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# Asthma

2007

report for douglas & sarpy counties

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A REPORT TO THE COMMUNITY

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# Executive Summary

The life-threatening, and life-altering nature of asthma dictated a follow-up to the landmark 2002 study of asthma in Douglas and Sarpy Counties in Nebraska by the Omaha Asthma Alliance and its partners. The 2002 report concluded that asthma was a far more serious threat in those two counties than the rest of the state, or the nation. Our latest study finds that asthma continues to be a major health problem in eastern Douglas County, with high death and emergency room visit rates due to asthma.

Asthma is a chronic, inflammatory lung disease characterized by recurrent episodes of breathlessness, wheezing, coughing and chest tightness. Asthma killed 237 residents of Douglas and Sarpy Counties from 1990 to 2004, an average of 18 people per year. For most people, asthma deaths are entirely preventable. That tragic fact compels the alliance and its lead agency, the American Lung Association, to press forward in its effort to lessen the impact of this disease.

The Omaha Asthma Alliance is a broad-based coalition with organizational and individual members.

## Major Findings on Asthma in Douglas and Sarpy Counties

- The death rate due to asthma in Douglas and Sarpy Counties has been gradually decreasing since 1998.
- The highest average asthma death rates were seen east of 42nd Street in Douglas County.
- Asthma continues to have a greater impact on African Americans than any other racial group, with an average annual asthma death rate more than double the rate among Caucasians.
- More women died from asthma, with a rate more than one and one-half times that of males.
- Average annual death rates per million in Douglas and Sarpy Counties were higher than the Healthy People 2010 target rates in all age groups.
- From 1990 to 2004, hospital discharge data mirrors mortality data—the highest rate of hospital discharges for asthma occurred in the northeast regions of Douglas County.
- Local hospitalization rates for residents 65 and older remain above the U.S. Healthy People 2010 target.
- Overall, females in Douglas and Sarpy Counties visited the emergency department more frequently and were more likely to be hospitalized due to asthma than males.
- The health disparity is evident among racial groups when self-reported asthma prevalence is compared across the U.S., Nebraska and Douglas County, but the disparity is more prominent in Douglas County.
- There is an increasing asthma prevalence rate in the Omaha Public Schools, following national trends.

For more information about this report, please contact the Douglas County Health Department. For more information about asthma, contact the American Lung Association at 1.800.LUNG.USA or [www.lungusa.org](http://www.lungusa.org).

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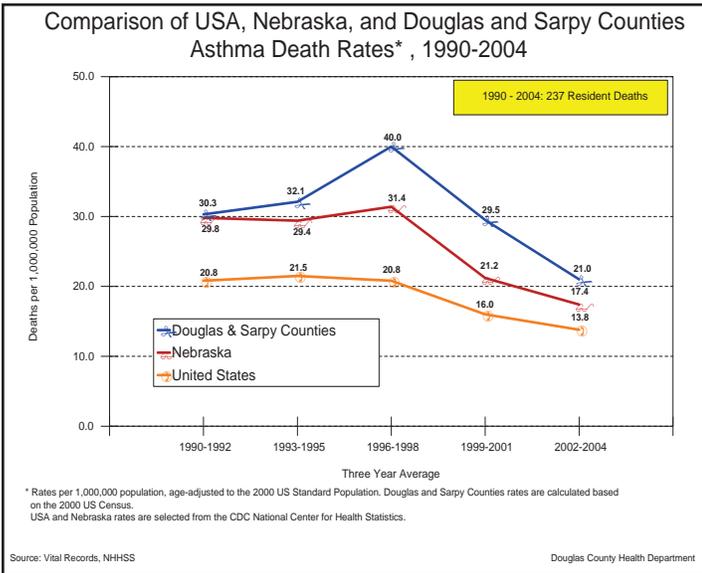


