

## 24. RESPIRATORY DISEASES

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### *Goal*

Raise public awareness in Kentucky about the signs and symptoms of lung diseases so that people know what to do when they experience them—specifically the symptoms of asthma, chronic obstructive pulmonary disease (COPD), and obstructive sleep apnea (OSA), and promote lung health through better detection, treatment, and education.

### *Terminology*

**Asthma:** A lung disease with recurrent exacerbations of airway constriction, mucous secretion, and chronic inflammation of the airways, resulting in reduced airflow that causes symptoms of wheezing, cough, chest tightness, and difficulty breathing.

**Chronic obstructive pulmonary disease:** COPD is characterized by the presence of airflow obstruction due to chronic bronchitis and emphysema, two diseases that often coexist. COPD is one of the commonest respiratory conditions of adults and is the fourth leading cause of death in Kentucky and the United States. The Kentucky mortality rate exceeds that of the United States.

**Obstructive sleep apnea:** OSA is an illness characterized by snoring, partial or complete cessation of breathing during sleep, reductions in blood oxygen levels, severe sleep fragmentation, and excessive daytime sleepiness. OSA is a chronic breathing problem with serious effects on individual health and productivity, including risk of sudden infant deaths, injury from unintentional injury, and reduced quality of life.

This chapter discusses those respiratory diseases considered a public health burden to Kentuckians for which specific methods of detection, prevention, intervention, and treatment exist that may result in a measurable reduction of the disease burden. Other diseases are covered elsewhere and some diseases are not included because detection, definition, intervention, prevention, or treatment lack clarity at this time

### *Overview*

The *Kentucky Healthy People 2000* did not include goals and objectives for Respiratory Diseases. Consequently *Kentucky Healthy People 2010* begins to look at these diseases and the many disparities among Kentucky populations with the intent of eliminating as many of those disparities as possible. Problems of access and prevention in the broadest sense are the assurance focus of public health, to be dealt with by planners and policy makers, because these issues require community and population based, service oriented

interventions. Issues of access and prevention must be addressed if the full benefits of prevention are to be observed and improved wellness and health that are expected will be documented as the outcomes. In addition, data availability and comparability must be addressed to determine the distribution of these diseases and to evaluate the effect of any interventions proposed and implemented. The goals and objectives outlined focus on areas of large disparity, where attention to prevention and appropriate treatment and patient education can demonstrate improved prevention and health care outcomes.

**Asthma** affects an estimated 14.9 million Americans and its prevalence is highest in the South, with over 220,000 Kentuckians affected. Nearly 72 percent occur in persons under age 45 and the prevalence is increasing in nearly all population groups, especially children. There were 5,338 deaths nationwide in 1997 due to asthma and 86 deaths in Kentucky during the same year. There are approximately 9 million physician office visits related to asthma annually nationwide, and there were 6,482 hospital discharges with that diagnosis in Kentucky during 1996. This indicates that there is a heavy illness burden from this disease, but death from asthma is uncommon.

The cause of asthma is five fold: allergy, infection, air pollution, exercise, and psychogenic factors. Upper respiratory infections and allergies appear to be responsible for the majority of asthma exacerbations in both children and adults. Socioeconomic status, especially poverty, is also an important contributing factor. Although the frequency of asthma is highest in whites, the rate is higher among African Americans.

Environmental pollutants, ozone, sulfur dioxide, nitrogen dioxides, acid aerosols, particulates, and tobacco smoke are major contributors to asthmatic attacks. Viruses, particularly rhinoviruses, play a major role in asthma in children.

Therapeutic interventions, patient and professional education, and appropriate environmental measures to assure an allergen and pollutant free home environment are essential interventions for this disease.

**COPD** affects an estimated 16.5 million Americans. It is the fourth leading cause of death in the United States and in Kentucky. It caused 106,027 deaths nationwide in 1996 and 1,979 deaths in Kentucky in 1997. The disease is primarily a disease of older persons and is rare in younger age groups. Its prevalence has been estimated as high as ten percent of the population greater than age 55. Both prevalence and mortality have increased markedly during the last two decades, especially in persons over the age of 65.

COPD combines the effects of two specific pathological conditions, emphysema and chronic bronchitis, although both conditions often coexist.

