Asthma Data Improvement Recommendations

FINAL REPORT

Prepared for:
American Lung Association in Alaska

McDowell Group
Research-Based Consulting
Juneau
Anchorage

September 30, 2013
Asthma Data Improvement Recommendations

FINAL REPORT

Prepared for:
American Lung Association in Alaska

PREPARED BY:

McDowell GROUP

Juneau • Anchorage

September 30, 2013
# Table of Contents

**Executive Summary** ................................................................. 1

**Implementation Steps** .......................................................... 1

**Introduction** .............................................................................. 3

- Aim and Structure of the Report .............................................. 3
- Asthma Importance ................................................................. 3
- What is Surveillance and Why Does It Matter? ..................... 3

**Methodology** .......................................................................... 5

**Health Data and Surveillance Systems** .................................... 6

- Health Data .............................................................................. 6
- Health Data Systems .............................................................. 6

**Asthma Surveillance System Literature Review** .................... 9

- Review Topics ......................................................................... 9
- Lessons Learned ...................................................................... 9

**Case Studies** ........................................................................... 12

- Oregon .................................................................................... 12
- Utah ........................................................................................ 13

**Key Informant Interviews** ...................................................... 15

**Evaluation of Data Sources** .................................................. 16

- Behavioral Risk Factor Surveillance System (BRFSS) .......... 16
- Youth Risk Behavior System (YRBS) ..................................... 19
- Childhood Understanding Behaviors Survey (CUBS) ....... 19
- Alaska Bureau of Vital Statistics (ABVS) – Death Data .... 20
- Alaska Hospital Discharge Database (AHDD) .................... 21
- Alaska Medicaid Management Information System (MMIS) . 22
- Anchorage School District School Health Information .... 23
- Alaska Worker’s Compensation Data (ADWC) .................. 23
- Alaska Air Monitoring Data System ..................................... 24
- National Survey of Children’s Health (NSCH) ................. 25
- National Survey of Children with Special Health Care Needs 25
- School Health Profiles ......................................................... 26
- School Health Policies and Practices Study (SHPPS) ......... 27
- Medical Expenditure Panel Survey (MEPS) ...................... 27
- Additional Data Gaps ............................................................ 28

**Evaluation of Asthma Measures** .......................................... 30

- Healthy People 2020 Goals .................................................... 30
- Healthcare Effectiveness Data and Information Set (HEDIS) 30
- Quality Indicator Modules – Agency for Healthcare Research and Quality 31
- National Environmental Public Health Tracking Program (NEPHTN) 33
- Healthy Alaskans 2010 Measures ......................................... 34
Executive Summary

Asthma is one of the most common chronic conditions facing Alaskans. In 2010, 14.4 percent of Alaskan adults reported having had asthma during their lifetime, and one in ten adults in Alaska (10 percent) currently deal with the condition. Asthma among young people is higher yet; 22.1 percent of Alaskan high school students have reported having asthma at some point in their life. The estimate of direct costs attributed to asthma in Alaska was $150 million in 2012.

Asthma cannot currently be prevented, however it can be managed. Costs to Alaska could be reduced and quality of life improved through more effective programs and policies. Asthma data surveillance systems and clinical registries are essential tools to inform such programs and policies; however, Alaska is one of 12 U.S. states and territories that do not maintain an asthma surveillance system and no clinical registry currently exists.

The American Lung Association in Alaska (ALAA) contracted with McDowell Group to assess capacity, infrastructure, and enhancement of current data systems in Alaska related to asthma. This study examined the potential to develop an asthma data surveillance system. Understanding the burden of asthma in Alaska will inform more appropriate policies, cost-effective measures, and better case management.

An asthma surveillance system requires staff with the skills to analyze data, as well as plan, design, and implement data-collection mechanisms. Based upon previous Alaska grant applications and other state examples, cost estimates could range from about $125,000 to $400,000 annually depending on the level of in-kind support and whether services are provided in-house or contracted.

Alaska would benefit from an asthma surveillance system. The primary goal of this program is to understand how asthma affects Alaskans with a primary objective of reducing costs. The process for developing and implementing such a system is well understood, and lessons from other jurisdictions are available as a guide. A key factor for success is effective coordination of the many entities that will need to be involved, especially those who provide care. Once established and well documented, the system should be an integral part of the state’s public health infrastructure.