# DEATHS DUE TO ASTHMA

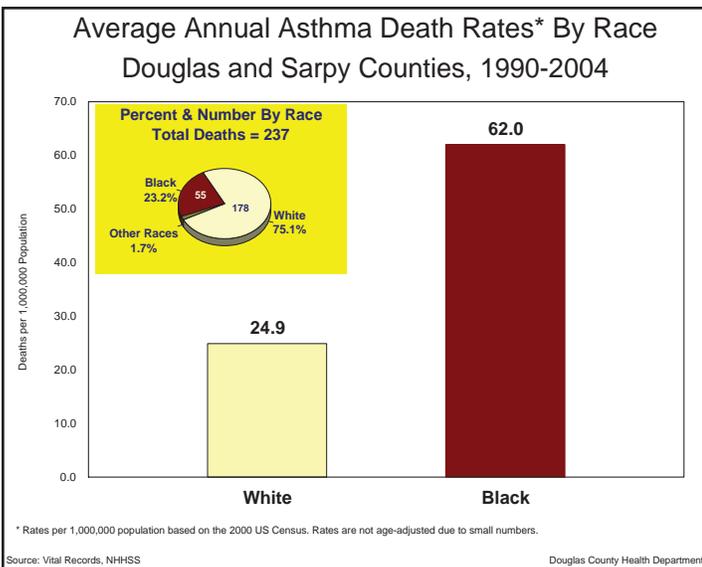
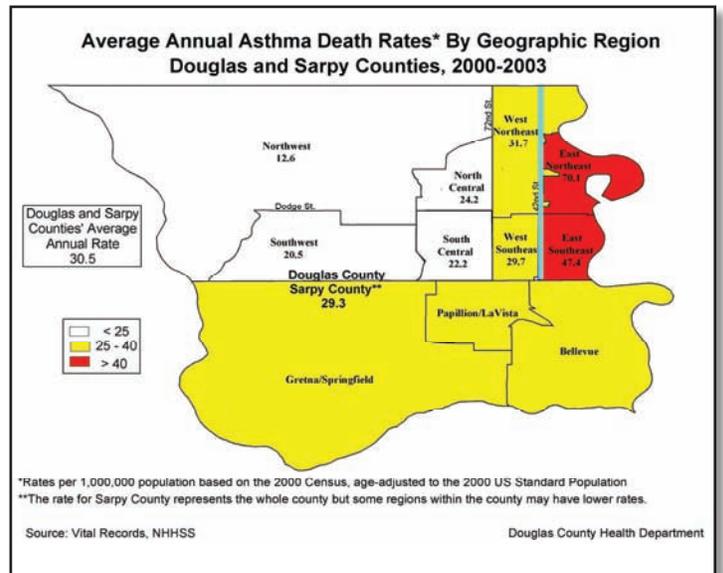
## ASTHMA DEATH RATES IN DOUGLAS AND SARPY COUNTIES

From 1990 through 2004, 237 residents of Douglas and Sarpy Counties, an average of 18 each year, died as a result of asthma.

Even though asthma death rates are on a decline, the asthma death rates in Douglas and Sarpy Counties in Nebraska were consistently higher than both the Nebraska and U.S. rates from 1990 through 2004.

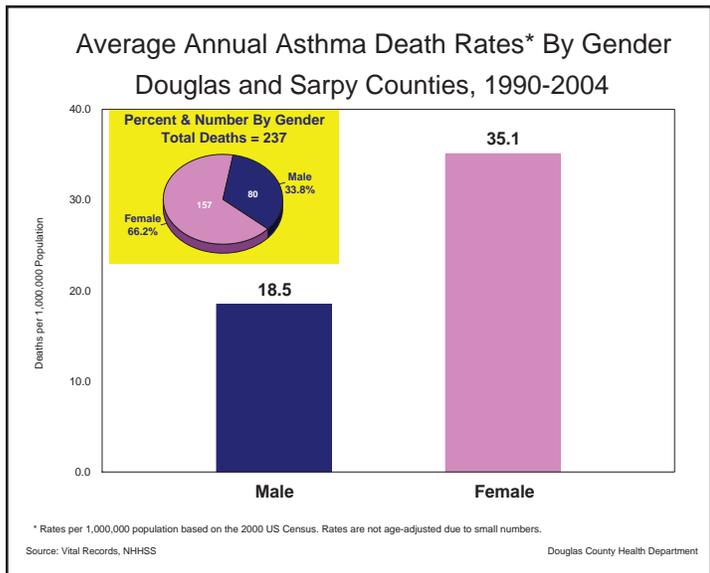


Consistently, the highest average asthma death rates were seen east of 42nd Street in the east northeast and east southeast regions of Douglas County.



From 1990 to 2004, 237 Douglas and Sarpy County residents died from asthma. Of those, 75.1% were white and 23.2% were black. Although the number of deaths among whites was higher, the average annual asthma death rate per million among blacks (62.0) was more than double the rate among whites (24.9).

