	2,440	21,029	135,187	6.1
84-85.............	0.117469	19,809	2,327	18,646	114,158	5.8
85-86.............	0.125755	17,482	2,198	16,383	95,512	5.5
86-87.............	0.134537	15,284	2,056	14,256	79,129	5.2
87-88.............	0.143832	13,227	1,903	12,276	64,874	4.9
88-89.............	0.153654	11,325	1,740	10,455	52,598	4.6
89-90.............	0.164019	9,585	1,572	8,799	42,143	4.4
90-91.............	0.174939	8,013	1,402	7,312	33,344	4.2
91-92.............	0.186424	6,611	1,232	5,995	26,032	3.9
92-93.............	0.198481	5,379	1,068	4,845	20,037	3.7
93-94.............	0.211116	4,311	910	3,856	15,193	3.5
94-95.............	0.224329	3,401	763	3,019	11,337	3.3
95-96.............	0.238120	2,638	628	2,324	8,317	3.2
96-97.............	0.252484	2,010	507	1,756	5,993	3.0
97-98.............	0.267409	1,502	402	1,301	4,237	2.8
98-99.............	0.282883	1,101	311	945	2,936	2.7
99-100.............	0.298887	789	236	671	1,991	2.5
100+...............	1.000000	553	553	1,319	1,319	2.4

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A9. Complete Life Tables for non-Hispanic Black Males in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1..................	0.011375	100,000	1,137	99,028	7,227,135	72.3
1-2..................	0.000662	98,863	65	98,830	7,128,107	72.1
2-3..................	0.000498	98,797	49	98,773	7,029,277	71.1
3-4..................	0.000382	98,748	38	98,729	6,930,505	70.2
4-5..................	0.000307	98,710	30	98,695	6,831,776	69.2
5-6..................	0.000261	98,680	26	98,667	6,733,081	68.2
6-7..................	0.000228	98,654	22	98,643	6,634,414	67.2
7-8..................	0.000197	98,632	19	98,622	6,535,771	66.3
8-9..................	0.000160	98,612	16	98,604	6,437,149	65.3
9-10................	0.000119	98,596	12	98,591	6,338,544	64.3
10-11..............	0.000087	98,585	9	98,581	6,239,954	63.3
11-12..............	0.000088	98,576	9	98,572	6,141,373	62.3
12-13..............	0.000150	98,568	15	98,560	6,042,801	61.3
13-14..............	0.000282	98,553	28	98,539	5,944,241	60.3
14-15..............	0.000458	98,525	45	98,502	5,845,702	59.3
15-16..............	0.000640	98,480	63	98,448	5,747,200	58.4
16-17..............	0.000807	98,417	79	98,377	5,648,751	57.4
17-18..............	0.000974	98,337	96	98,290	5,550,374	56.4
18-19..............	0.001144	98,242	112	98,186	5,452,084	55.5
19-20..............	0.001319	98,129	129	98,065	5,353,899	54.6
20-21..............	0.001514	98,000	148	97,926	5,255,834	53.6
21-22..............	0.001705	97,852	167	97,768	5,157,908	52.7
22-23..............	0.001849	97,685	181	97,594	5,060,140	51.8
23-24..............	0.001918	97,504	187	97,411	4,962,546	50.9
24-25..............	0.001927	97,317	188	97,223	4,865,135	50.0
25-26..............	0.001914	97,130	186	97,037	4,767,912	49.1
26-27..............	0.001911	96,944	185	96,851	4,670,875	48.2
27-28..............	0.001919	96,758	186	96,666	4,574,024	47.3
28-29..............	0.001950	96,573	188	96,479	4,477,359	46.4
29-30..............	0.002000	96,384	193	96,288	4,380,880	45.5
30-31..............	0.002060	96,192	198	96,093	4,284,592	44.5
31-32..............	0.002115	95,994	203	95,892	4,188,499	43.6
32-33..............	0.002159	95,791	207	95,687	4,092,607	42.7
33-34..............	0.002186	95,584	209	95,479	3,996,920	41.8
34-35..............	0.002208	95,375	211	95,270	3,901,441	40.9
35-36..............	0.002239	95,164	213	95,058	3,806,171	40.0

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.002298	94,951	218	94,842	3,711,113	39.1
37-38.............	0.002399	94,733	227	94,619	3,616,271	38.2
38-39.............	0.002552	94,506	241	94,385	3,521,652	37.3
39-40.............	0.002752	94,265	259	94,135	3,427,267	36.4
40-41.............	0.002980	94,005	280	93,865	3,333,132	35.5
41-42.............	0.003232	93,725	303	93,574	3,239,267	34.6
42-43.............	0.003514	93,422	328	93,258	3,145,693	33.7
43-44.............	0.003823	93,094	356	92,916	3,052,435	32.8
44-45.............	0.004155	92,738	385	92,545	2,959,519	31.9
45-46.............	0.004498	92,353	415	92,145	2,866,974	31.0
46-47.............	0.004868	91,937	448	91,713	2,774,829	30.2
47-48.............	0.005300	91,490	485	91,247	2,683,116	29.3
48-49.............	0.005817	91,005	529	90,740	2,591,868	28.5
49-50.............	0.006409	90,475	580	90,185	2,501,128	27.6
50-51.............	0.007027	89,896	632	89,580	2,410,943	26.8
51-52.............	0.007669	89,264	685	88,922	2,321,363	26.0
52-53.............	0.008401	88,579	744	88,207	2,232,442	25.2
53-54.............	0.009264	87,835	814	87,428	2,144,234	24.4
54-55.............	0.010265	87,022	893	86,575	2,056,806	23.6
55-56.............	0.011413	86,128	983	85,637	1,970,231	22.9
56-57.............	0.012650	85,145	1,077	84,607	1,884,594	22.1
57-58.............	0.013896	84,068	1,168	83,484	1,799,988	21.4
58-59.............	0.015054	82,900	1,248	82,276	1,716,503	20.7
59-60.............	0.016128	81,652	1,317	80,994	1,634,227	20.0
60-61.............	0.017258	80,335	1,386	79,642	1,553,234	19.3
61-62.............	0.018509	78,949	1,461	78,218	1,473,592	18.7
62-63.............	0.019778	77,487	1,533	76,721	1,395,374	18.0
63-64.............	0.021072	75,955	1,601	75,155	1,318,653	17.4
64-65.............	0.022437	74,354	1,668	73,520	1,243,498	16.7
65-66.............	0.023951	72,686	1,741	71,816	1,169,978	16.1
66-67.............	0.025657	70,945	1,820	70,035	1,098,162	15.5
67-68.............	0.027494	69,125	1,901	68,175	1,028,127	14.9
68-69.............	0.029349	67,224	1,973	66,238	959,953	14.3
69-70.............	0.031160	65,251	2,033	64,235	893,715	13.7
70-71.............	0.032891	63,218	2,079	62,179	829,480	13.1

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72............	0.034721	61,139	2,123	60,077	767,301	12.6
72-73............	0.036860	59,016	2,175	57,928	707,224	12.0
73-74............	0.039550	56,841	2,248	55,717	649,296	11.4
74-75............	0.042808	54,593	2,337	53,424	593,579	10.9
75-76............	0.046404	52,256	2,425	51,043	540,155	10.3
76-77............	0.050314	49,831	2,507	48,577	489,112	9.8
77-78............	0.054575	47,324	2,583	46,032	440,534	9.3
78-79............	0.059420	44,741	2,659	43,412	394,502	8.8
79-80............	0.065217	42,082	2,744	40,710	351,090	8.3
80-81............	0.070765	39,338	2,784	37,946	310,380	7.9
81-82............	0.076837	36,554	2,809	35,150	272,434	7.5
82-83............	0.084194	33,746	2,841	32,325	237,284	7.0
83-84............	0.091766	30,904	2,836	29,486	204,959	6.6
84-85............	0.099902	28,068	2,804	26,666	175,473	6.3
85-86............	0.108624	25,264	2,744	23,892	148,806	5.9
86-87............	0.117950	22,520	2,656	21,192	124,914	5.5
87-88............	0.127894	19,864	2,540	18,594	103,722	5.2
88-89............	0.138466	17,323	2,399	16,124	85,129	4.9
89-90............	0.149672	14,925	2,234	13,808	69,005	4.6
90-91............	0.161510	12,691	2,050	11,666	55,197	4.3
91-92............	0.173974	10,641	1,851	9,716	43,531	4.1
92-93............	0.187047	8,790	1,644	7,968	33,816	3.8
93-94............	0.200709	7,146	1,434	6,429	25,848	3.6
94-95............	0.214929	5,712	1,228	5,098	19,419	3.4
95-96............	0.229670	4,484	1,030	3,969	14,321	3.2
96-97............	0.244884	3,454	846	3,031	10,352	3.0
97-98............	0.260518	2,608	680	2,269	7,321	2.8
98-99............	0.276512	1,929	533	1,662	5,053	2.6
99-100............	0.292799	1,395	409	1,191	3,391	2.4
100+...............	1.000000	987	987	2,199	2,199	2.2

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A10. Complete Life Tables for non-Hispanic Black Females in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.013672	100,000	1,367	98,848	7,401,041	74.0
1-2..................	0.000903	98,633	89	98,588	7,302,193	74.0
2-3..................	0.000739	98,544	73	98,507	7,203,605	73.1
3-4..................	0.000598	98,471	59	98,441	7,105,098	72.2
4-5..................	0.000480	98,412	47	98,388	7,006,656	71.2
5-6..................	0.000385	98,365	38	98,346	6,908,268	70.2
6-7..................	0.000313	98,327	31	98,312	6,809,922	69.3
7-8..................	0.000264	98,296	26	98,283	6,711,611	68.3
8-9..................	0.000238	98,270	23	98,258	6,613,327	67.3
9-10................	0.000234	98,247	23	98,235	6,515,069	66.3
10-11..............	0.000249	98,224	24	98,212	6,416,834	65.3
11-12..............	0.000280	98,199	27	98,186	6,318,622	64.3
12-13..............	0.000323	98,172	32	98,156	6,220,436	63.4
13-14..............	0.000375	98,140	37	98,122	6,122,280	62.4
14-15..............	0.000435	98,103	43	98,082	6,024,159	61.4
15-16..............	0.000507	98,061	50	98,036	5,926,077	60.4
16-17..............	0.000584	98,011	57	97,982	5,828,041	59.5
17-18..............	0.000654	97,954	64	97,922	5,730,058	58.5
18-19..............	0.000710	97,890	69	97,855	5,632,137	57.5
19-20..............	0.000756	97,820	74	97,783	5,534,282	56.6
20-21..............	0.000803	97,746	78	97,707	5,436,498	55.6
21-22..............	0.000855	97,668	83	97,626	5,338,791	54.7
22-23..............	0.000905	97,584	88	97,540	5,241,165	53.7
23-24..............	0.000951	97,496	93	97,450	5,143,625	52.8
24-25..............	0.000997	97,403	97	97,355	5,046,175	51.8
25-26..............	0.001037	97,306	101	97,256	4,948,820	50.9
26-27..............	0.001082	97,205	105	97,153	4,851,565	49.9
27-28..............	0.001144	97,100	111	97,045	4,754,412	49.0
28-29..............	0.001229	96,989	119	96,929	4,657,367	48.0
29-30..............	0.001334	96,870	129	96,805	4,560,438	47.1
30-31..............	0.001449	96,741	140	96,671	4,463,633	46.1
31-32..............	0.001563	96,601	151	96,525	4,366,962	45.2
32-33..............	0.001676	96,450	162	96,369	4,270,437	44.3
33-34..............	0.001786	96,288	172	96,202	4,174,068	43.3
34-35..............	0.001899	96,116	182	96,025	4,077,867	42.4
35-36..............	0.002021	95,933	194	95,836	3,981,842	41.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.002160	95,740	207	95,636	3,886,006	40.6
37-38.............	0.002320	95,533	222	95,422	3,790,369	39.7
38-39.............	0.002503	95,311	239	95,192	3,694,948	38.8
39-40.............	0.002708	95,073	257	94,944	3,599,756	37.9
40-41.............	0.002941	94,815	279	94,676	3,504,812	37.0
41-42.............	0.003197	94,536	302	94,385	3,410,136	36.1
42-43.............	0.003465	94,234	327	94,071	3,315,751	35.2
43-44.............	0.003741	93,907	351	93,732	3,221,680	34.3
44-45.............	0.004033	93,556	377	93,367	3,127,949	33.4
45-46.............	0.004366	93,179	407	92,975	3,034,581	32.6
46-47.............	0.004750	92,772	441	92,552	2,941,606	31.7
47-48.............	0.005167	92,331	477	92,093	2,849,054	30.9
48-49.............	0.005603	91,854	515	91,597	2,756,961	30.0
49-50.............	0.006056	91,340	553	91,063	2,665,364	29.2
50-51.............	0.006544	90,786	594	90,489	2,574,301	28.4
51-52.............	0.007083	90,192	639	89,873	2,483,812	27.5
52-53.............	0.007666	89,553	687	89,210	2,393,939	26.7
53-54.............	0.008300	88,867	738	88,498	2,304,729	25.9
54-55.............	0.008992	88,129	792	87,733	2,216,231	25.1
55-56.............	0.009706	87,337	848	86,913	2,128,498	24.4
56-57.............	0.010476	86,489	906	86,036	2,041,585	23.6
57-58.............	0.011388	85,583	975	85,096	1,955,549	22.8
58-59.............	0.012484	84,608	1,056	84,080	1,870,453	22.1
59-60.............	0.013730	83,552	1,147	82,979	1,786,372	21.4
60-61.............	0.015036	82,405	1,239	81,786	1,703,394	20.7
61-62.............	0.016354	81,166	1,327	80,502	1,621,608	20.0
62-63.............	0.017707	79,839	1,414	79,132	1,541,106	19.3
63-64.............	0.019078	78,425	1,496	77,677	1,461,974	18.6
64-65.............	0.020459	76,929	1,574	76,142	1,384,297	18.0
65-66.............	0.021898	75,355	1,650	74,530	1,308,155	17.4
66-67.............	0.023363	73,705	1,722	72,844	1,233,625	16.7
67-68.............	0.024800	71,983	1,785	71,090	1,160,781	16.1
68-69.............	0.026232	70,198	1,841	69,277	1,089,691	15.5
69-70.............	0.027743	68,356	1,896	67,408	1,020,414	14.9
70-71.............	0.029389	66,460	1,953	65,483	953,006	14.3

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.031259	64,507	2,016	63,498	887,523	13.8
72-73.............	0.033422	62,490	2,089	61,446	824,024	13.2
73-74.............	0.035846	60,402	2,165	59,319	762,578	12.6
74-75.............	0.038430	58,237	2,238	57,118	703,259	12.1
75-76.............	0.041015	55,999	2,297	54,850	646,142	11.5
76-77.............	0.043799	53,702	2,352	52,526	591,291	11.0
77-78.............	0.046947	51,350	2,411	50,144	538,766	10.5
78-79.............	0.050731	48,939	2,483	47,698	488,621	10.0
79-80.............	0.055215	46,456	2,565	45,174	440,924	9.5
80-81.............	0.060425	43,891	2,652	42,565	395,750	9.0
81-82.............	0.066036	41,239	2,723	39,877	353,185	8.6
82-83.............	0.072056	38,516	2,775	37,128	313,307	8.1
83-84.............	0.077746	35,741	2,779	34,351	276,179	7.7
84-85.............	0.082983	32,962	2,735	31,594	241,828	7.3
85-86.............	0.088352	30,227	2,671	28,891	210,234	7.0
86-87.............	0.094710	27,556	2,610	26,251	181,343	6.6
87-88.............	0.101773	24,946	2,539	23,677	155,092	6.2
88-89.............	0.109876	22,407	2,462	21,176	131,415	5.9
89-90.............	0.119220	19,945	2,378	18,756	110,239	5.5
90-91.............	0.130127	17,567	2,286	16,424	91,482	5.2
91-92.............	0.142185	15,281	2,173	14,195	75,058	4.9
92-93.............	0.154082	13,109	2,020	12,099	60,863	4.6
93-94.............	0.164317	11,089	1,822	10,178	48,764	4.4
94-95.............	0.173382	9,267	1,607	8,463	38,586	4.2
95-96.............	0.183587	7,660	1,406	6,957	30,123	3.9
96-97.............	0.196816	6,254	1,231	5,638	23,166	3.7
97-98.............	0.210832	5,023	1,059	4,493	17,528	3.5
98-99.............	0.225633	3,964	894	3,517	13,034	3.3
99-100............	0.239183	3,070	734	2,702	9,517	3.1
100+...............	1.000000	2,335	2,335	6,815	6,815	2.9

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A11. Complete Life Tables for non-Hispanic Black Females in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.010472	100,000	1,047	99,091	7,511,393	75.1
1-2..................	0.000607	98,953	60	98,923	7,412,302	74.9
2-3..................	0.000473	98,893	47	98,869	7,313,380	74.0
3-4..................	0.000377	98,846	37	98,827	7,214,510	73.0
4-5..................	0.000308	98,809	30	98,793	7,115,683	72.0
5-6..................	0.000259	98,778	26	98,765	7,016,890	71.0
6-7..................	0.000224	98,753	22	98,742	6,918,124	70.1
7-8..................	0.000199	98,730	20	98,721	6,819,383	69.1
8-9..................	0.000182	98,711	18	98,702	6,720,662	68.1
9-10................	0.000171	98,693	17	98,684	6,621,960	67.1
10-11..............	0.000167	98,676	17	98,668	6,523,276	66.1
11-12..............	0.000174	98,659	17	98,651	6,424,608	65.1
12-13..............	0.000195	98,642	19	98,633	6,325,957	64.1
13-14..............	0.000232	98,623	23	98,612	6,227,325	63.1
14-15..............	0.000283	98,600	28	98,586	6,128,713	62.2
15-16..............	0.000346	98,572	34	98,555	6,030,127	61.2
16-17..............	0.000413	98,538	41	98,518	5,931,572	60.2
17-18..............	0.000474	98,497	47	98,474	5,833,054	59.2
18-19..............	0.000523	98,451	51	98,425	5,734,580	58.2
19-20..............	0.000561	98,399	55	98,372	5,636,155	57.3
20-21..............	0.000600	98,344	59	98,315	5,537,783	56.3
21-22..............	0.000646	98,285	64	98,253	5,439,468	55.3
22-23..............	0.000696	98,222	68	98,187	5,341,215	54.4
23-24..............	0.000750	98,153	74	98,116	5,243,028	53.4
24-25..............	0.000806	98,080	79	98,040	5,144,911	52.5
25-26..............	0.000869	98,001	85	97,958	5,046,871	51.5
26-27..............	0.000933	97,915	91	97,870	4,948,913	50.5
27-28..............	0.000984	97,824	96	97,776	4,851,043	49.6
28-29..............	0.001017	97,728	99	97,678	4,753,268	48.6
29-30..............	0.001042	97,628	102	97,578	4,655,589	47.7
30-31..............	0.001067	97,527	104	97,475	4,558,012	46.7
31-32..............	0.001110	97,423	108	97,369	4,460,537	45.8
32-33..............	0.001186	97,315	115	97,257	4,363,168	44.8
33-34..............	0.001301	97,199	126	97,136	4,265,912	43.9
34-35..............	0.001443	97,073	140	97,003	4,168,776	42.9
35-36..............	0.001591	96,933	154	96,855	4,071,773	42.0

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.001740	96,778	168	96,694	3,974,918	41.1
37-38.............	0.001908	96,610	184	96,518	3,878,224	40.1
38-39.............	0.002101	96,426	203	96,324	3,781,706	39.2
39-40.............	0.002321	96,223	223	96,111	3,685,381	38.3
40-41.............	0.002559	96,000	246	95,877	3,589,270	37.4
41-42.............	0.002812	95,754	269	95,619	3,493,393	36.5
42-43.............	0.003091	95,485	295	95,337	3,397,774	35.6
43-44.............	0.003402	95,190	324	95,028	3,302,436	34.7
44-45.............	0.003745	94,866	355	94,688	3,207,409	33.8
45-46.............	0.004128	94,511	390	94,316	3,112,720	32.9
46-47.............	0.004542	94,120	427	93,907	3,018,405	32.1
47-48.............	0.004969	93,693	466	93,460	2,924,498	31.2
48-49.............	0.005392	93,227	503	92,976	2,831,038	30.4
49-50.............	0.005815	92,725	539	92,455	2,738,062	29.5
50-51.............	0.006266	92,186	578	91,897	2,645,607	28.7
51-52.............	0.006760	91,608	619	91,298	2,553,710	27.9
52-53.............	0.007279	90,989	662	90,658	2,462,412	27.1
53-54.............	0.007833	90,326	708	89,973	2,371,754	26.3
54-55.............	0.008440	89,619	756	89,241	2,281,781	25.5
55-56.............	0.009140	88,862	812	88,456	2,192,541	24.7
56-57.............	0.009931	88,050	874	87,613	2,104,084	23.9
57-58.............	0.010760	87,176	938	86,707	2,016,471	23.1
58-59.............	0.011568	86,238	998	85,739	1,929,764	22.4
59-60.............	0.012350	85,240	1,053	84,714	1,844,025	21.6
60-61.............	0.013126	84,188	1,105	83,635	1,759,311	20.9
61-62.............	0.013994	83,082	1,163	82,501	1,675,676	20.2
62-63.............	0.015033	81,920	1,231	81,304	1,593,175	19.4
63-64.............	0.016327	80,688	1,317	80,030	1,511,871	18.7
64-65.............	0.017850	79,371	1,417	78,663	1,431,842	18.0
65-66.............	0.019500	77,954	1,520	77,194	1,353,179	17.4
66-67.............	0.021187	76,434	1,619	75,624	1,275,985	16.7
67-68.............	0.022932	74,815	1,716	73,957	1,200,360	16.0
68-69.............	0.024713	73,099	1,807	72,196	1,126,404	15.4
69-70.............	0.026553	71,293	1,893	70,346	1,054,208	14.8
70-71.............	0.028445	69,400	1,974	68,412	983,862	14.2

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.030463	67,425	2,054	66,398	915,449	13.6
72-73.............	0.032725	65,371	2,139	64,302	849,051	13.0
73-74.............	0.035320	63,232	2,233	62,115	784,749	12.4
74-75.............	0.038230	60,999	2,332	59,833	722,633	11.8
75-76.............	0.041374	58,667	2,427	57,453	662,801	11.3
76-77.............	0.044750	56,240	2,517	54,981	605,347	10.8
77-78.............	0.048433	53,723	2,602	52,422	550,366	10.2
78-79.............	0.052507	51,121	2,684	49,779	497,945	9.7
79-80.............	0.057063	48,437	2,764	47,055	448,166	9.3
80-81.............	0.062136	45,673	2,838	44,254	401,111	8.8
81-82.............	0.067713	42,835	2,900	41,385	356,857	8.3
82-83.............	0.073321	39,934	2,928	38,470	315,473	7.9
83-84.............	0.079353	37,006	2,937	35,538	277,002	7.5
84-85.............	0.085837	34,070	2,924	32,608	241,464	7.1
85-86.............	0.092796	31,145	2,890	29,700	208,857	6.7
86-87.............	0.100259	28,255	2,833	26,839	179,157	6.3
87-88.............	0.108250	25,422	2,752	24,046	152,318	6.0
88-89.............	0.116794	22,670	2,648	21,346	128,272	5.7
89-90.............	0.125919	20,023	2,521	18,762	106,925	5.3
90-91.............	0.135646	17,501	2,374	16,314	88,163	5.0
91-92.............	0.145998	15,127	2,209	14,023	71,849	4.7
92-93.............	0.156999	12,919	2,028	11,905	57,826	4.5
93-94.............	0.168664	10,891	1,837	9,972	45,921	4.2
94-95.............	0.181009	9,054	1,639	8,234	35,949	4.0
95-96.............	0.194048	7,415	1,439	6,695	27,714	3.7
96-97.............	0.207787	5,976	1,242	5,355	21,019	3.5
97-98.............	0.222230	4,734	1,052	4,208	15,664	3.3
98-99.............	0.237378	3,682	874	3,245	11,455	3.1
99-100............	0.253221	2,808	711	2,453	8,210	2.9
100+...............	1.000000	2,097	2,097	5,758	5,758	2.7

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A12. Complete Life Tables for non-Hispanic Black Females in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.009118	100,000	912	99,213	7,757,420	77.6
1-2..................	0.000666	99,088	66	99,055	7,658,206	77.3
2-3..................	0.000411	99,022	41	99,002	7,559,151	76.3
3-4..................	0.000271	98,982	27	98,968	7,460,149	75.4
4-5..................	0.000224	98,955	22	98,944	7,361,181	74.4
5-6..................	0.000215	98,933	21	98,922	7,262,237	73.4
6-7..................	0.000150	98,911	15	98,904	7,163,315	72.4
7-8..................	0.000117	98,897	12	98,891	7,064,411	71.4
8-9..................	0.000124	98,885	12	98,879	6,965,521	70.4
9-10................	0.000147	98,873	14	98,865	6,866,642	69.4
10-11.............	0.000146	98,858	14	98,851	6,767,776	68.5
11-12.............	0.000182	98,844	18	98,835	6,668,925	67.5
12-13.............	0.000187	98,826	18	98,817	6,570,091	66.5
13-14.............	0.000190	98,807	19	98,798	6,471,274	65.5
14-15.............	0.000235	98,789	23	98,777	6,372,476	64.5
15-16.............	0.000270	98,765	27	98,752	6,273,699	63.5
16-17.............	0.000236	98,739	23	98,727	6,174,947	62.5
17-18.............	0.000294	98,715	29	98,701	6,076,220	61.6
18-19.............	0.000436	98,686	43	98,665	5,977,519	60.6
19-20.............	0.000409	98,643	40	98,623	5,878,854	59.6
20-21.............	0.000536	98,603	53	98,577	5,780,231	58.6
21-22.............	0.000590	98,550	58	98,521	5,681,655	57.7
22-23.............	0.000644	98,492	63	98,460	5,583,134	56.7
23-24.............	0.000691	98,429	68	98,395	5,484,673	55.7
24-25.............	0.000736	98,361	72	98,324	5,386,279	54.8
25-26.............	0.000716	98,288	70	98,253	5,287,955	53.8
26-27.............	0.000833	98,218	82	98,177	5,189,702	52.8
27-28.............	0.000727	98,136	71	98,100	5,091,525	51.9
28-29.............	0.000837	98,065	82	98,024	4,993,424	50.9
29-30.............	0.000986	97,983	97	97,934	4,895,401	50.0
30-31.............	0.001144	97,886	112	97,830	4,797,467	49.0
31-32.............	0.001112	97,774	109	97,720	4,699,637	48.1
32-33.............	0.001215	97,665	119	97,606	4,601,917	47.1
33-34.............	0.001375	97,546	134	97,479	4,504,311	46.2
34-35.............	0.001341	97,412	131	97,347	4,406,832	45.2
35-36.............	0.001214	97,282	118	97,223	4,309,485	44.3

