



# Arizona Comprehensive Asthma Control Plan .....

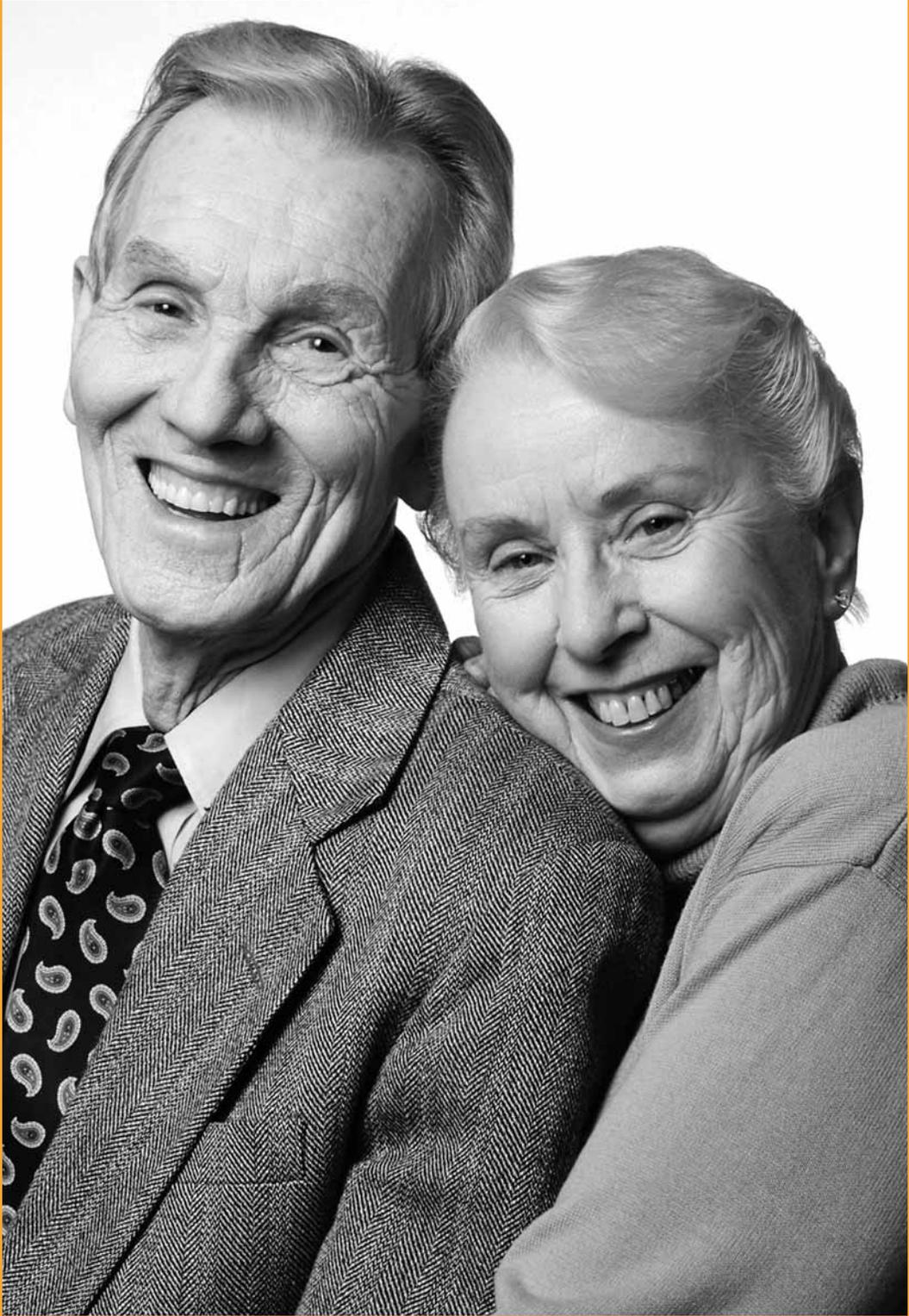


“The Arizona Department of Health Services sponsored the development of this plan with the intent to set priorities and suggest strategies to address asthma as a serious chronic disease and public health issue.”

