

# **Rhode Island Diabetes Health Profile**

## **2008**



### **Diabetes Prevention and Control Program**

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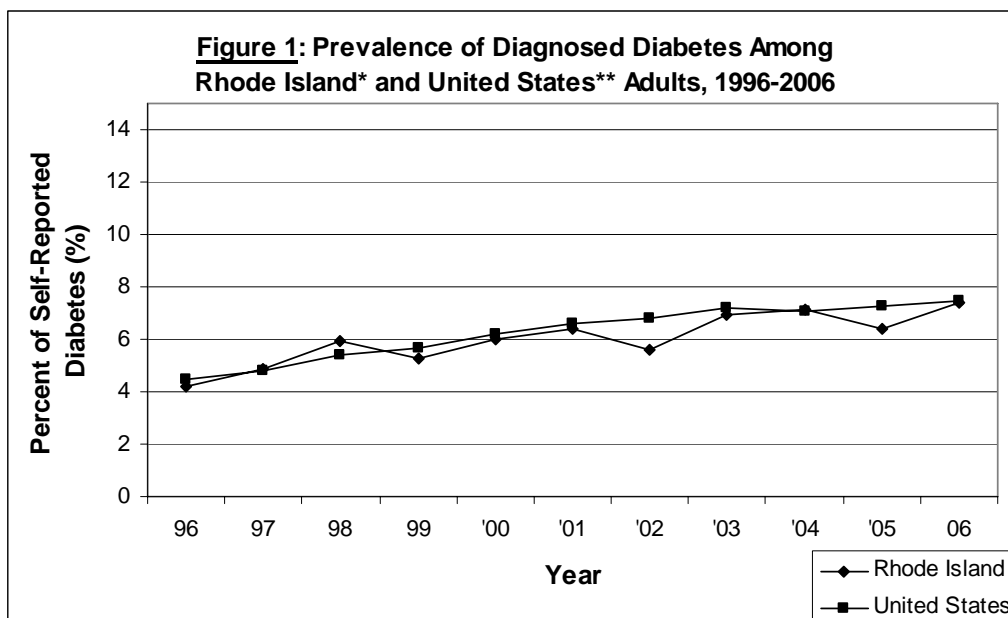
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## Prevalence of Diabetes:

The adult diabetes population in Rhode Island closely resembles the nation's increasing trends (Figure 1).<sup>1-2</sup> In 2006, an estimated 7.4% of Rhode Island adults aged 18 years or older have diagnosed diabetes<sup>3</sup> while 7.5% of the United States adult population had diagnosed diabetes.<sup>4</sup> The proportion of adults in RI with diabetes rises to twelve percent when the approximately 31,500 adults who have diabetes but remain undiagnosed are included with the known 63,000 cases.<sup>5</sup>

Adding to this burden of diabetes, is the large number of individuals with pre-diabetes, a condition where individuals have blood glucose levels higher than normal, but not high enough to be classified as diabetes.<sup>5</sup> Specifically, the Centers for Disease Prevention and Control has reported that 40.1% of adults in the United States aged 40-74 have been diagnosed with pre-diabetes.<sup>6</sup> This pre-diabetic condition raises the risk of type 2 diabetes, heart disease, and stroke, which all intensifies the rising epidemic of diabetes.<sup>6</sup>



\*Rhode Island BRFSS, 1996-2006.

\*\*Diabetes Data and Trends. Centers for Disease Control and Prevention. Available from: <http://www.cdc.gov/diabetes/statistics/>

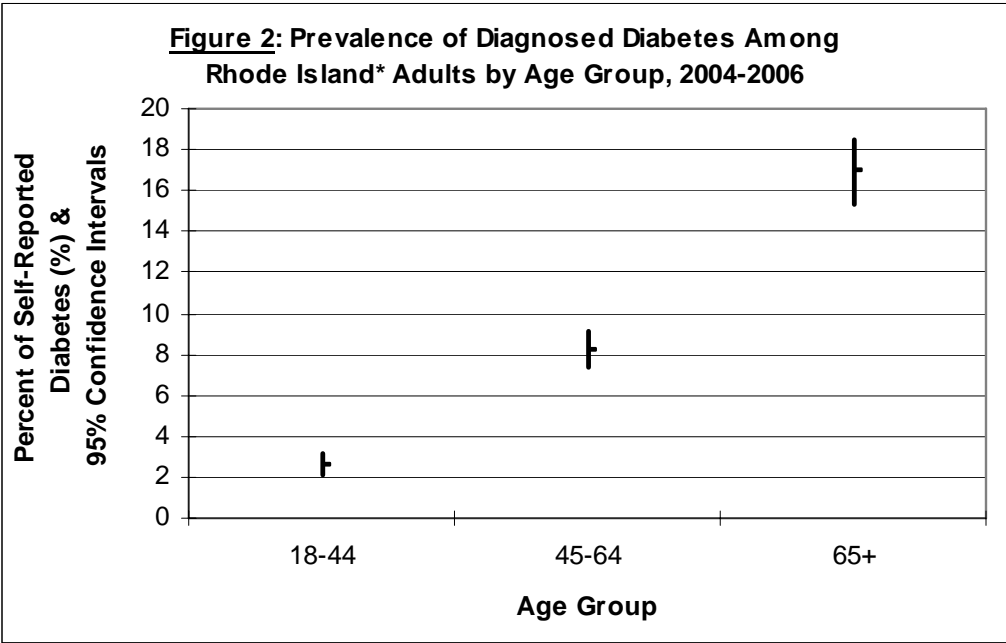
## Diabetes Rates Differ Between Population Groups:

