

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Introduction

Chronic obstructive pulmonary disease (COPD) involves a process characterized by nonspecific changes in the lung parenchyma and bronchitis that can lead to emphysema and airflow obstruction. Clinically and pathologically, chronic bronchitis, emphysema, and chronic airway obstruction can be difficult to differentiate, and they are frequently grouped together under the heading of COPD. Age-adjusted mortality rates for males were fairly constant from 1986-1995, whereas rates for women have increased steadily (Figure 3-33). Mortality rates were similar for black and white males, but were lower for black females than white females (Figure 3-34). The economic cost of COPD includes both the cost of care and the loss of productivity. Disability in COPD patients progresses gradually after initial diagnosis, and after an average of 7.5 years, most COPD patients are no longer capable of productive work.

COPD is thought to result from direct interaction of lung tissue with environmental agents, of which tobacco smoke is the most significant. Thus, the strongest risk factor for COPD development is cigarette smoking. Both men and women smokers have approximately 10 times the risk for COPD compared to nonsmokers. The occurrence of wheezing, frequent cough, and airway hyper-responsiveness in children also has been associated with parental smoking.

Modifiable Risk Factors

Elimination of tobacco use is the single most important way to prevent COPD occurrence. Exposure to environmental tobacco smoke (ETS) is also known to cause the development or exacerbation of symptoms or illnesses that range from the sub-clinical to those requiring hospitalization. There is no known safe level of exposure to ETS, and no way to quantify actual exposure. In addition, individual characteristics or other factors that may affect resultant symptoms or illness are extremely difficult to account for. However, it is simpler to describe the risks of exposure to ETS for fetuses, infants, and very young children, populations whose respiratory, cardiovascular, and other bodily systems are developing and who are clearly at risk from smaller dosages that may be inconsequential in adults.

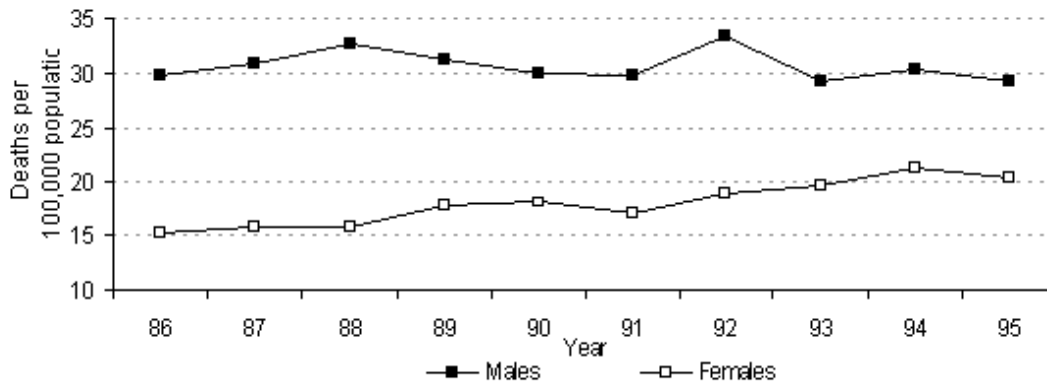
Children's exposure to ETS is a significant public health problem. Each year in Connecticut, an estimated 30 infants die from causes related to maternal smoking during pregnancy and/or exposure to ETS in the first months of life. Affected male infants less than one year old lose almost 70 years of potential life, and female infants lose 76 years of potential life. There is some evidence that ETS exposure is a risk factor for asthma.