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.001485	97,164	144	97,091	4,212,262	43.4
37-38.............	0.001706	97,019	166	96,937	4,115,171	42.4
38-39.............	0.001802	96,854	175	96,767	4,018,234	41.5
39-40.............	0.001863	96,679	180	96,589	3,921,468	40.6
40-41.............	0.002259	96,499	218	96,390	3,824,879	39.6
41-42.............	0.002197	96,281	211	96,175	3,728,488	38.7
42-43.............	0.002612	96,070	251	95,944	3,632,313	37.8
43-44.............	0.002760	95,819	264	95,687	3,536,369	36.9
44-45.............	0.002874	95,554	275	95,417	3,440,682	36.0
45-46.............	0.003080	95,280	294	95,133	3,345,265	35.1
46-47.............	0.003500	94,986	332	94,820	3,250,132	34.2
47-48.............	0.003667	94,654	347	94,480	3,155,313	33.3
48-49.............	0.004575	94,307	431	94,091	3,060,832	32.5
49-50.............	0.004858	93,875	456	93,647	2,966,741	31.6
50-51.............	0.004972	93,419	464	93,187	2,873,094	30.8
51-52.............	0.005542	92,955	515	92,697	2,779,907	29.9
52-53.............	0.006260	92,440	579	92,150	2,687,210	29.1
53-54.............	0.006848	91,861	629	91,546	2,595,060	28.2
54-55.............	0.007244	91,232	661	90,901	2,503,514	27.4
55-56.............	0.008397	90,571	760	90,191	2,412,612	26.6
56-57.............	0.007936	89,811	713	89,454	2,322,421	25.9
57-58.............	0.008721	89,098	777	88,709	2,232,967	25.1
58-59.............	0.009543	88,321	843	87,899	2,144,258	24.3
59-60.............	0.010746	87,478	940	87,008	2,056,358	23.5
60-61.............	0.010857	86,538	940	86,068	1,969,350	22.8
61-62.............	0.011787	85,598	1,009	85,094	1,883,282	22.0
62-63.............	0.012706	84,589	1,075	84,052	1,798,188	21.3
63-64.............	0.012679	83,515	1,059	82,985	1,714,136	20.5
64-65.............	0.013948	82,456	1,150	81,881	1,631,151	19.8
65-66.............	0.014352	81,306	1,167	80,722	1,549,270	19.1
66-67.............	0.016420	80,139	1,316	79,481	1,468,548	18.3
67-68.............	0.017293	78,823	1,363	78,141	1,389,067	17.6
68-69.............	0.018334	77,460	1,420	76,750	1,310,926	16.9
69-70.............	0.021052	76,040	1,601	75,239	1,234,176	16.2
70-71.............	0.021387	74,439	1,592	73,643	1,158,937	15.6

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.024000	72,847	1,748	71,973	1,085,294	14.9
72-73.............	0.025101	71,099	1,785	70,206	1,013,321	14.3
73-74.............	0.027158	69,314	1,882	68,373	943,115	13.6
74-75.............	0.031139	67,432	2,100	66,382	874,742	13.0
75-76.............	0.032977	65,332	2,154	64,255	808,361	12.4
76-77.............	0.034521	63,177	2,181	62,087	744,106	11.8
77-78.............	0.037219	60,996	2,270	59,861	682,019	11.2
78-79.............	0.042179	58,726	2,477	57,488	622,158	10.6
79-80.............	0.045585	56,249	2,564	54,967	564,670	10.0
80-81.............	0.050663	53,685	2,720	52,325	509,703	9.5
81-82.............	0.055872	50,965	2,848	49,542	457,378	9.0
82-83.............	0.062079	48,118	2,987	46,624	407,836	8.5
83-84.............	0.068097	45,131	3,073	43,594	361,212	8.0
84-85.............	0.073234	42,057	3,080	40,517	317,618	7.6
85-86.............	0.080381	38,977	3,133	37,411	277,100	7.1
86-87.............	0.088123	35,844	3,159	34,265	239,690	6.7
87-88.............	0.096488	32,686	3,154	31,109	205,425	6.3
88-89.............	0.105504	29,532	3,116	27,974	174,316	5.9
89-90.............	0.115194	26,416	3,043	24,895	146,342	5.5
90-91.............	0.125577	23,373	2,935	21,906	121,447	5.2
91-92.............	0.136666	20,438	2,793	19,041	99,542	4.9
92-93.............	0.148469	17,645	2,620	16,335	80,500	4.6
93-94.............	0.160986	15,025	2,419	13,816	64,165	4.3
94-95.............	0.174207	12,606	2,196	11,508	50,349	4.0
95-96.............	0.188116	10,410	1,958	9,431	38,841	3.7
96-97.............	0.202684	8,452	1,713	7,595	29,410	3.5
97-98.............	0.217874	6,739	1,468	6,005	21,815	3.2
98-99.............	0.233638	5,271	1,231	4,655	15,810	3.0
99-100............	0.249918	4,039	1,009	3,534	11,155	2.8
100+...............	1.000000	3,030	3,030	7,621	7,621	2.5

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A13. Complete Life Tables for Hispanic Males in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1..................	0.007986	100,000	799	99,324	7,398,191	74.0
1-2..................	0.000727	99,201	72	99,165	7,298,867	73.6
2-3..................	0.000544	99,129	54	99,102	7,199,702	72.6
3-4..................	0.000423	99,075	42	99,054	7,100,599	71.7
4-5..................	0.000353	99,033	35	99,016	7,001,545	70.7
5-6..................	0.000315	98,999	31	98,983	6,902,529	69.7
6-7..................	0.000292	98,967	29	98,953	6,803,546	68.7
7-8..................	0.000266	98,938	26	98,925	6,704,593	67.8
8-9..................	0.000223	98,912	22	98,901	6,605,668	66.8
9-10................	0.000165	98,890	16	98,882	6,506,767	65.8
10-11.............	0.000110	98,874	11	98,868	6,407,885	64.8
11-12.............	0.000101	98,863	10	98,858	6,309,017	63.8
12-13.............	0.000187	98,853	18	98,844	6,210,159	62.8
13-14.............	0.000393	98,834	39	98,815	6,111,315	61.8
14-15.............	0.000676	98,796	67	98,762	6,012,500	60.9
15-16.............	0.000981	98,729	97	98,680	5,913,738	59.9
16-17.............	0.001254	98,632	124	98,570	5,815,058	59.0
17-18.............	0.001468	98,508	145	98,436	5,716,488	58.0
18-19.............	0.001598	98,364	157	98,285	5,618,052	57.1
19-20.............	0.001667	98,206	164	98,125	5,519,767	56.2
20-21.............	0.001719	98,043	169	97,958	5,421,642	55.3
21-22.............	0.001777	97,874	174	97,787	5,323,684	54.4
22-23.............	0.001829	97,700	179	97,611	5,225,896	53.5
23-24.............	0.001881	97,522	183	97,430	5,128,285	52.6
24-25.............	0.001936	97,338	188	97,244	5,030,855	51.7
25-26.............	0.001985	97,150	193	97,053	4,933,611	50.8
26-27.............	0.002031	96,957	197	96,858	4,836,558	49.9
27-28.............	0.002084	96,760	202	96,659	4,739,700	49.0
28-29.............	0.002149	96,558	207	96,455	4,643,041	48.1
29-30.............	0.002226	96,351	214	96,244	4,546,586	47.2
30-31.............	0.002309	96,136	222	96,025	4,450,342	46.3
31-32.............	0.002396	95,914	230	95,800	4,354,317	45.4
32-33.............	0.002482	95,685	237	95,566	4,258,517	44.5
33-34.............	0.002565	95,447	245	95,325	4,162,951	43.6
34-35.............	0.002646	95,202	252	95,076	4,067,627	42.7
35-36.............	0.002732	94,950	259	94,821	3,972,550	41.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.002827	94,691	268	94,557	3,877,729	41.0
37-38.............	0.002931	94,423	277	94,285	3,783,172	40.1
38-39.............	0.003043	94,147	287	94,003	3,688,887	39.2
39-40.............	0.003165	93,860	297	93,712	3,594,883	38.3
40-41.............	0.003301	93,563	309	93,409	3,501,172	37.4
41-42.............	0.003447	93,254	321	93,094	3,407,763	36.5
42-43.............	0.003594	92,933	334	92,766	3,314,670	35.7
43-44.............	0.003736	92,599	346	92,426	3,221,904	34.8
44-45.............	0.003883	92,253	358	92,074	3,129,478	33.9
45-46.............	0.004048	91,895	372	91,709	3,037,404	33.1
46-47.............	0.004247	91,523	389	91,328	2,945,695	32.2
47-48.............	0.004484	91,134	409	90,930	2,854,367	31.3
48-49.............	0.004763	90,725	432	90,509	2,763,437	30.5
49-50.............	0.005081	90,293	459	90,064	2,672,928	29.6
50-51.............	0.005437	89,834	488	89,590	2,582,864	28.8
51-52.............	0.005838	89,346	522	89,085	2,493,274	27.9
52-53.............	0.006291	88,825	559	88,545	2,404,189	27.1
53-54.............	0.006803	88,266	600	87,966	2,315,644	26.2
54-55.............	0.007378	87,665	647	87,342	2,227,678	25.4
55-56.............	0.007988	87,019	695	86,671	2,140,336	24.6
56-57.............	0.008654	86,323	747	85,950	2,053,665	23.8
57-58.............	0.009439	85,576	808	85,172	1,967,715	23.0
58-59.............	0.010377	84,769	880	84,329	1,882,543	22.2
59-60.............	0.011447	83,889	960	83,409	1,798,214	21.4
60-61.............	0.012568	82,929	1,042	82,408	1,714,805	20.7
61-62.............	0.013722	81,886	1,124	81,325	1,632,398	19.9
62-63.............	0.014977	80,763	1,210	80,158	1,551,073	19.2
63-64.............	0.016358	79,553	1,301	78,903	1,470,915	18.5
64-65.............	0.017856	78,252	1,397	77,553	1,392,012	17.8
65-66.............	0.019474	76,855	1,497	76,106	1,314,459	17.1
66-67.............	0.021147	75,358	1,594	74,561	1,238,353	16.4
67-68.............	0.022854	73,764	1,686	72,921	1,163,791	15.8
68-69.............	0.024645	72,079	1,776	71,190	1,090,870	15.1
69-70.............	0.026653	70,302	1,874	69,365	1,019,680	14.5
70-71.............	0.029083	68,428	1,990	67,433	950,314	13.9

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.032031	66,438	2,128	65,374	882,881	13.3
72-73.............	0.035328	64,310	2,272	63,174	817,507	12.7
73-74.............	0.038545	62,038	2,391	60,843	754,332	12.2
74-75.............	0.041415	59,647	2,470	58,412	693,490	11.6
75-76.............	0.044065	57,177	2,519	55,917	635,078	11.1
76-77.............	0.046910	54,657	2,564	53,375	579,160	10.6
77-78.............	0.050259	52,093	2,618	50,784	525,785	10.1
78-79.............	0.054337	49,475	2,688	48,131	475,001	9.6
79-80.............	0.059031	46,787	2,762	45,406	426,870	9.1
80-81.............	0.064208	44,025	2,827	42,612	381,464	8.7
81-82.............	0.069693	41,198	2,871	39,763	338,852	8.2
82-83.............	0.075778	38,327	2,904	36,875	299,090	7.8
83-84.............	0.081719	35,423	2,895	33,975	262,215	7.4
84-85.............	0.087508	32,528	2,846	31,105	228,239	7.0
85-86.............	0.094104	29,682	2,793	28,285	197,135	6.6
86-87.............	0.101912	26,888	2,740	25,518	168,850	6.3
87-88.............	0.110346	24,148	2,665	22,816	143,331	5.9
88-89.............	0.119214	21,483	2,561	20,203	120,516	5.6
89-90.............	0.128529	18,922	2,432	17,706	100,313	5.3
90-91.............	0.138633	16,490	2,286	15,347	82,606	5.0
91-92.............	0.149818	14,204	2,128	13,140	67,259	4.7
92-93.............	0.161579	12,076	1,951	11,101	54,119	4.5
93-94.............	0.173323	10,125	1,755	9,247	43,019	4.2
94-95.............	0.184502	8,370	1,544	7,598	33,771	4.0
95-96.............	0.195149	6,826	1,332	6,160	26,173	3.8
96-97.............	0.206981	5,494	1,137	4,925	20,013	3.6
97-98.............	0.218147	4,357	950	3,881	15,088	3.5
98-99.............	0.229285	3,406	781	3,016	11,207	3.3
99-100............	0.241078	2,625	633	2,309	8,191	3.1
100+...............	1.000000	1,992	1,992	5,882	5,882	3.0

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A14. Complete Life Tables for Hispanic Males in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1..................	0.005782	100,000	578	99,500	7,584,686	75.8
1-2..................	0.000488	99,422	49	99,398	7,485,186	75.3
2-3..................	0.000350	99,373	35	99,356	7,385,789	74.3
3-4..................	0.000263	99,339	26	99,325	7,286,433	73.3
4-5..................	0.000215	99,312	21	99,302	7,187,107	72.4
5-6..................	0.000190	99,291	19	99,282	7,087,806	71.4
6-7..................	0.000177	99,272	18	99,263	6,988,524	70.4
7-8..................	0.000165	99,255	16	99,246	6,889,261	69.4
8-9..................	0.000145	99,238	14	99,231	6,790,014	68.4
9-10................	0.000117	99,224	12	99,218	6,690,783	67.4
10-11.............	0.000093	99,212	9	99,208	6,591,565	66.4
11-12.............	0.000095	99,203	9	99,198	6,492,357	65.4
12-13.............	0.000150	99,194	15	99,186	6,393,159	64.5
13-14.............	0.000277	99,179	27	99,165	6,293,973	63.5
14-15.............	0.000451	99,151	45	99,129	6,194,808	62.5
15-16.............	0.000643	99,106	64	99,075	6,095,679	61.5
16-17.............	0.000820	99,043	81	99,002	5,996,604	60.5
17-18.............	0.000966	98,962	96	98,914	5,897,602	59.6
18-19.............	0.001067	98,866	105	98,813	5,798,688	58.7
19-20.............	0.001130	98,761	112	98,705	5,699,875	57.7
20-21.............	0.001187	98,649	117	98,590	5,601,170	56.8
21-22.............	0.001242	98,532	122	98,471	5,502,580	55.8
22-23.............	0.001273	98,410	125	98,347	5,404,109	54.9
23-24.............	0.001277	98,284	126	98,221	5,305,762	54.0
24-25.............	0.001262	98,159	124	98,097	5,207,541	53.1
25-26.............	0.001238	98,035	121	97,974	5,109,444	52.1
26-27.............	0.001218	97,913	119	97,854	5,011,470	51.2
27-28.............	0.001210	97,794	118	97,735	4,913,616	50.2
28-29.............	0.001222	97,676	119	97,616	4,815,881	49.3
29-30.............	0.001252	97,557	122	97,496	4,718,264	48.4
30-31.............	0.001286	97,434	125	97,372	4,620,769	47.4
31-32.............	0.001324	97,309	129	97,245	4,523,397	46.5
32-33.............	0.001384	97,180	135	97,113	4,426,152	45.5
33-34.............	0.001472	97,046	143	96,974	4,329,039	44.6
34-35.............	0.001583	96,903	153	96,826	4,232,065	43.7
35-36.............	0.001708	96,750	165	96,667	4,135,239	42.7

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.001840	96,584	178	96,495	4,038,572	41.8
37-38.............	0.001981	96,407	191	96,311	3,942,076	40.9
38-39.............	0.002129	96,216	205	96,113	3,845,765	40.0
39-40.............	0.002286	96,011	219	95,901	3,749,652	39.1
40-41.............	0.002459	95,791	236	95,674	3,653,751	38.1
41-42.............	0.002647	95,556	253	95,429	3,558,077	37.2
42-43.............	0.002843	95,303	271	95,167	3,462,648	36.3
43-44.............	0.003045	95,032	289	94,887	3,367,481	35.4
44-45.............	0.003254	94,743	308	94,588	3,272,594	34.5
45-46.............	0.003486	94,434	329	94,270	3,178,005	33.7
46-47.............	0.003741	94,105	352	93,929	3,083,736	32.8
47-48.............	0.004005	93,753	375	93,565	2,989,807	31.9
48-49.............	0.004266	93,377	398	93,178	2,896,241	31.0
49-50.............	0.004529	92,979	421	92,769	2,803,063	30.1
50-51.............	0.004803	92,558	445	92,336	2,710,294	29.3
51-52.............	0.005109	92,114	471	91,878	2,617,959	28.4
52-53.............	0.005465	91,643	501	91,392	2,526,080	27.6
53-54.............	0.005900	91,142	538	90,873	2,434,688	26.7
54-55.............	0.006429	90,604	582	90,313	2,343,815	25.9
55-56.............	0.007066	90,022	636	89,704	2,253,502	25.0
56-57.............	0.007794	89,386	697	89,037	2,163,798	24.2
57-58.............	0.008576	88,689	761	88,309	2,074,760	23.4
58-59.............	0.009348	87,929	822	87,518	1,986,452	22.6
59-60.............	0.010104	87,107	880	86,666	1,898,934	21.8
60-61.............	0.010879	86,226	938	85,757	1,812,268	21.0
61-62.............	0.011760	85,288	1,003	84,787	1,726,510	20.2
62-63.............	0.012794	84,285	1,078	83,746	1,641,723	19.5
63-64.............	0.014053	83,207	1,169	82,622	1,557,977	18.7
64-65.............	0.015531	82,038	1,274	81,401	1,475,355	18.0
65-66.............	0.017106	80,764	1,382	80,073	1,393,954	17.3
66-67.............	0.018743	79,382	1,488	78,638	1,313,881	16.6
67-68.............	0.020565	77,894	1,602	77,093	1,235,243	15.9
68-69.............	0.022607	76,292	1,725	75,430	1,158,150	15.2
69-70.............	0.024843	74,568	1,852	73,641	1,082,720	14.5
70-71.............	0.027174	72,715	1,976	71,727	1,009,078	13.9

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.029567	70,739	2,092	69,693	937,351	13.3
72-73.............	0.032122	68,648	2,205	67,545	867,658	12.6
73-74.............	0.034911	66,443	2,320	65,283	800,112	12.0
74-75.............	0.037967	64,123	2,435	62,906	734,830	11.5
75-76.............	0.041351	61,689	2,551	60,413	671,924	10.9
76-77.............	0.044950	59,138	2,658	57,809	611,511	10.3
77-78.............	0.048793	56,479	2,756	55,102	553,702	9.8
78-79.............	0.053133	53,724	2,854	52,296	498,601	9.3
79-80.............	0.058263	50,869	2,964	49,387	446,304	8.8
80-81.............	0.064272	47,905	3,079	46,366	396,917	8.3
81-82.............	0.070695	44,826	3,169	43,242	350,551	7.8
82-83.............	0.077235	41,657	3,217	40,049	307,309	7.4
83-84.............	0.084326	38,440	3,241	36,819	267,261	7.0
84-85.............	0.092003	35,198	3,238	33,579	230,441	6.5
85-86.............	0.100302	31,960	3,206	30,357	196,862	6.2
86-87.............	0.109260	28,754	3,142	27,184	166,505	5.8
87-88.............	0.118912	25,613	3,046	24,090	139,321	5.4
88-89.............	0.129293	22,567	2,918	21,108	115,231	5.1
89-90.............	0.140435	19,649	2,759	18,270	94,123	4.8
90-91.............	0.152370	16,890	2,574	15,603	75,854	4.5
91-92.............	0.165124	14,316	2,364	13,134	60,251	4.2
92-93.............	0.178721	11,952	2,136	10,884	47,116	3.9
93-94.............	0.193178	9,816	1,896	8,868	36,232	3.7
94-95.............	0.208508	7,920	1,651	7,094	27,364	3.5
95-96.............	0.224715	6,269	1,409	5,564	20,269	3.2
96-97.............	0.241798	4,860	1,175	4,272	14,705	3.0
97-98.............	0.259744	3,685	957	3,206	10,433	2.8
98-99.............	0.278533	2,728	760	2,348	7,227	2.6
99-100.............	0.298133	1,968	587	1,675	4,879	2.5
100+...............	1.000000	1,381	1,381	3,204	3,204	2.3

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A15. Complete Life Tables for Hispanic Males in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1	Number surviving to age x	Number dying between ages x to x+1	Person-years lived between ages x to x+1	Total number of person-years lived above age x	Expectation of life at age x
	q_0	l_x	d_x	L_x	T_x	e_x
0-1.................	0.005455	100,000	546	99,523	7,784,365	77.8
1-2.................	0.000406	99,454	40	99,434	7,684,842	77.3
2-3.................	0.000299	99,414	30	99,399	7,585,408	76.3
3-4.................	0.000224	99,384	22	99,373	7,486,009	75.3
4-5.................	0.000174	99,362	17	99,353	7,386,636	74.3
5-6.................	0.000143	99,345	14	99,338	7,287,282	73.4
6-7.................	0.000123	99,331	12	99,324	7,187,944	72.4
7-8.................	0.000107	99,318	11	99,313	7,088,620	71.4
8-9.................	0.000090	99,308	9	99,303	6,989,307	70.4
9-10................	0.000072	99,299	7	99,295	6,890,004	69.4
10-11.............	0.000061	99,292	6	99,289	6,790,708	68.4
11-12.............	0.000069	99,286	7	99,282	6,691,420	67.4
12-13.............	0.000111	99,279	11	99,273	6,592,138	66.4
13-14.............	0.000196	99,268	19	99,258	6,492,864	65.4
14-15.............	0.000309	99,248	31	99,233	6,393,607	64.4
15-16.............	0.000432	99,218	43	99,196	6,294,374	63.4
16-17.............	0.000548	99,175	54	99,147	6,195,178	62.5
17-18.............	0.000659	99,120	65	99,088	6,096,030	61.5
18-19.............	0.000759	99,055	75	99,017	5,996,942	60.5
19-20.............	0.000852	98,980	84	98,938	5,897,925	59.6
20-21.............	0.000952	98,895	94	98,848	5,798,987	58.6
21-22.............	0.001050	98,801	104	98,749	5,700,139	57.7
22-23.............	0.001118	98,698	110	98,642	5,601,389	56.8
23-24.............	0.001145	98,587	113	98,531	5,502,747	55.8
24-25.............	0.001138	98,474	112	98,418	5,404,216	54.9
25-26.............	0.001119	98,362	110	98,307	5,305,798	53.9
26-27.............	0.001105	98,252	109	98,198	5,207,491	53.0
27-28.............	0.001099	98,144	108	98,090	5,109,293	52.1
28-29.............	0.001109	98,036	109	97,981	5,011,203	51.1
29-30.............	0.001132	97,927	111	97,872	4,913,221	50.2
30-31.............	0.001160	97,816	113	97,760	4,815,350	49.2
31-32.............	0.001186	97,703	116	97,645	4,717,590	48.3
32-33.............	0.001217	97,587	119	97,528	4,619,945	47.3
33-34.............	0.001253	97,468	122	97,407	4,522,418	46.4
34-35.............	0.001296	97,346	126	97,283	4,425,011	45.5
35-36.............	0.001347	97,220	131	97,154	4,327,728	44.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.001408	97,089	137	97,021	4,230,573	43.6
37-38.............	0.001482	96,952	144	96,880	4,133,553	42.6
38-39.............	0.001572	96,808	152	96,732	4,036,672	41.7
39-40.............	0.001678	96,656	162	96,575	3,939,940	40.8
40-41.............	0.001795	96,494	173	96,408	3,843,365	39.8
41-42.............	0.001928	96,321	186	96,228	3,746,957	38.9
42-43.............	0.002084	96,135	200	96,035	3,650,729	38.0
43-44.............	0.002270	95,935	218	95,826	3,554,694	37.1
44-45.............	0.002484	95,717	238	95,598	3,458,868	36.1
45-46.............	0.002716	95,479	259	95,350	3,363,270	35.2
46-47.............	0.002966	95,220	282	95,079	3,267,920	34.3
47-48.............	0.003245	94,938	308	94,784	3,172,842	33.4
48-49.............	0.003560	94,629	337	94,461	3,078,058	32.5
49-50.............	0.003909	94,293	369	94,108	2,983,597	31.6
50-51.............	0.004292	93,924	403	93,722	2,889,489	30.8
51-52.............	0.004700	93,521	440	93,301	2,795,766	29.9
52-53.............	0.005127	93,081	477	92,843	2,702,465	29.0
53-54.............	0.005569	92,604	516	92,346	2,609,622	28.2
54-55.............	0.006036	92,088	556	91,811	2,517,276	27.3
55-56.............	0.006549	91,533	599	91,233	2,425,466	26.5
56-57.............	0.007113	90,933	647	90,610	2,334,233	25.7
57-58.............	0.007704	90,286	696	89,939	2,243,623	24.9
58-59.............	0.008302	89,591	744	89,219	2,153,684	24.0
59-60.............	0.008907	88,847	791	88,451	2,064,466	23.2
60-61.............	0.009548	88,056	841	87,635	1,976,014	22.4
61-62.............	0.010245	87,215	893	86,768	1,888,379	21.7
62-63.............	0.010995	86,321	949	85,847	1,801,611	20.9
63-64.............	0.011826	85,372	1,010	84,867	1,715,764	20.1
64-65.............	0.012768	84,363	1,077	83,824	1,630,897	19.3
65-66.............	0.013850	83,286	1,153	82,709	1,547,073	18.6
66-67.............	0.015082	82,132	1,239	81,513	1,464,364	17.8
67-68.............	0.016455	80,893	1,331	80,228	1,382,851	17.1
68-69.............	0.017912	79,562	1,425	78,850	1,302,624	16.4
69-70.............	0.019421	78,137	1,518	77,378	1,223,774	15.7
70-71.............	0.020991	76,620	1,608	75,815	1,146,395	15.0

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.022704	75,011	1,703	74,160	1,070,580	14.3
72-73.............	0.024618	73,308	1,805	72,406	996,420	13.6
73-74.............	0.026830	71,503	1,918	70,544	924,014	12.9
74-75.............	0.029359	69,585	2,043	68,564	853,470	12.3
75-76.............	0.032059	67,542	2,165	66,459	784,907	11.6
76-77.............	0.035089	65,377	2,294	64,230	718,447	11.0
77-78.............	0.038669	63,083	2,439	61,863	654,217	10.4
78-79.............	0.042997	60,643	2,607	59,340	592,354	9.8
79-80.............	0.048017	58,036	2,787	56,643	533,015	9.2
80-81.............	0.053698	55,249	2,967	53,766	476,372	8.6
81-82.............	0.060084	52,282	3,141	50,712	422,606	8.1
82-83.............	0.066571	49,141	3,271	47,505	371,895	7.6
83-84.............	0.073814	45,870	3,386	44,177	324,389	7.1
84-85.............	0.082670	42,484	3,512	40,728	280,213	6.6
85-86.............	0.092400	38,972	3,601	37,171	239,485	6.1
86-87.............	0.103067	35,371	3,646	33,548	202,314	5.7
87-88.............	0.114710	31,725	3,639	29,906	168,766	5.3
88-89.............	0.127362	28,086	3,577	26,297	138,860	4.9
89-90.............	0.141041	24,509	3,457	22,780	112,563	4.6
90-91.............	0.155751	21,052	3,279	19,413	89,782	4.3
91-92.............	0.171479	17,773	3,048	16,249	70,370	4.0
92-93.............	0.188190	14,725	2,771	13,340	54,120	3.7
93-94.............	0.205831	11,954	2,461	10,724	40,780	3.4
94-95.............	0.224324	9,494	2,130	8,429	30,056	3.2
95-96.............	0.243571	7,364	1,794	6,467	21,627	2.9
96-97.............	0.263453	5,570	1,468	4,837	15,160	2.7
97-98.............	0.283832	4,103	1,165	3,521	10,324	2.5
98-99.............	0.304554	2,938	895	2,491	6,803	2.3
99-100............	0.325457	2,043	665	1,711	4,312	2.1
100+...............	1.000000	1,378	1,378	2,601	2,601	1.9