In the United States, diabetes is most common among older adults. The CDC reports that in 2005, 2% of adults aged 20 to 39 years have diagnosed diabetes, 10% of adults aged 40 to 59 years, and 21% of adults aged 60 years or older have diagnosed diabetes in the United States.<sup>7</sup> This increase in risk among older adults is also seen in the Rhode Island population where 41.3% of the total estimated number of people with diabetes are in the 65+ age group.<sup>5</sup> Moreover, approximately 3% of adults aged 18 to 44 years have diagnosed diabetes, 8% of adults aged 45 to 64 years, and 17% of adults aged 65 years or older have diagnosed diabetes (Figure 2).

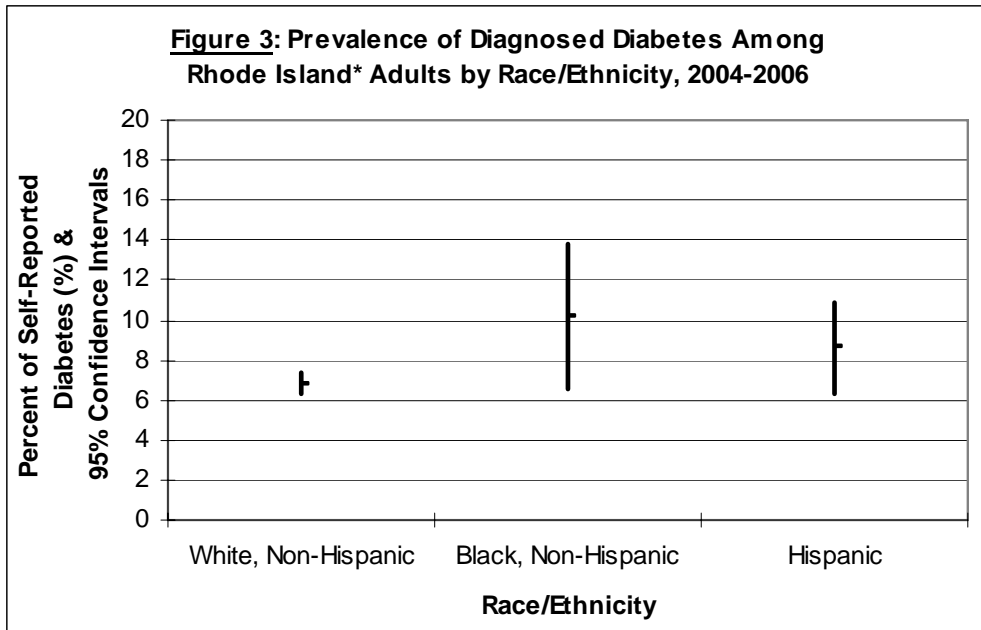
Diabetes is a major clinical and public health challenge within certain racial and ethnic groups where both diabetes and the risk of associated complications are great.<sup>8</sup> Compared to non-Hispanic whites, diabetes continues to be more common (1.7 to 2.2 times) among American Indians and Alaska Natives, non-Hispanic Blacks, Hispanic/Latino Americans, and Asian Americans and

Pacific Islanders in the United States.<sup>7</sup> Specifically, in Rhode Island, the prevalence of diagnosed diabetes is highest among Black/African American adults (10.2%) while approximately seven percent of White adults and eight percent of Hispanic adults have been diagnosed with diabetes (Figure 3). The 95% confidence intervals overlap for each of these groups and there is not a statistically significant difference among these racial and ethnic groups due to the small numbers.

