

# Asthma in Minnesota

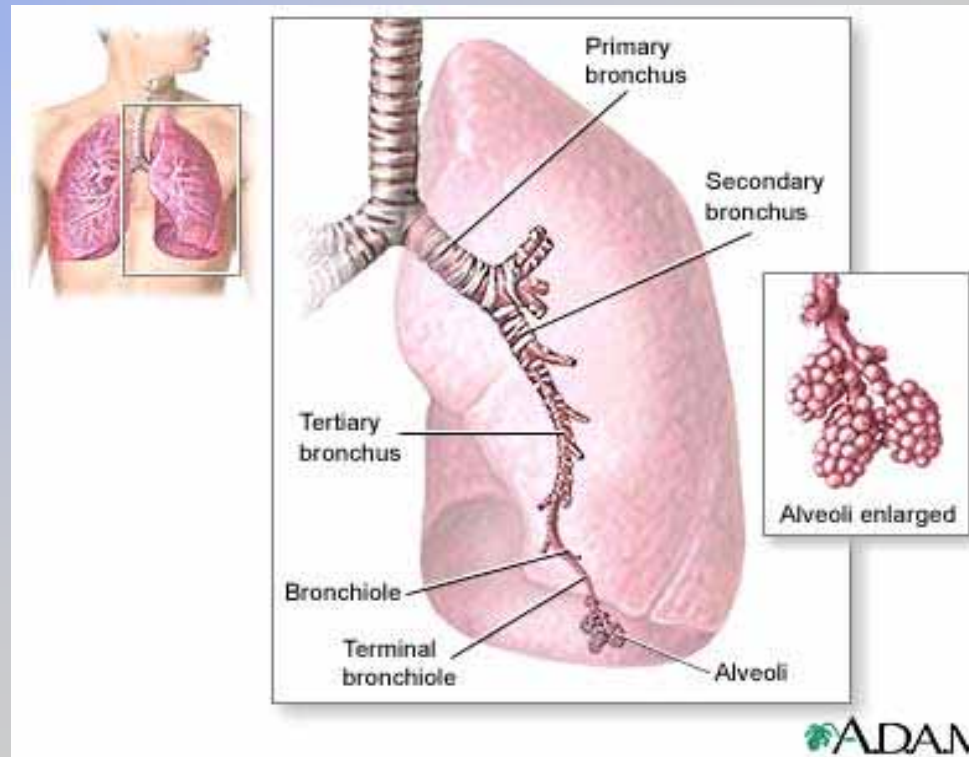
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Asthma Program  
Minnesota Department of Health

October 12, 2009

# Asthma

- Chronic respiratory disease
- Bronchoconstriction
- Inflammation



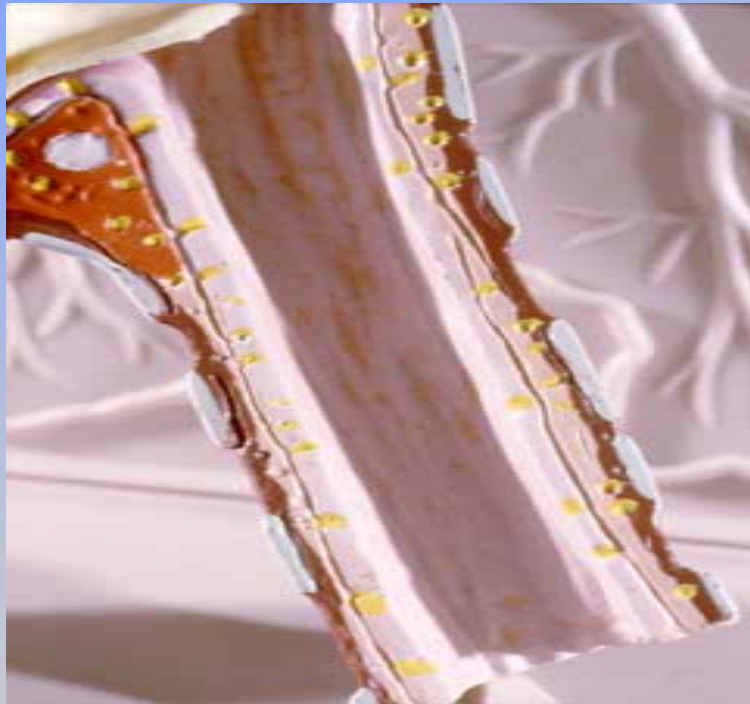


# Common Symptoms of Asthma

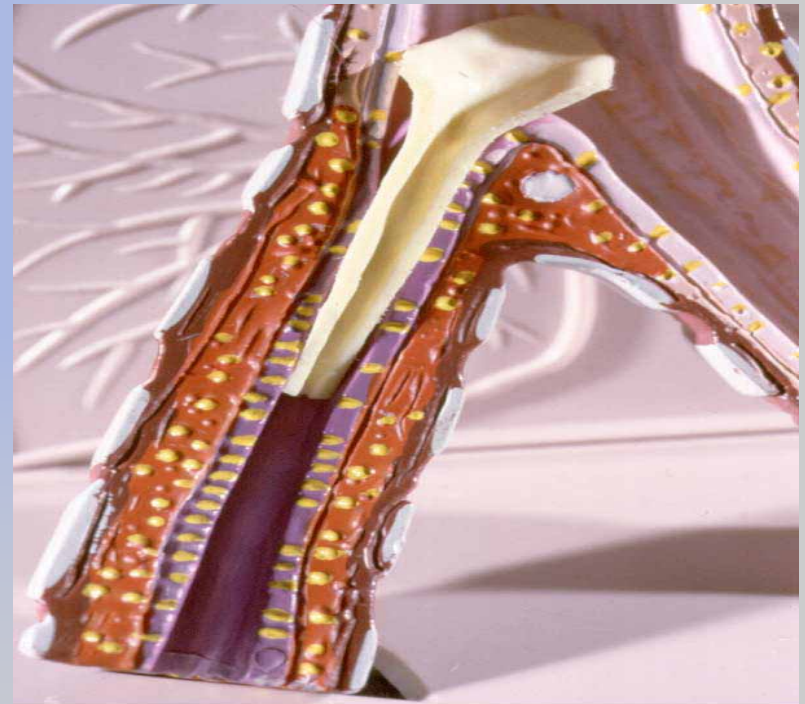
- Frequent cough, especially at night
- Shortness of breath or rapid breathing
- Chest tightness
- Chest pain
- Wheezing
- Fatigue

# Airway Obstruction

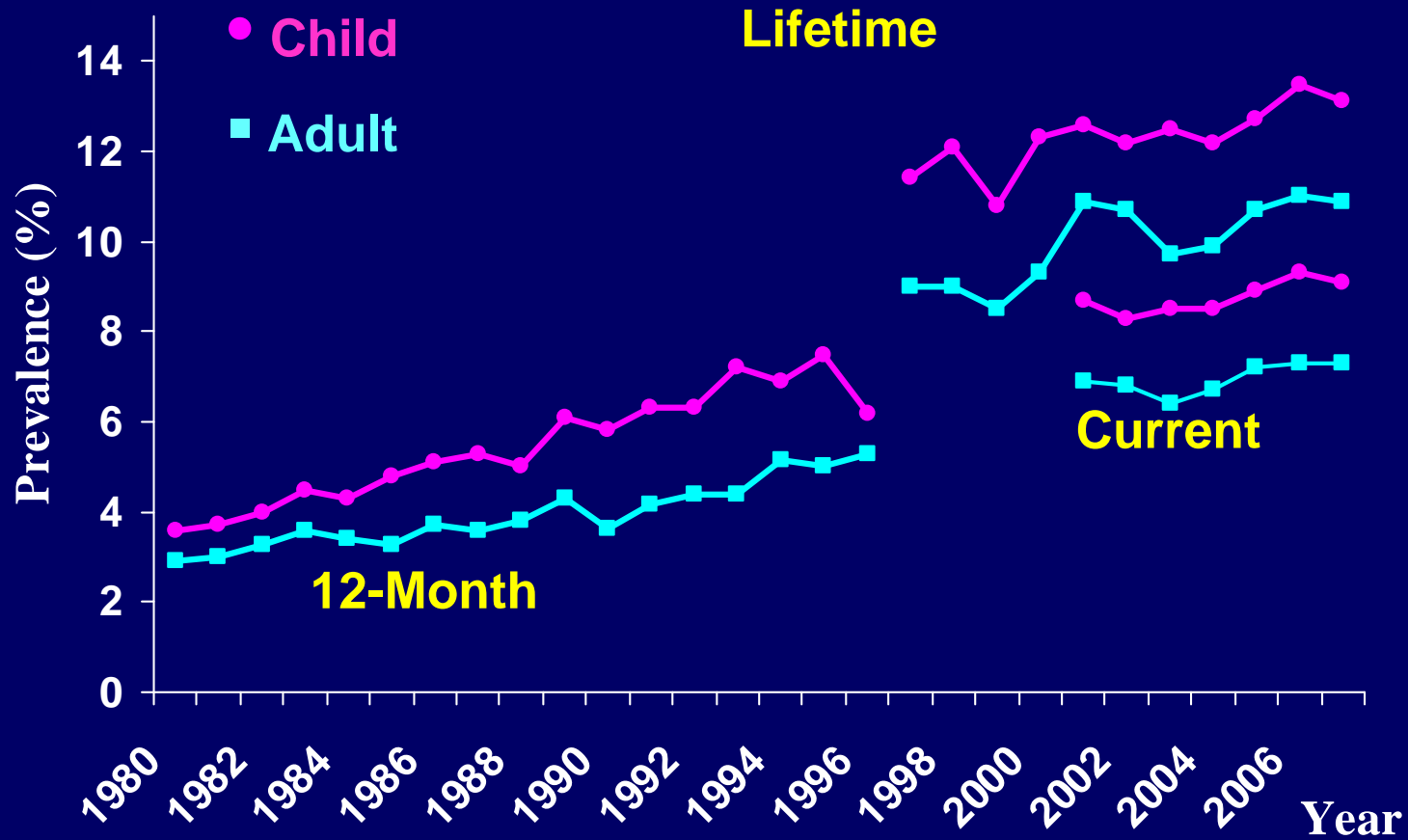
Normal Bronchiole



Inflamed Bronchiole  
with Mucus



# Child and Adult Asthma Prevalence United States, 1980-2007



Source: National Health Interview Survey; CDC National Center for Health Statistics



