

**A**sthma data in this survey were collected from Connecticut's school nurses. The survey asked for asthma prevalence data from school nurses in elementary, middle and high schools across Connecticut. Of 169 school districts, 138 responded, including 132 that have elementary school children.

## ■ SUMMARY OF FINDINGS

- The findings of this survey are based on data collected from 83% of all Connecticut school children in grades K-12.
- The number of children attending schools in school districts surveyed was 513,688. These children attended 1027 public and nonprofit schools during the 1999-2000 school year.
- 8.7% is the overall mean prevalence rate of asthma for school children in Connecticut, grades K-12. The mean rates of asthma prevalence by school level are:
  - 7.8% for elementary school children
  - 10.2% for middle school children
  - 9.4% for high school students
- Rates of asthma among elementary school children in school districts surveyed range from a low of over 3% to a high of just under 14%.
- All but 7 of 132 school districts surveyed have asthma prevalence rates among elementary school children that range between 4% and 12%. Of those 7, none had an asthma prevalence rate among its elementary school children as high as 14%.
- Asthma prevalence rates for elementary school children are consistent among urban, suburban, and rural districts. Whether a district is urban, suburban or rural makes no appreciable difference.

- **Asthma prevalence rates among Connecticut elementary school children in districts grouped by socioeconomic status (SES) are significantly different.** Based on a classification used by the Connecticut Department of Education to place school districts into socioeconomic groupings, called Education Reference Groups (ERGs), asthma prevalence rates rise from the highest SES grouping with the lowest prevalence rate of 5.5%, to the lowest SES grouping with the highest prevalence rate of 9%.
- **Asthma prevalence rates among Connecticut elementary school children in districts grouped by county are also significantly different.** Windham County has the highest prevalence rate of asthma and Fairfield County has the lowest rate.<sup>5</sup>

## ■ INTRODUCTION AND BACKGROUND

Asthma is a chronic, inflammatory and life-threatening disease of the airways that afflicts Americans of all ages, races, and ethnic groups. It is one of the few chronic diseases where the prevalence rates are increasing despite a better understanding of the disease and improved medical treatments.<sup>6</sup> For example, the Pew Environmental Health Commission estimates that the 1993-95 prevalence rate of asthma among children, age 5-14 years, in the United States was approximately 7.6%, up from just over 4% in 1980.<sup>7</sup> Despite more effective medical management, death rates for asthma continue to rise at a rate parallel to the rising rates of asthma prevalence.<sup>8</sup> Of additional concern, the

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<sup>5</sup> According to 1990 U.S. Census Bureau data for the eight Connecticut counties, Fairfield County had the highest per capita income, while Windham County had the lowest per capita income.

<sup>6</sup> Davies, R., Wang, J., Adelaziz, M., Calderon, M., Khair, O., Devalia, J. & Rusznak, C. (1997, Feb). New insights into the understanding of asthma. *CHEST: The Cardiopulmonary and Critical Care Journal*, 111, 2S-10S.

<sup>7</sup> The Pew Environmental Health Commission. (2000). *Attack asthma*. Baltimore: Johns Hopkins School of Public Health, p. 10.

<sup>8</sup> *Ibid*, p. 8.

incidence of asthma in children is increasing at a considerably faster rate than the incidence of asthma in the U.S. population as a whole, and studies indicate that low income and minority populations experience significantly higher rates of related fatalities, hospital admissions and emergency room visits than do other segments of the population.<sup>9</sup> As a result, asthma has become a major public health concern both in Connecticut and across the nation. Although a better understanding of the mechanisms of asthma has helped to improve medical treatment of the condition, additional information regarding the causes of asthma is needed to reduce its incidence.<sup>10</sup>

The underlying causes of asthma and its increasing incidence are not yet fully understood. While it appears clear that there are genetic and environmental components to the disease, the rapidity of the increase in the prevalence of asthma during the past decade suggests that changes at the genetic level are unlikely to be the cause.<sup>11</sup> While some of the increase in asthma prevalence may be due to improved recognition and diagnosis of the disease, experts believe that these factors are unlikely to account for all of the increase in asthma prevalence.<sup>12</sup> In addition, while many of the environmental triggers that precipitate asthmatic episodes and make the condition worse have been identified, the comparative influence and interactions of indoor and outdoor pollutants, irritants, and infectious agents on the prevalence of the disease have not yet been fully determined.

The U.S. Department of Health and Human Services (HHS) reports that information regarding how asthma varies from one location to another at the state and local levels is “greatly needed for an effective public health response to

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<sup>9</sup> Shalala, D.E. Statement by the Secretary of Health and Human Services on World Asthma Day, May 3, 2000. *HHS NEWS*. Washington, DC: HHS Press Office.

<sup>10</sup> Newman-Taylor, A. (1995). Environmental determinants of asthma. *The Lancet, Ltd.* 345 (8945), 296-299.

<sup>11</sup> U.S. Department of Health and Human Services. (1997). Asthma: The states' challenge. *Public Health Report*, 112, Section: No. 3, 198.

<sup>12</sup> Ibid.

the disease.”<sup>13</sup> Because such information is essential to better understanding the increased incidence of asthma, both nationally and worldwide, HHS recently made tracking of the disease a priority of its nationwide asthma initiative. To date, however, few states have developed a statewide surveillance system to provide this essential information, which is the first step necessary to determining how to prevent and better manage this debilitating disease.

Like many other states without a surveillance system, Connecticut has had to rely on estimates of disease prevalence that are based on limited and biased data, such as asthma-related deaths, hospitalizations, and emergency room visits. These types of data may yield information regarding certain high risk groups, particularly those in urban areas where emergency rooms are frequently used as a source of primary health care, or where health care is poorly accessed in general, but they are insufficient for estimating the actual prevalence of asthma in the state and for developing hypotheses about the underlying causes.

This study provides the first statewide child-based data regarding the prevalence of asthma in Connecticut, including comparisons by geographic location, socioeconomic indicators, and demographic characteristics. It is both timely and compelling in light of the national priority to establish and improve asthma surveillance systems, as well as the increasing burden of asthma on our children, health care system and state.

Understanding the serious need for reliable asthma prevalence data in Connecticut, Environment and Human Health, Inc. (EHHI) obtained funding for a study designed to obtain basic information about the current prevalence of asthma in school-age children in the state. The proposal included a plan to collaborate with school nurses, school districts and local departments of health to obtain information at the local level about school-age children known to have asthma.

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<sup>13</sup> US Department of Health and Human Services. HHS targets efforts on asthma. *HHS Fact Sheet*, May 3, 2000, p. 5. Available on-line: <http://www.hhs.gov/news/press/2000pres/20000503a.html>