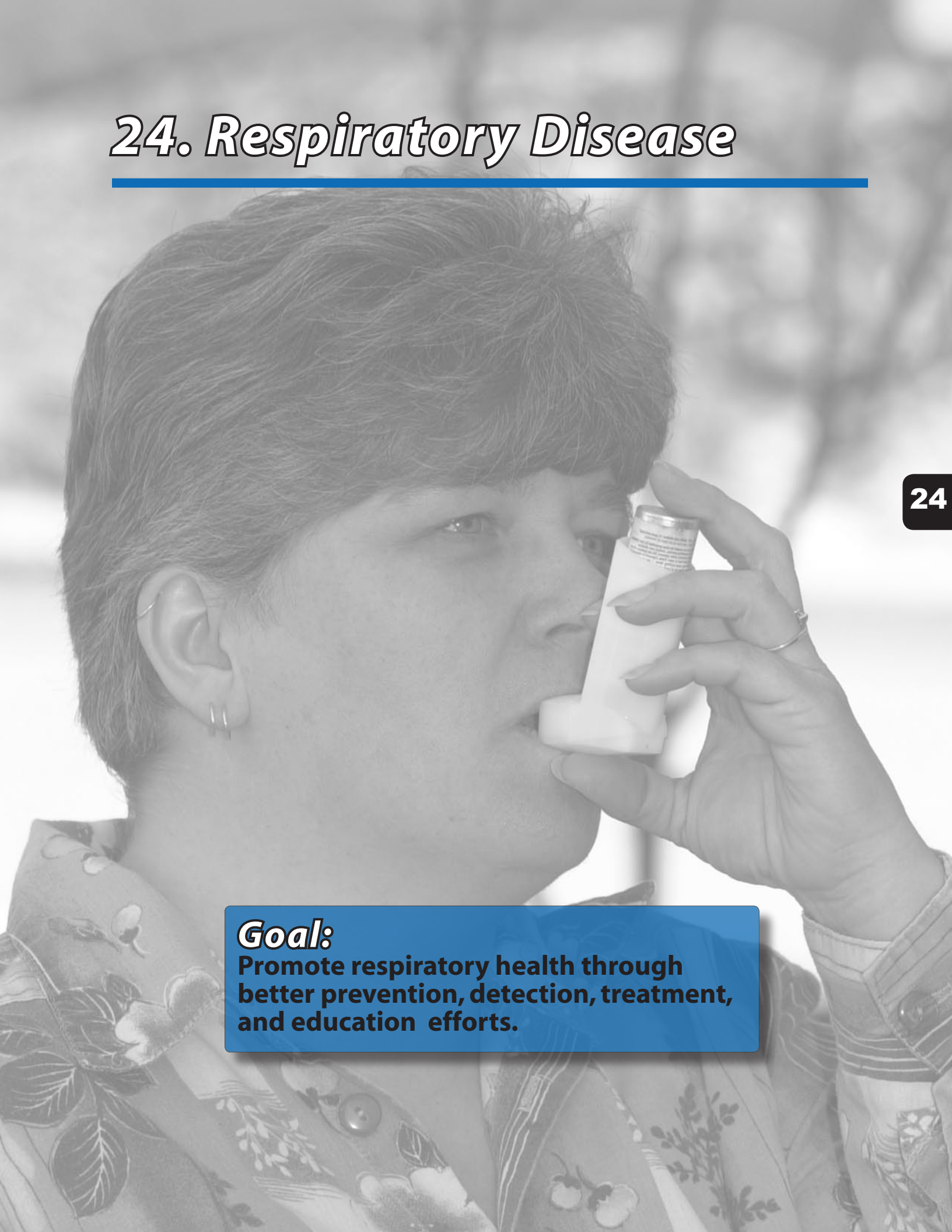
24. Respiratory Disease



Goal:
Promote respiratory health through better prevention, detection, treatment, and education efforts.