# Causes of Asthma

- Genetics
- Environmental exposures
  - *Sufficient evidence for causal relationship:* house dust mites
  - *Sufficient evidence for an association:* environmental tobacco smoke (pre-school children)
  - *Limited/suggestive evidence for an association:* cockroach (pre-school children), respiratory syncytial virus (RSV)
- “Hygiene hypothesis”

# Common Triggers - Allergens

- Pollen
- Animal dander saliva/urine
- Dust mites
- Cockroach/mice/rat droppings and urine
- Mold
- Some medications (e.g., aspirin)
- Some foods

# Common Triggers - Irritants

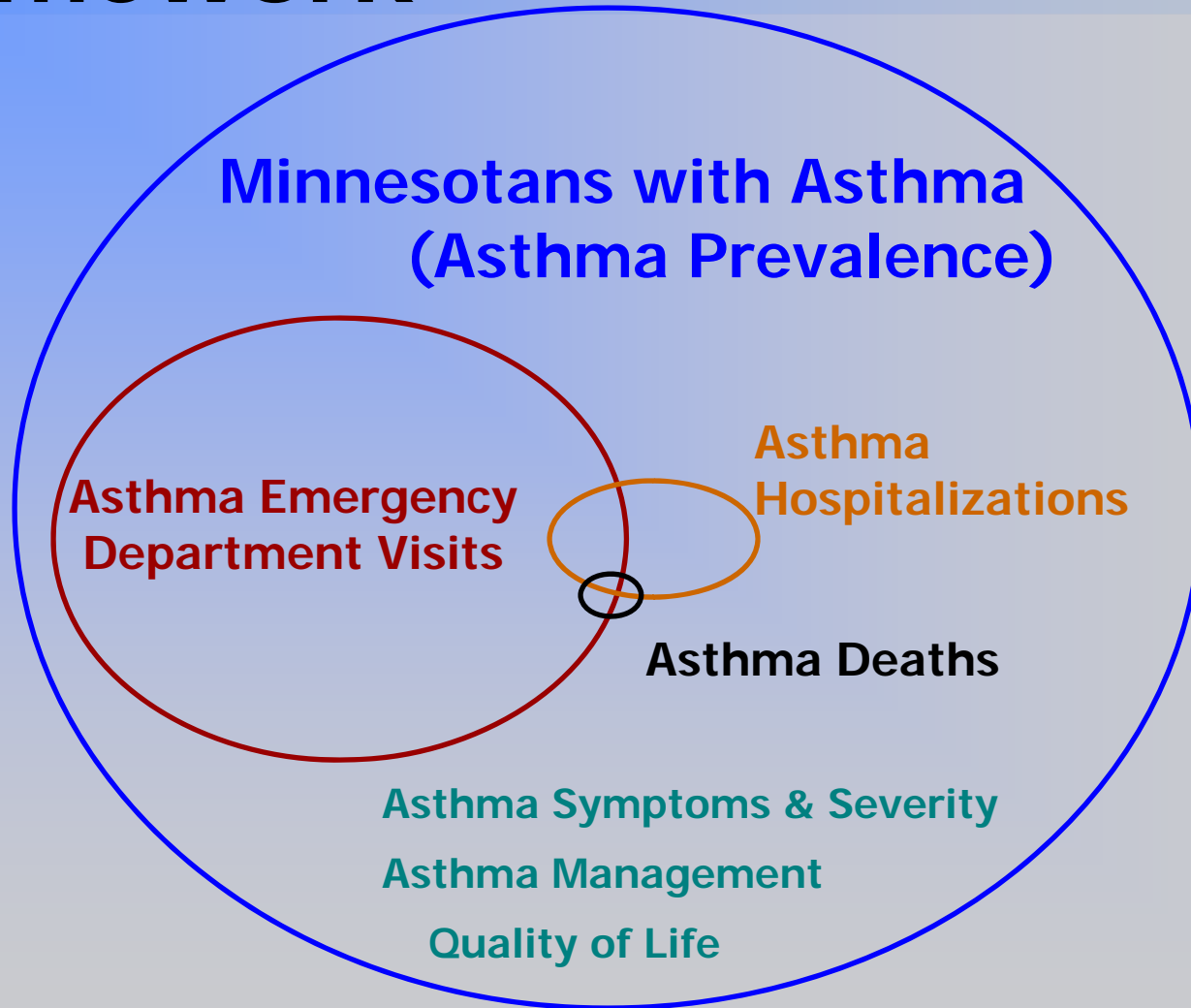
- Exercise
- Cold air
- **Viral/upper respiratory infections**
- Air pollution
- Tobacco smoke or secondhand smoke
- Chemical irritants and strong smells
- Strong emotional feelings
- Diesel fumes



# Asthma – Key Points

- Chronic disease with acute components (asthma episodes)
- Factors that cause asthma to develop are unknown
- Asthma episodes can be caused by exposures to triggers