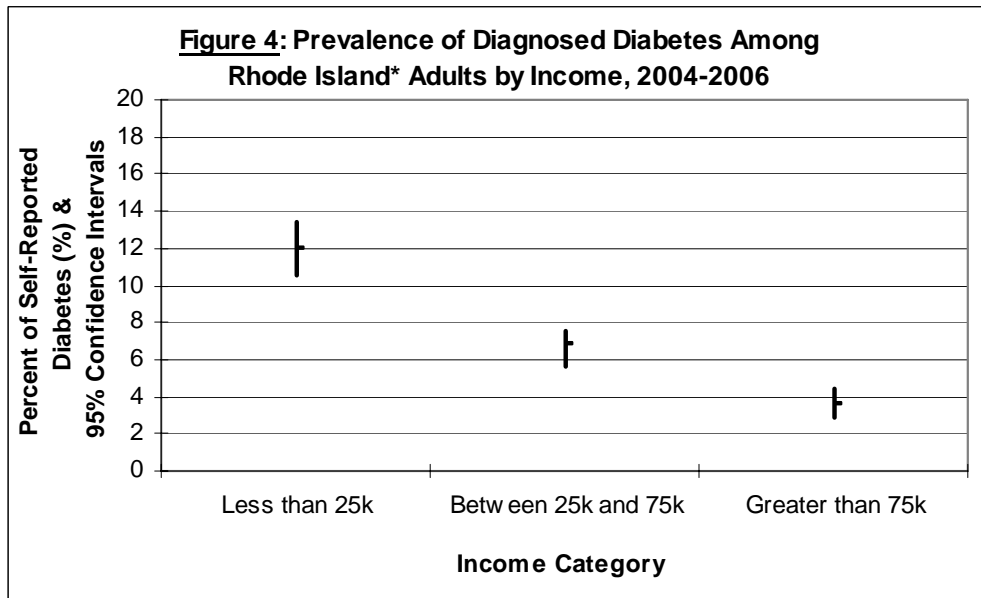
Several other interrelated factors influence the present and future burden of diabetes, including genetics, cultural and community traditions, and socioeconomic status (SES).<sup>9</sup> In particular, low income populations have been reported to have a diabetes prevalence of up to two times higher compared to wealthy populations.<sup>10</sup> In Rhode Island, approximately twelve percent of adults who report to make less than \$25,000 annually have a statistically significant difference in prevalence of diabetes than those who make between \$25,000 and less than \$75,000 annually (6.78%) and those who report to make \$75,000 or greater annually (3.65), in 2006 (Figure 4).<sup>1</sup>



\*Rhode Island BRFSS, 2004-2006.



\*Rhode Island BRFSS, 2004-2006.



\*Rhode Island BRFSS, 2004-2006.

## Clinical Preventative Services:

Complications can seriously diminish the quality of life for individuals with diabetes. However, research shows that people with diabetes can take steps to control the disease and minimize the risks of these health complications.<sup>11</sup> Through education, persons with diabetes and their families can learn techniques such as maintaining a consistent blood-sugar level near normal, and learn new knowledge such that increased physical activity can reduce some of the health complications. Rhode Island has set an agenda to reduce the disease and economic burden of diabetes, and improve the quality of life for all persons who have or are at risk for developing this disease through Healthy People 2010 Goals.

Table one shows how Rhode Island is performing on specific Healthy People 2010 goals compared to the United States in 2005.<sup>1-2</sup> Overall, RI is performing higher compared to the US as a whole on these clinical preventative measures. In fact, RI has surpassed the HP2010 goals for adults with diabetes having at least one A1C test in the past year and having an annual dilated eye exam, 87% and 77%, respectively.