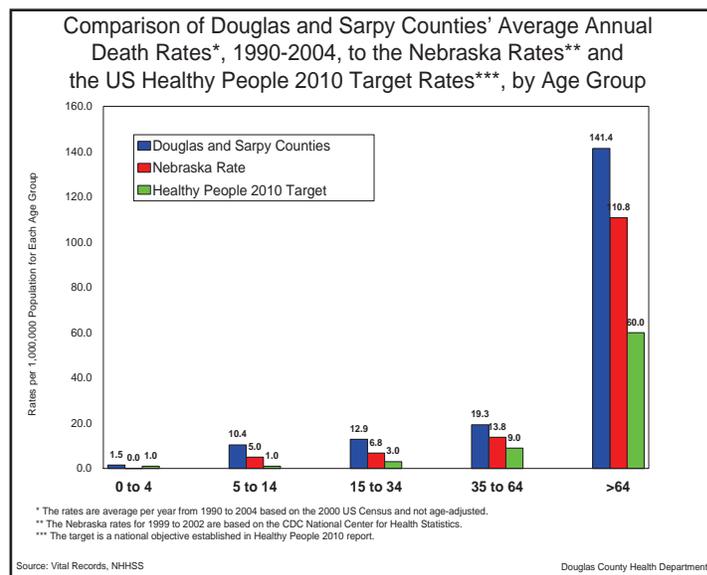
# DEATHS DUE TO ASTHMA



Asthma was the cause of death for 157 females and 80 males during the time period 1990-2004. The asthma death rate per million among females (35.1) was more than one and one-half times as high as the death rate among males (18.5).

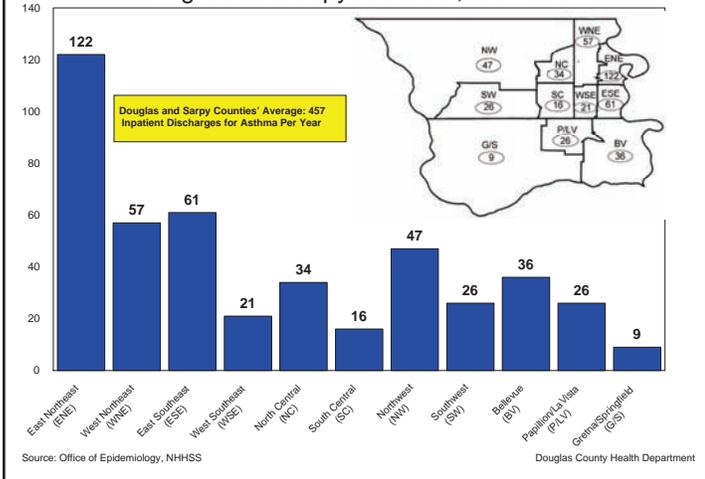
Healthy People 2010, a national effort by the U.S. Department of Health and Human Services, is a systematic approach for improving the health of Americans. It established broad goals of health promotion and disease prevention along with health objectives to guide the process. One of the national objectives outlined in Healthy People 2010, is to decrease the asthma death rates in specific age groups.

Asthma death rates at the local, state and national levels increase with age. Average annual death rates per million in Douglas and Sarpy Counties were higher than the Healthy People 2010 target rates in all age groups, and exceeded Nebraska rates in four of the five age groups.



# HOSPITALIZATIONS DUE TO ASTHMA

Average Number of Hospital Discharges for Asthma By Geographic Region Douglas and Sarpy Counties, 2000-2003



## HOSPITALIZATIONS FOR ASTHMA IN DOUGLAS AND SARPY COUNTIES

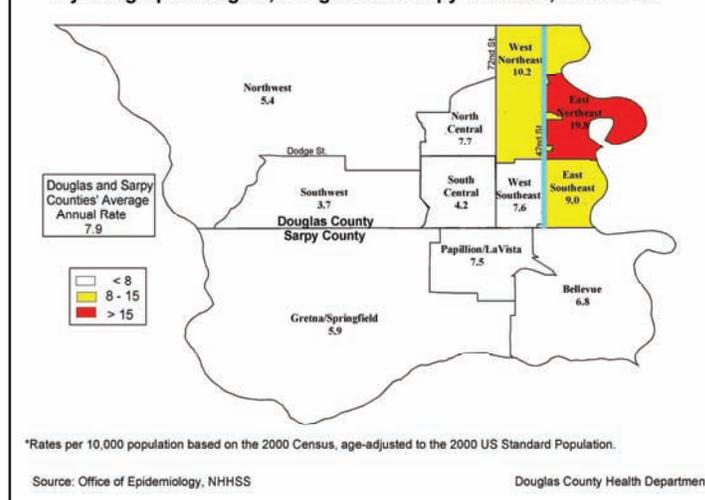
An average of 457 asthma-related hospital discharges per year occurred in Douglas and Sarpy County acute care hospitals from 2000 through 2003.