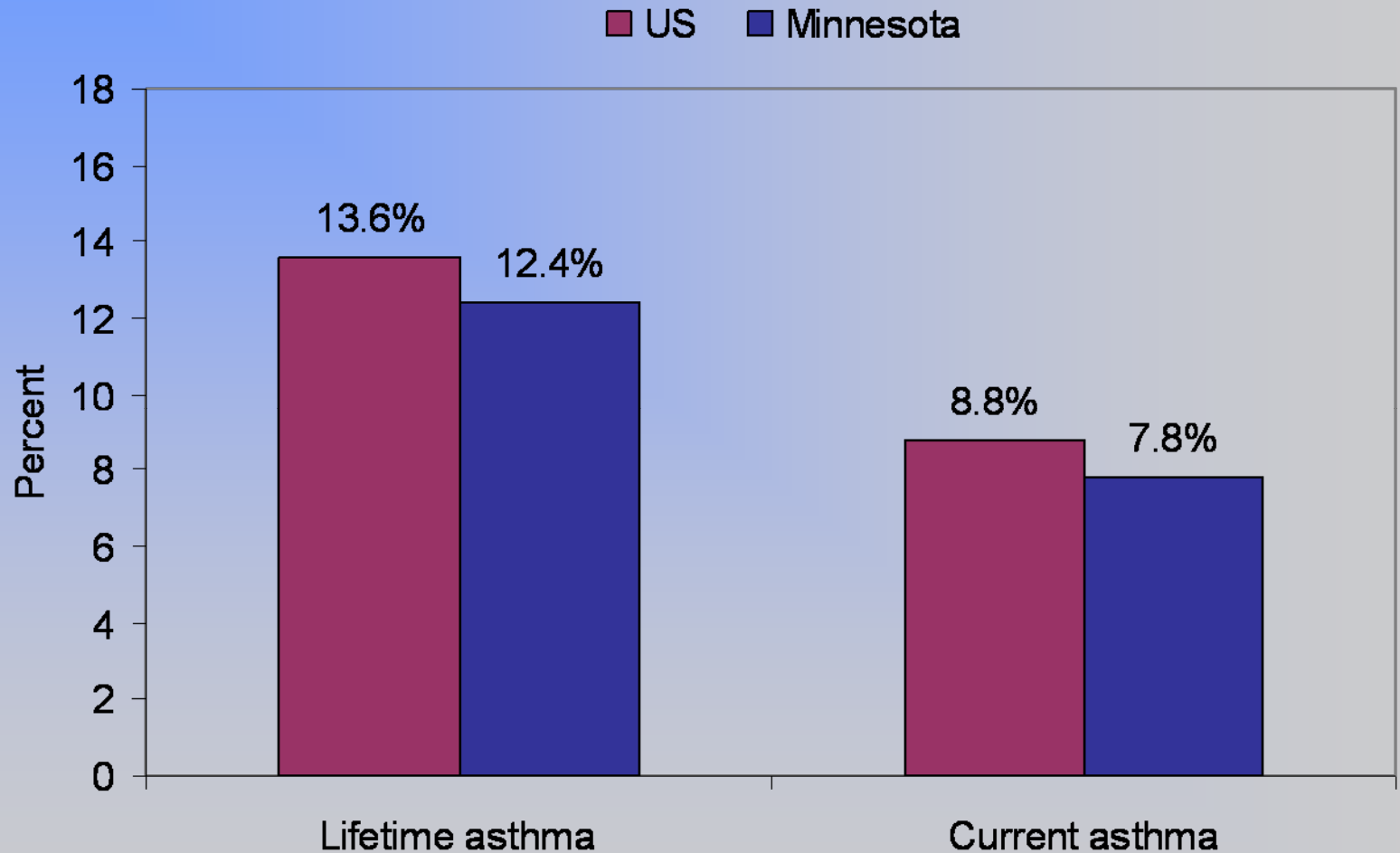
# Asthma Surveillance Framework



# Asthma Prevalence

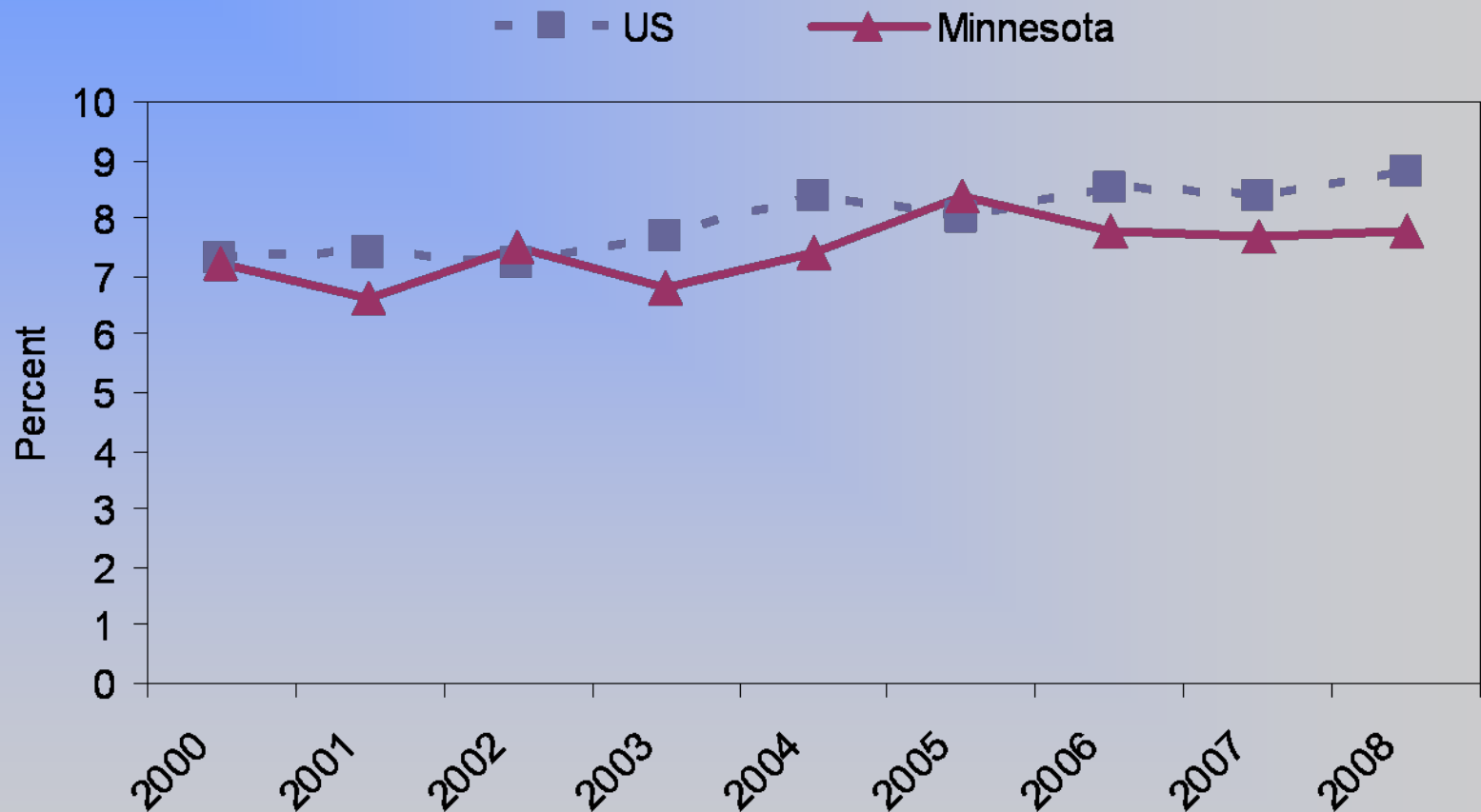
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# Asthma Prevalence, Minnesota and U.S. Adults, 2008



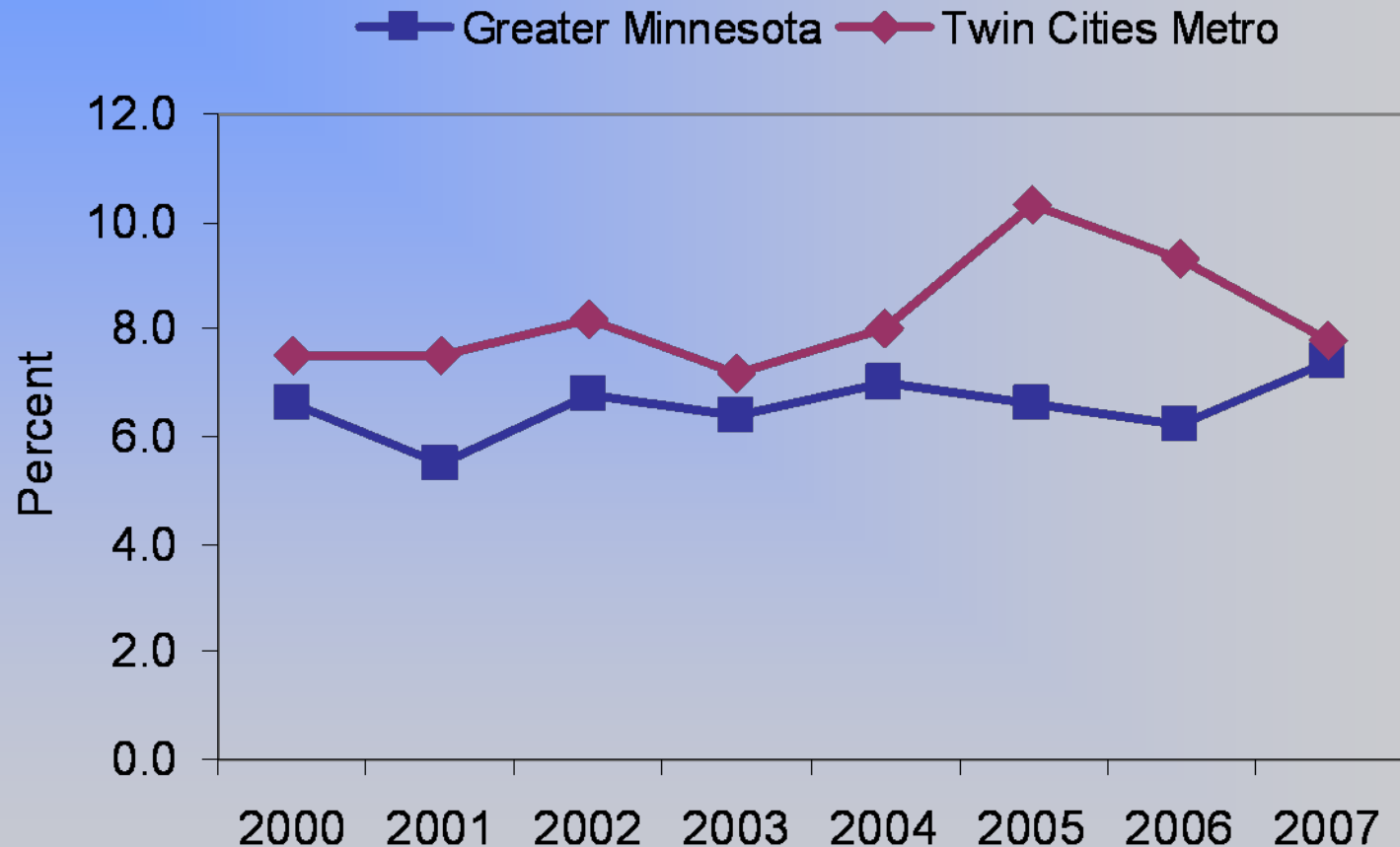
Source: Behavioral Risk Factor Surveillance System

# Current Asthma Prevalence, Minnesota and U.S. Adults, 2000-2008



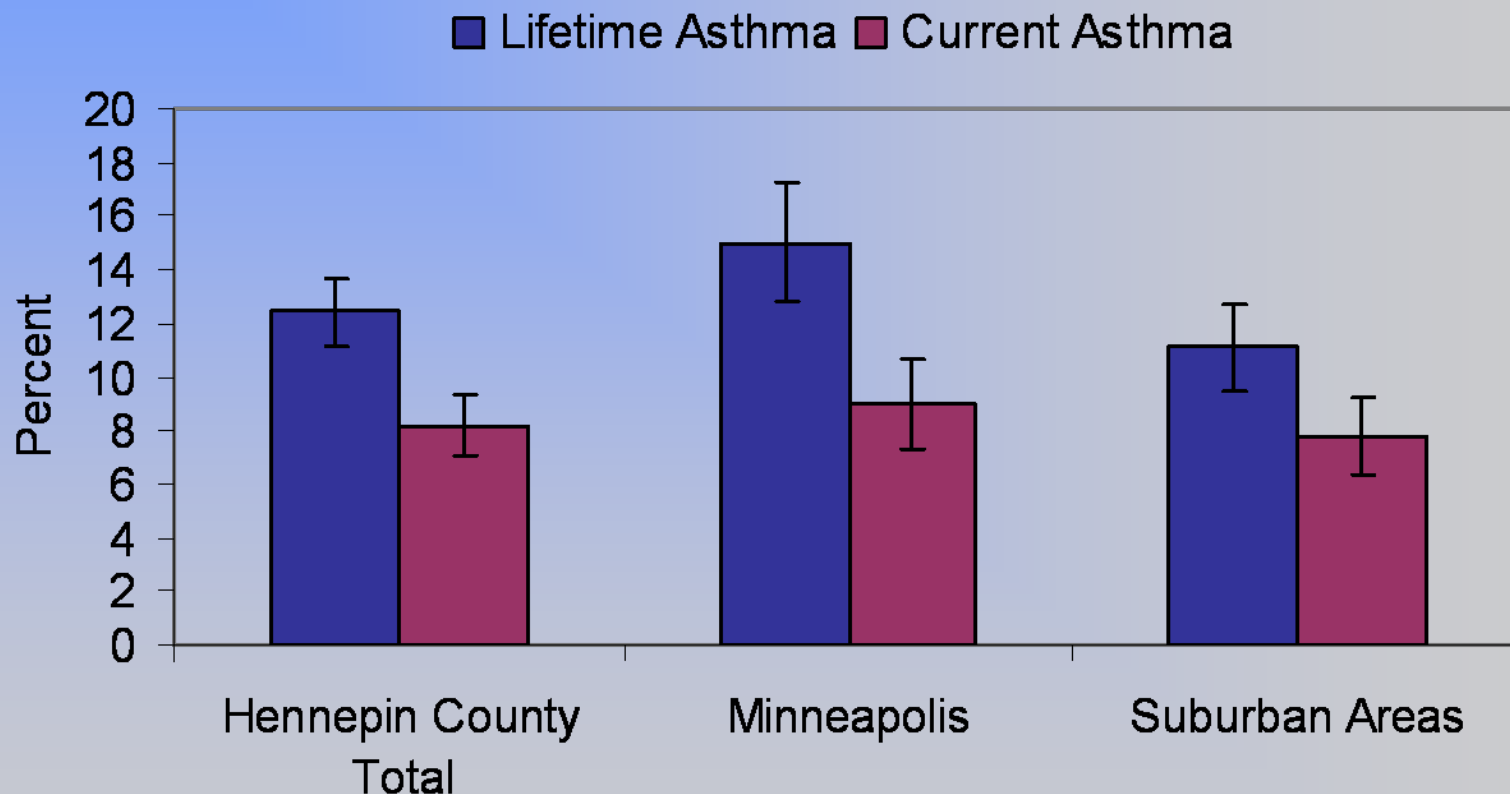
Source: Behavioral Risk Factor Surveillance System