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A16. Complete Life Tables for Hispanic Females in the Southwestern United States, 1990

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.006374	100,000	637	99,455	8,112,625	81.1
1-2..................	0.000468	99,363	46	99,339	8,013,170	80.6
2-3..................	0.000375	99,316	37	99,298	7,913,831	79.7
3-4..................	0.000297	99,279	29	99,264	7,814,533	78.7
4-5..................	0.000234	99,249	23	99,238	7,715,269	77.7
5-6..................	0.000185	99,226	18	99,217	7,616,032	76.8
6-7..................	0.000149	99,208	15	99,200	7,516,814	75.8
7-8..................	0.000123	99,193	12	99,187	7,417,614	74.8
8-9..................	0.000107	99,181	11	99,176	7,318,427	73.8
9-10................	0.000101	99,170	10	99,165	7,219,251	72.8
10-11..............	0.000103	99,160	10	99,155	7,120,086	71.8
11-12..............	0.000116	99,150	12	99,144	7,020,931	70.8
12-13..............	0.000141	99,139	14	99,132	6,921,787	69.8
13-14..............	0.000178	99,124	18	99,116	6,822,655	68.8
14-15..............	0.000223	99,107	22	99,096	6,723,539	67.8
15-16..............	0.000273	99,085	27	99,071	6,624,444	66.9
16-17..............	0.000323	99,058	32	99,042	6,525,372	65.9
17-18..............	0.000363	99,026	36	99,008	6,426,331	64.9
18-19..............	0.000389	98,990	39	98,971	6,327,323	63.9
19-20..............	0.000404	98,951	40	98,931	6,228,352	62.9
20-21..............	0.000419	98,911	41	98,891	6,129,421	62.0
21-22..............	0.000433	98,870	43	98,849	6,030,530	61.0
22-23..............	0.000441	98,827	44	98,805	5,931,682	60.0
23-24..............	0.000440	98,784	43	98,762	5,832,876	59.0
24-25..............	0.000435	98,740	43	98,719	5,734,114	58.1
25-26..............	0.000427	98,697	42	98,676	5,635,396	57.1
26-27..............	0.000422	98,655	42	98,634	5,536,720	56.1
27-28..............	0.000426	98,613	42	98,592	5,438,085	55.1
28-29..............	0.000445	98,571	44	98,549	5,339,493	54.2
29-30..............	0.000474	98,528	47	98,504	5,240,944	53.2
30-31..............	0.000509	98,481	50	98,456	5,142,439	52.2
31-32..............	0.000545	98,431	54	98,404	5,043,983	51.2
32-33..............	0.000587	98,377	58	98,348	4,945,579	50.3
33-34..............	0.000636	98,319	62	98,288	4,847,231	49.3
34-35..............	0.000691	98,257	68	98,223	4,748,943	48.3
35-36..............	0.000755	98,189	74	98,152	4,650,720	47.4

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000827	98,115	81	98,074	4,552,568	46.4
37-38.............	0.000903	98,034	89	97,989	4,454,494	45.4
38-39.............	0.000978	97,945	96	97,897	4,356,504	44.5
39-40.............	0.001055	97,849	103	97,798	4,258,607	43.5
40-41.............	0.001139	97,746	111	97,690	4,160,809	42.6
41-42.............	0.001237	97,635	121	97,574	4,063,119	41.6
42-43.............	0.001354	97,514	132	97,448	3,965,544	40.7
43-44.............	0.001498	97,382	146	97,309	3,868,096	39.7
44-45.............	0.001670	97,236	162	97,155	3,770,787	38.8
45-46.............	0.001871	97,074	182	96,983	3,673,632	37.8
46-47.............	0.002096	96,892	203	96,791	3,576,650	36.9
47-48.............	0.002338	96,689	226	96,576	3,479,859	36.0
48-49.............	0.002582	96,463	249	96,338	3,383,283	35.1
49-50.............	0.002825	96,214	272	96,078	3,286,945	34.2
50-51.............	0.003092	95,942	297	95,794	3,190,867	33.3
51-52.............	0.003382	95,645	324	95,484	3,095,073	32.4
52-53.............	0.003664	95,322	349	95,147	2,999,589	31.5
53-54.............	0.003926	94,973	373	94,786	2,904,442	30.6
54-55.............	0.004183	94,600	396	94,402	2,809,656	29.7
55-56.............	0.004441	94,204	418	93,995	2,715,254	28.8
56-57.............	0.004740	93,786	445	93,563	2,621,259	27.9
57-58.............	0.005129	93,341	479	93,102	2,527,696	27.1
58-59.............	0.005637	92,862	523	92,601	2,434,594	26.2
59-60.............	0.006247	92,339	577	92,051	2,341,993	25.4
60-61.............	0.006870	91,762	630	91,447	2,249,943	24.5
61-62.............	0.007514	91,132	685	90,789	2,158,496	23.7
62-63.............	0.008292	90,447	750	90,072	2,067,707	22.9
63-64.............	0.009262	89,697	831	89,282	1,977,635	22.0
64-65.............	0.010408	88,866	925	88,404	1,888,353	21.2
65-66.............	0.011724	87,941	1,031	87,426	1,799,949	20.5
66-67.............	0.013086	86,910	1,137	86,342	1,712,523	19.7
67-68.............	0.014396	85,773	1,235	85,156	1,626,182	19.0
68-69.............	0.015591	84,538	1,318	83,879	1,541,026	18.2
69-70.............	0.016748	83,220	1,394	82,523	1,457,147	17.5
70-71.............	0.018063	81,826	1,478	81,087	1,374,624	16.8

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.019675	80,348	1,581	79,558	1,293,536	16.1
72-73.............	0.021474	78,768	1,691	77,922	1,213,978	15.4
73-74.............	0.023322	77,076	1,798	76,177	1,136,056	14.7
74-75.............	0.025116	75,279	1,891	74,333	1,059,879	14.1
75-76.............	0.026766	73,388	1,964	72,406	985,546	13.4
76-77.............	0.028631	71,424	2,045	70,401	913,140	12.8
77-78.............	0.031044	69,379	2,154	68,302	842,739	12.1
78-79.............	0.034222	67,225	2,301	66,075	774,437	11.5
79-80.............	0.038051	64,924	2,470	63,689	708,362	10.9
80-81.............	0.042192	62,454	2,635	61,136	644,673	10.3
81-82.............	0.046287	59,819	2,769	58,434	583,537	9.8
82-83.............	0.051162	57,050	2,919	55,591	525,102	9.2
83-84.............	0.056461	54,131	3,056	52,603	469,511	8.7
84-85.............	0.062280	51,075	3,181	49,484	416,908	8.2
85-86.............	0.068965	47,894	3,303	46,242	367,424	7.7
86-87.............	0.076596	44,591	3,415	42,883	321,181	7.2
87-88.............	0.084802	41,176	3,492	39,430	278,298	6.8
88-89.............	0.093429	37,684	3,521	35,923	238,869	6.3
89-90.............	0.102706	34,163	3,509	32,409	202,945	5.9
90-91.............	0.113449	30,654	3,478	28,915	170,537	5.6
91-92.............	0.125659	27,177	3,415	25,469	141,621	5.2
92-93.............	0.138265	23,762	3,285	22,119	116,152	4.9
93-94.............	0.150598	20,476	3,084	18,934	94,033	4.6
94-95.............	0.162962	17,392	2,834	15,975	75,099	4.3
95-96.............	0.175932	14,558	2,561	13,278	59,124	4.1
96-97.............	0.189860	11,997	2,278	10,858	45,846	3.8
97-98.............	0.203543	9,719	1,978	8,730	34,988	3.6
98-99.............	0.217036	7,741	1,680	6,901	26,258	3.4
99-100............	0.230440	6,061	1,397	5,363	19,357	3.2
100+...............	1.000000	4,664	4,664	13,995	13,995	3.0

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A17. Complete Life Tables for Hispanic Females in the Southwestern United States, 2000

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.004810	100,000	481	99,585	8,140,449	81.4
1-2..................	0.000313	99,519	31	99,503	8,040,864	80.8
2-3..................	0.000242	99,488	24	99,476	7,941,361	79.8
3-4..................	0.000190	99,464	19	99,454	7,841,885	78.8
4-5..................	0.000152	99,445	15	99,437	7,742,430	77.9
5-6..................	0.000125	99,430	12	99,424	7,642,993	76.9
6-7..................	0.000107	99,417	11	99,412	7,543,569	75.9
7-8..................	0.000095	99,407	9	99,402	7,444,157	74.9
8-9..................	0.000088	99,397	9	99,393	7,344,755	73.9
9-10................	0.000084	99,389	8	99,384	7,245,363	72.9
10-11..............	0.000086	99,380	8	99,376	7,145,978	71.9
11-12..............	0.000094	99,372	9	99,367	7,046,602	70.9
12-13..............	0.000113	99,362	11	99,357	6,947,235	69.9
13-14..............	0.000143	99,351	14	99,344	6,847,879	68.9
14-15..............	0.000181	99,337	18	99,328	6,748,535	67.9
15-16..............	0.000226	99,319	22	99,308	6,649,207	66.9
16-17..............	0.000270	99,296	27	99,283	6,549,899	66.0
17-18..............	0.000304	99,270	30	99,255	6,450,616	65.0
18-19..............	0.000323	99,240	32	99,224	6,351,361	64.0
19-20..............	0.000330	99,207	33	99,191	6,252,138	63.0
20-21..............	0.000335	99,175	33	99,158	6,152,947	62.0
21-22..............	0.000341	99,142	34	99,125	6,053,789	61.1
22-23..............	0.000346	99,108	34	99,091	5,954,664	60.1
23-24..............	0.000351	99,073	35	99,056	5,855,573	59.1
24-25..............	0.000356	99,039	35	99,021	5,756,517	58.1
25-26..............	0.000362	99,003	36	98,985	5,657,496	57.1
26-27..............	0.000369	98,968	37	98,949	5,558,511	56.2
27-28..............	0.000375	98,931	37	98,912	5,459,562	55.2
28-29..............	0.000380	98,894	38	98,875	5,360,649	54.2
29-30..............	0.000386	98,856	38	98,837	5,261,774	53.2
30-31..............	0.000391	98,818	39	98,799	5,162,937	52.2
31-32..............	0.000404	98,779	40	98,759	5,064,138	51.3
32-33..............	0.000437	98,740	43	98,718	4,965,379	50.3
33-34..............	0.000496	98,696	49	98,672	4,866,661	49.3
34-35..............	0.000575	98,647	57	98,619	4,767,989	48.3
35-36..............	0.000667	98,591	66	98,558	4,669,370	47.4

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000759	98,525	75	98,488	4,570,812	46.4
37-38.............	0.000848	98,450	84	98,408	4,472,324	45.4
38-39.............	0.000930	98,367	92	98,321	4,373,916	44.5
39-40.............	0.001010	98,275	99	98,226	4,275,595	43.5
40-41.............	0.001094	98,176	107	98,122	4,177,369	42.5
41-42.............	0.001192	98,068	117	98,010	4,079,247	41.6
42-43.............	0.001305	97,952	128	97,888	3,981,237	40.6
43-44.............	0.001439	97,824	141	97,753	3,883,349	39.7
44-45.............	0.001595	97,683	156	97,605	3,785,596	38.8
45-46.............	0.001768	97,527	172	97,441	3,687,991	37.8
46-47.............	0.001954	97,355	190	97,260	3,590,550	36.9
47-48.............	0.002156	97,165	210	97,060	3,493,290	36.0
48-49.............	0.002372	96,955	230	96,840	3,396,230	35.0
49-50.............	0.002598	96,725	251	96,599	3,299,390	34.1
50-51.............	0.002849	96,474	275	96,336	3,202,791	33.2
51-52.............	0.003118	96,199	300	96,049	3,106,454	32.3
52-53.............	0.003376	95,899	324	95,737	3,010,405	31.4
53-54.............	0.003615	95,575	345	95,403	2,914,668	30.5
54-55.............	0.003850	95,230	367	95,046	2,819,266	29.6
55-56.............	0.004116	94,863	390	94,668	2,724,219	28.7
56-57.............	0.004439	94,473	419	94,263	2,629,551	27.8
57-58.............	0.004822	94,053	454	93,827	2,535,288	27.0
58-59.............	0.005269	93,600	493	93,353	2,441,462	26.1
59-60.............	0.005775	93,107	538	92,838	2,348,108	25.2
60-61.............	0.006313	92,569	584	92,277	2,255,270	24.4
61-62.............	0.006921	91,985	637	91,666	2,162,994	23.5
62-63.............	0.007669	91,348	701	90,998	2,071,327	22.7
63-64.............	0.008603	90,647	780	90,258	1,980,330	21.8
64-65.............	0.009705	89,868	872	89,432	1,890,072	21.0
65-66.............	0.010905	88,995	970	88,510	1,800,641	20.2
66-67.............	0.012148	88,025	1,069	87,490	1,712,130	19.5
67-68.............	0.013445	86,956	1,169	86,371	1,624,640	18.7
68-69.............	0.014772	85,787	1,267	85,153	1,538,269	17.9
69-70.............	0.016133	84,519	1,364	83,838	1,453,116	17.2
70-71.............	0.017516	83,156	1,457	82,427	1,369,278	16.5

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.018966	81,699	1,549	80,924	1,286,851	15.8
72-73.............	0.020577	80,150	1,649	79,325	1,205,927	15.0
73-74.............	0.022457	78,500	1,763	77,619	1,126,601	14.4
74-75.............	0.024648	76,738	1,891	75,792	1,048,982	13.7
75-76.............	0.027142	74,846	2,031	73,830	973,191	13.0
76-77.............	0.029807	72,815	2,170	71,730	899,360	12.4
77-78.............	0.032741	70,644	2,313	69,488	827,631	11.7
78-79.............	0.036110	68,331	2,467	67,098	758,143	11.1
79-80.............	0.040100	65,864	2,641	64,543	691,045	10.5
80-81.............	0.044724	63,223	2,828	61,809	626,502	9.9
81-82.............	0.049759	60,395	3,005	58,893	564,693	9.3
82-83.............	0.055025	57,390	3,158	55,811	505,800	8.8
83-84.............	0.060813	54,232	3,298	52,583	449,989	8.3
84-85.............	0.067166	50,934	3,421	49,224	397,406	7.8
85-86.............	0.074131	47,513	3,522	45,752	348,182	7.3
86-87.............	0.081753	43,991	3,596	42,193	302,430	6.9
87-88.............	0.090085	40,394	3,639	38,575	260,238	6.4
88-89.............	0.099172	36,756	3,645	34,933	221,663	6.0
89-90.............	0.109067	33,110	3,611	31,305	186,730	5.6
90-91.............	0.119818	29,499	3,535	27,732	155,425	5.3
91-92.............	0.131472	25,965	3,414	24,258	127,693	4.9
92-93.............	0.144074	22,551	3,249	20,926	103,435	4.6
93-94.............	0.157665	19,302	3,043	17,780	82,509	4.3
94-95.............	0.172280	16,259	2,801	14,858	64,728	4.0
95-96.............	0.187948	13,458	2,529	12,193	49,870	3.7
96-97.............	0.204688	10,928	2,237	9,810	37,677	3.4
97-98.............	0.222510	8,691	1,934	7,724	27,867	3.2
98-99.............	0.241413	6,758	1,631	5,942	20,143	3.0
99-100............	0.261382	5,126	1,340	4,456	14,201	2.8
100+...............	1.000000	3,786	3,786	9,745	9,745	2.6

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table A18. Complete Life Tables for Hispanic Females in the Southwestern United States, 2010

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
0-1..................	0.004608	100,000	461	99,598	8,283,451	82.8
1-2..................	0.000233	99,539	23	99,528	8,183,853	82.2
2-3..................	0.000186	99,516	19	99,507	8,084,325	81.2
3-4..................	0.000150	99,498	15	99,490	7,984,818	80.3
4-5..................	0.000122	99,483	12	99,477	7,885,328	79.3
5-6..................	0.000102	99,470	10	99,465	7,785,851	78.3
6-7..................	0.000088	99,460	9	99,456	7,686,386	77.3
7-8..................	0.000078	99,452	8	99,448	7,586,930	76.3
8-9..................	0.000070	99,444	7	99,440	7,487,482	75.3
9-10................	0.000064	99,437	6	99,434	7,388,042	74.3
10-11.............	0.000062	99,431	6	99,427	7,288,608	73.3
11-12.............	0.000066	99,424	7	99,421	7,189,181	72.3
12-13.............	0.000078	99,418	8	99,414	7,089,760	71.3
13-14.............	0.000101	99,410	10	99,405	6,990,346	70.3
14-15.............	0.000131	99,400	13	99,393	6,890,941	69.3
15-16.............	0.000164	99,387	16	99,379	6,791,548	68.3
16-17.............	0.000196	99,371	19	99,361	6,692,169	67.3
17-18.............	0.000225	99,351	22	99,340	6,592,808	66.4
18-19.............	0.000250	99,329	25	99,317	6,493,468	65.4
19-20.............	0.000272	99,304	27	99,291	6,394,151	64.4
20-21.............	0.000296	99,277	29	99,262	6,294,860	63.4
21-22.............	0.000321	99,248	32	99,232	6,195,598	62.4
22-23.............	0.000341	99,216	34	99,199	6,096,366	61.4
23-24.............	0.000353	99,182	35	99,164	5,997,167	60.5
24-25.............	0.000358	99,147	35	99,129	5,898,003	59.5
25-26.............	0.000362	99,111	36	99,094	5,798,874	58.5
26-27.............	0.000368	99,076	36	99,057	5,699,780	57.5
27-28.............	0.000374	99,039	37	99,021	5,600,723	56.6
28-29.............	0.000380	99,002	38	98,983	5,501,702	55.6
29-30.............	0.000388	98,964	38	98,945	5,402,719	54.6
30-31.............	0.000396	98,926	39	98,907	5,303,774	53.6
31-32.............	0.000409	98,887	40	98,867	5,204,867	52.6
32-33.............	0.000432	98,846	43	98,825	5,106,000	51.7
33-34.............	0.000469	98,804	46	98,781	5,007,175	50.7
34-35.............	0.000516	98,757	51	98,732	4,908,394	49.7
35-36.............	0.000570	98,706	56	98,678	4,809,662	48.7

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
36-37.............	0.000628	98,650	62	98,619	4,710,984	47.8
37-38.............	0.000690	98,588	68	98,554	4,612,365	46.8
38-39.............	0.000755	98,520	74	98,483	4,513,811	45.8
39-40.............	0.000826	98,446	81	98,405	4,415,328	44.9
40-41.............	0.000904	98,365	89	98,320	4,316,923	43.9
41-42.............	0.000993	98,276	98	98,227	4,218,603	42.9
42-43.............	0.001106	98,178	109	98,124	4,120,376	42.0
43-44.............	0.001245	98,069	122	98,008	4,022,252	41.0
44-45.............	0.001405	97,947	138	97,879	3,924,244	40.1
45-46.............	0.001578	97,810	154	97,733	3,826,365	39.1
46-47.............	0.001755	97,655	171	97,570	3,728,632	38.2
47-48.............	0.001936	97,484	189	97,390	3,631,062	37.2
48-49.............	0.002117	97,295	206	97,192	3,533,672	36.3
49-50.............	0.002301	97,089	223	96,978	3,436,480	35.4
50-51.............	0.002500	96,866	242	96,745	3,339,502	34.5
51-52.............	0.002712	96,624	262	96,493	3,242,757	33.6
52-53.............	0.002917	96,362	281	96,221	3,146,264	32.7
53-54.............	0.003109	96,081	299	95,931	3,050,043	31.7
54-55.............	0.003299	95,782	316	95,624	2,954,112	30.8
55-56.............	0.003498	95,466	334	95,299	2,858,488	29.9
56-57.............	0.003729	95,132	355	94,955	2,763,189	29.0
57-58.............	0.004016	94,777	381	94,587	2,668,234	28.2
58-59.............	0.004377	94,397	413	94,190	2,573,647	27.3
59-60.............	0.004808	93,984	452	93,758	2,479,457	26.4
60-61.............	0.005292	93,532	495	93,284	2,385,699	25.5
61-62.............	0.005817	93,037	541	92,766	2,292,415	24.6
62-63.............	0.006391	92,496	591	92,200	2,199,649	23.8
63-64.............	0.007021	91,904	645	91,582	2,107,449	22.9
64-65.............	0.007723	91,259	705	90,907	2,015,867	22.1
65-66.............	0.008544	90,554	774	90,167	1,924,960	21.3
66-67.............	0.009480	89,781	851	89,355	1,834,793	20.4
67-68.............	0.010473	88,930	931	88,464	1,745,438	19.6
68-69.............	0.011468	87,998	1,009	87,494	1,656,974	18.8
69-70.............	0.012471	86,989	1,085	86,447	1,569,480	18.0
70-71.............	0.013530	85,904	1,162	85,323	1,483,033	17.3

Age	Probablity of dying between age x to x+1 q_0	Number surviving to age x l_x	Number dying between ages x to x+1 d_x	Person-years lived between ages x to x+1 L_x	Total number of person-years lived above age x T_x	Expectation of life at age x e_x
71-72.............	0.014736	84,742	1,249	84,118	1,397,710	16.5
72-73.............	0.016135	83,493	1,347	82,820	1,313,592	15.7
73-74.............	0.017801	82,146	1,462	81,415	1,230,772	15.0
74-75.............	0.019743	80,684	1,593	79,887	1,149,357	14.2
75-76.............	0.021802	79,091	1,724	78,229	1,069,470	13.5
76-77.............	0.024193	77,367	1,872	76,431	991,241	12.8
77-78.............	0.027082	75,495	2,045	74,473	914,810	12.1
78-79.............	0.030516	73,450	2,241	72,330	840,337	11.4
79-80.............	0.034322	71,209	2,444	69,987	768,007	10.8
80-81.............	0.038159	68,765	2,624	67,453	698,020	10.2
81-82.............	0.042167	66,141	2,789	64,746	630,567	9.5
82-83.............	0.047276	63,352	2,995	61,854	565,821	8.9
83-84.............	0.053320	60,357	3,218	58,748	503,967	8.3
84-85.............	0.060091	57,139	3,434	55,422	445,219	7.8
85-86.............	0.068324	53,705	3,669	51,870	389,797	7.3
86-87.............	0.077066	50,036	3,856	48,108	337,927	6.8
87-88.............	0.086761	46,180	4,007	44,176	289,819	6.3
88-89.............	0.097468	42,173	4,111	40,118	245,643	5.8
89-90.............	0.109242	38,063	4,158	35,984	205,525	5.4
90-91.............	0.122127	33,905	4,141	31,834	169,541	5.0
91-92.............	0.136152	29,764	4,052	27,738	137,707	4.6
92-93.............	0.151333	25,711	3,891	23,766	109,969	4.3
93-94.............	0.167661	21,820	3,658	19,991	86,203	4.0
94-95.............	0.185108	18,162	3,362	16,481	66,212	3.6
95-96.............	0.203619	14,800	3,014	13,293	49,731	3.4
96-97.............	0.223113	11,787	2,630	10,472	36,438	3.1
97-98.............	0.243479	9,157	2,229	8,042	25,966	2.8
98-99.............	0.264584	6,927	1,833	6,011	17,924	2.6
99-100............	0.286270	5,094	1,458	4,365	11,913	2.3
100+................	1.000000	3,636	3,636	7,551	7,548	2.1

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix B. Standard Errors for Probability of Mortality in the Hispanic and non-Hispanic Life Tables for the Southwestern United States, 1990-2010

Table B1. Standard Errors for Probability of Mortality in the Hispanic and non-Hispanic Life Tables for the Southwestern United States, 1990

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
0............	0.0000000086	0.0000000067	0.0000000866	0.0000000741	0.0000000101	0.0000000086
1............	0.0000000010	0.0000000008	0.0000000083	0.0000000070	0.0000000015	0.0000000010
2............	0.0000000008	0.0000000006	0.0000000061	0.0000000059	0.0000000011	0.0000000008
3............	0.0000000006	0.0000000005	0.0000000048	0.0000000049	0.0000000009	0.0000000007
4............	0.0000000005	0.0000000004	0.0000000040	0.0000000040	0.0000000008	0.0000000005
5............	0.0000000004	0.0000000003	0.0000000037	0.0000000033	0.0000000007	0.0000000004
6............	0.0000000004	0.0000000003	0.0000000035	0.0000000027	0.0000000007	0.0000000003
7............	0.0000000003	0.0000000003	0.0000000033	0.0000000023	0.0000000006	0.0000000003
8............	0.0000000003	0.0000000002	0.0000000028	0.0000000021	0.0000000005	0.0000000003
9............	0.0000000003	0.0000000002	0.0000000021	0.0000000021	0.0000000004	0.0000000003
10...........	0.0000000003	0.0000000002	0.0000000014	0.0000000023	0.0000000003	0.0000000003
11...........	0.0000000003	0.0000000002	0.0000000014	0.0000000026	0.0000000003	0.0000000003
12...........	0.0000000004	0.0000000003	0.0000000027	0.0000000030	0.0000000005	0.0000000004
13...........	0.0000000007	0.0000000004	0.0000000059	0.0000000036	0.0000000010	0.0000000005
14...........	0.0000000010	0.0000000006	0.0000000102	0.0000000042	0.0000000017	0.0000000006
15...........	0.0000000014	0.0000000007	0.0000000149	0.0000000048	0.0000000024	0.0000000007
16...........	0.0000000017	0.0000000009	0.0000000190	0.0000000056	0.0000000031	0.0000000009
17...........	0.0000000020	0.0000000010	0.0000000224	0.0000000062	0.0000000035	0.0000000010
18...........	0.0000000021	0.0000000010	0.0000000246	0.0000000067	0.0000000037	0.0000000010
19...........	0.0000000021	0.0000000009	0.0000000259	0.0000000070	0.0000000037	0.0000000011
20...........	0.0000000021	0.0000000008	0.0000000271	0.0000000074	0.0000000037	0.0000000011
21...........	0.0000000021	0.0000000008	0.0000000282	0.0000000077	0.0000000037	0.0000000011
22...........	0.0000000021	0.0000000008	0.0000000287	0.0000000080	0.0000000037	0.0000000011
23...........	0.0000000020	0.0000000007	0.0000000284	0.0000000082	0.0000000038	0.0000000011
24...........	0.0000000020	0.0000000007	0.0000000277	0.0000000083	0.0000000040	0.0000000011
25...........	0.0000000019	0.0000000007	0.0000000268	0.0000000083	0.0000000041	0.0000000011
26...........	0.0000000019	0.0000000007	0.0000000262	0.0000000084	0.0000000042	0.0000000010
27...........	0.0000000019	0.0000000006	0.0000000263	0.0000000087	0.0000000044	0.0000000011
28...........	0.0000000019	0.0000000007	0.0000000272	0.0000000093	0.0000000047	0.0000000011
29...........	0.0000000020	0.0000000007	0.0000000289	0.0000000100	0.0000000050	0.0000000012
30...........	0.0000000021	0.0000000007	0.0000000309	0.0000000110	0.0000000054	0.0000000013

