

# **PART II**

## **HEALTH INDICATORS**

- ALL-CAUSE MORTALITY
- CHRONIC DISEASE
- INJURY
- INFECTIOUS AND SEXUALLY TRANSMITTED DISEASES
- MATERNAL AND CHILD HEALTH
- ORAL HEALTH
- ENVIRONMENTAL AND OCCUPATIONAL HEALTH
- ACCESS TO HEALTH CARE; HEALTH CARE WORKFORCE



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## ALL-CAUSE MORTALITY

### INTRODUCTION

Mortality data are some of the best sources of information about the health of living communities. They are virtually complete for all U.S. residents and they are tracked uniformly and consistently over time in all states across the nation. Mortality data act as a mirror for current health problems and suggest patterns of risk across population subgroups. Many causes of death are preventable or treatable and, therefore, warrant the attention of public health prevention efforts. Mortality data are important indicators of where federal, state, and local prevention efforts should be placed in building healthy communities.

The age distribution of a population influences the death rate, and so the death rates are usually “age-adjusted” to take into account age differences in racial and ethnic subgroups. See Appendix IV for an extended discussion of mortality data collection and reporting, and Appendix IX for a listing of the leading causes of death by gender, race or ethnicity subgroups.

Each mortality table in this report includes the following information: 1) number of deaths; 2) age-adjusted death rates; 3) the “relative risk” or ratio of the minority group rate relative to the White rate; and 4) “excess” (or fewer) deaths, which represent the additional (or fewer) number of deaths within the minority group beyond what would be expected if the minority population rate were the same as the White population rate (U.S. DHHS 1985). See Appendix IV for a detailed explanation of relative risk and excess death methodology.

### All-Cause Mortality

The death rate from all causes is a key measure of health status across populations. Between 2000 and 2004, Black or African American Connecticut residents had the highest death rate from all causes, about 1.2 times higher than that of White residents, with an estimated excess of 376 deaths per year. Hispanic, Asian/Pacific Islander, and American Indian or Alaska Native residents had lower all-cause death rates compared with White residents. Hispanic residents had 0.8 times the death rate of White residents with an estimated 232 fewer deaths per year; Asian/ Pacific Islander residents had 0.4 times the death rate of White residents with an estimated 176 fewer deaths per year; and American Indian

or Alaska Native residents had 0.8 times the death rate of White residents with an estimated 8 fewer deaths per year.

**Table 7. All Causes of Death<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 148,659          | 744.7                                | --  | --                                      |
| Black or African American        | 9,502            | 882.2                                | 1.2   | 376                                     |
| Hispanic                         | 4,351            | 558.4                                | 0.8   | (232)                                   |
| Asian/Pacific Islander           | 641              | 298.0                                | 0.4   | (176)                                   |
| American Indian or Alaska Native | 212              | 600.5                                | 0.8   | (8)                                     |
| White                            | 128,439          | 707.4                                | 1.0   | 0                                       |
| Other                            | 16               | --                                   | --  | --                                      |
| Missing                          | 5,498            | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes all causes of death using ICD-10 codes.

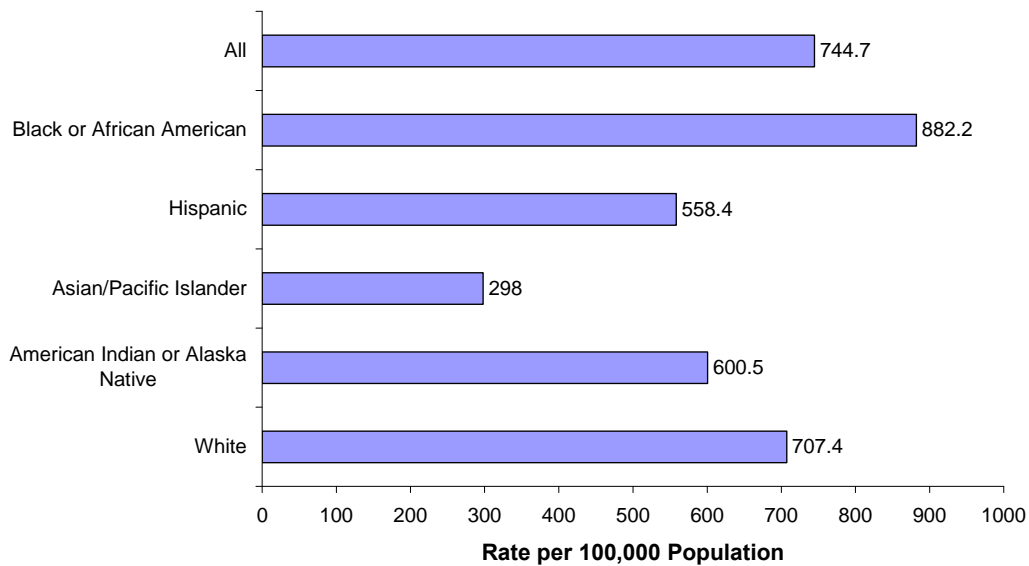
<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

**Figure 2. Age-adjusted Death Rates, Connecticut Residents, by Race or Ethnicity, 2000–2004**



Source: DPH 2008b, 2008y.

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## CHRONIC DISEASE

During the twentieth century, chronic diseases replaced the infectious diseases, such as pneumonia, tuberculosis, and diarrhea, as the leading causes of death in the United States and Connecticut. Chronic diseases—including all cardiovascular diseases, all cancers, diabetes mellitus, and chronic lower respiratory diseases—accounted for 68.5% of all deaths among Connecticut residents during the period 2000–2004 (DPH 2008b). The chronic diseases of heart disease, stroke, diabetes, and cancer are discussed in the section below.

### CARDIOVASCULAR DISEASE

Cardiovascular diseases involve the body's vascular system, which is responsible for supplying oxygen and nutrients to the body's organs and cells. Heart disease and cerebrovascular disease (or stroke), the major cardiovascular diseases, are the first and third leading causes of death, respectively, in Connecticut and the United States (Hynes and Jung 2006a).

#### Heart Disease Mortality

Heart disease is the leading cause of death in Connecticut, accounting for 28.5% (42,434) of all Connecticut resident deaths from 2000 to 2004. Heart disease mortality encompasses several subcategories with varying etiologies, including ischemic heart disease, hypertensive heart disease, hypertensive heart and renal disease, pulmonary circulatory diseases, rheumatic fever and rheumatic heart disease, and “other forms of heart disease,” which include cardiac arrest, heart failure, cardiomyopathy, and valve disorders (DPH 2008b).

Between 2000 and 2004, Black or African American Connecticut residents had the highest death rate from heart disease, about 1.2 times higher than that of White residents with an estimated excess of 70 deaths per year. Hispanic and Asian/Pacific Islander residents had lower heart disease death rates compared with White residents. Hispanic residents had 0.7 times the death rate of White residents with an estimated 73 fewer deaths per year, and Asian/Pacific Islander residents had 0.4 times the death rate of White residents with an estimated 41 fewer deaths per year. American Indian or Alaska Native residents had similar heart disease death rates as White residents (Table 8, Figure 3).

**Table 8. Heart Disease Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 42,434           | 206.7                                | --  | --                                      |
| Black or African American        | 2,343            | 233.8                                | 1.2   | 70                                      |
| Hispanic                         | 864              | 139.6                                | 0.7   | (73)                                    |
| Asian/Pacific Islander           | 160              | 87.2                                 | 0.4   | (41)                                    |
| American Indian or Alaska Native | 61               | 193.0                                | 1.0   | 0                                       |
| White                            | 37,533           | 198.6                                | 1.0   | 0                                       |
| Other                            | 2                | --                                   | --  | --                                      |
| Missing                          | 1,471            | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

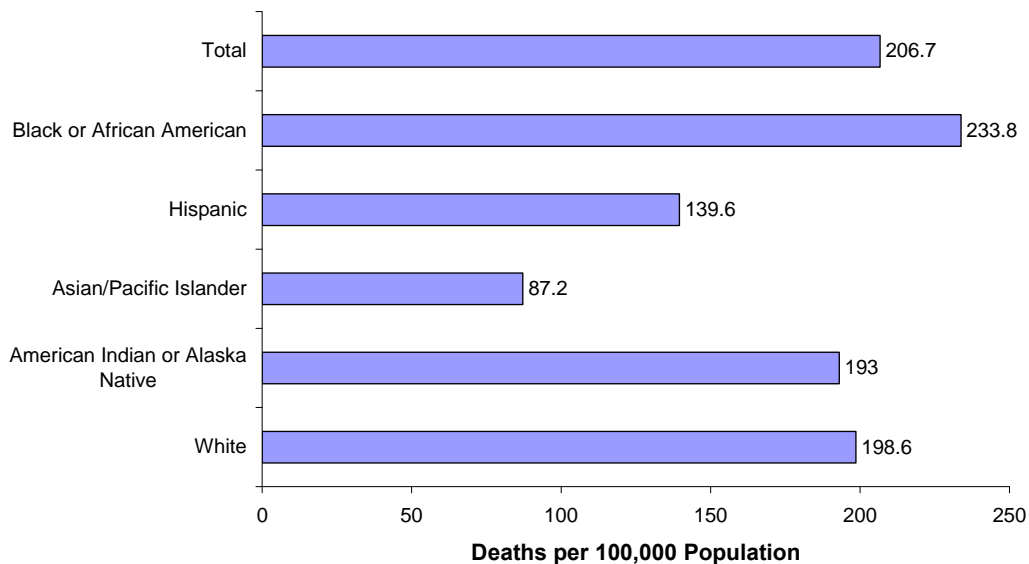
<sup>a</sup> Includes ICD-10 codes I00-09, I11, I13, I20-51.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

**Figure 3. Age-adjusted Death Rates for Heart Disease, Connecticut Residents, by Race or Ethnicity, 2000–2004**

Source: DPH 2008b, 2008y.

### Stroke Mortality

Stroke is the most severe clinical manifestation of cerebrovascular disease, and we use the terms interchangeably in this report. Stroke is responsible for about 6% of all deaths in Connecticut (9,318 deaths between 2000 and 2004), and includes two major types— ischemic stroke and hemorrhagic stroke (DPH 2008b).

Between 2000 and 2004, Black or African American Connecticut residents had the highest death rate from stroke, about 1.4 times higher than that of White residents with an estimated excess of 28 deaths per year. Hispanic and Asian/Pacific Islander residents had lower stroke death rates compared with White residents. Hispanic residents had 0.8 times the death rate of White residents with an estimated 10 fewer deaths per year, and Asian/Pacific Islander residents had 0.5 times the death rate of White residents with an estimated 9 fewer deaths per year. There were too few deaths due to stroke among American Indian or Alaska Native residents to calculate reliable rates (Table 9, Figure 4).

**Table 9. Stroke Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 9,318            | 44.7                                 | --  | --                                      |
| Black or African American        | 549              | 57.0                                 | 1.4   | 28                                      |
| Hispanic                         | 196              | 33.5                                 | 0.8   | (10)                                    |
| Asian/Pacific Islander           | 46               | 21.6                                 | 0.5   | (9)                                     |
| American Indian or Alaska Native | 14               | †                                    | †   | †                                       |
| White                            | 8,171            | 42.2                                 | 1.0   | 0                                       |
| Missing                          | 342              | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes I60-69.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

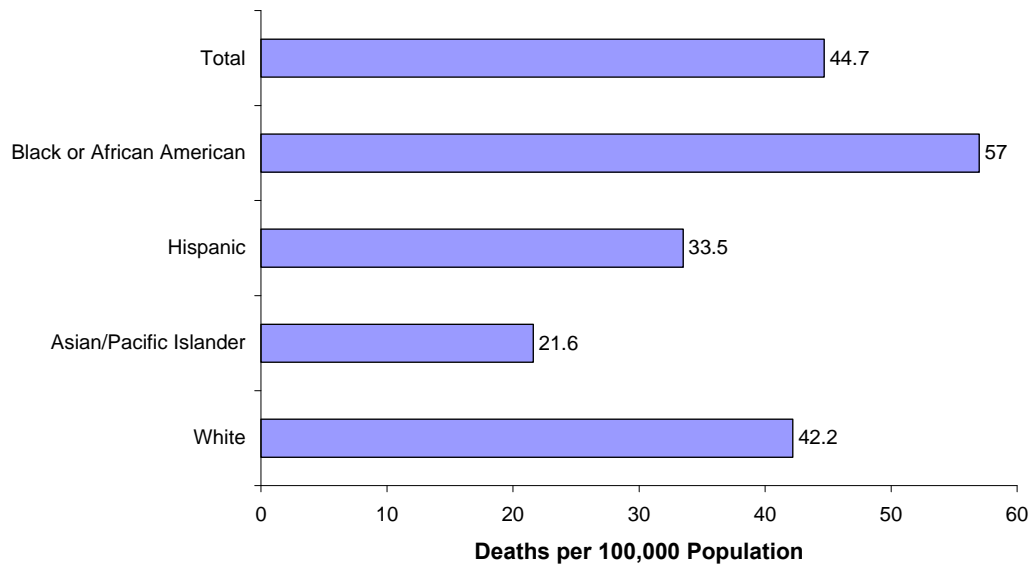
<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

**Figure 4. Age-adjusted Death Rates for Stroke, Connecticut Residents, by Race or Ethnicity, 2000–2004**



Source: DPH 2008b, 2008y.

#### Circulatory Disease Hospitalizations

There were a total of 60,188 Connecticut resident hospitalizations for circulatory diseases in 2005, which represents almost 19% of all hospitalizations excluding newborn, birth, and pregnancy-related hospitalizations (DPH 2008e).

Hospitalization rates for all circulatory conditions, which include all heart and cerebrovascular diseases, differ by race or ethnicity in Connecticut. In 2005, Black or African American Connecticut residents had significantly higher rates of hospitalizations for all circulatory diseases compared with other racial and ethnic subgroups, with an estimated 1,369 excess hospitalizations relative to White residents (Table 10, Figure 5). Hispanic residents had similar hospitalization rates compared with White residents with a total of 12 estimated excess hospitalizations. Asian/Pacific Islander and American Indian residents had fewer hospitalizations with an estimated 613 and 67 fewer hospitalizations, respectively, than White residents.



**Table 10. Hospitalizations<sup>a</sup> for Circulatory Diseases<sup>b</sup>, Connecticut Residents, by Race or Ethnicity, 2005**

| Race <sup>c</sup> or Ethnicity | Number of Hospitalizations | Age-adjusted Hospitalization Rate <sup>d</sup> | Relative Risk <sup>e</sup> (Minority/White) | Excess (Fewer) Events/Year <sup>f</sup> |
|--------------------------------|----------------------------|--|---|---|
| Total                          | 60,188                     | 1,508.0  | --  | --                                      |
| Black                          | 4,972                      | 1,970.7  | 1.4   | 1,369                                   |
| Hispanic                       | 2,759                      | 1,434.3  | 1.0   | 12                                      |
| Asian & Pacific Islander       | 254                        | 418.3  | 0.3   | (613)                                   |
| American Indian                | 42                         | 549.8  | 0.4   | (67)                                    |
| White                          | 50,293                     | 1,427.9  | 1.0   | 0                                       |
| Other <sup>g</sup>             | 2,163                      | --   | --  | --                                      |

Sources: DPH 2008c, 2008e.

<sup>a</sup> Hospitalization is synonymous with discharge because these data are derived from the hospital discharge abstract and billing database.

<sup>b</sup> Includes ICD-9-CM codes 390-459.

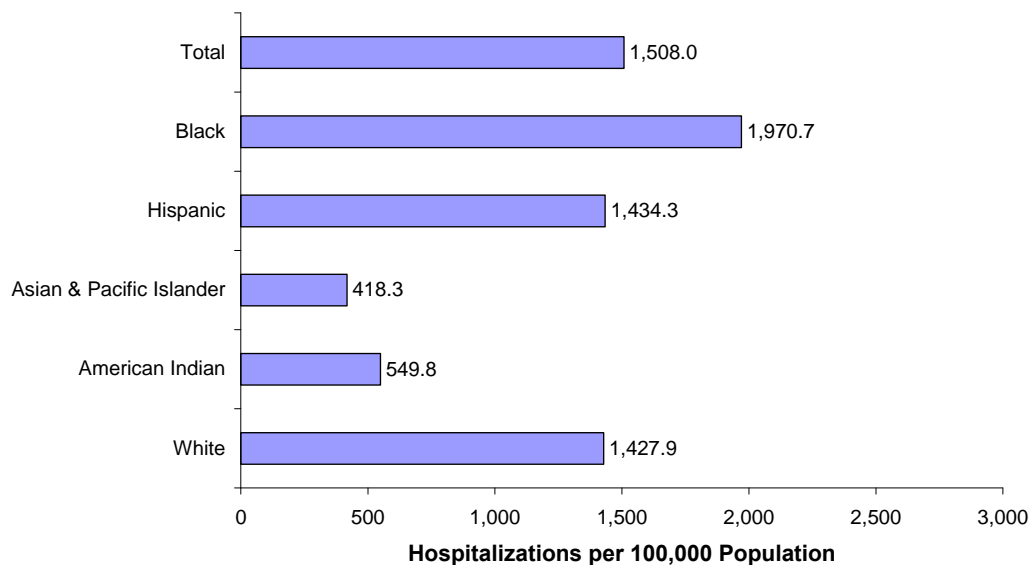
<sup>c</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>d</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>e</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>f</sup> "Excess events" are the hospitalizations per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer events.

<sup>g</sup> Other non-White and non-Hispanic.

**Figure 5. Age-adjusted Hospitalization Rates for Circulatory Diseases, Connecticut Residents, by Race or Ethnicity, 2005**

Source: DPH 2008c, 2008e.

## CONNECTICUT HEART DISEASE AND STROKE PREVENTION EFFORTS

The Connecticut Heart Disease and Stroke Prevention Program is a U.S. Centers for Disease Control and Prevention (CDC) funded program, which is housed at the Connecticut Department of Public Health. Its main goal is to reduce the burden of heart disease and stroke in our state, and an important priority of the program is to eliminate health disparities in heart disease and stroke based on gender, race or ethnicity, income, and geography. It has also worked to develop culturally-appropriate approaches to promote cardiovascular health within specified racial and ethnic minority populations (DPH 2008t).

The Connecticut Heart Disease and Stroke Prevention Program has provided leadership in several areas. The Heartsafe Communities Program is a collaboration of local Connecticut towns, the American Heart Association, and the Department of Public Health that works to improve the chances of survival from sudden cardiac arrest through a coordinated system of emergency response (DPH 2008u). The Primary Stroke Center Designation Program for acute care hospitals was developed to ensure rapid and appropriate diagnostic evaluation and treatment of stroke patients throughout the state (DPH 2008t). A State Stroke Prevention Plan, which represents the efforts of statewide partners from community-based organizations, state and local coalitions, academic and health care institutions, and state agencies, has outlined statewide efforts to reduce stroke-related morbidity and mortality and improve the state response system (DPH in press).

## DIABETES

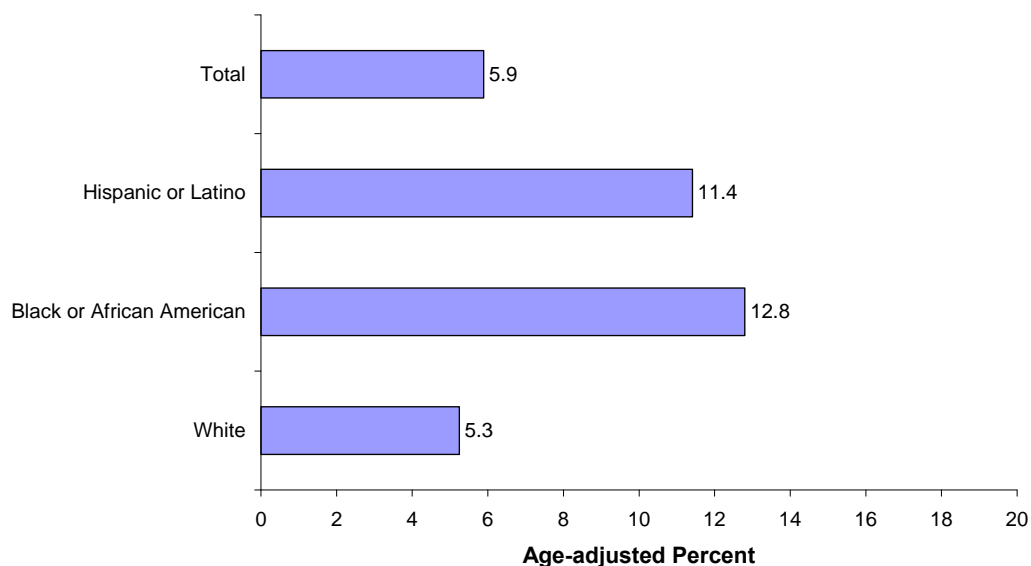
Diabetes mellitus is characterized by high levels of blood glucose, which result from deficient insulin production and/or insulin action. Diabetes is associated with serious complications and premature death, and people with diabetes are at increased risk for many adverse health outcomes, including heart disease and stroke (CDC 2008a).

### Diabetes Prevalence

Diabetes prevalence estimates for Connecticut adults presented here are age-adjusted to take into account differences in the age structures of the population groups compared. Age-adjustment is commonly used when comparing two population groups with different age structures, such as Hispanics and Whites (See Appendix IV for a discussion of age-adjustment). An estimated 5.9% of Connecticut adults, 18 years and older, have diag-

nosed diabetes (2004–2006, age-adjusted analyses) (DPH 2008a). Diabetes prevalence rates vary by age, race or ethnicity, and household income levels. Prevalence increases by age with Connecticut adults aged 60 and over having the highest rates and adults aged 18–29 having the lowest rates of diabetes. Lower-income adults are more likely to have diagnosed diabetes than are higher-income adults in Connecticut (Hynes and Jung 2006b). Among racial and ethnic subgroups, Black or African American and Hispanic or Latino adults have significantly higher age-adjusted diabetes prevalence rates than White adults. An estimated 12.8% of Black or African American, 11.4% of Hispanic or Latino, and 5.3% of White adults aged 18 and older in Connecticut have diagnosed diabetes (age-adjusted analyses) (Figure 6). There were too few Asian/Pacific Islander and American Indian or Alaska Native adult residents included in the BRFSS survey to calculate reliable diabetes prevalence rate estimates (DPH 2008a).

**Figure 6. Diabetes Prevalence, Connecticut Residents, by Race or Ethnicity, 2004–2006**



Source: DPH 2008a.

### Diabetes Mortality

Diabetes is the seventh leading cause of death in Connecticut, accounting for 3,541 of all Connecticut resident deaths from 2000 to 2004. Most people with diabetes die from related complications rather than directly from the disease itself; therefore, examination of diabetes as the underlying cause of death alone does not accurately represent its extensive contribution to overall mortality. Diabetes was listed as a primary or secondary

(“diabetes-related”) cause of death for 13,698 Connecticut residents (DPH 2008b). Yet, neither primary nor secondary cause-of-death data fully represent the impact of the disorder, and national data suggest that diabetes is underreported on death certificates (CDC 2008a).

Between 2000 and 2004, Black or African American Connecticut residents had the highest death rate from diabetes, about 2.5 times higher than that of White residents with an estimated excess of 49 deaths per year. Hispanics or Latinos had about 1.5 times the death rate from diabetes compared with Whites with an estimated 11 excess deaths per year. There were too few diabetes deaths among Asian/Pacific Islander and American Indian or Alaska Native residents to calculate reliable rates (Table 11, Figure 7).

**Table 11. Diabetes Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 3,541            | 17.9                                 | --  | --                                      |
| Black or African American        | 407              | 40.2                                 | 2.5   | 49                                      |
| Hispanic                         | 157              | 24.3                                 | 1.5   | 11                                      |
| Asian/Pacific Islander           | 13               | †                                    | †   | †                                       |
| American Indian or Alaska Native | 6                | †                                    | †   | †                                       |
| White                            | 2,848            | 15.8                                 | 1.0   | 0                                       |
| Other                            | 2                | --                                   | --  | --                                      |
| Missing                          | 108              | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes E10-14.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

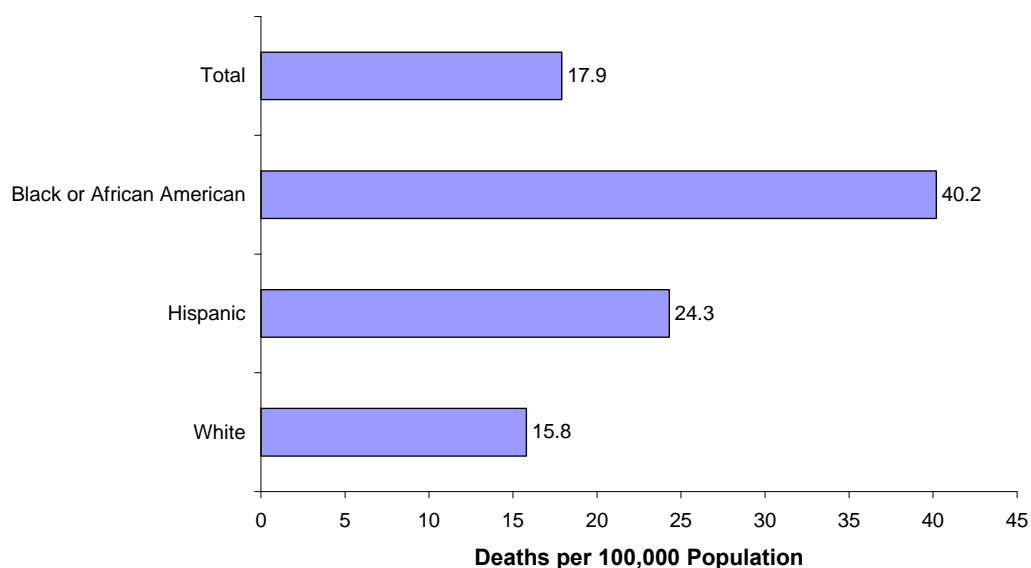
<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> “Relative risk” is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> “Excess deaths” are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

**Figure 7. Age-adjusted Death Rates for Diabetes, Connecticut Residents, by Race or Ethnicity, 2000–2004**



Source: DPH 2008b, 2008y.

### Diabetes Hospitalizations

Lack of timely, appropriate medical care for diabetes may contribute to serious medical complications, such as lower extremity amputations, end-stage renal disease, and blindness. Appropriate self-care and medical management of diabetes can forestall such complications. Regrettably, multiple hospitalizations are common among persons with diabetes. Nearly one-third of people with diabetes are hospitalized two or more times in the same year due to complications associated with the disease. Low-income people with diabetes are more likely to experience multiple hospitalizations (AHRQ 2005).