The highest number and highest rates of hospital discharges for asthma occurred in the east-northeast, east-southeast and west-northeast regions of Douglas County.

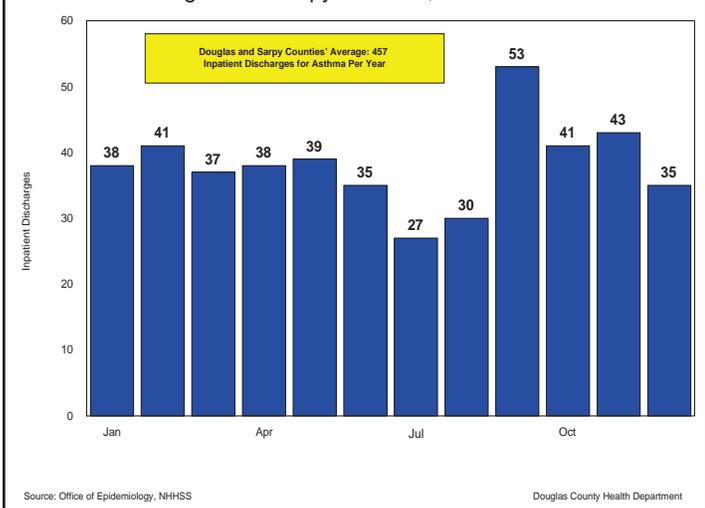
Hospitalization rates per million among residents in the highlighted regions were higher than the overall rate for the two counties (7.9).

The rate in the east northeast region (19.8) was more than two times higher than the overall rate in the report area (7.9). The lowest number and rate was observed in the southwest region of Douglas County (3.7).

Average Annual Inpatient Discharge Rates\* for Asthma By Geographic Region, Douglas and Sarpy Counties, 2000-2003

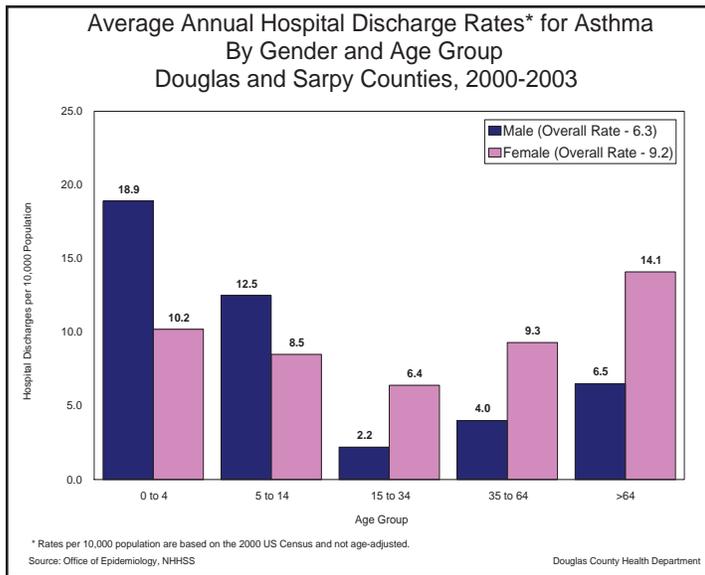


Average Number of Hospital Discharges for Asthma By Month Douglas and Sarpy Counties, 2000-2003



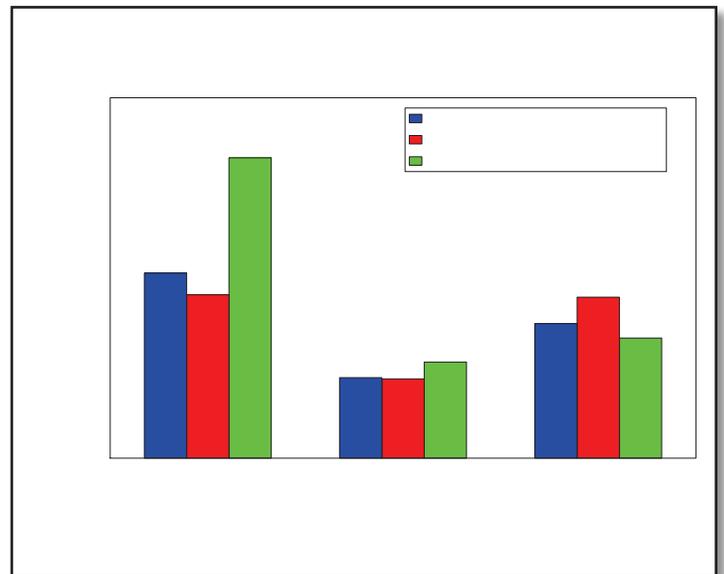
Hospital discharges for asthma were highest in September, with the lowest number of hospitalizations in July and August. According to The Asthma Allergy Center, the increase in hospitalizations coincides with the annual increase in mold spore and weed pollen counts.