Age	Non-Hispanic Whites Male	Non-Hispanic Whites Female	Non-Hispanic Blacks Male	Non-Hispanic Blacks Female	Hispanics Male	Hispanics Female
31...........	0.0000000022	0.0000000008	0.0000000330	0.0000000119	0.0000000058	0.0000000015
32...........	0.0000000023	0.0000000008	0.0000000354	0.0000000129	0.0000000063	0.0000000016
33...........	0.0000000024	0.0000000009	0.0000000381	0.0000000141	0.0000000068	0.0000000018
34...........	0.0000000026	0.0000000009	0.0000000413	0.0000000155	0.0000000074	0.0000000021
35...........	0.0000000028	0.0000000010	0.0000000452	0.0000000171	0.0000000080	0.0000000024
36...........	0.0000000031	0.0000000011	0.0000000497	0.0000000190	0.0000000088	0.0000000027
37...........	0.0000000033	0.0000000012	0.0000000546	0.0000000213	0.0000000096	0.0000000031
38...........	0.0000000035	0.0000000013	0.0000000599	0.0000000240	0.0000000105	0.0000000035
39...........	0.0000000036	0.0000000014	0.0000000656	0.0000000272	0.0000000116	0.0000000040
40...........	0.0000000038	0.0000000016	0.0000000722	0.0000000309	0.0000000128	0.0000000045
41...........	0.0000000040	0.0000000017	0.0000000802	0.0000000353	0.0000000142	0.0000000052
42...........	0.0000000042	0.0000000019	0.0000000896	0.0000000403	0.0000000157	0.0000000060
43...........	0.0000000046	0.0000000022	0.0000001005	0.0000000461	0.0000000175	0.0000000071
44...........	0.0000000052	0.0000000026	0.0000001134	0.0000000527	0.0000000196	0.0000000084
45...........	0.0000000059	0.0000000030	0.0000001289	0.0000000609	0.0000000222	0.0000000101
46...........	0.0000000067	0.0000000036	0.0000001473	0.0000000706	0.0000000252	0.0000000122
47...........	0.0000000077	0.0000000042	0.0000001680	0.0000000813	0.0000000286	0.0000000145
48...........	0.0000000087	0.0000000048	0.0000001897	0.0000000924	0.0000000323	0.0000000169
49...........	0.0000000099	0.0000000055	0.0000002119	0.0000001037	0.0000000364	0.0000000193
50...........	0.0000000112	0.0000000063	0.0000002353	0.0000001159	0.0000000408	0.0000000220
51...........	0.0000000128	0.0000000073	0.0000002612	0.0000001296	0.0000000460	0.0000000251
52...........	0.0000000146	0.0000000083	0.0000002908	0.0000001445	0.0000000518	0.0000000282
53...........	0.0000000164	0.0000000094	0.0000003257	0.0000001609	0.0000000583	0.0000000312
54...........	0.0000000182	0.0000000105	0.0000003661	0.0000001788	0.0000000658	0.0000000343
55...........	0.0000000200	0.0000000116	0.0000004099	0.0000001975	0.0000000738	0.0000000375
56...........	0.0000000221	0.0000000128	0.0000004561	0.0000002174	0.0000000826	0.0000000410
57...........	0.0000000244	0.0000000141	0.0000005072	0.0000002408	0.0000000929	0.0000000454
58...........	0.0000000272	0.0000000155	0.0000005649	0.0000002686	0.0000001053	0.0000000508
59...........	0.0000000303	0.0000000169	0.0000006295	0.0000003004	0.0000001196	0.0000000573
60...........	0.0000000336	0.0000000183	0.0000007010	0.0000003346	0.0000001351	0.0000000639

Age	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
	Male	Female	Male	Female	Male	Female
61...........	0.0000000369	0.0000000196	0.0000007784	0.0000003698	0.0000001519	0.0000000710
62...........	0.0000000403	0.0000000211	0.0000008602	0.0000004067	0.0000001711	0.0000000801
63...........	0.0000000438	0.0000000226	0.0000009438	0.0000004448	0.0000001936	0.0000000924
64...........	0.0000000475	0.0000000242	0.0000010292	0.0000004845	0.0000002198	0.0000001082
65...........	0.0000000511	0.0000000258	0.0000011160	0.0000005259	0.0000002491	0.0000001272
66...........	0.0000000550	0.0000000275	0.0000012110	0.0000005706	0.0000002822	0.0000001486
67...........	0.0000000603	0.0000000298	0.0000013277	0.0000006224	0.0000003231	0.0000001728
68...........	0.0000000678	0.0000000332	0.0000014838	0.0000006865	0.0000003779	0.0000002008
69...........	0.0000000780	0.0000000380	0.0000016900	0.0000007665	0.0000004529	0.0000002343
70...........	0.0000000909	0.0000000442	0.0000019541	0.0000008650	0.0000005585	0.0000002783
71...........	0.0000001061	0.0000000515	0.0000022692	0.0000009807	0.0000006994	0.0000003351
72...........	0.0000001238	0.0000000597	0.0000026215	0.0000011091	0.0000008669	0.0000003989
73...........	0.0000001432	0.0000000680	0.0000029707	0.0000012387	0.0000010285	0.0000004593
74...........	0.0000001644	0.0000000762	0.0000033058	0.0000013668	0.0000011661	0.0000005120
75...........	0.0000001891	0.0000000851	0.0000036504	0.0000014955	0.0000012951	0.0000005593
76...........	0.0000002188	0.0000000947	0.0000040841	0.0000016522	0.0000014522	0.0000006203
77...........	0.0000002546	0.0000001066	0.0000046291	0.0000018527	0.0000016606	0.0000007085
78...........	0.0000002991	0.0000001223	0.0000053938	0.0000021321	0.0000019530	0.0000008397
79...........	0.0000003551	0.0000001428	0.0000064713	0.0000025103	0.0000023398	0.0000010166
80...........	0.0000004262	0.0000001679	0.0000079579	0.0000029983	0.0000028208	0.0000012274

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table B2. Standard Errors for Probability of Mortality in the Hispanic and non-Hispanic Life Tables for the Southwestern United States, 2000

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
0............	0.0000000075	0.0000000067	0.0000000780	0.0000000691	0.0000000060	0.0000000053
1............	0.0000000009	0.0000000007	0.0000000064	0.0000000052	0.0000000007	0.0000000005
2............	0.0000000006	0.0000000005	0.0000000044	0.0000000038	0.0000000005	0.0000000004
3............	0.0000000004	0.0000000004	0.0000000033	0.0000000029	0.0000000004	0.0000000003
4............	0.0000000003	0.0000000003	0.0000000026	0.0000000023	0.0000000003	0.0000000002
5............	0.0000000003	0.0000000003	0.0000000023	0.0000000019	0.0000000003	0.0000000002
6............	0.0000000003	0.0000000003	0.0000000021	0.0000000016	0.0000000003	0.0000000002
7............	0.0000000002	0.0000000002	0.0000000019	0.0000000014	0.0000000002	0.0000000001
8............	0.0000000002	0.0000000002	0.0000000017	0.0000000013	0.0000000002	0.0000000001
9............	0.0000000002	0.0000000002	0.0000000014	0.0000000012	0.0000000002	0.0000000001
10...........	0.0000000002	0.0000000002	0.0000000012	0.0000000012	0.0000000001	0.0000000001
11...........	0.0000000002	0.0000000002	0.0000000012	0.0000000012	0.0000000002	0.0000000002
12...........	0.0000000003	0.0000000002	0.0000000017	0.0000000014	0.0000000003	0.0000000002
13...........	0.0000000004	0.0000000003	0.0000000028	0.0000000017	0.0000000005	0.0000000003
14...........	0.0000000006	0.0000000004	0.0000000043	0.0000000021	0.0000000008	0.0000000003
15...........	0.0000000008	0.0000000005	0.0000000062	0.0000000027	0.0000000011	0.0000000004
16...........	0.0000000011	0.0000000006	0.0000000081	0.0000000033	0.0000000014	0.0000000005
17...........	0.0000000013	0.0000000007	0.0000000101	0.0000000039	0.0000000016	0.0000000006
18...........	0.0000000014	0.0000000007	0.0000000120	0.0000000043	0.0000000018	0.0000000006
19...........	0.0000000016	0.0000000008	0.0000000138	0.0000000048	0.0000000019	0.0000000006
20...........	0.0000000018	0.0000000007	0.0000000160	0.0000000052	0.0000000019	0.0000000006
21...........	0.0000000019	0.0000000008	0.0000000182	0.0000000057	0.0000000020	0.0000000006
22...........	0.0000000020	0.0000000008	0.0000000199	0.0000000062	0.0000000020	0.0000000007
23...........	0.0000000020	0.0000000008	0.0000000206	0.0000000067	0.0000000020	0.0000000007
24...........	0.0000000019	0.0000000008	0.0000000205	0.0000000072	0.0000000020	0.0000000007
25...........	0.0000000018	0.0000000008	0.0000000200	0.0000000077	0.0000000020	0.0000000007
26...........	0.0000000017	0.0000000008	0.0000000197	0.0000000082	0.0000000020	0.0000000007
27...........	0.0000000016	0.0000000008	0.0000000194	0.0000000086	0.0000000020	0.0000000007
28...........	0.0000000016	0.0000000008	0.0000000193	0.0000000088	0.0000000020	0.0000000007
29...........	0.0000000017	0.0000000008	0.0000000194	0.0000000089	0.0000000021	0.0000000007
30...........	0.0000000017	0.0000000009	0.0000000195	0.0000000091	0.0000000022	0.0000000007

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
31...........	0.0000000018	0.0000000009	0.0000000197	0.0000000093	0.0000000023	0.0000000008
32...........	0.0000000018	0.0000000010	0.0000000200	0.0000000098	0.0000000024	0.0000000009
33...........	0.0000000019	0.0000000010	0.0000000204	0.0000000105	0.0000000026	0.0000000010
34...........	0.0000000019	0.0000000011	0.0000000210	0.0000000113	0.0000000029	0.0000000012
35...........	0.0000000020	0.0000000011	0.0000000216	0.0000000121	0.0000000032	0.0000000014
36...........	0.0000000020	0.0000000011	0.0000000224	0.0000000129	0.0000000035	0.0000000016
37...........	0.0000000021	0.0000000012	0.0000000237	0.0000000140	0.0000000039	0.0000000018
38...........	0.0000000023	0.0000000013	0.0000000257	0.0000000154	0.0000000043	0.0000000020
39...........	0.0000000024	0.0000000014	0.0000000284	0.0000000172	0.0000000048	0.0000000023
40...........	0.0000000026	0.0000000015	0.0000000314	0.0000000192	0.0000000054	0.0000000026
41...........	0.0000000028	0.0000000016	0.0000000347	0.0000000215	0.0000000061	0.0000000029
42...........	0.0000000031	0.0000000018	0.0000000388	0.0000000241	0.0000000069	0.0000000033
43...........	0.0000000034	0.0000000019	0.0000000439	0.0000000273	0.0000000078	0.0000000038
44...........	0.0000000037	0.0000000021	0.0000000503	0.0000000311	0.0000000088	0.0000000044
45...........	0.0000000042	0.0000000023	0.0000000583	0.0000000357	0.0000000100	0.0000000051
46...........	0.0000000047	0.0000000025	0.0000000678	0.0000000410	0.0000000114	0.0000000060
47...........	0.0000000051	0.0000000028	0.0000000781	0.0000000469	0.0000000130	0.0000000070
48...........	0.0000000056	0.0000000031	0.0000000887	0.0000000531	0.0000000146	0.0000000080
49...........	0.0000000059	0.0000000033	0.0000000997	0.0000000596	0.0000000164	0.0000000092
50...........	0.0000000063	0.0000000037	0.0000001118	0.0000000670	0.0000000183	0.0000000106
51...........	0.0000000068	0.0000000040	0.0000001264	0.0000000756	0.0000000206	0.0000000122
52...........	0.0000000074	0.0000000045	0.0000001443	0.0000000857	0.0000000235	0.0000000139
53...........	0.0000000084	0.0000000051	0.0000001673	0.0000000980	0.0000000273	0.0000000159
54...........	0.0000000097	0.0000000059	0.0000001965	0.0000001130	0.0000000323	0.0000000182
55...........	0.0000000114	0.0000000069	0.0000002341	0.0000001318	0.0000000389	0.0000000211
56...........	0.0000000134	0.0000000082	0.0000002792	0.0000001542	0.0000000469	0.0000000246
57...........	0.0000000157	0.0000000096	0.0000003273	0.0000001784	0.0000000561	0.0000000287
58...........	0.0000000182	0.0000000112	0.0000003703	0.0000002018	0.0000000654	0.0000000332
59...........	0.0000000207	0.0000000128	0.0000004064	0.0000002236	0.0000000746	0.0000000381
60...........	0.0000000237	0.0000000147	0.0000004400	0.0000002454	0.0000000843	0.0000000433

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
61...........	0.0000000273	0.0000000169	0.0000004785	0.0000002703	0.0000000957	0.0000000495
62...........	0.0000000312	0.0000000194	0.0000005247	0.0000002999	0.0000001092	0.0000000570
63...........	0.0000000353	0.0000000219	0.0000005852	0.0000003368	0.0000001259	0.0000000664
64...........	0.0000000394	0.0000000244	0.0000006614	0.0000003811	0.0000001461	0.0000000778
65...........	0.0000000437	0.0000000271	0.0000007455	0.0000004302	0.0000001687	0.0000000905
66...........	0.0000000483	0.0000000301	0.0000008349	0.0000004816	0.0000001931	0.0000001042
67...........	0.0000000536	0.0000000332	0.0000009429	0.0000005371	0.0000002212	0.0000001190
68...........	0.0000000598	0.0000000364	0.0000010784	0.0000005968	0.0000002536	0.0000001346
69...........	0.0000000670	0.0000000398	0.0000012464	0.0000006617	0.0000002907	0.0000001513
70...........	0.0000000745	0.0000000431	0.0000014510	0.0000007316	0.0000003314	0.0000001688
71...........	0.0000000825	0.0000000466	0.0000016882	0.0000008093	0.0000003765	0.0000001883
72...........	0.0000000918	0.0000000509	0.0000019504	0.0000008998	0.0000004296	0.0000002122
73...........	0.0000001029	0.0000000562	0.0000022206	0.0000010082	0.0000004947	0.0000002437
74...........	0.0000001158	0.0000000624	0.0000024971	0.0000011365	0.0000005752	0.0000002848
75...........	0.0000001298	0.0000000688	0.0000027914	0.0000012826	0.0000006720	0.0000003358
76...........	0.0000001456	0.0000000760	0.0000031383	0.0000014532	0.0000007872	0.0000003955
77...........	0.0000001665	0.0000000861	0.0000035960	0.0000016631	0.0000009361	0.0000004709
78...........	0.0000001947	0.0000001005	0.0000042381	0.0000019303	0.0000011464	0.0000005723
79...........	0.0000002316	0.0000001195	0.0000051196	0.0000022698	0.0000014508	0.0000007113
80...........	0.0000002768	0.0000001431	0.0000062761	0.0000026960	0.0000018842	0.0000008993

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table B3. Standard Errors for Probability of Mortality in the Hispanic and non-Hispanic Life Tables for the Southwestern United States, 2010

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
0............	0.0000000076	0.0000000065	0.0000000698	0.0000000595	0.0000000052	0.0000000048
1............	0.0000000007	0.0000000006	0.0000000049	0.0000000040	0.0000000005	0.0000000003
2............	0.0000000006	0.0000000005	0.0000000038	0.0000000034	0.0000000004	0.0000000002
3............	0.0000000004	0.0000000004	0.0000000029	0.0000000027	0.0000000003	0.0000000002
4............	0.0000000004	0.0000000003	0.0000000024	0.0000000021	0.0000000002	0.0000000002
5............	0.0000000003	0.0000000002	0.0000000020	0.0000000016	0.0000000002	0.0000000001
6............	0.0000000002	0.0000000002	0.0000000017	0.0000000013	0.0000000002	0.0000000001
7............	0.0000000002	0.0000000002	0.0000000015	0.0000000010	0.0000000001	0.0000000001
8............	0.0000000002	0.0000000001	0.0000000012	0.0000000010	0.0000000001	0.0000000001
9............	0.0000000001	0.0000000001	0.0000000009	0.0000000010	0.0000000001	0.0000000001
10...........	0.0000000001	0.0000000001	0.0000000006	0.0000000011	0.0000000001	0.0000000001
11...........	0.0000000001	0.0000000002	0.0000000006	0.0000000013	0.0000000001	0.0000000001
12...........	0.0000000002	0.0000000002	0.0000000011	0.0000000014	0.0000000001	0.0000000001
13...........	0.0000000003	0.0000000002	0.0000000020	0.0000000015	0.0000000003	0.0000000001
14...........	0.0000000005	0.0000000003	0.0000000031	0.0000000016	0.0000000004	0.0000000002
15...........	0.0000000007	0.0000000004	0.0000000042	0.0000000017	0.0000000005	0.0000000002
16...........	0.0000000008	0.0000000004	0.0000000051	0.0000000019	0.0000000007	0.0000000003
17...........	0.0000000010	0.0000000005	0.0000000061	0.0000000021	0.0000000008	0.0000000003
18...........	0.0000000012	0.0000000006	0.0000000072	0.0000000025	0.0000000010	0.0000000003
19...........	0.0000000014	0.0000000006	0.0000000085	0.0000000030	0.0000000011	0.0000000004
20...........	0.0000000016	0.0000000007	0.0000000100	0.0000000036	0.0000000013	0.0000000004
21...........	0.0000000018	0.0000000007	0.0000000116	0.0000000043	0.0000000014	0.0000000005
22...........	0.0000000019	0.0000000008	0.0000000129	0.0000000048	0.0000000015	0.0000000005
23...........	0.0000000019	0.0000000008	0.0000000137	0.0000000051	0.0000000016	0.0000000005
24...........	0.0000000019	0.0000000008	0.0000000140	0.0000000053	0.0000000016	0.0000000006
25...........	0.0000000018	0.0000000008	0.0000000142	0.0000000055	0.0000000016	0.0000000006
26...........	0.0000000018	0.0000000008	0.0000000145	0.0000000057	0.0000000016	0.0000000006
27...........	0.0000000018	0.0000000008	0.0000000148	0.0000000061	0.0000000016	0.0000000006
28...........	0.0000000018	0.0000000008	0.0000000153	0.0000000068	0.0000000016	0.0000000006
29...........	0.0000000019	0.0000000009	0.0000000159	0.0000000076	0.0000000016	0.0000000006
30...........	0.0000000020	0.0000000010	0.0000000166	0.0000000085	0.0000000017	0.0000000006

	Non-Hispanic Whites		Non-Hispanic Blacks		Hispanics	
Age	Male	Female	Male	Female	Male	Female
31...........	0.0000000021	0.0000000011	0.0000000173	0.0000000094	0.0000000018	0.0000000006
32...........	0.0000000021	0.0000000012	0.0000000178	0.0000000101	0.0000000018	0.0000000007
33...........	0.0000000022	0.0000000013	0.0000000182	0.0000000107	0.0000000019	0.0000000007
34...........	0.0000000023	0.0000000014	0.0000000185	0.0000000111	0.0000000020	0.0000000008
35...........	0.0000000024	0.0000000014	0.0000000188	0.0000000115	0.0000000021	0.0000000009
36...........	0.0000000025	0.0000000015	0.0000000194	0.0000000120	0.0000000022	0.0000000010
37...........	0.0000000026	0.0000000016	0.0000000203	0.0000000129	0.0000000024	0.0000000011
38...........	0.0000000027	0.0000000018	0.0000000215	0.0000000140	0.0000000026	0.0000000012
39...........	0.0000000028	0.0000000019	0.0000000231	0.0000000153	0.0000000028	0.0000000014
40...........	0.0000000030	0.0000000021	0.0000000248	0.0000000169	0.0000000030	0.0000000016
41...........	0.0000000032	0.0000000022	0.0000000268	0.0000000185	0.0000000033	0.0000000018
42...........	0.0000000034	0.0000000024	0.0000000288	0.0000000202	0.0000000037	0.0000000020
43...........	0.0000000036	0.0000000025	0.0000000309	0.0000000218	0.0000000041	0.0000000023
44...........	0.0000000039	0.0000000026	0.0000000330	0.0000000234	0.0000000046	0.0000000027
45...........	0.0000000041	0.0000000027	0.0000000351	0.0000000248	0.0000000051	0.0000000031
46...........	0.0000000044	0.0000000028	0.0000000375	0.0000000264	0.0000000057	0.0000000035
47...........	0.0000000046	0.0000000029	0.0000000405	0.0000000285	0.0000000065	0.0000000039
48...........	0.0000000049	0.0000000031	0.0000000444	0.0000000314	0.0000000073	0.0000000044
49...........	0.0000000053	0.0000000034	0.0000000492	0.0000000349	0.0000000084	0.0000000050
50...........	0.0000000057	0.0000000036	0.0000000544	0.0000000388	0.0000000096	0.0000000056
51...........	0.0000000061	0.0000000039	0.0000000601	0.0000000429	0.0000000109	0.0000000063
52...........	0.0000000066	0.0000000042	0.0000000673	0.0000000476	0.0000000125	0.0000000070
53...........	0.0000000072	0.0000000045	0.0000000769	0.0000000532	0.0000000143	0.0000000078
54...........	0.0000000080	0.0000000048	0.0000000894	0.0000000598	0.0000000164	0.0000000087
55...........	0.0000000089	0.0000000052	0.0000001051	0.0000000677	0.0000000190	0.0000000097
56...........	0.0000000099	0.0000000056	0.0000001236	0.0000000768	0.0000000220	0.0000000109
57...........	0.0000000109	0.0000000061	0.0000001442	0.0000000868	0.0000000254	0.0000000124
58...........	0.0000000119	0.0000000067	0.0000001653	0.0000000972	0.0000000291	0.0000000143
59...........	0.0000000127	0.0000000073	0.0000001869	0.0000001080	0.0000000331	0.0000000165
60...........	0.0000000136	0.0000000080	0.0000002114	0.0000001203	0.0000000375	0.0000000191

Age	Non-Hispanic Whites Male	Non-Hispanic Whites Female	Non-Hispanic Blacks Male	Non-Hispanic Blacks Female	Hispanics Male	Hispanics Female
61..........	0.0000000146	0.0000000088	0.0000002411	0.0000001349	0.0000000428	0.0000000222
62..........	0.0000000160	0.0000000098	0.0000002760	0.0000001521	0.0000000492	0.0000000259
63..........	0.0000000179	0.0000000110	0.0000003182	0.0000001727	0.0000000571	0.0000000303
64..........	0.0000000205	0.0000000126	0.0000003698	0.0000001978	0.0000000673	0.0000000358
65..........	0.0000000238	0.0000000147	0.0000004349	0.0000002285	0.0000000801	0.0000000427
66..........	0.0000000278	0.0000000172	0.0000005145	0.0000002656	0.0000000959	0.0000000512
67..........	0.0000000324	0.0000000201	0.0000006040	0.0000003085	0.0000001144	0.0000000607
68..........	0.0000000375	0.0000000233	0.0000006939	0.0000003553	0.0000001343	0.0000000708
69..........	0.0000000430	0.0000000268	0.0000007801	0.0000004053	0.0000001551	0.0000000814
70..........	0.0000000496	0.0000000311	0.0000008664	0.0000004607	0.0000001778	0.0000000930
71..........	0.0000000578	0.0000000364	0.0000009651	0.0000005244	0.0000002042	0.0000001068
72..........	0.0000000674	0.0000000425	0.0000010846	0.0000005963	0.0000002353	0.0000001231
73..........	0.0000000782	0.0000000493	0.0000012422	0.0000006787	0.0000002735	0.0000001431
74..........	0.0000000902	0.0000000568	0.0000014464	0.0000007735	0.0000003203	0.0000001673
75..........	0.0000001033	0.0000000651	0.0000016874	0.0000008787	0.0000003742	0.0000001946
76..........	0.0000001181	0.0000000741	0.0000019741	0.0000010014	0.0000004396	0.0000002287
77..........	0.0000001361	0.0000000841	0.0000023278	0.0000011466	0.0000005225	0.0000002714
78..........	0.0000001580	0.0000000950	0.0000027922	0.0000013393	0.0000006306	0.0000003233
79..........	0.0000001829	0.0000001067	0.0000034297	0.0000015896	0.0000007678	0.0000003828
80..........	0.0000002122	0.0000001191	0.0000041440	0.0000018768	0.0000009399	0.0000004449

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix C. Mortality Rates and Decompositions of Life Expectancy for Hispanics and non-Hispanics in the Southwest United States, 1990-2010

Table C1. Adjusted and Unadjusted Age-Specific Mortality Rates for Hispanics and non-Hispanics in the Southwest United States, 1990

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
0............	0.0082	0.0110	0.0061	0.0084	0.0168	0.0231	0.0138	0.0190	0.0080	0.0122	0.0064	0.0095
1............	0.0007	0.0007	0.0005	0.0005	0.0011	0.0011	0.0009	0.0009	0.0007	0.0007	0.0005	0.0005
2............	0.0005	0.0005	0.0004	0.0004	0.0008	0.0008	0.0007	0.0007	0.0005	0.0005	0.0004	0.0004
3............	0.0004	0.0004	0.0003	0.0003	0.0006	0.0006	0.0006	0.0006	0.0004	0.0004	0.0003	0.0003
4............	0.0003	0.0003	0.0002	0.0002	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0002	0.0002
5............	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002
6............	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0001	0.0001
7............	0.0002	0.0002	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0001	0.0001
8............	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
9............	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
10...........	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
11...........	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0003	0.0003	0.0001	0.0001	0.0001	0.0001
12...........	0.0003	0.0003	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001
13...........	0.0004	0.0004	0.0002	0.0002	0.0006	0.0006	0.0004	0.0004	0.0004	0.0004	0.0002	0.0002
14...........	0.0006	0.0006	0.0003	0.0003	0.0011	0.0011	0.0004	0.0004	0.0007	0.0007	0.0002	0.0002
15...........	0.0008	0.0008	0.0004	0.0004	0.0016	0.0016	0.0005	0.0005	0.0010	0.0010	0.0003	0.0003
16...........	0.0011	0.0011	0.0005	0.0005	0.0021	0.0021	0.0006	0.0006	0.0013	0.0013	0.0003	0.0003
17...........	0.0012	0.0012	0.0006	0.0006	0.0025	0.0025	0.0007	0.0007	0.0015	0.0015	0.0004	0.0004
18...........	0.0013	0.0013	0.0006	0.0006	0.0028	0.0028	0.0007	0.0007	0.0016	0.0016	0.0004	0.0004
19...........	0.0014	0.0014	0.0006	0.0006	0.0030	0.0030	0.0008	0.0008	0.0017	0.0017	0.0004	0.0004
20...........	0.0014	0.0014	0.0005	0.0005	0.0032	0.0032	0.0008	0.0008	0.0017	0.0017	0.0004	0.0004
21...........	0.0014	0.0014	0.0005	0.0005	0.0034	0.0034	0.0009	0.0009	0.0018	0.0018	0.0004	0.0004
22...........	0.0015	0.0015	0.0005	0.0005	0.0035	0.0035	0.0009	0.0009	0.0018	0.0018	0.0004	0.0004
23...........	0.0015	0.0015	0.0005	0.0005	0.0035	0.0035	0.0010	0.0010	0.0019	0.0019	0.0004	0.0004
24...........	0.0016	0.0016	0.0005	0.0005	0.0035	0.0035	0.0010	0.0010	0.0019	0.0019	0.0004	0.0004
25...........	0.0016	0.0016	0.0005	0.0005	0.0035	0.0035	0.0010	0.0010	0.0020	0.0020	0.0004	0.0004
26...........	0.0017	0.0017	0.0005	0.0005	0.0035	0.0035	0.0011	0.0011	0.0020	0.0020	0.0004	0.0004
27...........	0.0017	0.0017	0.0006	0.0006	0.0035	0.0035	0.0011	0.0011	0.0021	0.0021	0.0004	0.0004
28...........	0.0018	0.0018	0.0006	0.0006	0.0036	0.0036	0.0012	0.0012	0.0022	0.0022	0.0004	0.0004
29...........	0.0019	0.0019	0.0006	0.0006	0.0038	0.0038	0.0013	0.0013	0.0022	0.0022	0.0005	0.0005
30...........	0.0020	0.0020	0.0007	0.0007	0.0041	0.0041	0.0014	0.0014	0.0023	0.0023	0.0005	0.0005
31...........	0.0021	0.0021	0.0007	0.0007	0.0043	0.0043	0.0016	0.0016	0.0024	0.0024	0.0005	0.0005
32...........	0.0022	0.0022	0.0008	0.0008	0.0045	0.0045	0.0017	0.0017	0.0025	0.0025	0.0006	0.0006
33...........	0.0023	0.0023	0.0008	0.0008	0.0047	0.0047	0.0018	0.0018	0.0026	0.0026	0.0006	0.0006
34...........	0.0024	0.0024	0.0008	0.0008	0.0049	0.0049	0.0019	0.0019	0.0026	0.0026	0.0007	0.0007
35...........	0.0026	0.0026	0.0009	0.0009	0.0052	0.0052	0.0020	0.0020	0.0027	0.0027	0.0008	0.0008