In 2005, Black or African American Connecticut residents had the highest hospitalization rates for diabetes and lower-extremity amputations of all racial and ethnic groups, with 3.8 times the hospitalization rates of White residents for both conditions (Table 12, Figure 8). Blacks or African Americans had an estimated 753 excess hospitalizations for diabetes and 137 excess hospitalizations for lower extremity amputations relative to Whites. Hispanics had 2.3 times the rate of diabetes and 3.1 times the rate of lower extremity amputation hospitalizations compared with Whites, with an estimated excess of 309 hospitalizations for diabetes and an estimated 80 excess hospitalizations for lower extremity amputations relative to Whites. There were too few diabetes and lower-

extremity amputation hospitalizations among Asian and Pacific Islander and American Indian or Alaska Native residents to calculate reliable rates (Table 13, Figure 9).

**Table 12. Hospitalizations for Diabetes<sup>a</sup>, Connecticut Residents, by Race and Ethnicity, 2005**

| Race <sup>b</sup> or Ethnicity | Number of Hospitalizations | Age-adjusted Hospitalization Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Events/Year <sup>e</sup> |
|--------------------------------|----------------------------|--|---|---|
| Total                          | 4,647                      | 124.8  | --  | --                                      |
| Black                          | 1,021                      | 359.4  | 3.8   | 753                                     |
| Hispanic                       | 555                        | 213.4  | 2.3   | 309                                     |
| Asian & Pacific Islander       | 13                         | †  | †   | †                                       |
| American Indian                | 11                         | †  | †   | †                                       |
| White                          | 2,924                      | 94.5   | 1.0   | 0                                       |
| Other <sup>f</sup>             | 123                        | --   | --  | --                                      |

Sources: DPH 2008c, 2008e.

<sup>a</sup> Hospitalization is synonymous with discharge because these data are derived from the hospital discharge abstract and billing database. Includes ICD-9-CM codes 250.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

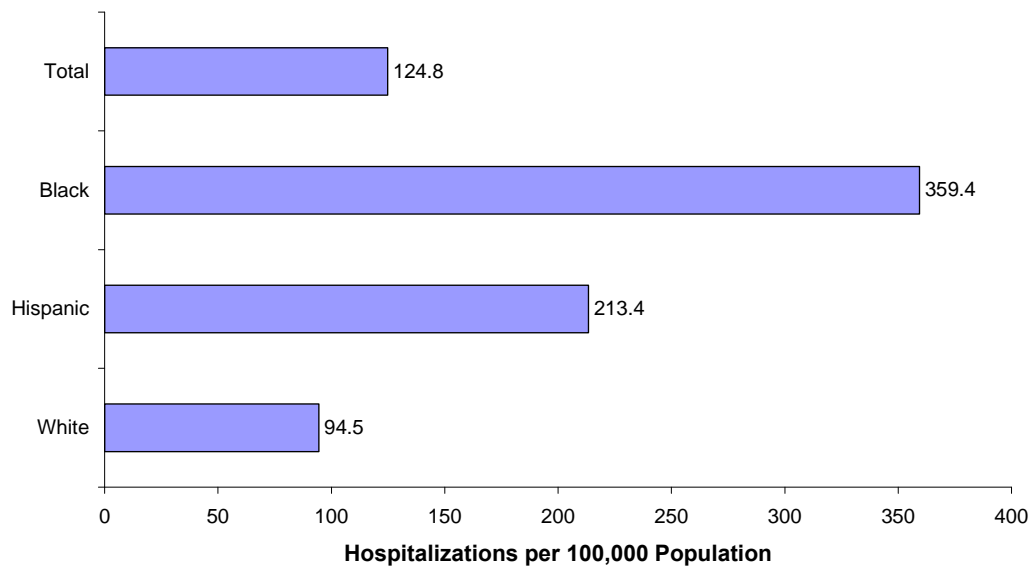
<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess events" are the hospitalizations per year that would not have occurred if the minority group had the same rate as the White population.

<sup>f</sup> Other non-White and non-Hispanic.

† Statistics are not calculated for fewer than fifteen events.

**Figure 8. Age-adjusted Hospitalization Rate for Diabetes, Connecticut Residents, by Race or Ethnicity, 2005**



Source: DPH 2008c, 2008e.

**Table 13. Hospitalizations for Diabetes with Lower Extremity Amputation<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2005**

| Race <sup>b</sup> or Ethnicity | Number of Hospitalizations | Age-adjusted Hospitalization Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Events/Year <sup>e</sup> |
|--------------------------------|----------------------------|--|---|---|
| Total                          | 990                        | 25.6   | --  | --                                      |
| Black                          | 186                        | 74.5   | 3.8   | 137                                     |
| Hispanic                       | 118                        | 60.4   | 3.1   | 80                                      |
| Asian & Pacific Islander       | 0                          | --   | --  | --                                      |
| American Indian                | 0                          | --   | --  | --                                      |
| White                          | 667                        | 19.7   | 1.0   | 0                                       |
| Other <sup>f</sup>             | 19                         | --   | --  | --                                      |

Source: DPH 2008c, 2008e.

<sup>a</sup> Hospitalization is synonymous with discharge because these data are derived from the hospital discharge abstract and billing database. Includes ICD-9-CM codes for any diagnosis of 250 with a procedure code 84.1 and not having 985-897. Denominator for rate is total population, not estimated persons with diabetes.

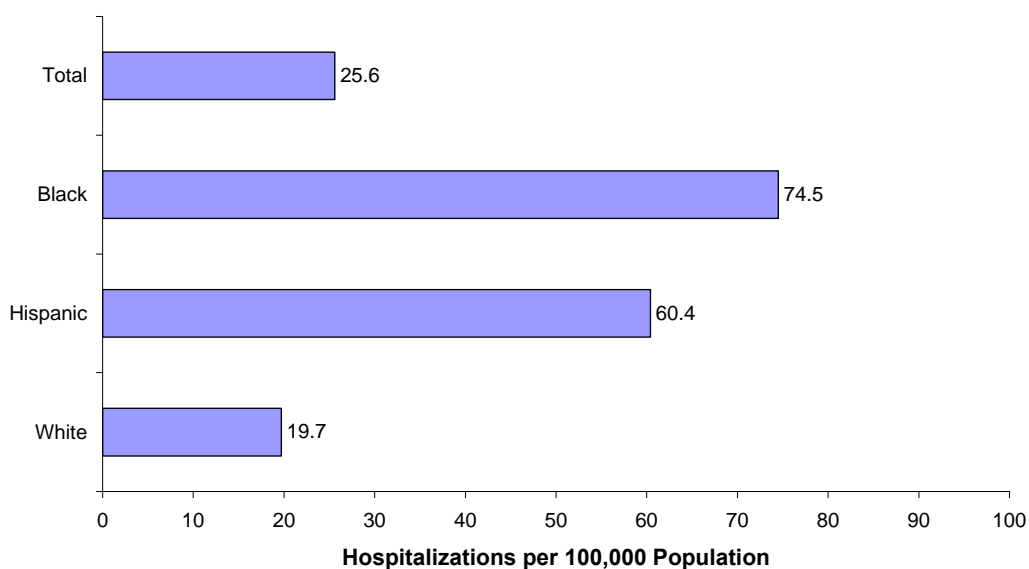
<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess events" are the hospitalizations per year that would not have occurred if the minority group had the same rate as the White population.

<sup>f</sup> Other non-White and non-Hispanic.

**Figure 9. Age-adjusted Hospitalization Rates for Diabetes with Lower Extremity Amputation, Connecticut Residents, by Race or Ethnicity, 2005**

Source: DPH 2008c, 2008e.

**CONNECTICUT DIABETES PREVENTION AND CONTROL PROGRAM**

The Connecticut Diabetes Prevention and Control Program (DPCP) is a CDC-funded initiative housed at the Department of Public Health, which works to support a state system of diabetes care and prevention. Its goals are to reduce the onset of diabetes and its complications and enhance the quality of life for people with diabetes (DPH 2008s). DPCP is the convener of a statewide network of individuals representing community-based organizations, advocacy groups, academic, business and health care institutions, and state agencies. It has led efforts to develop a State Diabetes Plan for Connecticut for 2007 through 2012 (DPH 2007b) with annual updates (DPH 2008v). The Connecticut Diabetes Prevention and Control Plan focuses on goals in two areas: the diabetes system of care and care outcomes. Its intended impacts fall within two categories: creating a comprehensive system of care and prevention and improving the quality of life for people with diabetes.

A high priority of the DPCP is to address disparities in risk factors for diabetes and in diabetes care and treatment based on gender, race or ethnicity, income, and geography. DPCP has worked with partners throughout the state to develop culturally appropriate initiatives about diabetes and its risk factors within specific racial and ethnic minority populations (DPH 2008s).

**CANCER**

Cancer is the second leading cause of death in Connecticut and the United States, accounting for 23.8% (35,434) of all Connecticut resident deaths from 2000 to 2004 (DPH 2008b). In 2006, 19,731 new invasive cancers were diagnosed in Connecticut residents (Connecticut Tumor Registry, unpublished data). The chance of developing cancer increases with age, with almost 60% of cancers occurring in people 65 and older (Connecticut Cancer Partnership 2006, 3).

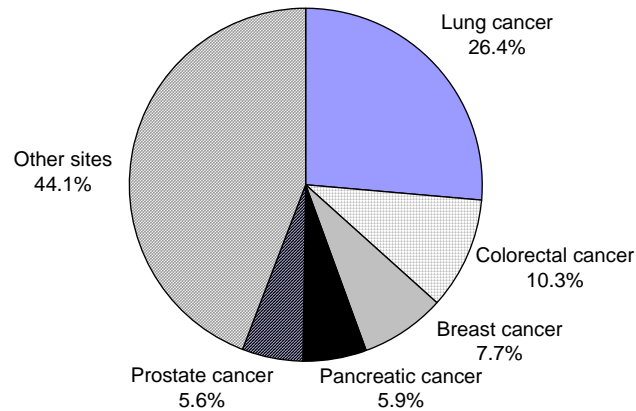
**Cancer Mortality**

Connecticut resident cancer mortality includes deaths due to lung cancer (26.4%), colorectal cancer (10.3%), breast cancer (7.7%), pancreatic cancer (5.9%), prostate cancer (5.6%), leukemia (3.9%), ovarian cancer (2.6%), bladder cancer (2.5%), meninges, brain, and central nervous system cancer (2.2%), skin cancer (1.5%), lip, oral, and pharynx cancers (1.2%), uterine cancer (0.6%), and cervical cancer (0.5%) (Figure 9). Cancer is the



first leading cause of death for Asian or Pacific Islander Connecticut residents, and the second leading cause of death for Black or African American, Hispanic, American Indian or Alaska Native, and White Connecticut residents (See Appendix IX) (DPH 2008b).

**Figure 10. Cancer Deaths, Percent by Subtype, Connecticut Residents, 2000–2004**



Source DPH 2008b.

Between 2000 and 2004, Black or African American Connecticut residents had the highest death rate from cancer, about 1.1 times higher than that of White residents with an estimated excess of 56 deaths per year. Hispanic and Asian/Pacific Islander residents had lower cancer death rates compared with White residents. Hispanic residents had 0.6 times the death rate of White residents with an estimated 93 fewer deaths per year, Asian/Pacific Islander residents had 0.4 times the death rate of White residents with an estimated 53 fewer deaths per year, and American Indian or Alaska Native residents had 0.6 times the cancer death rates as White residents with an estimated 5 fewer deaths per year (Table 14, Figure 11).

**Table 14. Cancer Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race or Ethnicity <sup>b</sup>   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 35,434           | 183.9                                | --  | --                                      |
| Black or African American        | 2,198            | 206.7                                | 1.1   | 56                                      |
| Hispanic                         | 800              | 114.0                                | 0.6   | (93)                                    |
| Asian/Pacific Islander           | 174              | 71.6                                 | 0.4   | (53)                                    |
| American Indian or Alaska Native | 36               | 106.1                                | 0.6   | (5)                                     |
| White                            | 31,227           | 180.6                                | 1.0   | 0                                       |
| Other                            | 3                | --                                   | --  | --                                      |
| Missing                          | 996              | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

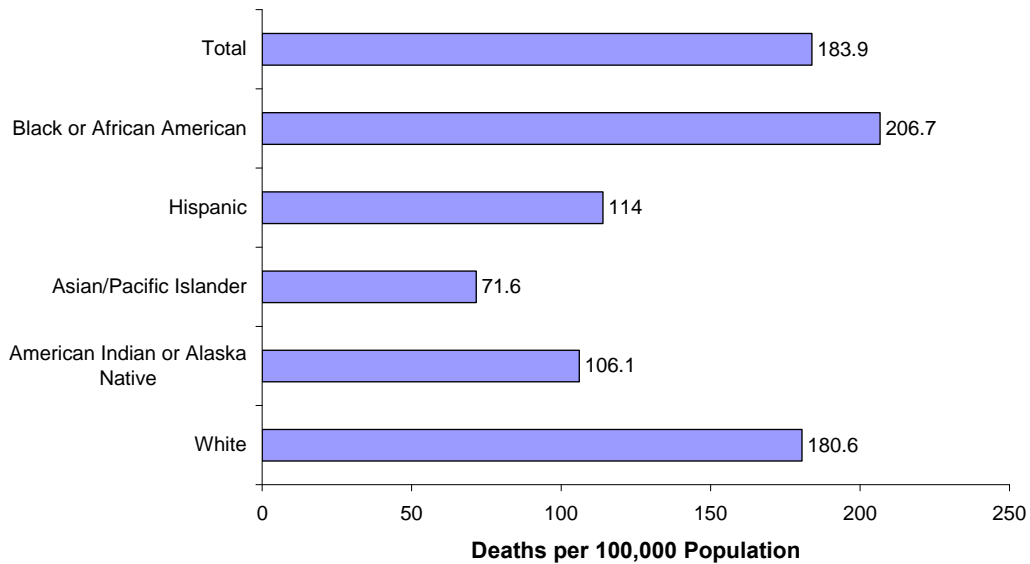
<sup>a</sup> Includes ICD-10 codes C00-97.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

**Figure 11. Age-adjusted Death Rates for Cancer, Connecticut Residents, by Race or Ethnicity, 2000–2004**

Source: DPH 2008b, 2008y.

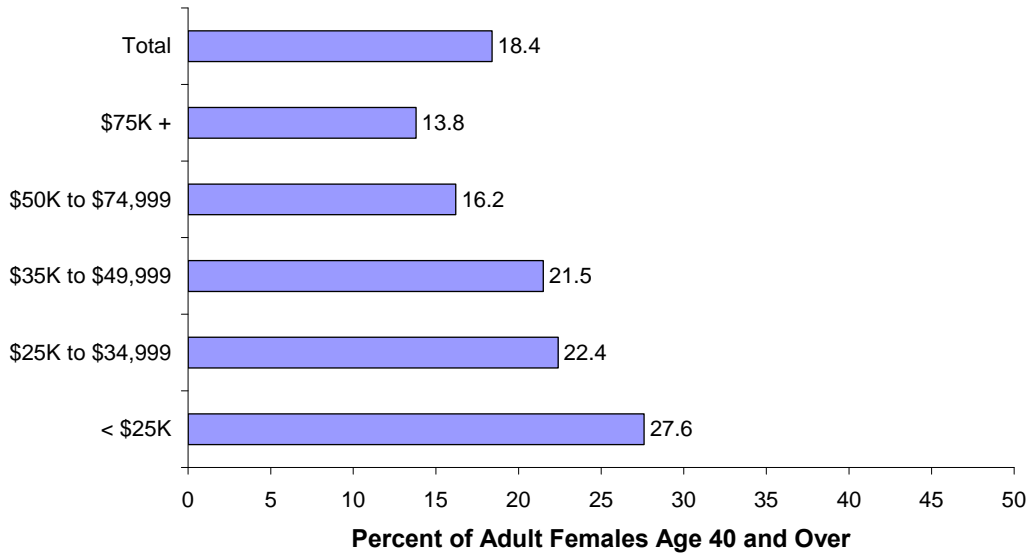
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### Early Detection and Screening for Cancer

For some types of cancer, early detection can improve chances of survival and quality of life. Screening is recommended for breast, cervical, and colorectal cancers in specific age and risk groups based on available scientific evidence (U.S. Preventive Services Task Force 2008). Screening rates tend to differ by income level and health insurance status in Connecticut. Low-income people and those without health insurance tend to have fewer cancer screenings and often do not seek or obtain care until their cancers are more advanced. The Connecticut Cancer Partnership has noted that: “The burden of cancer often is greatest for those with low income and less education, and for people of color, especially those who have no health insurance or do not speak English well” (Connecticut Cancer Partnership 2006, 5).

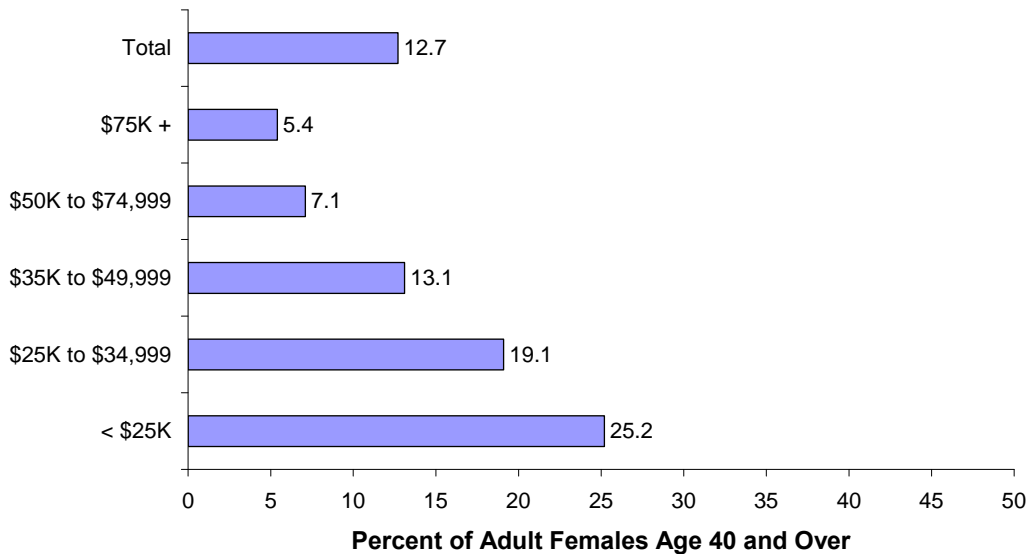
Connecticut Behavioral Risk Factor survey data for 2004 and 2006 indicate that lower-income adults are much less likely to obtain recommended screening tests compared with higher-income adults. Among Connecticut women aged 40 and over, an estimated 27.6% of women with household incomes of \$25,000 or less per year did not receive a mammogram in the past two years compared with 13.8% of women with household incomes of \$75,000 or more (unadjusted analyses) (Figure 12). Among women aged 18 and over, an estimated 25.2% with household incomes of \$25,000 or less per year did not obtain a Pap screening test for cervical cancer in the past three years compared with 5.4% of women with household incomes of \$75,000 or more (unadjusted analyses) (Figure 13). Among Connecticut adults aged 50 and over, an estimated 39.2% with household incomes of less than \$25,000 never had a colonoscopy or sigmoidoscopy screening for colorectal cancer compared with 29.9% with household incomes of \$75,000 or more (unadjusted analyses) (Figure 14) (DPH 2008a).

**Figure 12. Did Not Receive a Mammogram in the Past Two Years, Connecticut Adult Females, Age 40 and Over, by Household Income, 2004, 2006**



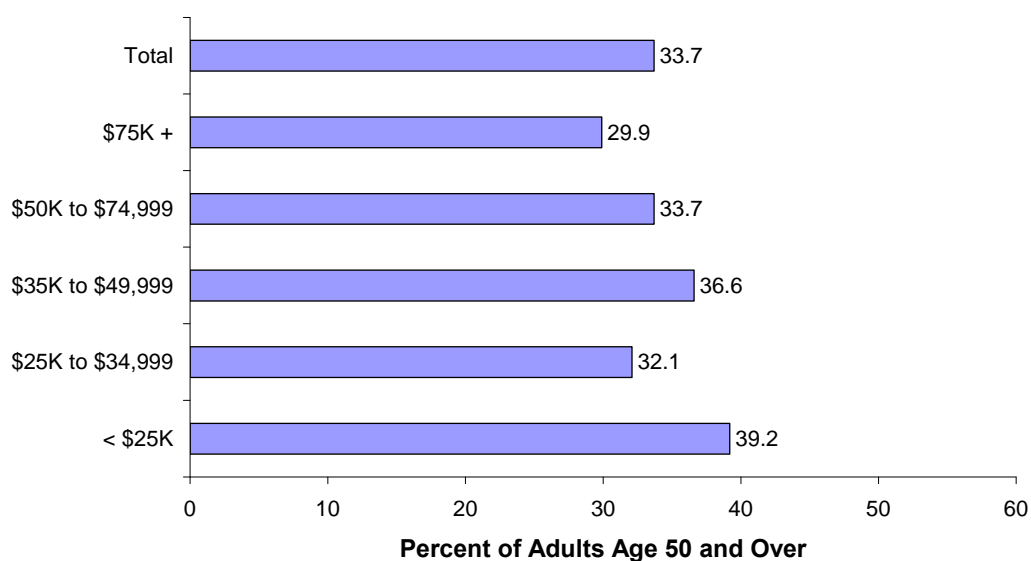
Source: DPH 2008a.

**Figure 13. Did Not Receive a Pap Test in the Past Three Years, Connecticut Adult Females, Age 40 and Over, by Household Income, 2004, 2006**



Source: DPH 2008a.

**Figure 14. Did Not Ever Receive a Colonoscopy or Sigmoidoscopy, Connecticut Adults, Age 50 and Over, by Household Income, 2004, 2006**



Source: DPH 2008a.

#### CONNECTICUT TUMOR REGISTRY (CTR)

Detailed information on cancer incidence among Connecticut residents is available through the Connecticut Tumor Registry (CTR), which is a population-based resource for examining cancer patterns in Connecticut. The Registry has been part of the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) Program since 1973. The SEER Program includes 17 population-based registries in the United States. The CTR database includes all reported cancers diagnosed in Connecticut residents from 1935 to the present, as well as follow-up, treatment and survival data on reported cases. All hospitals and pathology laboratories in Connecticut are required by public health legislation to report incident cases, along with information on follow-up and treatment (DPH 2008w).

#### CONNECTICUT COMPREHENSIVE CANCER CONTROL EFFORTS

The Connecticut Comprehensive Cancer Control Program is a CDC-funded effort, which has brought together various partners to develop and implement a plan that addresses the continuum of cancer care in our state (Connecticut Cancer Partnership 2008).

The Program acts as the convener of the state network, the Connecticut Cancer Partnership, which includes the following founding organizations: American Cancer Society, the Connecticut State Medical Society, the Connecticut Department of Public Health, the University of Connecticut Health Center, and the Yale Cancer Center. Since 2003, these organizations together with other state partners representing community and advocacy groups, businesses, insurers, academic and clinical institutions, and state agencies, have met to develop a state plan whose goal is to address prevention, screening, treatment, survivorship, and palliative/end-of-life care efforts related to reducing disability and death due to cancer in Connecticut. Through their efforts, the *Connecticut Comprehensive Cancer Control Plan, 2005–2008* was released to the public. The plan outlines an agenda for cancer control and prevention in our state (Connecticut Cancer Partnership 2005, 2006). Implementation of this plan is currently being carried out through various work groups of the Partnership.

#### BEHAVIORAL RISK FACTORS FOR CHRONIC DISEASES

Risk factors are classified as “non-modifiable” and “modifiable” factors. Non-modifiable risk factors for most chronic diseases include increasing age and family history of the disease. In this section, five key modifiable risk factors for chronic diseases are discussed: cigarette smoking; overweight and obesity; high blood pressure; high cholesterol; and lack of physical activity. While much of the burden of chronic disease may be reduced by lifestyle modification, public health research points out that individual risk factors for disease should be viewed in the context of larger social conditions in a given community (Link and Phelan 1995). Social factors such as educational level, degree of poverty and resultant stress, housing quality, neighborhood environmental quality, environmental exposures, amount of leisure time, and access to quality consumer goods and medical care all impinge on individuals’ choices and behaviors.

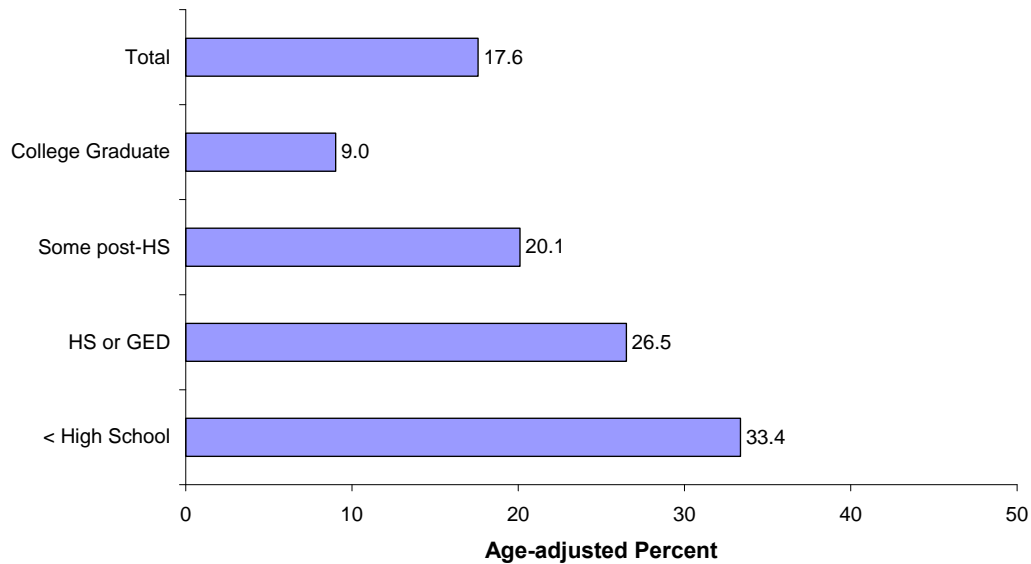
The behavioral risk factor data discussed in this section are taken from the state-based 2004 through 2006 Behavioral Risk Factor Surveillance System (BRFSS), a randomized survey of adults, aged 18 years and older. When significant, survey data are reported here (or noted) by household income, educational attainment level, and race or ethnicity of respondents. Racial and ethnic survey data are reported for Black or African American, Hispanic or Latino and White Connecticut adults only. The numbers of American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander Connecticut residents surveyed are not large enough to produce reliable estimates for these groups.

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### Cigarette Smoking

The 2004 U.S. Surgeon General's Report concludes that not only does smoking diminish the health status of smokers, but scientific evidence has demonstrated a causal relationship between smoking and several cancers (e.g., lung, larynx, oral cavity and pharynx), cardiovascular diseases (e.g., coronary heart disease, stroke, abdominal aortic aneurysm), respiratory diseases and effects (e.g., COPD, pneumonia, decreased lung function), reproductive effects (e.g., low birth weight, pregnancy complications), cataract, hip fracture, low bone density, and peptic ulcer disease (CDC 2004b). Each year in the United States, an estimated 438,000 premature deaths, 5.5 million years of productive life lost, and \$92 billion in productivity losses result from cigarette smoking and exposure to tobacco smoke (CDC 2005f).