Health Goal for the Year 2010: Promote respiratory health through better prevention, detection, treatment, and education.					
	Indicator	**Alaska Data Source**	**U.S. Baseline**	**Alaska Baseline**	**Alaska Target Year 2010**
1	Reduce hospitalizations for asthma (rate per 10,000).	Hospital Discharge Survey (potential)	45.6 (children under age 5)	Developmental	
2a	Reduce lifetime asthma prevalence (adults ever told by a doctor that they have asthma).	BRFSS	11% (2000)	11% (2000)	8%
2b	Reduce current asthma prevelance (adults that still have asthma).	BRFSS	7% (2000)	7% (2000)	5%
3	Reduce the proportion of adults whose activities are limited due to chronic lung and breathing problems (percent of adults).	BRFSS (potential)	2.2% (1997) NHIS	Developmental	
4	Reduce deaths from Chronic Obstructive Pulmonary Disease (per 100,000).	ABVS	45.5 (1999)	58.6 (1999)	21.7
	Alaska Native	ABVS		65.1 (1999)	21.7
5	Reduce RSV hospitalization rates for infants under 1 year of age (per 1,000).	Hospital Discharge\ Survey (potential)	1 to 14 per 1,000 (1990s)	Developmental	
	Alaska Native	RPMS		87 (1992)	30

BRFSS - Alaska Behavioral Risk Factor Surveillance System. All U.S. BRFSS data are age-adjusted to the 2000 population; the Alaska BRFSS data have not been age adjusted, so direct comparisons are not advised. See Technical Notes.
NHIS - National Health Interview Survey
ABVS - Alaska Bureau of Vital Statistics
RSV - Respiratory Syncytial Virus
RPMS - Resource Patient Management System

Overview

Asthma and chronic obstructive pulmonary disease (COPD)[1] are among the 10 leading conditions causing restricted activity, and a significant public health burden in the United States. Specific methods of detection, intervention, and treatment exist to reduce this burden. Behaviors and diseases that affect the respiratory system, such as tuberculosis, lung cancer, smoking, AIDS, and occupational lung disease are covered in other chapters. The effects of air pollution and indoor air quality are addressed in the environmental health chapter.

Asthma is a common, chronic respiratory disorder that may include wheezing, shortness of breath, cough, and pain or tightness in the chest. Asthma can be prevented and controlled by avoiding triggers (tobacco smoke, allergens, pollutants, and infections) and the use of appropriate medications. Despite improvements in medical treatment of asthma, the prevalence of asthma and the number of asthma deaths increased nationally between 1979 and 1998.[2] Hospitalizations and deaths attributed to asthma may indicate inadequate access to medical care, lack of patient or physician knowledge about asthma, or continuing exposure to environmental hazards such as smoke and pollution.

Chronic obstructive pulmonary disease (COPD) includes emphysema and chronic bronchitis, two disorders characterized by obstruction to airflow. COPD is the fourth leading cause of death in the United States, claiming the lives of over 100,000 Americans annually.[3] Smoking causes 80 to 90 percent of all COPD.

COPD typically develops in people over 50, often after many years of exposure to tobacco smoke. COPD usually results in years of disability before causing or contributing to death. The aging of the population and the large numbers of adults who still smoke suggest that the prevalence of COPD and the overall public health burden of COPD will increase in the next decade.

Respiratory syncytial virus (RSV) is the most common cause of serious respiratory infection in infants under one year of age. RSV also causes repeated infections throughout life, although most healthy children and adults experience only cold-like symptoms and recover spontaneously.

Severe RSV infection in infants often requires hospitalization, oxygen therapy, and sometimes mechanical ventilation. An estimated 500 infants die every year in the United States from RSV associated pneumonia or bronchiolitis.[4] Some survivors develop chronic lung disease. Anti-viral and immune therapies are sometimes used to treat severe RSV or prevent infection in high-risk infants (premature infants and those with chronic heart or lung disease). There is currently no vaccine for RSV.