Figure 3-33

Chronic Obstructive Pulmonary Disease

Average Annual Age-adjusted Mortality Rates by Sex

Connecticut, 1986-95



Note: Age adjusted to 1970 U.S. standard million population
 Source: DPH, OPPE

Potential for Intervention

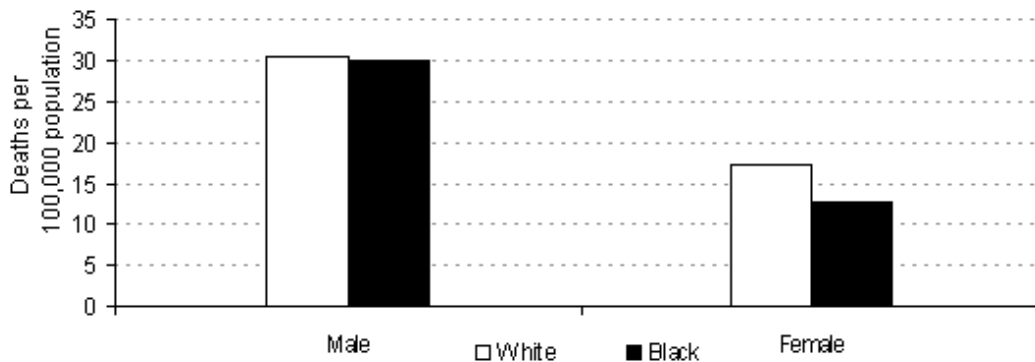
Policy initiatives include raising the excise tax on cigarettes and media campaigns challenging the tobacco industry in extensive advertising efforts. A national tobacco settlement, approved by the U.S. Congress, has awarded money to states for public education programs that could be allocated for community interventions targeting women of childbearing age in prenatal clinic and office settings. These programs could focus on making protective environmental changes in the home and vehicles, and both quitting and decreasing smoking by this population. In addition, media awareness campaigns and especially media targeting youth could be funded. Based on experience in California and Massachusetts, where substantial amounts of money were allocated for tobacco use prevention, the most effective programs were high quality and highly promoted media campaigns and local community programs.

Figure 3-34

Chronic Obstructive Pulmonary Disease

Age-adjusted Mortality Rates by Sex and Race

Connecticut, 1989-91



Note: Both white and black race groups include persons of Hispanic origin.
 Source: DPH, OPPE.

DIABETES

Diabetes is a major cause of death and disability in Connecticut. It is the leading cause of end-stage renal disease over all ages and the leading cause of blindness among working-age adults. Diabetes is a major cause of non-traumatic lower extremity amputations and major congenital malformations. Other

complications associated with diabetes include cardiovascular disease and peripheral vascular disease. The disease burden of diabetes and its complications is large, costly, disproportionately affects minority populations and older age groups and is likely to increase as minority populations grow and the total population becomes older.

Prevalence

Based on the 1994 Connecticut BRFSS, an estimated 5.1% or 127,000 adults (18 years and older) have diagnosed diabetes. However, national health surveys indicate that the prevalence of undiagnosed diabetes is as great as that of diagnosed diabetes. Therefore, the true prevalence of adult diabetes in Connecticut is at least twice the BRFSS prevalence estimate or 10.2%. There are two types of diabetes, insulin-dependent diabetes (Type 1) and non-insulin-dependent diabetes (Type II). Type I diabetes (formerly known as "juvenile" diabetes) is one of the most common childhood diseases, affecting an estimated 1,400 children in Connecticut under age 20.

Impaired glucose tolerance (IGT) refers to a condition in which blood sugar levels are higher than normal but not high enough to be classified as diabetes. IGT is a major risk factor for Type II diabetes. This condition is present in about 11% or approximately 273,500 Connecticut adults. In addition, an estimated 915,170 adults in Connecticut are at increased risk of undiagnosed diabetes due to the risk factors of age, obesity, sedentary lifestyle, or history of gestational diabetes.

