



# Migration and Health

Latin America Comes to Ohio

July 1, 2011

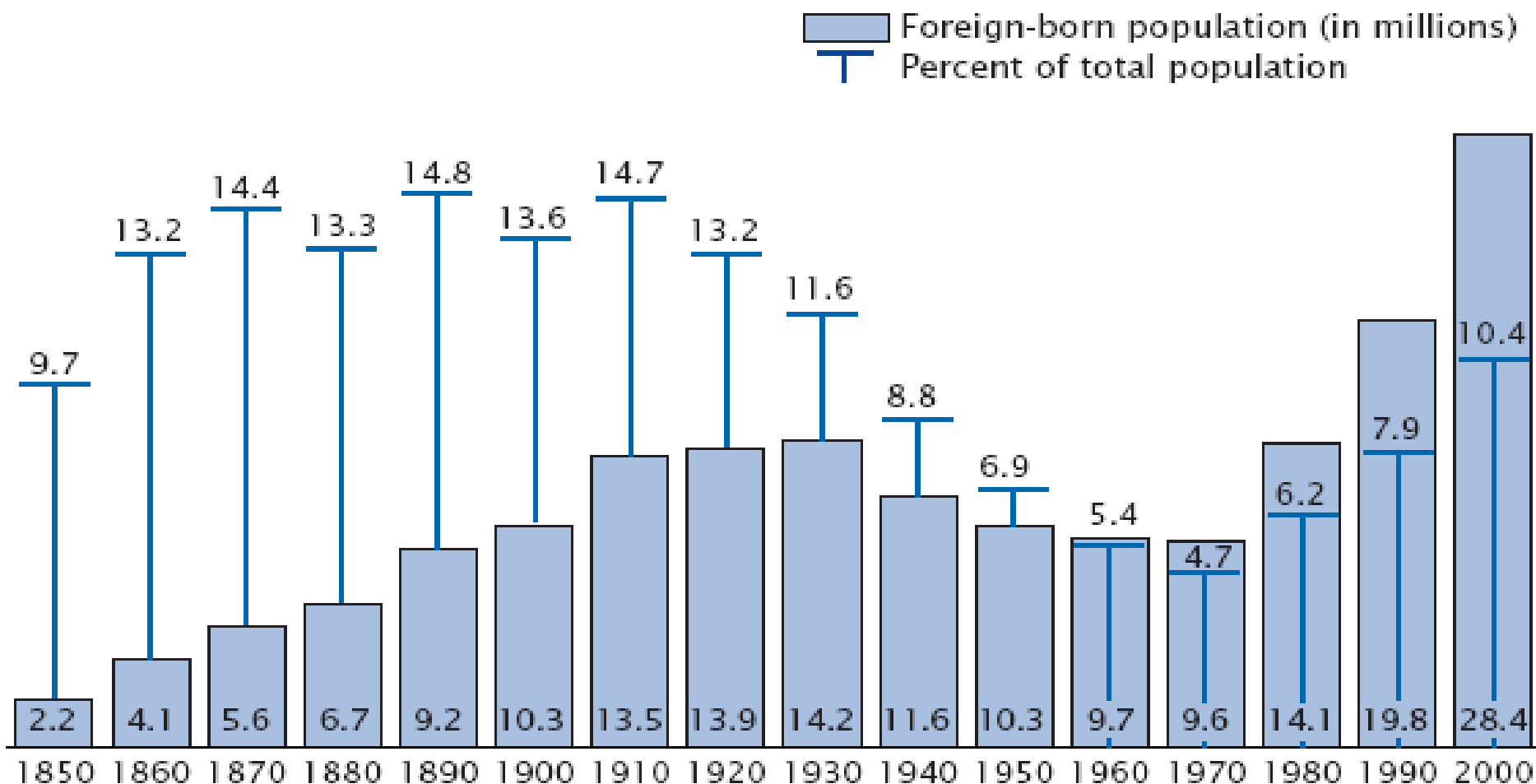
Reanne Frank, Ph.D

# Demographic Trends



## Foreign-Born Population and Percent of Total Population for the United States: 1850 to 2000

(For 1850-1990, resident population. For 2000, civilian noninstitutional population plus Armed Forces living off post or with their families on post)



Source: U.S. Census Bureau, 1999a, Table 1, and 2001, Table 1-1.



## Statistical Portrait of the Foreign-Born Population in the United States, 2009

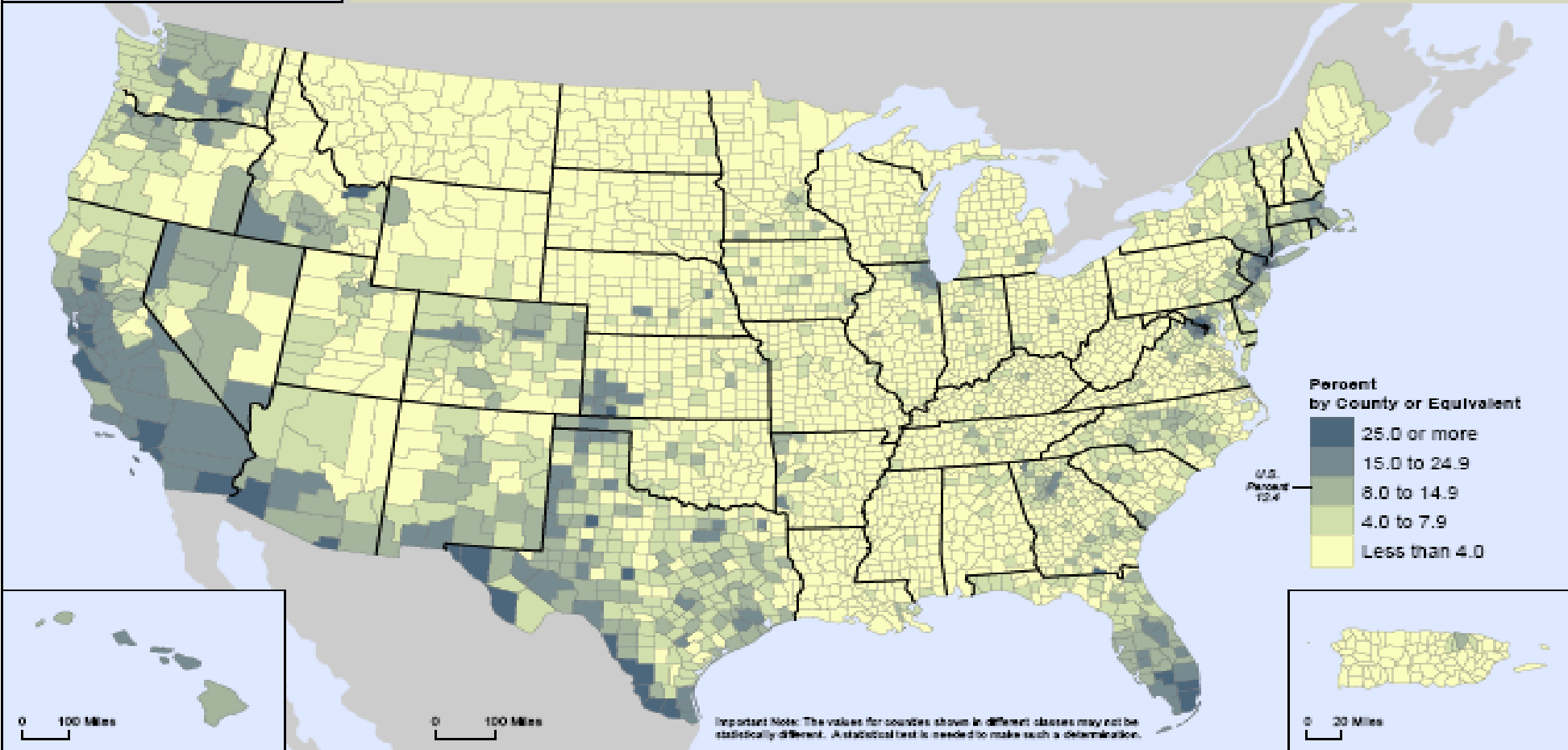
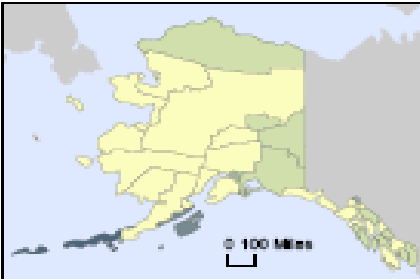
**Table 1. Population, by Nativity and Citizenship Status: 2000 and 2009**

Universe: 2000 and 2009 resident population

	<b>2009 population</b>	<b>2000 population</b>	<b>Percent, 2009</b>	<b>Percent, 2000</b>
Native born	268,553,734	250,288,425	87.5	88.9
Foreign born	38,452,822	31,133,481	12.5	11.1
Citizen	16,811,829	12,533,932	5.5	4.5
Non-citizen	21,640,993	18,599,549	7.0	6.6
<b>Total</b>	<b>307,006,556</b>	<b>281,421,906</b>	<b>100.0</b>	<b>100.0</b>

Source: Pew Hispanic Center tabulations of 2000 Census (5% IPUMS) and 2009 American Community Survey (1% IPUMS)

# American Community Survey 5-Year Estimates Percent of People Who Are Foreign Born



A photograph of a fruit stand. In the foreground, there are several baskets of produce. On the left, a basket contains several large, round, light-brown melons. Next to them are some smaller, round fruits, possibly peaches or nectarines. In the center, a large bunch of green bananas is prominently displayed. To the right, there are more baskets, some containing purple grapes. In the background, a wooden sign with red text is visible, though the text is not legible. The overall scene is brightly lit, suggesting an indoor market or grocery store setting.

# Interactive Map

<http://www.nytimes.com/interactive/2009/03/10/us/20090310-immigration-explorer.html>

**Table 11. Foreign Born, by State: 2009**  
*States and the District of Columbia are listed in descending order of number of foreign-born residents*

Universe: 2009 resident population

	<b>Foreign-born population</b>	<b>Total population</b>	<b>Percent foreign born</b>
California	9,931,250	36,961,664	26.9
New York	4,161,047	19,541,453	21.3
Texas	3,984,469	24,782,302	16.1
Florida	3,479,448	18,537,969	18.8
New Jersey	1,755,503	8,707,740	20.2
Illinois	1,732,239	12,910,409	13.4
Massachusetts	948,061	6,593,587	14.4
Arizona	925,046	6,595,778	14.0
Georgia	923,087	9,829,211	9.4
Washington	807,173	6,664,195	12.1
Virginia	806,030	7,882,590	10.2
Maryland	733,459	5,699,478	12.9
Pennsylvania	671,950	12,604,767	5.3
North Carolina	670,647	9,380,884	7.1
Michigan	603,230	9,969,727	6.1
Nevada	505,009	2,643,085	19.1
Colorado	491,525	5,024,748	9.8
Connecticut	458,154	3,518,288	13.0
Ohio	428,919	11,542,645	3.7
Oregon	373,823	3,825,657	9.8
Minnesota	355,719	5,266,215	6.8
Indiana	278,942	6,423,113	4.3
Tennessee	264,538	6,296,254	4.2
Wisconsin	254,476	5,654,774	4.5
Hawaii	221,909	1,295,178	17.1
Utah	216,086	2,784,572	7.8
Missouri	211,898	5,987,580	3.5
South Carolina	208,904	4,561,242	4.6
New Mexico	200,880	2,009,671	10.0
Oklahoma	195,124	3,687,050	5.3
Kansas	179,156	2,818,747	6.4
Louisiana	149,638	4,492,076	3.3
Alabama	149,390	4,708,708	3.2
Rhode Island	136,065	1,053,209	12.9
Kentucky	126,728	4,314,113	2.9
Arkansas	116,180	2,889,450	4.0
Iowa	114,806	3,007,857	3.8
Nebraska	102,951	1,796,622	5.7
Idaho	94,603	1,545,801	6.1
Delaware	73,395	885,122	8.3