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
36..........	0.0028	0.0028	0.0010	0.0010	0.0054	0.0054	0.0022	0.0022	0.0028	0.0028	0.0008	0.0008
37..........	0.0029	0.0029	0.0010	0.0010	0.0057	0.0057	0.0023	0.0023	0.0029	0.0029	0.0009	0.0009
38..........	0.0030	0.0030	0.0011	0.0011	0.0060	0.0060	0.0025	0.0025	0.0030	0.0030	0.0010	0.0010
39..........	0.0031	0.0031	0.0012	0.0012	0.0062	0.0062	0.0027	0.0027	0.0032	0.0032	0.0011	0.0011
40..........	0.0032	0.0032	0.0013	0.0013	0.0065	0.0065	0.0029	0.0029	0.0033	0.0033	0.0011	0.0011
41..........	0.0033	0.0033	0.0014	0.0014	0.0068	0.0068	0.0032	0.0032	0.0035	0.0035	0.0012	0.0012
42..........	0.0034	0.0034	0.0015	0.0015	0.0071	0.0071	0.0035	0.0035	0.0036	0.0036	0.0014	0.0014
43..........	0.0036	0.0036	0.0017	0.0017	0.0075	0.0075	0.0037	0.0037	0.0037	0.0037	0.0015	0.0015
44..........	0.0038	0.0038	0.0018	0.0018	0.0079	0.0079	0.0040	0.0040	0.0039	0.0039	0.0017	0.0017
45..........	0.0040	0.0040	0.0020	0.0020	0.0084	0.0084	0.0044	0.0044	0.0041	0.0041	0.0019	0.0019
46..........	0.0043	0.0043	0.0023	0.0023	0.0090	0.0090	0.0048	0.0048	0.0043	0.0043	0.0021	0.0021
47..........	0.0047	0.0047	0.0025	0.0025	0.0097	0.0097	0.0052	0.0052	0.0045	0.0045	0.0023	0.0023
48..........	0.0050	0.0050	0.0028	0.0028	0.0105	0.0105	0.0056	0.0056	0.0048	0.0048	0.0026	0.0026
49..........	0.0054	0.0054	0.0030	0.0030	0.0113	0.0113	0.0061	0.0061	0.0051	0.0051	0.0028	0.0028
50..........	0.0059	0.0059	0.0033	0.0033	0.0122	0.0122	0.0066	0.0066	0.0055	0.0055	0.0031	0.0031
51..........	0.0065	0.0065	0.0037	0.0037	0.0131	0.0131	0.0071	0.0071	0.0059	0.0059	0.0034	0.0034
52..........	0.0071	0.0071	0.0041	0.0041	0.0142	0.0142	0.0077	0.0077	0.0063	0.0063	0.0037	0.0037
53..........	0.0077	0.0077	0.0045	0.0045	0.0154	0.0154	0.0083	0.0083	0.0068	0.0068	0.0039	0.0039
54..........	0.0084	0.0084	0.0049	0.0049	0.0168	0.0168	0.0090	0.0090	0.0074	0.0074	0.0042	0.0042
55..........	0.0092	0.0092	0.0054	0.0054	0.0182	0.0182	0.0098	0.0098	0.0080	0.0080	0.0045	0.0045
56..........	0.0100	0.0100	0.0059	0.0059	0.0198	0.0198	0.0105	0.0105	0.0087	0.0087	0.0048	0.0048
57..........	0.0110	0.0110	0.0065	0.0065	0.0214	0.0214	0.0115	0.0115	0.0095	0.0095	0.0051	0.0051
58..........	0.0122	0.0122	0.0072	0.0072	0.0231	0.0231	0.0126	0.0126	0.0104	0.0104	0.0057	0.0057
59..........	0.0135	0.0135	0.0079	0.0079	0.0250	0.0250	0.0138	0.0138	0.0115	0.0115	0.0063	0.0063
60..........	0.0149	0.0149	0.0086	0.0086	0.0270	0.0270	0.0152	0.0152	0.0126	0.0126	0.0069	0.0069
61..........	0.0164	0.0164	0.0094	0.0094	0.0290	0.0290	0.0165	0.0165	0.0138	0.0138	0.0075	0.0075
62..........	0.0179	0.0179	0.0102	0.0102	0.0311	0.0311	0.0179	0.0179	0.0151	0.0151	0.0083	0.0083
63..........	0.0194	0.0194	0.0112	0.0112	0.0333	0.0333	0.0193	0.0193	0.0165	0.0165	0.0093	0.0093
64..........	0.0211	0.0211	0.0121	0.0121	0.0356	0.0356	0.0207	0.0207	0.0180	0.0180	0.0105	0.0105
65..........	0.0227	0.0227	0.0131	0.0131	0.0378	0.0378	0.0221	0.0221	0.0197	0.0197	0.0118	0.0118
66..........	0.0243	0.0243	0.0141	0.0141	0.0401	0.0401	0.0236	0.0236	0.0214	0.0214	0.0132	0.0132
67..........	0.0262	0.0262	0.0153	0.0153	0.0425	0.0425	0.0251	0.0251	0.0231	0.0231	0.0145	0.0145
68..........	0.0285	0.0285	0.0166	0.0166	0.0450	0.0450	0.0266	0.0266	0.0250	0.0250	0.0157	0.0157
69..........	0.0312	0.0312	0.0182	0.0182	0.0478	0.0478	0.0281	0.0281	0.0270	0.0270	0.0169	0.0169
70..........	0.0344	0.0344	0.0201	0.0201	0.0509	0.0509	0.0298	0.0298	0.0295	0.0295	0.0182	0.0182

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
71..........	0.0378	0.0378	0.0221	0.0221	0.0544	0.0544	0.0318	0.0318	0.0326	0.0326	0.0199	0.0199
72..........	0.0415	0.0415	0.0245	0.0245	0.0582	0.0582	0.0340	0.0340	0.0360	0.0360	0.0217	0.0217
73..........	0.0454	0.0454	0.0269	0.0269	0.0621	0.0621	0.0365	0.0365	0.0393	0.0393	0.0236	0.0236
74..........	0.0494	0.0494	0.0295	0.0295	0.0659	0.0659	0.0392	0.0392	0.0423	0.0423	0.0254	0.0254
75..........	0.0536	0.0536	0.0321	0.0321	0.0697	0.0697	0.0419	0.0419	0.0451	0.0451	0.0271	0.0271
76..........	0.0583	0.0584	0.0348	0.0350	0.0739	0.0737	0.0448	0.0447	0.0480	0.0480	0.0290	0.0289
77..........	0.0633	0.0637	0.0378	0.0383	0.0784	0.0780	0.0481	0.0480	0.0516	0.0513	0.0315	0.0312
78..........	0.0687	0.0696	0.0415	0.0422	0.0838	0.0831	0.0521	0.0520	0.0559	0.0553	0.0348	0.0343
79..........	0.0747	0.0763	0.0458	0.0469	0.0903	0.0892	0.0568	0.0571	0.0608	0.0603	0.0388	0.0385
80..........	0.0815	0.0842	0.0507	0.0523	0.0984	0.0966	0.0623	0.0631	0.0663	0.0660	0.0431	0.0435
81..........	0.0890	0.0933	0.0559	0.0581	0.1075	0.1049	0.0683	0.0699	0.0722	0.0720	0.0474	0.0491
82..........	0.0974	0.1030	0.0620	0.0646	0.1164	0.1135	0.0747	0.0769	0.0788	0.0785	0.0525	0.0551
83..........	0.1057	0.1126	0.0687	0.0719	0.1239	0.1214	0.0809	0.0835	0.0852	0.0852	0.0581	0.0611
84..........	0.1139	0.1221	0.0761	0.0801	0.1296	0.1283	0.0866	0.0897	0.0915	0.0924	0.0643	0.0672
85..........	0.1232	0.1329	0.0846	0.0898	0.1349	0.1352	0.0924	0.0964	0.0988	0.1008	0.0714	0.0740
86..........	0.1344	0.1462	0.0944	0.1011	0.1417	0.1432	0.0994	0.1042	0.1074	0.1105	0.0796	0.0821
87..........	0.1466	0.1609	0.1051	0.1133	0.1503	0.1521	0.1072	0.1125	0.1168	0.1206	0.0886	0.0910
88..........	0.1596	0.1761	0.1164	0.1260	0.1617	0.1622	0.1163	0.1214	0.1268	0.1306	0.0980	0.1010
89..........	0.1733	0.1915	0.1286	0.1393	0.1762	0.1744	0.1268	0.1312	0.1374	0.1407	0.1083	0.1127
90..........	0.1884	0.2082	0.1430	0.1557	0.1934	0.1892	0.1392	0.1433	0.1490	0.1524	0.1203	0.1283
91..........	0.2053	0.2281	0.1594	0.1764	0.2121	0.2073	0.1531	0.1585	0.1619	0.1680	0.1341	0.1496
92..........	0.2233	0.2509	0.1767	0.1991	0.2304	0.2277	0.1669	0.1757	0.1758	0.1885	0.1485	0.1753
93..........	0.2415	0.2762	0.1937	0.2204	0.2445	0.2455	0.1790	0.1916	0.1898	0.2128	0.1629	0.1988
94..........	0.2590	0.3012	0.2110	0.2384	0.2537	0.2545	0.1898	0.2029	0.2033	0.2367	0.1774	0.2134
95..........	0.2759	0.3134	0.2293	0.2540	0.2637	0.2476	0.2021	0.2080	0.2162	0.2530	0.1929	0.2163
96..........	0.2948	0.3076	0.2493	0.2713	0.2791	0.2292	0.2183	0.2101	0.2309	0.2618	0.2098	0.2135
97..........	0.3129	0.2974	0.2691	0.2906	0.2955	0.2104	0.2357	0.2120	0.2449	0.2681	0.2266	0.2092
98..........	0.3311	0.3058	0.2889	0.3179	0.3130	0.2049	0.2543	0.2213	0.2590	0.2854	0.2435	0.2171
99..........	0.3505	0.3551	0.3089	0.3567	0.3316	0.2184	0.2717	0.2422	0.2741	0.3257	0.2604	0.2466
100........	0.4154	0.3353	0.3815	0.3761	0.3963	0.2025	0.3427	0.2791	0.3387	0.2054	0.3333	0.2489

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C2. Adjusted and Unadjusted Age-Specific Mortality Rates for Hispanics and non-Hispanics in the Southwest United States, 2000

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
0............	0.0057	0.0076	0.0048	0.0063	0.0125	0.0169	0.0106	0.0143	0.0058	0.0082	0.0048	0.0068
1............	0.0005	0.0005	0.0004	0.0004	0.0008	0.0008	0.0006	0.0006	0.0005	0.0005	0.0003	0.0003
2............	0.0004	0.0004	0.0003	0.0003	0.0006	0.0006	0.0005	0.0005	0.0003	0.0003	0.0002	0.0002
3............	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002
4............	0.0002	0.0002	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
5............	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001
6............	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
7............	0.0002	0.0002	0.0001	0.0001	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
8............	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
9............	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
10..........	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
11..........	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
12..........	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
13..........	0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0002	0.0002	0.0003	0.0003	0.0001	0.0001
14..........	0.0004	0.0004	0.0002	0.0002	0.0006	0.0006	0.0003	0.0003	0.0005	0.0005	0.0002	0.0002
15..........	0.0006	0.0006	0.0003	0.0003	0.0008	0.0008	0.0003	0.0003	0.0006	0.0006	0.0002	0.0002
16..........	0.0007	0.0007	0.0004	0.0004	0.0011	0.0011	0.0004	0.0004	0.0008	0.0008	0.0003	0.0003
17..........	0.0009	0.0009	0.0004	0.0005	0.0013	0.0013	0.0005	0.0005	0.0010	0.0010	0.0003	0.0003
18..........	0.0010	0.0010	0.0005	0.0005	0.0015	0.0015	0.0005	0.0005	0.0011	0.0011	0.0003	0.0003
19..........	0.0010	0.0010	0.0005	0.0005	0.0017	0.0017	0.0006	0.0006	0.0011	0.0011	0.0003	0.0003
20..........	0.0011	0.0011	0.0004	0.0004	0.0019	0.0019	0.0006	0.0006	0.0012	0.0012	0.0003	0.0003
21..........	0.0012	0.0012	0.0004	0.0004	0.0021	0.0021	0.0006	0.0006	0.0012	0.0012	0.0003	0.0003
22..........	0.0013	0.0013	0.0004	0.0004	0.0023	0.0023	0.0007	0.0007	0.0013	0.0013	0.0003	0.0003
23..........	0.0012	0.0012	0.0004	0.0004	0.0023	0.0023	0.0007	0.0007	0.0013	0.0013	0.0004	0.0004
24..........	0.0012	0.0012	0.0005	0.0005	0.0023	0.0023	0.0008	0.0008	0.0013	0.0013	0.0004	0.0004
25..........	0.0011	0.0011	0.0005	0.0005	0.0023	0.0023	0.0009	0.0009	0.0012	0.0012	0.0004	0.0004
26..........	0.0011	0.0011	0.0005	0.0005	0.0022	0.0022	0.0009	0.0009	0.0012	0.0012	0.0004	0.0004
27..........	0.0011	0.0011	0.0005	0.0005	0.0022	0.0022	0.0010	0.0010	0.0012	0.0012	0.0004	0.0004
28..........	0.0011	0.0011	0.0005	0.0005	0.0022	0.0022	0.0010	0.0010	0.0012	0.0012	0.0004	0.0004
29..........	0.0012	0.0012	0.0006	0.0006	0.0022	0.0022	0.0010	0.0010	0.0013	0.0013	0.0004	0.0004
30..........	0.0012	0.0012	0.0006	0.0006	0.0023	0.0023	0.0011	0.0011	0.0013	0.0013	0.0004	0.0004
31..........	0.0013	0.0013	0.0006	0.0006	0.0023	0.0023	0.0011	0.0011	0.0013	0.0013	0.0004	0.0004
32..........	0.0013	0.0013	0.0007	0.0007	0.0024	0.0024	0.0012	0.0012	0.0014	0.0014	0.0004	0.0004
33..........	0.0014	0.0014	0.0008	0.0008	0.0025	0.0025	0.0013	0.0013	0.0015	0.0015	0.0005	0.0005
34..........	0.0015	0.0015	0.0008	0.0008	0.0026	0.0026	0.0014	0.0014	0.0016	0.0016	0.0006	0.0006
35..........	0.0016	0.0016	0.0009	0.0009	0.0028	0.0028	0.0016	0.0016	0.0017	0.0017	0.0007	0.0007

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
36..........	0.0017	0.0017	0.0009	0.0009	0.0029	0.0029	0.0017	0.0017	0.0018	0.0018	0.0008	0.0008
37..........	0.0019	0.0019	0.0010	0.0010	0.0031	0.0031	0.0019	0.0019	0.0020	0.0020	0.0008	0.0008
38..........	0.0020	0.0020	0.0011	0.0011	0.0034	0.0034	0.0021	0.0021	0.0021	0.0021	0.0009	0.0009
39..........	0.0022	0.0022	0.0012	0.0012	0.0037	0.0037	0.0023	0.0023	0.0023	0.0023	0.0010	0.0010
40..........	0.0024	0.0024	0.0014	0.0014	0.0041	0.0041	0.0026	0.0026	0.0025	0.0025	0.0011	0.0011
41..........	0.0026	0.0026	0.0015	0.0015	0.0045	0.0045	0.0028	0.0028	0.0027	0.0027	0.0012	0.0012
42..........	0.0028	0.0028	0.0016	0.0016	0.0049	0.0049	0.0031	0.0031	0.0028	0.0028	0.0013	0.0013
43..........	0.0031	0.0031	0.0017	0.0017	0.0053	0.0053	0.0034	0.0034	0.0030	0.0030	0.0014	0.0014
44..........	0.0034	0.0034	0.0019	0.0019	0.0059	0.0059	0.0038	0.0038	0.0033	0.0033	0.0016	0.0016
45..........	0.0037	0.0037	0.0020	0.0020	0.0065	0.0065	0.0041	0.0041	0.0035	0.0035	0.0018	0.0018
46..........	0.0040	0.0040	0.0022	0.0022	0.0071	0.0071	0.0046	0.0046	0.0037	0.0037	0.0020	0.0020
47..........	0.0043	0.0043	0.0023	0.0023	0.0078	0.0078	0.0050	0.0050	0.0040	0.0040	0.0022	0.0022
48..........	0.0046	0.0046	0.0025	0.0025	0.0085	0.0085	0.0054	0.0054	0.0043	0.0043	0.0024	0.0024
49..........	0.0049	0.0049	0.0027	0.0027	0.0091	0.0091	0.0058	0.0058	0.0045	0.0045	0.0026	0.0026
50..........	0.0051	0.0051	0.0030	0.0030	0.0097	0.0097	0.0063	0.0063	0.0048	0.0048	0.0029	0.0029
51..........	0.0054	0.0054	0.0032	0.0032	0.0104	0.0104	0.0068	0.0068	0.0051	0.0051	0.0031	0.0031
52..........	0.0058	0.0058	0.0035	0.0035	0.0112	0.0112	0.0073	0.0073	0.0055	0.0055	0.0034	0.0034
53..........	0.0063	0.0063	0.0038	0.0038	0.0122	0.0122	0.0079	0.0079	0.0059	0.0059	0.0036	0.0036
54..........	0.0068	0.0068	0.0042	0.0042	0.0133	0.0133	0.0085	0.0085	0.0064	0.0064	0.0039	0.0039
55..........	0.0075	0.0075	0.0046	0.0046	0.0145	0.0145	0.0092	0.0092	0.0071	0.0071	0.0041	0.0041
56..........	0.0083	0.0083	0.0052	0.0052	0.0160	0.0160	0.0100	0.0100	0.0078	0.0078	0.0044	0.0044
57..........	0.0091	0.0091	0.0057	0.0057	0.0174	0.0174	0.0108	0.0108	0.0086	0.0086	0.0048	0.0048
58..........	0.0099	0.0099	0.0063	0.0063	0.0186	0.0186	0.0116	0.0116	0.0094	0.0094	0.0053	0.0053
59..........	0.0108	0.0108	0.0069	0.0069	0.0197	0.0197	0.0124	0.0124	0.0102	0.0102	0.0058	0.0058
60..........	0.0118	0.0118	0.0076	0.0076	0.0207	0.0207	0.0132	0.0132	0.0109	0.0109	0.0063	0.0063
61..........	0.0129	0.0129	0.0084	0.0084	0.0218	0.0218	0.0141	0.0141	0.0118	0.0118	0.0069	0.0069
62..........	0.0141	0.0141	0.0092	0.0092	0.0232	0.0232	0.0151	0.0151	0.0129	0.0129	0.0077	0.0077
63..........	0.0155	0.0155	0.0101	0.0101	0.0249	0.0249	0.0165	0.0165	0.0142	0.0142	0.0086	0.0086
64..........	0.0169	0.0169	0.0111	0.0111	0.0269	0.0269	0.0180	0.0180	0.0157	0.0157	0.0098	0.0098
65..........	0.0183	0.0183	0.0121	0.0121	0.0291	0.0291	0.0197	0.0197	0.0173	0.0173	0.0110	0.0110
66..........	0.0199	0.0199	0.0132	0.0132	0.0313	0.0313	0.0214	0.0214	0.0189	0.0189	0.0122	0.0122
67..........	0.0217	0.0217	0.0145	0.0145	0.0338	0.0338	0.0232	0.0232	0.0208	0.0208	0.0135	0.0135
68..........	0.0238	0.0238	0.0158	0.0158	0.0368	0.0368	0.0250	0.0250	0.0229	0.0229	0.0149	0.0149
69..........	0.0262	0.0262	0.0173	0.0173	0.0402	0.0402	0.0269	0.0269	0.0252	0.0252	0.0163	0.0163
70..........	0.0286	0.0286	0.0188	0.0188	0.0439	0.0439	0.0289	0.0289	0.0275	0.0275	0.0177	0.0177

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
71..........	0.0312	0.0312	0.0204	0.0204	0.0480	0.0480	0.0309	0.0309	0.0300	0.0300	0.0191	0.0191
72..........	0.0341	0.0341	0.0223	0.0223	0.0522	0.0522	0.0333	0.0333	0.0326	0.0326	0.0208	0.0208
73..........	0.0374	0.0374	0.0247	0.0247	0.0564	0.0564	0.0360	0.0360	0.0355	0.0355	0.0227	0.0227
74..........	0.0411	0.0411	0.0274	0.0274	0.0604	0.0604	0.0390	0.0390	0.0387	0.0387	0.0250	0.0250
75..........	0.0450	0.0450	0.0303	0.0303	0.0645	0.0645	0.0422	0.0422	0.0422	0.0422	0.0275	0.0275
76..........	0.0490	0.0489	0.0332	0.0331	0.0688	0.0687	0.0458	0.0457	0.0460	0.0460	0.0303	0.0303
77..........	0.0535	0.0533	0.0367	0.0364	0.0736	0.0731	0.0496	0.0493	0.0500	0.0499	0.0333	0.0334
78..........	0.0588	0.0584	0.0408	0.0402	0.0791	0.0780	0.0539	0.0532	0.0546	0.0540	0.0368	0.0367
79..........	0.0647	0.0644	0.0456	0.0447	0.0854	0.0835	0.0587	0.0574	0.0600	0.0585	0.0409	0.0405
80..........	0.0712	0.0715	0.0508	0.0501	0.0925	0.0900	0.0641	0.0622	0.0664	0.0640	0.0457	0.0451
81..........	0.0780	0.0796	0.0565	0.0562	0.1002	0.0973	0.0701	0.0675	0.0733	0.0710	0.0510	0.0507
82..........	0.0855	0.0885	0.0627	0.0632	0.1078	0.1056	0.0761	0.0734	0.0803	0.0791	0.0566	0.0573
83..........	0.0937	0.0977	0.0695	0.0708	0.1160	0.1142	0.0826	0.0800	0.0880	0.0875	0.0627	0.0643
84..........	0.1026	0.1071	0.0770	0.0790	0.1248	0.1228	0.0897	0.0870	0.0964	0.0953	0.0695	0.0715
85..........	0.1123	0.1184	0.0853	0.0880	0.1342	0.1323	0.0973	0.0947	0.1056	0.1031	0.0770	0.0789
86..........	0.1229	0.1324	0.0944	0.0982	0.1442	0.1433	0.1056	0.1030	0.1156	0.1119	0.0852	0.0868
87..........	0.1344	0.1475	0.1044	0.1091	0.1550	0.1548	0.1144	0.1118	0.1264	0.1208	0.0943	0.0953
88..........	0.1469	0.1623	0.1155	0.1210	0.1664	0.1664	0.1240	0.1210	0.1382	0.1306	0.1043	0.1052
89..........	0.1605	0.1768	0.1276	0.1344	0.1787	0.1782	0.1344	0.1312	0.1510	0.1420	0.1154	0.1173
90..........	0.1752	0.1935	0.1409	0.1516	0.1917	0.1906	0.1455	0.1437	0.1649	0.1544	0.1275	0.1328
91..........	0.1911	0.2159	0.1555	0.1732	0.2056	0.2042	0.1575	0.1588	0.1800	0.1672	0.1407	0.1516
92..........	0.2083	0.2426	0.1715	0.1967	0.2203	0.2187	0.1704	0.1752	0.1963	0.1820	0.1553	0.1728
93..........	0.2269	0.2708	0.1889	0.2183	0.2360	0.2334	0.1842	0.1906	0.2138	0.1995	0.1712	0.1928
94..........	0.2468	0.2960	0.2079	0.2360	0.2527	0.2471	0.1990	0.2038	0.2328	0.2194	0.1885	0.2091
95..........	0.2683	0.3096	0.2286	0.2536	0.2703	0.2559	0.2149	0.2164	0.2532	0.2397	0.2074	0.2235
96..........	0.2913	0.3108	0.2510	0.2779	0.2890	0.2584	0.2319	0.2315	0.2751	0.2590	0.2280	0.2405
97..........	0.3160	0.3067	0.2753	0.3075	0.3087	0.2578	0.2500	0.2477	0.2985	0.2776	0.2504	0.2579
98..........	0.3423	0.3227	0.3015	0.3445	0.3295	0.2594	0.2693	0.2656	0.3236	0.2960	0.2746	0.2780
99..........	0.3703	0.3896	0.3298	0.3859	0.3514	0.2643	0.2899	0.2841	0.3504	0.3108	0.3007	0.2999
100.........	0.4511	0.3112	0.4180	0.4012	0.4194	0.1924	0.3642	0.3011	0.4311	0.1910	0.3886	0.2549

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C3. Adjusted and Unadjusted Age-Specific Mortality Rates for Hispanics and non-Hispanics in the Southwest United States, 2010