# Current Asthma Prevalence by Residence, Minnesota Adults, 2000-2007



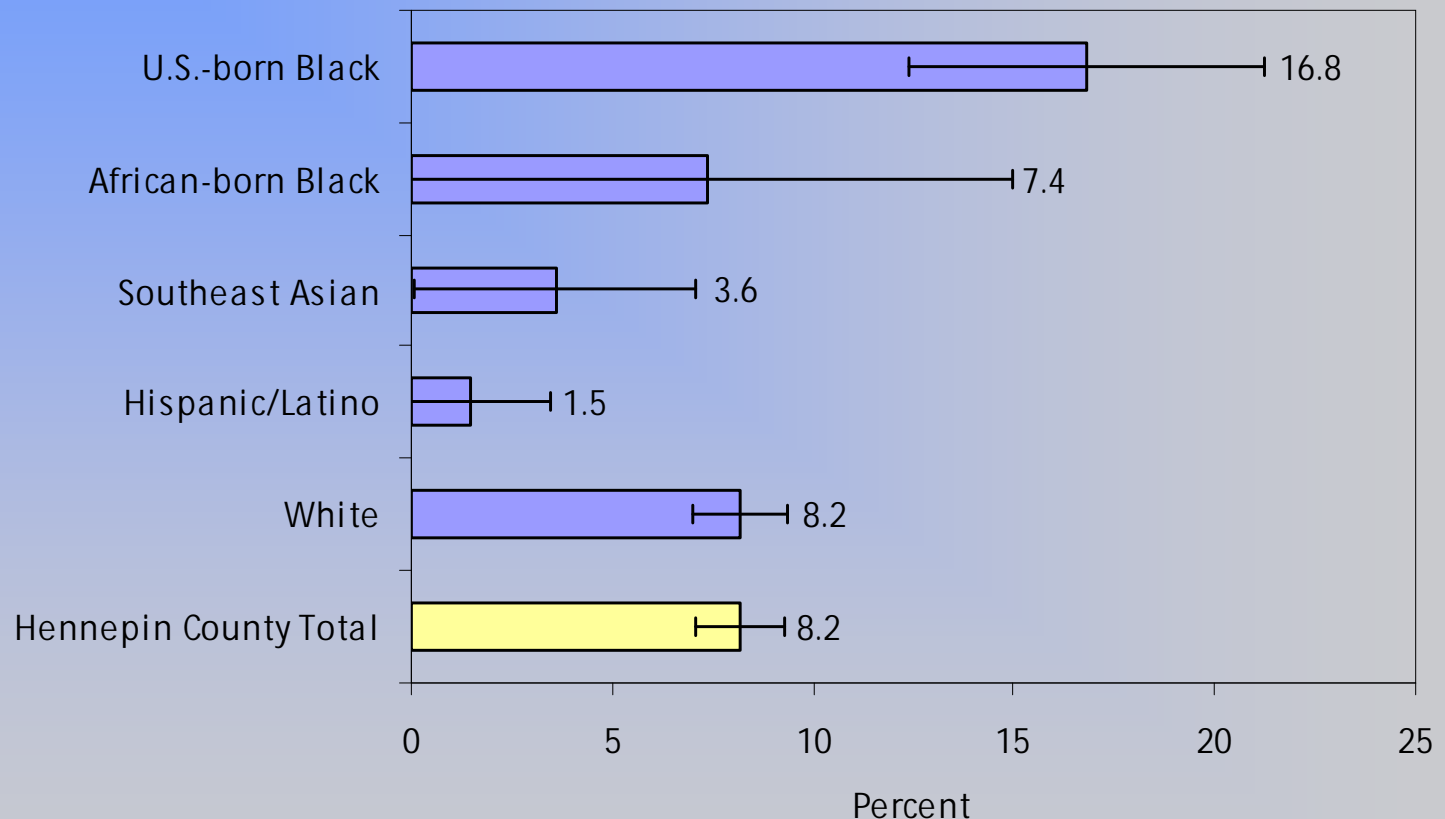
Source: Behavioral Risk Factor Surveillance System

# Lifetime and Current Asthma, Adults, Hennepin County, 2006



Data source: Hennepin County: SHAPE 2006

# Current Asthma Rates Among Adults by Racial and Ethnic Groups, Hennepin County, 2006

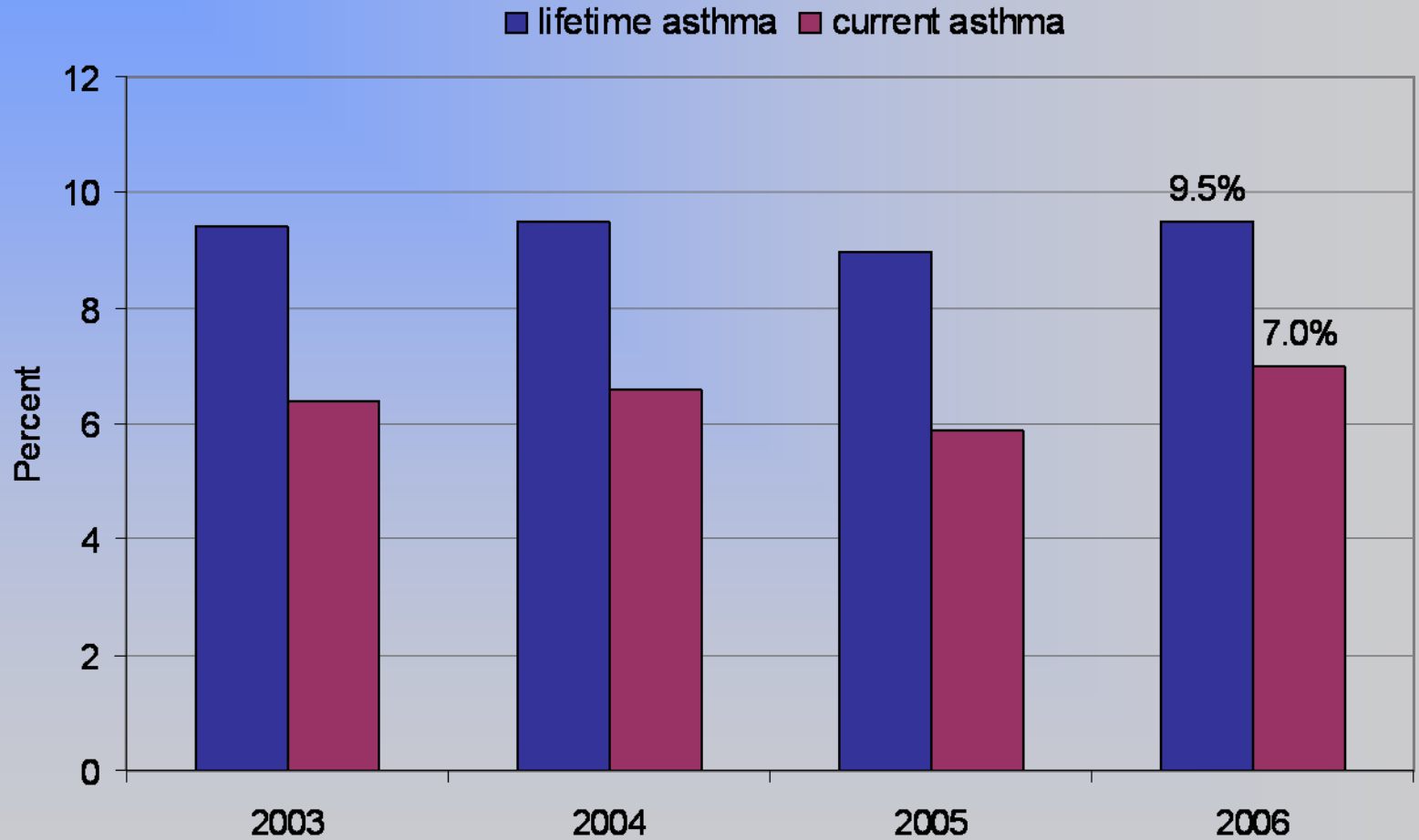


Notes: Hispanic/Latino ethnicity and race are mutually exclusive.  
The race presents the primary racial designation.

Source: SHAPE 2006.