Implementation Steps

Key steps leading to a robust asthma surveillance system include:

**Short-Term (1-Year)**

- Establish clear goals for the data system through a charter that establishes short and long-term goals around data collection. Typically, charters include the name of the data system, mission, principles, goals, structure/organization, timeframe, audience, activities, and a way to measure progress.

- Develop a brief data governance manual to establish standard definitions and operation procedures, clarify data storage, establish confidentiality policies and assurances, develop standard ways to
analyze and document the data, develop quality assurance policies and procedures, and document all asthma data sources and any new measures.

- Acquire capacity to report available data. This includes seeking out individuals and public or private organizations with specific expertise to maintain, store, manage, and interpret asthma data.
- Update the previous asthma burden reports and report the available data. Establish a set of indicators that can be routinely updated and published.

**Medium-Term (2-4 Years)**

- Engage and develop partnerships. These partnerships would include ongoing health initiatives, asthma-data owners, private insurance companies, and other stakeholders with vested interest in improved asthma prevention and care in Alaska.
- Develop relationships with the State of Alaska Department of Education & Early Development as well as relationships with school districts.
- Seek funding support from an array of funders, including core funding from the Alaska Department of Health & Social Services (DHSS), as well as other diversified funding from various partners or stakeholders.
- Continue to build data collection and reporting capacity.
- Link data across program reporting, strategic plans, and program evaluations. Establish data agreements and/or memorandums of understanding with partners to routinely share data.
- Enhance and expand data analysis.

**Long-Term (5-10 Years)**

- Stay abreast of the work around asthma registries. In light of newer technologies and new methods of data collection and management within healthcare, asthma registries and/or lung-related disease registries may be an effective tool in the future to not only track asthma for public health monitoring, but also for care management.
- Maintain asthma surveillance as a core component of the State of Alaska’s DHSS.
- Begin to develop routine communication and data sharing with Alaska Department of Environmental Conservation.
- Develop capacity to complete asthma-related research to address Alaska-specific conditions, including glacier silts, cold-air, air quality due to wood-burning stoves, forest fires, dust exposure, and diet.
- Continue to develop relationships with emerging stakeholders.
- Conduct an evaluation of the surveillance system, examining what is working and what requires improvement.
Introduction

Aim and Structure of the Report

This report assesses Alaska’s capacity, infrastructure, and overall feasibility to enhance asthma-related data and/or develop a formal asthma surveillance system. Information was developed from two state asthma program cases studies, key-informant interviews, and an evaluation of asthma-related measures and data sources. The report identifies key factors and action steps to begin developing an asthma surveillance system in Alaska.

Asthma Importance

Asthma, one of the nation’s most common chronic conditions, contributes to increased mortality and morbidity. In 2010, 13.5 percent of U.S. adults reported ever having asthma and 8.6 percent currently have asthma. In Alaska, 14.4 percent of adults reported ever having asthma and 10.0 percent currently have asthma. This means more than 73,000 Alaskans have experienced asthma, and 50,000 of them continue to suffer from the disease. Among youth nationwide, 23.0 percent of high school students reported ever having asthma and 11.9 percent currently had asthma in 2011. Within Alaska, more than one out of five high school students (22.1 percent) reported ever having asthma and one out of 10 (10.3 percent) reported having asthma currently in 2011.

The costs of asthma both to an individual and community are high. The American Lung Association estimates the cost of asthma at more than $50 billion a year in direct medical costs nationally for 2013. In Alaska, the latest estimate (2005) of direct costs attributed to asthma was $118 million. Effective programs and policies could prevent some of these costs. Asthma management occurs in multiple ways, including at an individual, community, and environmental level through patient education, provider education, understanding and avoiding asthma triggers, disease management, and – most important to this report – understanding of the disease through data.

What is Surveillance and Why Does It Matter?

Public health surveillance systems collect and store data systematically around specific health issues. With appropriate analysis, the data provides decision makers with information to design policies and interventions to improve the health issue monitored. Data systems provide information to understand and prevent disease, identify at-risk populations, monitor behaviors that may increase health risks, evaluate programs, and enable effective policy analysis. In this report, asthma surveillance is defined as any systematic data collection and/or data management systems that contain information related to asthma. The consensus of experts, evidence from other jurisdictions, and previous Alaskan asthma reports all support development of a statewide asthma data system.