# HOSPITALIZATIONS DUE TO ASTHMA



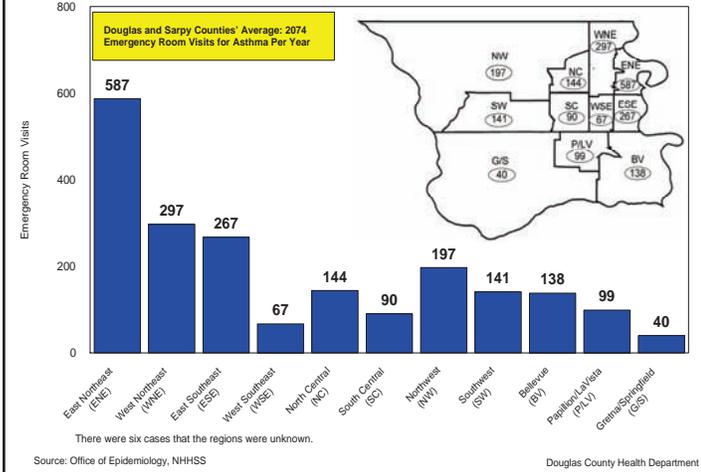
Overall, females were more likely to be hospitalized as a result of asthma than males from 2000-2003. However males under the age of 15 were more likely to be hospitalized than females in that age group. Males 0-4 years of age had rates nearly twice as high as females in the same age group. Of note is the significant drop in rates for males starting at age 15, when females were more likely to be hospitalized than males. Hospitalization rates for females 15 years of age and older were about 2-3 times as high as males in the same age groups.

Douglas and Sarpy Counties' average annual rate per 10,000 for hospitalizations due to asthma in the 0-4 age group and 5 to 64 age group are below the U.S. Healthy People 2010 target rate and similar to the Nebraska rate. Among those 5-64 years of age, the average annual rate per 10,000 is lower than the U.S. Healthy People 2010 target and the Nebraska rate. Local hospitalization rates for residents 65 and older remain above the U.S. Healthy People 2010 target.



# EMERGENCY ROOM VISITS DUE TO ASTHMA

Average Number of Emergency Room Visits for Asthma  
By Geographic Region  
Douglas and Sarpy Counties, 2000-2003