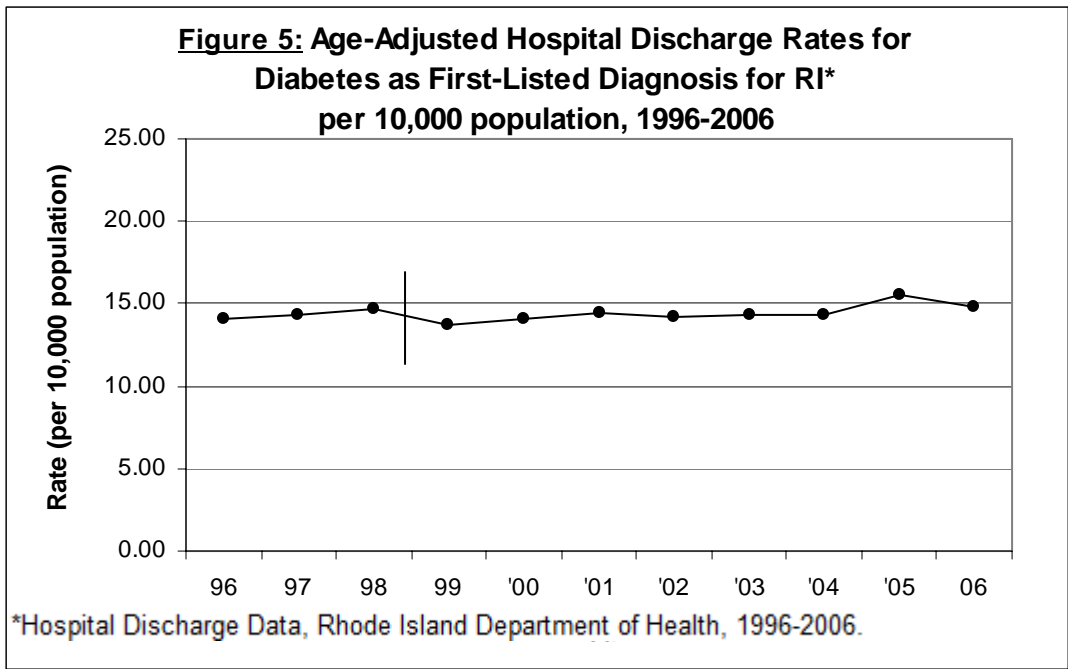
| Measures for Patients with Diabetes         | Goal                           | Total Percentage Achieved in 2005 |                            |                                   | Age Categories for RI <sup>1</sup><br>(2004-2006) |                         |                         |
|---|--------------------------------|-----------------------------------|----------------------------|-----------------------------------|---|-------------------------|-------------------------|
|   | HP 2010 <sup>12</sup>          | US <sup>2</sup><br>(Age-Adjusted) | RI <sup>1</sup><br>(Crude) | RI <sup>1</sup><br>(Age-Adjusted) | 18-44   | 45-64                   | 65+                     |
| At Least 1 A1c Test in Past Year            | 50%                            | 60.6                              | 87.06<br>(82.08, 92.04)    | 87.36<br>(81.22, 93.49)           | 84.04<br>(72.73, 95.34)                           | 90.58<br>(85.98, 95.17) | 89.47<br>(85.17, 93.76) |
| Annual Dilated Eye Exam                     | 75%                            | 66.0                              | 81.87<br>(76.44, 87.29)    | 77.54<br>(70.24, 84.83)           | 59.68<br>(46.65, 72.71)                           | 79.47<br>(73.43, 85.51) | 89.75<br>(86.15, 93.34) |
| Annual Foot Exam                            | 75%                            | 64.3                              | 72.46<br>(66.24, 78.67)    | 72.90<br>(65.41, 80.39)           | 59.61<br>(46.41, 72.82)                           | 75.15<br>(68.68, 81.61) | 73.13<br>(67.17, 79.09) |
| Attended Diabetes Outpatient Education Ever | 60%                            | 54.3                              | 49.03<br>(42.45, 55.60)    | 51.28<br>(43.22, 59.33)           | 51.70<br>(38.65, 64.75)                           | 56.96<br>(49.83, 64.09) | 46.34<br>(39.71, 52.98) |
| Ever had Pneumococcal Vaccine               | 60%<br>(18-64)<br>90%<br>(60+) | 39.4                              | 61.00<br>(54.28, 67.73)    | 51.70<br>(43.42, 59.97)           | 39.09<br>(26.04, 52.15)                           | 48.73<br>(41.12, 56.34) | 78.77<br>(73.46, 84.07) |
| Annual Influenza Vaccine                    | 60%<br>(18-64)<br>90%<br>(60+) | 37.4                              | 59.54<br>(53.07, 66.01)    | 51.45<br>(43.70, 59.19)           | 46.82<br>(33.90, 59.73)                           | 52.87<br>(45.58, 60.16) | 75.01<br>(69.33, 80.69) |

## Diabetes Related Morbidity:

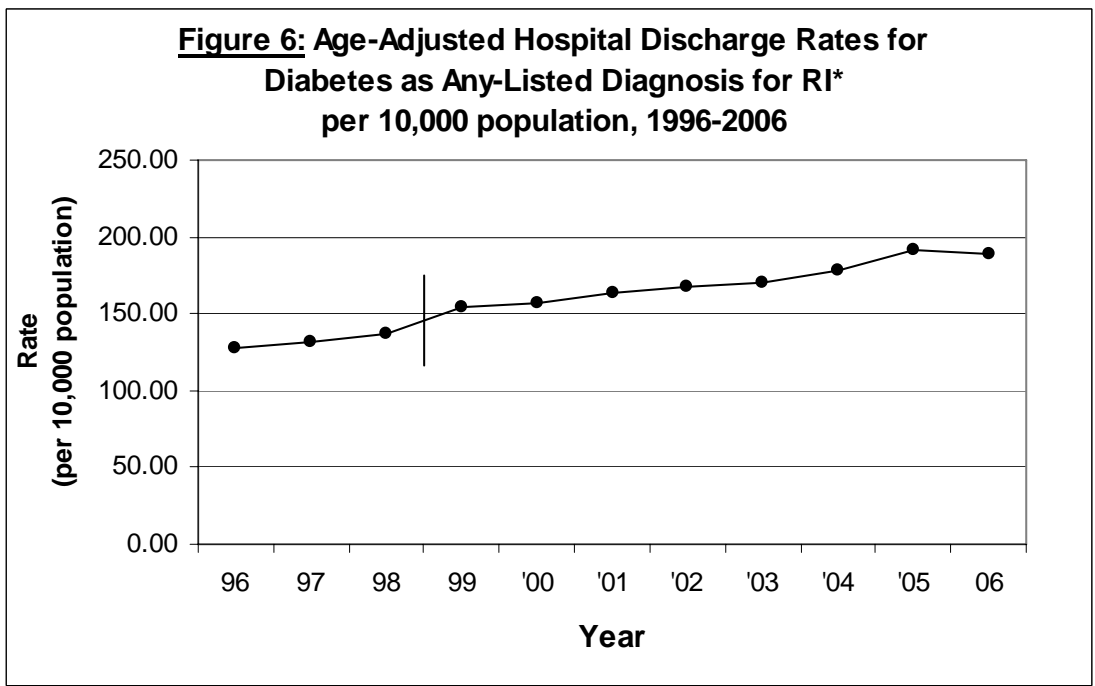
Diabetes preventative-care practices have shown to be effective in reducing the incidence and progression of diabetes-related complications. By monitoring the rate of hospital discharges for diabetes and its related health complications, public health officials can aim to minimize morbidity and mortality among adults with diabetes. Figures 5 and 6 show the age-adjusted hospital discharge rates for diabetes as first-listed and as any-listed diagnosis in Rhode Island per 10,000 general population, respectively. Looking at diabetes as the first-listed diagnosis on hospital discharge records, the age-adjusted rate of diabetes has remained relatively stable from 1999-2006 at approximately 15 per 10,000 people (Figure 5). On the other hand, the age-adjusted rate for diabetes listed as any diagnosis on hospital discharge records has steadily increased from 1996-2006 (Figure 6).