---

HISTORY OF ALASKA ASTHMA SURVEILLANCE

Currently, Alaska is one of 16 states not funded by the National Asthma Control Program. Nationwide, 44 out of 56 U.S. states and territories maintain systems for tracking asthma. Alaska is one of 12 states and territories that do not maintain an asthma surveillance system.¹

In 2002, the American Lung Association in Alaska (ALAA), Alaska Department of Health and Human Services (DHSS), and the Asthma and Allergy Foundation of America founded the Alaska Asthma Coalition to develop a more strategic and planned approach to address asthma in Alaska. The Coalition funded three Asthma Summits—in September of 2004, December of 2005, and December of 2006—and wrote the *Alaska Asthma Plan: A Strategic Plan for Addressing Asthma in Alaska 2006-2011*.

During this time period, efforts to improve asthma data reporting increased. In 2006, DHSS published Alaska’s first asthma-burden report, titled *Asthma in Alaska: 2006 Report*. The report recommended four main goals for asthma data systems:

1. Communicate the most recent asthma data to the Alaskan public and medical community.
2. Provide asthma-related program managers appropriate data to manage their programs.
3. Provide baseline data for monitoring planned interventions.
4. Provide support for the creation and funding of a State Asthma Control Program.


In addition to the work described above, researchers across the state have published the results of many research studies around upper respiratory and asthma-related issues in peer-reviewed journals. The research covers a wide range of topics from general prevalence studies among Alaska Native people, analyses of Medicaid beneficiaries, and work-based asthma exposures to environmental air quality exposures. This body of research provides a solid foundation of asthma related research and demonstrates the research and epidemiologic capacity to analyze asthma-related data and develop new asthma-related information within Alaska.

---

Methodology

Several methods were used to conduct this study of asthma surveillance, including literature review, executive interviews, case studies, and secondary data review. Appendix A contains abbreviations used.

In order to draw upon the experiences from the field of asthma data and surveillance, a literature review was conducted using the National Library of Medicine PubMed search tool. The literature review focused on articles that address the challenges and strengths of developing and managing asthma data systems, including surveillance systems and clinical registries. The review informed the interview process, case study selections, and development of recommendations.

In addition to the literature review on asthma surveillance/data systems, the study team searched for articles related to asthma and Alaska within peer-reviewed journals through PubMed, the University of Alaska Library, and internal and external knowledge of key asthma-related researchers in Alaska. The articles are compiled in an annotated bibliography listing the title, abstract, and key words in Appendix B. Appendix C provides a description of various types of surveillance systems. Appendix D describes Clinical Quality Care for Alaska.

Study team members attended Alaska Asthma Coalition and Asthma Strategic Plan meetings. Input were gathered at these meetings regarding important considerations to assess throughout this report. In addition, advice from the Alaska Asthma Coalition Data and Surveillance Subcommittee was sought at a meeting and through individual interviews.

Two case studies were conducted in states that are considered to have “best practices” in asthma surveillance – Oregon and Utah. Those states were selected from a list of all state asthma surveillance program websites posted on the Centers for Disease Control and Prevention National Asthma Control website. The study team worked with a committee formed under the Alaska Asthma Coalition to review the list. Appendix E presents the memorandum prepared for ALAA regarding the case study selection process. The case studies included an interview with the program directors, epidemiologists, and other program staff. Readily available online reports, including strategic plans, burden reports, and evaluations of the surveillance systems, were reviewed. State administrators provided additional internal reports and documents. Appendices F and G contain more detailed information about these states’ asthma surveillance systems.

For other executive interviews, McDowell Group worked with ALAA to design an interview protocol and develop a list of key-informants with a special interest or expertise either in asthma or in managing data sources with potentially relevant information at the national or state levels. “Snowball sampling” was used to expand the interview candidate list. Appendix H contains a list of all interviewees.

The report also contains summaries of data sources and measures compiled through web searches, interviews, previous Alaska asthma-burden reports, epidemiologic expertise, and national asthma reports. The data sources were assessed for their relevance to Alaska, timeliness, availability, reliability in Alaska, and trending ability. The measures were assessed based upon how easily understandable and meaningful they would be to asthma-related program directors and the extent to which they were produced by a reliable, reputable organization. These measures are found in Appendices I-N.
Health Data and Surveillance Systems

This section discusses the various types of health data and health data systems.