In 2005, about 16% of Connecticut adults reported being current smokers compared with about 20% of adults nationwide (Hynes and Jung 2006a). Connecticut adult smokers are more likely to be younger, with lower incomes, and less educated. For example, 24.7% of Connecticut adults aged 18 to 24 years old smoke compared with only 19.4% of those aged 45 to 54, and 6.9% of those aged 65 and older (DPH 2008a). About 27.1% of adults with household incomes under \$15,000 smoke, compared with 11% of adults with household incomes of \$75,000 or more (age-adjusted analyses). An estimated 33.4% of adults with less than a high school education smoke compared with only 9% of adults who graduated from college (age-adjusted analyses) (Figure 15) (DPH 2008a).

**Figure 15. Current Smoking Rates, Connecticut Adults, by Educational Level, 2004–2006**

Source: DPH 2008a.

### Overweight and Obesity

Obesity is considered a metabolic disorder, which can be explained by a combination of hereditary and environmental factors. High calorie diets along with less physical activity have contributed to the obesity epidemic in the United States (Eckel 1997). Body mass index (BMI), or weight adjusted for height, is a widely used screening method for obesity. Medical guidelines identify normal/desirable weight as a BMI under 25, overweight as a BMI of 25 to 29.9, and obese as a BMI of 30 or more (U.S. Preventive Services Task Force 2005).

People who are overweight are at much greater risk of developing type 2 diabetes than are normal-weight individuals. Abdominal obesity has been found to place individuals at higher risk for health problems, including high blood pressure, high blood cholesterol, high triglycerides, diabetes, and heart disease (American Heart Association 2008). Obesity also increases the likelihood of developing certain types of cancers, including colon, kidney, esophageal, and endometrial cancers (Connecticut Cancer Partnership 2006).

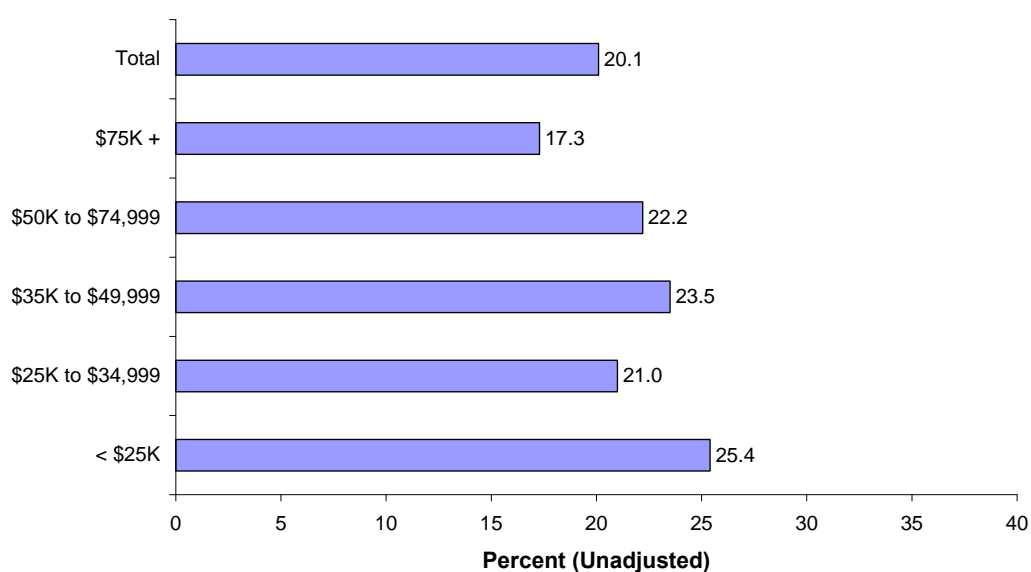
An estimated 20.1% of Connecticut adults are obese, about 37.7% are overweight, and 42.2% are normal or desired weight. Adults in the lowest-income and least-educated groups are more likely to be obese than adults in the highest-income and highest-educated groups. For example, an estimated 25.4% of adults with household incomes of



less than \$25,000 per year are obese, compared with 17.3% of adults with household incomes of \$75,000 or more per year (unadjusted analyses) (Figure 16) (DPH 2008a).

An estimated 21.2% of adult males and 19.0% adult females in Connecticut are obese. Among males, racial or ethnic differences in obesity are not significant. Among adult females, however, Blacks or African Americans are more likely to be obese (37.8 %) compared with Hispanics (26.5%) and Whites (17.2%) (age-adjusted analyses) (DPH 2008a).

**Figure 16. Obesity Prevalence, Connecticut Adults, by Household Income, 2004–2006**



Source: DPH 2008a.

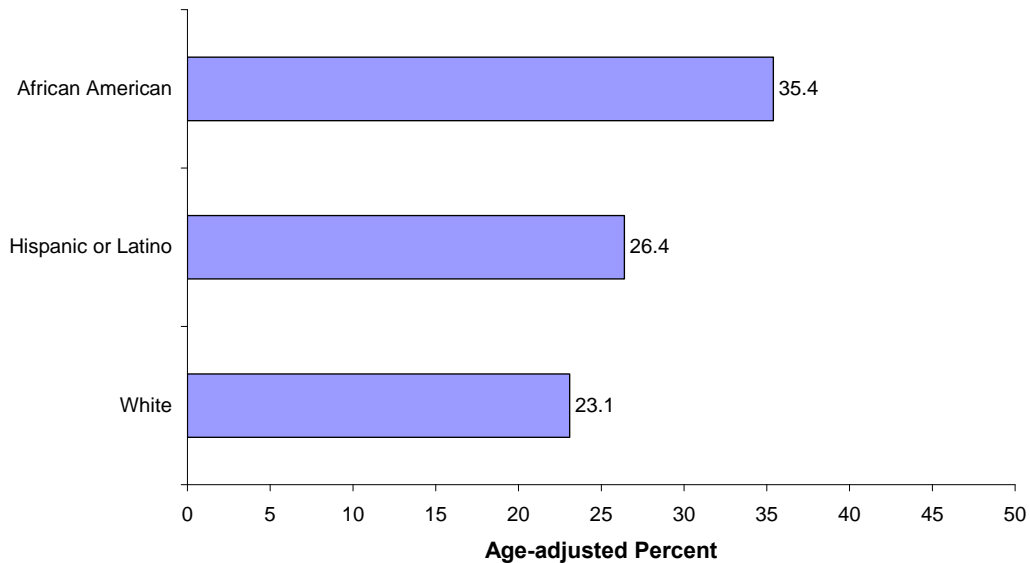
### High Blood Pressure

High blood pressure (HBP), or hypertension, is a major risk factor for heart attack and the most important modifiable risk factor for stroke. New federal guidelines classify normal blood pressure as below 120/80 mm Hg and readings from 120/80 Hg up to 140/90 mmHg as prehypertensive (Chobanian et al. 2003). People with elevated blood pressure ( $\geq 140$ mm Hg systolic / 90 mmHg diastolic) are 2 to 4 times more likely to develop coronary heart disease as are people with blood pressure below 140mm Hg systolic / 90 mmHg diastolic (Newschaffer, Brownson and Dusenbury 1998). About 26% of all stroke mortality is attributable to HBP (Goldstein, Adams, and Becker 2001). The risks for hypertension-related cardiovascular disease increase markedly with age, as

does the prevalence of hypertension, and drug treatment for high blood pressure (Brookes 2005).

Approximately one quarter of Connecticut adults report that they have HBP or hypertension (2004–2005). High blood pressure is associated with increasing age, and lower-income and less-educated Connecticut adults are more likely to report having high blood pressure than those with higher incomes and more education. Black or African American Connecticut adults experience high blood pressure more than White and Hispanic adults. About 35.4% of Black or African American Connecticut adults report that they were told by a doctor or other health care professional that they had hypertension compared with 23.1% of White, and 26.4% of Hispanic adults in Connecticut (age-adjusted analyses) (Figure 17). Black or African American adults are also more likely to report taking medication for high blood pressure. An estimated 69.8% of Black or African American adults, compared with 59.7% of White adults, and 54.7% of Hispanic adults, report taking medication for high blood pressure (age-adjusted analyses, 2004–2005) (DPH 2008a).

**Figure 17. High Blood Pressure Awareness Rates, Connecticut Adults, by Race or Ethnicity, 2004–2005**



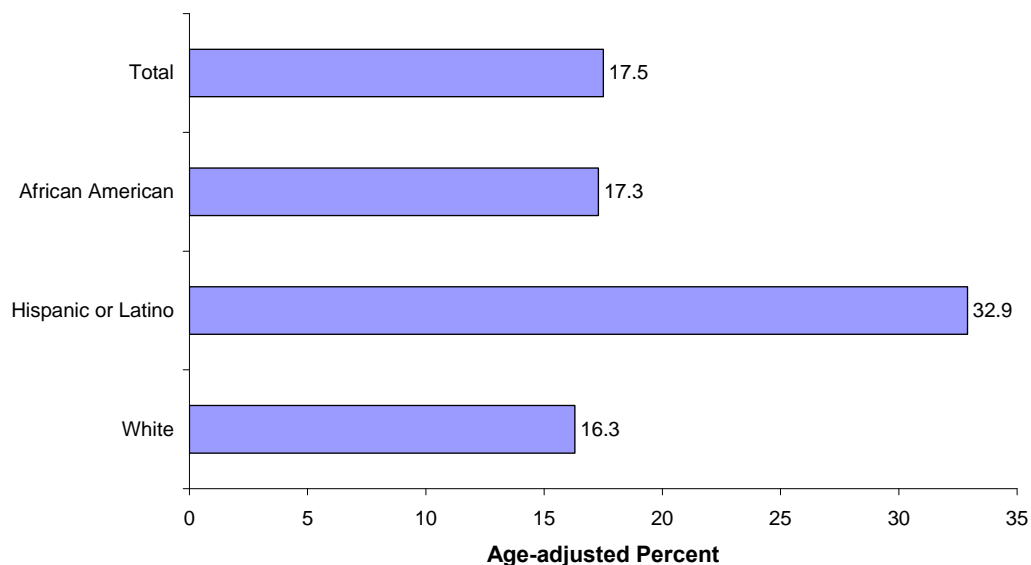
Source: DPH 2008a.

### High Blood Cholesterol

High blood cholesterol (HBC) is considered a major risk factor for heart disease and a moderate risk factor for stroke. Studies have shown that among people without heart disease, lowering cholesterol can reduce the risk of developing the disease; and among people with heart disease, lowering cholesterol can reduce the risk of dying from the disease (CDC 2008k). Studies have found that stroke risk can be reduced with cholesterol-lowering medication among persons with high cholesterol levels and persons with coronary artery disease (Goldstein et al. 2001).

The CDC estimates that more than 80% of people with high blood cholesterol do not have it under control (CDC 2008k). Overall, an estimated 17.8% of Connecticut adults have never had their blood cholesterol checked. Persons without health insurance, and those with lower incomes and less education are most likely to report never having had their blood cholesterol checked. An estimated 38.2% of persons without health care coverage report never having been screened compared with 15.6% of those with health care coverage. More Hispanics or Latinos report never having been screened for high cholesterol (32.9%) compared with Whites (16.3%) and African Americans (17.3%) (age-adjusted analyses) (Figure 18) (DPH 2008a).

**Figure 18. Never Had Blood Cholesterol Checked, Connecticut Adults, Rates by Race or Ethnicity, 2005**



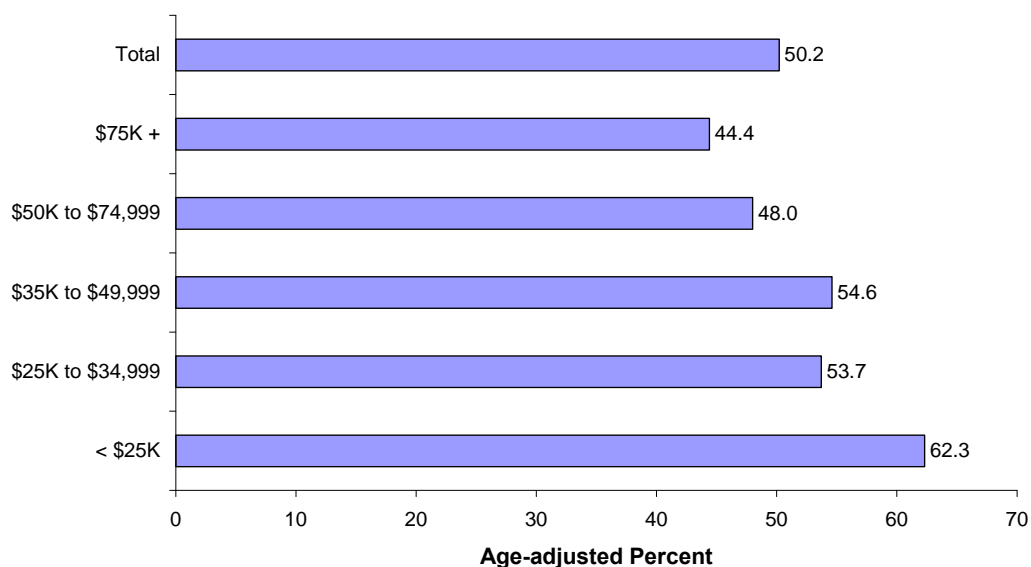
Source: DPH 2008a.

### Physical Inactivity

Physical inactivity and poor diet are associated with an increased risk of a number of chronic health conditions including cardiovascular disease, diabetes, some cancers, high blood pressure, overweight and obesity, back problems, and osteoporosis (Duke University 2006). Physical inactivity indirectly increases the risk of stroke because it is associated with high blood pressure.

The CDC and the American College of Sports Medicine (ACSM) recommend that all adults should engage in “at least 30 minutes of moderate-intensity physical activity on five or more days of the week” (CDC 2006b). Approximately one-half of all Connecticut adults report having less than thirty minutes of moderate physical activity five or more days per week and are, therefore, considered inactive (DPH 2008a).

Physical inactivity increases with age. About 59% of Connecticut adults aged 65 and older do not meet the recommended CDC/ACSM activity levels compared with 34% of Connecticut adults aged 18 to 24 (Hynes and Jung 2006a). Adults in the lowest-income and least-educated groups are more likely to be physically inactive compared with those in the highest-income and highest-educated groups. For example, about 62.3% of Connecticut adults with household incomes of less than \$25,000 per year are inactive compared with 44.4% of Connecticut adults with household incomes of \$75,000 or more (age-adjusted analyses, 2005) (Figure 19) (DPH 2008a).

**Figure 19. Physical Inactivity, Connecticut Adults, by Household Income, 2005**

Source: DPH 2008a.

#### CONNECTICUT NUTRITION, PHYSICAL ACTIVITY, AND OBESITY PREVENTION EFFORTS

In 2005, the Connecticut Department of Public Health's Nutrition, Physical Activity and Obesity Program (NPAO) partnered with groups throughout the state, including community-based organizations, advocates, academic, business and health care institutions, and state agencies to develop a set of goals and objectives for health promotion and obesity prevention through healthy eating and active living. This group developed the plan *Healthy Eating and Active Living—Connecticut's Plan for Health Promotion*, which was focused on the establishment of a statewide infrastructure through partnerships, surveillance, interventions, and state and local policies (DPH 2005a). Five levels of implementation were identified: the community, school systems, health care infrastructure, institution/industry, and worksite. The program also established the Connecticut Childhood Obesity Council, which is a collaborative initiative of state government agencies and representatives from the legislative branch of government. The purpose of the Council is to establish state priorities that prevent and reduce childhood obesity and related health risks. The Council held a statewide conference in 2008 that brought together stakeholders from government, advocacy, and research and policymaking sectors. The NPAO oversees about 30 intervention programs in obesity prevention, improved nutrition, and physical activity, which are supported by the U.S. Centers for Disease Control and Prevention Preventive Health Block Grant and the Tobacco and Health Trust Fund.

## **INJURY**

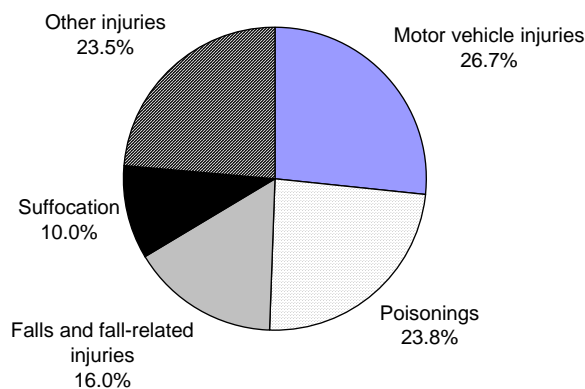
Injuries are a leading cause of premature death in the United States and Connecticut (Hynes et al. 2005; DPH 2008b). They include unintentional types, such as motor vehicle crashes, falls, and suffocation, as well as intentional types, such as homicides and suicides. Injury deaths, by definition, are preventable, and reducing their risk requires an understanding of how injuries vary across physical and social environments. Effective prevention strategies can be developed through an understanding of injury patterns across many settings in which people spend time, including home, school, workplace, playground, and on the road.

The following section of this report first discusses patterns of unintentional injuries, and second, suicides and homicides among Connecticut residents with a consideration of differences by age group, gender, and racial and ethnic subgroups.

### **UNINTENTIONAL INJURY**

Unintentional injury is the fifth-ranked leading cause of death in Connecticut. In 2000–2004, 5,693 Connecticut residents died from unintentional injuries (see Appendix IX) (DPH 2008b). Unintentional injury was the first-ranked leading cause of death for Connecticut residents aged 1 to 44 during this period. Major categories of unintentional injury deaths include motor vehicle injuries (26.7%), poisonings (23.8%), falls and fall-related injuries (16.0%), and suffocation (10%) (Figure 20) (Hewes and Mohamed 2007).

**Figure 20. Major Categories of Unintentional Injury Deaths, Connecticut Residents, 2000–2004**



Source: Hewes and Mohamed 2007.

During the 2000–2004 period, age-adjusted death rates due to unintentional injuries did not differ among Black or African American, Hispanic, and White residents of Connecticut. Asian/Pacific Islander residents had the lowest death rates due to unintentional injuries among racial and ethnic subgroups in Connecticut with an estimated 12 fewer deaths per year compared with White residents. There were too few unintentional injury deaths among American Indian or Alaska Native residents to calculate reliable rates (Table 15).

It is worth noting that race or ethnicity information is missing for a large number of unintentional injury decedents (N=400). As a result, the age-adjusted unintentional injury death rate for the total Connecticut population, which includes those with missing race or ethnicity, appears higher than the rates for each racial or ethnic subgroup population. If cases with missing race or ethnicity information were removed from the total, the age-adjusted mortality rate for the total Connecticut resident population would be 28.8 deaths per 100,000 population, which is about the same as for the White population.

**Table 15. Unintentional Injury Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 5,693            | 31.0                                 | --  | --                                      |
| Black or African American        | 431              | 30.0                                 | 1.0   | 3                                       |
| Hispanic                         | 415              | 27.8                                 | 1.0   | (3)                                     |
| Asian/Pacific Islander           | 25               | 8.3                                  | 0.3   | (12)                                    |
| American Indian or Alaska Native | 12               | †                                    | †   | †                                       |
| White                            | 4,409            | 28.8                                 | 1.0   | 0                                       |
| Other                            | 1                | --                                   | --  | --                                      |
| Missing                          | 400              | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes V01-X59, Y85-86.

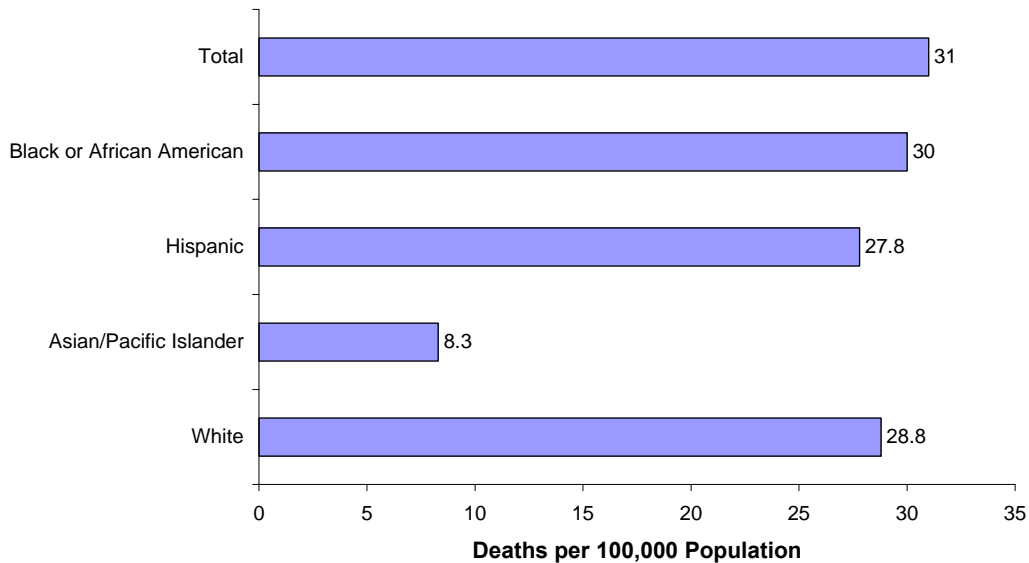
<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

**Figure 21. Age-adjusted Death Rates for Unintentional Injury, Connecticut Residents, by Race or Ethnicity, 2000–2004**

Source: DPH 2008b, 2008y.



Dramatic differences in unintentional injury death rates by gender are found in Connecticut. In the period 2000–2004, males were 2.8 times more likely to die from unintentional injuries than females with an estimated 439 excess deaths per year.

**Table 16. Unintentional Injury Deaths<sup>a</sup>, Connecticut Residents, by Gender, 2000–2004**

| Gender | Number of Deaths | Age-adjusted Death Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Male/Female) | Excess (Fewer) Deaths/Year <sup>d</sup> |
|--------|------------------|--------------------------------------|--|---|
| Total  | 5,693            | 31.0                                 | --                                       | --                                      |
| Male   | 3,686            | 45.5                                 | 2.5                                      | 439                                     |
| Female | 2,007            | 18.4                                 | --                                       | --                                      |

Source: DPH 2008b, 2008y.

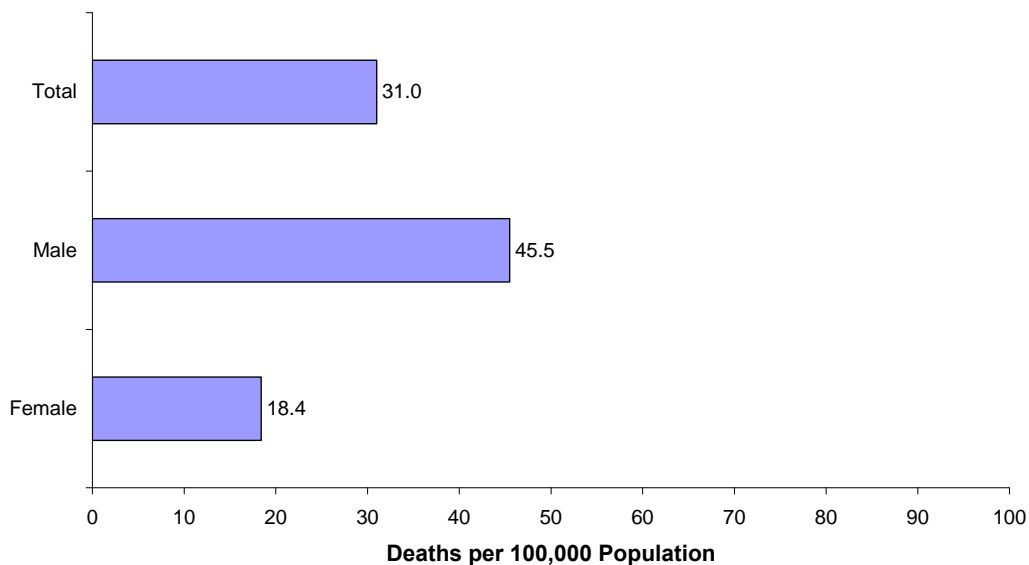
<sup>a</sup> Includes ICD-10 codes V01-X59, Y85-86.

<sup>b</sup> Rates are per 100,000 persons based on gender-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the male to the female rate.

<sup>d</sup> "Excess deaths" are the deaths per year that would not have occurred if the male population had the same rate as the female population.

**Figure 22. Age-adjusted Death Rates for Unintentional Injury, Connecticut Residents, by Gender, 2000–2004**



Source: DPH 2008b, 2008y.

**SUICIDE**

A total of 1,395 Connecticut residents committed suicide during the 2000–2004 period (DPH 2008b). Firearms were the most common method, accounting for 36.2% of all suicides. Other common methods of completed suicides were suffocation by hanging and other means (31.4%), drug or alcohol poisoning (9.2%), and poisoning by carbon monoxide and other substances (7.4%) (Hewes and Mohamed 2007).

Certain age groups in the population are at higher risk for suicide death (Hynes et al. 2005). While suicide was the twelfth leading cause of death in Connecticut during the 2000–2004 period, it was the second leading cause for residents aged 15 to 19 and those aged 25 to 34, and the third leading cause for residents aged 20 to 24 (Hewes and Mohamed 2007).

During the 2000–2004 period, age-adjusted death rates due to suicide were highest among White residents of Connecticut followed by Hispanic and Black or African American residents. Black or African Americans had one-half the death rates of Whites with an estimated 13 fewer deaths per year, and Hispanics had suicide rates that were 70% that of Whites with an estimated 8 fewer deaths per year. There were too few suicide deaths among Asian/Pacific Islander and American Indian or Alaska Native residents to report reliable rates.

**Table 17. Suicide Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 1,395            | 7.9                                  | --  | --                                      |
| Black or African American        | 64               | 4.1                                  | 0.5   | (13)                                    |
| Hispanic                         | 80               | 5.4                                  | 0.7   | (8)                                     |
| Asian/Pacific Islander           | 10               | †                                    | †   | †                                       |
| American Indian or Alaska Native | 5                | †                                    | †   | †                                       |
| White                            | 1,166            | 8.2                                  | 1.0   | 0                                       |
| Other                            | 1                | --                                   | --  | --                                      |
| Missing                          | 69               | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes X60-X84, Y87.0.