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
0............	0.0053	0.0066	0.0043	0.0055	0.0115	0.0131	0.0092	0.0104	0.0055	0.0065	0.0046	0.0053
1............	0.0004	0.0004	0.0003	0.0003	0.0007	0.0007	0.0005	0.0005	0.0004	0.0004	0.0002	0.0002
2............	0.0003	0.0003	0.0002	0.0002	0.0005	0.0005	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002
3............	0.0002	0.0002	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001
4............	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001
5............	0.0002	0.0002	0.0001	0.0001	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
6............	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
7............	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
8............	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
9............	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
10...........	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
11...........	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
12...........	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
13...........	0.0002	0.0002	0.0001	0.0001	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
14...........	0.0003	0.0003	0.0002	0.0002	0.0005	0.0005	0.0002	0.0002	0.0003	0.0003	0.0001	0.0001
15...........	0.0004	0.0004	0.0002	0.0002	0.0006	0.0006	0.0002	0.0002	0.0004	0.0004	0.0002	0.0002
16...........	0.0005	0.0005	0.0003	0.0003	0.0008	0.0008	0.0003	0.0003	0.0005	0.0005	0.0002	0.0002
17...........	0.0006	0.0006	0.0003	0.0003	0.0010	0.0010	0.0003	0.0003	0.0007	0.0007	0.0002	0.0002
18...........	0.0008	0.0008	0.0003	0.0003	0.0011	0.0011	0.0004	0.0004	0.0008	0.0008	0.0002	0.0002
19...........	0.0009	0.0009	0.0004	0.0004	0.0013	0.0013	0.0004	0.0004	0.0009	0.0009	0.0003	0.0003
20...........	0.0011	0.0011	0.0004	0.0004	0.0015	0.0015	0.0005	0.0005	0.0010	0.0010	0.0003	0.0003
21...........	0.0012	0.0012	0.0005	0.0005	0.0017	0.0017	0.0006	0.0006	0.0011	0.0011	0.0003	0.0003
22...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0007	0.0007	0.0011	0.0011	0.0003	0.0003
23...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0007	0.0007	0.0011	0.0011	0.0004	0.0004
24...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0007	0.0007	0.0011	0.0011	0.0004	0.0004
25...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0007	0.0007	0.0011	0.0011	0.0004	0.0004
26...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0008	0.0008	0.0011	0.0011	0.0004	0.0004
27...........	0.0013	0.0013	0.0005	0.0005	0.0019	0.0019	0.0008	0.0008	0.0011	0.0011	0.0004	0.0004
28...........	0.0013	0.0013	0.0006	0.0006	0.0020	0.0020	0.0009	0.0009	0.0011	0.0011	0.0004	0.0004
29...........	0.0013	0.0013	0.0006	0.0006	0.0020	0.0020	0.0010	0.0010	0.0011	0.0011	0.0004	0.0004
30...........	0.0013	0.0013	0.0007	0.0007	0.0021	0.0021	0.0011	0.0011	0.0012	0.0012	0.0004	0.0004
31...........	0.0014	0.0014	0.0007	0.0007	0.0021	0.0021	0.0012	0.0012	0.0012	0.0012	0.0004	0.0004
32...........	0.0014	0.0014	0.0008	0.0008	0.0022	0.0022	0.0013	0.0013	0.0012	0.0012	0.0004	0.0004
33...........	0.0014	0.0014	0.0008	0.0008	0.0022	0.0022	0.0013	0.0013	0.0013	0.0013	0.0005	0.0005
34...........	0.0015	0.0015	0.0009	0.0009	0.0022	0.0022	0.0014	0.0014	0.0013	0.0013	0.0005	0.0005
35...........	0.0015	0.0015	0.0009	0.0009	0.0022	0.0022	0.0014	0.0014	0.0013	0.0013	0.0006	0.0006

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
36..........	0.0016	0.0016	0.0010	0.0010	0.0023	0.0023	0.0015	0.0015	0.0014	0.0014	0.0006	0.0006
37..........	0.0017	0.0017	0.0010	0.0010	0.0024	0.0024	0.0016	0.0016	0.0015	0.0015	0.0007	0.0007
38..........	0.0018	0.0018	0.0011	0.0011	0.0026	0.0026	0.0017	0.0017	0.0016	0.0016	0.0008	0.0008
39..........	0.0019	0.0019	0.0012	0.0012	0.0028	0.0028	0.0019	0.0019	0.0017	0.0017	0.0008	0.0008
40..........	0.0021	0.0021	0.0014	0.0014	0.0030	0.0030	0.0021	0.0021	0.0018	0.0018	0.0009	0.0009
41..........	0.0022	0.0022	0.0015	0.0015	0.0032	0.0032	0.0023	0.0023	0.0019	0.0019	0.0010	0.0010
42..........	0.0024	0.0024	0.0016	0.0016	0.0035	0.0035	0.0025	0.0025	0.0021	0.0021	0.0011	0.0011
43..........	0.0027	0.0027	0.0018	0.0018	0.0038	0.0038	0.0028	0.0028	0.0023	0.0023	0.0012	0.0012
44..........	0.0030	0.0030	0.0019	0.0019	0.0042	0.0042	0.0030	0.0030	0.0025	0.0025	0.0014	0.0014
45..........	0.0033	0.0033	0.0021	0.0021	0.0045	0.0045	0.0033	0.0033	0.0027	0.0027	0.0016	0.0016
46..........	0.0036	0.0036	0.0022	0.0022	0.0049	0.0049	0.0036	0.0036	0.0030	0.0030	0.0018	0.0018
47..........	0.0039	0.0039	0.0024	0.0024	0.0053	0.0053	0.0039	0.0039	0.0033	0.0033	0.0019	0.0019
48..........	0.0042	0.0042	0.0026	0.0026	0.0058	0.0058	0.0043	0.0043	0.0036	0.0036	0.0021	0.0021
49..........	0.0046	0.0046	0.0029	0.0029	0.0064	0.0064	0.0047	0.0047	0.0039	0.0039	0.0023	0.0023
50..........	0.0050	0.0050	0.0032	0.0032	0.0071	0.0071	0.0052	0.0052	0.0043	0.0043	0.0025	0.0025
51..........	0.0054	0.0054	0.0035	0.0035	0.0077	0.0077	0.0057	0.0057	0.0047	0.0047	0.0027	0.0027
52..........	0.0058	0.0058	0.0037	0.0037	0.0084	0.0084	0.0062	0.0062	0.0051	0.0051	0.0029	0.0029
53..........	0.0063	0.0063	0.0040	0.0040	0.0093	0.0093	0.0067	0.0067	0.0056	0.0056	0.0031	0.0031
54..........	0.0069	0.0069	0.0042	0.0042	0.0103	0.0103	0.0072	0.0072	0.0061	0.0061	0.0033	0.0033
55..........	0.0075	0.0075	0.0044	0.0044	0.0115	0.0115	0.0078	0.0078	0.0066	0.0066	0.0035	0.0035
56..........	0.0081	0.0081	0.0047	0.0047	0.0127	0.0127	0.0085	0.0085	0.0071	0.0071	0.0037	0.0037
57..........	0.0088	0.0088	0.0050	0.0050	0.0140	0.0140	0.0091	0.0091	0.0077	0.0077	0.0040	0.0040
58..........	0.0094	0.0094	0.0054	0.0054	0.0152	0.0152	0.0098	0.0098	0.0083	0.0083	0.0044	0.0044
59..........	0.0099	0.0099	0.0059	0.0059	0.0163	0.0163	0.0104	0.0104	0.0089	0.0089	0.0048	0.0048
60..........	0.0105	0.0105	0.0063	0.0063	0.0174	0.0174	0.0110	0.0110	0.0096	0.0096	0.0053	0.0053
61..........	0.0111	0.0111	0.0069	0.0069	0.0187	0.0187	0.0117	0.0117	0.0103	0.0103	0.0058	0.0058
62..........	0.0117	0.0117	0.0074	0.0074	0.0200	0.0200	0.0124	0.0124	0.0111	0.0111	0.0064	0.0064
63..........	0.0125	0.0125	0.0080	0.0080	0.0213	0.0213	0.0132	0.0132	0.0119	0.0119	0.0070	0.0070
64..........	0.0135	0.0135	0.0086	0.0086	0.0227	0.0227	0.0141	0.0141	0.0129	0.0129	0.0078	0.0078
65..........	0.0146	0.0146	0.0094	0.0094	0.0242	0.0242	0.0151	0.0151	0.0139	0.0139	0.0086	0.0086
66..........	0.0158	0.0158	0.0104	0.0104	0.0260	0.0260	0.0162	0.0162	0.0152	0.0152	0.0095	0.0095
67..........	0.0172	0.0172	0.0114	0.0114	0.0279	0.0279	0.0175	0.0175	0.0166	0.0166	0.0105	0.0105
68..........	0.0187	0.0187	0.0125	0.0125	0.0298	0.0298	0.0189	0.0189	0.0181	0.0181	0.0115	0.0115
69..........	0.0202	0.0202	0.0136	0.0136	0.0317	0.0317	0.0205	0.0205	0.0196	0.0196	0.0125	0.0125
70..........	0.0219	0.0219	0.0149	0.0149	0.0334	0.0334	0.0221	0.0221	0.0212	0.0212	0.0136	0.0136

	Non-Hispanic Whites				Non-Hispanic Blacks				Hispanics			
	Males		Females		Males		Females		Males		Females	
Age	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital	Adjusted	Vital
71...........	0.0239	0.0239	0.0165	0.0165	0.0353	0.0353	0.0240	0.0240	0.0230	0.0230	0.0148	0.0148
72...........	0.0262	0.0262	0.0183	0.0183	0.0376	0.0376	0.0259	0.0259	0.0249	0.0249	0.0163	0.0163
73...........	0.0289	0.0289	0.0203	0.0203	0.0403	0.0403	0.0280	0.0280	0.0272	0.0272	0.0180	0.0180
74...........	0.0319	0.0319	0.0226	0.0226	0.0437	0.0437	0.0303	0.0303	0.0298	0.0298	0.0199	0.0199
75...........	0.0350	0.0350	0.0251	0.0251	0.0475	0.0475	0.0327	0.0327	0.0326	0.0326	0.0220	0.0220
76...........	0.0384	0.0384	0.0278	0.0278	0.0516	0.0514	0.0354	0.0353	0.0357	0.0355	0.0245	0.0243
77...........	0.0423	0.0423	0.0308	0.0310	0.0561	0.0556	0.0385	0.0383	0.0394	0.0388	0.0275	0.0270
78...........	0.0470	0.0469	0.0342	0.0346	0.0612	0.0601	0.0423	0.0418	0.0439	0.0426	0.0310	0.0304
79...........	0.0520	0.0523	0.0379	0.0387	0.0674	0.0652	0.0469	0.0459	0.0492	0.0469	0.0349	0.0342
80...........	0.0575	0.0580	0.0417	0.0428	0.0734	0.0709	0.0518	0.0502	0.0552	0.0515	0.0389	0.0384
81...........	0.0634	0.0639	0.0458	0.0471	0.0799	0.0774	0.0572	0.0549	0.0619	0.0563	0.0431	0.0428
82...........	0.0702	0.0706	0.0511	0.0523	0.0879	0.0846	0.0637	0.0603	0.0689	0.0616	0.0484	0.0476
83...........	0.0778	0.0785	0.0574	0.0590	0.0962	0.0922	0.0701	0.0664	0.0766	0.0678	0.0548	0.0532
84...........	0.0871	0.0877	0.0645	0.0671	0.1052	0.1001	0.0756	0.0735	0.0862	0.0751	0.0620	0.0597
85...........	0.0973	0.0985	0.0731	0.0761	0.1149	0.1089	0.0832	0.0816	0.0969	0.0841	0.0707	0.0677
86...........	0.1087	0.1104	0.0822	0.0853	0.1253	0.1186	0.0916	0.0904	0.1087	0.0946	0.0802	0.0769
87...........	0.1211	0.1228	0.0924	0.0949	0.1366	0.1282	0.1007	0.0994	0.1217	0.1052	0.0907	0.0866
88...........	0.1348	0.1352	0.1037	0.1052	0.1488	0.1373	0.1106	0.1084	0.1360	0.1149	0.1025	0.0961
89...........	0.1497	0.1483	0.1161	0.1171	0.1618	0.1461	0.1213	0.1178	0.1517	0.1236	0.1156	0.1055
90...........	0.1659	0.1659	0.1298	0.1334	0.1757	0.1553	0.1329	0.1291	0.1689	0.1336	0.1301	0.1171
91...........	0.1834	0.1912	0.1449	0.1554	0.1905	0.1660	0.1455	0.1434	0.1876	0.1486	0.1461	0.1335
92...........	0.2023	0.2221	0.1614	0.1808	0.2063	0.1784	0.1590	0.1591	0.2077	0.1689	0.1637	0.1534
93...........	0.2226	0.2519	0.1793	0.2038	0.2231	0.1928	0.1735	0.1740	0.2294	0.1933	0.1830	0.1739
94...........	0.2443	0.2733	0.1987	0.2205	0.2408	0.2081	0.1891	0.1866	0.2527	0.2167	0.2040	0.1915
95...........	0.2672	0.2865	0.2196	0.2363	0.2595	0.2220	0.2057	0.1981	0.2774	0.2321	0.2267	0.2056
96...........	0.2914	0.3026	0.2420	0.2600	0.2791	0.2346	0.2234	0.2113	0.3034	0.2420	0.2511	0.2200
97...........	0.3168	0.3218	0.2659	0.2880	0.2995	0.2483	0.2421	0.2255	0.3307	0.2499	0.2772	0.2350
98...........	0.3432	0.3692	0.2910	0.3227	0.3209	0.2694	0.2619	0.2434	0.3592	0.2713	0.3049	0.2582
99...........	0.3704	0.4846	0.3176	0.3645	0.3431	0.3023	0.2827	0.2662	0.3887	0.3240	0.3341	0.2970
100.........	0.5055	0.4246	0.4546	0.4202	0.4488	0.2857	0.3948	0.3274	0.5299	0.2948	0.4815	0.3730

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C4. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Whites, 1990

Hispanics vs. Whites			
Males		Females	
Cause of Death	**Life Expectancy Differential**	**Cause of Death**	**Life Expectancy Differential**
Assault	0.54	Diabetes	0.37
Alcoholic Liver Disease	0.21	Other Chronic Liver Disease	0.07
Diabetes	0.21	MNP Stomach	0.07
Transport Accidents	0.14	Nephritis Nephrotic Syndrome	0.06
Nontransport Accidents	0.11	MNP Cervix	0.05
Other Chronic Liver Disease	0.08	MNP Liver	0.04
MNP Stomach	0.07	Septicemia	0.03
MNP Liver	0.06	Assault	0.03
Nephritis Nephrotic Syndrome	0.04	Certain Conditions	0.02
Septicemia	0.03	Other Respiratory Disease	0.02
Residual Causes	0.03	Tuberculosis	0.02
Tuberculosis	0.02	Choleithiasis & Other Disorders	0.02
Other Respiratory Disease	0.02	Other Chap AB	0.02
Certain Conditions	0.02	Essential Hypertenstion	0.01
Other Chap AB	0.01	Pregnancy Childbirth	0.01
Atherosclerotic Cardiovsacular	0.01	Anemias	0.01
Choleithiasis & Other Disorders	0.01	Viral Hepatitis	0.01
Essential Hypertenstion	0.01	Hypertensive Heart & Renal Disease	0.00
Nutritional Deficiencies	0.01	All Other MNP	0.00
Meningitis	0.01	HIV	0.00
Anemias	0.00	MNP Kidney	0.00
Hypertensive Heart & Renal Disease	0.00	Hernia	0.00
MNP Kidney	0.00	Nutritional Deficiencies	0.00
Pneumonitis/ Solids - Liquids	0.00	Alcoholic Liver Disease	0.00
Cerebrovascular Disease	0.00	Pneumonitis/ Solids-Liquids	0.00
Pneumoconioses & Chemical	0.00	Congenital Malformations	0.00
Infections of Kidney	0.00	Pneumoconioses & Chemical	0.00
MNP Cervix	--	Disease of Appendix	0.00
MNP Corpus Uteri	--	Meningitis	0.00
MNP Ovary	--	Infections of Kidney	0.00
Pregnancy/Childbirth	--	MNP Prostate	--
Multi Myeloma & Immunoprofile	0.00	Hyperplasia of Prostate	--
Undetermined Intent	0.00	Multi Myeloma & Immunoprofile	0.00
Disease of Appendix	0.00	Acute Rheumatic Fever/Chronic	0.00
Hernia	0.00	MNP Corpus Uteri	0.00
Other Circulatory Disorders	0.00	Complications of Intervention	0.00
Acute Lower Respiratory Disease	0.00	Acute Lower Respiratory Disease	0.00
Congenital Malformation	0.00	Hodgkin's	0.00
Hyperplasia of Prostate	0.00	In situ Neoplasm Benign	-0.01
MNP Breast	0.00	Undetermined Intent	-0.01
Hodgkin's	0.00	Other Circulatory Disorders	-0.01
Complications of Intervention	0.00	MNP Larynx	-0.01
Viral Hepatitis	0.00	Abnormal Clinical	-0.01
Abnormal Clinical	-0.01	MNP Bladder	-0.01
Acute Rheumatic Fever/Chronic	-0.01	Hypertensive Heart Disease	-0.01
MNP Larynx	-0.01	Parkinson's	-0.01
Asthma	-0.01	Heart Failure	-0.01
Peptic Ulcer	-0.01	MNP Esophagaus	-0.01
In situ Neoplasm Benign	-0.01	MNP Pancreas	-0.01
Hypertensive Heart Disease	-0.01	Asthma	-0.02
Heart Failure	-0.02	Peptic Ulcer	-0.02
MNP - Pancreas	-0.02	Leukemia	-0.02
Atherosclerosis	-0.02	MNP Oral	-0.02
Parkinson's	-0.02	Non-Hodgkins Lymphoma	-0.02
MNP Oral	-0.03	Atherosclerotic Cardiovsacular	-0.03
Leukemia	-0.03	Disease of Circulatory System	-0.04
MNP Esophagaus	-0.03	MNP Skin	-0.04
Alzheimers	-0.03	Atherosclerosis	-0.04
Non-Hodgkins Lymphoma	-0.04	Nontransport Accidents	-0.04
MNP Bladder	-0.04	MNP Menginges	-0.05
Influenza/Pneumonia	-0.04	MNP Ovary	-0.05
MNP Menginges	-0.04	Alzheimers	-0.05
All Other MNP	-0.06	Other Heart Disease	-0.05
MNP Skin	-0.06	Transport Accidents	-0.06
Other Heart Disease	-0.07	Residual Causes	-0.06
Disease of Circulatory System	-0.07	CVD	-0.08
MNP Colon	-0.09	Influenza/Pneumonia	-0.09
MNP Prostate	-0.09	Ischemic Heart Disease	-0.10
Human Immunodeficiency Virus (HIV)	-0.20	MNP Colon	-0.11
Intentional Self-Harm	-0.28	Intentional Self-harm	-0.12
Ischemic Heart Disease	-0.28	MNP Breast	-0.22
Chronic Lower Respiratory Disease	-0.30	All Other Chronic Ischemic	-0.23
All Other Chronic Ischemic	-0.44	Chronic Lower Respiratory	-0.35
MNP Trachea/Bronchus	-0.52	MNP Trachea/Bronchus	-0.53
Life Expectancy Difference*	**-1.25**	**Life Expectancy Difference**	**-1.69**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.

MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C5. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Blacks, 1990

Hispanics vs. Blacks			
Males		Females	
Cause of Death	Life Expectancy Differential	Cause of Death	Life Expectancy Differential
Transport Accidents	0.09	Other Chronic Liver Disease	0.05
Alcoholic Liver Disease	0.09	Non-Hodgkins Lymphoma	0.01
Other Chronic Liver Disease	0.04	MNP Liver	0.01
Choleithiasis & Other Disorders	0.01	Choleithiasis & Other Disorders	0.01
Intentional Self-Harm	0.01	MNP Skin	0.00
MNP Skin	0.01	Parkinson's	0.00
MNP Menginges	0.00	Hernia	0.00
Parkinson's	0.00	Acute Rheumatic Fever/Chronic	0.00
MNP Corpus Uteri	--	Tuberculosis	0.00
Prencancy Childbirth	--	Pneumoconioses & Chemical	0.00
MNP Ovary	--	MNP Kidney	0.00
MNP Cervix	--	MNP Prostate	--
Acute Lower Respiratory Disease	0.00	Hyperplasia of Prostate	--
Pneumoconioses & Chemical	0.00	Disease of Appendix	0.00
MNP Breast	0.00	Transport Accidents	0.00
Infections of Kidney	0.00	Infections of Kidney	0.00
Hodgkin's	0.00	Nutritional Deficiencies	0.00
Viral Hepatitis	0.00	Acute Lower Respiratory	0.00
Disease of Appendix	0.00	Other Respiratory Disease	-0.01
Hernia	0.00	Viral Hepatitis	-0.01
Nutritional Deficiencies	-0.01	Pneumonitis/Solids Liquids	-0.01
Acute Rheumatic Fever/Chronic	-0.01	Prencancy Childbirth	-0.01
Hyperplasia of Prostate	-0.01	Complications of Intervention	-0.01
MNP Kidney	-0.01	MNP Stomach	-0.01
Meningitis	-0.01	Hodgkin's	-0.01
Pneumonitis/ Solids Liquids	-0.01	Undetermined Intent	-0.01
MNP Liver	-0.01	Intentional Self-Harm	-0.01
Complications of Intervention	-0.01	MNP Larynx	-0.02
Other Respiratory Disease	-0.01	Alzheimers	-0.02
In situ Neoplasm Benign	-0.01	MNP Menginges	-0.02
Non-Hodgkins Lymphoma	-0.02	In situ Neoplasm Benign	-0.02
Undetermined Intent	-0.02	Peptic Ulcer	-0.02
Tuberculosis	-0.02	MNP Ovary	-0.02
Other Circulatory Disorders	-0.02	Meningitis	-0.02
Alzheimers	-0.03	MNP Oral	-0.02
MNP Bladder	-0.03	MNP Bladder	-0.03
Leukemia	-0.03	Leukemia	-0.03
Peptic Ulcer	-0.03	Other Chap AB	-0.03
Atherosclerosis	-0.03	Other Circulatory Disorders	-0.03
Hypertensive Heart & Renal Disease	-0.04	Alcoholic Liver Disease	-0.03
MNP Larynx	-0.04	Anemias	-0.04
Anemias	-0.04	MNP Cervix	-0.04
Congenital Malformations	-0.04	Hypertensive Heart & Renal Disease	-0.04
Diabetes	-0.04	Atherosclerosis	-0.05
Other Chap AB	-0.04	MNP Esophagaus	-0.05
MNP Stomach	-0.05	Multi Myeloma & Immunoprofile	-0.05
Asthma	-0.05	Congenital Malformations	-0.06
Multi Myeloma & Immunoprofile	-0.06	MNP Corpus Uteri	-0.06
Disease of Circulatory System	-0.07	Septicemia	-0.06
Septicemia	-0.07	Asthma	-0.06
Nephritis Nephrotic Syndrome	-0.08	All Other MNP	-0.07
Heart Failure	-0.08	Chronic Lower Respiratory Disease	-0.07
MNP Oral	-0.08	Nephritis Nephrotic Syndrome	-0.07
MNP Pancreas	-0.09	Disease of Circulatory System	-0.07
Essential Hypertenstion	-0.09	Influenza/Pneumonia	-0.08
MNP Esophagaus	-0.11	MNP Pancreas	-0.08
Nontransport Accidents	-0.15	Heart Failure	-0.09
Abnormal Clinical	-0.16	HIV	-0.09
All Other MNP	-0.16	Essential Hypertenstion	-0.11
Influenza/Pneumonia	-0.17	Diabetes	-0.13
MNP Colon	-0.18	Nontransport Accidents	-0.16
Chronic Lower Respiratory Disease	-0.22	Abnormal Clinical	-0.17
Hypertensive Heart Disease	-0.31	MNP Colon	-0.26
Certain conditions	-0.35	Certain Conditions	-0.30
Ischemic Heart Disease	-0.37	MNP Breast	-0.34
Residual Causes	-0.40	Assault	-0.34
MNP Prostate	-0.41	Hypertensive Heart Disease	-0.36
Other Heart Disease	-0.50	Atherosclerotic Cardiovsacular	-0.42
HIV	-0.51	Residual Causes	-0.42
CVD	-0.51	MNP - Trachea/Bronchus	-0.45
Atherosclerotic Cardiovsacular	-0.54	Other Heart Disease	-0.46
All other Chronic Ischemic	-0.59	Ischemic Heart Disease	-0.52
MNP Trachea/Bronchus	-0.98	All Other Chronic Ischemic	-0.58
Assault	-1.14	CVD	-0.65
Life Expectancy Difference	**-8.81**	**Life Expectancy Difference**	**-7.11**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.
MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C6. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Whites, 2000

Hispanics vs. Whites			
Males		Females	
Cause of Death	Life Expectancy Differential	Cause of Death	Life Expectancy Differential
Diabetes	0.3384	Diabetes	0.5068
Assault	0.2742	Nephritis/Nephrotic syndrome	0.0962
Alcoholic Liver Disease	0.1873	Other Chronic Liver disease	0.0917
CVD	0.1080	MNP Stomach	0.0748
Other Chronic Liver disease	0.1075	MNP Liver	0.0614
MNP Liver	0.0866	MNP Cervix	0.0424
MNP Stomach	0.0864	Viral Hepatitis	0.0314
Nephritis/Nephrotic syndrome	0.0716	Other Respiratory Disease	0.0304
Septicemia	0.0445	Essential Hypertenstion	0.0227
Transport Accidents	0.0422	Septicemia	0.0214
Viral Hepatitis	0.0312	Assault	0.0161
Essential Hypertenstion	0.0253	Choleithiasis & Other Disorders	0.0121
Other Respiratory Disease	0.0250	Hypertensive Heart & Renal Disease	0.0101
HIV	0.0225	HIV	0.0100
Influenza/Pneumonia	0.0222	MNP Kidney	0.0084
Tuberculosis	0.0131	Tuberculosis	0.0080
Congenital Malformations	0.0126	Certain conditions	0.0072
Choleithiasis & other disorders	0.0101	Multi Myeloma & immunoprofile	0.0072
MNP Kidney	0.0100	Pregnancy childbirth	0.0067
Other Chap AB	0.0090	Hernia	0.0065
Certain conditions	0.0074	Nutritional deficiencies	0.0053
Hypertensive Hrt &Renal disease	0.0060	MNP Pancreas	0.0051
Anemias	0.0039	Acute Rheumatic Fever/Chronic	0.0050
Nutritional Deficiencies	0.0025	Anemias	0.0039
Hodgkin's	0.0016	Other Chap AB	0.0039
Infections of Kidney	0.0007	Congenital Malformations	0.0033
Acute Lower Respiratory	0.0001	MNP Corpus Uteri	0.0007
Disease of Appendix	0.0000	Disease of Appendix	0.0002
MNP Corpus Uteri	--	Pneumonitis/ Solids-Liquids	0.0001
MNP Cervix	--	Hyperplasia of prostate	--
Pregnancy childbirth	--	MNP Prostate	--
MNP Ovary	--	Pneumoconioses & chemical	-0.0001
Complications of Intervention	-0.0006	Infections of kidney	-0.0006
MNP Breast	-0.0006	Acute Lower Respiratory	-0.0007
Hernia	-0.0007	Complications of intervention	-0.0008
Pneumoconioses & Chemical	-0.0012	Meningitis	-0.0022
MNP Larynx	-0.0015	Ischemic Heart Disease	-0.0024
Pneumonitis/ Solids-Liquids	-0.0016	Hodgkin's	-0.0032
Multi Myeloma & Immunoprofile	-0.0016	All Other MNP	-0.0046
Acute Rheumatic Fever/Chronic	-0.0017	MNP Larynx	-0.0050
Meningitis	-0.0018	Other Circulatory Disorders	-0.0058
Hyperplasia of Prostate	-0.0018	In situ Neoplasm Benign	-0.0061
Peptic Ulcer	-0.0026	Alcoholic Liver Disease	-0.0073
Asthma	-0.0029	Peptic Ulcer	-0.0096
Other Circulatory Disorders	-0.0047	Non-Hodgkins Lymphoma	-0.0100
Residual Causes	-0.0060	Undetermined intent	-0.0105
Undetermined Intent	-0.0071	Asthma	-0.0121
Atherosclerosis	-0.0082	Hypertensive Heart Disease	-0.0123
Hypertensive Heart Disease	-0.0134	Parkinson's	-0.0142
Nontransport Accidents	-0.0150	Influenza/Pneumonia	-0.0142
MNP Pancreas	-0.0157	Luekemia	-0.0144
In situ Neoplasm Benign	-0.0171	MNP Oral	-0.0154
MNP Prostate	-0.0172	MNP Bladder	-0.0154
MNP Oral	-0.0176	MNP Esophagaus	-0.0156
Atherosclerotic Cardiovsacular	-0.0182	Atherosclerosis	-0.0182
Non-Hodgkins Lymphoma	-0.0211	Disease of Circulatory system	-0.0228
Leukemia	-0.0238	CVD	-0.0246
Heart Failure	-0.0248	Heart Failure	-0.0270
Parkinson's	-0.0276	MNP Skin	-0.0322
All Other MNP	-0.0360	MNP Menginges	-0.0330
MNP Bladder	-0.0371	MNP Ovary	-0.0445
MNP Colon	-0.0372	Atherosclerotic Cardiovsacular	-0.0467
MNP Esophagaus	-0.0442	MNP Colon	-0.0600
Disease of Circulatory System	-0.0453	Transport Accidents	-0.0617
MNP Menginges	-0.0474	All Other Chronic Ischemic	-0.0633
Abnormal Clinical	-0.0491	Abnormal clinical	-0.0712
Alzheimers	-0.0521	Other Heart disease	-0.0834
MNP Skin	-0.0592	Nontransport accidents	-0.0865
Other Heart disease	-0.0749	Intentional Self-harm	-0.1045
Ischemic Heart Disease	-0.0871	Residual causes	-0.1093
All other Chronic Ischemic	-0.1906	Alzheimers	-0.1104
Intentional Self-Harm	-0.2631	MNP Breast	-0.1435
Chronic Lower Respiratory Disease	-0.3354	Chronic Lower Respiratory	-0.4847
MNP Trachea/Bronchus	-0.4160	MNP Trachea/Bronchus	-0.5274
Life Expectancy Difference*	**-0.48**	**Life Expectancy Difference**	**-1.24**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.

MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C7. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Blacks, 2000

Hispanics vs. Blacks			
Males		Females	
Cause of Death	Life Expectancy Differential	Cause of Death	Life Expectancy Differential
Alcoholic Liver Disease	0.15	Other Chronic Liver disease	0.08
Other Chronic Liver Disease	0.08	MNP Liver	0.02
Transport Accidents	0.02	Parkinson's	0.02
Parkinson's	0.01	Other Respiratory Disease	0.01
MNP Skin	0.01	MNP Skin	0.01
Other Respiratory Disease	0.01	Non-Hodgkins Lymphoma	0.00
Viral Hepatitis	0.01	Hernia	0.00
Choleithiasis & Other Disorders	0.01	Viral Hepatitis	0.00
Infections of Kidney	0.00	Choleithiasis & Other Disorders	0.00
Hodgkin's	0.00	MNP Stomach	0.00
Non-Hodgkins Lymphoma	0.00	Infections of Kidney	0.00
MNP Corpus Uteri	--	MNP Prostate	--
MNP Cervix	--	Hyperplasia of Prostate	--
MNP Ovary	--	Nutritional Deficiencies	0.00
Pregnancy Childbirth	--	Pneumoconioses & Chemical	0.00
Hernia	0.00	MNP Meninges	0.00
Acute Lower Respiratory	0.00	Acute Rheumatic Fever/Chronic	0.00
Pneumoconioses & Chemical	0.00	Disease of Appendix	0.00
Tuberculosis	0.00	Tuberculosis	0.00
Acute Rheumatic Fever/Chronic	0.00	Acute Lower Respiratory	0.00
MNP Liver	0.00	Hodgkin's	0.00
Hyperplasia of Prostate	0.00	MNP Ovary	-0.01
MNP Menginges	0.00	Undetermined Intent	-0.01
Disease of Appendix	-0.01	Complications of Intervention	-0.01
MNP Breast	-0.01	Meningitis	-0.01
Complications of Intervention	-0.01	Pregnancy Childbirth	-0.01
Nutritional Deficiencies	-0.01	Alcoholic Liver Disease	-0.01
MNP Kidney	-0.01	In situ Neoplasm Benign	-0.01
Undetermined Intent	-0.01	MNP Kidney	-0.01
Peptic Ulcer	-0.01	MNP Larynx	-0.01
Meningitis	-0.01	Peptic Ulcer	-0.01
Pneumonitis/ Solids Liquids	-0.02	Atherosclerosis	-0.01
Atherosclerosis	-0.02	Intentional Self-Harm	-0.01
In situ Neoplasm Benign	-0.02	Leukemia	-0.02
MNP Bladder	-0.02	Pneumonitis/ Solids-Liquids	-0.02
Intentional Self-Harm	-0.02	MNP Bladder	-0.02
MNP Stomach	-0.02	MNP Oral	-0.02
Leukemia	-0.02	MNP Cervix	-0.02
Congenital Malformations	-0.02	Other Chap AB	-0.02
Other Circulatory Disorders	-0.03	Congenital Malformations	-0.03
Alzheimers	-0.03	Other Circulatory Disorders	-0.03
Anemias	-0.04	Transport Accidents	-0.03
Other Chap AB	-0.04	MNP Esophagaus	-0.04
Diabetes	-0.04	Anemias	-0.04
MNP Larynx	-0.04	Influenza/Pneumonia	-0.04
Hypertensive Heart & Renal Disease	-0.04	Alzheimers	-0.05
Septicemia	-0.05	Hypertensive Heart & Renal Disease	-0.05
Asthma	-0.06	Asthma	-0.06
Multi Myeloma & Immunoprofile	-0.06	MNP Pancreas	-0.06
MNP Oral	-0.06	MNP Corpus Uteri	-0.06
MNP Esophagaus	-0.06	Multi Myeloma & Immunoprofile	-0.07
Disease of Circulatory System	-0.06	Septicemia	-0.07
Influenza/Pneumonia	-0.07	Disease of Circulatory System	-0.07
MNP - Pancreas	-0.07	All Other MNP	-0.07
Nontransport Accidents	-0.07	Heart Failure	-0.09
Nephritis Nephrotic Syndrome	-0.09	Diabetes	-0.09
Heart Failure	-0.09	Nontransport Accidents	-0.11
All Other MNP	-0.12	Nephritis Nephrotic Syndrome	-0.11
Essential Hypertenstion	-0.13	Assault	-0.12
MNP Colon	-0.19	Essential Hypertension	-0.15
Abnormal clinical	-0.20	Chronic Lower Respiratory Disease	-0.16
Hypertensive Heart Disease	-0.24	Abnormal Clinical	-0.19
Chronic Lower Respiratory Disease	-0.25	HIV	-0.19
Residual Causes	-0.27	MNP Colon	-0.22
Certain Conditions	-0.28	Certain Conditions	-0.25
All other Chronic Ischemic	-0.33	Hypertensive Heart Disease	-0.27
MNP Prostate	-0.34	MNP Breast	-0.32
HIV	-0.38	Atherosclerotic Cardiovsacular	-0.35
CVD	-0.39	Other Heart Disease	-0.38
Ischemic Heart Disease	-0.41	All Other Chronic Ischemic	-0.40
Other Heart disease	-0.43	Residual Causes	-0.42
Atherosclerotic Cardiovsacular	-0.46	MNP Trachea/Bronchus	-0.51
Assault	-0.55	CVD	-0.52
MNP Trachea/Bronchus	-0.80	Ischemic Heart Disease	-0.54
Life Expectancy Difference	**-6.69**	**Life Expectancy Difference**	**-6.29**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.
MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C8. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Whites, 2010

Hispanics vs. Whites			
Males		Females	
Cause of Death	Life Expectancy Differential	Cause of Death	Life Expectancy Differential
Diabetes	0.2664	Diabetes	0.3121
Assault	0.1976	Nephritis Nephrotic Syndrome	0.1309
Alcoholic Liver Disease	0.1490	Other Chronic Liver Disease	0.1010
MNP Liver	0.1259	MNP Stomach	0.0722
CVD	0.1224	MNP Liver	0.0719
Nephritis nephrotic syndrome	0.1036	CVD	0.0617
Other Chronic Liver disease	0.0922	Influenza/Pneumonia	0.0438
MNP Stomach	0.0727	Septicemia	0.0322
Influenza/Pneumonia	0.0489	Essential Hypertension	0.0312
Septicemia	0.0390	Other Respiratory Disease	0.0311
Viral Hepatitis	0.0349	MNP Cervix	0.0271
Essential Hypertenstion	0.0310	Viral Hepatitis	0.0228
Other resp Disease	0.0245	Ischemic Heart Disease	0.0211
HIV	0.0212	MNP Kidney	0.0179
Congenital Malformations	0.0185	Certain Conditions	0.0140
MNP Colon	0.0182	Non-Hodgkins Lymphoma	0.0106
MNP Kidney	0.0148	Choleithiasis & Other Disorders	0.0103
Certain conditions	0.0112	Hypertensive Heart & Renal Disease	0.0085
Choleithiasis & other disorders	0.0089	Multi Myeloma & Immunoprofile	0.0064
Tuberculosis	0.0073	Tuberculosis	0.0057
Hypertensive Hrt &Renal disease	0.0072	HIV	0.0051
Other Chap AB	0.0062	MNP Corpus Uteri	0.0046
Nutritional deficiencies	0.0030	Assault	0.0043
Anemias	0.0030	Congenital Malformations	0.0037
MNP Prostate	0.0054	Other Chap AB	0.0036
Hodgkin's	0.0022	Acute Rheumatic Fever/Chronic	0.0035
Multi Myeloma & Immunoprofile	0.0016	Anemias	0.0028
Hernia	0.0011	Hernia	0.0015
Disease of Appendix	0.0010	Nutritional Deficiencies	0.0013
Meningitis	0.0008	Pregnancy Childbirth	0.0013
Atherosclerosis	0.0003	Hodgkin's	0.0005
Infections of Kidney	0.0001	Meningitis	0.0002
MNP Cervix	--	Acute Lower Respiratory Disease	0.0002
MNP Corpus Uteri	--	Infections of Kidney	0.0001
MNP Ovary	--	MNP Prostate	--
Pregnancy Childbirth	--	Hyper plasia of prostate	--
Acute Lower Respiratory	-0.0004	Pneumoconioses & chemical	-0.0001
Non-Hodgkins Lymphoma	-0.0004	Complications of intervention	-0.0006
Hyperplasia of Prostate	-0.0007	Disease of Appendix	-0.0008
Pneumoconioses & Chemical	-0.0009	All Other Chronic Ischemic	-0.0018
MNP Breast	-0.0010	MNP Pancreas	-0.0037
Complications of Intervention	-0.0013	Atherosclerosis	-0.0041
Acute Rheumatic Fever/Chronic	-0.0014	Peptic Ulcer	-0.0044
Asthma	-0.0016	Asthma	-0.0044
MNP Larynx	-0.0015	MNP Larynx	-0.0049
Peptic Ulcer	-0.0020	Pneumonitis/ Solids Liquids	-0.0060
Pneumonitis/Solids-Liquids	-0.0025	Other Circ disorders	-0.0061
Other Circulatory Disorders	-0.0063	Disease of Circulatory system	-0.0099
MNP Pancreas	-0.0093	In situ NP benign	-0.0109
Heart Failure	-0.0103	MNP Esophagaus	-0.0113
Hypertensive Heart Disease	-0.0170	MNP Oral	-0.0115
In situ NP Benign	-0.0169	Heart Failure	-0.0120
Undetermined Intent	-0.0184	MNP Bladder	-0.0120
MNP Oral	-0.0206	Parkinson's	-0.0130
Disease of Circulatory System	-0.0203	Leukemia	-0.0152
Leukemia	-0.0239	Undetermined intent	-0.0159
Transport Accidents	-0.0278	Hypertensive Hrt Dis	-0.0186
Abnormal Clinical	-0.0283	Alcoholic Liver Disease	-0.0208
Parkinson's	-0.0311	All Other MNP	-0.0228
Ischemic Heart Disease	-0.0311	MNP Ovary	-0.0324
MNP Esophagaus	-0.0408	MNP Skin	-0.0348
MNP Mengenges	-0.0418	MNP Colon	-0.0370
MNP Bladder	-0.0455	Transport Accidents	-0.0371
All Other MNP	-0.0463	MNP Mengenges	-0.0383
Residual Causes	-0.0518	Abnormal clinical	-0.0409
Alzheimers	-0.0517	Atherosclerotic Cardiovsacular	-0.0414
Atherosclerotic Cardiovascular Disease	-0.0665	Other Heart disease	-0.1000
MNP Skin	-0.0710	MNP Breast	-0.1061
Other Heart Disease	-0.1061	Alzheimers	-0.1093
All Other Chronic Ischemic	-0.1141	Residual Causes	-0.1166
Nontransport Accidents	-0.2609	Intentional Self-Harm	-0.1590
MNP Trachea/Bronchus	-0.3262	Nontransport Accidents	-0.2783
Chronic Lower Respiratory Disease	-0.3311	MNP - Trachea/Bronchus	-0.4460
Intentional Self-Harm	-0.3873	Chronic Lower Respiratory Disease	-0.4960
Life Expectancy Difference*	**-0.78**	**Life Expectancy Difference**	**-1.22**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.

MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table C9. Cause-specific Differentials to Life Expectancy between Hispanics and non-Hispanic Blacks, 2010

Hispanics vs. Blacks			
Males		Females	
Cause of Death	Life Expectancy Differential	Cause of Death	Life Expectancy Differential
Alcoholic Liver Disease	0.1900	Other Chronic Liver disease	0.0985
Other Chronic Liver Disease	0.0832	Non-Hodg Lymphoma	0.0259
Parkinson's	0.0233	MNP Liver	0.0229
Other Respiratory Disease	0.0125	Parkinson's	0.0220
MNP Menginges	0.0110	MNP Stomach	0.0207
Choleithiasis & Other Disorders	0.0098	Alcoholic Liver Disease	0.0134
MNP Skin	0.0094	Other Respiratory Disease	0.0102
Non-Hodgkins Lymphoma	0.0091	MNP -Skin	0.0055
Viral Hepatitis	0.0061	MNP Kidney	0.0045
Disease of Appendix	0.0008	Viral Hepatitis	0.0031
Pneumoconioses & Chemical	0.0008	Tuberculosis	0.0024
Hodgkin's	0.0007	Choleithiasis & Other Disorders	0.0017
Atherosclerosis	0.0004	Acute Rheumatic Fever/Chronic	0.0012
Acute Lower Respiratory Disease	0.0001	Hyperplasia of Prostate	--
Prencancy Childbirth	--	MNP Prostate	--
MNP Corpus Uteri	--	Hernia	-0.0002
MNP Cervix	--	Pneumoconioses & chemical	-0.0003
MNP Ovary	--	Hodgkin's	-0.0008
Hernia	-0.0004	Disease of Appendix	-0.0012
Acute Rheumatic Fever/Chronic	-0.0012	Acute Lower Respiratory	-0.0018
Hyperplasia of Prostate	-0.0019	Infections of kidney	-0.0023
Tuberculosis	-0.0027	Other Chap AB	-0.0038
MNP Kidney	-0.0027	Meningitis	-0.0039
MNP Stomach	-0.0030	MNP Menginges	-0.0045
MNP Breast	-0.0034	Peptic Ulcer	-0.0048
MNP Liver	-0.0034	Nutritional Deficiencies	-0.0055
Infections of kidney	-0.0037	Undetermined intent	-0.0067
Nutritional Deficiencies	-0.0041	Atherosclerosis	-0.0069
In situ NP benign	-0.0042	Leukemia	-0.0073
Meningitis	-0.0057	MNP Larynx	-0.0077
Complications of intervention	-0.0078	Complications of intervention	-0.0120
Intentional Self-harm	-0.0087	MNP Oral	-0.0132
Pneumonitis/ Solids Liquids	-0.0115	MNP Esophagaus	-0.0141
Peptic Ulcer	-0.0121	MNP Cervix	-0.0150
MNP Esophagaus	-0.0130	Pneumonitis/ Solids Liquids	-0.0152
Undetermined intent	-0.0145	Intentional Self-harm	-0.0173
MNP Bladder	-0.0208	In situ NP benign	-0.0196
Leukemia	-0.0232	MNP Ovary	-0.0204
Other Chap AB	-0.0239	MNP Bladder	-0.0238
Congenital Malformations	-0.0244	Other Circ disorders	-0.0251
Transport Accidents	-0.0268	Congenital Malformations	-0.0253
MNP Oral	-0.0278	Hypertensive Hrt &Renal disease	-0.0336
MNP Larynx	-0.0279	Transport Accidents	-0.0352
Other Circ disorders	-0.0295	Prencancy childbirth	-0.0375
Influenza/Pneumonia	-0.0317	Disease of Circulatory system	-0.0400
Hypertensive Hrt &Renal disease	-0.0325	Asthma	-0.0409
Anemias	-0.0366	Influenza/Pneumonia	-0.0443
Asthma	-0.0408	Anemias	-0.0445
Alzheimers	-0.0474	Multi myeloma & immunoprofile	-0.0550
Disease of Circulatory system	-0.0478	Alzheimers	-0.0560
Multi myeloma & immunoprofile	-0.0530	MNP Corpus Uteri	-0.0718
MNP - Pancreas	-0.0658	MNP - Pancreas	-0.0852
Septicemia	-0.0777	All Other MNP	-0.0861
All Other MNP	-0.0842	Heart Failure	-0.0937
Heart Failure	-0.0906	Septicemia	-0.1013
Nontransport accidents	-0.0950	Abnormal clinical	-0.1167
Diabetes	-0.0996	Nontransport accidents	-0.1217
Essential Hypertenstion	-0.1233	Assault	-0.1234
Nephritis neprhotic syndrome	-0.1330	Nephritis neprhotic syndrome	-0.1392
Abnormal clinical	-0.1475	HIV	-0.1393
MNP Colon	-0.1511	Essential Hypertenstion	-0.1470
Ischemic Hrt Disease	-0.2090	Diabetes	-0.1503
HIV	-0.2182	Chronic Lower Respiratory	-0.1780
Certain Conditions	-0.2357	MNP Colon	-0.1879
Chronic Lower Respiratory Disease	-0.2433	Atherosclerotic Cardiovsacular	-0.2175
Hypertensive Heart Disease	-0.2664	Certain conditions	-0.2199
All Other Chronic Ischemic	-0.2731	Hypertensive Heart Disease	-0.2399
CVD	-0.2753	All other Chronic Ischemic	-0.2412
MNP Prostate	-0.2836	Ischemic Heart Disease	-0.2610
Residual Causes	-0.3356	Other Heart disease	-0.3206
Other Heart Disease	-0.3674	CVD	-0.3280
Atherosclerotic Cardiovsacular	-0.3907	MNP Breast	-0.3375
Assault	-0.5810	Residual causes	-0.4451
MNP Trachea/Bronchus	-0.5841	MNP - Trachea/Bronchus	-0.4693
Life Expectancy Difference	**-5.57**	**Life Expectancy Difference**	**-5.24**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.

MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix D. Cause-specific Differentials from Decompositions of Life Expectancy for Nativity Life Tables, 1990-2010

Table D1. Differentials in Life Expectancy for Native- and Foreign-Born Hispanics, 1990

Males		Females	
Cause of Death	**Life Expectancy Differential**	**Cause of Death**	**Life Expectancy Differential**
Heart Failure	3.32	Heart Failure	0.07
Nontransport accidents	3.15	All other Chronic Ischemic	0.07
Residual causes	2.23	Residual causes	0.05
Atherosclerosis	1.24	MNP Bladder	0.02
Alzheimers	1.13	Nutritional deficiencies	0.02
Parkinson's	0.94	MNP Cervix	0.02
Other resp Disease	0.86	Atherosclerotic Cardiovsacular	0.01
Nutritional deficiencies	0.80	Chronic Lower Respiratory	0.01
Pneumonitis/ Solids Liquids	0.78	Hypertensive Hrt &Renal disease	0.01
Chronic Lower Respiratory	0.68	MNP Stomach	0.01
Septicemia	0.64	Acute reheumatic fever/chronic	0.01
Choleithiasis & other disorders	0.61	MNP - Pancreas	0.01
Anemias	0.60	Disease of Appendix	0.01
Pneumoconioses & chemical	0.47	Choleithiasis & other disorders	0.01
Assault	0.45	Alzheimers	0.01
MNP Esophagaus	0.34	Other Circ disorders	0.00
MNP Colon	0.27	Acute Lower Respiratory	0.00
Non-Hodg Lymphoma	0.27	Prencancy childbirth	0.00
In situ NP benign	0.22	MNP Corpus Uteri	0.00
Viral Hepatitis	0.20	MNP Menginges	0.00
Complications of intervention	0.18	Viral Hepatitis	0.00
Atherosclerotic Cardiovsacular	0.17	MNP -Skin	0.00
Disease of Circulatory system	0.10	Disease of Circulatory system	0.00
Hernia	0.08	Nontransport accidents	0.00
Asthma	0.07	Essential Hypertenstion	0.00
Acute reheumatic fever/chronic	0.07	In situ NP benign	0.00
Hypertensive Hrt &Renal disease	0.03	MNP Prostate	0.00
MNP - Pancreas	0.02	Hyper plasia of prostate	0.00
Ischemic Hrt Disease	0.01	Hodgkin's	0.00
MNP Breast	0.01	Parkinson's	0.00
Disease of Appendix	0.00	Asthma	0.00
MNP Cervix	0.00	HIV	0.00
MNP Ovary	0.00	Multi myeloma & immunoprofile	0.00
MNP Corpus Uteri	0.00	MNP Larynx	0.00
Prencancy childbirth	0.00	Meningitis	0.00
MNP -Skin	0.00	Anemias	0.00
Acute Lower Respiratory	0.00	Undetermined intent	0.00
Hodgkin's	0.00	MNP Ovary	0.00
Leukemia	-0.01	Peptic Ulcer	0.00
Alcoholic Liver Disease	-0.01	Other Chap AB	0.00
MNP Liver	-0.01	Transport Accidents	0.00
Undetermined intent	-0.01	Tuberculosis	0.00
Abnormal clinical	-0.02	Pneumoconioses & chemical	-0.01
MNP Bladder	-0.05	Nephritis nephrotic syndrome	-0.01
HIV	-0.05	MNP Esophagaus	-0.01
Congenital Malformations	-0.06	Hernia	-0.01
Hyper plasia of prostate	-0.06	MNP Kidney	-0.01
Essential Hypertenstion	-0.08	Assault	-0.01
Certain conditions	-0.08	Intentional Self-harm	-0.01
Peptic Ulcer	-0.12	Pneumonitis/ Solids Liquids	-0.01
Meningitis	-0.13	MNP Oral	-0.01
Transport Accidents	-0.13	MNP Liver	-0.01
Other Heart disease	-0.16	Septicemia	-0.01
Multi myeloma & immunoprofile	-0.17	Alcoholic Liver Disease	-0.02
Other Chap AB	-0.21	Infections of kidney	-0.02
MNP Menginges	-0.24	Non-Hodg Lymphoma	-0.02
Diabetes	-0.28	Atherosclerosis	-0.02
Other Chronic Liver disease	-0.31	Complications of intervention	-0.02
Nephritis nephrotic syndrome	-0.36	Leukemia	-0.02
Other Circ disorders	-0.36	All Other MNP	-0.02
MNP Larynx	-0.39	Congenital Malformations	-0.03
MNP Prostate	-0.41	Other Heart disease	-0.03
Intentional Self-harm	-0.43	Hypertensive Hrt Dis	-0.03
MNP Oral	-0.44	Influenza/Pneumonia	-0.03
Infections of kidney	-0.51	Other resp Disease	-0.03
MNP Kidney	-0.57	Other Chronic Liver disease	-0.03
MNP Stomach	-0.64	Abnormal clinical	-0.03
Hypertensive Hrt Dis	-0.69	Certain conditions	-0.04
All Other MNP	-0.81	CVD	-0.05
Tuberculosis	-0.81	MNP - Trachea/Bronc	-0.06
CVD	-1.55	MNP Breast	-0.06
MNP - Trachea/Bronc	-2.31	Ischemic Hrt Disease	-0.07
Influenza/Pneumonia	-3.94	MNP Colon	-0.08
All other Chronic Ischemic	-5.15	Diabetes	-0.09
Life Expectancy Difference*	**-1.64**	**Life Expectancy Difference**	**-0.58**

*negative value connotes Hispanic life expectancy advantage. A positive value indicates where Hispanics lost life expectancy.
MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table D2. Differentials in Life Expectancy for Native- and Foreign-Born Hispanics, 2000