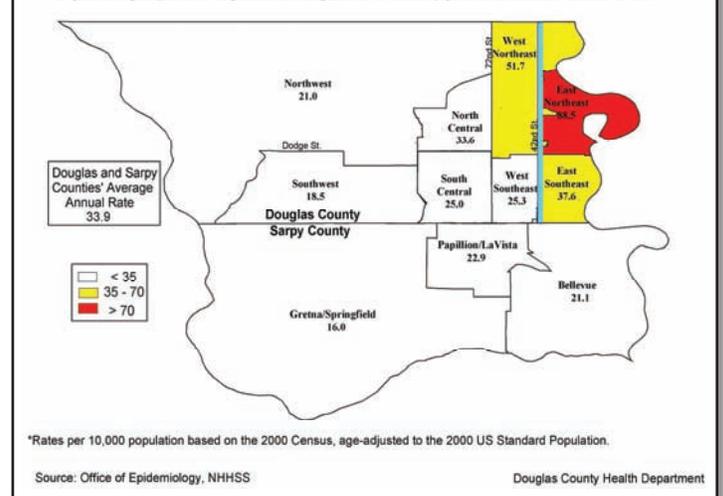


## EMERGENCY ROOM VISITS DUE TO ASTHMA IN DOUGLAS AND SARPY COUNTIES

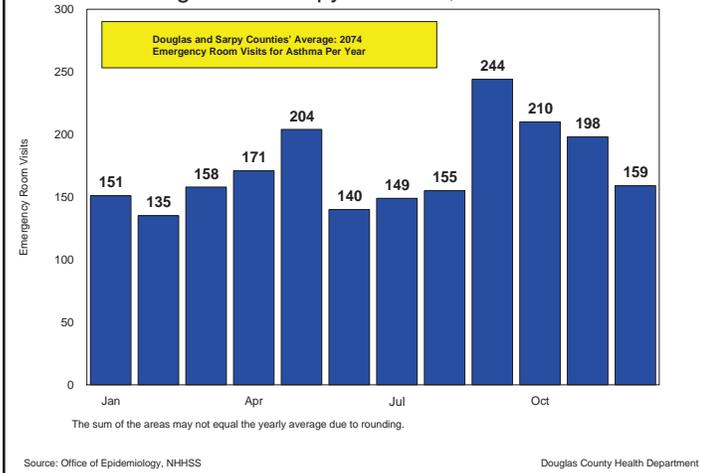
There was an average of 2,074 emergency room visits for asthma per year among Douglas and Sarpy County residents during 2000-2003. The east-northeast region had the highest number of visits, followed by the west-northeast and the east-southeast regions.

Emergency room visit rates per 10,000 in the west-northeast, east-northeast and east southeast regions were higher than the overall rate for Douglas and Sarpy Counties (33.9). However, the lowest number of visits occurred among residents in the Gretna/Springfield region of Sarpy County (16.0).

Average Annual Emergency Room Visit Rates\* for Asthma  
By Geographic Region, Douglas and Sarpy Counties, 2000-2003



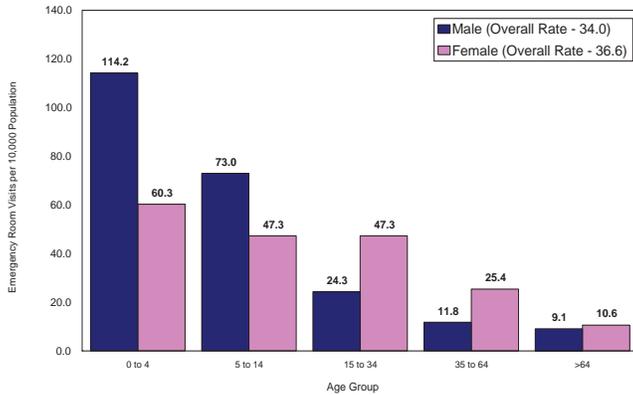
Average Number of Emergency Room Visits for Asthma  
By Month  
Douglas and Sarpy Counties, 2000-2003



The monthly distribution of emergency room visits for asthma reveals two peaks - May and September. According to the Asthma and Allergy Center, this corresponds with increased tree and grass pollens (May) and weed pollens and mold spores (September).

# EMERGENCY ROOM VISITS DUE TO ASTHMA

Average Annual Emergency Room Visit Rates\* for Asthma  
By Gender and Age Group  
Douglas and Sarpy Counties, 2000-2003



\* Rates per 10,000 population are based on the 2000 US Census and not age-adjusted.  
Source: Office of Epidemiology, NHHSS

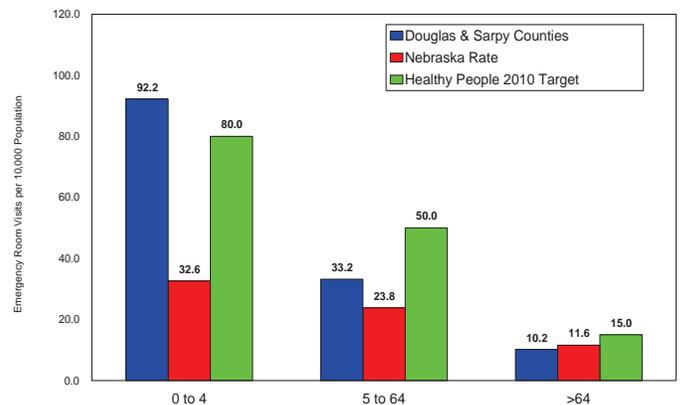
Douglas County Health Department

Overall, females in Douglas and Sarpy County had more frequent visits to emergency rooms than males. In 2000 - 2003, the rate among females was 36.4, and the rate among males was 33.9. However, males under the age of 15 had higher rates than females. Males 0-14 years of age were almost twice as likely as females in the same age groups to be seen in the emergency room for asthma.

Of note, is the sharp decline in rates seen among males starting at age 15, when rates drop to less than one third of those seen in the younger groups.

Douglas and Sarpy Counties' average annual rates for emergency room visits for asthma in the 0-4 age group were higher than the U.S. healthy people 2010 target rate, but approximately three times higher than the Nebraska rate. The average annual rate in the 5-64 age group was lower than the U.S. Healthy People 2010 target rate and higher than the Nebraska rate. Douglas and Sarpy Counties' rate is lower than the U.S. Healthy People 2010 target rate for those 65 years of age and older but comparable to the Nebraska rate.