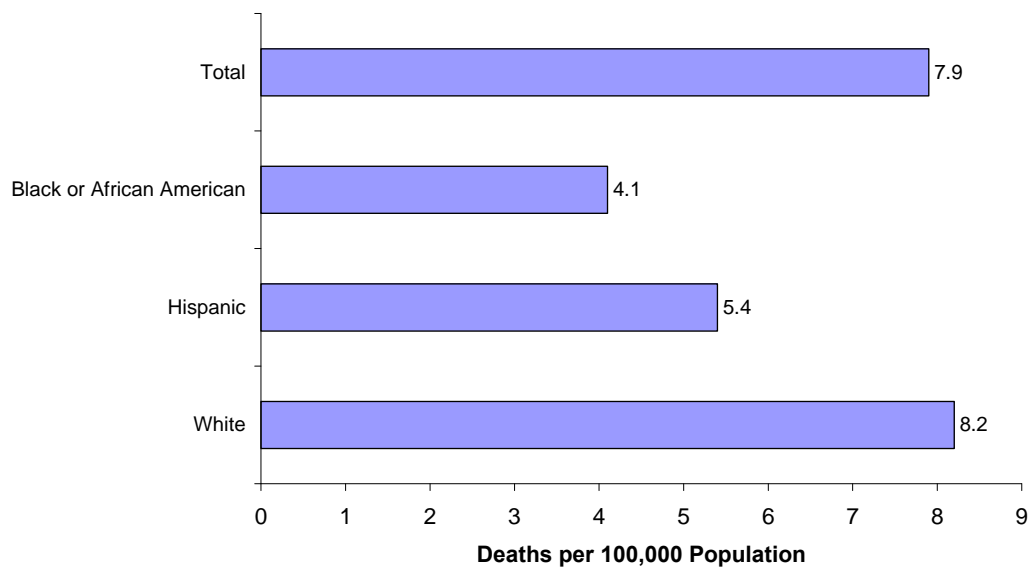
<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

**Figure 23. Age-adjusted Death Rates for Suicide, Connecticut Residents, by Race or Ethnicity, 2000–2004**

Source: DPH 2008b, 2008y.

As a group, males are at considerably higher risk for suicide than are females (Hynes et al. 2005), and they accounted for 79% of all Connecticut resident suicide deaths during the 2000–2004 period. Men are about four times more likely to commit suicide than are females in Connecticut with an estimated 167 excess deaths per year (Table 18, Figure 24) (DPH 2008b).

**Table 18. Suicide Deaths<sup>a</sup>, Connecticut Residents, by Gender, 2000–2004**

| Gender | Number of Deaths | Age-adjusted Death Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Male/Female) | Excess Deaths/Year <sup>d</sup> |
|--------|------------------|--------------------------------------|--|---------------------------------|
| Total  | 1,395            | 7.9                                  | --                                       | --                              |
| Male   | 1,102            | 13.1                                 | 4.1                                      | 167                             |
| Female | 293              | 3.2                                  | --                                       | --                              |

Source: DPH 2008b, 2008y.

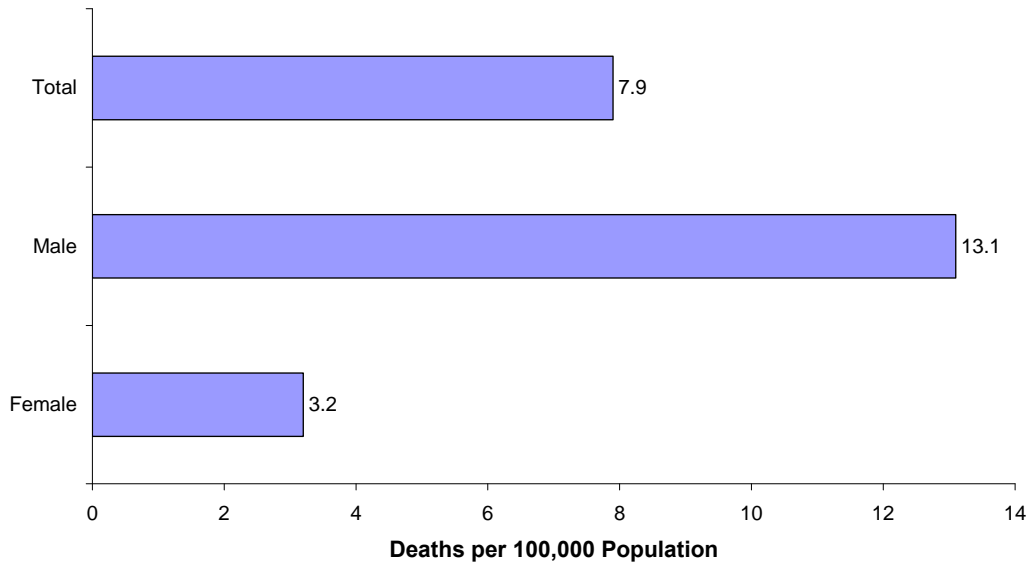
<sup>a</sup> Includes ICD-10 codes X60-84, Y87.0.

<sup>b</sup> Rates are per 100,000 persons based on gender-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the male to the female rate.

<sup>d</sup> "Excess deaths" are the deaths per year that would not have occurred if the male population had the same rate as the female population.

**Figure 24. Age-adjusted Death Rates for Suicide, Connecticut Residents, by Gender, 2000–2004**



Source: DPH 2008b, 2008y.

## HOMICIDE

Homicide includes deaths inflicted by another person with the intention to injure or kill. During the 2000–2004 period, 510 Connecticut residents died of homicide (DPH 2008b). Homicide does not rank among the top ten leading causes of death for Connecticut residents (It is the seventeenth leading cause of death). However, it ranks high within certain population subgroups; it is the sixth leading cause of death among Black or African American males and the seventh leading cause of death among Hispanic males (See Appendix IX for leading cause of death tables). Homicide deaths and death rates were highest among males and in the 25–29 age group (Hudson et al. 2008).

During the 2000–2004 period, age-adjusted death rates due to homicide were highest among Black or African American and Hispanic residents of Connecticut. Black or African Americans had 10.4 times the homicide death rate compared with White residents with an estimated 38 excess deaths per year. Hispanic residents had 5.4 times the death rate of Whites with an estimated 16 excess deaths per year. There were too few homicide deaths among Asian/Pacific Islander and American Indian or Alaska Native residents to report reliable rates.

**Table 19. Homicide Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity   | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|----------------------------------|------------------|--------------------------------------|---|---|
| Total                            | 510              | 3.1                                  | --  | --                                      |
| Black or African American        | 211              | 12.3                                 | 10.4  | 38                                      |
| Hispanic                         | 105              | 5.4                                  | 4.6   | 16                                      |
| Asian/Pacific Islander           | 7                | †                                    | †   | †                                       |
| American Indian or Alaska Native | 2                | †                                    | †   | †                                       |
| White                            | 158              | 1.2                                  | 1.0   | 0                                       |
| Other                            | 2                | --                                   | --  | --                                      |
| Missing                          | 26               | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes X85-Y09, Y87.1.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

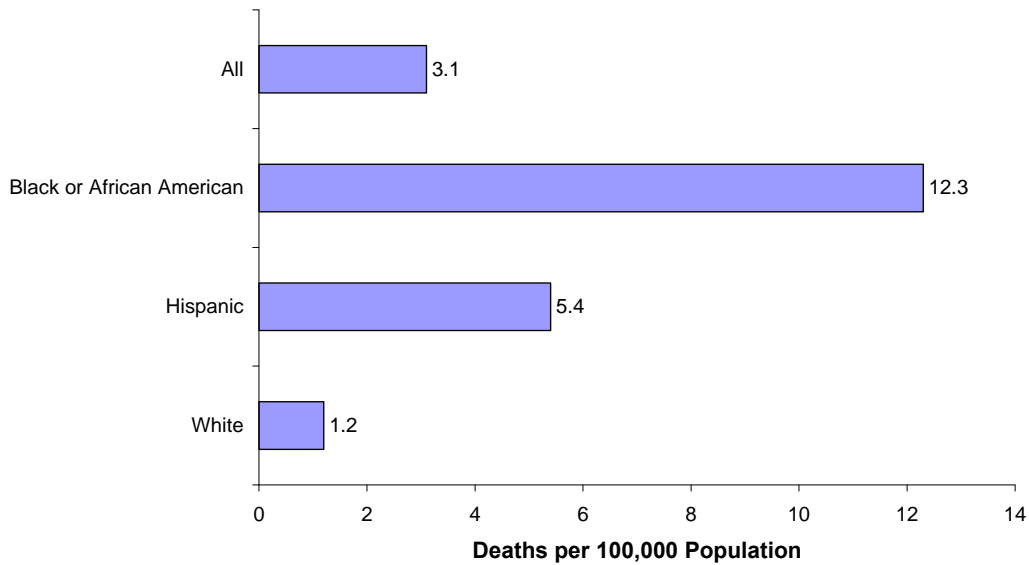
<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

**Figure 25. Age-adjusted Death Rates for Homicide, Connecticut Residents, by Race or Ethnicity, 2000–2004**



Source: DPH 2008b, 2008y.

Males are much more likely to die from homicide compared with females in Connecticut. In the period 2000–2004, males were 3.1 times more likely to die from homicide than females with an estimated 51 excess deaths per year.

**Table 20. Homicide Deaths<sup>a</sup>, Connecticut Residents, by Gender, 2000–2004**

| Gender | Number of Deaths | Age-adjusted Death Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Male/Female) | Excess Deaths/Year <sup>d</sup> |
|--------|------------------|--------------------------------------|--|---------------------------------|
| Total  | 510              | 3.1                                  | --                                       | --                              |
| Male   | 375              | 4.7                                  | 3.1                                      | 51                              |
| Female | 135              | 1.5                                  | --                                       | --                              |

Source: DPH 2008b, 2008y.

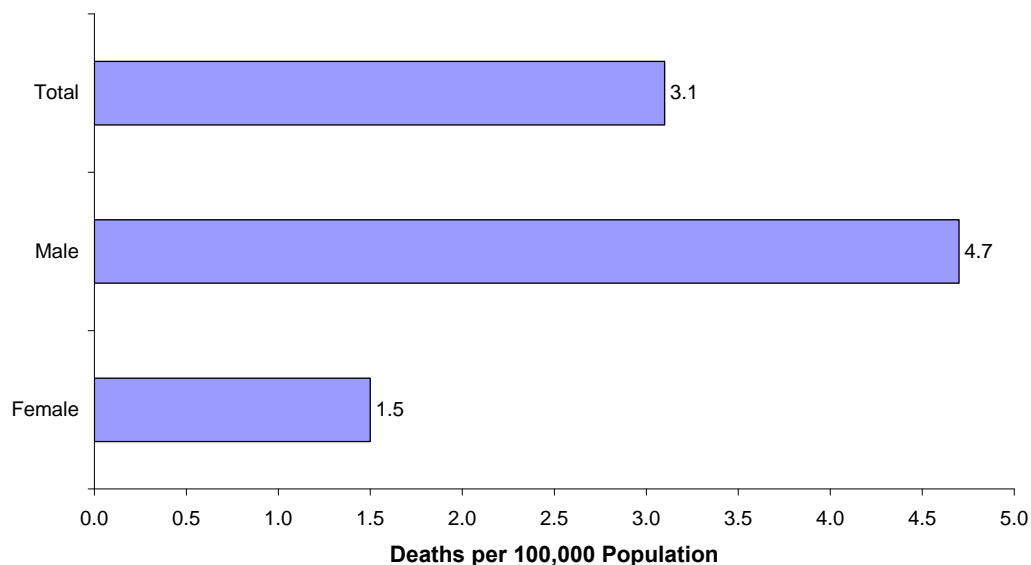
<sup>a</sup> Includes ICD-10 codes X85-Y09, Y87.1.

<sup>b</sup> Rates are per 100,000 persons based on gender-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the male to the female rate.

<sup>d</sup> "Excess deaths" are the deaths per year that would not have occurred if the male population had the same rate as the female population.

**Figure 26. Age-adjusted Death Rates from Homicide, Connecticut Residents, by Gender, 2000–2004**



Source: DPH 2008b, 2008y.

#### CONNECTICUT INJURY PREVENTION AND CONTROL EFFORTS

In 2007, the Connecticut Department of Public Health's Injury Prevention Program published *Injury in Connecticut: Deaths and Hospitalizations, A Data Book, Connecticut Residents, 2000–2004*, which provided detailed analyses of injury deaths and hospitalizations among Connecticut residents (Hewes and Mohamed 2007). In 2008, the Injury Prevention Program produced the *Connecticut Injury Prevention and Control Plan 2008–2012* in collaboration with the Statewide Injury Community Planning Group and other partners. These state partners represent community-based organizations, state and local advocacy groups, academic and health care institutions, and state agencies (Hudson et al. 2008). The Plan builds on ongoing activities and together with the Data Book, it assists state partners in their efforts to reduce morbidity and mortality due to injury in Connecticut. Development of the Data Book and Plan were supported by an Integrated Core Injury Prevention and Control Cooperative Agreement from the Centers for Disease Control and Prevention.

## **INFECTIOUS AND SEXUALLY TRANSMITTED DISEASES**

### **HEPATITIS B**

Hepatitis B virus (HBV) is a bloodborne and sexually transmitted virus. Chronic HBV infection may manifest as liver cancer or cirrhosis, or be asymptomatic. According to the CDC case definition published in 2000, acute hepatitis B is an acute illness with discrete onset of symptoms (e.g., nausea, vomiting, fever, abdominal pain) and jaundice or elevation of the liver enzyme aminotransferase in serum (CDC 2008h). The laboratory criteria for diagnosis are positive findings of specific antibodies or HBV surface antigens (CDC 2008h).

An estimated 10% of persons over age 5 with acute HBV infection develop chronic HBV infection (CDC 2008f), and about 90% of acute cases in infants develop into chronic hepatitis B (CDC 2005c). Risk factors for hepatitis B include sexual activity and injection drug use. A disproportionate number of persons with chronic hepatitis B are immigrants from countries in which HBV is endemic (CDC 2005b). In 2006, there were approximately 46,000 new HBV infections in the United States (CDC 2008g, 5). During 1990–2006, the national incidence of acute hepatitis B declined to 1.6 cases per 100,000, the lowest rate ever recorded since nationwide surveillance began in 1966 (CDC 2008g). The decline was most marked among persons less than 15 years old, the population group to which the national recommendations for routine childhood and adolescent vaccination apply. Males 25–44 years old continue to be at higher risk of HBV infection than other groups. While progress has been made to reduce racial or ethnic disparities in hepatitis B rates, rates among Blacks are two times greater than those of other racial or ethnic populations.

Prior to 2004, surveillance for acute hepatitis B in Connecticut was conducted using only the laboratory criteria for diagnosis. As such, persons with false-positive laboratory results may have been classified as having acute hepatitis B. Also, in the absence of clinical case information, individuals with chronic HBV infection may have been misclassified as having acute HBV infection. How the change in case definition affects surveillance should be considered when interpreting the five-year trend data on HBV presented here.



In Connecticut during 2001–2005, the incidence of acute HBV infection was highest among persons classified as Asian/Pacific Islander. The rate of acute HBV infection was three times higher among the Connecticut Asian/Pacific Islander population than Whites. Information on Hispanic ethnicity was collected for 62.7% of all acute hepatitis B cases reported during 2001–2005. Among these cases, the incidence of acute hepatitis B in Hispanics was twice that of non-Hispanics.

**Table 21. Acute Hepatitis B Incidence, Connecticut Residents, by Race, 2001–2005**

| Race <sup>a</sup>      | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|------------------------|--------------------------|-----------------------------|---|---|
| Total                  | 370                      | 2.1                         | --  | --                                      |
| Black                  | 42                       | 2.5                         | 1.9   | 4                                       |
| Asian/Pacific Islander | 21                       | 4.0                         | 3.0   | 3                                       |
| Native American        | 0                        | --                          | --  | --                                      |
| White                  | 176                      | 1.3                         | 1.0   | 0                                       |
| Other <sup>e</sup>     | 2                        | --                          | --  | --                                      |
| Unknown                | 129                      | --                          | --  | --                                      |

Sources: DPH 2008I, 2008y.

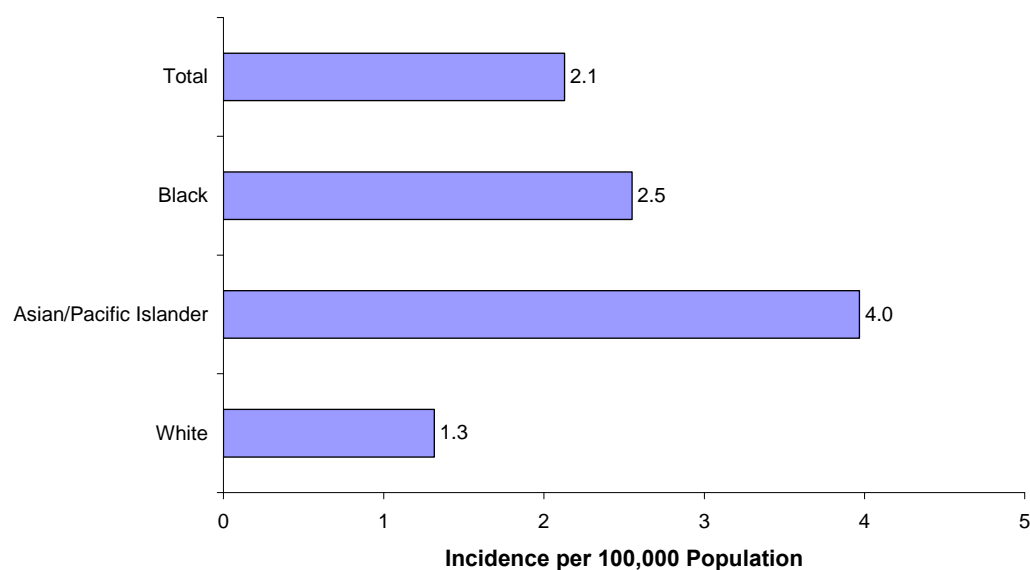
<sup>a</sup> These categories *include* persons of Hispanic ethnicity.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group rate to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population.

**Figure 27. Acute Hepatitis B Incidence Rates, Connecticut Residents, by Race, 2001–2005**



Source: DPH 2008I, 2008y.

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## HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

Acquired Immunodeficiency Syndrome (AIDS) was first identified in 1981. Since that time, biomedical research has characterized the infectious agent that causes AIDS, the human immunodeficiency virus (HIV), and much from anthropological and epidemiological studies has been learned about HIV transmission, prevention, and control.

In 1982, AIDS was made a reportable disease in Connecticut. According to the *Epidemiologic Profile of HIV/AIDS in Connecticut* published by the Connecticut Department of Public Health's AIDS and Chronic Disease Section in 2007, from 1981 to December 2006, there have been 14,917 AIDS cases reported to DPH (DPH 2007e). Overall, 71.8% of these AIDS cases were male. Males most at risk for AIDS were injection drug users (IDU) and men who had sex with men (MSM). The majority of White males with AIDS were MSM (53.0%). Among Hispanic and Black males with AIDS, 60% were IDU. White and black females with AIDS were more likely to be IDU than Hispanic females. The percent of AIDS cases among Hispanics has increased from approximately 25% in the late 1990s to an average of 36.9% from 2002 to 2006.

In 2002, HIV infection in adults was added to DPH's *List of Reportable Diseases and Laboratory Findings*. From 2002 to 2006, 2,561 cases of HIV have been reported. Thus, from 1981 to 2006, 17,478 cases of HIV/AIDS have been reported to the DPH. Although trends have historically been represented using only AIDS cases, the current convention is to represent newly reported HIV/AIDS cases. There have been on average 1,138 HIV/AIDS cases reported per year in Connecticut since 2002. There were 9,871 people living with HIV/AIDS reported at the end of 2006. Of these persons, 47% reported residence in Bridgeport, Hartford, or New Haven.

HIV/AIDS incidence rates for the years 2001 to 2005 are shown in Figure 28. Diagnosed cases of HIV/AIDS were most prevalent in persons of Hispanic origin and Blacks, with these groups experiencing 7.4 and 6.6 times the rates of HIV/AIDS diagnoses as Whites, respectively (Table 22).

Data on HIV/AIDS deaths among Connecticut residents are presented in Table 23. Age-adjusted death rates for AIDS in 1993–1997 among African Americans and Hispanics were 7.6 and 4.6 times that of Whites, respectively (Hynes et al. 1999, 37). From

2000–2004, Blacks experienced the highest death rate attributed to HIV/AIDS—14.9 times that of Whites. For Hispanics, the death rate due to HIV/AIDS was 9.8 times that of Whites. There were too few HIV/AIDS deaths among Asians and American Indian/Alaska Natives to calculate reliable rates.

**Table 22. HIV/AIDS Incidence, Connecticut Residents, by Race or Ethnicity, 2001–2005**

| Race <sup>a</sup> or Ethnicity    | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|-----------------------------------|--------------------------|-----------------------------|---|---|
| Total                             | 4,159                    | 23.9                        | --  | --                                      |
| Black                             | 1,206                    | 73.2                        | 6.6   | 205                                     |
| Hispanic                          | 1,461                    | 81.9                        | 7.4   | 253                                     |
| Asian <sup>e</sup>                | 18                       | 3.4                         | 0.3   | (8)                                     |
| American Indian/<br>Alaska Native | 2                        | †                           | †   | †                                       |
| White                             | 1,472                    | 11.0                        | 1.0   | 0                                       |
| Multirace <sup>f</sup>            | 6                        | --                          | --  | --                                      |

Source: DPH 2008m, 2008y.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates.

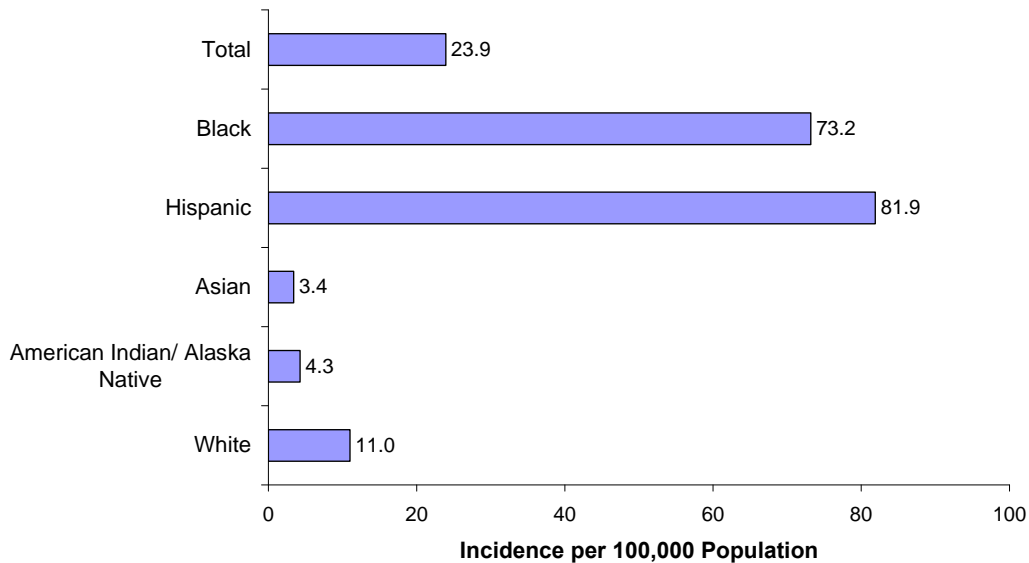
<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer events.

<sup>e</sup> The population estimate for the classification "Asian/Pacific Islander" was used to calculate incidence.

<sup>f</sup> This category includes persons who reported more than one race.

† Statistics are not calculated for fewer than five events.

**Figure 28. HIV/AIDS Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001–2005**

Source: DPH 2008m, 2008y.

**Table 23. HIV/AIDS Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2000–2004**

| Race <sup>b</sup> or Ethnicity | Number of Deaths | Age-adjusted Death Rate <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess (Fewer) Deaths/Year <sup>e</sup> |
|--------------------------------|------------------|--------------------------------------|---|---|
| Total                          | 950              | 5.3                                  | --  | --                                      |
| Black/African American         | 398              | 27.0                                 | 14.9  | 74                                      |
| Hispanic                       | 247              | 17.8                                 | 9.8   | 44                                      |
| Asian/Pacific Islander         | 3                | †                                    | †   | †                                       |
| American Indian/ Alaska Native | 2                | †                                    | †   | †                                       |
| White                          | 263              | 1.8                                  | 1.0   | 0                                       |
| Other                          | 1                | --                                   | --  | --                                      |
| Missing                        | 36               | --                                   | --  | --                                      |

Source: DPH 2008b, 2008y.

<sup>a</sup> Includes ICD-10 codes B20-24.

<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates were calculated by the direct method using the 2000 standard million.

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Excess deaths" are the deaths per year that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics are not calculated for fewer than fifteen events.

## SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) can cause serious complications, including infertility, ectopic pregnancy, blindness, fetal and infant deaths, and congenital defects. The presence of STDs can facilitate the transmission of HIV (Fleming and Wasserheit 1999). Racial and ethnic minorities are at higher risk for sexually transmitted diseases, experiencing higher rates of disease and disability than the overall population (CDC 2007g, 69–75). Three sexually transmitted diseases—chlamydia, gonorrhea, and syphilis—were systematically monitored in Connecticut during 2001–2005.

Chlamydia

Chlamydia infection, especially when left untreated, leads to pelvic inflammatory disease (PID), a serious condition that disproportionately affects young women 15–19 years of age (Washington et al. 1991). Incidence rates for Connecticut residents are presented in Table 24. The highest rates of chlamydia infection were reported among African Americans (18 times higher than the rate among whites) and Hispanics (nine times that of whites). Statewide, chlamydia incidence for 2001–2005 was 273.3 per 100,000 persons. In 2005, Connecticut ranked 26<sup>th</sup> among the 50 states in chlamydial infections and reported rates of chlamydia were three times greater among women than among men (CDC 2007h).