Although RSV is a communicable disease, it is caused by a very common virus. There is no immunization, and infection control measures cannot completely eliminate transmission from asymptomatic persons or those with minor cold illnesses. infection RSV is addressed in this chapter because it is associated with a significant public health burden of hospitalization and chronic respiratory disease and because it contributes to health disparities between Alaska Native infants and their non-Native counterparts.

Issues and Trends in Alaska

There is little data on the epidemiology and prevalence of asthma in Alaska. The asthma death rate for white Alaskans was 5.3 per 100,000 in 1990-95, down from 11.6 per 100,000 in 1984-89.5 Rates for other races were not calculated due to the small numbers. Changes in diagnostic codes, as well as the small number of deaths related to asthma in Alaska annually (less than 10) make calculation of rates, analysis of trends, and comparison across states difficult. The National Health Interview Survey gave an estimate of self-reported asthma prevalence of 6.7 percent for Alaska in 1998, essentially identical to the national average for that year.[6]

Nationally, there are dramatic disparities in asthma by race. African Americans are two to six times more likely to die from asthma than whites and three times as likely to be hospitalized.[7] The small number of African American Alaskans makes it difficult to assess disparities here.

It is not clear if Alaska Natives have higher morbidity and mortality rates from asthma than other Alaskans. The prevalence of parent reported asthma in American Indian/Alaska Native children in 1987 was similar to that of all children in the United States.[8] American Indian and Alaska Native children cared for in the Indian Health Service from 1979 to 1989 had asthma hospitalization rates similar to those of white children.[9]

Although there are no data to suggest that asthma rates are elevated in Alaska in comparison to the rest of the county, the high smoking rate in the state suggests that asthma could be an issue. Particulate pollution, which is associated with volcanic ash, wild fires, and unpaved roads rather than manufacturing in Alaska, may also contribute to asthma. In Anchorage, an increase of 10 micrograms/m^3 in daily particulate matter less than 10 microns in diameter was associated with a 3 percent to 6 percent increase in medical claims for asthma visits among state employees.[10]

COPD is the sixth leading cause of death in Alaska. The COPD death rate among Alaska Natives, 30 per 100,000, is almost double the rate for whites. Since Alaskans age 65 and over accounted for 78 percent of all COPD deaths, more cases will be expected as the population continues to age.[11]

RSV associated disease (bronchiolitis and pneumonia) is the major cause of hospitalization for Alaska Native infants, with babies in the Yukon-Kuskokwim Delta at highest risk. Hospitalization rates as high as 249 per 1,000 have been reported among Y-K infants, in contrast to 1 to 20 per1,000 in the U.S.[12] Bronchiectasis, permanent damage to the lungs, is also prevalent in western Alaska and is associated with high rates of pneumonia in infancy and childhood.[13]

Current Strategies and Resources

Smoking prevention and cessation and protection from second-hand smoke are the foundations of respiratory disease prevention (see *Tobacco*, chapter 3). The increase in state tobacco tax, which has led to reductions in the sales of taxable products and restrictions on smoking in public areas, such as those enacted in Bethel, Anchorage and Juneau, are currently the most effective strategies for reducing COPD, asthma, and RSV.[14]

People with asthma and COPD often suffer exacerbations of disease when they develop infections. Immunization against influenza and pneumoccocal disease, therefore, reduces the public health burden of chronic respiratory disease.

In the absence of an effective vaccine, protection against RSV focuses on educating parents and caregivers about risk factors (second-hand smoke, exposure to people with cold symptoms) and protective factors (breastfeeding and hand-washing). The Arctic Investigations Program's video, The Little Things that Count: Alaskan Families and RSV, has been widely distributed throughout Alaska. The video features Alaska Natives and scenes from Yukon Kuskokwim Delta communities to describe the features of RSV disease and basic prevention practices.

Since breastfeeding and elimination of second hand smoke also protect against Sudden Infant Death Syndrome (SIDS), routine education and reinforcement on these issues for all parents may reduce RSV disease as well.