Comparison of Douglas and Sarpy Counties' Average Annual Emergency Room Visit Rates\*, 2000-2003, to the Nebraska Rates\*\* and the US Healthy People 2010 Target Rates\*\*\*, by Age Group.



\* Rates per 10,000 population are based on the 2000 US Census and not age-adjusted.  
\*\* The Nebraska rates for 1998 are selected from the "Asthma in Nebraska 1987-1998" report.  
\*\*\* The target rate is a national objective established in Healthy People 2010 report.

Source: Office of Epidemiology, NHHSS

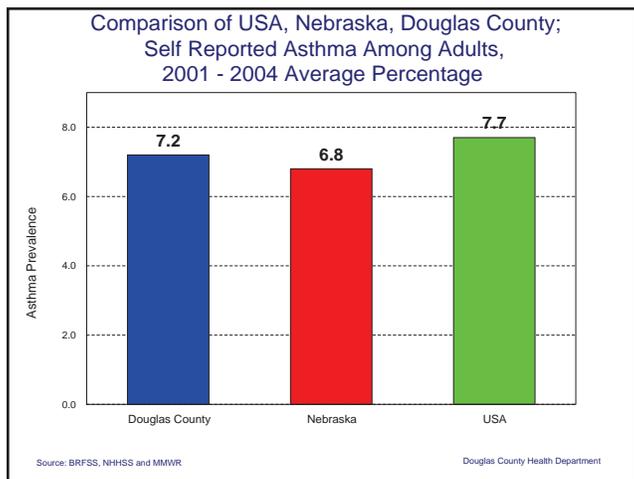
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# SELF-REPORTED ASTHMA

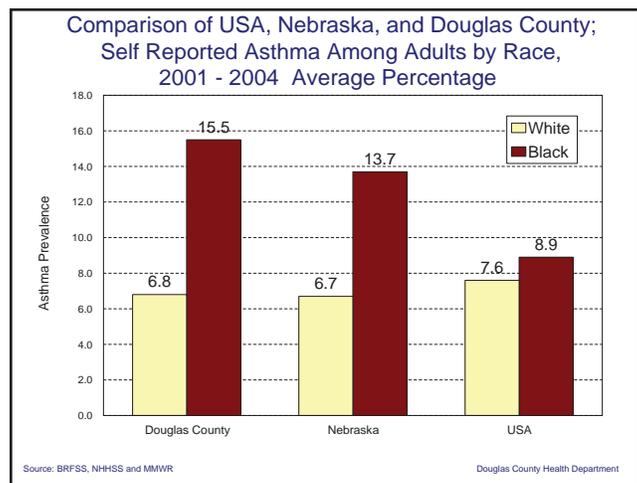
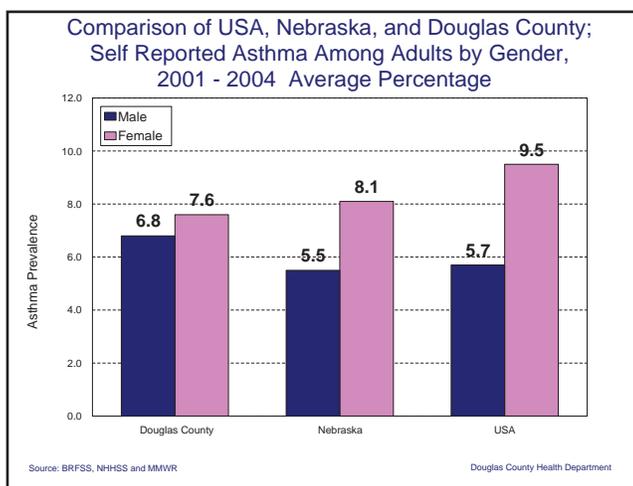
## SELF-REPORTED ASTHMA IN DOUGLAS AND SARPY COUNTIES

Adults who were ever told by a health professional that they had asthma, were asked if they still had it.

In Douglas County, the average percentage of self-reported prevalence of asthma among adults (18 and older) from 2001 to 2004 was 7.2.



Self-reported asthma was more prevalent among adult females (7.6) than males (6.8) in Douglas County, similar to results for both Nebraska and the U.S. However, men in Douglas County reported higher levels of asthma than men in the U.S., while women reported lower levels.