Having diabetes puts adults twice as likely as someone who does not have diabetes to develop heart disease or have a stroke at an earlier age than other people. If you are middle-aged and have type 2 diabetes, some studies suggest that your chance of having a heart attack is as high as someone without diabetes who has already had one heart attack.<sup>13</sup> Figure 7 shows the age-adjusted rates for heart failure, ischemic heart disease, and major heart disease as first-listed diagnosis and diabetes as any other listed diagnosis on hospital discharge records per 10,000 people in Rhode Island from 1996-2006. Major heart disease has the highest discharge rate at approximately 50 per 10,000 people in Rhode Island while ischemic heart disease and heart failure have similar discharge rates at about 15 per 10,000 people in Rhode Island in 2006 (Figure 7). The following graph shows the age-adjusted rates of the same heart problems per 1000 adults with diabetes in Rhode Island. A similar trend between major heart disease and ischemic heart disease and heart failure is seen between figures 7 and 8. However the difference is not as prominent where the age-adjusted rate for heart disease is 50 per 1000 people with diabetes and for ischemic heart disease and heart failure is approximately 20 per 1000 people with diabetes in RI.

In this United States, diabetes is the leading cause of non-traumatic amputations (approximately 57,000 per year or 150 per day) and blindness among working-aged adults (approximately 28,000 per year or 70 per day).<sup>14</sup> The Healthy People 2010 goal is set to reduce these amputations to 18 for every 10,000 persons with diabetes each year. Figure 9 shows the age-adjusted hospital discharge rates for non-traumatic lower extremity amputations (NTLEA) and diabetes listed as any diagnosis on the record per 1000 people with diabetes in Rhode Island from 1996-2006. Rhode Island is steadily decreasing the rates of NTLEA among adults with diabetes and currently is hovering right above the Healthy People 2010 goal (Figure 9).



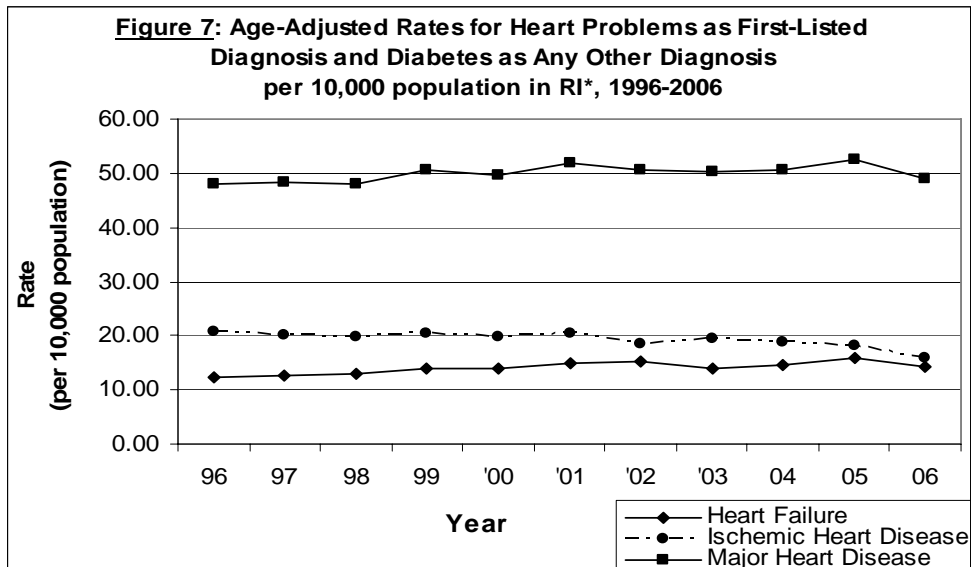
\*\*There is a break between 1998 and 1999 representing the change from 7 to 11 diagnoses on hospital discharge records that occurred in September of 1999 in Rhode Island.<sup>15</sup>