*cont.*

## Table 13. Foreign Born, by State and Region of Birth: 2009

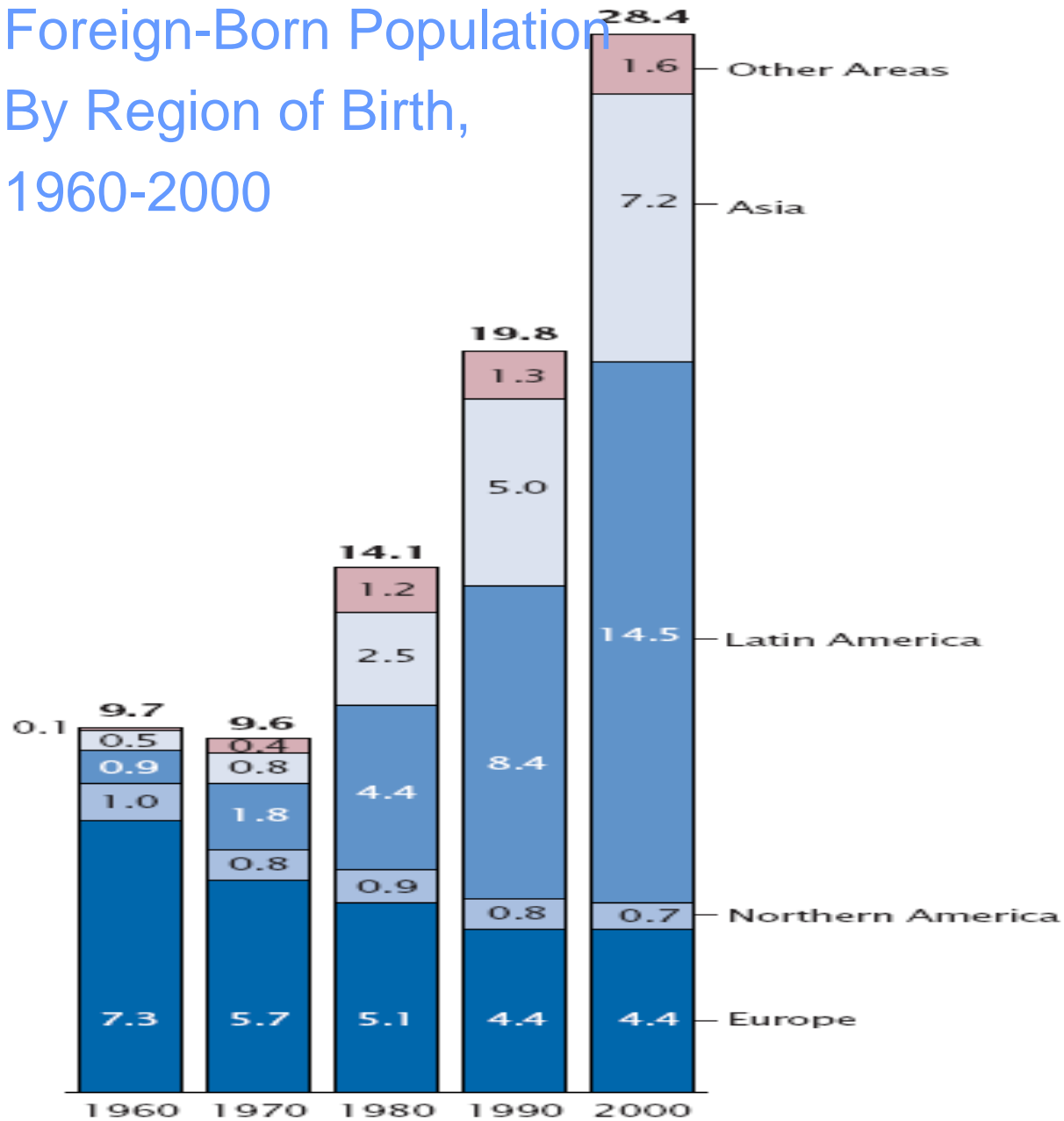
*States and the District of Columbia are listed in descending order of number of foreign-born residents*

Universe: 2009 resident population

	Total Population		Region of Birth						
	Native born	Foreign born	Mexico	South and East Asia	Caribbean	Central America	South America	Middle East	All other
California	27,030,414	9,931,250	4,304,162	2,992,565	72,944	851,952	221,438	433,084	1,055,105
New York	15,380,406	4,161,047	227,955	953,815	1,001,163	222,707	581,409	143,795	1,030,203
Texas	20,797,833	3,984,469	2,396,226	635,534	50,000	364,191	115,112	82,192	341,214
Florida	15,058,521	3,479,448	275,428	297,750	1,383,555	343,317	599,447	65,857	514,094
New Jersey	6,952,237	1,755,503	133,383	483,439	247,460	117,174	296,421	80,081	397,545
Illinois	11,178,170	1,732,239	690,289	393,630	26,229	47,235	59,246	55,926	459,684
Massachusetts	5,645,526	948,061	11,689	228,920	137,444	65,900	114,656	40,397	349,055
Arizona	5,670,732	925,046	582,981	112,169	11,895	30,244	18,619	26,423	142,715
Georgia	8,906,124	923,087	272,528	211,564	84,370	84,250	61,656	19,300	189,419
Washington	5,857,022	807,173	201,349	297,099	8,087	17,312	15,160	17,384	250,782
Virginia	7,076,560	806,030	51,589	291,854	19,895	128,742	90,626	57,248	166,076
Maryland	4,966,019	733,459	34,568	210,895	53,137	132,593	53,913	29,620	218,733
Pennsylvania	11,932,817	671,950	43,633	220,396	67,538	22,820	41,332	28,972	247,259
North Carolina	8,710,237	670,647	244,968	132,463	26,891	78,930	33,219	19,180	134,996
Michigan	9,366,497	603,230	78,711	175,941	9,547	10,157	13,019	103,916	211,939
Nevada	2,138,076	505,009	223,210	122,223	17,478	44,101	13,084	12,130	72,783
Colorado	4,533,223	491,525	240,478	91,875	5,634	21,766	16,103	11,844	103,825
Connecticut	3,060,134	458,154	26,586	89,006	78,693	26,296	65,633	12,668	159,272
Ohio	11,113,726	428,919	47,864	136,190	12,891	13,054	15,445	21,764	181,711
Oregon	3,451,834	373,823	155,130	91,786	4,968	15,087	6,600	12,909	87,343



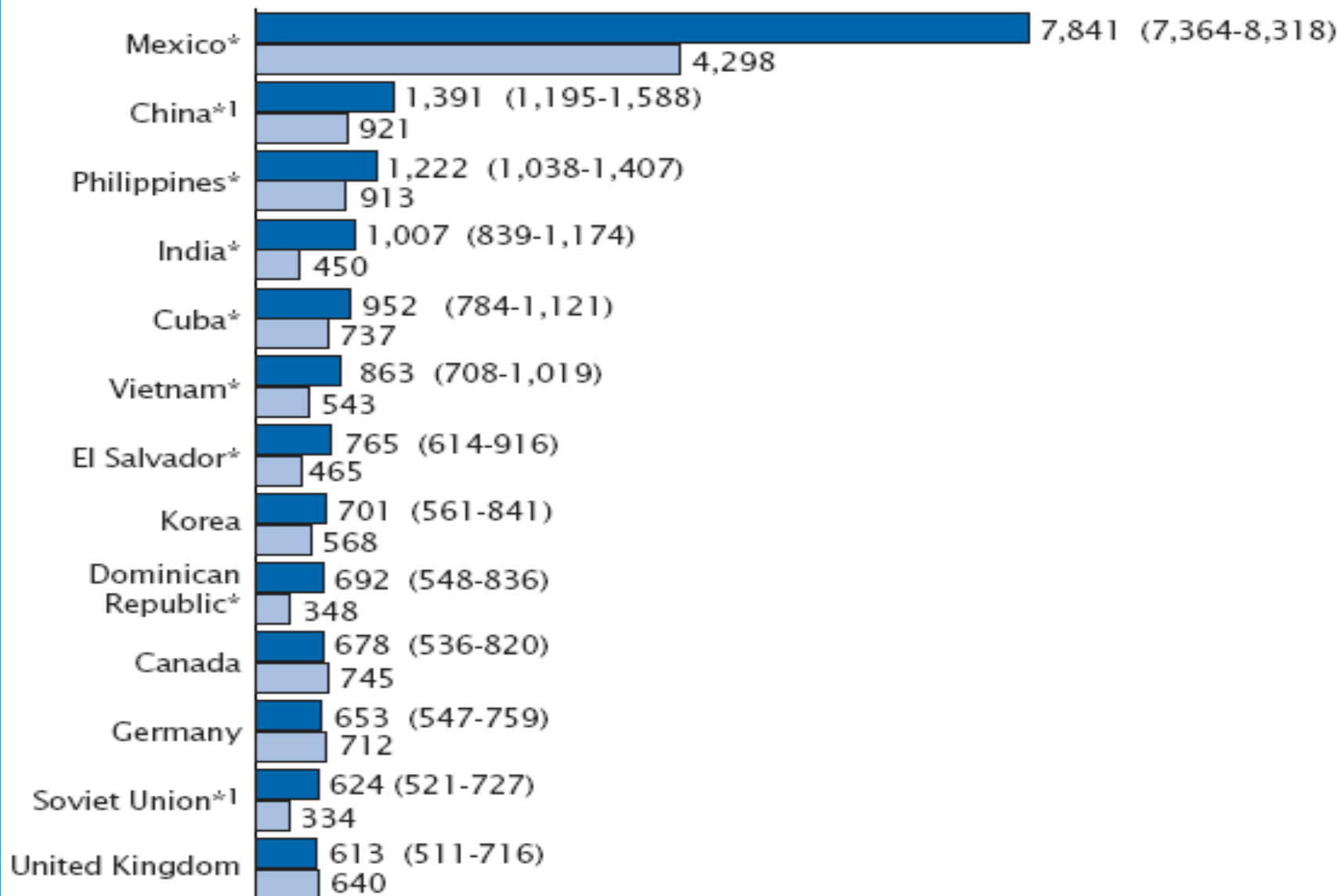
# Foreign-Born Population By Region of Birth, 1960-2000



## Countries of Birth of the Foreign-Born Population With 500,000 or More in 2000: 1990 and 2000

(Numbers in thousands. 90-percent confidence intervals in parentheses for 2000 estimates. For 1990, resident population. For 2000, civilian noninstitutional population plus Armed Forces living off post or with their families on post)

2000  
1990



## U.S. Hispanic Population, by Country of Origin, 2010

Origin Group	POPULATION ( <i>thousands</i> )	SHARE (%)
Mexican	31,798	63.0
Puerto Rican	4,624	9.2
All other Hispanic	3,452	6.8
Cuban	1,786	3.5
Salvadoran	1,649	3.3
Dominican	1,415	2.8
Guatemalan	1,044	2.1
Colombian	909	1.8
Spaniard	635	1.3
Honduran	633	1.3
Ecuadorian	565	1.1
Peruvian	531	1.1
Nicaraguan	348	0.7
Argentinean	225	0.4
Venezuelan	215	0.4
Panamanian	165	0.3
Chilean	127	0.3
Costa Rican	126	0.3
Bolivian	99	0.2
Uruguayan	57	0.1
Other Central American	32	0.1
Other South American	22	<0.1
Paraguayan	20	<0.1

Source: 2010 U.S. Census ([Ennis, Ríos-Vargas and Albert, 2011](#))

## U.S. Hispanic Population Growth, by Country of Origin, 2000-2010

	POPULATION		GROWTH	
	2010	2000	Number	%
<b>All Hispanics</b>	<b>50,478</b>	<b>35,306</b>	<b>15,172</b>	<b>43.0</b>
Guatemalan	1,044	372	672	180.3
Salvadoran	1,649	655	994	151.7
Colombian	909	471	438	93.1
Dominican	1,415	765	650	84.9
Mexican	31,798	20,641	11,158	54.1
Cuban	1,786	1,242	544	43.8
Puerto Rican	4,624	3,406	1,218	35.7

Notes: Hispanic population growth among country of origin groups with a population of 900,000 or more in 2010. Growth rates are computed from unrounded data.