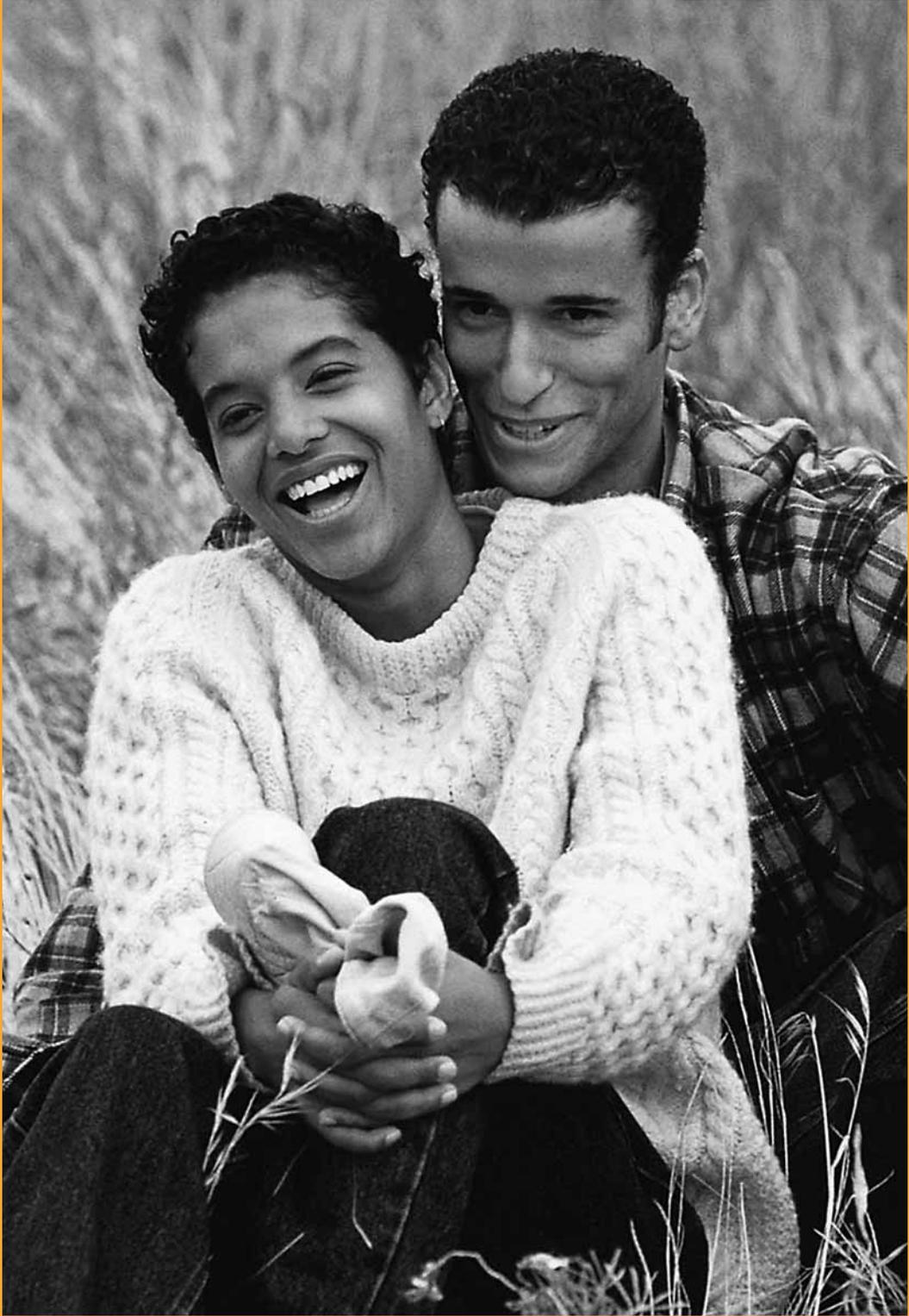














**TABLE 1**

• **Overriding Goals:**

- Reduce asthma deaths in Arizona.
- Reduce asthma-related hospitalizations and emergency department visits in Arizona.
- Reduce the number of asthma-related missed school and work days.









age 15 years and older) and Hispanics (8% for persons age 14 years and younger, 5% for persons age 15 years and older).<sup>12</sup> Nationally, for persons age 14 years and younger, asthma is more prevalent in males (10%) than females (6%). However, for persons age 15 years and older, asthma is more prevalent in females (8 %) than males (5 - 6%).

## Economic Impact of Asthma

Nationally the economic burden of asthma is substantial with more than \$14 billion annually (2002 estimates) attributed to direct and indirect costs associated with the disease.<sup>13</sup> National estimates for direct medical costs due to asthma totaled more than \$9.4 billion in 2002. Inpatient hospitalizations were the biggest direct medical expenditure totaling more than \$4 billion. Indirect costs associated with the disease are estimated to be over \$4.6 billion. Indirect costs include loss of productivity due to missed school and work days. Missed school days represent the largest indirect expenditure with an estimated value of \$1.4 billion of lost productivity annually.