Health Data

There are multiple health data systems, each designed for specific purposes, though they often overlap in terms of data collected. In general, health data is either financial (billing) data, clinical (medical records) data, or survey (patient survey) data. These data can be combined to form health data systems, which enable analysis across time, regions, and demographic factors.

Financial Health Data

Financial health data is a record of the service provided and the payment associated. The primary purpose of these systems is to monitor the financial transactions associated with health care. A common example of a financial health data set is a fee-for-service claims database, such as the Medicaid Database. Depending on their construction and the data fields included, they can be analyzed for a variety of purposes.

Clinical Health Data

Clinical health data is a record of the service provided and the course of treatment. The primary purpose of these systems is to retroactively review a patient record to aid in the care of patients. A common example of a clinical health data set is the hospital medical record such as the Hospital Discharge Database. Depending on their construction and the data fields included, they can be analyzed for a variety of purposes.

Survey Health Data

Survey health data is a record of the general population’s experience with the health care system. The primary purpose of survey health data is to inform public health authorities about the current health status of a population. A common example of a survey health data set is the National Health Interview Survey. Depending on their construction and the data fields included, they can be analyzed for a variety of purposes.

Health Data Systems

Surveillance Systems

Generally, surveillance systems tend to fall into either active data collection or passive data collection. An active system involves directly obtaining the data specifically for surveillance purposes. Active surveillance systems are typically more accurate but cost significantly more than passive systems to maintain on a per capita basis. A passive system uses existing data gathered for alternative purposes, often relying on reporting from health care providers and administrative datasets. Passive systems often cover large geographic areas and/or large populations. The goals and long-term objectives drive the construction of a surveillance system.
The diagram found in Appendix C summarizes different types of surveillance systems and highlights key strengths, weakness, and typical uses.

**Clinical Registries**

Clinical registries tend to follow specific diseases and the treatment of care for the disease. They may be used not only as a tool to understand a disease, complete clinical trial research, and track treatment patterns, but they may also serve as a way to track care management around specific diseases.

With respect to asthma, there are a few registries across the country. The Epidemiology and Natural History of Asthma: Outcomes and Treatment Regimens (TENOR) started in 2001 focusing on asthma patients with severe or difficult-to-treat asthma. Patients were enrolled across the United States from physicians, academic health care centers, group specialist practices, and managed care organizations.\(^4\)

The Children’s Hospital of Pittsburgh developed an asthma registry focused on pediatric patients to assess several related asthma research and treatment questions, including the relationship between asthma and acetaminophen/ibuprofen, associations with upper respiratory track infections, biomarker research, and treatment patterns for young children.

The American Academy of Allergy, Asthma, and Immunology currently has a task force to review the possibility of hosting an asthma registry that would cover patients served by specialists within this organization. The registry could be used as a tool to track clinical care and/or research. Specialists in allergies and asthma would be the primary users so it would capture severe cases of asthma vs. the general asthma patient who could be handled by a primary care physician. In addition, the American Association of Pediatrics is developing an asthma registry strategy focusing on quality improvement around asthma. At this time, these types of a registry do not exist for patients with asthma in Alaska.

**Hybrid Health Systems**

In light of the changes in health information technology, health care organizations and information technology companies have begun to assess the usefulness of combining data systems to use for tracking clinical care, health information exchanges, research and public health reporting. As an example, some states allow the health information exchange information to be used for public health reporting, replacing the need for a separate surveillance system. These emerging data systems also involve massive shifts in policy and thinking about health within the health care system in the future.

**Health Data Systems and Regulatory Frameworks**

Surveillance systems and registries tend to operate under different regulations. Generally, state asthma surveillance systems operate under public authority laws to maintain, store, and manage surveillance systems. Federal public health authority allows “government authorities” to collect information with the intent to prevent and/or control disease without individual consent. While some surveillance systems require additional legislation, the vast majority of states do not mandate special legislation to support and maintain their asthma

surveillance systems. Appendix E contains a table of asthma-related state legislation compiled by the National Conference of State Legislatures.

Registries may or may not operate under public health authority laws. The asthma registries listed in the previous section fall into research areas and do not collect data under public health authority laws. Individual patients consent to be part of the registry and consent to share their medical record information.