Data Issues and Needs

Hospital discharge data are the most effective ways of tracking COPD, asthma, and RSV disease. If the Division of Public Health initiates review of hospital discharge diagnoses, baseline information on rates of these serious respiratory diseases can be established. Death certificate data will continue to be important in following trends in COPD, since it is a major cause of death.

Measures of smoking behaviors, such as the Behavioral Risk Factor Surveillance System (BRFSS) and the Youth Risk Behavior Survey (YRBS) are essential to estimating rates of COPD in the future. Exposure to second-hand smoke is also a major risk factor for asthma and severe RSV disease. Breastfeeding may have some protective effect for RSV disease in infants[15], and Pregnancy Risk Assessment Measurement (PRAMS) surveys provide estimates of breastfeeding initiating and continuation rates.

Related Focus Areas

A variety of objectives in other *Healthy Alaskans* chapters are linked to objectives in *Respiratory Diseases*.

- *Physical Activity*
- *Tobacco*
- *Immunization and Infectious Diseases*

Physical Activity and Fitness has connections to *Respiratory Diseases*. Activity can improve the health of people who have asthma, COPD and other respiratory illnesses. Tobacco causes COPD and may cause or trigger asthma, illnesses addressed in *Respiratory Diseases*. RSV is an infectious disease and research is currently being done to determine if control methods or vaccines could help reduce hospitalization rates for infants.

Endnotes

[1] Changes in the International Classification of Diseases (ICD) in 1999 resulted in the discontinuation of the Chronic Obstructive Pulmonary Diseases (COPD) category. These illnesses are now classified as Chronic Lower Respiratory Diseases. This term will replace COPD in future publications.
[2] American Lung Association. Trends in asthma morbidity and mortality. January 2001.
[3] American Lung Association. Fact Sheet: Chronic obstructive pulmonary disease (COPD). January 2001. Available on-line at www.lungusa.org/diseases/copd_factsheet.html Accessed May 3, 2001.
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[5] Centers for Disease Control and Prevention. Surveillance for asthma: United States, 1960-1995. MMWR. April 24, 1998; 47(SS-I): 1-28.
[6] Centers for Disease Control and Prevention. Forecasted state-specific estimates of self-reported asthma prevalence – United States, 1998. MMWR December 4, 1998; 47(47); 1022-1025.
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[8] Stout, J.W., Sullivan, M., Lui, L.L., Grossman, D.C. Asthma prevalence among American Indian and Alaska Native children. Public Health Reports May-June, 1999; 114(3): 257-61.
[9] Hisnanick, J.J., Codington, D.A., and Gergen, P.J. Trends in asthma related admissions among American Indian and Alaska Native children from 1979 to 1989. Archives of Pediatric and Adolescent Medicine. April, 1999; 148(4): 357-63.
[10] Gordian, M.E., Ozkaynak, H., Xue, J., Morris, S.S., and Spengler, J.D. Particulate air pollution and respiratory disease in Anchorage, Alaska. Environmental Health Perspectives March 1996; 104(3): 290-297.
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[13] Singleton, R. et al. Bronchiectasis in Alaska Native children: Causes and clinical courses. Pediatric Pulmonology. March 2000; 29(3): 184-187.
[14] Alaska Department of Health and Social Services, Division of Public Health, Data and Evaluation Unit. The Impact of the 1997 Tobacco Tax Rate Increase in Alaska: Update as of March 2001.
[15] Singleton, R., et al. RSV-associated hospitalizations in Alaska Native infants. International Journal of Circumpolar Health 1998; 57 (Supplement 1):255-9.

References and Sources

Alaska

American Lung Association - Alaska	www.aklung.org/index2.htm
Arctic Investigations Program -RSV	www.cdc.gov/ncidod/aip/AIP.asp

National

American Cancer Society	www.cancer.org/
Asthma Management Model Systems	www.nhlbisupport.com/asthma/index.html
National Heart, Lung, and Blood Association	www.nhlbi.nih.gov/index.htm

Chapter Notes