## An Asthma Attack/Episode

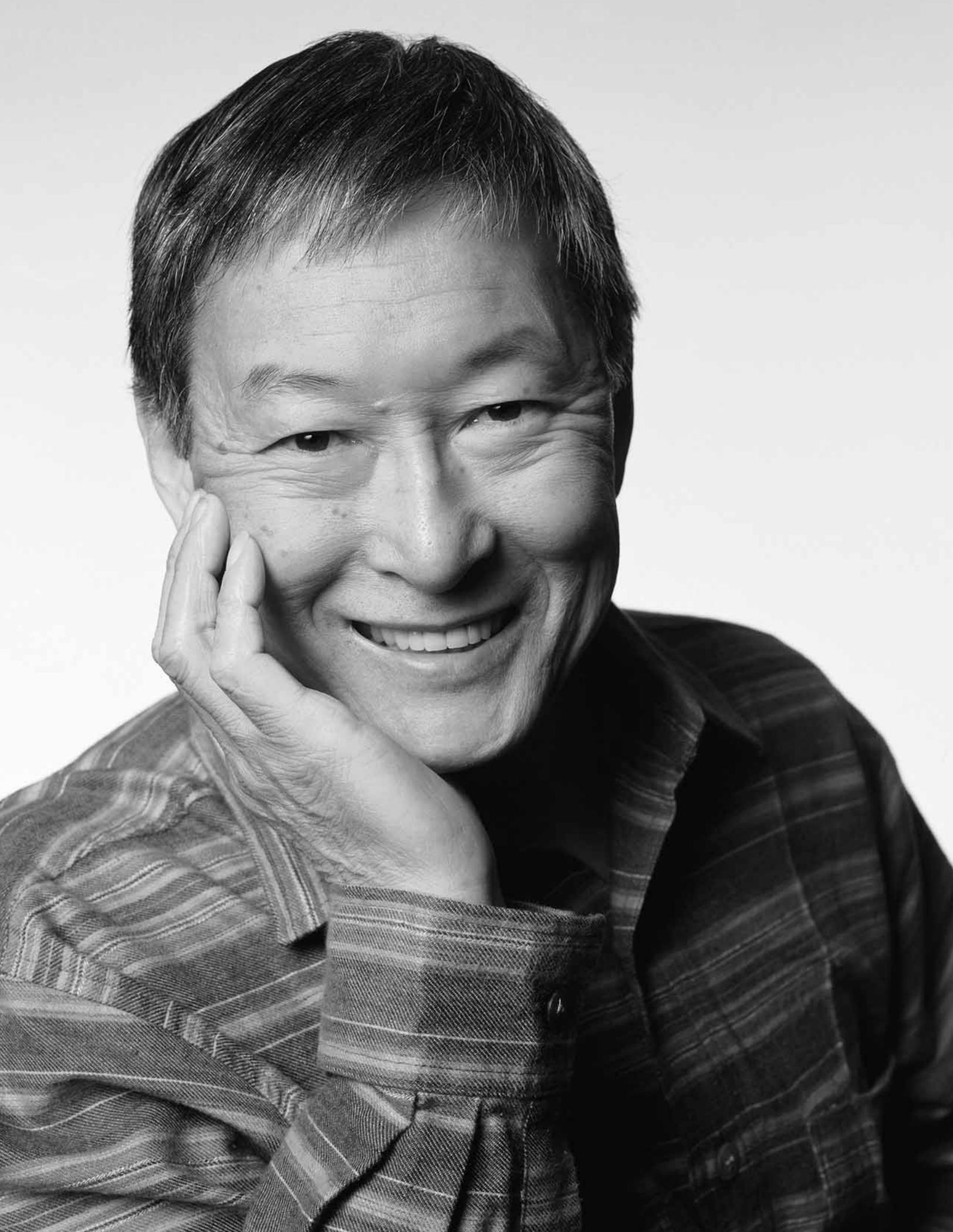
According to the American Lung Association, the exact cause of asthma has yet to be determined.<sup>13</sup> However, factors leading to an asthma attack or episode and what happens to the lungs during an attack or episode are well understood. During an asthma attack or episode the cells in the airways increase in mucus production, the airways

become inflamed, and the muscles around the airways tighten, thus causing the airways to narrow. Asthma attacks or episodes can range from severe attacks or episodes characterized by chest tightness, severe wheezing, inability to breathe, and blue lips and fingertips to mild attacks or episodes characterized by chest tightness, wheezing, mucus emission, and trouble sleeping at night.<sup>14</sup>

Asthma attacks or episodes are brought on by triggers.<sup>15</sup> Triggers are irritants or allergens that can be found either indoors or outdoors. Common triggers include cold air, tobacco smoke, perfume, paint, hair spray, allergens (particles that cause allergies) such as dust mites, pollen, molds, pollution, animal dander, the common cold, influenza, and other respiratory illnesses. Eliminating and controlling triggers are the most effective way to prevent asthma exacerbations.

## Diagnosis of Asthma

The requirements for diagnosis of asthma include an evaluation of the patient's history of variable respiratory symptoms, physical examination, in addition to objective measures of pulmonary function.<sup>16</sup> This history should include the patients past and current medical history, social and environmental history, and family history. Physical examination and testing for airflow obstruction, as well as reversibility and exercise testing are also used to determine a diagnosis of asthma. Elimination of alternative diagnoses (i.e., croup, congestive heart failure, cystic fibrosis, etc.) is also required. Once the diagnosis for asthma has been made, a statement about the level of severity







bronchodilators should not be used as a regular every day treatment for asthma. According to NIH guidelines, if they are used more than twice a week, the patient should be strongly considered for controller therapy.<sup>22</sup>

## Burden of Asthma in Arizona

### Prevalence

In the past decade, asthma prevalence and mortality rates in Arizona have exceeded national averages in nine out of 10 years.<sup>23</sup> The prevalence for asthma statewide increased from 11% in 2000<sup>24</sup> to 12% in 2003. More than 600,000 Arizonans have, at some time in their life, been diagnosed with asthma. In 2003, the prevalence rate for asthma among Arizona adults (persons 18 years of age or older) who have been diagnosed with asthma at some point in their lifetime was approximately

12%.<sup>25</sup> More than 390,000 Arizona adults, or approximately 12% were told by a doctor or health care professional they currently have asthma. In addition, more than 230,000 Arizona adults who currently have asthma reported having an episode or attack within the past year (approximately 59%). An average of 80 deaths occur each year in Arizona due to asthma.<sup>26</sup>

Currently, there is no statewide survey to accurately determine the number of children in Arizona with asthma. However, according to the nationwide survey (NHIS) utilizing U.S. Census data, it is estimated that more than 79,000 Arizona children have had an asthma episode in the past 12 months and that more than 120,000 Arizona children have been diagnosed with asthma at some time in their life.<sup>27</sup> Table 3 below illustrates

**TABLE**

**3**

**Estimated Prevalence Rates For Most Arizona Counties Based On The NHIS For Pediatric Asthma And The Arizona BRFS For Adults**

County	Total Pop	14 & Under	65 & Over	Pediatric Asthma	Adult Asthma
COCHISE	120,439	26,629	18,250	2,683	7,698
COCONINO	120,295	28,495	8,561	2,869	7,913
GILA	51,565	10,531	10,410	1,072	3,260
MARICOPA	3,303,876	774,314	374,333	75,751	216,543
NAVAJO	102,202	28,993	10,340	2,936	6,009
PIMA	881,221	184,249	124,925	18,303	58,660
PINAL	196,275	41,032	31,649	4,106	12,893
SANTA CRUZ	40,035	11,099	4,376	1,109	2,379
YAVAPAI	179,057	30,548	39,073	3,123	11,921
YUMA	167,407	41,136	28,799	4,083	10,329
<b>TOTAL:</b>	<b>5,162,372</b>	<b>1,177,026</b>	<b>650,716</b>	<b>116,035</b>	<b>337,605</b>

estimated prevalence rates for most Arizona counties based on the NHIS for pediatric asthma and the Arizona BRFSS for adults.<sup>28</sup>

### Hospitalizations

Arizona Hospitalization Discharge Data show a total of 32,171 asthma-related hospitalizations for Arizona residents.<sup>29</sup> The average length of stay was approximately four days with a total of 132,479 days for all asthma-related hospitalizations. An average of \$20,185 was spent per hospitalization with a total healthcare expenditure of \$650 million for all hospitalizations.