**Clinical Activities Associated with Asthma Data Collection**

An understanding of the clinical care of asthma is an important component of assessing data collection around asthma.

The National Institutes of Health, National Heart, Lung, and Blood Institute and the National Asthma Education and Prevention Program developed the *Expert Panel Report 3 (EPR3): Guidelines for Diagnosis and Management of Asthma*. This report provides guidelines for the diagnosis and long-term management of asthma to help ensure quality care for asthma patients, but does not clearly state how to measure it. The report organizes the recommendations into 10 clinical activities, including:

1. Establish Asthma diagnosis.
2. Classify severity of asthma.
3. Schedule routine follow-up care.
4. Assess for referral to specialty care.
5. Recommend measure to control asthma triggers.
6. Treat or prevent all comorbid conditions.
7. Prescribe medications according to severity.
8. Monitor use of β2-Agonist drugs.
9. Develop a written asthma management plan.
Asthma Surveillance System Literature Review

Review Topics

A systematic review of studies published to date on asthma surveillance system development was conducted in order to guide and inform the key informant interviews, as well as capture lessons learned from those who have developed asthma surveillance systems. This literature review provides an enhanced understanding of the benefits and limitations involved with various approaches to data collection and management.

Among other elements, the studies collectively analyze systems’ ability to collect data on the following:

- The prevalence and severity of diagnosed asthma in adults and children.
- Symptoms of undiagnosed disease.
- Asthma risk factors.
- Accessibility and use of asthma care.
- Asthma diagnosis and treatment practices.

The systems analyzed in the studies were evaluated for effectiveness in characterizing asthma-related data patterns, including risk, disease burden, and service utilization. General factors associated with successful systems include simplicity, flexibility, acceptability, sensitivity, positive predictive value, timeliness, and stability.

Lessons Learned

Data Validity and Measuring Health Outcomes

With respect to data validity, some factors could be tracked with a relatively high level of certainty, others, especially undiagnosed asthma and asthma severity, were more difficult to track.

Some asthma data collection methods use an asthma definition centered on a physician diagnosis. The studies found that the prevalence of undiagnosed asthma is difficult to track but an important component in a successful asthma surveillance system. An understanding of this component of asthma prevalence is essential to describing the full burden of asthma on a community. Undiagnosed asthma may be included in a system by tracking symptoms associated with asthma, such as wheezing.

Asthma severity is also difficult to measure and track. Systems had limited success in attempting to characterize asthma severity through surveys that rely on self-reported symptoms and medication use. One study recommended future research into use of pharmaceutical records as a means of assessing severity.
Types of Data Collection Methods

BILLING RECORDS

A number of studies have documented success tracking asthma, especially childhood asthma, using computerized billing records from emergency room and hospital admissions. Several studies focused on emergency room visit data, potentially because emergency room visits due to asthma are often more frequent than hospitalizations. Billing records provide surveillance system administrators with age-specific data, as well as information on race/ethnicity and gender.

Billing record data can be used to gauge geographic and temporal patterns of asthma-related emergency room and hospital visits. This data can also provide important information for development of prevention programs, and can serve as a useful measure of the effectiveness of programs once they are implemented.

A surveillance system that utilizes billing records requires active data collection, as well as data management and analysis at some point in the process. Also, some compensation for staff time may be required for organizations providing the data. Further validation of billing data accuracy has been recommended in some studies.

EMERGENCY DEPARTMENT AND HOSPITAL DATA

Several studies found value in databases that track asthma-related emergency room department and hospital inpatient and outpatient utilization. As of the date of the studies, such databases were not available in every state. The studies recommended that linking the mortality data with utilization data would help assess the asthma-related mortality.

SURVEYS

Several studies utilized surveys to characterize asthma burdens in a given geographical area. While surveys can be expensive and, therefore, not cost-effective, data gathered from larger federal or statewide surveys, such as the Behavioral Risk Factor Surveillance System (BRFSS), is more affordable to obtain. BRFSS data is especially useful given that asthma programs can specify questions in the survey, including such hard to track topics as undiagnosed asthma symptoms.

Surveys of more focused and targeted populations, such as emergency room or hospital patients, can provide useful data, but this type of research can be expensive and requires ongoing financial commitment to replicate.