**Table 24. Chlamydia Incidence, Connecticut Residents, by Race or Ethnicity, 2001–2005**

| Race <sup>a</sup> or Ethnicity | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|--------------------------------|--------------------------|-----------------------------|---|---|
| Total                          | 47,505                   | 273.3                       | --  | --                                      |
| African American <sup>e</sup>  | 14,755                   | 895.4                       | 18.1  | 2,788                                   |
| Hispanic                       | 8,312                    | 465.9                       | 9.4   | 1,486                                   |
| Asian American/PI              | 275                      | 52.0                        | 1.1   | 3                                       |
| Native American <sup>f</sup>   | 75                       | 160.1                       | 3.2   | 10                                      |
| White                          | 6,613                    | 49.4                        | 1.0   | 0                                       |
| Missing <sup>g</sup>           | 17,475                   | --                          | --  | --                                      |

Source: DPH 2008n, 2008y.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

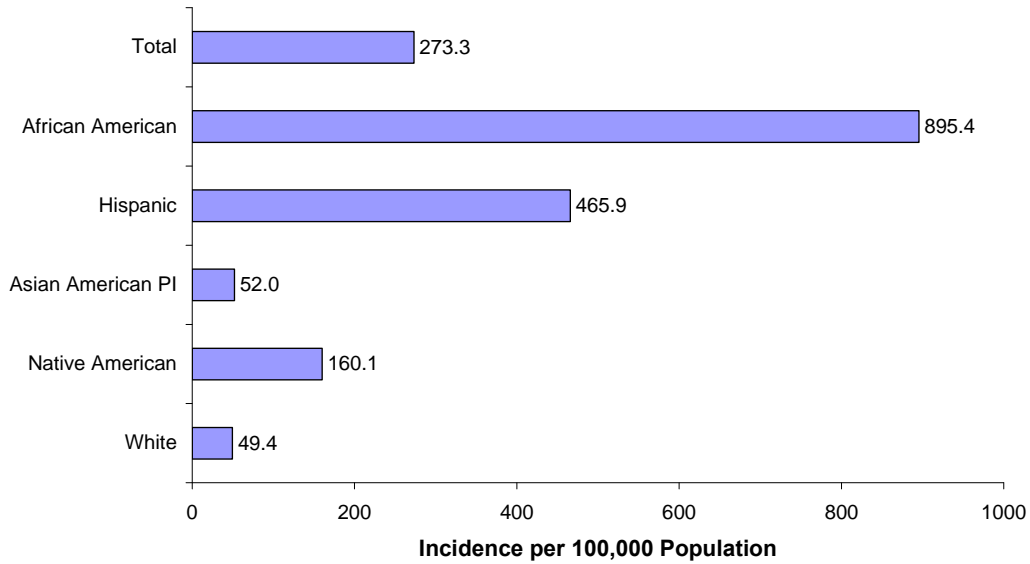
<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population.

<sup>e</sup> The population estimate for the classification "Black" was used to calculate incidence.

<sup>f</sup> The population estimate for the classification "American Indian/Alaska Native" was used to calculate incidence.

<sup>g</sup> Data on race or ethnicity is missing.

**Figure 29. Chlamydia Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001–2005**



Source: DPH 2008n, 2008y.

### Gonorrhea

Gonorrhea is a leading cause of pelvic inflammatory disease and can result in infertility and ectopic pregnancy (Fox et al. 1998). Incidence rates for Connecticut residents during 2001–2005 are presented in Table 25 and Figure 30. There has been a downward trend since 2002. The statewide rate of gonorrhea for 2001–2005 was 83.4 per 100,000 population. During this period, gonorrhea incidence rates were highest for African Americans (almost 29 times that of Whites) and Hispanics (almost eight times that of Whites). In 2005, Connecticut ranked 30<sup>th</sup> among the 50 states in gonorrheal infections (CDC 2007h).

**Table 25. Gonorrhea Incidence, Connecticut Residents, by Race or Ethnicity, 2001–2005**

| Race <sup>a</sup> or Ethnicity | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|--------------------------------|--------------------------|-----------------------------|---|---|
| Total                          | 14,505                   | 83.4                        | --  | --                                      |
| African American <sup>e</sup>  | 6,314                    | 383.2                       | 28.8  | 1,219                                   |
| Hispanic                       | 1,823                    | 102.2                       | 7.7   | 317                                     |
| Asian American/PI              | 56                       | 10.6                        | 0.8   | (3)                                     |
| Native American <sup>f</sup>   | 13                       | †                           | †   | †                                       |
| White                          | 1,782                    | 13.3                        | 1.0   | 0                                       |
| Missing <sup>g</sup>           | 4,517                    | --                          | --  | --                                      |

Source: DPH 2008n, 2008y.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer events.

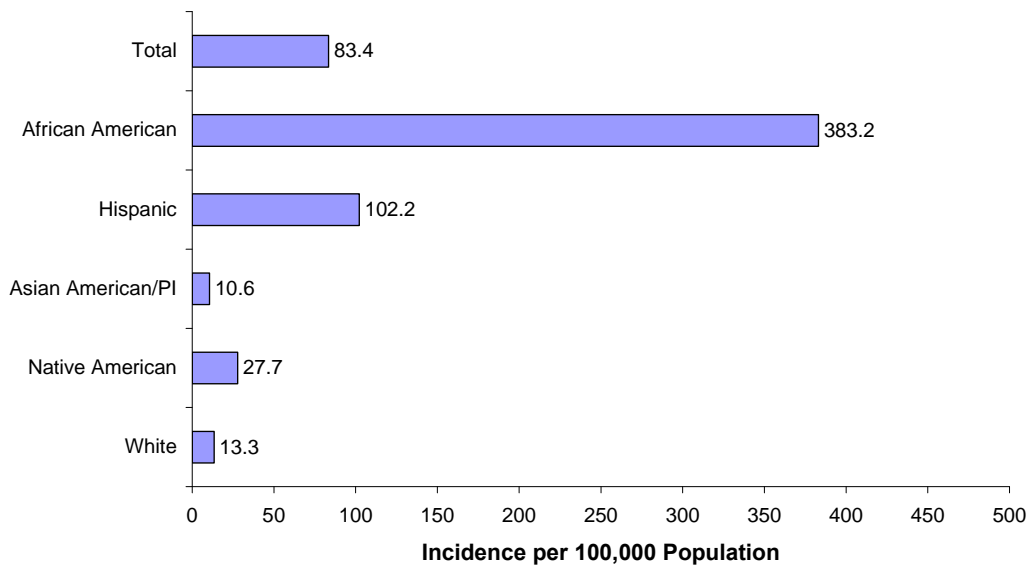
<sup>e</sup> The population estimate for the classification "Black" was used to calculate incidence.

<sup>f</sup> The population estimate for the classification "American Indian/Alaska Native" was used to calculate incidence.

<sup>g</sup> Data on race or ethnicity is missing.

† Statistics not calculated for fewer than five events.

**Figure 30. Gonorrhea Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001–2005**



Source: DPH 2008n, 2008y.

### Primary and Secondary Syphilis

From 2001–2005, the overall incidence of primary and secondary (P&S) syphilis in Connecticut residents was one per 100,000 population. P&S syphilis incidence rates during this period were highest for African Americans (three times that of whites) (Table 26, Figure 31). The rate of P&S syphilis declined 89.7% between 1990 and 2000 (CDC 2007g, 33). However, beginning in 2001, cases were primarily observed among men. Nationwide, the male to female ratio for P&S syphilis has steadily increased since 1996 (CDC 2007g, 34–5). Since 2001 in Connecticut, there has been an emergence of syphilis in men who have sex with men (MSM) (Figure 32).

**Table 26. Primary & Secondary (P&S) Syphilis Incidence, Connecticut Residents, by Race or Ethnicity, 2001–2005**

| Race <sup>a</sup> or Ethnicity | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|--------------------------------|--------------------------|-----------------------------|---|---|
| Total                          | 172                      | 1.0                         |   |   |
| African American <sup>e</sup>  | 53                       | 3.2                         | 4.9   | 8                                       |
| Hispanic                       | 26                       | 1.5                         | 2.2   | 3 <sup>†</sup>                          |
| Asian American/PI              | 3                        | ‡                           | ‡   | ‡                                       |
| Native American                | 0                        | --                          | --  | --                                      |
| White                          | 88                       | 0.7                         | 1.0   |   |

Source: DPH 2008n, 2008y.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population.

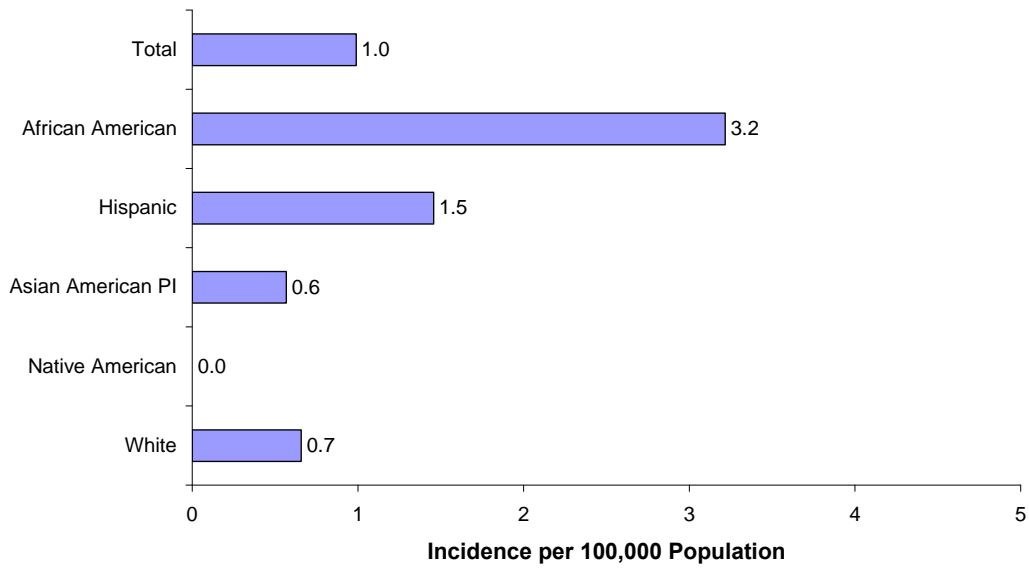
<sup>e</sup> The population estimate for the classification "Black" was used to calculate incidence.

<sup>†</sup> Figure considered unreliable due to small numbers.

<sup>‡</sup> Statistics not calculated for fewer than five events.

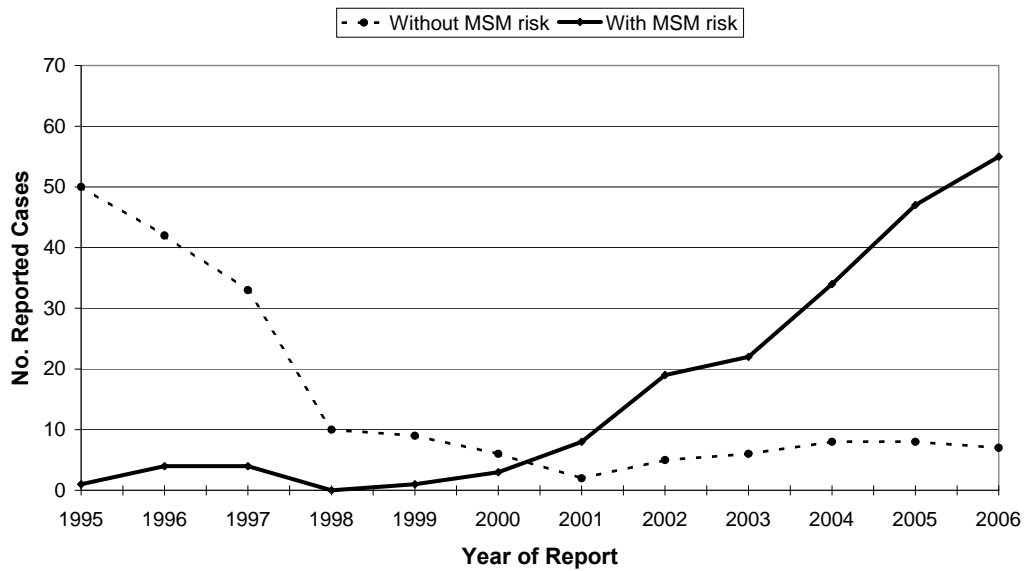


**Figure 31. Primary & Secondary (P&S) Syphilis Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001–2005**



Source: DPH 2008n, 2008y.

**Figure 32. Number of Male Syphilis Cases Without and With MSM Risk, Connecticut, 1995–2006**



Source: DPH 2007e, 74.

## INVASIVE PNEUMOCOCCAL INFECTION

*Streptococcus pneumoniae* infections are among the leading causes of death and illness worldwide in the elderly, young children, and persons with underlying debilitating medical conditions. In the United States prior to 2000, pneumococcal infections resulted in approximately 3,000 cases of meningitis, 63,000 bloodstream infections (bacteremia), 125,000 cases of pneumonia requiring hospitalization, and 6,800,000 cases of otitis media (middle ear infection). Approximately 10% of persons with invasive pneumococcal disease die of their illness (Hawley, Walker, and Whitney 2002). In addition, the CDC notes that, “neurologic sequelae and/or learning disabilities can occur in meningitis patients, [and] hearing impairment can result from recurrent otitis media” (CDC 2008d).

Pneumococcal polysaccharide vaccine (PPV) was introduced in the early 1980’s followed by the pneumococcal conjugate vaccine (PCV) in 2000. Concerted public health efforts to immunize children, the elderly, and the immunocompromised have resulted in decreased incidence of pneumococcal disease. From 1997 to 2005, cases of invasive pneumococcal disease declined by 34%, and deaths were reduced by 25.4% (Roush et al. 2007). However, resistance of pneumococci to penicillin and other antibiotics has complicated the treatment of persons with severe infections.

For the period 1995–1998, the invasive pneumococcal incidence rate among African Americans in Connecticut was almost three times that of Whites (Hynes et al. 1999). The incidence data for invasive pneumococcal disease in Connecticut residents for 2001–2005 are shown in Table 27 and Figure 33. The incidence rate among Blacks is almost twice that of Whites. Hispanics had the second highest rate. The rate for Asians/Pacific Islanders may not be reliable, as only 12 cases of pneumococcal disease were reported for the five-year period.

**Table 27. Invasive Pneumococcal Infection Incidence, Connecticut Residents, by Race or Ethnicity, 2001–2005**

| Race <sup>a</sup> or Ethnicity | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events |
|--------------------------------|--------------------------|-----------------------------|---|------------------------------------|
| Total                          | 2,374                    | 13.7                        | --  | --                                 |
| Black                          | 371                      | 23.6                        | 1.8   | 34                                 |
| Hispanic                       | 255                      | 14.3                        | 1.1   | 5                                  |
| Asian/Pacific Islander         | 12                       | 2.3                         | 0.2   | (11) <sup>†</sup>                  |
| White                          | 1,703                    | 12.8                        | 1.0   | 0                                  |
| Other <sup>e</sup>             | 19                       | --                          | --  | --                                 |

Sources: DPH 2008o; U.S. Census Bureau 2007b.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

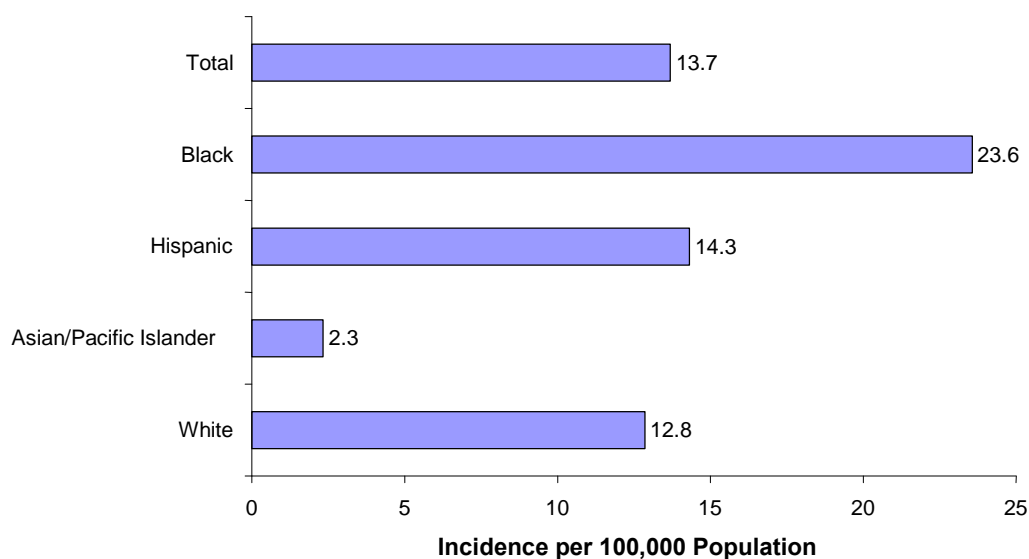
<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group rate to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer events.

<sup>e</sup> "Other" includes cases classified as such in hospital charts and may also include American Indian or Alaska Native.

<sup>†</sup> Figure considered unreliable due to small numbers.

**Figure 33. Invasive Pneumococcal Infection Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001–2005**

Source: DPH 2008o; U.S. Census Bureau 2007b.

## TUBERCULOSIS

Although tuberculosis (TB) is no longer a leading cause of death in the U.S., it remains a leading cause of death worldwide. With the advent of the AIDS epidemic, TB reemerged in urban areas of the U.S. during the late 1980s through the 1990s. Although the resurgence was suppressed by renewed TB prevention and control efforts and categorical funding of state health departments, TB remains an important cause of preventable morbidity in minority groups both nationwide and in Connecticut.

Certain population subgroups are at particular risk for tuberculosis. Persons with immunosuppressive conditions like HIV infection are at increased risk of progressing to active TB once infected with the tubercle bacillus. TB disproportionately affects foreign-born persons and racial and ethnic minorities in the U.S. By the end of 2006, the rate of TB in foreign-born persons was 9.5 times that of the rate for persons born in the U.S. (CDC 2007f). Other risk factors for TB include: “spending a lot of time where TB is more common, such as in homeless shelters, drug treatment centers, health care clinics, nursing homes, jails, or prisons,” having a history of drug or alcohol use, or having other health conditions (e.g., diabetes) that make it hard to fight off infection (CDC 2005d, 5; DPH Tuberculosis Control Program, pers. comm., September 10, 2008).

TB trends in Connecticut mirror those of the nation. From 2000 to 2004, 62% of TB cases in Connecticut occurred among the foreign-born (Condren et al. 2006). In 2006, TB rates among Hispanics, Blacks, and Asians in the United States were 7.6, 8.4, and 21.2 times higher than rates among Whites, respectively (CDC 2007f). From 2001 to 2005 in Connecticut, TB incidence rates among Hispanics, Blacks, and Asians were 8.0, 8.6, and 23 times that of Whites, respectively (Table 28, Figure 34).

**Table 28. Tuberculosis Incidence, Connecticut Residents, by Race or Ethnicity, 2001-2005**

| Race <sup>a</sup> or Ethnicity     | Number of Reported Cases | Incidence Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess <sup>d</sup> (Fewer) Events/Year |
|------------------------------------|--------------------------|-----------------------------|---|---|
| Total                              | 527                      | 3.0                         | --  | --                                      |
| Black                              | 138                      | 8.4                         | 8.6   | 24                                      |
| Hispanic                           | 139                      | 7.8                         | 8.0   | 24                                      |
| Asian <sup>e</sup>                 | 119                      | 22.5                        | 23.0  | 23                                      |
| American Indian/<br>Alaskan Native | 0                        | 0.0                         | --  | --                                      |
| White                              | 131                      | 1.0                         | 1.0   | 0                                       |

Source: DPH 2008p, 2008y.

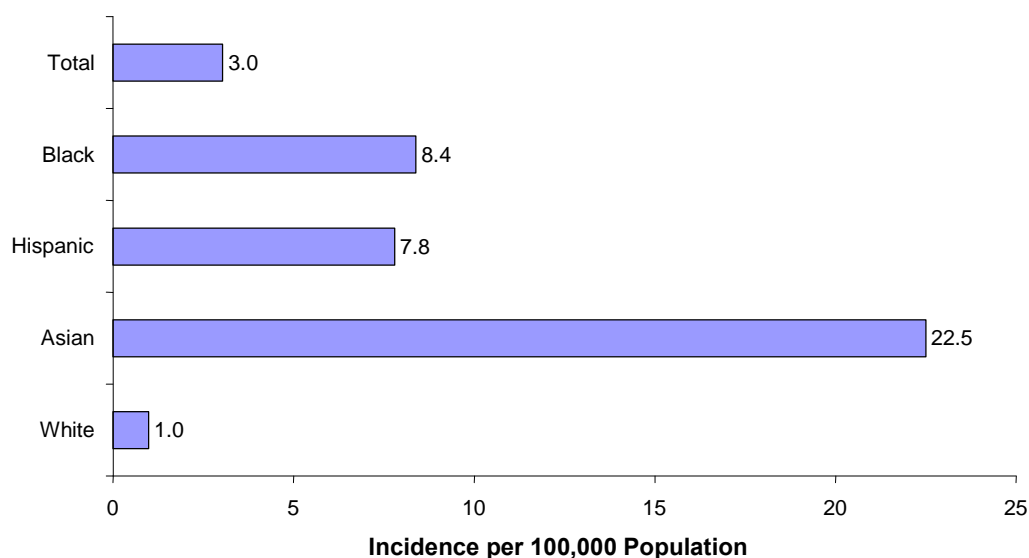
<sup>a</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates.

<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population.

<sup>e</sup> Incidence for this category was calculated using the estimated population of Asian/Pacific Islanders. Population estimates for Asians and Native Hawaiians or Other Pacific Islanders were not available.

**Figure 34. Tuberculosis Incidence Rates, Connecticut Residents, by Race or Ethnicity, 2001-2005**

Source: DPH 2008p, 2008y.

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## VACCINE-PREVENTABLE DISEASES

For the past ten years, Connecticut has been among the top five states in the nation with the highest childhood immunization coverage levels among children aged 19–35 months (CDC 1999, 2000, 2001, 2002, 2003, 2004a, 2005g, 2006c, 2007m, 2008l). The Advisory Committee on Immunization Practices (ACIP) recommends that children (0 to 6 years old) be routinely immunized against the following diseases at specific ages: diphtheria, hepatitis A, hepatitis B, *Haemophilus influenzae* type b (Hib) disease, influenza, measles, mumps, pertussis (whooping cough), pneumococcal disease, poliomyelitis, rotavirus, rubella (German measles), tetanus (lockjaw), varicella (chickenpox), and meningitis (CDC 2008l). Nationwide, there are no significant differences in childhood vaccination coverage across racial or ethnic groups; however, for some vaccines, fewer children who live below the poverty level receive scheduled vaccinations than children who live at or above the poverty level (CDC 2008m).

Connecticut General Statutes Sec.19a-7f mandates that Commissioner of Public Health determine the standard of care for immunization of Connecticut children and establish an immunization program. The standard of care in Connecticut is consistent with the ACIP recommendations. The DPH Immunization Program actively supports adherence to the childhood immunization schedule using three major approaches: the Connecticut Immunization Registry and Tracking System (CIRTS), the Immunization Action Plan (IAP), and the Vaccines for Children Program (VFC). These activities have contributed to Connecticut's high childhood immunization coverage levels among children aged 19–35 months.

CIRTS, initiated in 1998, is a statewide, computerized registry that maintains immunization records on children up to six years old. Eighty-four percent of the 251,515 registered births in Connecticut during 2000 to 2005 were recorded in CIRTS. By the end of 2007, 83% of the 2005 CIRTS birth cohort had received the recommended immunizations on schedule by their second birthdays (DPH 2008q). Through the CDC-sponsored IAP, DPH currently funds 16 local health departments and healthcare agencies to improve delivery of immunization services in medically underserved areas and/or areas of large population density where immunization coverage of pre-school children is low. The VFC provides the ACIP-recommended childhood vaccines to participating providers for free so that the cost of vaccine will not be a barrier to age-appropriate vaccination.

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The DPH Immunization Program also addresses immunization of adults statewide. Program staff work with local health department and health care providers to increase immunization coverage rates and reduce adult morbidity and mortality for hepatitis A and B, influenza, and pneumococcal disease in high-risk populations. They encourage private healthcare organizations to offer immunizations during events like National Influenza Vaccination Week, work with community-based providers like Visiting Nurse Associations to increase access to vaccines by high-risk populations, and participate in the Connecticut Influenza and Pneumococcal Coalition.

Persons age 65 years and older and those with chronic and/or immunosuppressive conditions are at particularly high risk for complications from flu and pneumonia. The national *Healthy People 2010* target for both influenza and pneumococcal vaccination of non-institutionalized adults aged 65 years and older is 90% (U.S. DHHS 2000b). The 2004–2006 BRFSS data demonstrate that approximately 71.8% of Connecticut adults  $\geq$  65 years old had a flu shot within the past year and 68.4% had ever received a pneumonia shot. While these estimates are below the *Healthy People 2010* target, they are higher than nationwide percentages. The estimates from National Health Interview Survey data for 2004–2006 are that among adults aged  $\geq$  65 years, 62.9% had a flu shot within the past year and 56.7% had ever received a pneumococcal vaccination (Schiller, Heyman, and Barnes 2008).

## MATERNAL AND CHILD HEALTH

Connecticut's overall state statistics for such maternal and child health (MCH) indicators as infant mortality, late or no prenatal care, and low birth weight compare favorably both with the nation and with other states. These same three indicators, however, show wide variability among the state's racial and ethnic subpopulations. This section presents data for three indicators used to measure health status and risk factors associated with health in the MCH population.

### INFANT MORTALITY

The infant mortality rate (IMR), or the number of deaths of infants less than one year old, per 1,000 live births, is a barometer of a nation's commitment to care for its most vulnerable members. In 2006, the U.S. IMR of about 7 deaths per 1,000 live births was more than twice the IMR for such countries as the Czech Republic, Finland, and Japan, all of whose 2006 infant mortality rates were 3 deaths per 1,000 live births (WHO 2008b, 37–45). The U.S. ranks approximately 39<sup>th</sup> for IMR among the 193 WHO member nations (WHO 2008b, 37–45).

Infant mortality rates have declined in the United States, however. Between 1989–1991 and 2002–2004, infant mortality rates in the U.S. declined from 9.0 to 6.9 (National Center for Health Statistics 2007, 160). In Connecticut between 2001 and 2005, the overall IMR was 5.9 per 1,000 live births (DPH 2008j). While lower than the national rate, the overall Connecticut IMR masks inequalities in infant mortality between various racial and ethnic groups. Black or African American infants consistently have had higher infant mortality rates than White and Hispanic infants. The IMR for Blacks or African Americans, though improving from 24.4 in 1981 to 12.9 in 2005, persists in its marked elevation when compared with the IMR for Whites (DPH 2008j).

Table 29 and Figure 35 present data for IMR in Connecticut between 2001 and 2005. The 2001–2005 Connecticut IMR for White infants was 3.9 per 1,000 births, but for Black or African American infants, the rate was 13.0 per 1,000 births—over three times the rate for White infants (DPH 2008j). The Hispanic IMR from 2001 to 2005 of 6.5 per 1,000 births falls between the Black and the White IMR (DPH 2008j).



**Table 29. Infant Deaths<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2001-2005**

| Race <sup>b</sup> or Ethnicity    | Number of Deaths | Rate <sup>c</sup> | Relative Risk <sup>d</sup><br>(Minority/White) | Annual Excess<br>(Fewer)<br>Deaths <sup>e</sup> |
|-----------------------------------|------------------|-------------------|--|---|
| Total                             | 1,109            | 5.9               | --   | --  |
| Black                             | 314              | 13.0              | 3.3  | 44  |
| Hispanic                          | 251              | 6.5               | 1.7  | 20  |
| Asian/Pacific Islander            | 24               | 2.4               | 0.6  | (3)   |
| American Indian/<br>Alaska Native | 3                | †                 | †  | †   |
| White                             | 515              | 3.9               | 1.0  | 0   |

Source: DPH 2008j.