Mortality

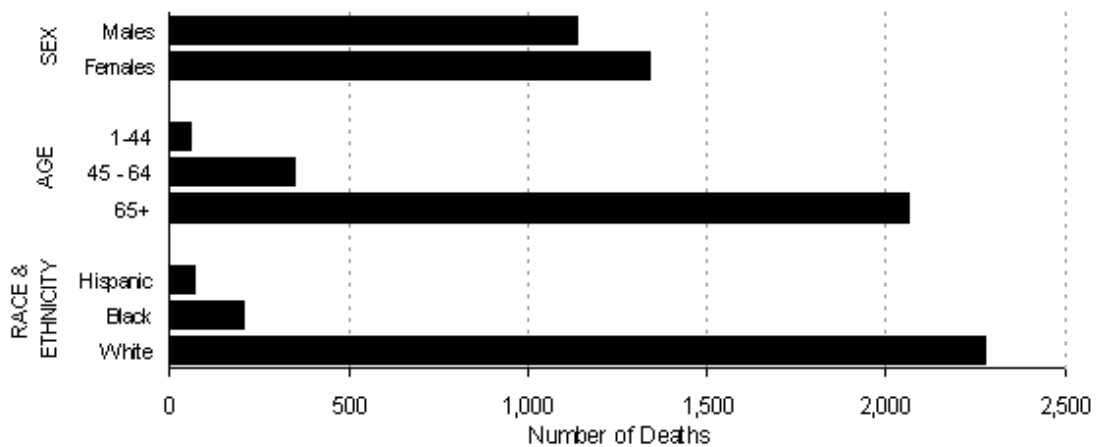
Because people die of the complications of diabetes rather than the disease itself, diabetes is underreported as the underlying cause or even as a contributory cause of death. Diabetes was the seventh leading underlying cause of death listed on 1994 Connecticut death certificates, with 627 deaths directly attributable to diabetes. Diabetes also contributed to an additional 1,844 deaths in 1994 (Figure 3-35).

Trends

A statistically significant difference ($p < 0.05$) was found between the 1979-81 and 1989-91 age-adjusted mortality rates for diabetes (11.9 and 12.5 per 100,000 population, respectively), indicating an upward trend in mortality due to diabetes. Because of the higher prevalence of diabetes in minority populations and older Americans, an increase in the number of diabetics is expected due to the demographic shift in the population.

Figure 3-35

Number of Deaths with Diabetes as Underlying or Contributory Cause
Connecticut, 1994



Source: DPH, OPPE

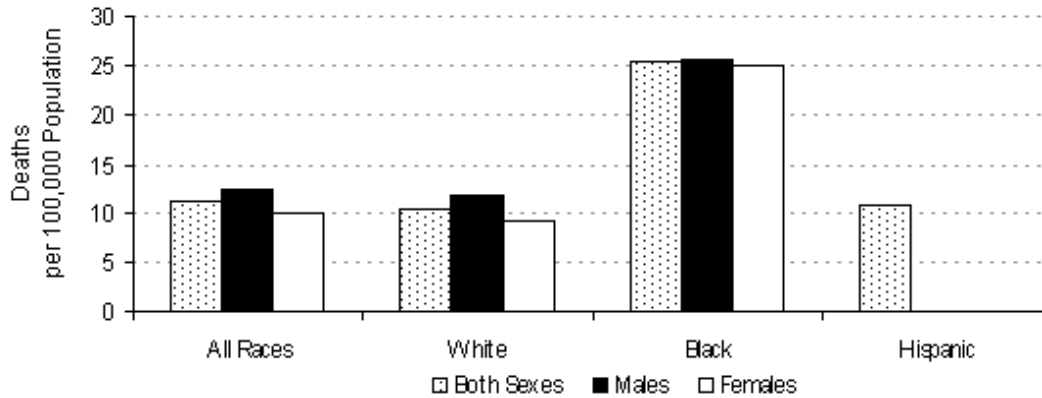
High Risk Subgroups

The 1989-1991 Connecticut age-adjusted mortality rate for diabetes was greater for blacks than whites, regardless of sex (Figure 3-36). As shown in Figure 3-37, the prevalence of diabetes was disproportionately high among minorities and older age groups. Black non-Hispanics and Hispanics had higher prevalence rates than white non-Hispanics, and the 65+ age group had the highest prevalence rate of all age groups. Preliminary analyses of 1994 Connecticut hospital discharge data indicate that black and Hispanic diabetics were hospitalized at younger ages than whites for diabetes and related conditions (Figure 3-38).