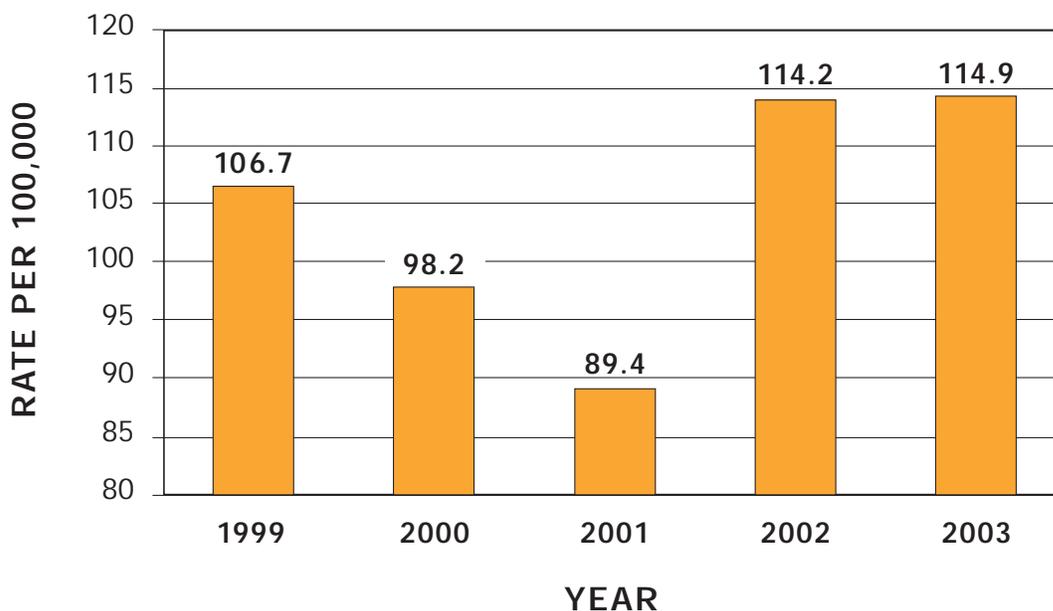
Additionally, a greater number of females were hospitalized for asthma-related complications (66% females vs. 34% males). The majority of hospitalizations were among Non-Hispanic

White/Caucasian Arizonans followed by Hispanics/Latinos, and African Americans (65%, 16%, and 6% respectively).

For persons under 21 years of age, Arizona Hospitalization Discharge Data show a total of 2,952 hospitalizations due to asthma as a primary complication.<sup>30</sup> Approximately 39% of this group was between one and four years of age, 46% were between five and 14 years of age, and 9% were between 15 and 21 years of age. The average length of stay for this group was approximately 2.5 days with a total of 7,250 days for all hospitalizations. An average of \$8,153 was spent per hospitalization with a total healthcare expenditure of \$24 million.

**TABLE 4**

**Arizona Asthma Hospitalization Discharge Rates, 1999-2003**





# Objectives

## Epidemiology and Research

### Objectives

1. Establish a surveillance system for accurately tracking asthma deaths, illness, disability, and financial burden in Arizona.
2. Support research investigating causes, triggers, and management of asthma as well as healthcare policies and outcomes particularly as the activities relate to state issues.

### Rationale

Systematic asthma surveillance is essential as the first step in determining asthma's impact in Arizona. Asthma is not a condition reportable to the Arizona Department of Health Services, therefore obtaining asthma data from one centralized source is difficult. Currently, prevalence rate data for the disease are obtained from two sources: the NHIS and the BRFSS. The NHIS collects national asthma prevalence data from across the U.S. for survey participants and their families. State prevalence rates are then extrapolated from U.S. Census data utilizing Centers for Disease Control and Prevention (CDC) configured weights. The Arizona BFRSS collects data from selected

adults living in Arizona. The BRFSS is not utilized to obtain data about participant family members. In addition to these two survey sources, the Arizona Department of Health Services, Bureau of Public Health Statistics maintains the Arizona Hospital Discharge Database. Hospital discharge data are available from this source for persons hospitalized with asthma as the primary diagnosis. This source does not include data from federal or Native American facilities and does not include emergency room data unless the person was admitted to the hospital.

A surveillance system, which includes state-specific data for adults and children in addition to emergency room data from all medical institutions, is needed to more accurately assess the burden of asthma throughout Arizona. Currently pediatric prevalence rates are determined utilizing the NHIS data obtained from a national sample. A system to obtain more accurate state-specific data pertaining to pediatric asthma is needed to assess the burden of asthma for children in Arizona. Until emergency room data and hospitalization data from all medical

facilities statewide are obtained, the true economic impact of the disease cannot be determined. A more comprehensive understanding of the distribution of the morbidity and mortality of asthma statewide will assist local efforts in the development, planning, implementation, and evaluation of programs for the disease.