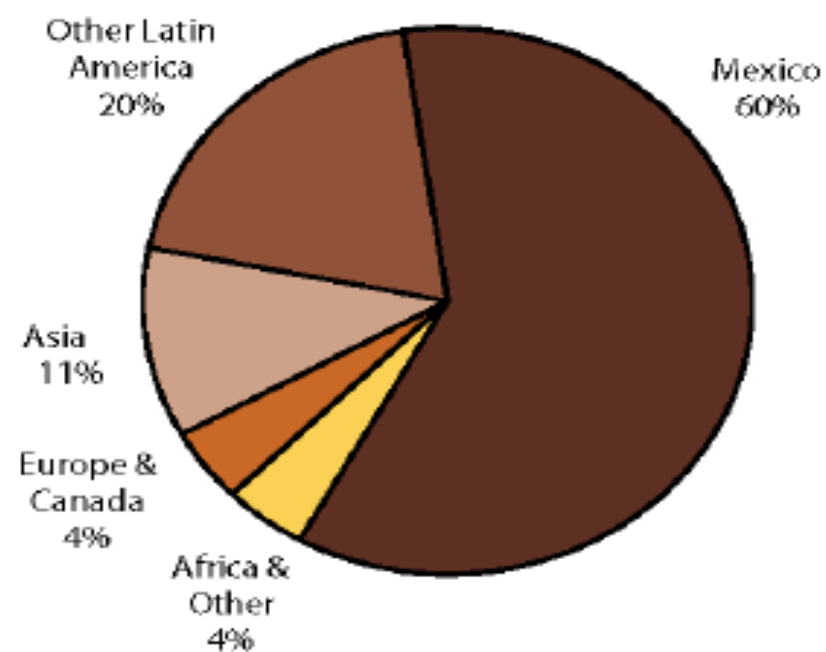
Source: 2010 Census and 2000 Census ([Ennis, Ríos-Vargas and Albert, 2011](#))

PEW HISPANIC CENTER

**Figure 3**

Estimated U.S. Unauthorized  
Immigrant Population, by Region  
and Country of Birth, 2009

(%)

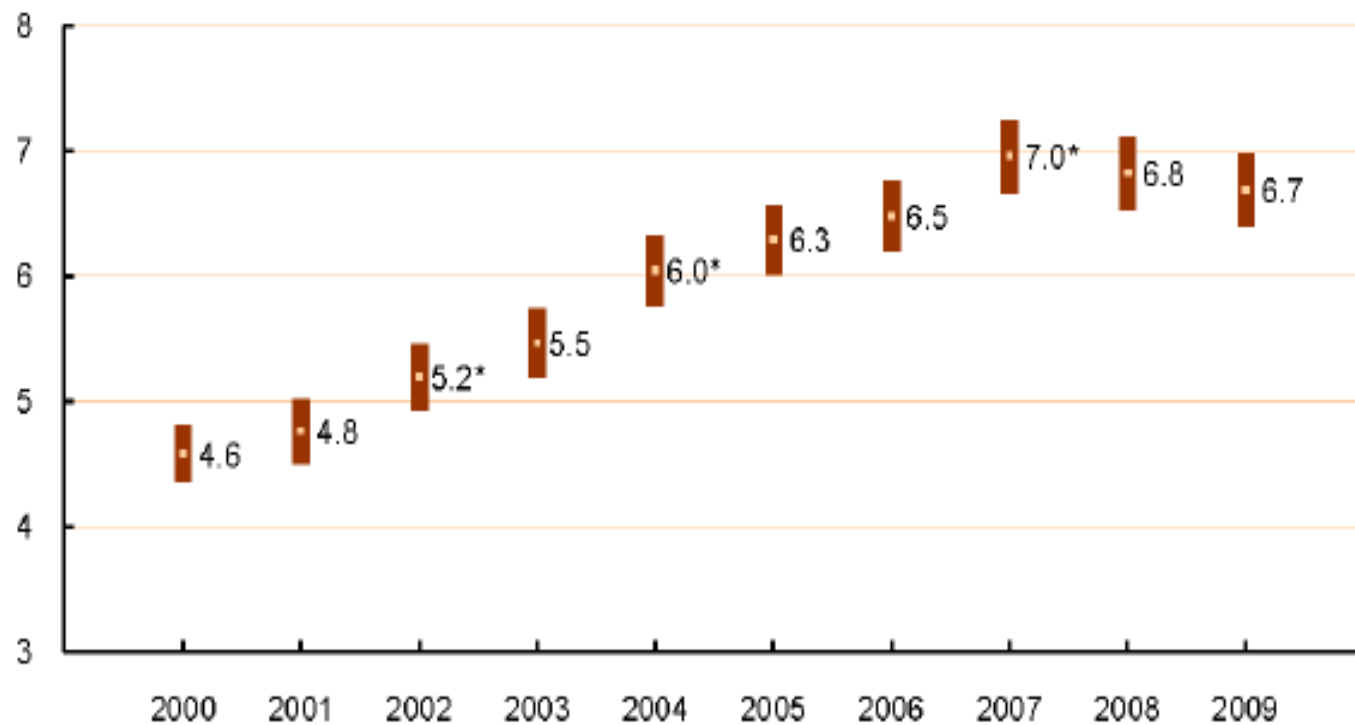


Notes: See appendix for regional definitions. Numbers may not sum to total due to rounding.

Source: Pew Hispanic Center estimates based on augmented March Supplements to the Current Population Survey. See Methodology.

**Figure 4**

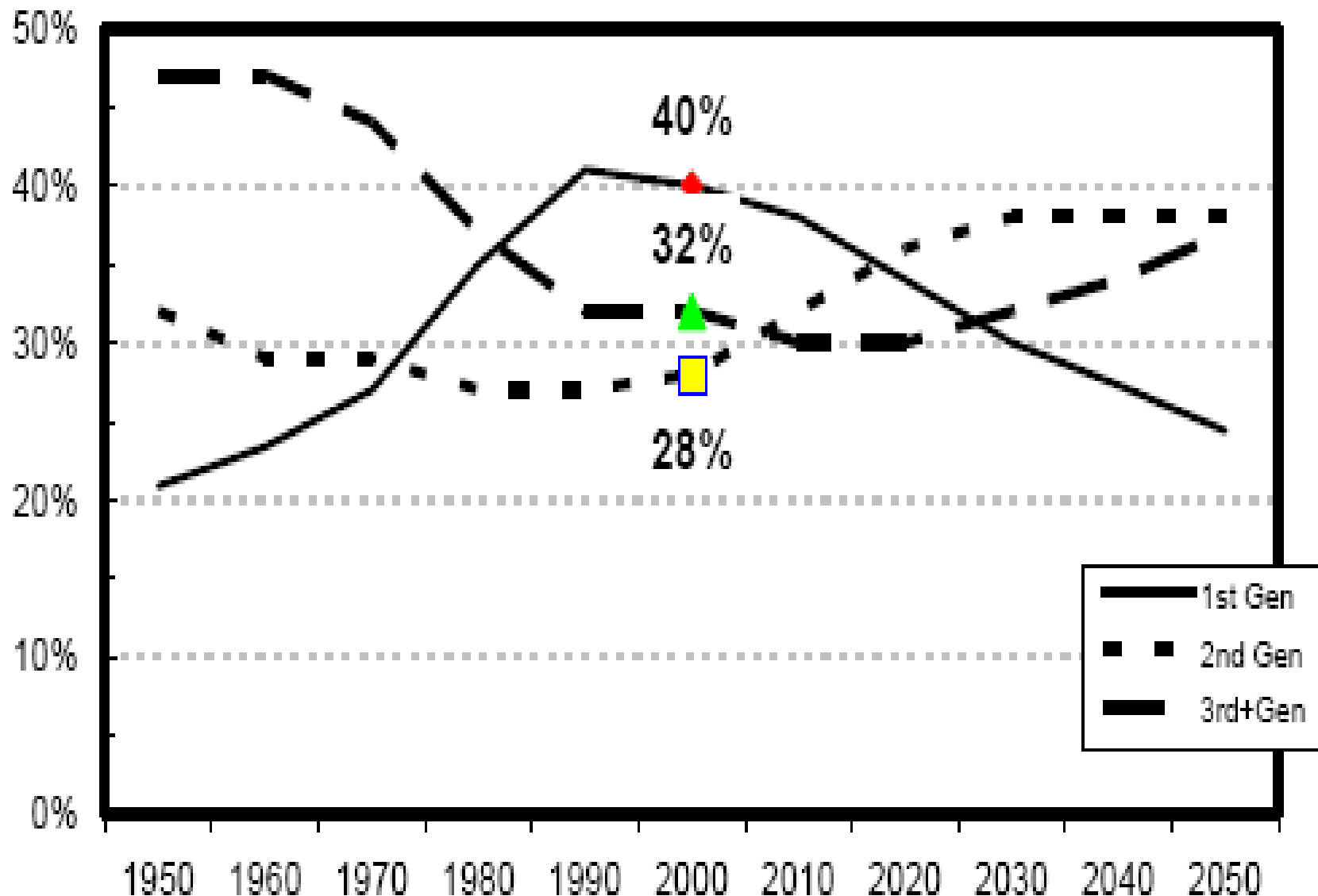
Estimates of the U.S. Unauthorized Immigrant Population from Mexico, 2000-2009  
(millions)



Notes: Bars indicate low and high points of the estimated 90% confidence interval (Table A3). The symbol \* indicates the change from the previous year is statistically significant.

Source: Pew Hispanic Center estimates based on residual methodology applied to March Supplements to the Current Population Survey. See Methodology.

# Shares of the Latino Population by Generation. 1950-2000



Source: Estimates from Suro and Passel 2003

# Racialized Generation Gap?





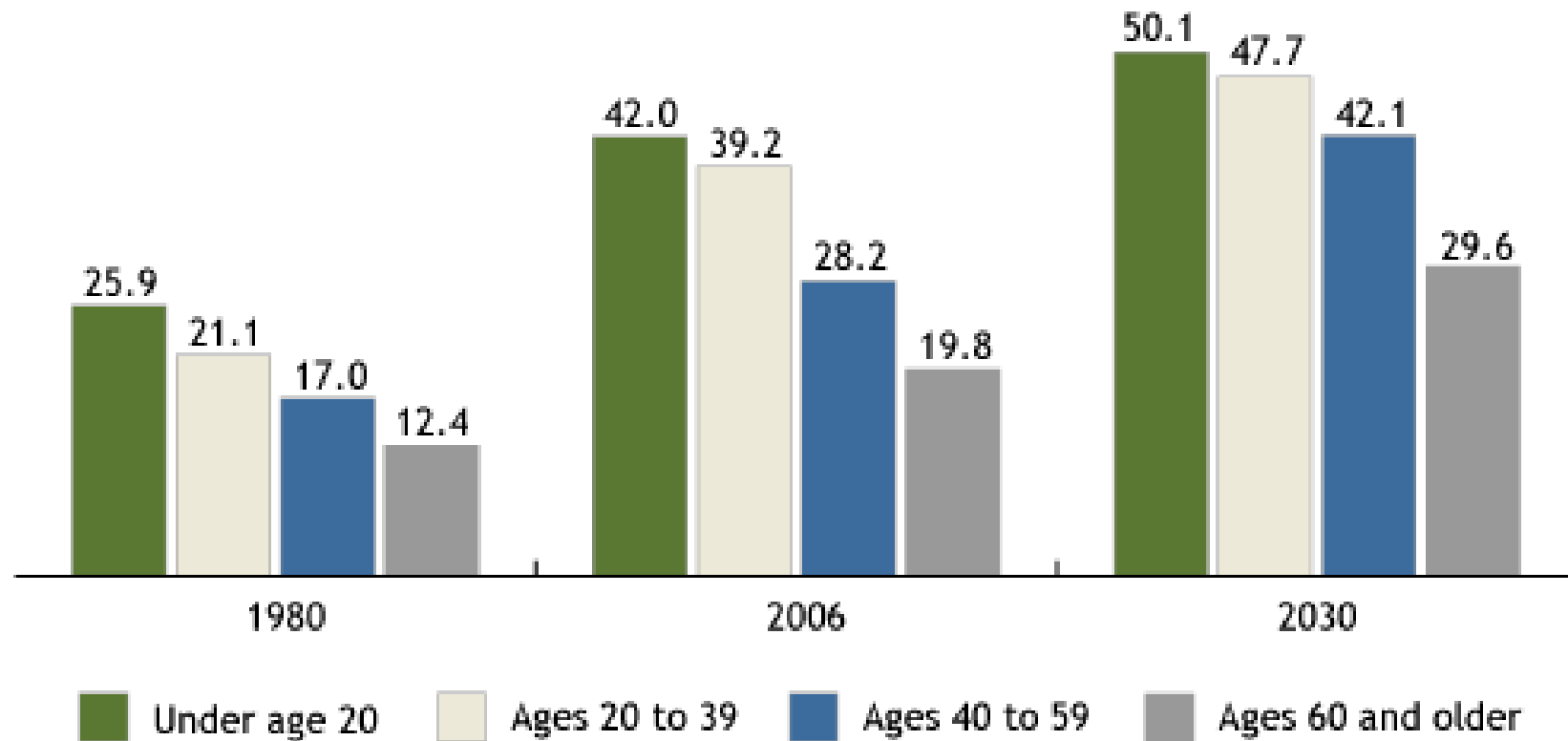
**TABLE 2**

**Percent Distribution of the Population Ages 65 and Older  
by Race/Ethnicity, 2009, 2030, and 2050**

	<b>2009</b>	<b>2030</b>	<b>2050</b>
<b>White alone, non-Hispanic</b>	<b>80.1</b>	<b>71.2</b>	<b>58.5</b>
<b>Black alone, non-Hispanic</b>	<b>8.3</b>	<b>9.8</b>	<b>11.2</b>
<b>Hispanic</b>	<b>7.0</b>	<b>12.0</b>	<b>19.8</b>
<b>Asian alone, non-Hispanic</b>	<b>3.4</b>	<b>5.3</b>	<b>8.4</b>
<b>Other</b>	<b>1.2</b>	<b>1.7</b>	<b>2.1</b>

Source: U.S. Census Bureau, 2009 Population Estimates, National Population Projections, 2008.