PHYSICIAN SURVEYS

One study found value in surveys of physicians regarding their methods of asthma diagnosis and other asthma-related observations. Study conclusions recommend an ongoing, though not necessarily annual, statewide physician survey component to statewide surveillance systems. The survey could be incorporated into a physician awareness campaign.
DATA ON ENVIRONMENTAL RISK FACTORS

One study team evaluated data from the U.S. Environmental Protection Agency’s Toxics Release Inventory. Findings indicate data available in the inventory does not provide a comprehensive understanding of environmental risks for asthma. Study conclusions recommend surveillance systems use more accurate and comprehensive sources of environmental risk data, including a review of the Sentinel Event Notification System for Occupational Risks program of the National Institute for Occupational Safety and Health.5

5 Literature reviewed:
Case Studies

This section provides a summary of two asthma program case studies – Oregon and Utah. After a scan of asthma surveillance systems nationwide, two state programs were selected as case studies. Appendix E contains additional information compiled as part of the scan. The purpose of these case studies is to evaluate “best practices” programs and lessons that may be applied to Alaska. Appendices F and G provide additional details supporting the summary statements presented in this section.

Oregon

Program Description

Oregon maintains a robust asthma surveillance system capturing a full picture of asthma through clinical, billing, and general public health surveillance data. The Oregon Asthma Program Surveillance System (OAPSS) does not exist as one database. It pulls upon multiple data sources and multiple resources. The ability to compile and report the data in a systematic way brings together the information into a “surveillance system.” One of the major strengths of the OAPSS is the system’s ability to measure health claims data for clinical quality care and population-level use.

Oregon integrates data from the OAPSS across the entire Oregon Asthma Program (OAP) through strategic plans, program evaluation, and general asthma reporting. As an example, the OAP Strategic Plan contains reportable measures from the asthma surveillance system as a way to judge progress. The OAP helps community-level asthma programs use the data for program evaluation.

Staffing

The OAP staff includes a project manager, an epidemiologist, and a program coordinator/community program liaison.

The Oregon Department of Public Health maintains a surveillance team composed of research analysts and an epidemiologist to coordinate and streamline surveillance efforts for a number of topics. This team helps consolidate limited resources so that the Oregon Asthma Program can sit near and work with analysts of the other data systems that the OAP draws upon to report asthma data. This working relationship establishes a team environment to share information and data as well as an awareness of other projects. It also helps prevent unnecessary duplication of work. Also, standard data governance procedures have been established across the Oregon Department of Public Health, a move that supports easier analysis and reporting.

Data Coordination and Quality Improvements

OAP developed the Guide to Improving Asthma Care in Oregon: Indicators for Quality Care in Health Systems (Guide). This guide provides population-based indicators that health plans and systems can use to monitor the quality of medical care for people with asthma. This work was completed in collaboration with two data workgroups:
• The Asthma Data Workgroup establishes a partnership between the OAP and Oregon’s largest private health insurance plans to work together to analyze and report data in meaningful ways for quality improvement of care for asthma patients.

• The Quality and Performance Improvement Workgroup (QPIWG) establishes partnerships with the state health insurance programs, including Medicaid and the Children’s Health Insurance Plan. This Workgroup aims to measure and report data consistently across all state managed health plans. This partnership provides data for asthma surveillance. It also helps provide opportunities for quality improvement in care, which helps bring down costs.

Relationships create a foundation for successful data collection throughout OAPSS. Within the Oregon Health Authority, strong relationships exist between OAP and the other data sources to share data as well as provide expertise. Insurance company participation is integral to the success of Oregon’s program; insurance companies have an incentive to collaborate, provide, and share data to improve quality and decrease costs of asthma treatment. In addition, by providing data, the insurance companies get a return on their investment through meaningful interpretation and a translation of the data to asthma program, which reduces costs to the companies.

Establishment of a clear, agreed upon definition of asthma for various data sources served as an important component of success. OAP, in collaboration with partners, established standard asthma definitions based upon the type of data.

Utah

Program Description

Utah maintains a strong asthma program and a robust asthma surveillance system covering a wide range of data types. The Utah asthma surveillance system does not exist as one database. It pulls upon multiple data sources and multiple resources. Epidemiologists compile and report the data in a systematic way, bringing together the information into a “surveillance system.”

Staffing

The Utah asthma program staff consists of two epidemiologists, one who also serves as the program evaluator; a program manager; and a health program specialist.