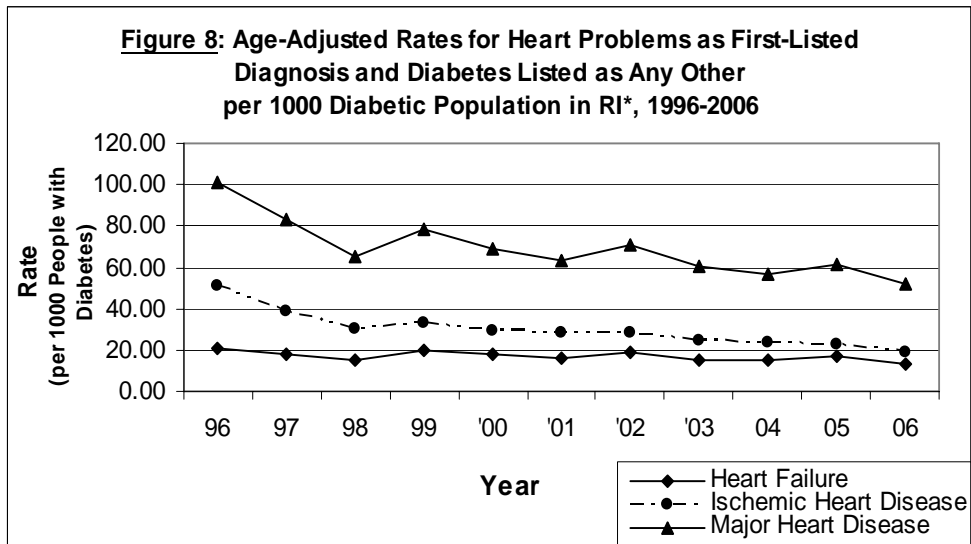
\*Hospital Discharge Data, Rhode Island Department of Health, 1996-2006.

\*\*There is a break between 1998 and 1999 representing the change from 7 to 11 diagnoses on hospital discharge records that occurred in September of 1999 in Rhode Island.<sup>15</sup>

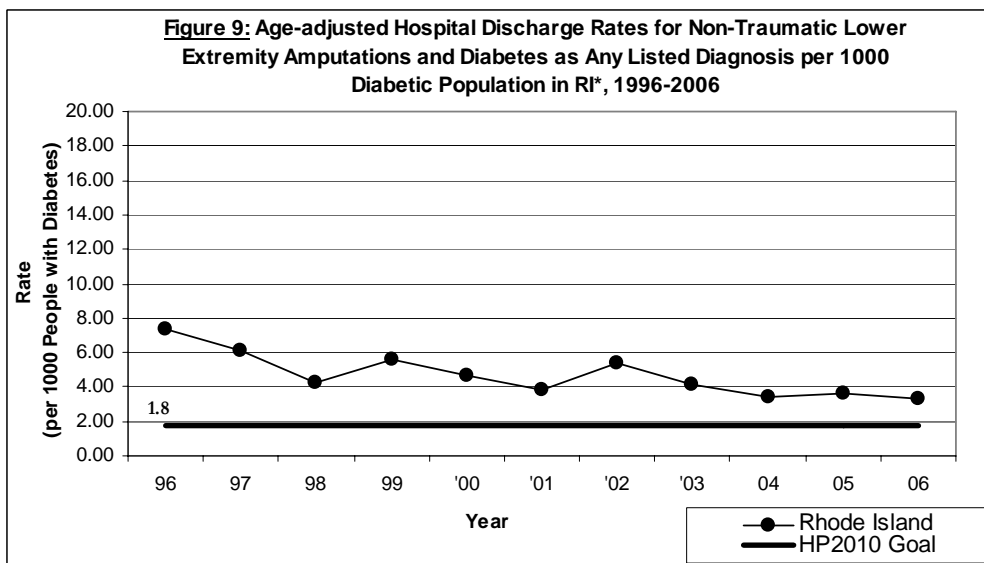




\*Hospital Discharge Data, Rhode Island Department of Health, 1996-2006.



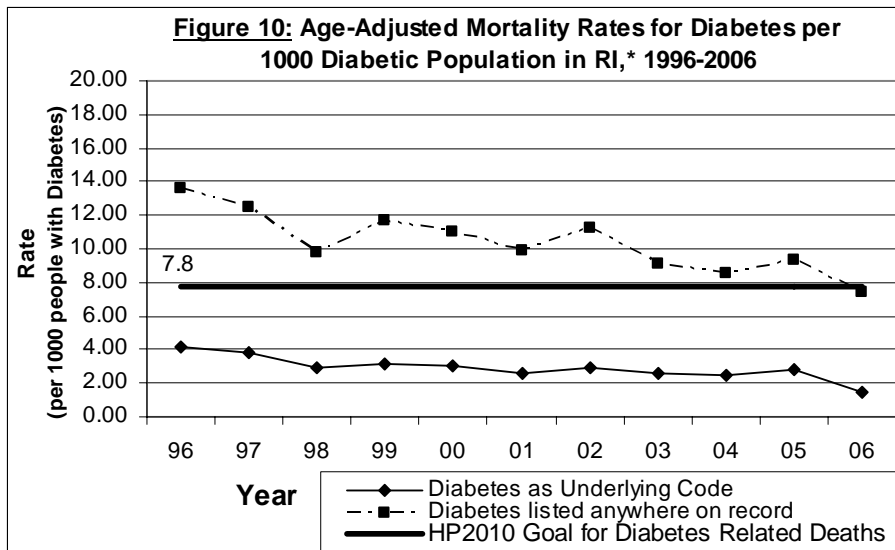
\*Hospital Discharge Data, Rhode Island Department of Health, 1996-2006.