# Percent Minority\* in U.S., by Age Group, 1980-2030



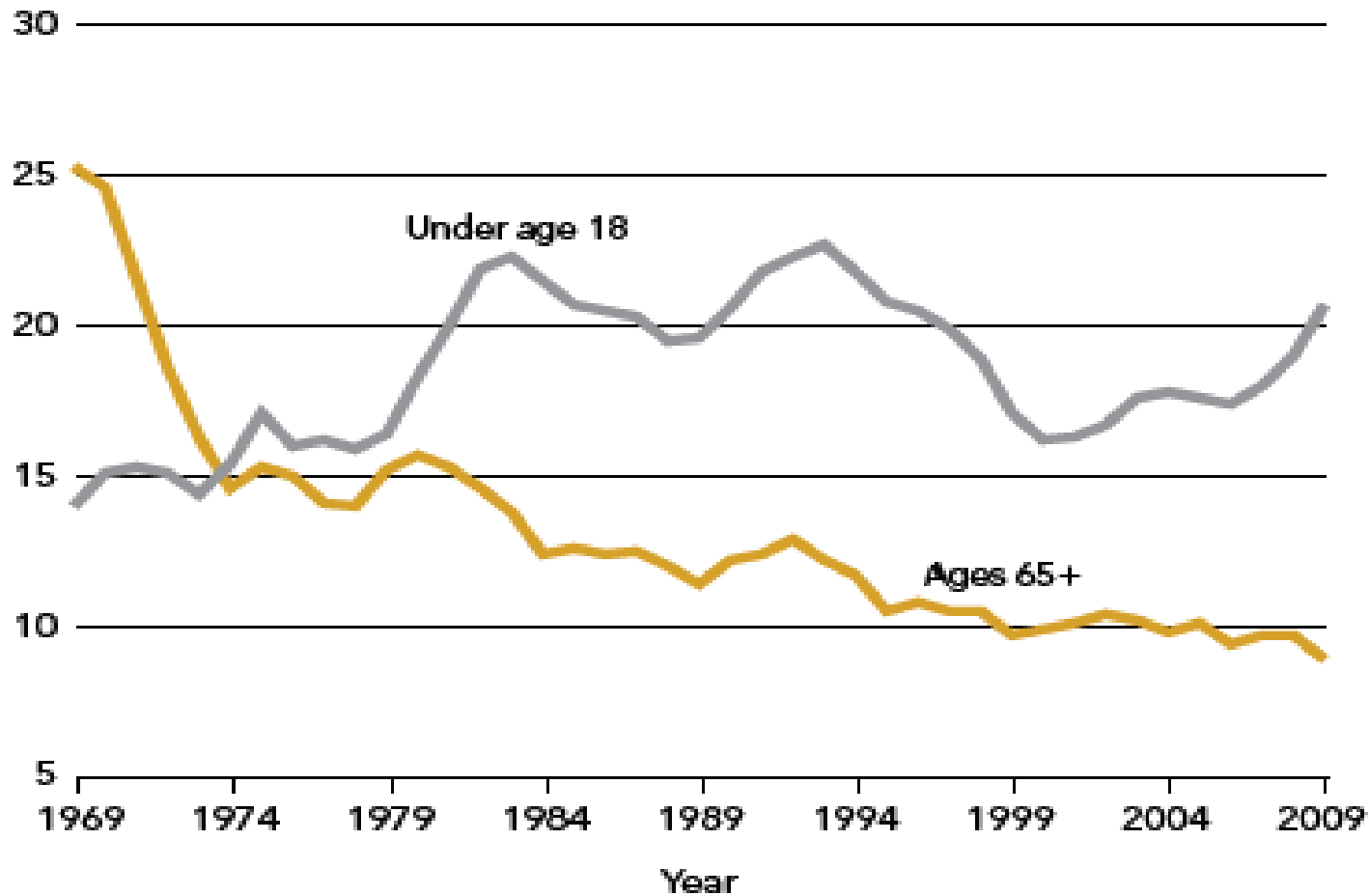
▶ \*Includes those who are not non-Hispanic white.

**Source:** Population Reference Bureau analysis of U.S. Census data.

- Growing racial/ethnic divergence between America's elderly population and younger age groups
- Growing racial/ethnic diversity of youth in the U.S. will not be reflected in the older population for several decades
  - 55% of children are non-Hispanic White
  - 80% of the population 65+ are non-Hispanic White

**FIGURE 8**

**People Living In Poverty by Age, 1969 to 2009**



Note: Estimates are based on a survey of the population and are subject to both sampling and nonsampling error.

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement.

# Immigrant Health



▶ **Demographics**

▶ **Culture**

▶ **Healthcare cost increases**

▶ **Unequal Access**

▶ **Language**

▶ **Race and ethnicity**

▶ **Health care quality**



## The Epidemiologic Paradox

- Health outcomes of foreign-born versus native-born within particular race/ethnic groups
- Health outcomes of particular race/ethnic groups (example Mexican-Origin) as compared to non-Hispanic whites
- Intra-group variation versus inter-group variation

# Foreign-born vs. Native-born

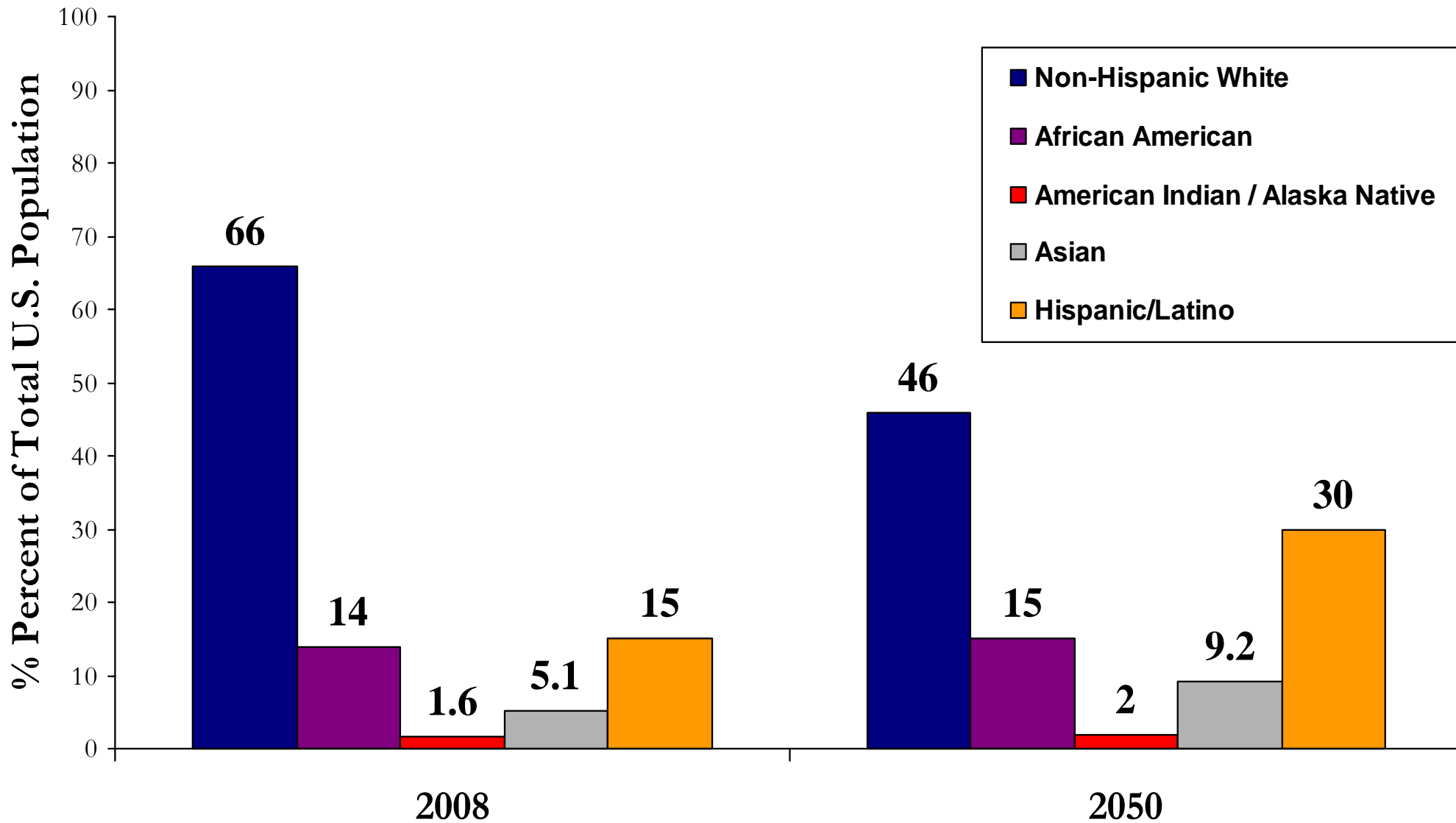
- **Immigrants usually have better health than their native-born counterparts**



# Minority Health

- Hispanics often have health outcomes that are comparable to the health status of non-Latino Whites, despite higher levels of socioeconomic disadvantage

# Population of the United States by Race & Hispanic Origin: 2008 & Projected 2050

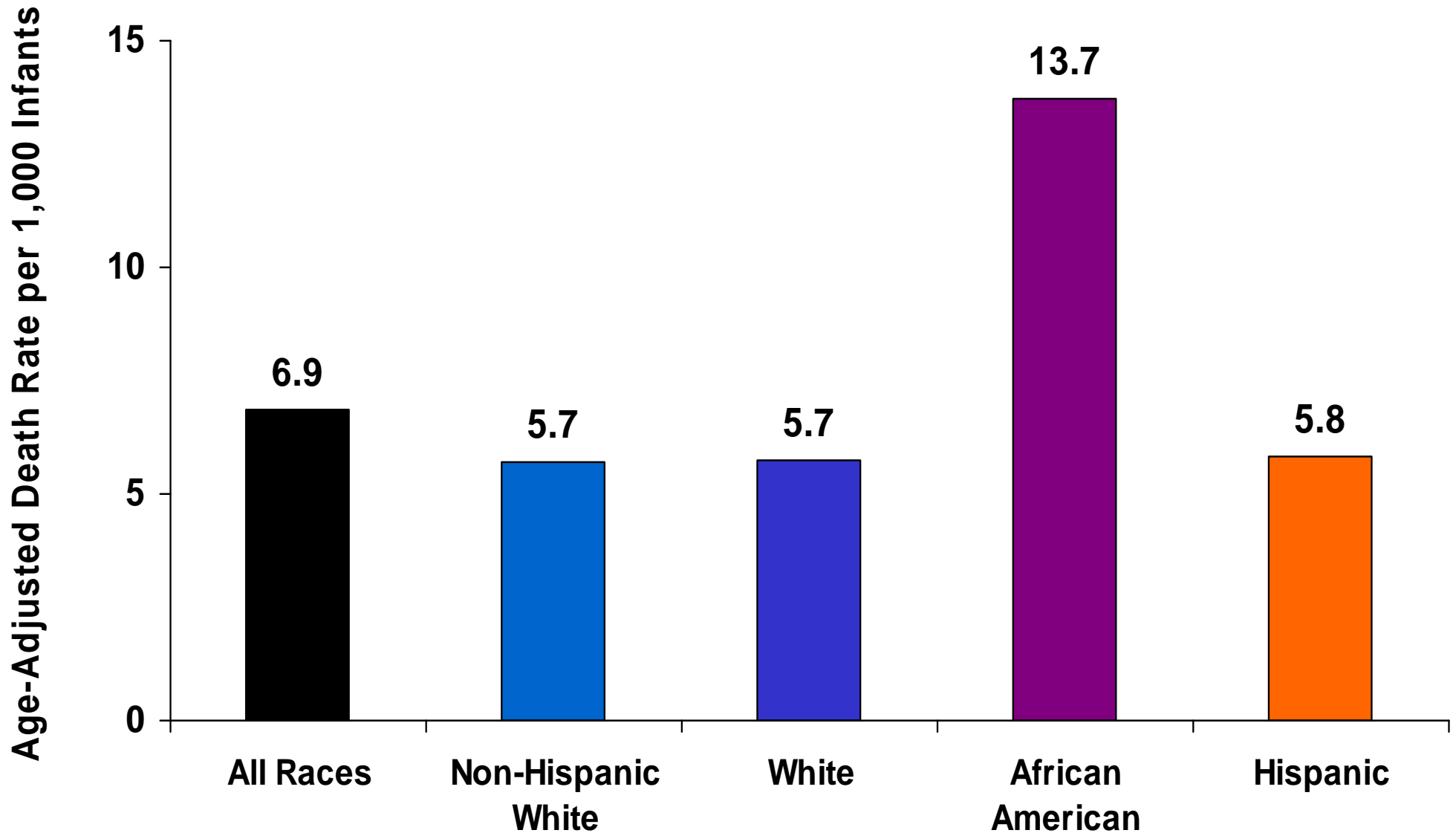


► **Source:** U.S. Census Bureau, 2008 National Population Projections, August 14, 2008  
<http://www.census.gov/Press-Release/www/releases/archives/population/012496.html>