<sup>a</sup> The infant mortality rate (IMR) represents the number of deaths among infants under one year of age per 1,000 live births.

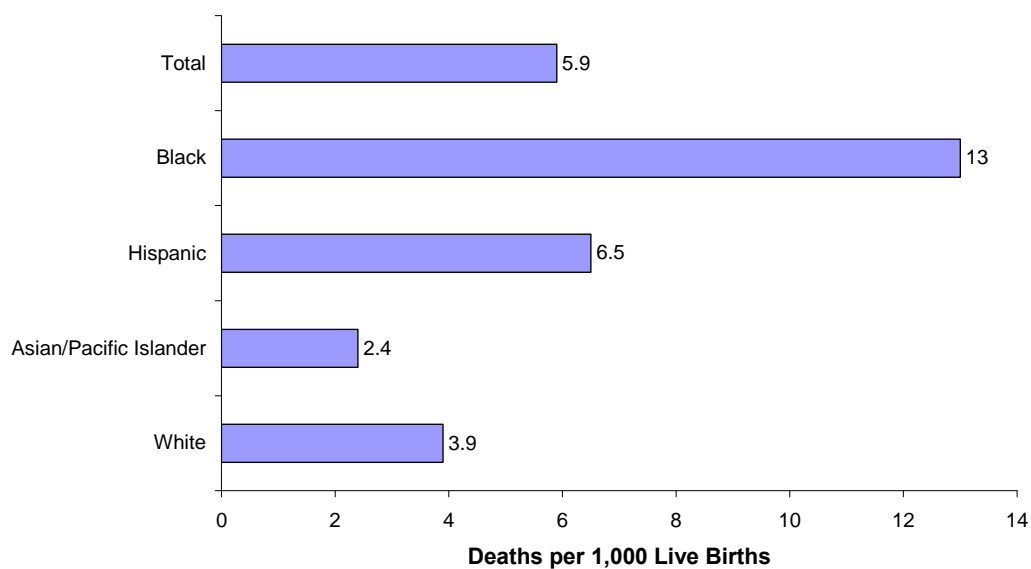
<sup>b</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup> Infant death rates are per 1,000 live births based on race- and ethnicity-specific population estimates

<sup>d</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup> "Annual excess deaths" are the deaths that would not have occurred per year if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer deaths.

† Statistics not calculated for fewer than 15 events.

**Figure 35. Infant Mortality Rate (IMR), Connecticut Residents, by Race or Ethnicity, 2001–2005**

Source: DPH 2008j.

## LATE OR NO PRENATAL CARE

Late or no prenatal care, defined as no care within the first trimester of pregnancy, is associated with poor birth outcomes, and is an indicator of difficulties accessing health care. Good prenatal care provides for early diagnosis and management of illness, gestational diabetes, and complications of pregnancy. Many factors may contribute to women deciding to seek prenatal care. Some women may be put off by perceived or experienced discrimination by health care providers or the health care system, and others may not deem prenatal care as necessary, or as a norm in childbearing.

Although disparities between racial and ethnic groups are narrowing, early prenatal care is less often attained by Black or Hispanic women than by White women (DPH 2008k). In Connecticut from 2002 to 2006, Hispanic women had the highest percentage of late or no prenatal care (23.6%), about triple that of White women (7.8%), followed by Black women (21.8%), American Indian/Alaska Native women (13.7%), and Asian/Pacific Islander women (12.3%).

**Table 30. Women Receiving Late or No Prenatal Care<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2002–2006**

| Race <sup>b</sup> or Ethnicity    | Number | Percent without Care in the First Trimester <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess Annual Events <sup>e</sup> |
|-----------------------------------|--------|--|---|-----------------------------------|
| Total                             | 26,259 | 12.7   | --  | --                                |
| Black                             | 5,179  | 21.8   | 2.8   | 665                               |
| Hispanic                          | 9001   | 23.6   | 3.0   | 1,206                             |
| Asian/Pacific Islander            | 1243   | 12.3   | 1.6   | 91                                |
| American Indian/<br>Alaska Native | 144    | 13.7   | 1.8   | 12                                |
| White                             | 10,273 | 7.8  | 1.0   | 0                                 |

Source: DPH 2008k.

<sup>a</sup>"Late or no prenatal care" is defined as no care within the first trimester of pregnancy.

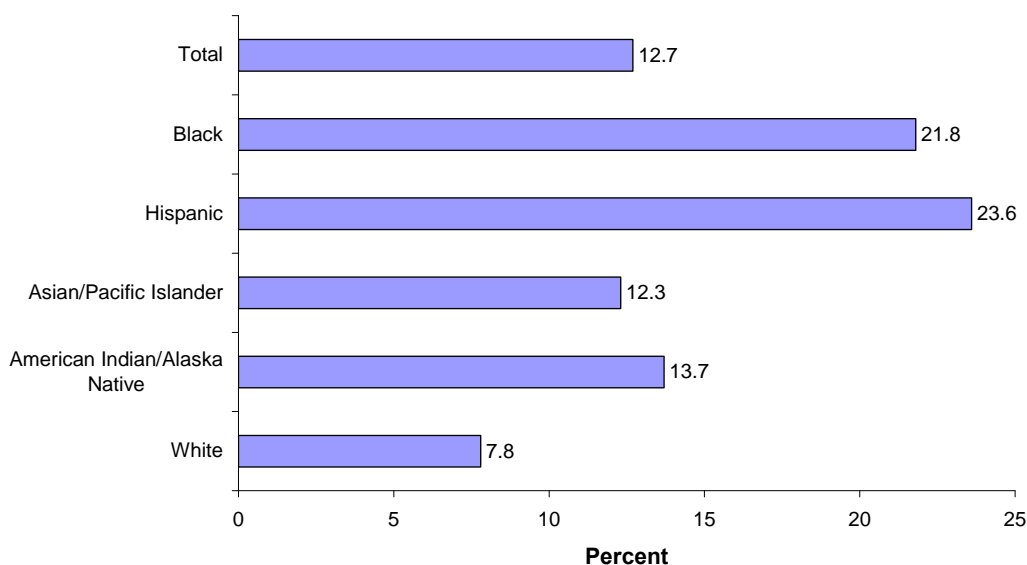
<sup>b</sup>Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup>Percentages are based on live births, excluding unknown care.

<sup>d</sup>"Relative risk" is estimated to be the ratio of the minority group to the White percent.

<sup>e</sup>"Excess Annual number" are the cases that would not have occurred each year if the minority group had the same percent late or no prenatal care as the White population.

**Figure 36. Percent of Women Receiving Late or No Prenatal Care, Connecticut Residents, by Race or Ethnicity, 2002–2006**



Source: DPH 2008k.

#### LOW BIRTH WEIGHT (LBW)

Low birth weight refers to an infant born weighing less than 2,500 grams, or 5 lbs., 8 oz., and is a major cause of infant mortality as well as long-term health problems. LBW infants are at much greater risk for conditions such as: infant death, developmental disabilities, mental retardation, cerebral palsy, hearing and vision impairments, poor educational performance, and behavioral problems (Morin 2008). Low birth weight is more common among infants of Black or African American and Hispanic mothers than among White mothers. From 2002 to 2006 in Connecticut, almost 8% of all live births were LBW infants, as shown in Table 31 and Figure 37 below. In this same time period, Blacks had the highest rate of LBW infants (almost double that of Whites), followed by Hispanics, American Indian/Alaska Natives, and Asian/Pacific Islanders. The number of excess LBW relative to Whites was markedly higher among Blacks and Hispanics.

**Table 31. Live Births with Low Birth Weight<sup>a</sup>, Connecticut Residents, by Race or Ethnicity, 2002–2006**

| Race <sup>b</sup> or Ethnicity    | Number of LBW Live Births | Percent Total Births <sup>c</sup> | Relative Risk <sup>d</sup> (Minority/White) | Excess Annual Events <sup>e</sup> |
|-----------------------------------|---------------------------|-----------------------------------|---|-----------------------------------|
| Total                             | 16,646                    | 7.9                               | --  | --                                |
| Black                             | 3,113                     | 12.9                              | 1.9   | 299                               |
| Hispanic                          | 3,275                     | 8.5                               | 1.3   | 139                               |
| Asian/Pacific Islander            | 835                       | 8.2                               | 1.2   | 31                                |
| American Indian/<br>Alaska Native | 88                        | 8.3                               | 1.2   | 3                                 |
| White                             | 8,897                     | 6.7                               | 1.0   | 0                                 |

Source: DPH 2008k.

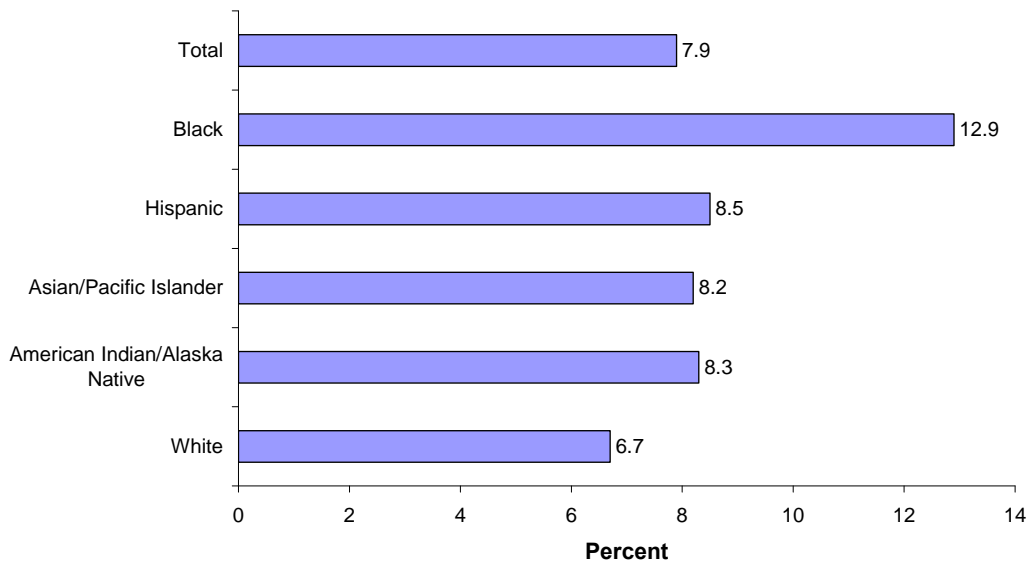
<sup>a</sup>“Low birth weight is considered a birth weight of less than 2,500 grams (approximately 5 lbs., 8 oz.)”

<sup>b</sup>Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>c</sup>Percentages based on live births, excluding unknown birth weight.

<sup>d</sup>“Relative risk” is estimated to be the ratio of the minority group to the White rate.

<sup>e</sup>“Excess Annual Events” are the births with low birth weight that would not have occurred if the minority group had the same rate as the White population.

**Figure 37. Percent of Live Births with Low Birth Weight, Connecticut Residents, by Race and Ethnicity, 2002–2006**

Source: DPH 2008k.

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## ORAL HEALTH

### ORAL HEALTH: AN OVERVIEW

According to the 2000 U.S. Surgeon General's *Oral Health in America*, "oral health" is defined as:

...being free of chronic oral-facial pain, oral and pharyngeal cancers, oral soft tissue lesions, birth defects such as cleft lip and palate and scores of other diseases and disorders that affect oral, dental and craniofacial tissues, collectively known as the *craniofacial complex*. These are tissues whose functions we often take for granted, yet they represent the very essence of our humanity. They allow us to speak and smile; sigh and kiss; smell taste, touch, chew and swallow; cry out in pain; and convey a world of feelings and emotions through facial expressions (U.S. DHHS 2000c, emphasis in original).

Such reflections of our humanity and physical well-being as can be found in the craniofacial complex are both biologically *and* socially important indeed. Oral diseases may act as "a focus of infection which can influence the outcomes of serious health problems such as cardiovascular disease, diabetes, and pre-term low birth weight" (DPH 2007c, 4). In addition, "nutritional deficiencies as well as a number of systemic disease, immune disorders and some cancers" can be detected with a full oral health exam (U.S. DHHS 2000c, 1–2). But equally as important, psychosocial and employment difficulties due to physical appearance, pain, and lost days of work also plague people with unchecked oral disease.

Disparities in wealth, education, and access to health care are starkly highlighted in the area of oral health. The prevention of tooth decay and periodontal (gum) disease is dependent upon patients being able to easily access and afford the services of dental practitioners. According to the DPH Office of Oral Health, the most vulnerable populations are persons who are elderly, poor, uninsured, disabled, members of racial and ethnic minorities, and those who have barriers to oral care access, such as transportation (DPH 2007c, 4). The U.S. Surgeon General noted that, "Over 108 million children and adults lack dental insurance, which is over 2.5 times the number who lack medical insurance" (U.S. DHHS 2000c, 2).

However, many people postpone dental exams or treatment even when they *do* have insurance and access to dental care. Even having tooth pain may not cause people to go to the dentist, since many people anticipate pain, stress, or discomfort from the dental care itself (Handwerker 2003). Other, perhaps familiar, reasons that people postpone dental care include: high cost, inconvenience, time expenditures, difficult office staff, anxiety, and fear (Handwerker 2003). Moreover, many people simply do not think that dental care is particularly important, that it is a matter of cost or cosmetics, or are unwilling to take the necessary steps to improve their dental hygiene (Handwerker 2003; DPH 2007c, i).

Unfortunately, postponed oral health care can often lead to more difficult dental and systemic health problems, as well as higher costs for performing and paying for services. If “the mouth is the mirror of the body” (Folkenberg 1989), oral diseases both affect and are affected by the rest of the bodily systems. In this section we will look at selected oral health indicators of Connecticut children and adults.

#### ORAL HEALTH OF CHILDREN

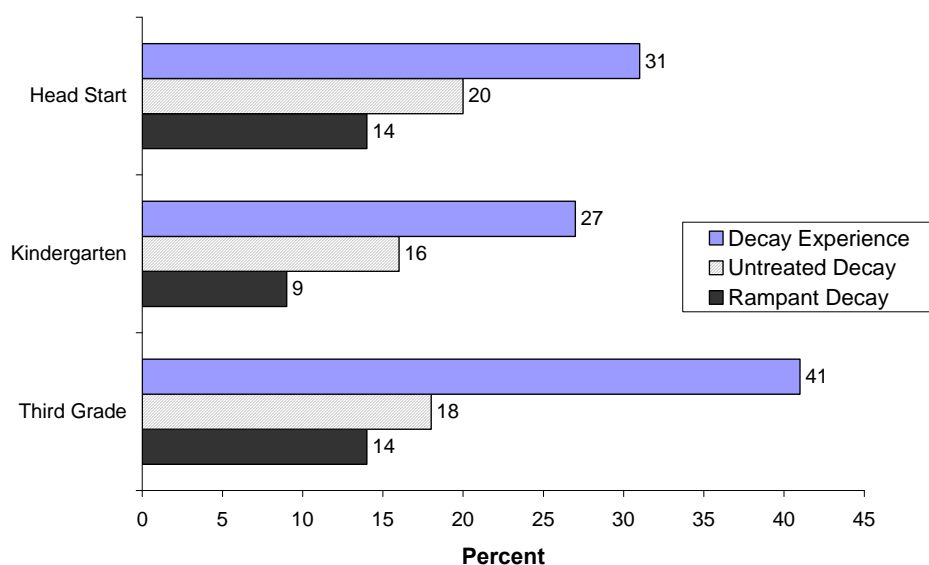
A recent Surgeon General’s report, *Oral Health in America*, stated that “[d]ental caries (the disease that causes tooth decay) is the single most common childhood disease in the nation—5 times more common than asthma and 7 times more common than hay fever” (U.S. DHHS 2000c, 2). Children’s level of oral health care is directly linked to socioeconomic differences. The Surgeon General’s report noted, “Poor children suffer twice as much dental caries as their more affluent peers...[and] nearly 12 times more restricted activity days [i.e., days away from school] than children from higher income families” (U.S. DHHS 2000c, 2).

Professionals in the area of children’s oral health care are concerned with “decay experience” (tooth decay in primary or adult teeth in his or her lifetime); untreated decay; “rampant decay” (5 or more treated or untreated decayed teeth), and the use of dental sealants (a plastic material put onto teeth to prevent decay). During the 2006–2007 school year, the Office of Oral Health at DPH conducted an oral health survey of 9,300 Head Start (preschool), kindergarten, and third grade students. The survey results are representative of more than 8,000 Head Start children and about 85,000 kindergarteners and third graders (DPH 2007d, 16–17). Some key findings were that: 1) dental decay is a significant public health problem for children; and 2) there are significant oral health disparities in the state, with minority and low-income children having the highest level of dental dis-

ease and the lowest level of dental sealants (DPH 2007d, i, 3). Because the survey was a screening rather than a comprehensive examination with x-rays, it “is reasonable to assume that these numbers actually underestimate the proportion of children needing dental care” (DPH 2007d, 5).

Figure 38 illustrates the substantial percent of surveyed young children who had decay experience: 41% of third grade children showed decay experience, with 14% having rampant decay, and 18% having untreated decay. Of the three age groups screened, the Head Start children showed the second worst experience overall and the kindergarten children showed smaller percentages of decay than either of the other grades (DPH 2007d, 4).

**Figure 38. Percent of Connecticut Children with Decay Experience and Untreated Decay, 2006–2007**



Source: DPH 2007d, 4.

As mentioned earlier in this report, a common measurement to determine the level of child poverty and family resources is the eligibility for free or reduced-price meals at school (CSDE 2008b, 10). Access to adequate income, information, dental insurance, and other resources are key to reducing the income disparities in oral health care for children. In the DPH Office of Oral Health survey, the trend was clear: as income lowered, so did oral health outcomes (DPH 2007d, 23–24). This is illustrated by Table 32 below—as the percentage of children in a school who were eligible for Free and Reduced Lunch pro-

grams increased, so did the percentage of children with decay experience, untreated decay, and those needing dental treatment (DPH 2007d, 23–24).

**Table 32. Oral Health Status of Connecticut’s Kindergarten and Third Grade Children, by Free and Reduced Lunch Eligibility of School, 2006–2007**

|                                       | Less than<br>25% eligible<br>for FRL | 25–49%<br>eligible for<br>FRL | 50–74%<br>eligible for<br>FRL | More than 75%<br>eligible for FRL |
|---------------------------------------|--------------------------------------|-------------------------------|-------------------------------|-----------------------------------|
| % children with<br>caries experience  | 27.9                                 | 38.3                          | 41.4                          | 49.2                              |
| % of children with<br>untreated decay | 12.3                                 | 19.4                          | 21.4                          | 27.6                              |
| % children<br>needing treatment       | 7.9                                  | 17.8                          | 17.6                          | 20                                |

Source: DPH 2007d, 24.

In addition, data in Table 33 show statistically significant differences between the White kindergarten and third grade students’ oral health screening results and that of racial and ethnic minority children for most of the measures reported here. Hispanic children had the largest percentage of decay experience (49.3%), followed by African American (42.8%) and Asian students (42.0%). Hispanics and African Americans had statistically significant and higher percentages than White children for all four of the measures. Asian children had the second-highest percentage of rampant decay (18.1%), second to African American children (19.5%), compared to 7.9% of White students having rampant decay.

**Table 33. Oral Health Status of Connecticut’s Kindergarten and Third Grade Children, by Race or Ethnicity as a Percent of Each Racial or Ethnic Group, 2006–2007**

| Race <sup>a</sup> or Ethnicity | % with<br>caries<br>experience | % with<br>untreated<br>decay | % with rampant<br>decay | % needing<br>treatment |
|--------------------------------|--------------------------------|------------------------------|-------------------------|------------------------|
| African American<br>(n=938)    | 42.8*                          | 25.0*                        | 16.4*                   | 19.8*                  |
| Hispanic<br>(n=859)            | 49.3*                          | 26.9*                        | 19.5*                   | 20.9*                  |
| Asian<br>(n=173)               | 42.0*                          | 18.8                         | 18.1*                   | 15.3                   |
| White<br>(n=5,579)             | 28.9                           | 13.0                         | 7.9                     | 9.1                    |

Source: DPH 2007d, 22.

<sup>a</sup> Racial groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race. Gender, race and ethnicity were determined by the screener (DPH 2007d, 16). Data for children classified as “Other/ Unknown Race” (n=1,194) are not included in this graph.

\*Significantly different ( $p < 0.05$ ) from White children.



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**ORAL HEALTH OF ADULTS**

In 2006, the nationwide Behavioral Risk Factor Surveillance Survey (BRFSS) asked three questions about oral health. It asked whether respondents 65 years and older had had all their natural teeth pulled; whether adult respondents had ever had any permanent teeth pulled; and whether respondents had visited the dentist or dental clinic for any reason in the past year (BRFSS 2008). Connecticut ranks first in the nation for the percentage of adults 65 years and above that have kept their natural teeth, with only 12.8% having had all natural teeth removed, compared to the U.S. average of 19.3% (BRFSS 2008).

In terms of oral health disparities, Connecticut adults with higher incomes and higher education levels were less likely to have had all their teeth removed. For example, in 2006, only 4.7% of college graduates were likely to have had all their natural teeth removed, as compared to 30.6% of older adults with less than a high school education (BRFSS 2008). Racial and ethnic disparities exist for oral health as well: Hispanics and Blacks were less likely to have visited a dentist or dental clinic in the previous year (69.1% and 70.6%, respectively, compared to 82.7% of Whites) (BRFSS 2008). In 2004, for those Connecticut adults who did not suffer total tooth loss, 14.2% of African Americans reported 6 or more teeth missing, as compared to 10% of Whites (DPH 2007d, 6).

In 2004, the Connecticut BRFSS researchers asked adults (ages 18 and older) if cost prevented them from seeing a dentist in the past year. In 2004, 10% of Connecticut adults reported that cost prevented them from visiting a dentist in the past year: 24% of Hispanics said this was the case, compared with 15% of Blacks, and just 7% of Whites (DPH 2007c, 16–17). In 2006, only 57.3% of people with annual incomes less than \$15,000 went to a dentist or dental clinic, as opposed to 87.4% of adults who had incomes of \$50,000 and above (BRFSS 2008).

Older adults have unique oral health concerns. The population of elder adults, aged 65 years and older, is increasing in the state and nationally. Additionally, increasing ethnic and linguistic diversity, varied living situations (such as those living alone, in nursing homes, or other homebound persons), and varied oral health beliefs will all have increased effects on delivery of dental care. Complications with managing multiple medical and dental prescription drugs may also increase. In addition, the rates of Medicare and Medicaid reimbursements to dentists will become increasingly important in order to maintain or increase dental care for elders in the coming years (DPH 2008g, 4).

A recent report by the Connecticut Office of Oral Health noted that, “One third of older adults have dental caries, and 40 percent have periodontal (gum) disease. Twenty-three percent have severe periodontal disease that can compromise oral function and overall health” (DPH 2008g, 4). In addition, the majority of people who are diagnosed with oral cancer every year are older adults. The 5-year survival rates for oral cancer are low, ranging from 34% in minority populations to 56% in White populations (DPH 2008g, 4).

Data for older populations’ oral health, as well as for the general population, are lacking. Institutionalization, living at home or in social isolation, language barriers, low income or education levels, and complications from other diseases affect oral health and delivery of dental care. Most of the data presented here are from the BRFSS (a nationwide telephone survey of adults, which often underestimates the public’s oral health problems) and from Connecticut public school data (A. Wilson, pers. comm., September 29, 2008). The Office of Oral Health’s survey of Connecticut children was a direct observation open-mouth survey (DPH 2007d). However, because the most prevalent oral diseases do not have the same reporting requirements as some medical conditions, the data presented above are underestimated.

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## ENVIRONMENTAL AND OCCUPATIONAL HEALTH

### INTRODUCTION

Environmental health encompasses “all the physical, chemical, and biological factors external to a person, and all the related factors” influencing human behaviors, and includes the “assessment and control of those environmental factors that can potentially affect health” (WHO 2008c). Several environmental health programs within the Connecticut DPH perform regulatory activities and monitor and disseminate information about issues such as: asbestos, occupational health, food protection, indoor and outdoor air quality (pollution), private well and recreational waters, lead poisoning, and radon. Also housed at DPH is the Environmental Public Health Tracking (EPHT) program, a CDC-led initiative that refers to the “the ongoing collection, integration, analysis, interpretation, and dissemination of data on environmental hazards, exposures to those hazards, and health effects that may be related to the exposures” (CDC 2008c). DPH also provides surveillance, intervention, and education activities targeting work-related environmental hazards and exposures through its Occupational Health Unit.

The socioeconomic and political histories of populations and neighborhoods (including residential segregation, racial and ethnic discrimination, industry location, crime, poverty, and economic downturns) are inextricably tied to environmental conditions and to the health of people who live and work in those areas (Bullard et al. 2007; Gee and Payne-Sturges 2004; Massey and Denton 1993; Williams and Collins 1996, 2001). Some people suffer disproportionately from toxic or harmful environmental exposures because they live or work in urban, low-income, or minority communities, or work in jobs that have higher exposure to environmental or toxic hazards, lower job control and job security, and higher job stressors (Peter et al. 2002; Rahkonen et al. 2006; Smith et al. 2008). Transportation hubs are concentrated in urban areas, with concomitant increased risk of particulate matter and air pollution for the populations who live and work near them. Older housing stock, waste disposal sites, and industrial pollution are also concentrated in our state’s urban areas, where high percentages of low-income and minority residents live and work (Connecticut Coalition for Environmental Justice 2000a, 2000b; Bullard et al. 2007).

Environmental health issues are social justice issues, and the federal government has taken steps to reduce health disparities due to environmental hazards. The United States

Environmental Protection Agency (EPA) defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies” (EPA 2008). The EPA intends that no group should disproportionately bear negative environmental consequences, and that potentially affected residents should have meaningful opportunities to take part in the decision-making processes about environment- and health-related operations (EPA 2008; Executive Order 12898, 1994).

However, despite more political action, the results of environmental and residential inequality are still evident. A recent report for The United Church of Christ notes that compared to other New England states, Connecticut has the highest concentration of Hispanics or Latinos and Blacks or African Americans living in neighborhoods that have hazardous waste sites (Bullard et al. 2007; 12–13), and adds that in 2007, “people of color...are more concentrated in areas with commercial hazardous sites than in 1987” (Bullard et al. 2007, 5, 12–13).

#### ASTHMA

Asthma is a common but complex chronic disorder of the airways that is characterized by variable and recurring symptoms, airflow obstruction, bronchial hyper-responsiveness, and an underlying inflammation (National Heart, Lung and Blood Institute [NHLBI] and National Asthma Education and Prevention Program [NAEPP] 2007, 12). In people who are susceptible, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, associated with widespread but variable airflow obstruction (NHLBI and NAEPP 2007, 14). Asthma is a serious condition, but its symptoms may be managed or reversed with treatment (NHLBI and NAEPP 2007, 14). Successful treatment, in turn, may lessen the number of hospitalizations, emergency department (ED) visits, and other related health care costs associated with asthma.