Although there is no cure for asthma and the cause of the disease has not been identified, scientific advances in the understanding of the disease have led to new and better techniques to manage the disease. Research findings about the role of airway inflammation have led to pharmacological treatments that have been key to successful disease management. In addition, a better understanding of environmental conditions and triggers related to asthma exacerbations has evolved due in part from research findings. More research is needed to address issues pertaining to disease onset, progression, increases in prevalence rates, and potential cures for the disease.

### ***Objective***

1. Establish a surveillance system for accurately tracking asthma deaths, illness, disability, and financial burden in Arizona.

### ***Strategies***

- ▶ Establish a standardized case definition of asthma and establish criteria for the measurement of asthma morbidity and mortality.
- ▶ Ensure adequate resources to develop and maintain new and existing surveillance systems.
- ▶ Develop new surveys or utilize existing surveys to collect data not available through existing data sources.
- ▶ Expand the Arizona BRFSS to include children of survey participants.
- ▶ Create an infrastructure for emergency department and hospitalization data to be obtained from all medical facilities statewide including federal and Native American institutions.
- ▶ Conduct special studies to assess the burden of asthma among disparate populations.
- ▶ Disseminate reports based on acquired data to community stakeholders.

### ***Objective***

2. Support research investigating causes, triggers, and management of asthma as well as healthcare policies and outcomes particularly as the activities relate to state issues.

### ***Strategies***

- ▶ Increase awareness for the need of asthma research.
- ▶ Conduct research studies on the link between environmental triggers and asthma exacerbations.
- ▶ Conduct etiological studies on asthma.
- ▶ Conduct studies focusing on a cure for asthma.
- ▶ Conduct research on the increase of morbidity and mortality of asthma in Arizona, with an emphasis on disparate populations.



## Treatment and Management

### Objectives

3. Increase the accuracy of diagnosing asthma in the pediatric and adult population by educating healthcare providers about methods and criteria for diagnosis.
4. Increase the proportion of persons in Arizona who receive appropriate care according to established guidelines.
5. Educate healthcare providers/professionals in Arizona to provide individuals with asthma and their families with the best practice of care, education and resources to effectively manage their condition.
6. Increase the number of Arizonans with asthma who receive written management plans from their healthcare provider.

### Rationale

Asthma is a very complex disease requiring continuity of care by all healthcare providers diagnosing, treating, and managing patients with the disease. The National Institutes of Health, National Heart, Lung, and Blood Institute (NIH/NHLBI) publishes a practical guide of best practices for the diagnosis and management of asthma for healthcare providers. Unfortunately, widespread adherence to these established guidelines has not been achieved. Numerous barriers including lack of consensus on best practices, time restraints, and access to educational sessions for rural providers prevent provider knowledge of and adherence to the established guidelines.

Healthcare provider education on the current best practices for asthma is key to the improvement of asthma diagnosis and management as well as continuity of care for patients. Although many practitioners have at some point in their career received education on the diagnosis and management of asthma, keeping current on the latest best practices for the disease can be a challenge. Advances in asthma research and improved treatment strategies make it necessary for providers to continually receive education on current diagnostic methodology and management techniques. Strategies to assess usage barriers, promote guideline utilization, and facilitate provider education are needed to enable healthcare professionals to provide the best care possible for patients.

Due to the episodic nature of the disease, asthma can be difficult to diagnose. According to the NIH guidelines, establishing a diagnosis of asthma should include a medical history including the presence of symptoms of airway obstruction, objective measures of pulmonary function, and the exclusion of alternative diagnoses. Improved diagnosis of the disease could potentially speed up treatment efforts and eliminate ambiguous diagnoses such as reactive airway disease.

According to the NIH guidelines, the goals of asthma treatment and management for patients should be to prevent chronic asthma symptoms including exacerbations, maintain normal activity levels, have normal or near-normal lung function, have no or minimal side effects, and be satisfied with the care received. These goals should be



### **Strategies**

- ▶ Identify, update and/or develop asthma education curriculum for healthcare providers based on the NIH guidelines.
- ▶ Conduct provider education utilizing interactive techniques on diagnosis and management of asthma.
- ▶ Encourage periodic provider education sessions on NIH guideline updates.
- ▶ Develop or adopt an asthma education program to certify health educators in Arizona.
- ▶ Encourage providers to promote healthy living practices to patients such as good nutrition, physical activity, and yearly influenza vaccinations.
- ▶ Create an incentive program to motivate healthcare providers to participate in educational sessions.
- ▶ Partner with non-profit agencies and community organizations to facilitate provider education.
- ▶ Develop and promote standardized education for pharmacists to facilitate pharmacy consultation with patients, families, and caregivers on the proper use of asthma medications and optimal techniques for peak flow meters and spacers.

### **Objective**

6. Increase the number of Arizonans with asthma who receive written management plans from their healthcare provider.

### **Strategies**

- ▶ Promote the use of asthma management plans as part of a larger comprehensive asthma education program for medical providers.

- ▶ Coordinate efforts with schools, health plans, medical providers, government and non-government agencies, families, and other stakeholder organizations to promote, develop, use, and disseminate written asthma action plans for all patients with asthma.
- ▶ Include instructions on how to develop and use written asthma action plans in healthcare provider education programs.
- ▶ Include instructions on the proper techniques and use of peak flow meters as related to written asthma action plans in healthcare provider education programs.
- ▶ Develop and make available on-line a standard asthma action plan.