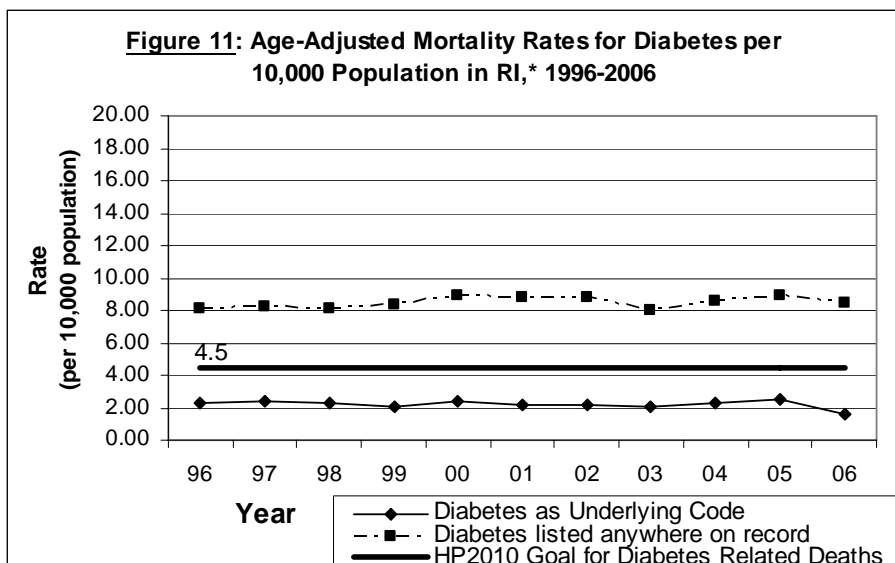
\*Hospital Discharge Data, Rhode Island Department of Health, 1996-2006.

## Diabetes-Related Mortality:

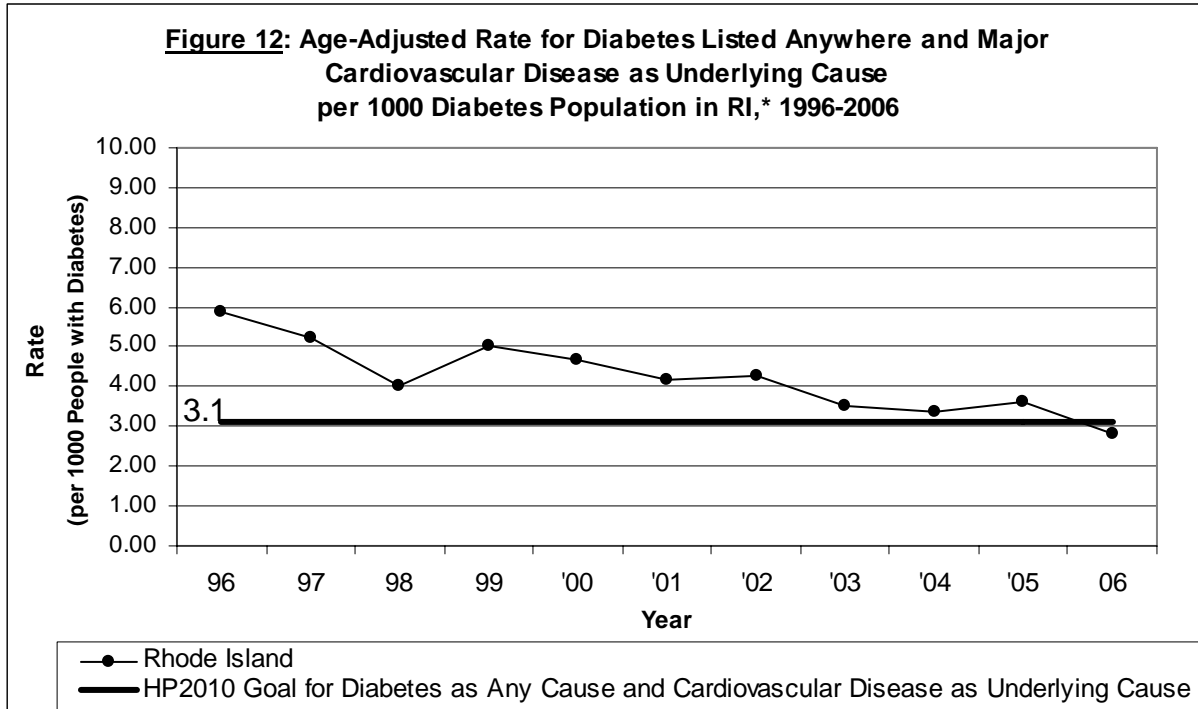
Over the past decade, diabetes has remained the seventh leading cause of death in the United States, primarily from diabetes-associated cardiovascular disease. Persons with diabetes experience death rates two to four times greater than non-diabetic persons, especially from cardiovascular disease.<sup>9</sup> This mortality rate can be reduced through public health interventions that focus on adults with diabetes taking proper precautions to manage their diabetes. There are three HP2010 objectives that pertain to diabetes-related deaths listed anywhere on the death certificate. One states a goal to reduce deaths listed anywhere on death certificates to 7.8 per 1,000 adults with diabetes. Figure 10 relates to this objective, which shows that Rhode Island is approaching the objective. The second objective relates to reducing the diabetes death rate to 4.5 deaths per 10,000 people anywhere on the death certificate, and figure 11 portrays how Rhode Island is performing. The last HP2010 relating to diabetes deaths are to reduce deaths related to cardiovascular disease to 3.09 per 1,000 people with diabetes. Figure 12 shows that RI's age-adjusted for diabetes listed as any cause and major cardiovascular disease listed as the underlying cause per 1,000 adults with diabetes is steadily decreasing from 1996-2006, and is currently slightly under the HP2010 goal.