The primary cause of COPD is cigarette smoking, although occupational exposure to smoke, chemicals, and particulates may be contributing factors. Persons with the genetic deficiency of alpha-1-antitrypsin may also suffer from an increased risk, resulting in familial emphysema which even occurs in non smokers. The only intervention that seems to slow the progression of this disease complex is smoking cessation. Smoking

cessation stops the progression of the disease but does not return the persons lung function to normal. The normal aging effects will continue unabated. Even though there have been increases in morbidity and mortality and the costs of care have increased, there has been little attention paid to either primary or secondary prevention.

**OSA** can occur during sleep when the airway to the lung collapses. OSA is one of the more common sleep disorders. It is estimated to affect 18 million middle-aged and elderly adults in the United States. The syndrome affects all races, ages, and socioeconomic and ethnic groups. It has been associated with an increased risk of other respiratory diseases, cardiovascular diseases, cerebrovascular diseases, psychiatric illness, and other problems leading to a diminished quality of life.

There are no data indicating the incidence or prevalence of this condition in Kentucky. Quite likely this is because there has been little emphasis placed on OSA in comparison with other pulmonary ailments. This condition can be prevented, but research into the natural history and epidemiology is needed.

## ***2010 Objectives***

### Asthma

#### **24.1. Reduce the asthma death rate to no more than 14 per million population.**

**Baseline:** 22 per million population in 1997\*.

<u>Select Populations</u>	<u>1997*</u>
African American	32
Hispanic	0
White	20
Male	NA
Female	NA
Children 5-14	2
People aged 15-34	4

\*Rates are crude, per million population, 1997 Kentucky Vital Statistics

**Target Setting Method:** *Healthy People 2010* guidelines.

**Data Source:** Kentucky Vital Statistics.

#### **Implementation Strategy:**

- Target African American communities for public awareness campaign about asthma.
- Support the development of asthma coalitions both rural and urban, for

example the Metropolitan Asthma Coalition in Louisville which reaches the African-American community.

**24.2 (Developmental) Reduce the overall asthma morbidity, as measured by a reduction in asthma hospitalization rate to 10 per 10,000 people.**

**Baseline:** Hospitalization rate per 10,000 population in 1997\* total population.

<u>Select Populations</u>	<u>1997*</u>
African American	22
Hispanic	<1
White	12
Children aged 0-4	63
Youth aged 5-14	18
People aged 15-34	9
People aged 35-64	14
People aged 65 years and older	19

\*Rates per 10,000 population 1996 Kentucky hospital billing data (UB-92).

**Target Setting Method:** *Healthy People 2010* guidelines.

**Potential Data Source:** Kentucky hospital billing data (UB-92).

**Implementation Strategy:**

- Develop community based asthma prevention model using a coalition of local health departments, local family resource centers, agricultural extension services, school systems, and health care providers.
- Work with the Kentucky Department of Education to an implement asthma education program (Open Airways) in all schools and to develop a statewide policy allowing asthmatic children to keep their asthma medications with them at all times.
- Urge Medicaid managed care programs and KCHIP to focus on asthma prevention and education programs.
- Develop a public medical campaign informing the public of the role of second hand smoke as an asthma trigger.
- Collaborate with the licensing bureau for child care facilities to include some asthma education for child care workers.

**24.3. (Developmental) Establish an asthma surveillance system for tracking asthma morbidity, hospitalization, and mortality.**

Asthma is a serious and growing health problem both in Kentucky and nationwide. Almost 15 million persons suffer from chronic asthma and 5000 deaths occur nationwide, with 220,000 cases in and 86 deaths in Kentucky.

Minority populations, particularly African Americans and Hispanics, experience a disproportionate share of morbidity and deaths. There is little accurate information about the frequency and distribution of affected persons in Kentucky making a surveillance system necessary to provide accurate information and guide health care planning.

**Potential Data Sources:** Kentucky Vital Statistics, Kentucky Hospital Discharge database, Behavior Risk Factor Surveillance System (BRFSS)

**Implementation Strategy:**

- Develop a clear definition of asthma and the ICD-9/10 codes commonly used for asthma.
- Develop a passive surveillance system to be implemented by the Division of Epidemiology using the Kentucky Hospital Discharge database and death certificate data.
- Compile and analyze the available ambulance run data as a proxy for emergency room visit data or develop a method of receiving the UB-92 emergency room data.
- Conduct an Isaac Survey in 13-14 year olds in all school systems statewide.
- Analyze asthma related questions in the Behavioral Risk Factor Surveillance Survey for adults.