## **Patient Education**

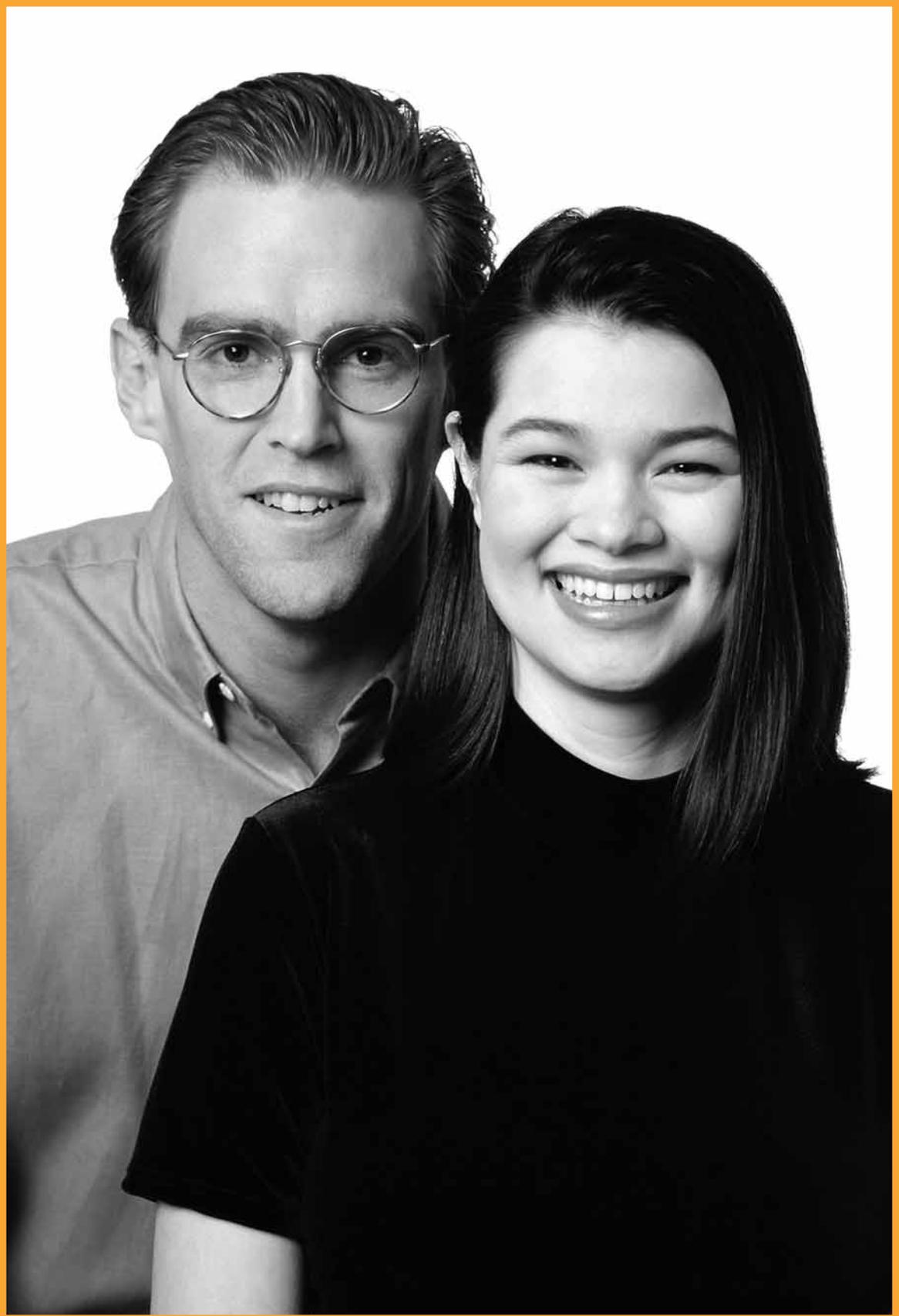
### **Objective**

7. Improve self-management knowledge and behavior in people with asthma, their families and other caregivers.

### **Rationale**

According to the NIH guidelines, the goal of all patient education is to help patients take the actions needed to control their asthma. These actions include: taking daily medications as prescribed, using delivery devices (e.g. spacers, inhalers) correctly, identifying and controlling factors that increase symptoms, using a peak flow meter and monitoring symptoms, and following a written asthma action plan. Effective patient education should involve a partnership between patients and







- ▶ Collaborate with city neighborhood services to promote environmentally healthy homes.
- ▶ Educate patients, families, and caregivers about triggers and how to eliminate and avoid them.
- ▶ Develop and update existing educational materials on occupational asthma.
- ▶ Disseminate educational materials on occupational asthma to employers, employees, healthcare providers, and health insurance plans.
- ▶ Promote indoor air quality management plans for all public buildings.
- ▶ Promote awareness of secondhand smoke and its effect on people with asthma.

## School/Childcare Issues

### Objectives

9. Maximize good asthma management practices in the school setting.
10. Maximize good asthma management practices in the childcare setting.

### Rationale

The impact of asthma in the school setting is quite significant. Annually, millions of days of school are missed due to asthma. According to the CDC, asthma is the number one cause of school absenteeism for school-aged children with chronic health conditions. Management of asthma within the school setting is vital for children with the disease to be present and able to learn. School health services should empower students to manage their disease, work to reduce exacerbations, and be able to respond to emergencies when necessary.

Promoting asthma-friendly initiatives within the school setting should be approached utilizing a comprehensive design created to maximize school health services and draw upon existing community resources while promoting and fostering internal relationships among school personnel. This comprehensive approach should address issues regarding access to healthcare, student, staff, and family education, healthy school environments including indoor and outdoor air quality, and the promotion of physical activities.