# Asthma Prevalence, Minnesota Children, 2003-2006



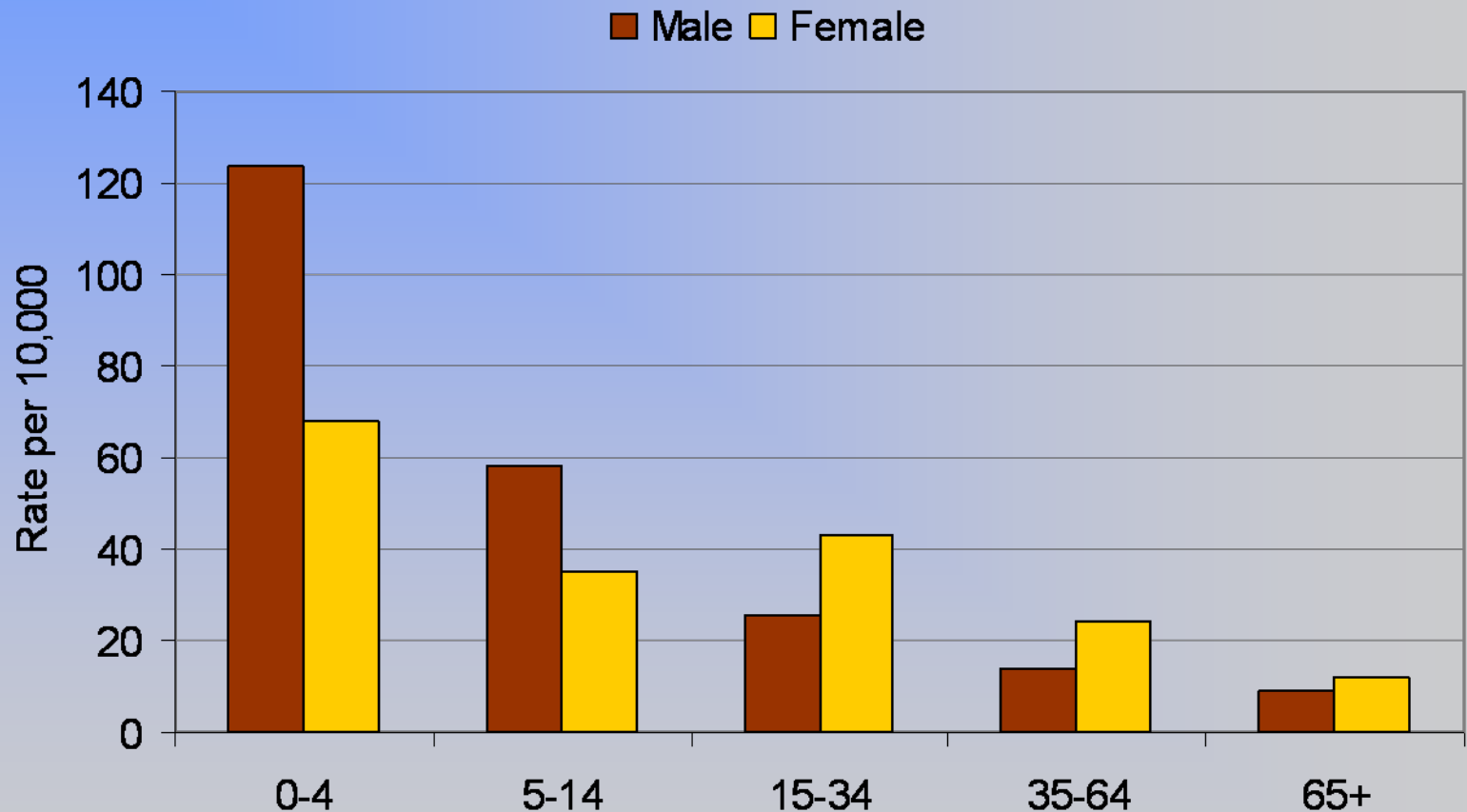
Source: Behavioral Risk Factor Surveillance System

# **Asthma Hospitalizations & Emergency Department Visits**

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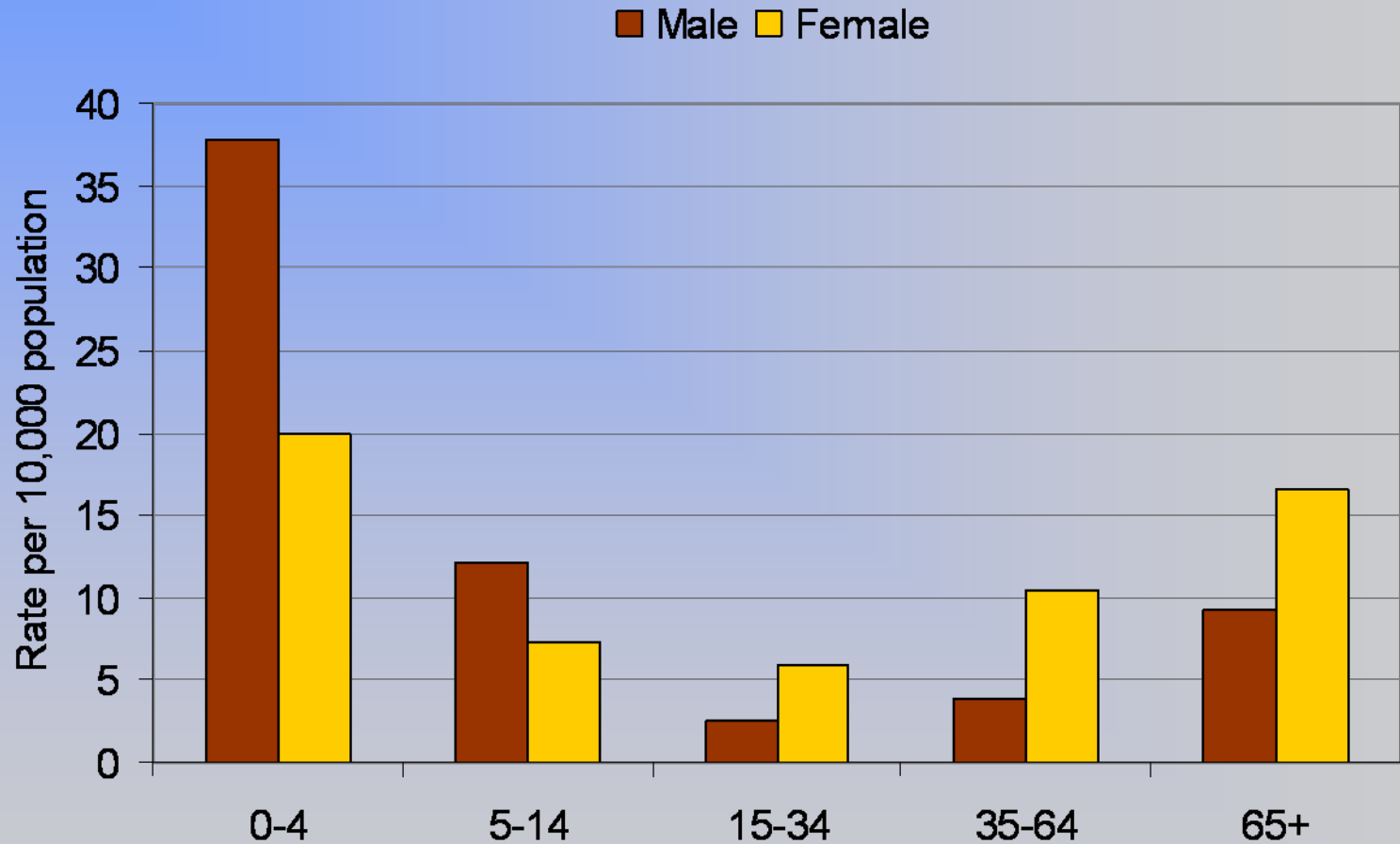
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# Asthma Emergency Department Visit Rates by Age and Sex, Minnesota, 2007