# Infant Death Under 1 Year

Rates per 1,000 Live Births by Race & Hispanic Origin: U.S., 2005

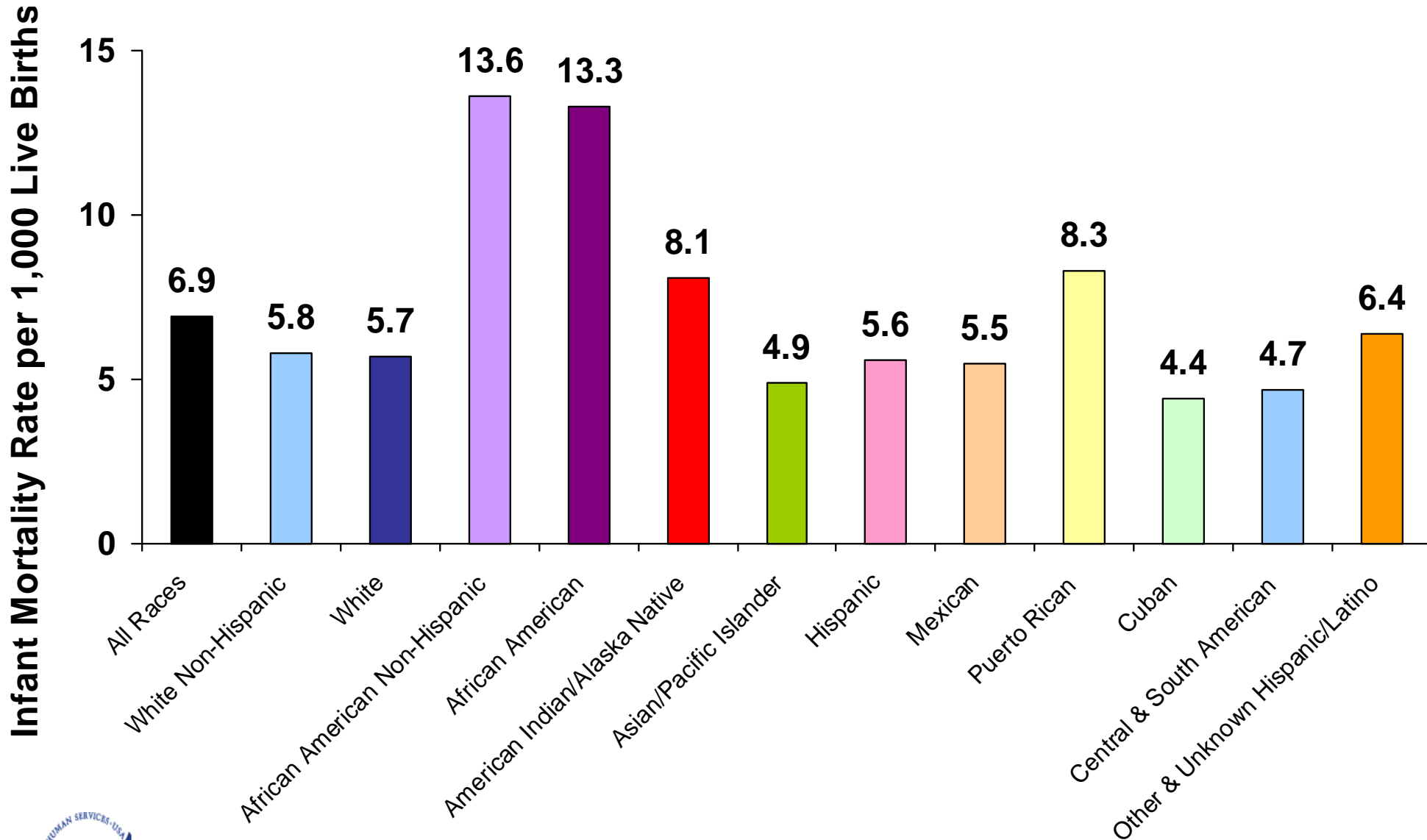


Source: National Vital Statistics Report, 56(16), 6/11/08: Deaths: Preliminary Data for 2006, Table 4, p22

[http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56\\_16.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_16.pdf)

# Infant Mortality

Rates per 1,000 Live Births by Detailed Race & Hispanic Origin of Mother:  
U.S.,  
2005



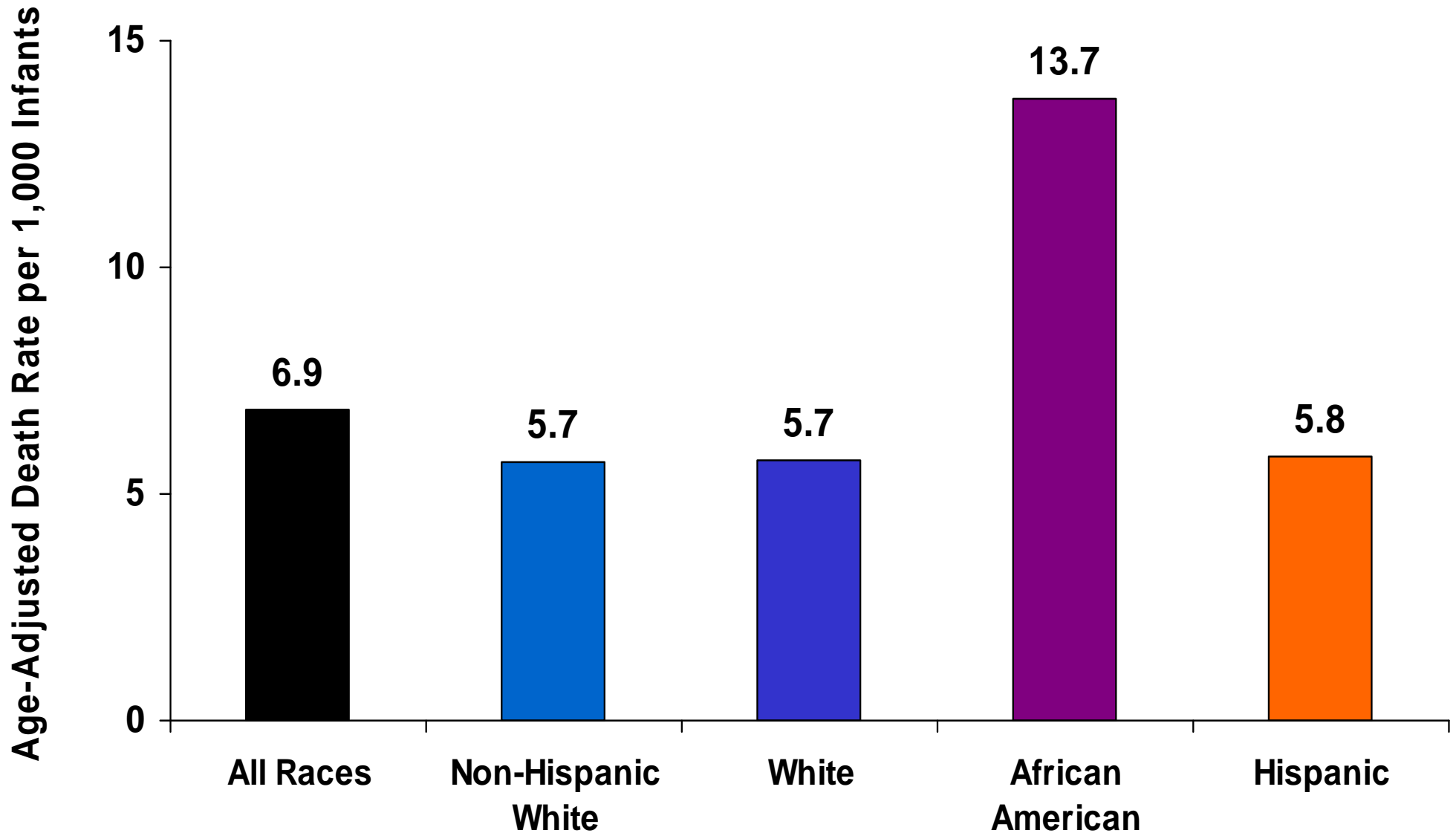
► Source: CDC, NCHS, Health, United States, 2008, Table 18

[http://www.cdc.gov/nchs/data/08.pdf](http://www.cdc.gov/nchs/data/hus/08.pdf)



# Infant Death Under 1 Year

Rates per 1,000 Live Births by Race & Hispanic Origin: U.S.,  
2005

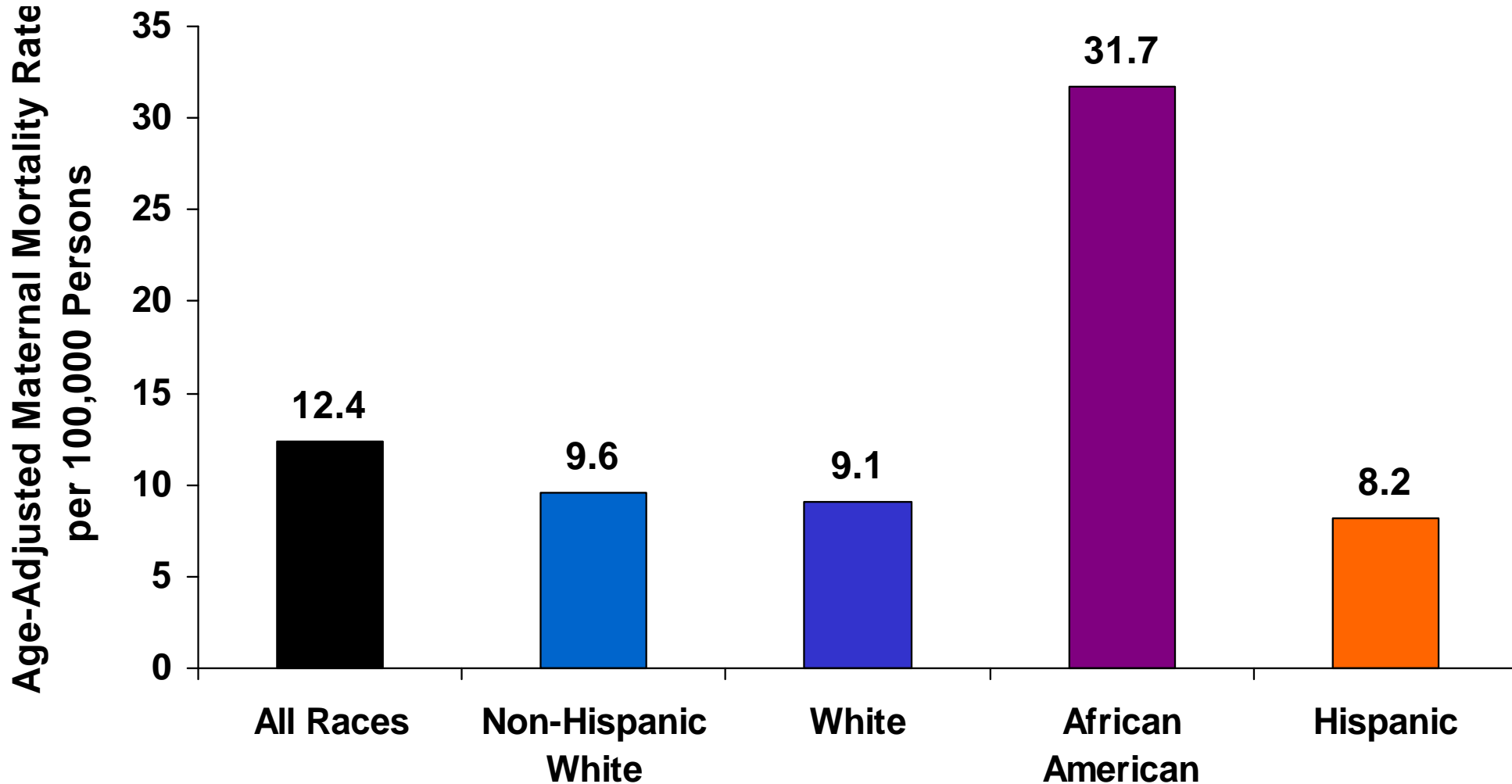


Source: National Vital Statistics Report, 56(16), 6/11/08: Deaths: Preliminary Data for 2006, Table 4, p22