Asthma-friendly initiatives should also be promoted within the childcare setting. Childcare staff should be mandated to acquire education on what asthma is, symptom recognition, and what to do in emergent situations. In addition, childcare facilities should aim to reduce environmental triggers and adopt clean indoor and outdoor air management plans.

### Objective

9. Maximize good asthma management practices in the school setting.

### Strategies

- ▶ Promote comprehensive healthcare for students with asthma.
- ▶ Establish and promote a standardized asthma education curriculum for school personnel.
- ▶ Provide age-appropriate asthma education programs for children with asthma in the school setting.



orientation, or geographic location. In Arizona asthma disproportionately affects African Americans and individuals of low socioeconomic status. In addition, females have higher prevalence rates for the disease than males and children under the age of 14 years old are more likely to be hospitalized for the disease than adults.

For asthma, health disparities and low socioeconomic status are closely related. According to the U.S. Census Bureau, almost 10% of Arizonans currently live in poverty. Inadequate or lack of insurance coverage, substandard housing conditions, and the lack of resources to effectively control the disease lead to increase hospitalizations and deaths for people of low socioeconomic status.

Other factors also contribute to health disparities in Arizona for asthma. These factors include cultural and language barriers, physical distance, lack of transportation in rural areas, and an increase in the geriatric population. In addition, many remote communities in Arizona have difficulty recruiting and retaining healthcare professionals.

Improving access to care is critical in eliminating health disparities in Arizona for asthma. Encouraging families to have on-going primary care is essential. Improving access to educational programs, medications, and monitoring devices is also needed. In addition, educational programs curriculum should be culturally and linguistically sensitive and age-appropriate.

## *Strategies*

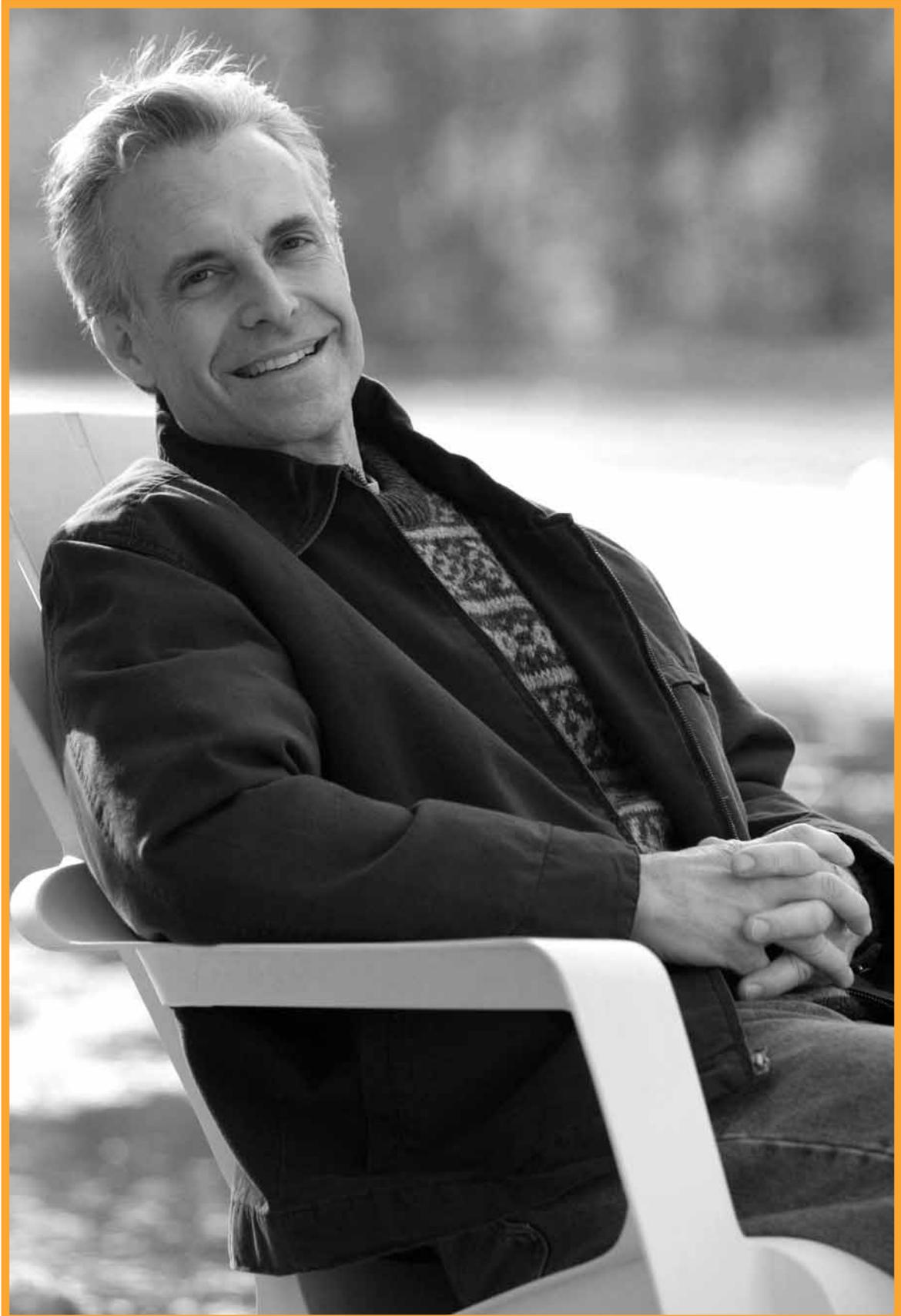
- ▶ Identify specific populations with increased rates of asthma and/or with limited access to asthma resources.
- ▶ Explore factors contributing to the burden of asthma in identified disparate populations.
- ▶ Collaborate with partners to identify and promote available asthma-related resources and education to rural and border communities.
- ▶ Develop, promote, and disseminate asthma-related resources that are culturally sensitive.
- ▶ Develop, promote, and disseminate asthma-related resources that meet the needs of all Arizona residents taking into account factors such as socioeconomic status, race, education level, language, and age.
- ▶ Investigate the utilization of mobile clinics (e.g. Breathmobiles) to deliver services to remote communities across the state.
- ▶ Working in conjunction with the Arizona Health Care Cost Containment System, develop a system to aid uninsured residents to obtain health insurance coverage.
- ▶ Identify emergency assistance programs and organizations providing free or discounted services, medications, and/or medical equipment statewide.
- ▶ Assist healthcare providers and community healthcare organizations to provide asthma education to all patients diagnosed with asthma in Arizona.