Researchers continue to uncover interactions between the multiple environmental and social factors that contribute to asthma. Environmental factors include: urban life, housing conditions (i.e., potential allergens such as molds, dust mites, and old housing stock), traffic air pollution, work-related conditions and exposures, industrial emissions, access to health care, maternal cigarette smoking, and obesity. Community and societal factors include: neighborhood poverty, crime and violence, residential segregation, loss of con-

trol over job or health, and stressors related to perceived discrimination (Gold and Wright 2005, 97–104; Rosenbaum 2008). Furthermore, populations that are disproportionately affected by asthma may lack resources to access health care systems and providers. Equitable access to insurance coverage and timely asthma diagnosis, education, treatment, and follow-up are of great concern, since asthma symptoms can be controlled given proper resources.

According to the 2006 BRFSS, 19.2 million adults, or 8.5% of adults in the United States, reported that they have asthma (Peng, Rodriguez, and Hewes 2008, 1). In Connecticut between 2000 and 2006, the prevalence rate of current asthma among adults was slightly higher than in the United States as a whole. Current asthma prevalence among adults increased from 7.8% per in 2000 to 9.3% in 2006, while the United States as a whole increased from 7.3% in 2000 to 8.5% in 2006 (Peng, Rodriguez, and Hewes 2008, 1).

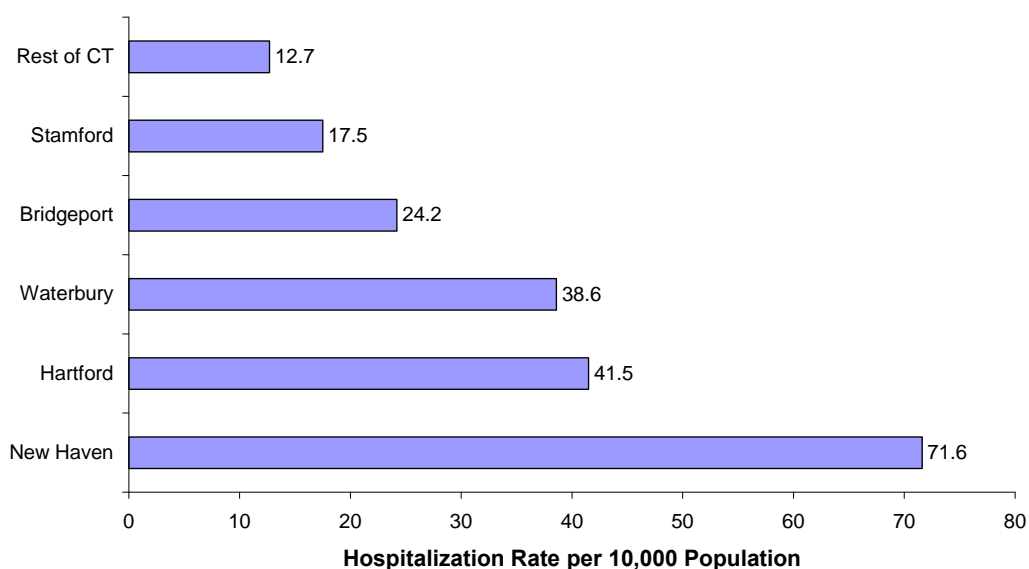
Nationally, asthma is one of the most common chronic diseases of childhood: according to the 2006 National Health Information Survey, about 13.5% of U.S. children less than 18 years old reported having asthma at some point in their lives (CDC 2007e). In Connecticut in 2005, approximately 14.9%, or 123,000, of Connecticut children reported ever having been diagnosed with asthma, and approximately 10.5%, or 86,000, of children reported that they currently have asthma (Peng, Rodriguez, and Hewes 2008, 2).

Although anyone may be affected by asthma, certain subpopulations suffer disproportionately from asthma. Older adult women, young children, elderly people, people with lower household incomes, and residents of urban areas are disproportionately likely to be affected by asthma (Gold and Wright 2005; Peng, Rodriguez, and Hewes 2008, 93–94). In Connecticut, Black people and Hispanic people of all ages were more likely to be hospitalized or to visit the Emergency Department (ED) than White people (Peng, Rodriguez, and Hewes 2008). Additionally, studies have shown that Puerto Rican Hispanics suffer higher asthma prevalence and mortality rates compared to other Hispanic subpopulations (notably, Mexican Americans) (Gold and Wright 2005, 96; Children's Hospital Boston Pressroom 2006; Rosenbaum 2008; CDC 2007i).

In addition, geographical location of residence contributes to asthma experience. The CDC notes that during 2001–2003, current asthma prevalence was higher in those residing in the Northeast (8.1%) compared with those living in other regions of the nation

(6.7%–7.5%) (CDC 2007i). Five of Connecticut’s largest cities accounted for 42.1% of all asthma hospitalizations among children in Connecticut, with a combined rate of 38.7 per 10,000, as compared to 12.7 per 10,000 for the rest of the state (Peng, Rodriguez, and Hewes 2008, 44). Figure 39 presents hospitalization rates for children for the state’s five largest cities as compared with the rate for the rest of the state. The asthma hospitalization rate for children in New Haven was about 5.6 times higher than for the rest of the state.

**Figure 39. Asthma Hospitalization Rates (Primary Diagnosis), by Five Largest Cities vs. Rest of Connecticut, Children 0–17 Years of Age, 2001–2005**



Source: Peng, Rodriguez, and Hewes 2008, 44; U.S. Census Bureau 2007b.

Hospital stays and ED visits for asthma are costly—literally and figuratively—to both the patient and to the health care system. In 2005, the median amount of days per hospital stay for persons with asthma as a principal diagnosis was 3.0 days, and about \$52.3 million in hospitalization charges due to asthma as a principal diagnosis were incurred (DPH 2008c). With reference to ED visits, Connecticut spent \$13.4 million on ED visit charges due to asthma as a primary diagnosis during the five years between 2000–2004 (Peng, Rodriguez, and Hewes 2008, 93). As noted above, treatment and control are key tools for reducing visits to hospitals and emergency departments for people with asthma.

The sections below illustrate data on hospitalization and ED visit data for those with primary diagnosis of asthma. It is not possible to collect complete and exact incidence

data on asthma because many people who have asthma manage it through private insurance, private doctors, alternative therapies, and other practitioners, and may not be seen at EDs or hospitals. However, hospitalization rates and ED visits are incidence proxies and are therefore useful for understanding the management of asthma, and the health care options used by people who do not have access to adequate primary, preventive, and asthma management care.

### Hospitalization Rates: Adults and Children

In 2005, the age-adjusted asthma hospitalization rate among all Connecticut residents was 130.3 per 100,000 population (DPH 2008c). But as illustrated in Table 34 and Figure 40, this figure masks great differences among racial or ethnic groups' rates. In 2005, the age-adjusted rate of asthma hospitalization for Whites was 84.5 per 100,000, 316.7 per 100,000 for Blacks, and 331.0 per 100,000 for Hispanics (DPH 2008e). Blacks suffered about 3.7 times more asthma hospitalizations than Whites that year, while Hispanics were hospitalized at 3.9 times the rate of Whites.

**Table 34. Asthma Hospitalizations, Connecticut Residents, by Race or Ethnicity, 2005**

| Race <sup>a</sup> or Ethnicity | Number of Hospitalizations | Age-adjusted Rate <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess (Fewer) Events <sup>d</sup> |
|--------------------------------|----------------------------|--------------------------------|---|------------------------------------|
| Total                          | 4,589                      | 130.3                          |   |                                    |
| Black                          | 1,038                      | 316.7                          | 3.7   | 761                                |
| Hispanic                       | 988                        | 331.0                          | 3.9   | 736                                |
| Asians & Pacific Islanders     | 26                         | 28.0                           | 0.3   | (53)                               |
| American Indian                | 7                          | †                              | †   | †                                  |
| White                          | 2,354                      | 84.5                           | 1.0   | 0                                  |
| Other <sup>e</sup>             | 209                        | --                             | --  | --                                 |
| Missing                        | 8                          | --                             | --  | --                                 |

Source: DPH 2008e.

<sup>a</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 100,000 persons based on race- and ethnicity-specific population estimates. Age-adjusted rates are age-adjusted to the U.S. 2000 population and are expressed as discharges per 100,000 population.

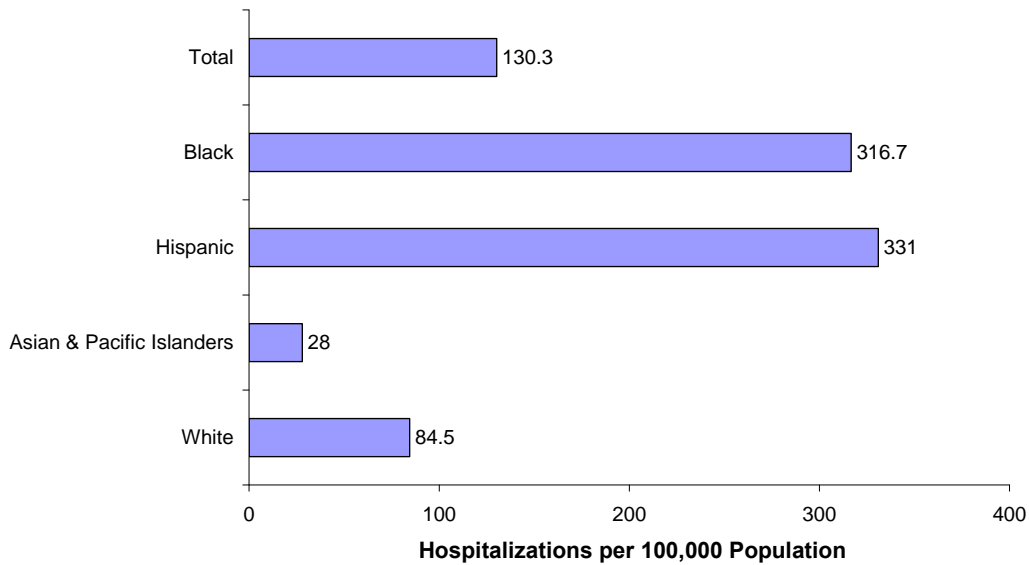
<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population. Numbers in parentheses indicate fewer events.

<sup>e</sup> Other non-White and non-Hispanic. There is a separate hospitalization category but no separate population category for "Other non-White, non-Hispanic" persons. No rates are calculated for this classification.

† Statistics are not calculated for fewer than fifteen events.

**Figure 40. Age-adjusted Asthma Hospitalization Rates, Primary Diagnosis, Connecticut Residents, by Race or Ethnicity, 2005**



Source: DPH 2008e.

In 2005, the Connecticut hospitalization rate for females with a principal diagnosis of asthma was 148.0 per 100,000 population as compared to 109.0 for males, or almost 1.4 times more hospitalizations for females (DPH 2008d). The majority of asthma hospitalizations were for adults aged 18 years and older. However, the highest (crude) rates of child hospitalizations, across all racial and ethnic categories, were for the youngest children (0–4 years of age) (DPH 2008e).

#### Emergency Department (ED) Visits: Adults and Children

Connecticut data for emergency department (ED) visits for asthma are available from the ChimeData Program, part of Chime, an affiliate of the Connecticut Hospital Association. These data do not represent all persons with asthma, but they provide a picture of those people with the most severe or poorly controlled asthma, and those people who may not have appropriate access to preventive care (Peng, Rodriguez, and Hewes 2008, 49).

Over the 5-year period from 2000 to 2004, there were an average of 14,800 ED visits each year among adults with a primary diagnosis of asthma, or 56.1 per 10,000 (Peng, Rodriguez, and Hewes 2008, 52). Women's asthma ED visit rate was 1.7 times higher



than that of men, and the asthma ED visit rate among adults aged 18–34 years old was 4.2 times higher than among adults aged 65 and over (Peng, Rodriguez, and Hewes 2008, 52). Hispanic and Black adults had asthma ED visit rates over 4.6 and 3.7 times higher, respectively, than among White adults (Peng, Rodriguez, and Hewes 2008, 52).

From 2000–2004, there were an average of 7,200 ED visits each year among children (0–17 years old) with a primary diagnosis of asthma, or a rate of 85.6 per 10,000 (Peng, Rodriguez, and Hewes 2008, 59). The asthma ED visit rate among boys was 1.4 times higher than among girls (Peng, Rodriguez, and Hewes 2008, 59). Children aged 0–4 years had an asthma ED visit rate two times higher than children aged 15–17 years (Peng, Rodriguez, and Hewes 2008, 59).

Table 35 and Figure 41 present data for asthma ED visit rates among Connecticut resident children 0–17 years old in 2004. The visit rates for Hispanic children and Black children were 5.2 and 4.6 times greater, respectively, than among White children (Peng, Rodriguez, and Hewes 2008, 59).

**Table 35. Asthma Emergency Department (ED) Visits, Connecticut Resident Children 0–17 Years of Age, by Race or Ethnicity, 2004**

| Race <sup>a</sup> or Ethnicity          | Number of ED Visits | Rate per 10,000 <sup>b</sup> | Relative Risk <sup>c</sup> (Minority/White) | Excess Events <sup>d</sup> |
|---|---------------------|------------------------------|---|----------------------------|
| Total                                   | 7067                | 84.3                         |   |                            |
| Black                                   | 1,442               | 151.2                        | 4.6   | 1,130                      |
| Hispanic                                | 2,126               | 169.7                        | 5.2   | 1,716                      |
| White                                   | 1,870               | 32.7                         | 1.0   | 0                          |
| Other Non-Hispanic <sup>e</sup>         | 345                 |                              |   |                            |
| No Known Race or Ethnicity <sup>f</sup> | 1284                |                              |   |                            |

Source: Peng, Rodriguez, and Hewes 2008, 114; U.S. Census Bureau 2007b.

<sup>a</sup> Race groupings exclude persons of Hispanic ethnicity. Hispanic persons may be of any race.

<sup>b</sup> Rates are per 10,000 persons based on race and ethnicity-specific population Census 2000 estimates. Rates are not age-adjusted.

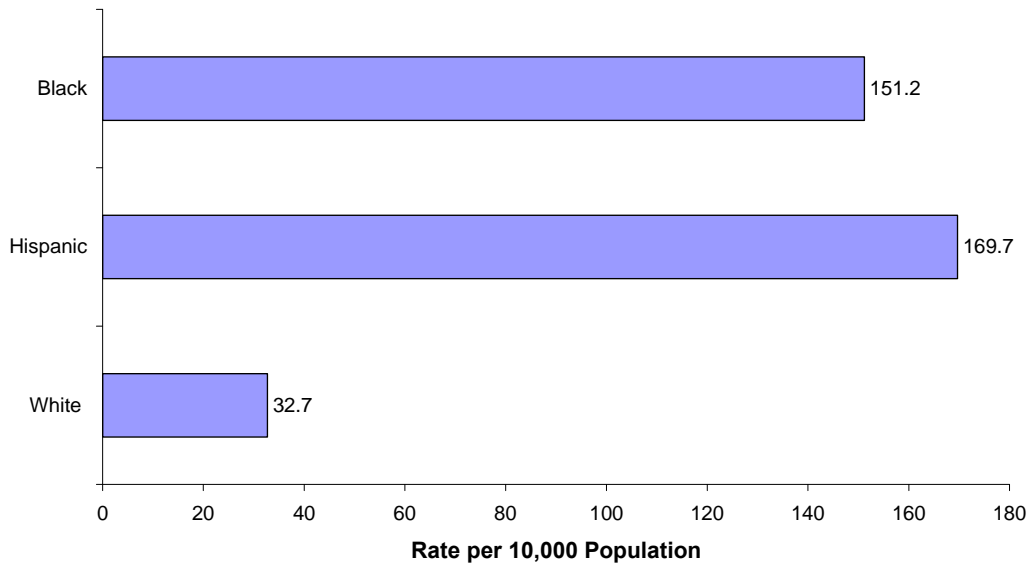
<sup>c</sup> "Relative risk" is estimated to be the ratio of the minority group to the White rate.

<sup>d</sup> "Excess events" are the events that would not have occurred if the minority group had the same rate as the White population.

<sup>e</sup> This racial category was compiled by the Asthma Program for reporting purposes.

<sup>f</sup> Data on race or ethnicity are unknown or missing.

**Figure 41. Rates of Emergency Department (ED) Visits, Primary Diagnosis of Asthma, Connecticut Resident Children 0–17 Years of Age, by Race or Ethnicity, 2004**



Source: Peng, Rodriguez, and Hewes 2008, 114; U.S. Census Bureau 2007b.

#### WORK-RELATED ASTHMA (WRA) AND REACTIVE AIRWAYS DYSFUNCTION SYNDROME (RADS)

Work-related asthma (WRA) is defined as “asthma that is caused, or made worse, by exposures in the workplace” (Peng, Rodriguez and Hewes 2008, 87). WRA is often divided into two categories: *occupational asthma*, which is asthma newly caused by a particular work environment, and *work-aggravated asthma*, which is when pre-existing asthma is made worse by exposure in the workplace (Peng, Rodriguez and Hewes 2008, 87). *Reactive airways dysfunction syndrome* (RADS) is an asthma-like condition that results from acute exposure to respiratory irritants in the workplace, and is often considered together with WRA (Peng, Rodriguez and Hewes 2008, 87).

Between 1992 and 2006, service, manufacturing, and public administration industries accounted for over 80% of the reported cases of WRA/RADS (Peng, Rodriguez and Hewes 2008, 89). During this time, the majority of people who were reported to have WRA or RADS were women (58.5%), and about two-thirds of adults reporting WRA or RADS were between 35 and 54 years old (Peng, Rodriguez, and Hewes, 2008,88).

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**LEAD POISONING**

Childhood lead poisoning is one of the most common, yet most preventable pediatric health problems in Connecticut today. Elevated blood lead levels in young children (10 micrograms or greater of lead per deciliter of blood [ $\geq 10\mu\text{g/dL}$ ]) can affect nearly every system in the body, and can result in learning disabilities, behavioral problems, and at very high levels, seizures, coma, and even death (CDC 2008b). High blood levels in young children are often caused by lead-based paint, lead-contaminated dust and soil, and contaminated water from household plumbing (CDC 2008b; Hynes et al. 1999, 48). In addition, elevated blood lead can result from certain hobbies (stained-glass work), working with batteries, and from certain traditional home health remedies (e.g., azarcon, greta, litargirio, pay-loo-ah, and sindoor) (CDC 2005a, 2008b; U.S. Federal Drug Administration [FDA] 2007).

While lead-based paints were banned for use in housing in 1978, homes built earlier than 1978, especially earlier than 1950, contain high concentrations of lead-based paint. In Connecticut, approximately 63% of the dwelling units were constructed before 1970, and 31% were built before 1950 (U.S. Census Bureau 2000i). Urban areas in Connecticut contain a larger percentage of older dwellings than rural areas, and are more likely to contain housing with lead-based paint in poor condition, especially in low-income neighborhoods (Connecticut Coalition for Environmental Justice 2000a, 2000b; Hynes et al. 1999, 48). In addition, the three largest cities—Bridgeport, New Haven and Hartford—have large percentages of low-income populations, older housing stock, and higher proportions of racial and ethnic minority populations compared to the rest of the state (Hynes et al. 1999). Therefore, children of racial and ethnic minority populations, children living in low-income neighborhoods, and children living in urban areas are disproportionately exposed to lead.

In response to children who are confirmed to have elevated blood lead levels, the Connecticut Department of Public Health's Lead Poisoning Prevention and Control Program (LPPCP) oversees local health departments which are required to conduct inspections to identify and help eliminate or control any lead hazards that may exist in the child's home or where the child spends time (i.e. day care). The LPPCP also works to educate state refugee resettlement agencies that work with Connecticut's refugee populations about the hazards of lead poisoning (DPH 2008f). Additional educational outreach efforts target cultural and linguistic populations who may be unaware of lead poisoning

hazards. Screening and assistance are also given to workers who are exposed to lead in the workplace and to adults who are exposed through hobbies or other activities (i.e., during manufacture of ceramics or stained glass, auto body repair, shooting on firing ranges, metal salvaging, ship building or repair) (DPH 2005b).

Effective January 1, 2009, primary care providers in Connecticut will be required to conduct annual lead screening of every child age 9–35 months, and to conduct lead screening of any child 36–72 months who has not previously been screened. Passed in 2007, Connecticut Public Act No. 07-2 will expand lead screening to all Connecticut children, regardless of income or location.

In 2006, 69,315 children from birth to 6 years of age were tested for lead poisoning in Connecticut (Hung 2008, 4). While there has been continuous improvement in screening for elevated blood lead and a decrease in lead poisoning over time, disparities in screening and poisoning continue to exist among Connecticut populations. Just three Connecticut cities (Bridgeport, Hartford, and New Haven) accounted for 48.8% of children with elevated blood lead levels in the state in 2006. Table 36 and Figure 42 illustrate the percent of screened children under 6 years of age who have elevated blood lead levels ( $\geq 10\mu\text{g}/\text{dL}$ ) in those three major cities as compared to all of Connecticut.

**Table 36. Percent of Screened<sup>b</sup> Children with Elevated Blood Levels ( $\geq 10$   $\mu\text{g/dL}$ ) in Connecticut, Hartford, Bridgeport, and New Haven, 2006**

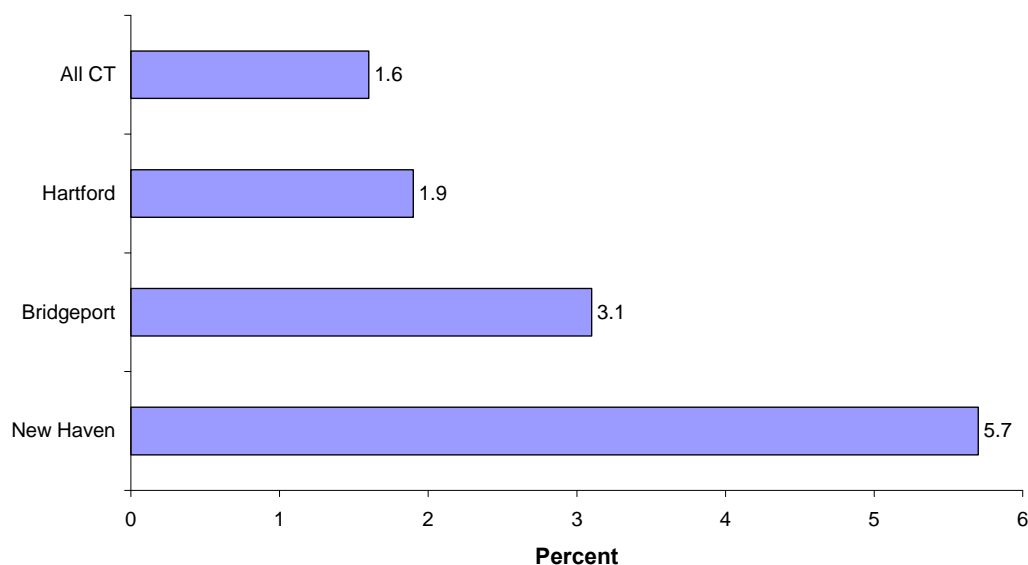
| Location   | Number of Children under Age 6 <sup>a</sup> | Number (Percent) of Children Screened <sup>b</sup> | Number of Children with Confirmed Lead Test | Number (Percent) of Screened <sup>b</sup> children with a Confirmed Blood Lead level of $\geq 10$ $\mu\text{g/dL}$ |
|------------|---|--|---|--|
| All CT     | 270,187                                     | 69,315 (25.7)                                      | 68,828                                      | 1,082 (1.6)  |
| Hartford   | 12,134                                      | 5,486 (45.2)                                       | 5,427                                       | 105 (1.9)  |
| Bridgeport | 13,635                                      | 6,257 (45.9)                                       | 6,209                                       | 192 (3.1)  |
| New Haven  | 10,431                                      | 4,146 (39.7)                                       | 4,086                                       | 231 (5.7)  |

Source: Hung 2008.

<sup>a</sup> Population data obtained from U.S. Census 2000.

<sup>b</sup> "Screened" indicates children who received any test (capillary or venous). Children are counted only once, regardless of the number of times they are tested.

**Figure 42. Percent of Screened Children with Elevated Blood Lead Levels ( $\geq 10$   $\mu\text{g/dL}$ ) in Connecticut, Hartford, Bridgeport, and New Haven, 2006**



Source: Hung 2008.

In addition, the racial and ethnic disparities in elevated blood lead levels among children screened in 2006 are apparent in Table 37, Figure 43, and Figure 44. Although there were relatively few Native American children screened, almost three times as many of them had elevated blood lead compared to screened White children, and Black children also had high rates of elevated blood lead, at 2.7 times the White children who were

screened. Note that the Lead Poisoning Prevention and Control Program collected data for race and ethnicity separately, according to the Office of Management and Budget guidelines of 1997. Therefore, racial categories in the following tables and figures *include* persons of Hispanic ethnicity, and numbers and rates for ethnicity classifications are shown separately below.

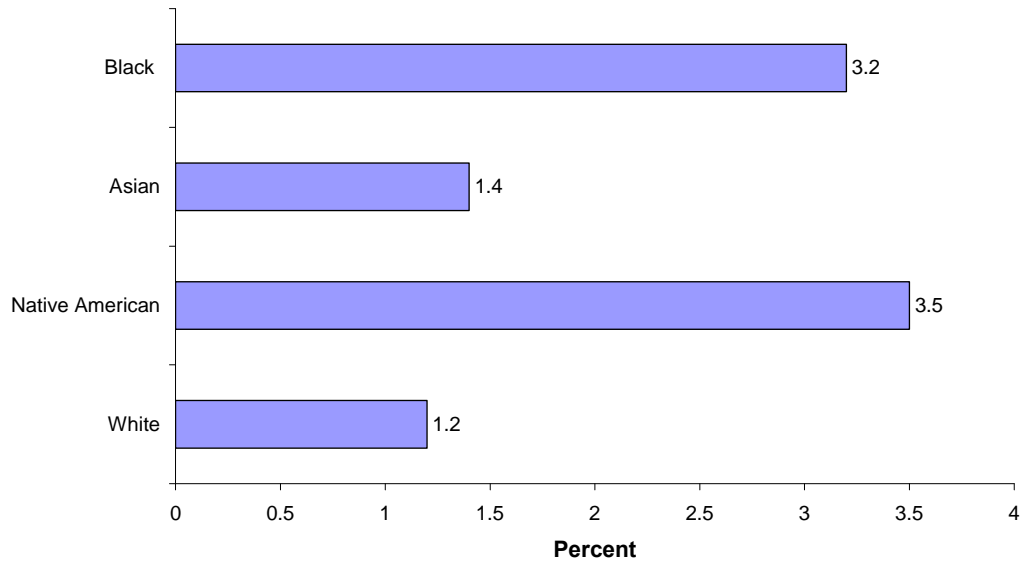
**Table 37. Children Under 6 Years of Age Who Had a Lead Screening, and Percentage with Elevated Blood Lead, Connecticut, by Race and Ethnicity, 2006**

| Race <sup>a</sup>            | Race and Ethnicity Characteristics of Children Under 6 Years of Age who had a Lead Screening – Connecticut CY 2006 |         | Percent of Children Under 6 Years of age with Elevated Blood Lead – Connecticut CY 2006 |
|------------------------------|--|---------|---|
|                              | Number   | Percent |   |
| Black                        | 10,353   | 14.9%   | 3.2%  |
| Asian                        | 2,502  | 3.6%    | 1.4%  |
| Native American              | 321  | 0.5%    | 3.5%  |
| Hawaiian or Pacific Islander | 6  | <0.1%   | 0.0%  |
| White                        | 46,023   | 66.4%   | 1.2%  |
| Unknown                      | 10,110   | 14.6%   |   |
| <b>Ethnicity<sup>a</sup></b> |  |         |   |
| Hispanic                     | 17,516   | 25.3%   | 2.1%  |
| Non-Hispanic                 | 44,557   | 64.3%   | 1.3%  |
| Unknown                      | 7,242  | 10.4%   |   |

Source: Hung 2008.