Figure 3-36

Diabetes Age-Adjusted Mortality Rates

Connecticut, 1989-91



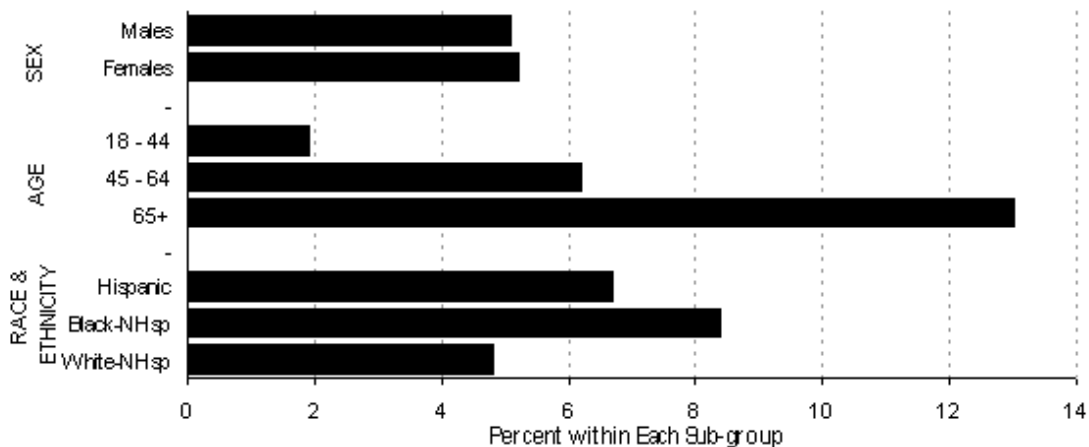
Note: Both white and black race groups include persons of Hispanic origin.

Source: DPH, OPPE

Figure 3-37

Estimated Prevalence of Diagnosed Diabetics

Connecticut, 1994

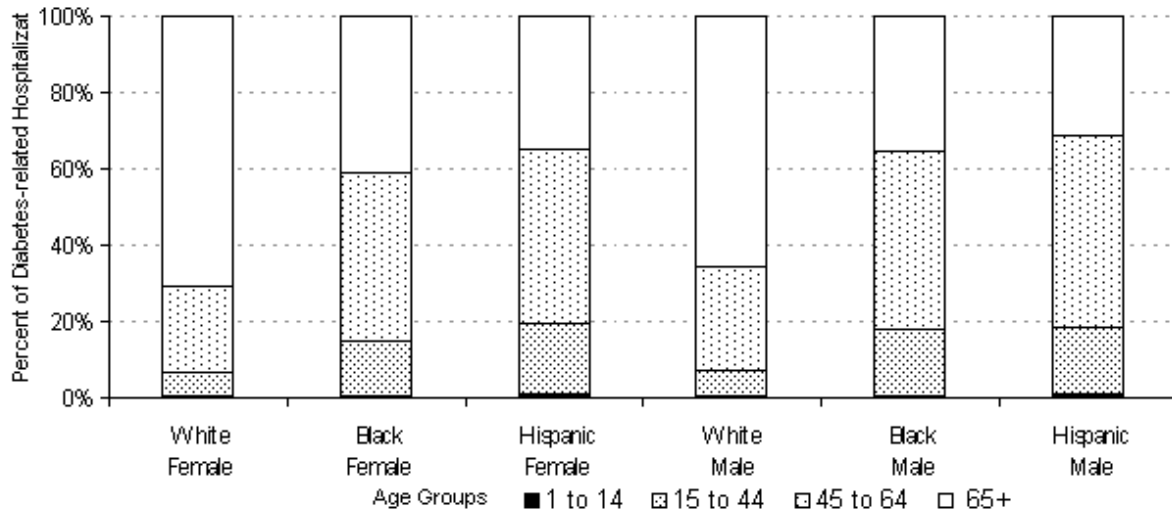


Source: DPH, OPPE

Figure 3-38

Percentage of Diabetes-related Hospitalizations by Race/Ethnicity, Sex, and Age Group

Connecticut, FFY 1994



Note: The percentage of hospitalizations for ages 1-14 was <1% for all race/ethnicity/sex categories.