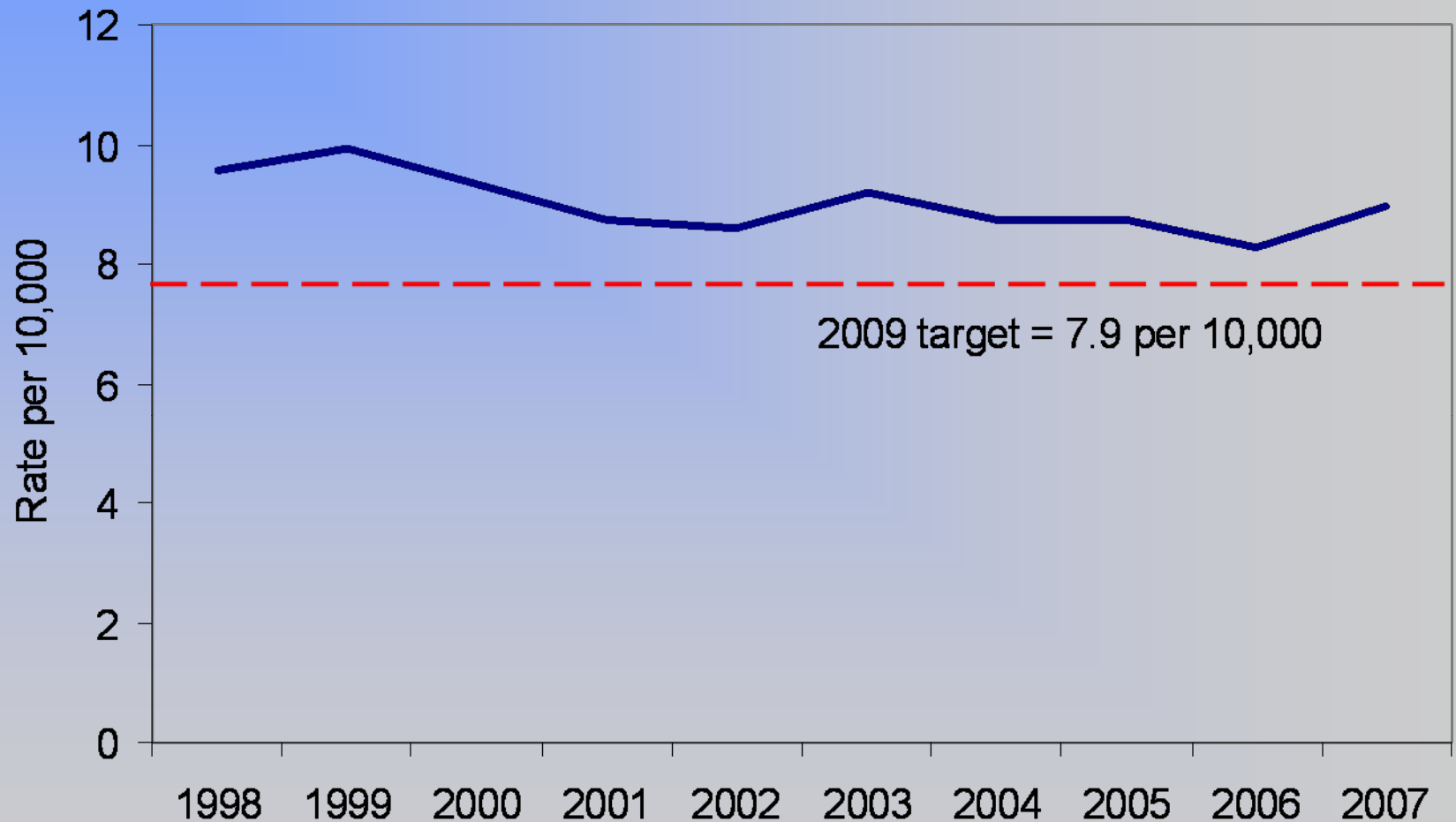
Source: Minnesota Hospital Association

# Asthma Hospitalization Rates by Age and Sex, Minnesota, 2007



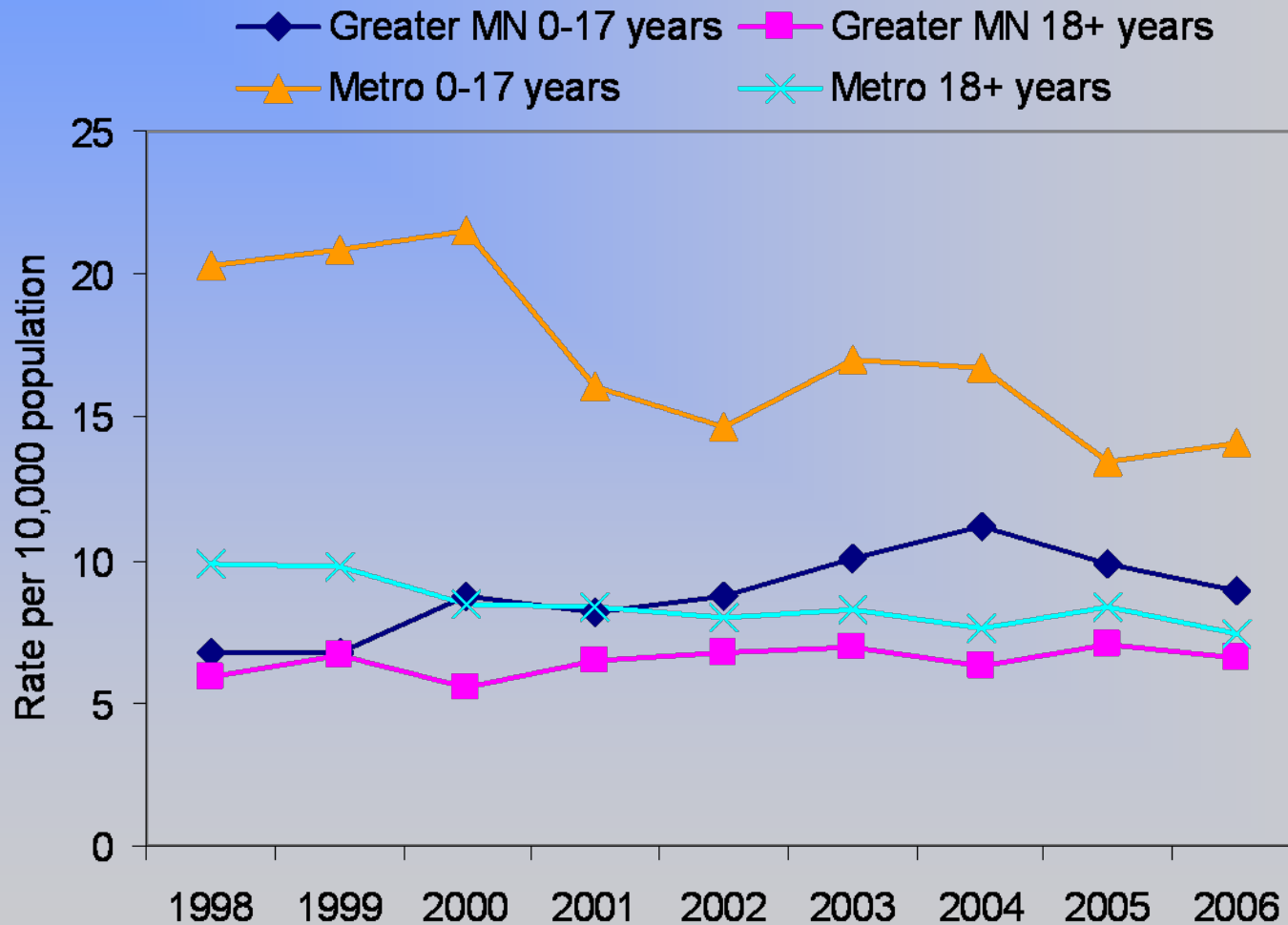
Source: Minnesota Hospital Association

# Age-Adjusted Asthma Hospitalization Rates, Minnesota, 1998-2007



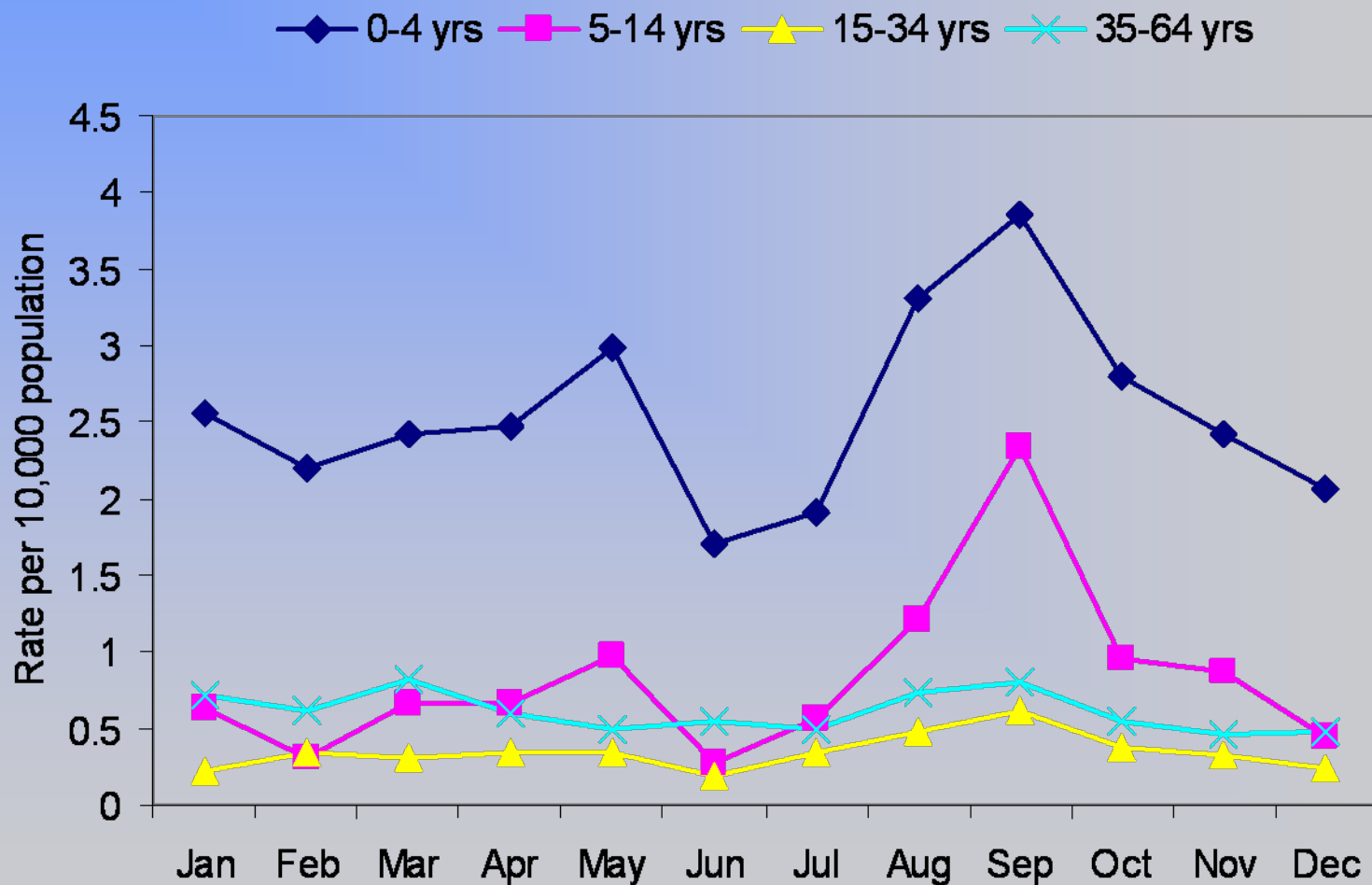
Source: Minnesota Hospital Association

# Asthma Hospitalization Rates by Age Group and Region, 1998-2006



Source: Minnesota Hospital Association

# Seasonal Variations in Asthma Hospitalizations, Minnesota, 2007



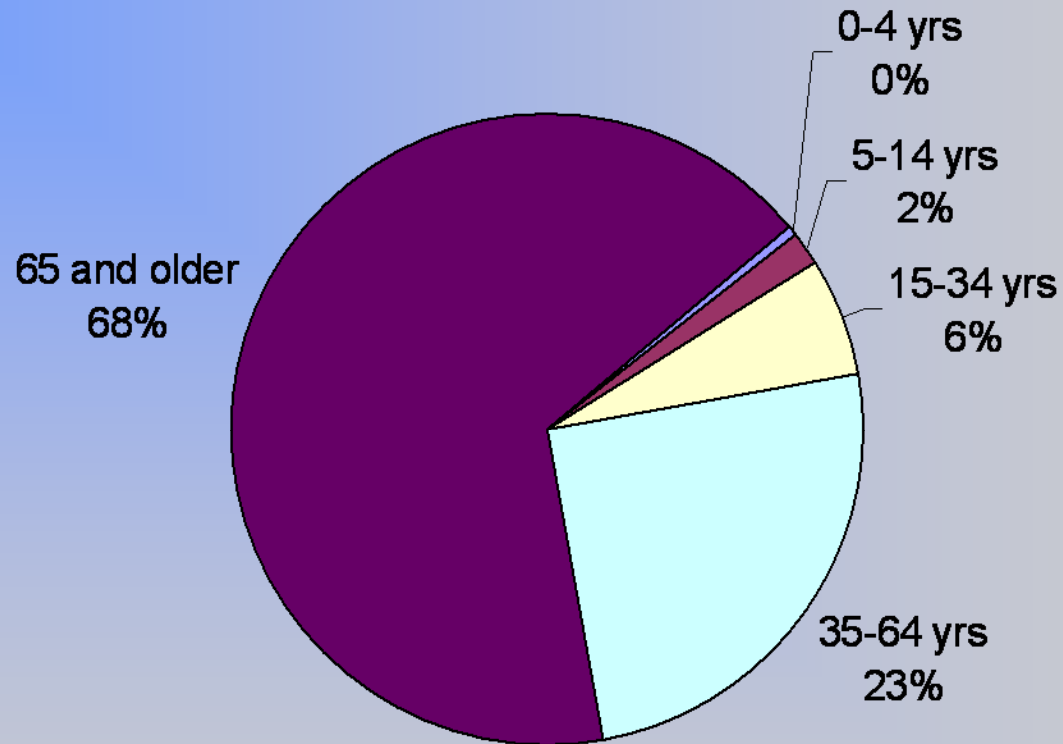
Source: Minnesota Hospital Association

# Asthma Mortality

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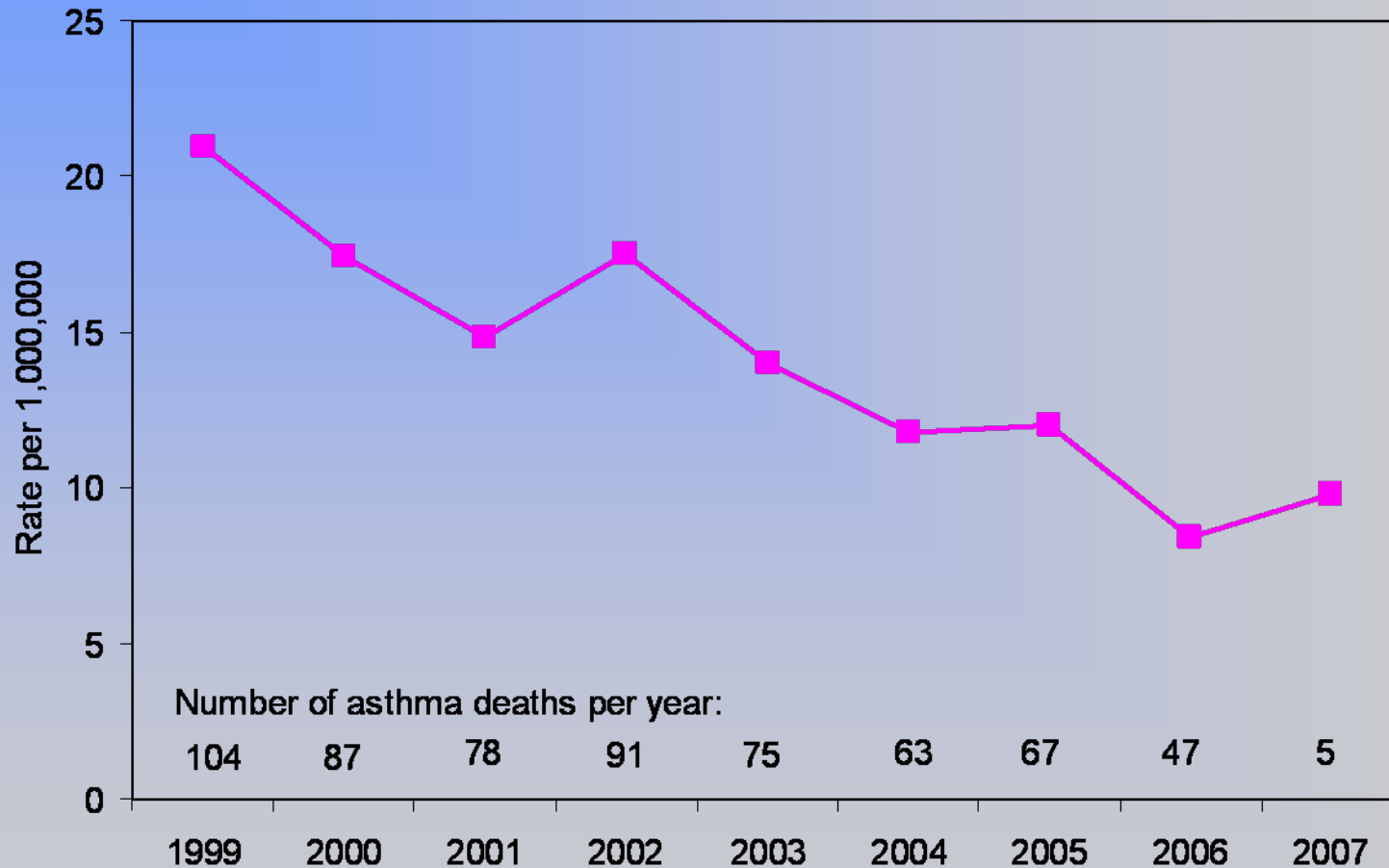


# Asthma Mortality by Age, Minnesota, 2003-2007



Source: Minnesota Center for Health Statistics

# Age-Adjusted Asthma Mortality Rates, Minnesota, 1990-2007



Source: Minnesota Center for Health Statistics

# Special Topics

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# Environment

Air pollutants, such as smog, automobile exhaust and chemicals, may cause poor outdoor air quality, and on some days, result in air quality alerts or advisories.

Have you ever heard of air quality alerts or advisories in the area where you live?

Yes: 46.3% of Minnesota adults