## **Collaborative Efforts**

### *Objective*

12. Foster communication, collaboration, and networking opportunities among patients, caregivers, healthcare professionals, public health officials and other stakeholders.







- ▶ Bring asthma stakeholders together to continually refine, alter, promote and monitor the implementation of the Arizona Comprehensive Asthma Control Plan.

## Public Awareness

### *Objective*

14. Improve public awareness and sensitivity to the needs of persons with asthma.

### *Rationale*

Increasing awareness of asthma as a public health concern among the general public can aid efforts in reducing the morbidity and mortality of the disease and increase the quality of life for those afflicted with the disease. Many individuals are unaware of the seriousness of asthma and how debilitating it can be if uncontrolled. Moreover, many Arizonans are unaware of the link between asthma exacerbations and environmental triggers such as secondhand smoke and air pollutants. Concerted efforts should be made to educate and inform the general public about pertinent asthma-related issues.

### *Strategies*

- ▶ Raise Arizona residents' awareness about asthma as a significant public health issue by promoting asthma-related events, activities and educational opportunities.
- ▶ Raise Arizona residents' awareness about asthma and environmental triggers.
- ▶ Raise Arizona residents' awareness about asthma and indoor and outdoor air quality.

- ▶ Raise Arizona residents' awareness about asthma and secondhand smoke.
- ▶ Disseminate consistent materials and messages about asthma to community groups, schools, businesses, and policymakers.
- ▶ Promote basic asthma emergency protocols in first aid and emergency care courses.

## Future Directions

The ultimate goal of creating a comprehensive asthma control plan should be to coordinate existing services and available resources, identify gaps in services, and provide a guide for future endeavors. In order to achieve this goal, future steps for the Arizona Comprehensive Asthma Control Plan should include stakeholder participation in assessing and modifying the plan as workgroups see fit and continual assessment of strides made in achieving the goals and objectives set forth. In addition, the plan should be updated and revised on a continual basis to ensure the plan is addressing relevant issues and meeting the needs of persons with asthma statewide.







- 11 National Center for Health Statistics. *Asthma Prevalence, Health Care Use and Mortality, 2002*. Available from URL: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/astha.htm>.
- 12 National Center for Health Statistics. *Early Release of Selected Estimates Based on Data From the January-March 2004 National Health Interview Survey, September 2004*.
- 13 American Lung Association, Epidemiology & Statistics Unit, Research and Scientific Affairs. *Trends in Asthma Morbidity and Mortality, April 2004*.
- 14 American Lung Association of Arizona. *Asthma Fact Sheet, 2004*. Available from URL: <http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=22596>
- 15 American Lung Association of Arizona. *Asthma Fact Sheet, 2004*. Available from URL: <http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=22596>
- 16 Arizona Department of Health Services, Division of Public Health and Community and Family Health Services. *Asthma in Arizona, 2002*.
- 17 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.
- 18 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.
- 19 Arizona Department of Health Services, Division of Public Health and Community and Family Health Services. *Asthma in Arizona, 2002*.
- 20 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.
- 21 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.
- 22 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.



- 23 National Heart Lung Blood Institute. *National Asthma Education and Prevention Program Guidelines for the Diagnosis and Management of Asthma: Expert Panel Report 2*. Bethesda MD, Department of Health and Human Services, National Institute of Health. Publication No. 97-4051. July 1997.
- 24 Arizona Department of Health Services, Division of Public Health and Community and Family Health Services. *Asthma in Arizona, 2002*.
- 25 Arizona Department of Health Services, Department of Epidemiology. *Arizona Behavioral Risk Factor Survey Database, 2000*. Available from URL: <http://www.azdhs.gov/plan/hip/for/asthma/index.htm>
- 26 Arizona Department of Health Services, Department of Epidemiology. *Arizona Behavioral Risk Factor Survey Database, 2003*.
- 27 Arizona Department of Health Services. *Arizona Vital Statistics, 2003*. Available from URL:<http://www.azdhs.gov/plan/report/ahs/ahs2003/toc03.htm>
- 28 Centers for Disease Control. *National Health Institute Survey Public Use Data Release, 2003*.
- 29 American Lung Association. *State of the Air Report, 2004*. Available from URL: [http://lungaction.org/reports/SOTA04\\_statesensitive.html](http://lungaction.org/reports/SOTA04_statesensitive.html)
- 30 Arizona Department of Health Services. *Arizona Hospital Discharge Data, 2003*.

“Asthma is one of the nation’s most common and costly diseases, affecting over 31 million Americans, with direct and indirect costs exceeding \$14 billion annually.”



# Arizona Comprehensive Asthma Control Plan

Arizona Department of Health Services

Division of Public Health

Tobacco Education and Prevention Program

[www.azdhs.gov](http://www.azdhs.gov)