Source: OHCA, Hospital Discharge Data Base

Morbidity

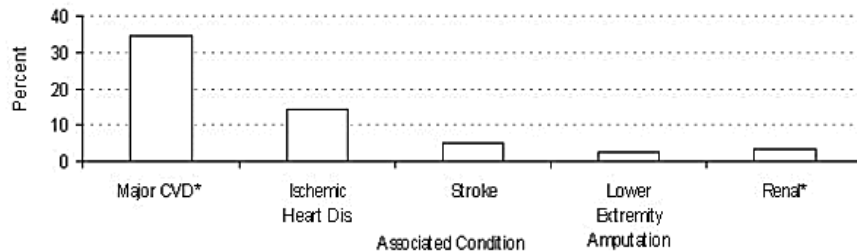
People with diabetes in Connecticut suffer from many diabetes-related complications or conditions. The percentage of hospitalized diabetics receiving inpatient treatment for selected diabetes associated conditions (Figure 3-39) indicates that cardiovascular disease is a major comorbidity-morbidity of diabetes.

Figure 3-39

Hospitalized Diabetics (N=42,471)

Percent Receiving Inpatient Treatment for Diabetes-associated Conditions

Connecticut, 1994



*"CVD" = Cardiovascular disease. "Renal" includes dialysis treatments and kidney transplants.

Source: OHCA, Hospital Discharge Abstract and Billing Data Base

The complications and conditions most commonly associated with diabetes are as follows.

Heart Disease - Cardiovascular disease is 2 to 4 times more common in people with diabetes. Middle-aged people with diabetes have total death rates (all causes) twice as high, and heart disease death rates about 2 to 4 times as high, as middle-aged persons without diabetes. In 1994, cardiovascular disease was reported on death certificates in 48% of diabetes-related deaths in CT.

Stroke - The risk of stroke is 2 to 4 times higher among persons with diabetes.

High Blood Pressure - An estimated 60 - 65% of persons with diabetes have high blood pressure.

Blindness - An estimated 40% of people with diabetes have at least mild signs of diabetic retinopathy. Diabetes is the leading cause of new cases of blindness among adults 20 to 74 years of age. Diabetes was the major cause of blindness for 1,859 legally blind people registered with the CT Board of Education and Services for the Blind in 1994.

Kidney Disease (Treatment by Dialysis or Transplantation) - Diabetes is the leading cause of end-stage renal disease (ESRD), accounting for 36% of new cases. Diabetes was listed as the primary cause of ESRD for 730 Connecticut residents registered with the ESRD Network of New England. It is known that diabetes status is underreported for persons with ESRD due to the reporting of only the primary cause of ESRD for those registered with the network. In 1994, 1,409 hospitalizations were for diabetes-related kidney treatment, transplant or dialysis.

Nerve Disease - About 60 - 70% of people with diabetes have mild to severe forms of diabetic nerve damage, with such manifestations as impaired sensation in the feet or hands, delayed stomach emptying, carpal tunnel syndrome, peripheral neuropathy. Severe forms of diabetic nerve disease are a major contributing cause of lower extremity amputations.

Amputations - In 1994, 1,085 Connecticut residents underwent lower extremity amputations due to diabetes or diabetes-related conditions.

Dental Disease - Studies show that periodontal disease, which can lead to tooth loss, occurs with greater frequency and severity among persons with diabetes. In one study, 30% of patients with Type I diabetes over age 18 had periodontal disease.

Pregnancy Complications - The rate of congenital malformations in babies born to women with pre-existing diabetes varies from 0 - 5% among women who receive preconception care to 10% among women who do not receive preconception care. Between 3% and 5% of pregnancies among women with diabetes result in death of the newborn; this compares to a rate of 1.5% for women who do not have diabetes. Gestational diabetes develops in some pregnant women, then disappears when the pregnancy is over. A history of gestational diabetes, however, is a risk factor for eventual development of Type II diabetes. Gestational diabetes occurs in 2% to 5% of pregnancies, and at higher rates among African Americans, Hispanics, and American Indians.