Source: Behavioral Risk Factor Surveillance System, 2005

# Using Asthma Data to Respond to Environmental Concerns

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# Responding to Environmental Concerns

- Wood smoke, outdoor wood boilers
- Avon wood-finishing facility
- Eyota ethanol facility
- Midtown Eco-Energy project



# City of Minneapolis

Neighborhoods & Communities



## Estimated percentage of adults (age 18 and older) who have asthma

	Phillips neighborhood	Minneapolis	Hennepin Co.	Minnesota
Current asthma	8.1%±2.6	8.5%±1.1	7.6%±1.0	7.7%

Notes: ± = 95% confidence intervals (margin of error)

Current asthma = Yes to: "Has a doctor or other health professional ever told you that you had asthma?" and "Do you still have asthma?"

Sources: SHAPE 2002, Hennepin County Human Services and Public Health Department Behavioral Risk Factor Surveillance System, 2007

## Estimated percentage of children (age 0-17) who have asthma

	Central (Powderhorn/ Phillips)	Minneapolis	Hennepin Co.	Minnesota
Current asthma	9.4%	10.0%	9.4%	6.6%

Current asthma = Yes to both: Has a doctor ever told you that your child has asthma? and Does your child still have

Sources: Unpublished SHAPE 2006 data, Hennepin County Human Services and Public Health Department Behavioral Risk Factor Surveillance System, 2004