Males		Females	
Cause of Death	**Life Expectancy Differential**	**Cause of Death**	**Life Expectancy Differential**
Heart Failure	0.05	All other Chronic Ischemic	0.08
Disease of Circulatory system	0.04	Nontransport accidents	0.02
Residual causes	0.02	Disease of Circulatory system	0.02
Nutritional deficiencies	0.02	Influenza/Pneumonia	0.01
Hypertensive Hrt &Renal disease	0.02	Alzheimers	0.01
Hypertensive Hrt Dis	0.01	Nutritional deficiencies	0.01
Complications of intervention	0.01	Infections of kidney	0.00
MNP Colon	0.01	Other resp Disease	0.00
Alzheimers	0.01	MNP -Skin	0.00
Septicemia	0.01	Other Chap AB	0.00
Hyper plasia of prostate	0.01	Acute Lower Respiratory	0.00
Pneumoconioses & chemical	0.01	MNP Kidney	0.00
Acute Lower Respiratory	0.00	MNP Prostate	0.00
MNP Cervix	0.00	Hyper plasia of prostate	0.00
MNP Ovary	0.00	Pneumoconioses & chemical	0.00
Prencancy childbirth	0.00	Hernia	0.00
MNP Corpus Uteri	0.00	Atherosclerosis	0.00
Viral Hepatitis	0.00	Disease of Appendix	0.00
Disease of Appendix	0.00	MNP Larynx	0.00
Meningitis	0.00	Hodgkin's	0.00
Influenza/Pneumonia	0.00	Asthma	0.00
Other Chap AB	0.00	MNP Esophagaus	0.00
Hodgkin's	0.00	MNP Corpus Uteri	0.00
Infections of kidney	0.00	Undetermined intent	0.00
Other Circ disorders	0.00	Parkinson's	0.00
MNP Breast	0.00	MNP Bladder	0.00
In situ NP benign	0.00	Choleithiasis & other disorders	0.00
Acute reheumatic fever/chronic	0.00	Meningitis	0.00
MNP -Skin	0.00	Hypertensive Hrt &Renal disease	0.00
MNP Larynx	0.00	Tuberculosis	0.00
Undetermined intent	0.00	Peptic Ulcer	0.00
Parkinson's	0.00	Prencancy childbirth	0.00
MNP Oral	-0.01	Complications of intervention	0.00
Peptic Ulcer	-0.01	HIV	0.00
Asthma	-0.01	Leukemia	-0.01
Atherosclerosis	-0.01	MNP Oral	-0.01
Hernia	-0.01	Intentional Self-harm	-0.01
Anemias	-0.01	Pneumonitis/ Solids Liquids	-0.01
Multi myeloma & immunoprofile	-0.01	Alcoholic Liver Disease	-0.01
Tuberculosis	-0.01	Viral Hepatitis	-0.01
MNP Liver	-0.01	Acute reheumatic fever/chronic	-0.01
MNP Prostate	-0.01	MNP Liver	-0.01
Other resp Disease	-0.01	Anemias	-0.01
Choleithiasis & other disorders	-0.01	In situ NP benign	-0.01
MNP Menginges	-0.02	MNP Menginges	-0.01
MNP - Pancreas	-0.02	Multi myeloma & immunoprofile	-0.01
Nephritis nephrotic syndrome	-0.02	Assault	-0.01
MNP Kidney	-0.02	Other Circ disorders	-0.01
Non-Hodg Lymphoma	-0.02	Non-Hodg Lymphoma	-0.01
Other Chronic Liver disease	-0.02	Nephritis nephrotic syndrome	-0.01
MNP Esophagaus	-0.02	Hypertensive Hrt Dis	-0.02
Intentional Self-harm	-0.03	Other Chronic Liver disease	-0.02
HIV	-0.03	Atherosclerotic Cardiovsacular	-0.02
MNP Bladder	-0.03	MNP Colon	-0.02
Leukemia	-0.03	Essential Hypertenstion	-0.02
MNP Stomach	-0.03	Chronic Lower Respiratory	-0.02
Pneumonitis/ Solids Liquids	-0.03	MNP - Pancreas	-0.03
Essential Hypertenstion	-0.03	MNP Ovary	-0.03
Abnormal clinical	-0.04	MNP Cervix	-0.03
Congenital Malformations	-0.05	Other Heart disease	-0.03
Chronic Lower Respiratory	-0.05	MNP Stomach	-0.03
Assault	-0.06	Septicemia	-0.03
Alcoholic Liver Disease	-0.06	Transport Accidents	-0.03
All Other MNP	-0.07	Abnormal clinical	-0.03
Certain conditions	-0.07	Congenital Malformations	-0.03
Nontransport accidents	-0.08	MNP - Trachea/Bronc	-0.04
Other Heart disease	-0.09	Heart Failure	-0.04
Atherosclerotic Cardiovsacular	-0.09	MNP Breast	-0.04
Diabetes	-0.12	Certain conditions	-0.06
Transport Accidents	-0.12	All Other MNP	-0.06
All other Chronic Ischemic	-0.15	Ischemic Hrt Disease	-0.07
Ischemic Hrt Disease	-0.15	Residual causes	-0.08
MNP - Trachea/Bronc	-0.15	CVD	-0.09
CVD	-0.27	Diabetes	-0.11
Life Expectancy Difference*	**-1.89**	**Life Expectancy Difference**	**0.99**

*negative value connotes Foreign-Born life expectancy advantage. A positive value indicates where Native-Born lost life expectancy.
MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Table D3. Differentials in Life Expectancy for Native- and Foreign-Born Hispanics, 2010

Males		Females	
Cause of Death	**Life Expectancy Differential**	**Cause of Death**	**Life Expectancy Differential**
Influenza/Pneumonia	0.02	All other Chronic Ischemic	0.06
Essential Hypertension	0.02	Chronic Lower Respiratory	0.02
Infections of Kidney	0.01	Alzheimers	0.01
In Situ NP Nenign	0.01	Hypertensive Hrt &Renal disease	0.01
Atherosclerosis	0.00	Essential Hypertenstion	0.00
MNP -Skin	0.00	Atherosclerosis	0.00
Acute Lower Respiratory	0.00	Peptic Ulcer	0.00
Asthma	0.00	Anemias	0.00
Viral Hepatitis	0.00	Acute Lower Respiratory	0.00
Complications of intervention	0.00	MNP Larynx	0.00
Peptic Ulcer	0.00	MNP Oral	0.00
Pneumoconioses & chemical	0.00	Asthma	0.00
Hernia	0.00	Atherosclerotic Cardiovsacular	0.00
MNP Breast	0.00	Undetermined intent	0.00
Prencancy childbirth	0.00	MNP Prostate	0.00
MNP Cervix	0.00	Hyper plasia of prostate	0.00
MNP Ovary	0.00	Pneumoconioses & chemical	0.00
MNP Corpus Uteri	0.00	Meningitis	0.00
Other Circ disorders	0.00	MNP Esophagaus	0.00
Meningitis	0.00	Hodgkin's	0.00
Hodgkin's	0.00	Alcoholic Liver Disease	0.00
Disease of Appendix	0.00	Other Circ disorders	0.00
Multi myeloma & immunoprofile	0.00	MNP Kidney	0.00
Pneumonitis/ Solids Liquids	0.00	MNP -Skin	0.00
Tuberculosis	0.00	Disease of Appendix	0.00
Acute reheumatic fever/chronic	0.00	Infections of kidney	0.00
Undetermined intent	0.00	Viral Hepatitis	0.00
Hyper plasia of prostate	0.00	Hypertensive Hrt Dis	0.00
Heart Failure	0.00	MNP Bladder	0.00
MNP Larynx	0.00	Influenza/Pneumonia	0.00
MNP Oral	-0.01	HIV	0.00
Other Chap AB	-0.01	Hernia	0.00
Disease of Circulatory system	-0.01	Nutritional deficiencies	0.00
Hypertensive Hrt Dis	-0.01	Intentional Self-harm	0.00
Choleithiasis & other disorders	-0.01	Tuberculosis	0.00
Anemias	-0.01	Complications of intervention	0.00
Leukemia	-0.01	Prencancy childbirth	0.00
Nutritional deficiencies	-0.01	Acute reheumatic fever/chronic	-0.01
MNP Esophagaus	-0.01	Disease of Circulatory system	-0.01
MNP Mengiges	-0.01	Pneumonitis/ Solids Liquids	-0.01
Nephritis neprhotic syndrome	-0.02	MNP Mengiges	-0.01
Other Chronic Liver disease	-0.02	Other Chap AB	-0.01
Other resp Disease	-0.02	Choleithiasis & other disorders	-0.01
MNP Kidney	-0.02	Multi myeloma & immunoprofile	-0.01
Alzheimers	-0.02	Assault	-0.01
HIV	-0.02	In situ NP benign	-0.01
Hypertensive Hrt &Renal disease	-0.02	Leukemia	-0.01
Non-Hodg Lymphoma	-0.02	MNP Corpus Uteri	-0.01
Parkinson's	-0.02	Parkinson's	-0.01
MNP Bladder	-0.02	MNP Cervix	-0.01
Abnormal clinical	-0.02	MNP - Pancreas	-0.01
MNP Stomach	-0.02	MNP Liver	-0.02
MNP Liver	-0.03	Other Chronic Liver disease	-0.02
Intentional Self-harm	-0.03	Congenital Malformations	-0.02
Congenital Malformations	-0.03	Nephritis neprhotic syndrome	-0.02
Assault	-0.03	Transport Accidents	-0.02
MNP Colon	-0.04	Non-Hodg Lymphoma	-0.02
MNP - Pancreas	-0.04	Septicemia	-0.02
All Other MNP	-0.05	MNP Ovary	-0.02
Other Heart disease	-0.05	MNP Colon	-0.02
Certain conditions	-0.05	Abnormal clinical	-0.02
Atherosclerotic Cardiovsacular	-0.05	MNP Stomach	-0.02
MNP Prostate	-0.06	Other resp Disease	-0.02
Septicemia	-0.06	MNP - Trachea/Bronc	-0.03
Alcoholic Liver Disease	-0.06	Certain conditions	-0.03
Nontransport accidents	-0.06	Nontransport accidents	-0.03
Transport Accidents	-0.06	All Other MNP	-0.04
MNP - Trachea/Bronc	-0.07	Ischemic Hrt Disease	-0.04
Chronic Lower Respiratory	-0.07	CVD	-0.04
Diabetes	-0.09	Heart Failure	-0.04
CVD	-0.09	Other Heart disease	-0.06
All other Chronic Ischemic	-0.11	MNP Breast	-0.06
Ischemic Hrt Disease	-0.11	Diabetes	-0.07
Residual causes	-0.18	Residual causes	-0.18
Life Expectancy Difference*	**-1.69**	**Life Expectancy Difference**	**0.94**

*negative value connotes Foreign-Born life expectancy advantage. A positive value indicates where Native-Born lost life expectancy.
MNP = Malignant neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix E. All-Cause and Select Cause Rates for Hispanics and non-Hispanics, 1990-2010

Table E1. All-Cause and Select-Cause Cohort Mortality Rates for Hispanics and non-Hispanics by Sex and Year in the Southwest United States

All-Cause Mortality			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	286.11	213.85	606.37	492.20	340.09	250.96
		2000	220.77	100.16	360.19	132.10	240.46	74.90
		2010	391.12	177.62	583.53	266.29	340.78	114.89
	1946-1975	*1990*	658.30	251.71	1276.63	484.70	670.53	184.72
		2000	879.12	498.74	1443.07	893.82	707.55	343.56
		2010	1738.91	1091.66	2352.54	1626.40	1212.62	690.31
	1926-1945	*1990*	2885.97	1691.60	5282.03	2965.99	2406.53	1359.39
		2000	5445.42	3683.52	8417.29	5677.54	4873.52	3137.37
		2010	9857.97	7483.19	12669.03	9127.87	8711.09	6344.59
	Pre-1926	*1990*	16744.04	13371.29	20743.62	14971.37	13303.92	9866.30
		2000	26172.15	22814.15	30808.10	24886.64	22393.93	18679.72
		2010	45154.48	39526.88	43692.87	38566.09	36726.29	33603.27

Chronic Lower Respiratory Disease			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	0.48	0.20	1.53	1.74	0.98	0.51
		2000	0.06	0.10	0.46	0.00	0.16	0.03
		2010	0.35	0.35	0.76	0.76	0.35	0.20
	1946-1975	*1990*	1.20	1.03	3.13	1.34	0.64	0.41
		2000	9.77	8.61	12.36	10.66	1.84	2.36
		2010	56.54	52.60	46.53	40.00	10.55	7.75
	1926-1945	*1990*	97.55	81.16	124.09	52.00	27.06	16.64
		2000	380.34	334.55	333.48	185.03	120.44	66.51
		2010	841.52	766.12	678.54	371.39	345.44	217.07
	Pre-1926	*1990*	1126.54	662.83	816.79	266.59	539.01	238.06
		2000	1946.56	1408.06	1578.56	650.47	1110.97	590.80
		2010	2852.67	2177.73	2162.26	1174.90	1973.76	1260.69

MNP - Trachea, Bronchus, and Lung			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	0.00	0.00	0.00	0.00	0.09	0.04
		2000	0.09	0.06	0.15	0.00	0.26	0.07
		2010	0.73	0.53	0.91	0.61	0.98	0.57
	1946-1975	*1990*	7.36	6.08	15.49	7.06	2.65	1.50
		2000	36.75	28.45	64.27	33.74	9.28	6.85
		2010	110.94	86.10	142.69	99.00	31.82	19.74
	1926-1945	*1990*	357.71	226.51	645.20	239.84	127.14	51.58
		2000	665.90	462.03	972.04	461.44	303.76	128.03
		2010	906.89	672.84	1195.97	620.58	516.65	249.39
	Pre-1926	*1990*	1368.90	623.81	1709.26	499.92	763.75	268.40
		2000	1468.14	831.10	1949.68	734.37	1039.80	409.32
		2010	1376.67	836.34	1512.95	734.31	1021.00	512.88

Diabetes			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	0.27	0.13	0.17	0.52	0.09	0.16
		2000	1.24	0.73	1.86	2.09	0.52	0.63
		2010	3.32	2.65	9.13	8.41	2.52	2.15
	1946-1975	*1990*	5.77	4.49	12.18	10.10	4.03	3.31
		2000	17.42	12.41	37.91	36.71	18.30	14.95
		2010	48.89	28.84	101.66	77.66	61.18	38.54
	1926-1945	*1990*	45.40	38.85	127.10	146.94	98.35	97.32
		2000	147.53	114.21	368.95	383.02	372.15	345.79
		2010	275.34	180.91	587.71	518.35	555.26	444.72
	Pre-1926	*1990*	247.74	235.33	514.88	669.28	548.85	610.14
		2000	550.64	449.47	1101.16	1215.16	1163.56	1278.46
		2010	845.92	575.68	1437.31	1380.51	1407.76	1393.06

HIV			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	0.97	0.62	3.90	3.31	0.56	0.37
		2000	0.45	0.29	5.10	4.17	1.16	0.34
		2010	2.65	1.07	21.92	16.06	5.98	1.03
	1946-1975	*1990*	133.48	3.40	195.25	19.84	74.95	3.54
		2000	37.23	4.08	147.54	51.40	38.50	5.52
		2010	18.84	2.89	90.95	36.01	21.58	4.04
	1926-1945	*1990*	112.56	2.97	170.25	15.48	74.48	4.41
		2000	15.67	1.44	81.60	17.82	19.12	4.41
		2010	7.89	0.52	38.39	11.58	14.91	2.48
	Pre-1926	*1990*	13.60	2.13	22.62	1.54	11.70	2.63
		2000	2.27	0.25	22.65	5.66	4.29	0.47
		2010	0.34	0.18	6.30	0.00	1.88	1.10

Homicide			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	Year	Males	Females	Males	Females	Males	Females
	1976-1990	*1990*	5.68	4.47	23.42	21.77	10.40	5.80
		2000	15.01	7.31	151.80	19.42	66.03	8.31
		2010	20.86	7.51	212.68	25.39	64.76	8.92
	1946-1975	*1990*	36.01	13.84	402.86	75.52	147.00	18.48
		2000	19.34	7.87	135.54	25.35	56.00	10.77
		2010	16.00	6.18	76.11	16.31	29.91	6.99
	1926-1945	*1990*	26.69	9.19	147.50	23.95	60.17	10.06
		2000	11.05	5.13	37.84	10.37	21.60	5.93
		2010	7.85	4.92	23.25	7.19	13.26	3.16
	Pre-1926	*1990*	15.77	9.32	101.42	32.24	31.50	6.98
		2000	9.68	5.61	33.10	11.31	13.99	5.64
		2010	7.61	6.36	18.91	13.35	11.26	5.48

Suicide			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	**Year**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**
	1976-1990	*1990*	3.05	0.97	3.22	0.52	1.10	0.54
		2000	42.14	6.93	28.60	4.98	22.70	4.33
		2010	82.88	23.24	49.78	13.15	42.80	7.86
	1946-1975	*1990*	88.76	24.04	55.06	12.24	50.24	9.82
		2000	81.29	26.01	40.73	10.14	39.21	7.03
		2010	116.99	40.30	36.91	10.15	38.40	8.64
	1926-1945	*1990*	96.17	34.21	31.44	11.98	47.34	9.33
		2000	84.77	20.55	27.59	6.80	36.55	3.95
		2010	112.38	21.02	32.44	3.19	39.51	5.37
	Pre-1926	*1990*	172.39	29.68	30.43	5.12	62.92	5.82
		2000	173.89	19.44	36.59	1.89	63.71	2.84
		2010	207.54	16.53	18.91	5.34	54.70	1.10

Transportation			Non-Hispanic White		Non-Hispanic Black		Hispanic	
	Cohort	**Year**	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**
	1976-1990	*1990*	21.97	14.21	26.81	17.77	25.94	15.63
		2000	79.30	40.74	63.38	29.85	74.24	24.58
		2010	73.53	26.66	74.45	27.99	72.32	20.26
	1946-1975	*1990*	113.01	43.21	115.31	37.99	139.19	33.95
		2000	71.73	28.86	83.63	30.51	83.04	25.24
		2010	63.91	21.79	63.56	21.61	54.50	18.45
	1926-1945	*1990*	73.18	29.68	100.34	28.34	108.24	37.25
		2000	68.49	34.63	75.68	30.14	91.71	37.37
		2010	66.47	29.44	72.45	21.56	64.44	31.05
	Pre-1926	*1990*	98.15	54.26	142.76	33.77	134.25	49.48
		2000	127.64	57.31	102.80	46.19	132.34	57.29
		2010	119.32	43.76	69.34	42.72	94.38	40.60

* Rates per 100,000; MNP = Malignant Neoplasm; HIV = Human Immunodeficiency Virus; AIDS = Acquired Immune Deficiency Syndrome

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix F. All-Cause and Select Cause Rates for Native- and Foreign-Born Hispanics, 1990-2010

Table F1. All-Cause and Select-Cause Cohort Mortality Rates for Native- and Foreign-Born Hispanics by Sex and Year in the Southwest United States

All-Cause Mortality			Native-Born		Foreign-Born	
	Cohort	Year	Males	Females	Males	Females
	1976-1990	*1990*	128.82	101.93	46.53	28.42
		2000	78.11	64.56	21.49	21.15
		2010	57.24	47.67	18.10	15.99
	1946-1975	*1990*	242.25	73.61	206.50	55.09
		2000	180.58	69.78	126.66	48.33
		2010	129.76	56.74	106.99	44.41
	1926-1945	*1990*	1022.16	537.02	566.17	339.35
		2000	898.61	472.12	470.72	303.10
		2010	790.00	411.44	436.08	257.63
	Pre-1926	*1990*	4397.95	2976.76	4512.33	3546.60
		2000	4674.71	3577.29	3863.23	3243.00
		2010	4009.25	3278.88	3158.14	2665.12
Heart Failure			**Native-Born**		**Foreign-Born**	
	Cohort	**Year**	**Males**	**Females**	**Males**	**Females**
	1976-1990	*1990*	0.04	0.10	0.00	0.00
		2000	0.09	0.10	0.00	0.10
		2010	0.04	0.06	0.00	0.00
	1946-1975	*1990*	0.24	0.06	0.09	0.02
		2000	0.27	0.14	0.09	0.04
		2010	0.35	0.16	0.19	0.17
	1926-1945	*1990*	5.89	3.04	2.87	2.71
		2000	5.30	3.35	1.59	2.18
		2010	5.95	3.82	2.54	1.58
	Pre-1926	*1990*	67.97	52.74	62.55	71.12
		2000	81.61	79.85	59.05	79.48
		2010	94.03	90.33	64.45	68.34
MNP - Trachea, Bronchus, and Lung			**Native-Born**		**Foreign-Born**	
	Cohort	**Year**	**Males**	**Females**	**Males**	**Females**
	1976-1990	*1990*	0.00	0.02	0.27	0.00
		2000	0.01	0.00	0.00	0.00
		2010	0.02	0.03	0.00	0.00
	1946-1975	*1990*	0.93	0.50	0.79	0.51
		2000	0.58	0.39	0.65	0.76
		2010	0.44	0.40	0.66	0.57
	1926-1945	*1990*	54.26	21.37	29.40	11.78
		2000	36.04	15.74	20.24	10.09
		2010	22.21	12.39	15.17	8.90
	Pre-1926	*1990*	257.24	88.13	251.47	86.92
		2000	252.29	103.63	211.12	84.91
		2010	197.91	103.66	165.06	73.25

Diabetes	Cohort	Year	Native-Born Males	Native-Born Females	Foreign-Born Males	Foreign-Born Females
	1976-1990	*1990*	0.04	0.06	0.00	0.14
		2000	0.05	0.04	0.00	0.00
		2010	0.04	0.06	0.00	0.16
	1946-1975	*1990*	1.98	1.73	0.64	0.37
		2000	2.48	1.82	0.79	0.73
		2010	2.22	1.58	1.35	1.03
	1926-1945	*1990*	46.93	42.96	16.49	19.36
		2000	56.90	43.45	25.24	23.24
		2010	45.47	25.61	23.39	14.93
	Pre-1926	*1990*	191.23	207.80	171.31	187.67
		2000	298.65	311.33	227.32	238.72
		2010	225.74	193.60	180.62	155.61

Alzheimer's Disease	Cohort	Year	Native-Born Males	Native-Born Females	Foreign-Born Males	Foreign-Born Females
	1976-1990	*1990*	0.00	0.00	0.00	0.00
		2000	0.00	0.00	0.00	0.00
		2010	0.00	0.00	0.00	0.00
	1946-1975	*1990*	0.00	0.00	0.00	0.00
		2000	0.00	0.00	0.02	0.00
		2010	0.01	0.00	0.01	0.00
	1926-1945	*1990*	0.24	0.07	0.00	0.47
		2000	0.56	0.41	0.29	0.19
		2010	0.66	0.95	0.66	0.69
	Pre-1926	*1990*	16.17	17.69	12.26	15.80
		2000	56.31	84.17	46.21	70.43
		2010	123.07	183.74	87.58	140.26

Stroke	Cohort	Year	Native-Born Males	Native-Born Females	Foreign-Born Males	Foreign-Born Females
	1976-1990	*1990*	0.61	0.52	0.00	0.14
		2000	0.34	0.35	0.09	0.20
		2010	0.37	0.41	0.16	0.33
	1946-1975	*1990*	3.19	2.62	2.76	2.33
		2000	2.76	2.16	2.70	2.13
		2010	2.03	1.39	2.88	2.11
	1926-1945	*1990*	44.67	32.95	29.40	26.37
		2000	37.43	24.67	25.53	20.03
		2010	28.26	18.80	23.41	15.19
	Pre-1926	*1990*	277.56	253.36	339.49	361.95
		2000	332.58	314.87	322.51	323.08
		2010	225.33	238.69	203.02	209.68

Non-Transport Accident			Native-Born		Foreign-Born	
	Cohort	Year	Males	Females	Males	Females
	1976-1990	*1990*	8.31	4.65	10.40	5.13
		2000	4.65	3.08	1.86	2.20
		2010	3.41	2.29	2.18	0.82
	1946-1975	*1990*	28.56	3.96	21.89	2.17
		2000	22.45	4.79	15.03	1.41
		2010	18.77	6.46	13.86	1.49
	1926-1945	*1990*	32.09	5.34	22.43	3.09
		2000	38.38	9.34	17.93	3.02
		2010	48.99	18.25	20.42	4.40
	Pre-1926	*1990*	53.11	28.04	55.32	31.17
		2000	66.69	40.81	40.29	32.85
		2010	75.96	56.88	52.78	33.90

Transportation Accident			Native-Born		Foreign-Born	
	Cohort	Year	Males	Females	Males	Females
	1976-1990	*1990*	8.96	6.84	10.80	6.24
		2000	5.86	4.58	3.72	3.61
		2010	3.05	2.31	3.43	3.10
	1946-1975	*1990*	44.07	13.97	50.68	10.38
		2000	32.46	11.96	29.42	7.35
		2010	21.95	8.08	18.83	4.79
	1926-1945	*1990*	34.51	11.72	40.26	12.53
		2000	25.83	10.68	28.18	9.48
		2010	20.76	6.32	16.79	6.23
	Pre-1926	*1990*	40.87	13.52	50.29	19.54
		2000	36.12	15.48	41.08	18.23
		2010	17.77	8.94	25.76	11.45

* Rates per 100,000; MNP = Malignant Neoplasm

Data: CDC/NCHS, National Vital Statistics System: U.S. Census Populations With Bridged Race Categories, 1990,2000, 2010; CDC/NCHS, National Vital Statistics System, Linked Birth Infant Death Data, 1988-1991, 1998-2001, 2008-2011; CDC/NCHS, National Vital Statistics System: Mortality, Multiple Cause-of-Death, 1989-1991, 1999-2001, 2009-2011

Appendix G. Recode of the NCHS 113 Selected Causes of Death to 74 Categories

Table G1. Recode of the NCHS 113 Selected Causes of Death to 74 Categories

Label	Original 113 Causes	Recode
Other Chapter AB	1	0
	2	
	3	
	6	
	7	
	8	
	10	
	11	
	12	
	13	
	16	
	17	
Tuberculosis	4	4
	5	
Septicemia	9	10
Viral hepatitis	14	15
Human immunodeficiency virus (HIV)	15	16
Malignant neoplasms of lip, oral cavity	18	20
Malignant neoplasm of esophagus	19	21
Malignant neoplasm of stomach	20	22
Malignant neoplasms of colon, rectum	21	23
Malignant neoplasms of liver	22	24
Malignant neoplasm of pancreas	23	25
Malignant neoplasm of larynx	24	26
Malignant neoplasms of trachea, bronchus, and lung	25	27
Malignant melanoma of skin	26	28
Malignant neoplasm of breast	27	29
Malignant neoplasm of cervix uteri	28	30
Malignant neoplasms of corpus uteri	29	31
Malignant neoplasm of ovary	30	32
Malignant neoplasm of prostate	31	33
Malignant neoplasms of kidney	32	34
Malignant neoplasm of bladder	33	35
Malignant neoplasms of meninges, brain	34	36
Hodgkin's disease	35	38
Non-Hodgkin's lymphoma	36	39
Leukemia	37	40
Multiple myeloma and immunoprolife	38	41
All Other/Unspecified MNP	39	43
	40	43

In situ neoplasms, benign neoplasm	41	44
Anemias	42	45
Diabetes mellitus	43	46
Nutritional deficiencies	44 45	47 47
Meningitis	46	50
Parkinson's disease	47	51
Alzheimer's disease	48	52
Acute rheumatic fever and chronic rheumatic fever	49	55
Hypertensive heart disease	50	56
Hypertensive heart and renal disease	51	57
Ischemic heart diseases	52 53	58
Atherosclerotic cardiovascular disease	54	62
All other forms of chronic ischemic heart disease	55	63
Other heart diseases	56 57 59	64
Heart failure	58	67
Essential (primary) hypertension	60	69
Cerebrovascular diseases	61	70
Atherosclerosis	62	71
Other diseases of the circulatory system	63 64	72
Other and unspecified disorders of the circulatory system	65	75
Influenza and pneumonia	66 67	76
Other acute lower respiratory infection	68 69	79
Chronic lower respiratory diseases	70 71 73	82
Asthma	72	85
Pneumoconioses and chemical effect	74	87
Pneumonitis due to solids and liquids	75	88
Other diseases of respiratory system	76	89
Peptic ulcer	77	90
Diseases of appendix	78	91
Hernia	79	92
Alcoholic liver disease	80	94

Other chronic liver disease and cirrhosis	81	95
Cholelithiasis and other disorders	82	96
Nephritis, nephrotic syndrome and	83 84 85 86	97
Infections of kidney	87	102
Hyperplasia of prostate	88	103
Inflammatory diseases of female pelvic organs	89	104
Pregnancy, childbirth and the puerperium	90 91	105
Certain conditions originating in the perinatal period	92	108
Congenital malformations, deformations	93	109
Symptoms, signs and abnormal clinical	94	110
All other causes-Residual	95	111
Transport accidents	96 97 98	113
Nontransport accidents	99 100 101 102 103 104	117
Intentional self-harm (suicide)	105 106	124
Assault (homicide)	107 108 109	127
Events of undetermined intent	110 111	131
Operations of war	112	134
Complications of medical and surgeries	113	135

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