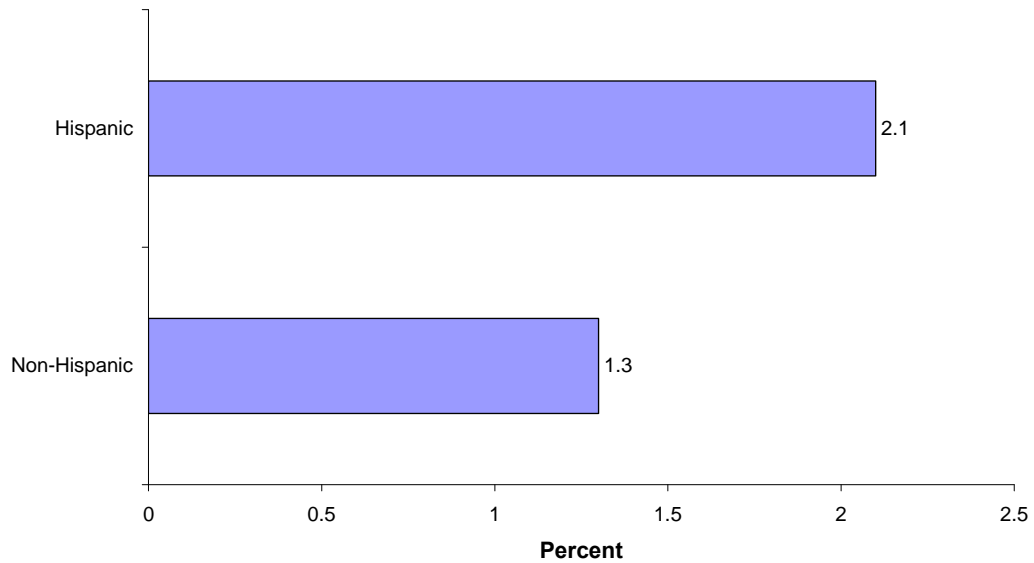
<sup>a</sup> In this table, racial groupings *include* persons of Hispanic ethnicity. Hispanic ethnicity was asked separately from race, in accordance with federal Office of Management and Budget guidelines (OMB 1997). Responses regarding Hispanic ethnicity are therefore listed separately.

**Figure 43. Percent of Children Under 6 Years of Age with Elevated Blood Lead, Connecticut, by Race, 2006**



Source: Hung 2008.

**Figure 44. Percent of Children Under 6 Years of Age with Elevated Blood Lead, Connecticut, by Ethnicity, 2006**



Source: Hung 2008.

## OCCUPATIONAL HEALTH

Work may be seen as a source of individual and familial resources and benefits as well as an integral component of social organization. It is also an arena where people may be exposed to environmental hazards and other job stressors, with resulting health effects depending on several work-life factors, including individual, social, economic and political factors and resources. Lipscomb et al. note that in order to understand health disparities, the definition of “work” should include “the effects of government policy, historical segregation (by race, gender, ethnicity, or class), geographic variation, unrecognized social norms, economic opportunity, and long-standing patterns of exploitation” (Lipscomb et al. 2006, 43). That is, any meaningful focus on occupational health disparities must take into account the effects of national and regional economic policies that can lead to inequalities in the workplace (including the work environment and the organization of work), and differential effects on workers’ health.

Occupational health surveillance involves the “identification and control of the risks arising from physical, chemical, and other workplace hazards in order to establish and maintain a safe and healthy working environment” (National Institute for Environmental Health Sciences [NIEHS] 2008). Occupational surveillance data are used to guide efforts to improve worker safety and health, and to monitor trends and progress over time (National Institute for Occupational Safety and Health [NIOSH] 2008a). Many environmental hazards, such as chemical exposures, heavy metals, noise or vibration, dust exposures, electrical hazards, and dangerous machinery, exist in a variety of workplaces and generally depend on the type of work being performed in that workplace (NIOSH 2008b).

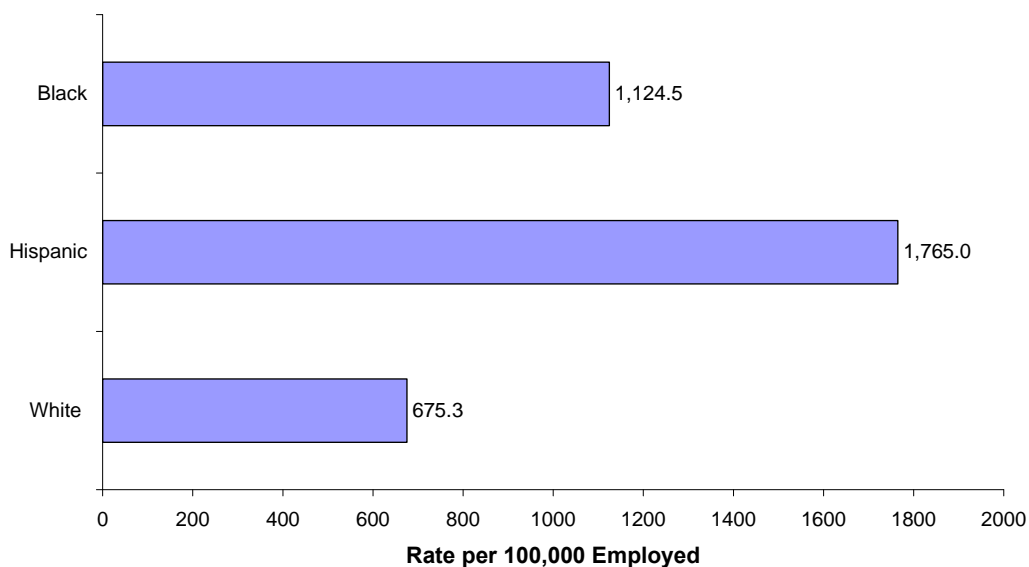
Also generally present in all workplaces are “non-environmental” hazards that pose significant health risks to workers, such as workplace violence, poor organization of work and ergonomics, and job stress. National and state officials regularly monitor a variety of occupational indicators, including changes in workforce demographics, workplace-related illness and injury, and workplace-related fatalities. In addition, they provide workforce training and workplace interventions in response to health and safety needs of the working population. Occupational health disparities has been one focus of Connecticut DPH’s Occupational Health Unit for many years, and has included issues surrounding young workers, non-English-speaking workers, and other special working populations (e.g., migrant farm workers, older workers). Because the affected numbers of Asian, Native Hawaiian and Other Pacific Islander, and American Indian or Alaska Native workers



in Connecticut are generally very small, estimates derived from national survey data are often too unstable to be reported as representative of these worker populations.

Figure 45 illustrates the average non-fatal occupational injury and illness rates for selected racial and ethnic groups from 2000 to 2006. While the rates of injuries and illnesses have been decreasing for White, Black, and Hispanic worker populations, Hispanic workers still suffer from about 2.6 times as many workplace injuries and illnesses as White workers, and about 1.6 times as many as Black workers. These disparities have been relatively unchanged from year to year, even while the overall rates across all racial and ethnic categories continue to decline. Figure 46 shows that in 1999 the rate of non-fatal work-related injury and illness in Hispanic workers in Connecticut was 2.3 times higher than the rate for White workers. Despite a 42% decline among Hispanics in work-related non-fatal illness and injury, the disparity remained in 2006, at 2.4 times higher for Hispanic workers in 2006.

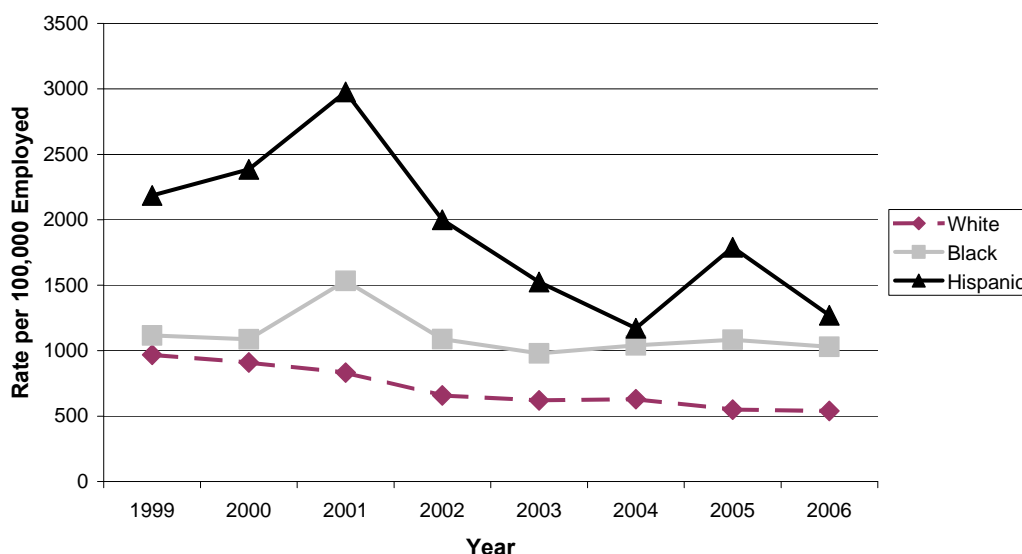
**Figure 45. Non-fatal Work-related Injuries and Illnesses Connecticut—Private Industry, by Race<sup>a</sup> or Ethnicity, 2000–2006**



Source: DPH 2008h.

<sup>a</sup> Bureau of Labor Statistics only collects data on ethnicity-exclusive categories. White, Black, and Hispanic categories are exclusive of each other.

**Figure 46. Rate of Non-fatal Work-related Injuries and Illnesses Involving Days Away from Work, Connecticut—Private Industry, by Race<sup>a</sup> or Ethnicity, 1999–2006**



Source: DPH 2008h.

<sup>a</sup> Bureau of Labor Statistics only collects data on ethnicity-exclusive categories. White, Black, and Hispanic categories are exclusive of each other.

The work-related fatality rates for White workers and Hispanic workers in Connecticut reflect a marked disparity between the two populations. In the periods 2000–2002 and 2004–2006, Connecticut’s Hispanic workers had a work-related fatality rate that was disproportionately high for their worker population—about three times higher than that of White workers (6.4% and 2.1%, respectively). Hispanic work-related fatalities for these periods numbered 50, while White work-related fatalities numbered 188. Bureau of Labor Statistics data are not reported for fewer than three events; therefore, Hispanic work-related fatalities for 2003 were not reported. Potential reasons for higher Hispanic worker death include: inadequate knowledge of and control of workplace health and safety hazards, inadequate training and supervision of workers, use of different languages, and varying literacy levels of workers (CDC 2008e; St. Louis 2007; Premji, Messing and Lippel 2008).

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## ACCESS TO HEALTH CARE; HEALTH CARE WORKFORCE

### ACCESS TO HEALTH CARE

To most people “lack of access to health care” implies the inability to pay for health insurance. But while health insurance (or the lack of it) is fundamental to the operation of our health care system, “access to health care” also refers to: adequate numbers of health care providers in all geographical areas; transportation to and from these providers; equal access to medical procedures; ability and willingness to overcome language and cultural barriers in medical encounters; health literacy; physical accessibility of health care institutions and equipment; and lack of discrimination in treatment (e.g., Agency for Healthcare Research and Quality [AHRQ] 2008, 113). In order to reduce the burden of disease and eliminate health disparities, attention must be paid to all aspects of “access,” not just health insurance.

However, since these important facets of access are neither easily quantified nor consistently recorded, public health professionals must rely on other proxies for levels of health care access. Two standard measurable characteristics of health care access, health insurance and preventable hospitalizations, are presented below. These measures are often used as markers for gaps in primary care, people’s lack of a “medical home,” and the degree of over-reliance on costly emergency department services in a community.

#### Health Insurance: Who Is Uninsured?

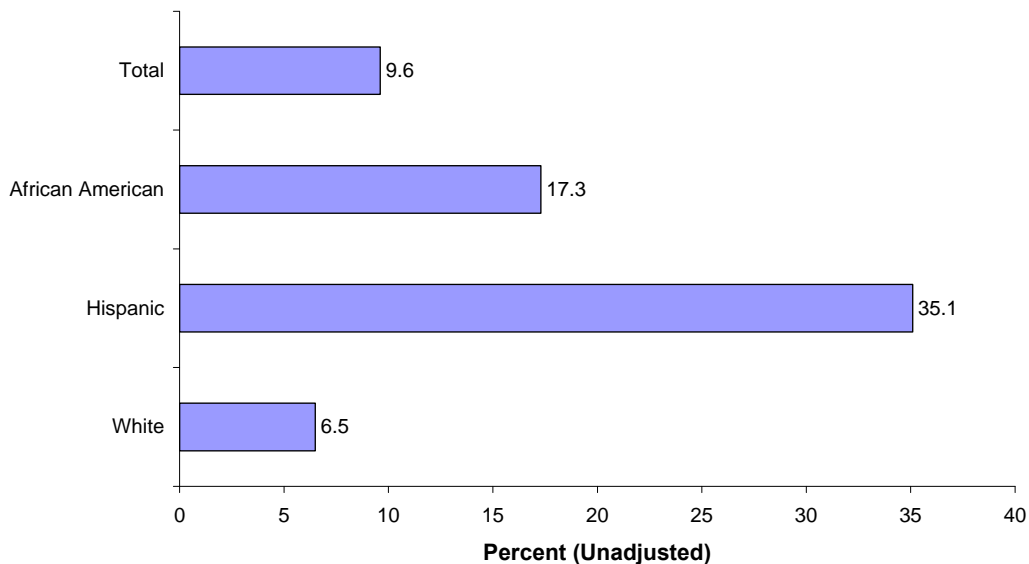
Barriers to health care, such as lack of health insurance, are experienced differently by different segments of our population, both nationally and locally. The category, “uninsured persons,” includes: young adults between the ages of 18 and 39 years old; unemployed people; racial and ethnic minority populations; persons with low income; people with low educational attainment; and working people who cannot afford, are not offered, or are ineligible for, their employer’s insurance plans (Connecticut Office of Health Care Access [OHCA] 2006; DPH 2008a).

Indeed, most people without insurance *do* work, and most of them work full-time. In 2004, the Institute of Medicine (IOM) stated that, nationally, “... more than eighty percent of uninsured children and adults live in working families...” (IOM 2004, 4). OHCA found that “61 percent of the uninsured are working adults, over half of whom hold permanent full-time positions” (OHCA 2006, 1).

In 2005, the rate of uninsured persons in the United States was 14.6%, compared to 9.6% of Connecticut’s population (DPH 2007e). Nevertheless, Figure 47 below illustrates yet again the marked racial and ethnic disparities in health insurance coverage in Connecticut. In 2005, about 35.1% of surveyed Hispanic adults were uninsured, compared to 17.3% of African American adults and 6.5% of White adults (unadjusted analyses) (DPH 2008a). Hispanics were 5.4 times more likely, and African American adults were 2.7 times more likely, to be uninsured than White adults (see OHCA 2006, 3).

In the growing Hispanic or Latino population, “[w]idespread lack of health insurance is arguably one of the most urgent health problems facing Latinos today, contributing to poor health outcomes and premature death” (Hispanic Health Council [HHC] 2006, 28). In addition to Hispanics or Latinos, many other populations confront a “web of barriers” in attempting to access—and use—linguistically and culturally appropriate health insurance and health care (HHC 2006). Incorrect or incomplete medical communication due to language, cultural or other barriers contributes to increased physical, emotional, and economic costs to our state, communities, and families (HHC 2006). To reduce and eliminate health disparities, “access” in all its forms, including health insurance enrollment, must be regularly considered.

**Figure 47. Percent of Connecticut Adults with No Health Insurance, by Race or Ethnicity, 2004–2006**



Source: DPH 2008a.

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### Preventable Hospitalizations

OHCA defines preventable hospitalizations as “instances of inpatient hospital care for health conditions or illnesses typically treated or managed outside of the hospital”(OHCA 2008, 1). Tracking preventable hospitalizations helps identify potential gaps in the primary care system, gaps in access to care, and illustrates areas of potential cost savings (OHCA 2008, 1). In Connecticut, OHCA uses “Preventable Quality Indicators” (PQI) and “Pediatric Quality Indicators” (PDI) to measure preventable hospitalizations. These indicators are 19 health conditions considered “preventable” by the federal government, since timely primary care would “prevent” most people with such conditions from getting so ill that they would need hospital care (OHCA 2008, 1). PQIs include chronic conditions (e.g., asthma and diabetes), and acute episodes of illness (e.g., bacterial pneumonia or urinary tract infections) (OCHA 2008, 1, 5)

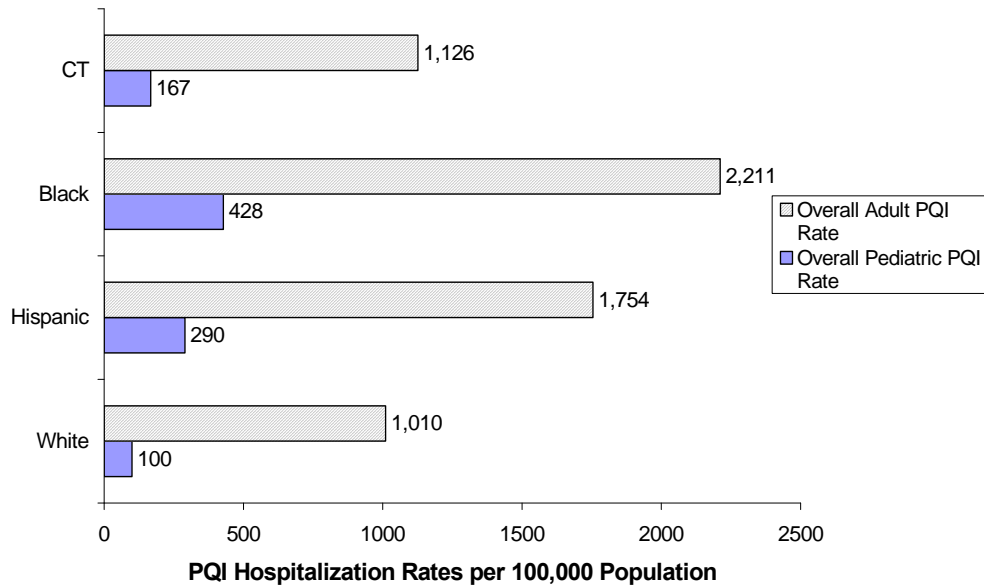
As with many overall health statistics, Connecticut fared well compared to the United States as a whole—the state had lower hospitalization rates for 16 of the 19 PQI conditions in fiscal year (FY) 2006, with about 48,000 preventable hospitalizations (OHCA 2008, 38). However, from FYs 2000 through 2006, the number of preventable hospitalizations grew by nearly 4%, and total preventable hospitalization charges increased from \$596 million to over \$1 billion, a 69% increase (OHCA 2008, 7). In FY 2006, 83% of all hospitalizations for PQI conditions were admitted through the emergency department (OHCA 2008, 38).

Racial and ethnic minority populations accounted for 100% of the growth in preventable hospitalizations between FYs 2000 and 2006, while preventable hospitalizations among Whites decreased 3% over this same time period. Hispanics and Blacks represented 44% and 31%, respectively, of the increase in preventable hospitalizations between FY 2000 and FY 2006 (OHCA 2008, 16). Figure 48 provides hospitalization rates for PQI and PDI conditions in FY 2006 by selected racial and ethnic groups for Connecticut adults and children. This figure illustrates the overall higher hospitalization rates in Blacks and Hispanics when compared with the White population in both adults and children. Blacks showed the highest rates for 16 of the 19 indicators (OHCA 2008, 17).

The OHCA report notes that since FY 2000, PQI hospitalizations for Hispanics increased 43%, and the Hispanic population hospitalized was younger than for other racial and ethnic groups, with 27% of PQI hospitalizations in the under-18 age group (OHCA 2008, 34–35). Among Blacks, PQI hospitalizations increased about 19%: an estimated

51% of those hospitalized for PQI conditions were in the working age group of 18–64 years of age (OHCA 2008, 36–37).

**Figure 48. Adult and Pediatric Hospitalization Rates for PQI and PDI Conditions, Connecticut, by Race or Ethnicity, FY 2006**



Source: Connecticut Office of Health Care Access (OHCA) 2008, 17.

## HEALTH CARE WORKFORCE

With our national and state populations' increased education, diversity, and longevity, it is critical to monitor shortages in, distribution of, and diversity within, the health care workforce (IOM 2008, 1; Perlino 2006; Johnson 2008; GAO 2008, 12; Kasprak 2006). Indeed, according to the federal Health Resources and Services Administration (HRSA), "Connecticut is projected to have the second greatest decline in the supply of nurses nationally over a 20 year period [2000–2020]" (Kasprak 2006). Below, basic information on federally-designated Health Professional Shortage Areas (HPSAs), and the diversity of Connecticut's health care workforce are presented.

### Health Care Profession Shortages

In 2004, Connecticut ranked fifth in the nation with 369 physicians per 100,000 population, compared to the U.S. average of 281 per 100,000, and ranked 23<sup>rd</sup> in terms of

numbers of dentists (Kasprak 2006). In 2005, Connecticut ranked among the top ten states for rate of registered nurses and physician assistants per 100,000 population (Kasprak 2006). However, not all individuals with Connecticut licenses practice in our state, nor are they all accessible by location, language, finance or other important access criteria to those in need. Some practitioners do not take insurance, or refuse to serve Medicaid/Medicare patients due to low reimbursement rates.

At the national level, HRSA has developed several strategies to address medical professional shortages, including the designation of “Health Professional Shortage Areas,” or “HPSAs.” Designation as a HPSA indicates shortages of “primary medical care, dental or mental health providers” and may be “geographic, demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility)” (U.S. DHHS 2008a). This designation can provide communities with evidence to qualify for federal resources such as the National Health Service Corps, J-1 visa physician staffing, loan repayment, and enhanced reimbursements for services to Medicaid and Medicare patients (U.S. DHHS 2008a). Connecticut currently has 95 shortage designations representing all or parts of 36 towns, focused in low-income urban and rural areas throughout the state (DPH 2008i, 3).

Federally Qualified Health Centers (FQHC) (also known as “Community Health Centers” or “Comprehensive Health Centers” [CHCs]), are governmental reactions to health care professional shortages in areas of need. Historically, patients targeted and served by CHCs include “low income populations, the uninsured, those with limited English proficiency, migrant and seasonal farm workers, individuals and families experiencing homelessness, and those living in public housing” (U.S. DHHS 2008b). Connecticut has thirteen FQHC model health centers that provided 918,426 patient visits in 2006, an increase of almost 23 percent since 2003 (DPH 2006).

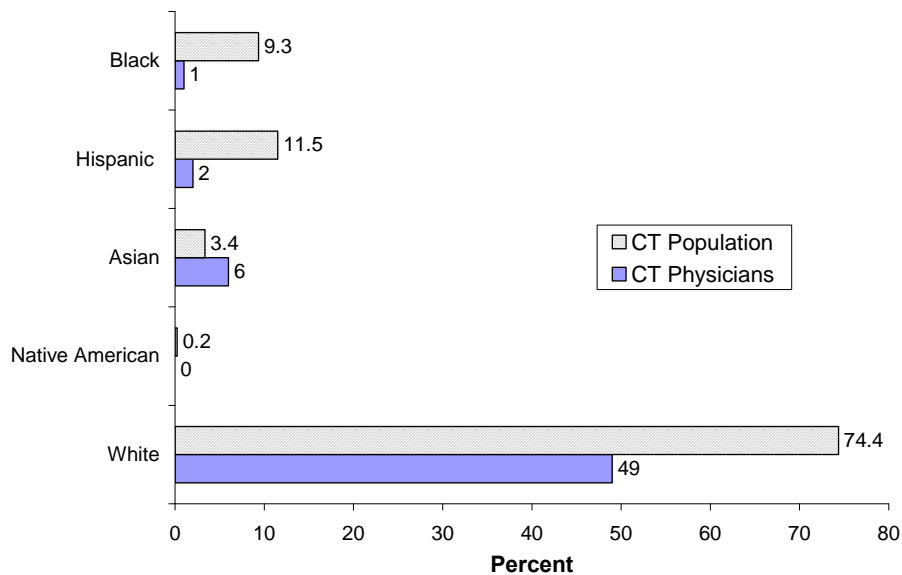
#### Diversity of the Health Care Work Force

Initiatives have been undertaken at national, state, and local levels to encourage racial, ethnic, linguistic and cultural concordance between patients and their health care providers, including training and outreach in: cultural competency; linguistic competency; health literacy and use of Plain English; medical interpretation; and translation of health materials (e.g., Cooper and Roter 2003; Cooper and Powe 2004; U.S. DHHS n.d.; The Plain Language Action and Information Network 2008). A 2006 report by HRSA noted that increased diversity in the health care workforce will “increas[e] access to care for

underserved populations, and...opportunities for minority patients to see practitioners with whom they share a common race, ethnicity or language,...which is associated with better patient-practitioner relationships and communication..." (U.S. DHHS 2006b).

In Connecticut, the diversity of our population is not reflected in the health care workforce. Figure 49 indicates the disparity between the state's racial and ethnic populations and the racial and ethnic breakdown of physicians serving the population. The Kaiser Family Foundation noted that in 2007, of the total state physician population who reported race or ethnicity, 49% were White, 1% was Black, 3% were Asian, and 2% were Hispanic. Approximately 41% of Connecticut physicians did not their report race or ethnicity (Kaiser Family Foundation 2007). In order to better address health disparities in Connecticut, however, full description of the health care workforce is necessary.

**Figure 49. Percent of Connecticut Population Compared with Percent of Connecticut Physicians, by Race or Ethnicity, 2007**



Source: Kaiser Family Foundation 2007; U.S. Census Bureau 2008a.