## Asthma Emergency Department Visits by Zip Code, 2006

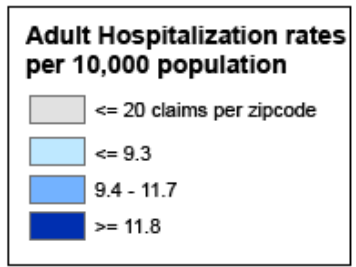
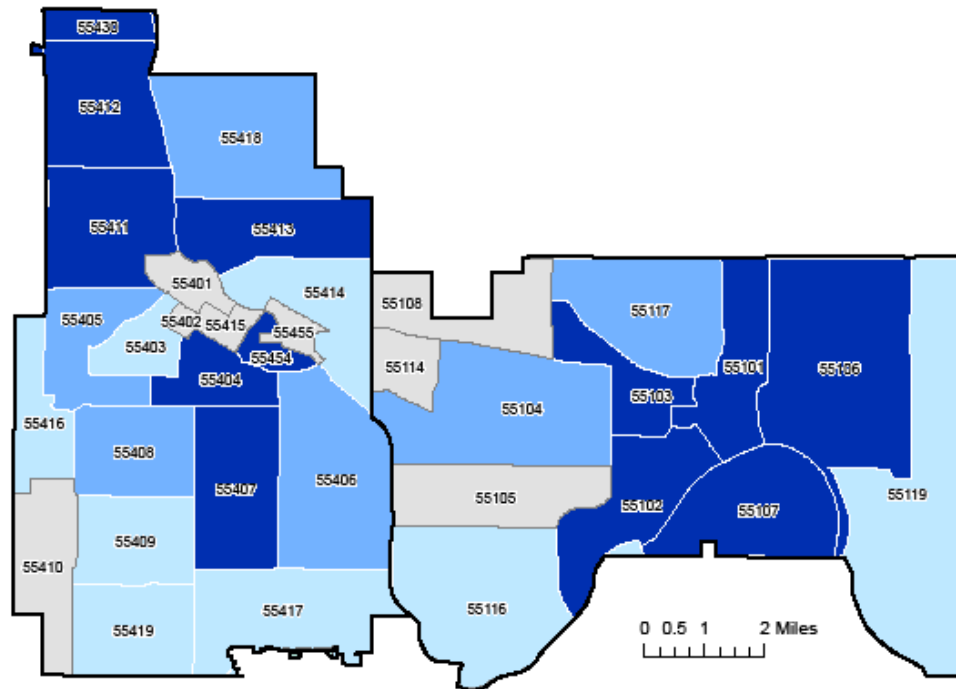
<b>Children (0-17)</b>	Rate per 10,000 residents	<b>Adults (18+)</b>	Rate per 10,000 residents
55404	301.7	55404	108.1
55407	229.5	55407	56.0
Minnesota	55.7	Minnesota	22.6

## Asthma Hospitalizations by Zip Code, 2006

<b>Children (0-17)</b>	Rate per 10,000 residents	<b>Adults (18+)</b>	Rate per 10,000 residents
55404	43.4	55404	21.2
55407	33.0	55407	17.0
Minnesota	12.0	Minnesota	7.1

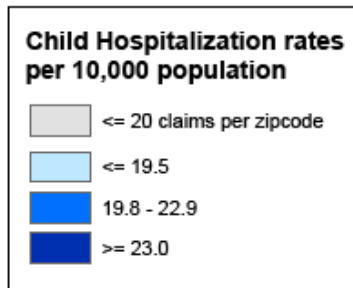
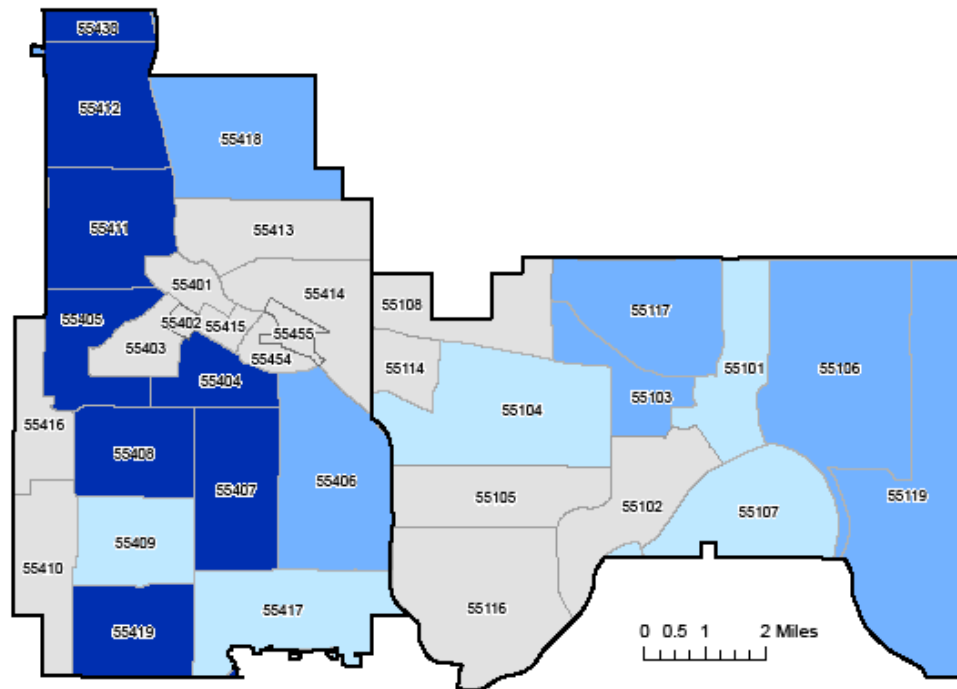


# Average Annual Adult Asthma Hospitalization Rates by Zip Code Minneapolis/St. Paul, 2004-2006

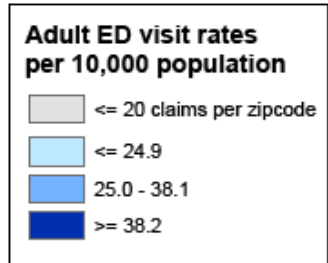
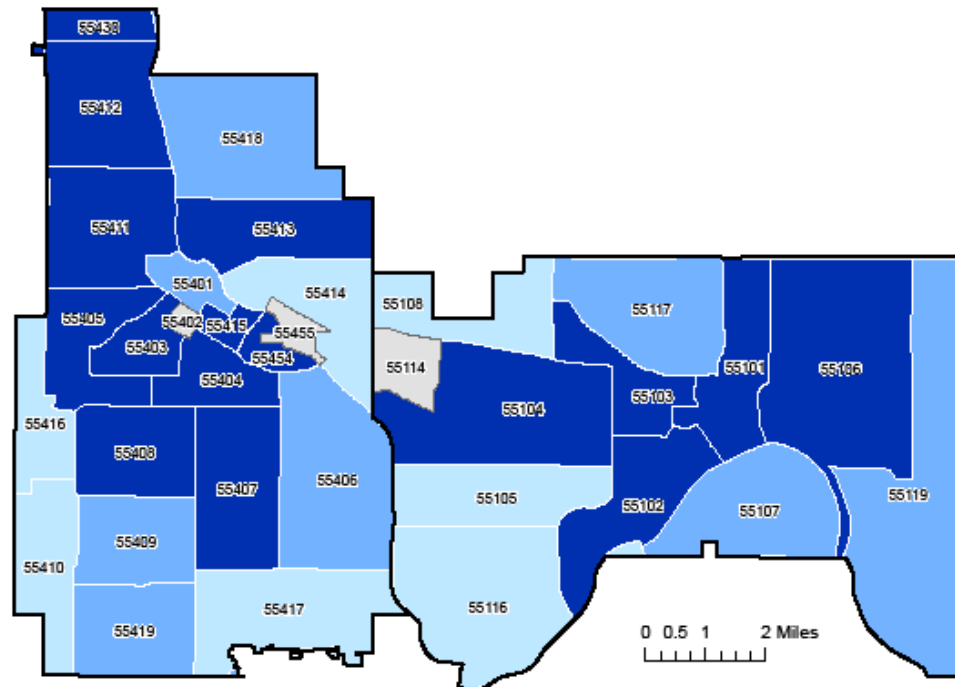


Population Source: US Census 2000  
Data Source: MN Hospital Association

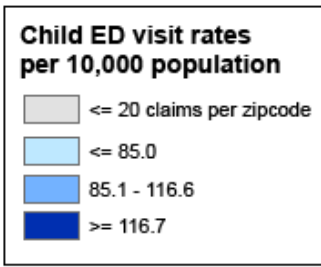
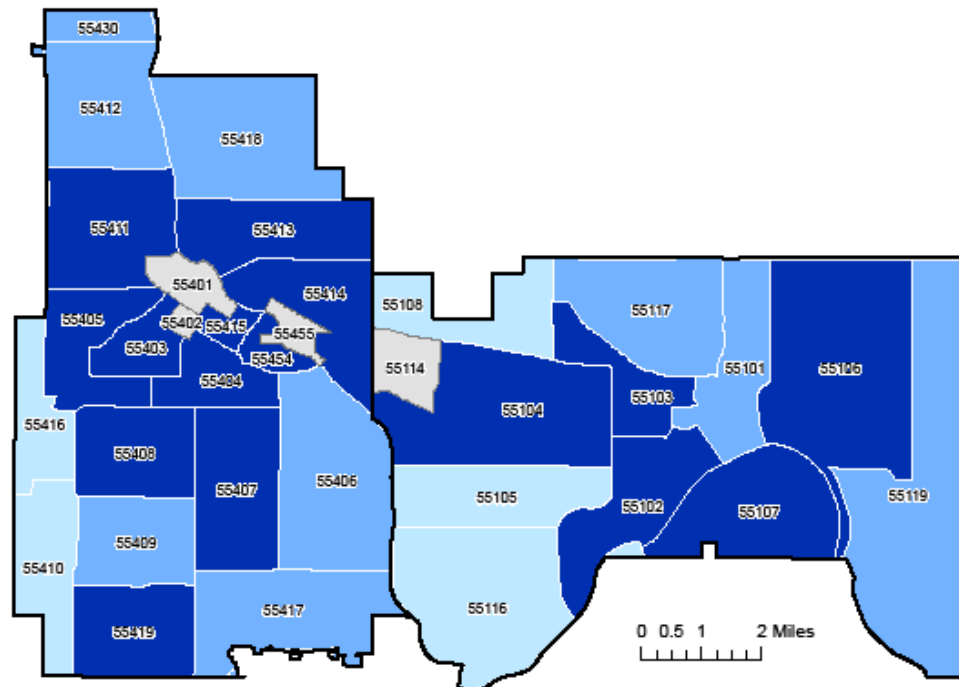
# Average Annual Child Asthma Hospitalization Rates by Zip Code Minneapolis/St. Paul, 2004-2006



# Average Annual Adult Asthma Emergency Department Visit Rates by Zip Code Minneapolis/St. Paul, 2005-2006



# Average Annual Child Asthma Emergency Department Visit Rates by Zip Code Minneapolis/St. Paul, 2005-2006



# For more information

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