Chronic Obstructive Pulmonary Disease

**24.4. (Developmental) Reduce the COPD rate to no more than 100 per 10,000 population.**

**Baseline:** 153.7 per 10,000 Kentucky hospital discharge data for 1996\*.

Select Populations	1996*
African American aged 45-64	21.2
Hispanic aged 45-64	NA
White aged 45-64	42.1
African American aged 65 and older	63.3
Hispanic aged 65 and older	NA
White aged 65 and older	115.2
Males aged 45-64	48.2
Females aged 45-64	63.9
Males aged 65 and older	190.0
Females aged 65 and older	129.9

\*Rates per 10,000 population Kentucky hospital discharge data.

**Target Setting Method:** *Healthy People 2010* guidelines.

**Potential Data Sources:** BRFSS, Kentucky Hospital Discharge database.

**Implementation Strategy:**

- Support the current anti-smoking education efforts to increase smoking cessation by current smokers.
- Support the current anti-smoking education efforts to decrease the number of children and teen-agers beginning smoking.

**24.5. (Developmental) Reduce the COPD death rate for adults to no more than 18 per 100,000 population.**

**Baseline:** Death rate from COPD was 35 per 100,000 in men and 22 per 100,000 in women in 1997\*.

<u>Select Populations</u>	<u>1997*</u>
African American males	28
Hispanic males	**
White males	36
Males-all races	35
African American females	21
Hispanic females	**
White females	22
Females-all races	22

\*Rates per 100,000 population age-adjusted to the 1940 US standard population.

\*\*Number too small to compute a reliable age-adjusted rate

**Target Setting Method:** *Healthy People 2010* guidelines.

**Data Source:** Kentucky Vital Statistics

**Implementation Strategy:**

- Support the current anti-smoking education efforts to increase smoking cessation by current smokers.
- Support the current anti-smoking education efforts to decrease the number of children and teen-agers beginning smoking.

**24.6. (Developmental) Establish a COPD surveillance system for tracking COPD morbidity, hospitalization, and mortality.**

COPD places an enormous burden on society in terms of direct costs, indirect costs due to lost productivity, and diminished quality of life for those persons affected. Approximately 1.4 million persons in the United States suffer from COPD. In Kentucky there were more that 12,000 hospitalizations for COPD in

1996 and 1,976 deaths in 1997. However, there is little accurate information about the frequency of occurrence and distribution of persons effected by Cord in Kentucky making a surveillance system necessary to provide accurate information and guide health care planning.

**Potential Data Sources:** Kentucky Hospital Discharge database, Kentucky Vital Statistics, BRFSS

**Implementation Strategy:**

- Develop a passive surveillance system to be implemented by the Division of Epidemiology using the Kentucky Hospital Discharge database and death certificate data.
- Compile and analyze the available ambulance run data as a proxy for emergency room visit data or develop a method of receiving the UB-92 emergency room data.
- Analyze for adults the COPD related questions in the BRFSS.

Obstructive Sleep Apnea

**24.7. (Developmental) Establish an OSA surveillance system for tracking OSA morbidity, hospitalization, and mortality.**

OSA is reported to be prevalent in males over the age of 50 and in postmenopausal women, but there is little data to indicate the incidence, morbidity, prevalence, or mortality related OSA in Kentucky. The Association of Professional Sleep Societies estimates that as many as 18 million Americans have this condition and may suffer severe consequences as a result.

**Potential Data Sources:** Kentucky Vital Statistics, BRFSS, and Kentucky Hospital Discharge database.

**Implementation Strategy:** Develop a passive surveillance system to be implemented by the Division of Epidemiology using the Kentucky Hospital Discharge database and death certificate data.

**24.8. Increase to six hours the average number of hours that medical school curricula devoted to training medical students in sleep medicine.**

**Baseline:** About two hours in 1990.

**Target Setting Method:** *Healthy People 2010* guidelines.

**Data Sources:** University of Kentucky, University of Louisville.

**Implementation Strategy:** Urge both the University of Kentucky and University

of Louisville to develop and implement this change in their curricula.

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