The average percentage of white persons reporting they have asthma is consistent in Douglas County, Nebraska and the U.S. (6.8, 6.7 and 7.6 respectively). However, the prevalence of asthma among the black population in Douglas County (15.5) is higher than asthma in the black populations in Nebraska (13.7) and the US (8.9).

# ASTHMA IN SCHOOLS

Asthma is the most common chronic pediatric disease, and it is increasing in frequency (1). The prevalence of asthma was determined for the Omaha Public School (OPS) system in 1999. We sought to assess the current prevalence of asthma within the same school system and to determine if it is increasing.

## Methods:

In the fall of 2005 the investigators met with the school nurses assigned to primary and middle schools for OPS. We reviewed the questionnaire that would be completed by all nurses 2 months after the start of the 2005-06 school year. Gender and ethnicity of each student were not identified. In the 2005-06 school year 57 % of the OPS children were designated as non-Caucasian Americans in primary schools and 55 % in middle schools. The gender ratio in both primary and middle-schools was 48% female, 52% male.

## The study design was to identify students with current asthma using the first three questions:

1. How many children have a current written 2005-06 Asthma Action Plan (AAP)?
2. How many children have an albuterol inhaler available for use at school, but have No Asthma Action Plan?
3. How many OTHER children have current asthma, but have No AAP and No albuterol inhaler available ?
4. How many total students are at your school?

A student was included only one time, depending on his/her asthma plan as set up by a physician (Q 1 and 2), or in the case of children without on going physician interaction, at the discretion of the nurse's knowledge of their asthma activity (Q3). At each school the sum of students identified by the first three questions was the numerator for the determination of current asthma prevalence. The comparison of percentages for asthmatic children in years 1999-2000 and 2005-06 was done using a 2x2 Chi square analysis. All tests were two-tailed. Results were considered significant when p-values were below 0.05.

## Results:

The results are summarized for K-6 and grades 7-8 in Tables 1 and 2.

**Table 1: Grades K-6**

Year	Total Students	% with an AAP	Current Asthma %
1999-2000	25,480	19	6.8
2005-2006	25,877	32	8.1

Chi Square 31.1 p < .0001

**Table 2: Grades 7-8**

Year	Total students	% with AAP	Current asthma %
1999-2000	6,535	ND	10.1
2005-2006	7,273	0.34	11.2

Chi square 4.39 P = 0.036

In 2005-2006 within the K-6 schools the range for current asthma was 2 to 21%, while in grades 7-8, the range was 7-22%.

# ASTHMA IN SCHOOLS

Pediatric asthma, both nationwide (1) and within Omaha Public schools, continues to increase. To identify who had current asthma we relied on our three questions. Since less than 35% of children had a written asthma action plan (Q1), thus establishing a physician interaction and a physician diagnosis, it was critical that questions 2 and 3 be included. The presence of an albuterol inhaler at school would serve as a surrogate for a written AAP (Q2). The third question used in the survey does have subjectivity. However, by allowing at least 2 months of observation, we think a school nurse should be able to identify other students with asthma. We do agree, however, that our 2005-06 reported current asthma prevalence could be both under-reported or over-reported compared to the “true” current asthma prevalence.

In pediatric patients the Centers for Disease Control uses data from the National Health Interview Survey (NHIS) for asthma prevalence (2). In 1997 the NHIS changed the asthma current prevalence questions to: “Has a doctor or other health care professional ever told you that your child has asthma?” and ‘During the past 12 months has your child had an episode of asthma or an asthma attack?’ This has been termed “Asthma Attack Prevalence”. Year 2002 is the last known available data (2).

The current prevalence rate in OPS of 8% for younger children, and 11% for pre-high school would compare reasonably with national data. Since we used the same questions for the two surveys (1999 and current), the investigators also find support for an increasing current prevalence rate for pediatric asthma in Omaha.

The 2006-07 school year is the initial year for a recently instituted Nebraska Unicameral legislative process (LB 1148) which allows children to carry and administer emergency asthma medication (albuterol). This legislation also requires that the child be assessed by a personal physician and a physician-signed permission for asthma medication emergency use be forwarded to the school. With the current Asthma Action Plan utilization at only 35%, the authors expect an increase in physician interaction with students for initiating written school-based asthma action plans based on the passage of LB 1148.

Attack on Asthma, Nebraska (AOAN), a state-wide coalition, has developed a written plan for both asthma and anaphylaxis emergencies, which is completed by the physician, and transferable to the school. This form is accessible at <http://www.attackonasthma.org>.

In summary, we report increasing asthma prevalence rates in the Omaha Public Schools, following national trends.