# Maternal Mortality

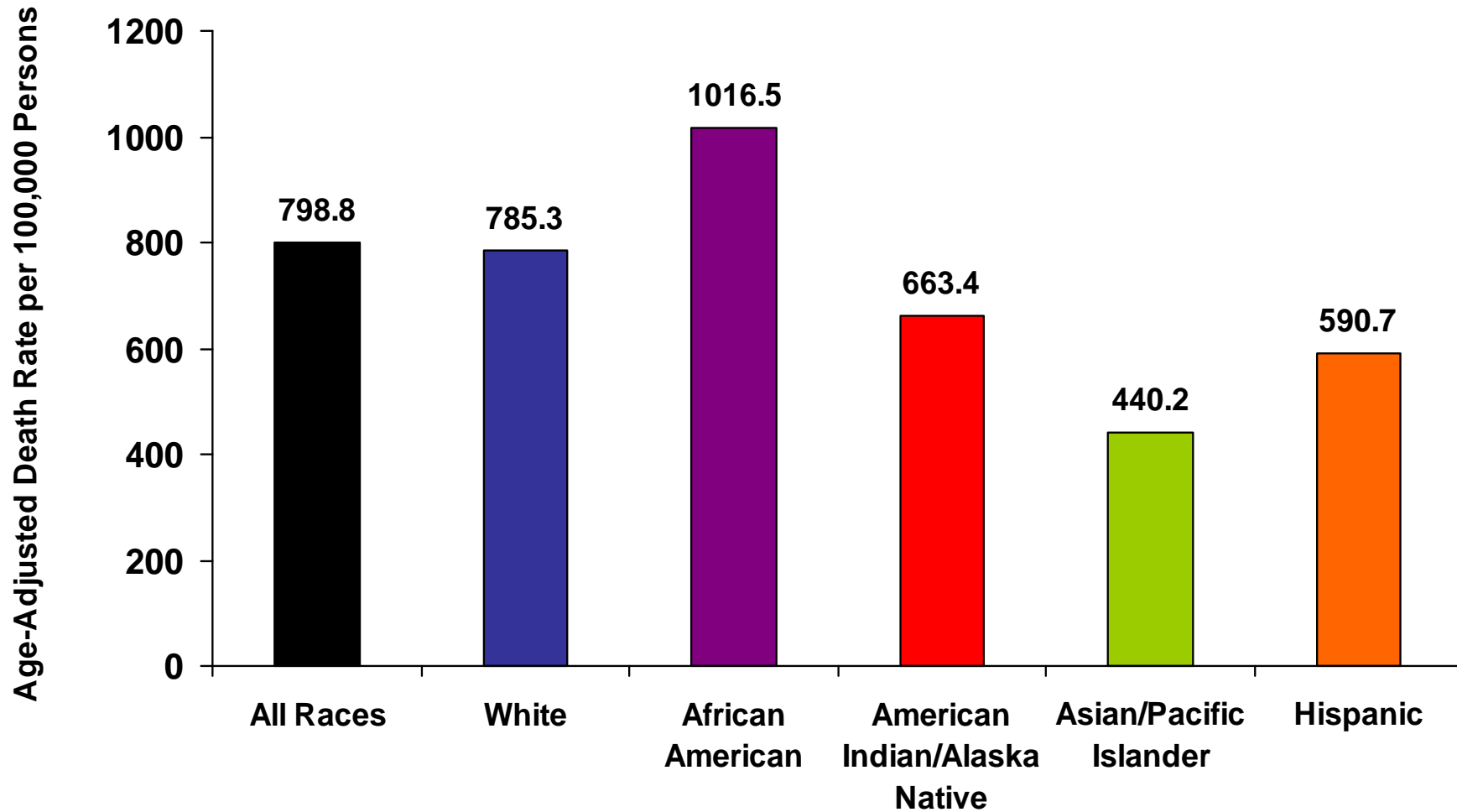
for Complications of Pregnancy, Childbirth, & the Puerperium

Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



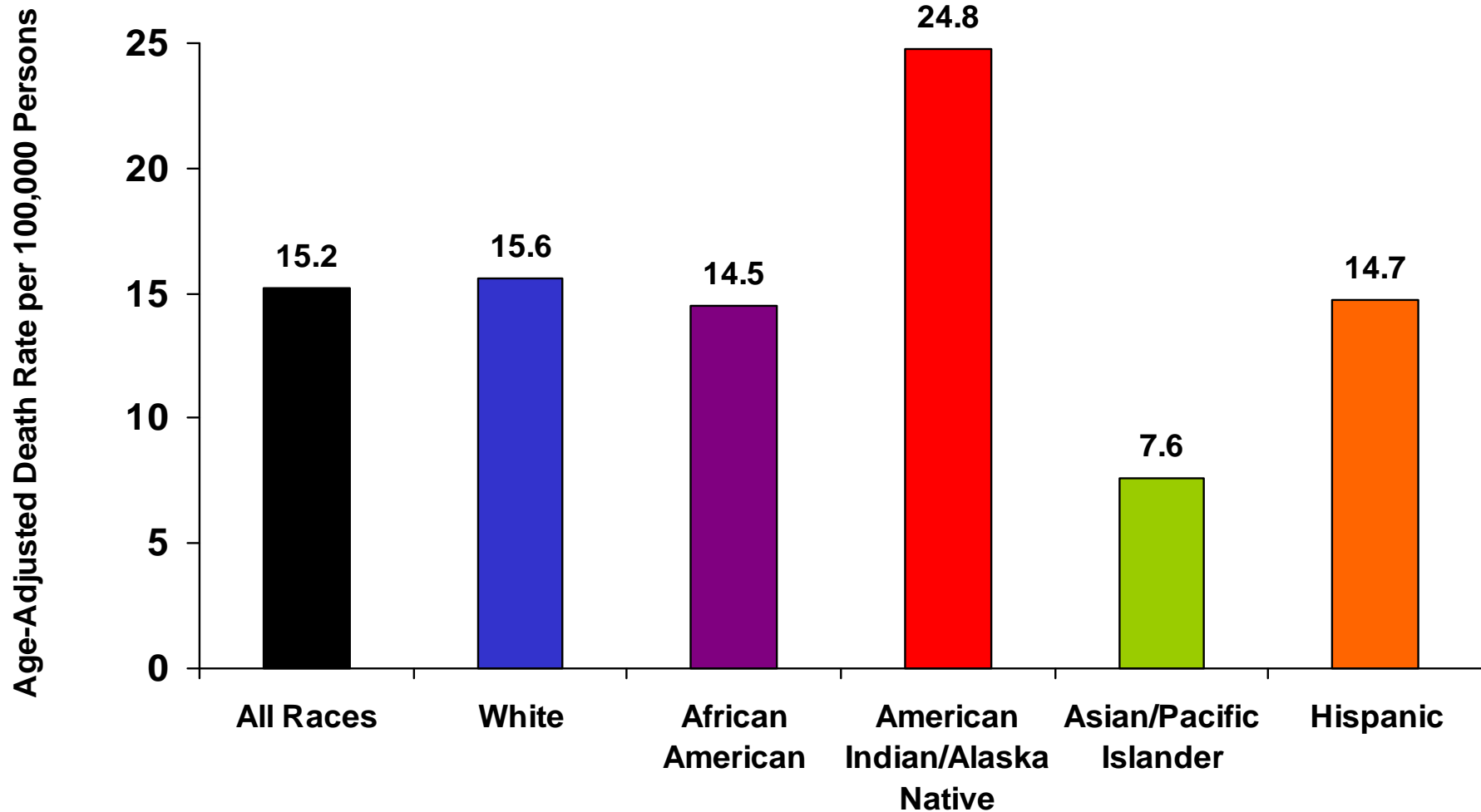
# All Causes

## Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



# Motor Vehicle-Related Injuries

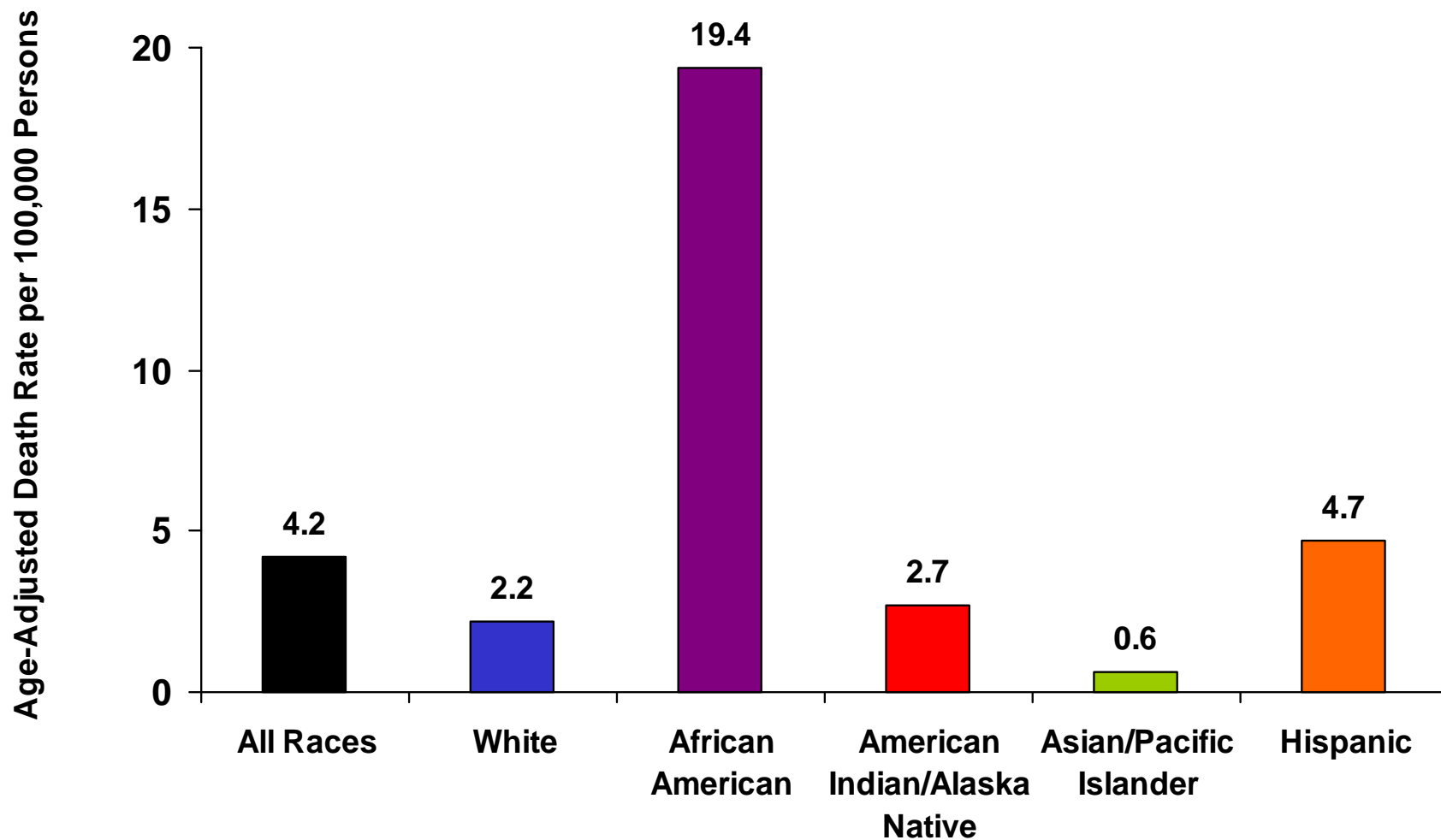
Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005





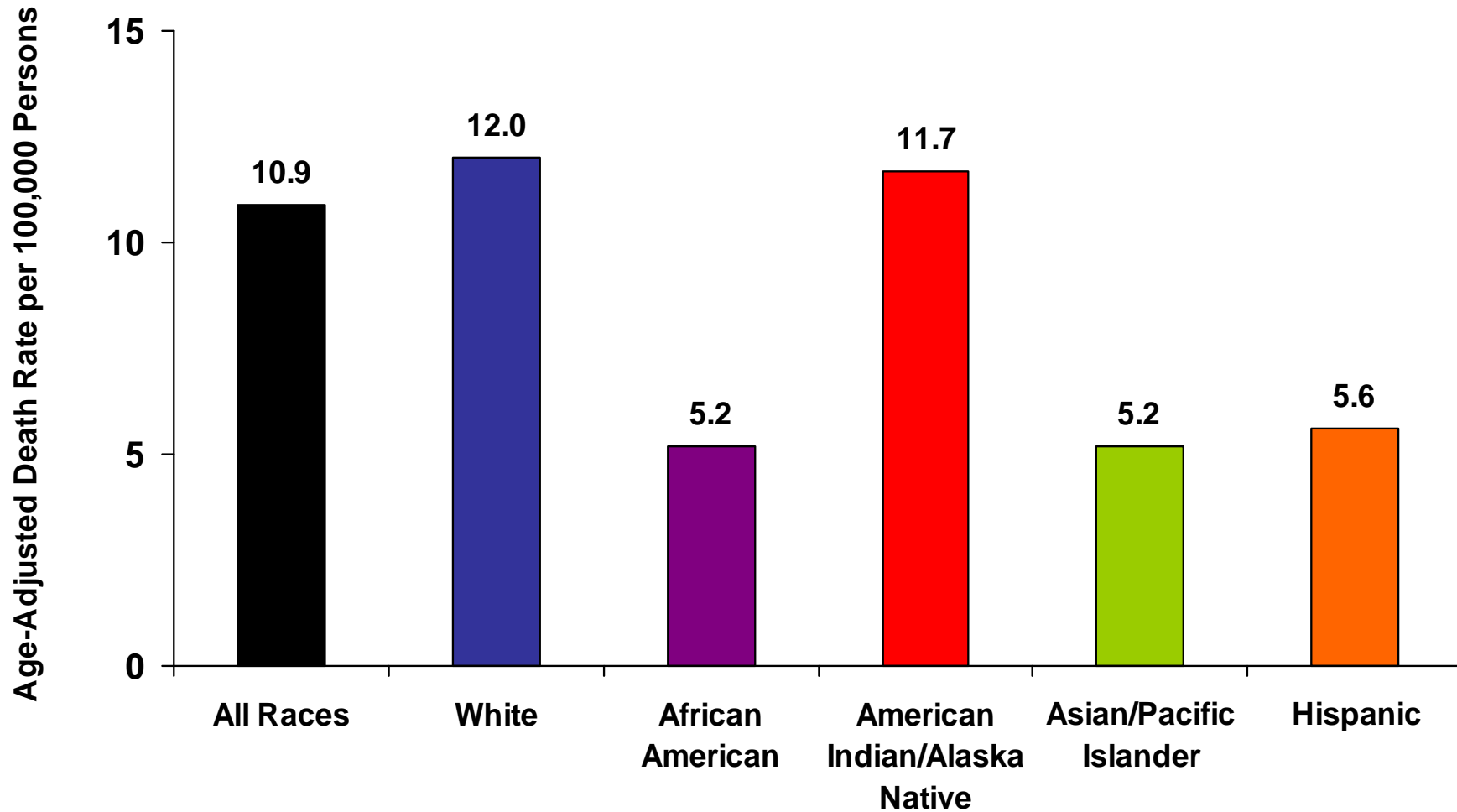
# Human Immunodeficiency Virus (HIV) Disease

Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



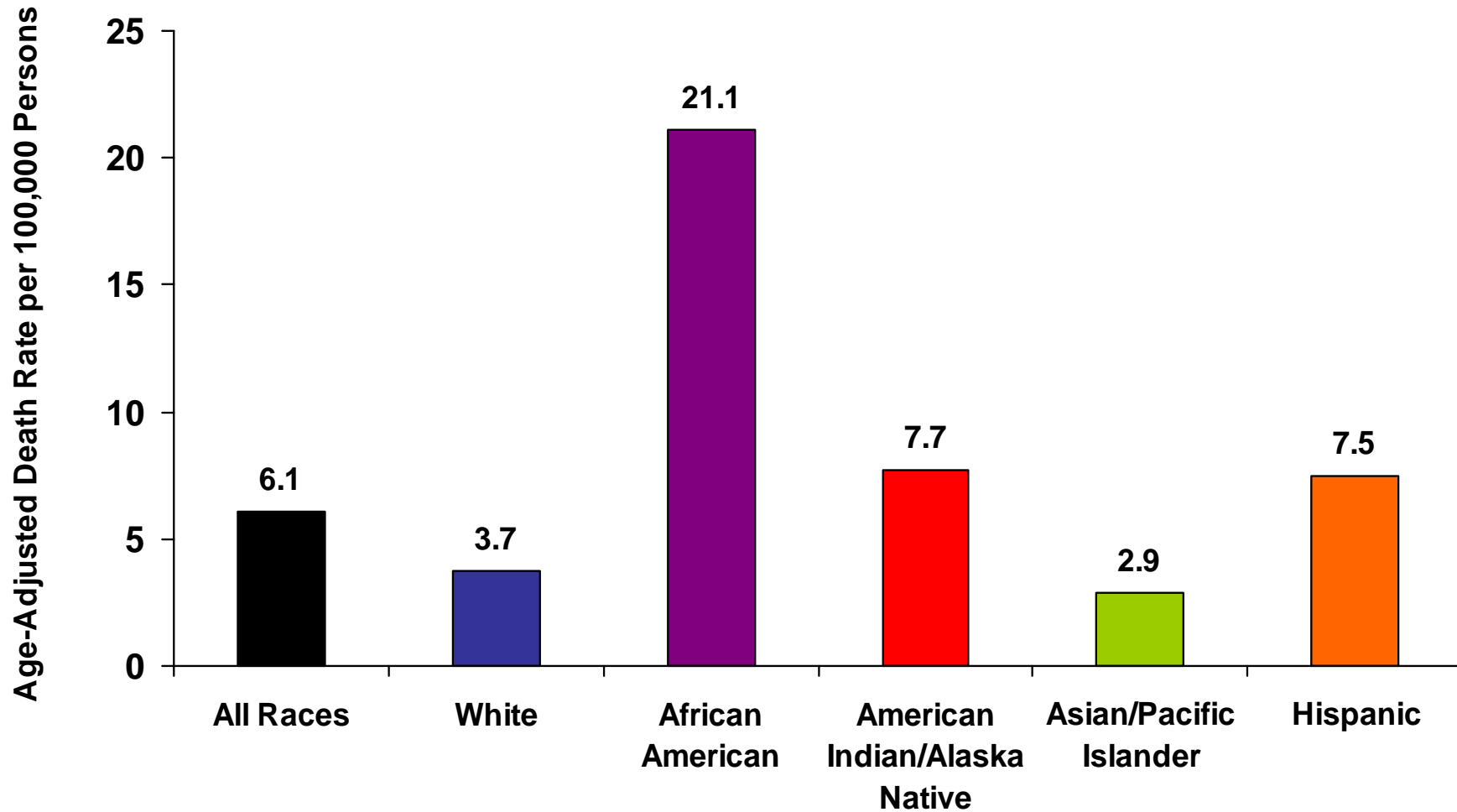
# Suicide

## Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



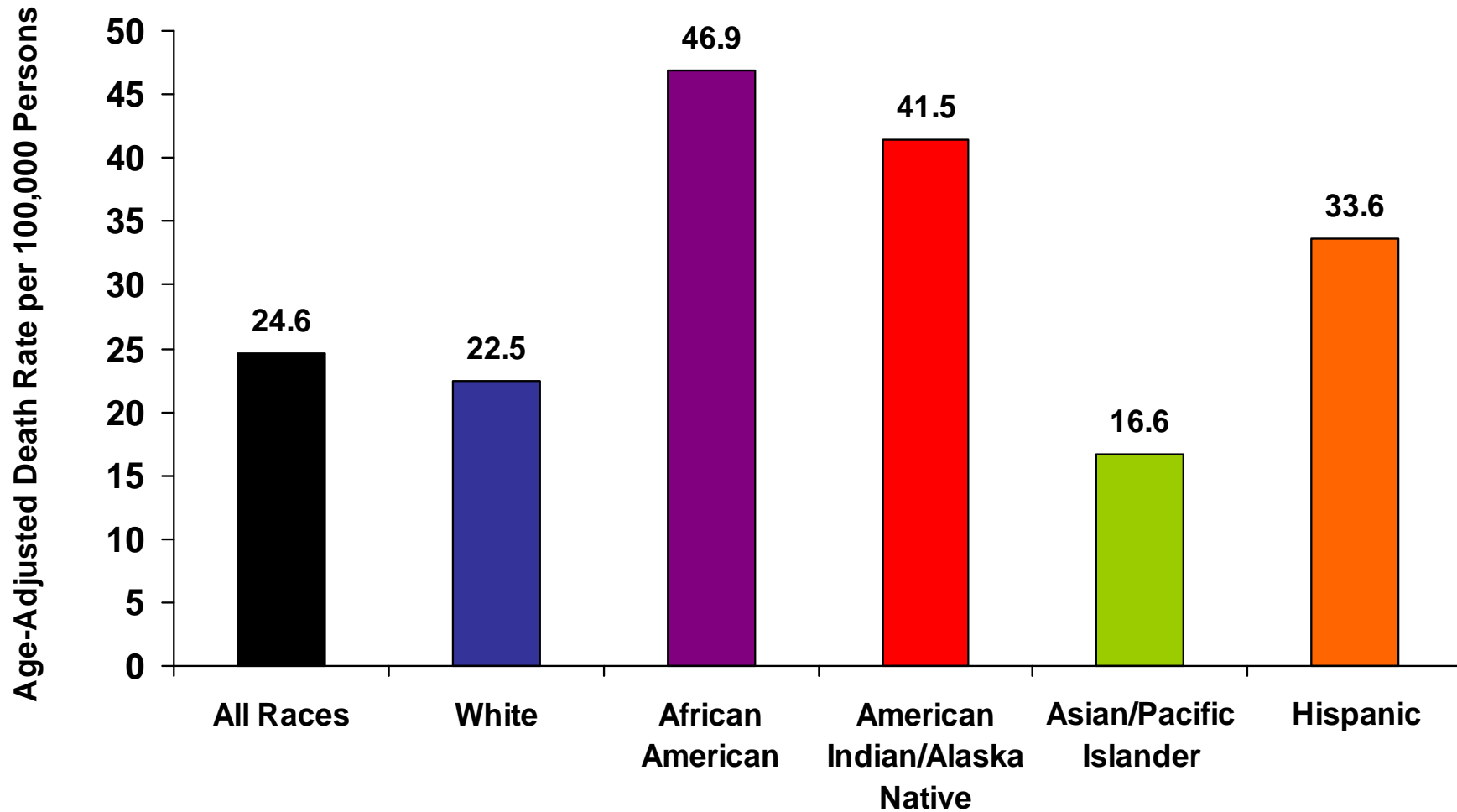
# Homicide

Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



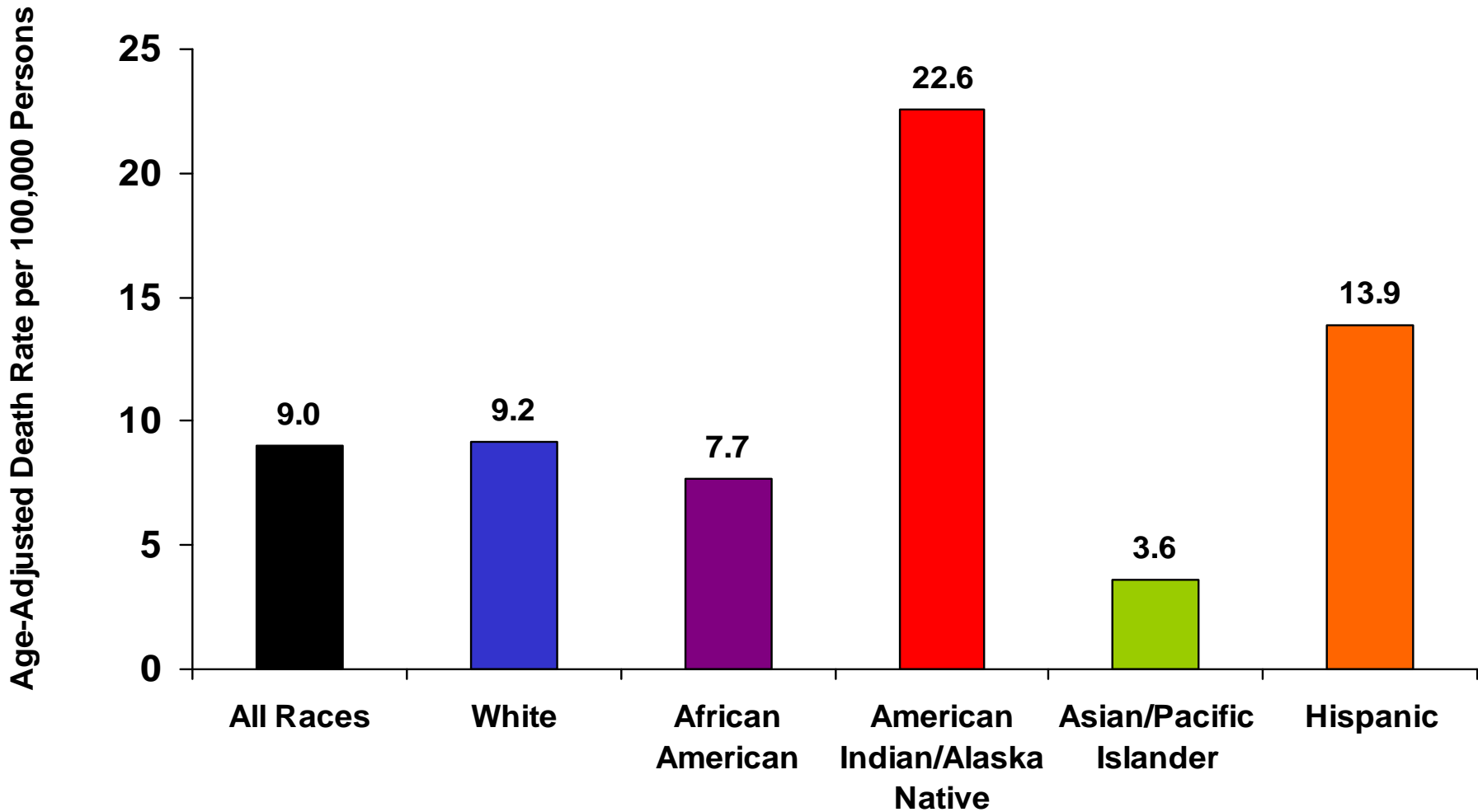
# Diabetes

## Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



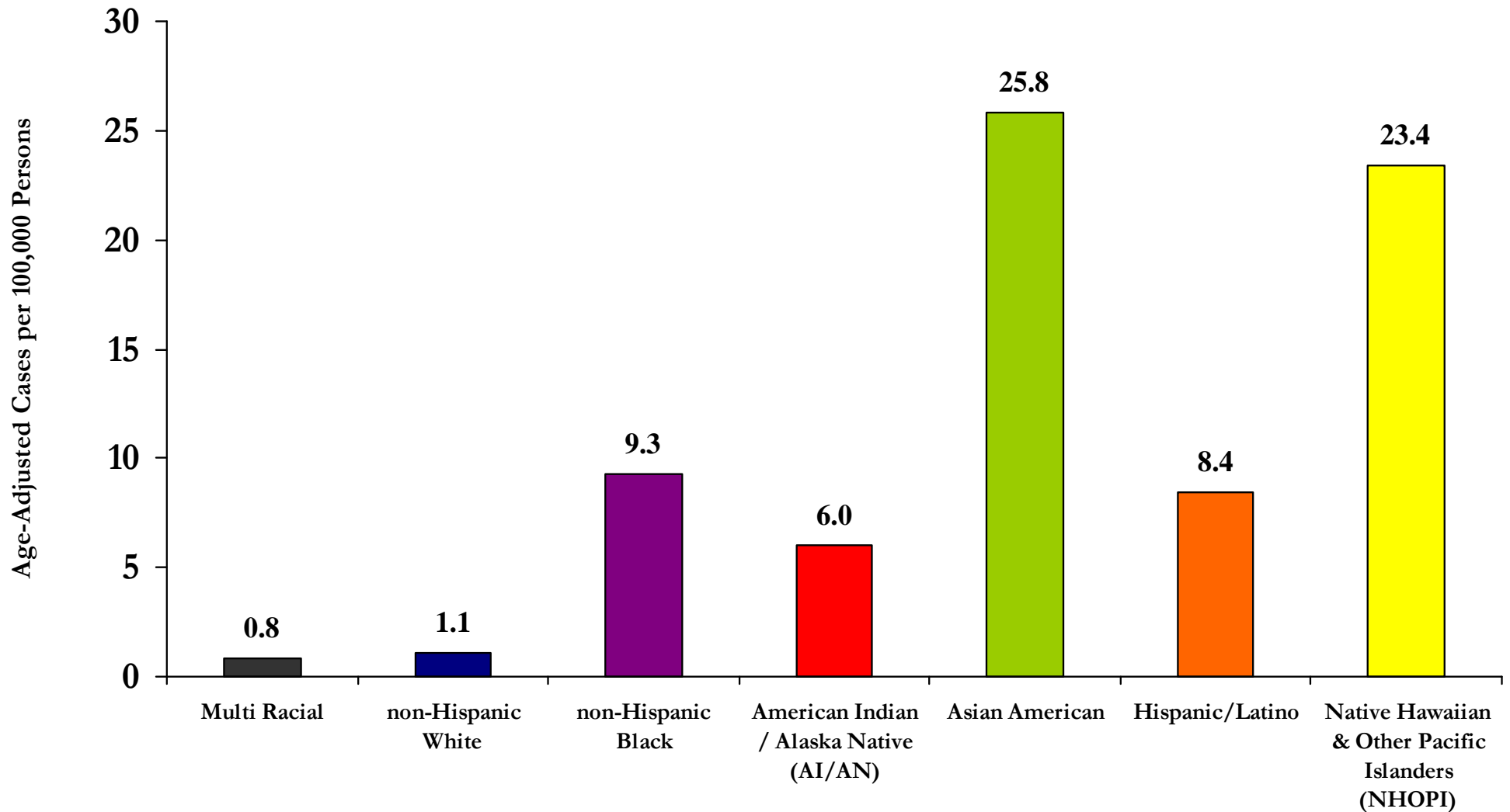
# Chronic Liver Disease & Cirrhosis

Age-Adjusted Death Rates per 100,000 Persons by Race & Hispanic Origin: U.S., 2005



# Tuberculosis (TB) Case Rates

Age-Adjusted Case Rates Per 100,000 Persons by Race & Ethnicity: U.S., 2007



Source: CDC, MMWR, March 21, 2008 / 57(11);281-285, Trends in TB, US, 2007, Table:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5711a2.htm>

# Explanations: Part I

- Selection Hypothesis
  - Selective migration of healthier more advantaged individuals

# Explanations: Part II

- Data Artifact
  - Adult mortality: Out-migration of sick individuals
  - Infant mortality: Out-migration of mothers with sick infants



## PARADOX FOUND (AGAIN): INFANT MORTALITY AMONG THE MEXICAN-ORIGIN POPULATION IN THE UNITED STATES\*

**Table 2. Infant Mortality Rate (IMR) Ratios for Births to Mexican-Origin Women (compared with U.S.-born, non-Hispanic white women) Residing in Large Metropolitan Counties Near the U.S.-Mexico Border, 1995–2000**

	Mexican-Origin		Non-Hispanic White, U.S.-born
	Immigrant	U.S.-born	
Age			
Less than 1 hour	0.88	1.10	1.00
1–23 hours	0.97	1.16	1.00
1–6 days	0.90	1.03	1.00
7–27 days	1.04	1.25	1.00
28–90 days	0.87	1.10	1.00
91–180 days	0.74	1.08	1.00
181–364 days	1.02	1.44	1.00
Total Rate Ratio	0.92	1.14 <sup>a</sup>	1.00
Total IMR	4.98	6.21	5.42
Linked Deaths	4,002	2,905	3,858
Resident Births	803,145	468,050	711,345

*Source:* Cohort linked birth and infant death files for the United States, 1995–2000 (National Center for Health Statistics (1995–2000)).

<sup>a</sup>Rate ratio is significantly different from U.S.-born, non-Hispanic whites ( $p < .05$ ).

# PARADOX FOUND (AGAIN): INFANT MORTALITY AMONG THE MEXICAN-ORIGIN POPULATION IN THE UNITED STATES\*

**Table 3. Simulations of Infant Out-Migration Needed to Account for the Mexican Immigrant Infant Mortality Advantage Compared With Non-Hispanic Whites in the United States, 1995–2000**

	1995–2000		Annual Average	
	Additional Deaths Needed to Match IMR for Non-Hispanic Whites	Out-Migrants Required	Additional Deaths Needed to Match IMR for Non-Hispanic Whites	Out-Migrants Required
<b>Panel A</b>				
Hypothetical out-migrant deaths:				
Infants who died at ages 0–364 Days	1,548		258	
If out-migrant infants died				
At their observed U.S. IMR of 5.11 (IMR for U.S.-born Mexican immigrant)		302,935		50,489