\*Mortality Data, Rhode Island Department of Health, 1996-2006.



\*Mortality Data, Rhode Island Department of Health, 1996-2006.



\*Mortality Data, Rhode Island Department of Health, 1996-2006.

- <sup>1</sup> Rhode Island BRFSS, 1995-2006.
- <sup>2</sup> Diabetes Data and Trends. *Centers for Disease Control and Prevention*. (March 26, 2007). (October 11, 2005). Available from: <http://www.cdc.gov/diabetes/statistics/>. Accessed on May 9, 2008.
- <sup>3</sup> Rhode Island BRFSS, 2006
- <sup>4</sup> Behavioral Risk Factor Surveillance System: Prevalence Data. *Centers for Disease Control and Prevention*. (2007). <http://apps.nccd.cdc.gov/brfss/display.asp?cat=DB&yr=2006&qkey=1363&state=UB>. Accessed on May 9, 2006.
- <sup>5</sup> Diabetes Statistics in Rhode Island: Diabetes Fact Sheet for Rhode Island: 2006. *Diabetes Prevention and Control Program*. (1998-2006). <http://www.health.ri.gov/disease/diabetes/DiabetesSurveillanceRIFactsheet2006.pdf>. Accessed on May 9, 2006.
- <sup>6</sup> Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005.
- <sup>7</sup> Number of Americans with Diabetes Continues to Rise. *Centers for Disease Control and Prevention*. (October 26, 2005). <http://www.cdc.gov/od/oc/media/pressrel/fs051026.htm>. Accessed on May 13, 2008.
- <sup>8</sup> Flegal K, Ezzati T, Harris M, et al. Prevalence of diabetes in Mexican Americans, Cubans, and Puerto Ricans from the Hispanic Health and Nutrition Examination Survey, 1982-1984. *Diabetes Care*. 1991; 14: 628-638.
- <sup>9</sup> U.S. Department of Health and Human Services. Healthy People 2010. Chapter 5: Diabetes Available from: <http://www.healthypeople.gov/document/HTML/Volume1/05Diabetes.htm>. Accessed on May 12, 2008.
- <sup>10</sup> Rabi DM, et al. Association of Socio-Economic Status with Diabetes Prevalence and Utilization of Diabetes Care. *BMC Health Services Research*. 2006; 6:124.
- <sup>11</sup> Kondilis, Barbara, Joann Lindenmayer, and Dona Goldman. (April 2002). Diabetes: An Epidemic of a Chronic Disease. *Health by Numbers*. RI Department of Health, 4: 4.
- <sup>12</sup> U.S. Department of Health and Human Services. Healthy People 2010. Available from: <http://www.healthypeople.gov/document/HTML/tracking/OD05.htm>
- <sup>13</sup> National Diabetes Information Clearinghouse (NDIC). "Diabetes, Heart Disease and Stroke." (December 2005). <http://diabetes.niddk.nih.gov/dm/pubs/stroke/>. Accessed on May 16, 2008.
- <sup>14</sup> Centers for Disease Control and Prevention (CDC). "National Diabetes Fact Sheet: National Estimates and General Information on Diabetes in the United States." Atlanta, GA: US Department of Health and Human Services (HHS), CDC, 1999.
- <sup>15</sup> Rhode Island Department of Health Hospital Discharge Data Specifications for Public Use Data File. (2003). <http://www.health.state.ri.us/chic/statistics/hdd1999-2003.pdf>. Accessed on May 16, 2008.