Economic Aspects

The estimated direct cost (medical care) and indirect cost (lost productivity and premature mortality) of diabetes in CT totaled about \$1.6 billion in 1994. Approximately \$52 million was charged for 1994 CT in-patient hospitalizations due to diabetes and its complications. Medicaid and Medicare were the expected payers for 78% of this bill. Charges for cardiovascular disease hospitalizations for which diabetes was a contributing factor totaled \$236.7 million in 1994.

Modifiable Risk Factors and Potential for Intervention

Approximately 90% of all people with diabetes have Type II. Obesity is strongly linked to the development of Type II diabetes. Interventions to reduce obesity including nutrition education programs, physical activity programs, and educational programs to increase public knowledge of diabetes. Targeting high risk populations would reduce diabetes incidence, prevalence, and mortality rates in Connecticut. Complications associated with diabetes can be prevented or delayed with early detection, improved delivery of care, and diabetes self-management. Interventions that provide individuals with the knowledge and skills required in adequate diabetes self-management, knowledge and utilization of available community resources, and appropriate utilization of health care resources could do much to reduce the economic and personal burden associated with diabetes.

DENTAL DISEASES

Dental diseases and conditions are among the most prevalent and preventable chronic health problems, and dental caries remains the single most common disease of childhood that is not self-limiting or treatable with antibiotics. Dental disease is an infectious disease process that can reduce overall health, productivity, and quality of life.

Seventy percent of socioeconomically disadvantaged children, aged 6-8 years, have untreated dental disease. Poor and minority children, who make up 20% of the population, experience between 60 and 75% of the dental disease. The poor and minority populations in Connecticut are growing relatively more rapidly than the majority population, with a concomitant projected overall rise in the prevalence of dental disease in children. According to a DPH study on the accessibility and availability of the dental provider network under Medicaid managed care, a severe lack of access to dental care exists for Connecticut's Medicaid-eligible children. The numerous obstacles impeding access to dental care for the state's neediest children are discussed in the study report.

The 1996 prevalence of dental decay in Connecticut in 6-8 year old children (approximately 55%) may be at least equal to the national 1996 baseline (54%), which is 20% higher than the *Healthy Connecticut 2000* target of <35%. Although year 2000 targets have been set for prevalence of dental decay in adolescents aged 15 and for the percent of caregivers who use feeding practices that prevent baby bottle tooth decay, Connecticut levels have not been determined.

Baby bottle tooth decay (BBTD) is a serious, fully preventable disease that affects preschool children. BBTD is caused by improper feeding practices, such as putting a baby to bed with a bottle of liquids high in sugar (such as juice), or pacifying a baby during the day with a bottle. Continuous exposure of the baby's fragile teeth to such liquids causes rapid decay, resulting in destruction of the teeth, severe pain, difficulty eating and resultant nutritional impairment, crooked and decayed permanent teeth, ear infections, and possible future speech problems. Estimates of the prevalence of BBTD range from 6% to as high as 85% in populations at risk. A survey of children enrolled in the Head Start Program in the city of Hartford indicated a prevalence rate for BBTD of 25%. A survey of preschool children in the towns of northwestern Connecticut revealed a 20% prevalence of BBTD, and over 70% prevalence of risk behavior (improper infant feeding patterns) among young mothers. The cost of treating extensive early childhood caries, such as baby bottle tooth decay, is more than \$1,000 per child.

In 1986, 36% of people aged 65 and older had lost all their teeth. Low-income adults aged 65 and older experienced an even greater rate of tooth loss (46%). In older people, the loss of natural teeth can contribute to psychological, social, and physical handicaps. Even when missing teeth are replaced with dentures, there may be limitations in speech, chewing ability, and quality of life, yet visits to a dentist decline with age.

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