At an IMR of 16.0 (in between estimates for U.S. and Mexico)		96,750		16,125
At an estimated Mexican IMR of 27.0 (Pan American Health Organization* estimate for Mexico 1997–1998)		57,333		9,556
<b>Panel B</b>				
Hypothetical out-migrant deaths:				
Infants who emigrated after 6 days and died at ages 7–364 days	1,548		258	
Exposure to an IMR of 5.11 for days 7–364		605,871		100,978
Exposure to an IMR of 16.0 for days 7–364		193,500		32,250
Exposure to an IMR of 27.0 for days 7–364		114,667		19,111

*Note:* Calculations in Panel B are based on the assumption that one-half of infant deaths occur during the first six days of life and the other half occur throughout the remainder of the year.

\*Data come from Pan American Health Organization (2005).

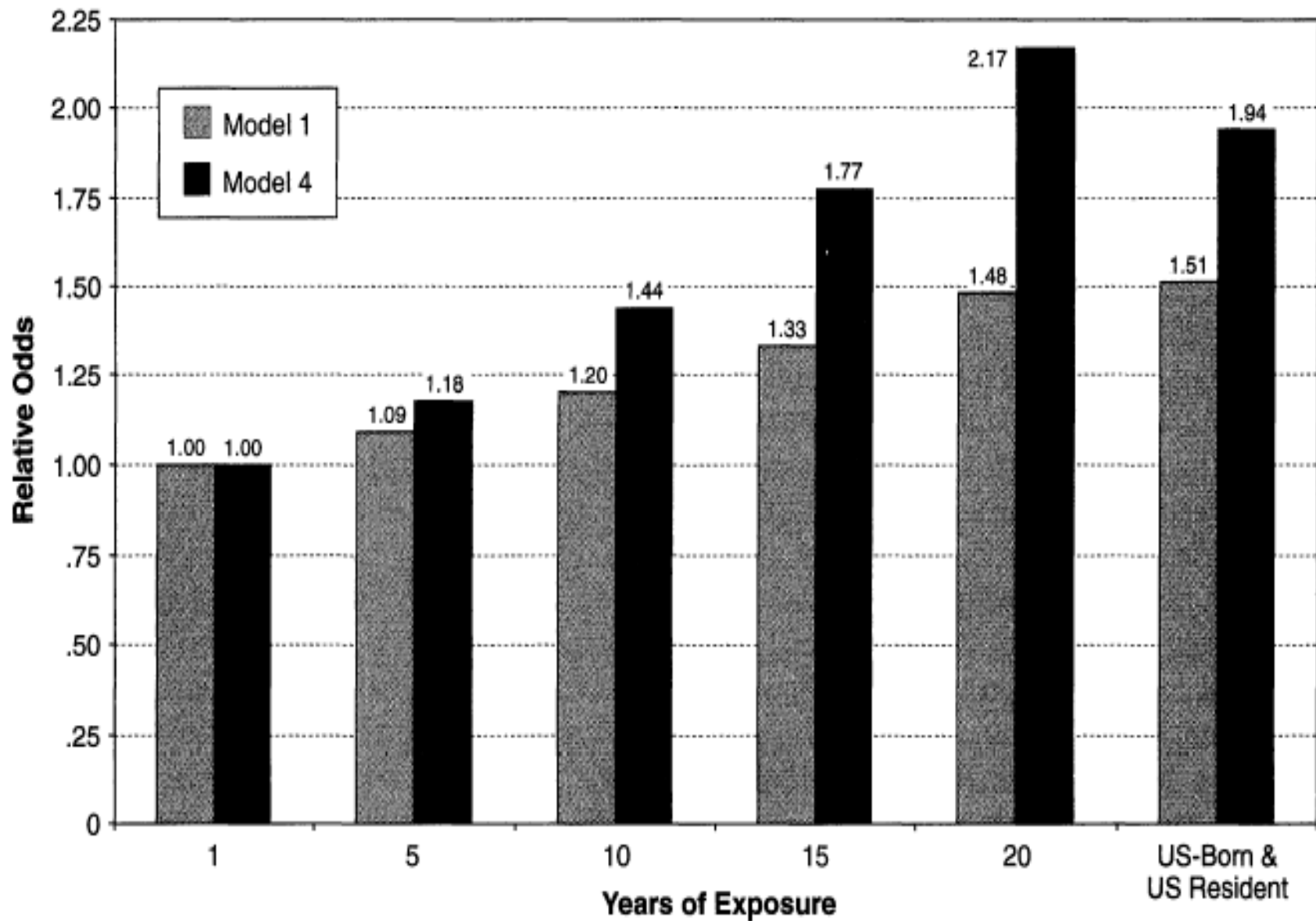
# Explanations: Part III

- Cultural Hypothesis
  - Lower stress
  - Healthy behaviors
  - Family cohesion
  - Social support



What Happens Over Time?

**With more time in the U.S.  
health outcomes of  
immigrants worsen**



**Figure 1. Relative Odds of Infant Mortality: Models 1 and 4, Table 2**



# Poorer health with increased time in the U.S. and across generations

- Erosion of protection offered by country of origin?



# Increased time in the U.S.

Higher levels of:

- Obesity
- Hypertension
- Other chronic conditions

**Table 2. Logistic Regressions Predicting Dietary Changes, by Sex.**

VARIABLES	Dietary Change		More Meat		More Junk Food	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
	1	2	3	4	5	6
<b>U.S. Exposure</b>						
<b>Years of U.S. Experience</b>	<b>0.025*</b>	<b>0.045+</b>	<b>0.002**</b>	<b>0.004**</b> *	<b>0.010**</b> *	<b>0.005*</b>
	<b>(0.010)</b>	<b>(0.027)</b>	<b>(0.001)</b>	<b>(0.001)</b>	<b>(0.002)</b>	<b>(0.002)</b>
<b>Years of U.S. Experience Squared</b>	<b>-</b>	<b>-0.002</b>	<b>-</b>	<b>-0.000+</b>	<b>-0.000**</b>	<b>-0.000</b>
	<b>-</b>	<b>(0.001)</b>	<b>-</b>	<b>(0.000)</b>	<b>(0.000)</b>	<b>(0.000)</b>



# Pre-migration diets

- Immigrant health behaviors and outcomes are influenced by the context in the origin community
- Role of timing and pace of nutrition transition in origin countries
- Immigrants from countries who have not yet transitioned from agrarian economies to industrialized ones may be more enticed by the newly available array of unhealthy, yet easy and quick to consume options in the U.S.

# Findings

- Immigrants from regions further advanced in the nutrition transition (e.g. W. and E. Europe) are less likely to change their diets and less likely to eat more meat or junk food in the U.S. In contrast, immigrants from Mexico and South/Central America, where the pace of the nutrition transition is slower and more uneven, exhibit considerable change in dietary behavior post-migration, including increased consumption of meat.