Data Coordination and Quality Improvements

• Relationships establish a foundation for successful data sharing and reporting.

• Utah links the use of the asthma surveillance data beyond traditional reporting of the asthma data. Utah uses the data for tracking and evaluating the success of community level programs.

• Utah pulls data from Indicator Based Information System to analyze internally, as well as display summarized information for the public.
Environment

Utah has a strong and innovative tradition of assessing air quality and environmental issues in relation to asthma. Utah developed a relationship with individuals within the appropriate state regulatory committee who recognize the importance of air quality to health issues. These individuals have the ability to translate findings from the data to a variety of regulatory and public health staff. In addition, they developed relationships with university staff to begin research around environmental issues. This allows the Utah Asthma Program to work in collaboration with the university researchers. Finally, they acknowledged the importance of starting small and focusing attention on efforts that will produce effective results quickly. While this is true across all aspects of asthma surveillance, it seemed especially important in relation to politically charged environmental health issues.

Education

Utah reports school-based asthma data down to the county level, but does not have a school nurse program – similar to some rural school districts in Alaska. This data is collected through school-based surveys, the success of which the staff attributes to developing strong relationships within the school system as well as informing the superintendent of the surveys. In addition, they recognize the importance of stressing that the school is the location from which data is collected, but the results are reported as a population-level view of the students.

All Payer Claims Database

Utah has an All Payer Claims Database, although it is currently stalled. There was much excitement for the All Payer Claims Database when it started because it provided opportunities to report asthma data in ways that would be more meaningful across the board to clinicians, asthma program directors, and policy-makers. It would help capture severity of asthma cases, episodes of care and costs, as well as pharmacy data. However, definitions of an episode of care for asthma patients presented challenges. They were reliant on the contractors to pull the data and often the data for the same measure would come back with different results. Much work is needed for the data to be useful. The data development lost inertia because the contracting company went out of business and not much movement occurred to continue the work. While all of these problems exist, the Utah Asthma Program staff recognized that this database could be an extremely useful data source in the future.
Key Informant Interviews

A wide range of individuals working in clinical areas, as well as program managers of data sources, were interviewed for this report. Appendix H contains a list of the key informants interviewed. Below is a summary of general impressions and suggestions by interviewees.

- **An understanding of asthma severity emerged as one of the most important pieces to consider when developing an asthma surveillance system.** Individuals wanted to have data structures to capture severity accurately because they believed they could more effectively impact the disease with this understanding. Whether people have the disease was not the pivotal question for many, the important piece was, “Among those who have asthma, what is the severity?”

- **Key informants acknowledged challenges in diagnosing asthma, especially in rural areas, and how this affects the ability to accurately understand the disease throughout the state.** Medical professionals do not consistently diagnosis asthma across the state. Few villages have the skilled staff and resources to diagnosis asthma. Based upon clinical observations, the number of hospitalizations and severe cases seem to indicate that the prevalence is higher than reported in current surveys.

- **The majority of interviewees recommended that asthma surveillance should not be mandated.** Some expressed concern that mandating reporting could lower the prevalence rate because medical staff might be more hesitant to diagnosis it as asthma, but they may treat as asthma. Others commented that asthma surveillance already falls under Alaska’s public health reporting laws; therefore, no new legislation mandating asthma surveillance is needed.

- **Schools emerged as a significant data collection point for information on asthma.** However, individuals recognized the difficulty of collecting data in the schools because of parental consent laws as well as different jurisdictions.

- **Many interviewees acknowledged that while the current data serves as a starting place to develop asthma-related data capacity, additional work is needed to accurately depict asthma prevalence.**

- **The term “surveillance” emerged as a public health activity and not a role that medical providers considered part of their day-to-day practice.** However, a need for data related to asthma to better develop policies, care management, and clinical quality care also emerged as an important goal.

- **Generally, medical providers felt strongly that asthma differed from other lung diseases.** Others thought a useful approach may be to consolidate resources and approach chronic lung diseases as a whole.

- **Some clinicians recommended a system that could help capture and track asthma patients in a way that could facilitate care management.** Such a system may also serve as a tool to establish additional data meaningful for program and policy development.
Evaluation of Data Sources

This section describes relevant data sources containing asthma-related data potentially useful to developing an asthma surveillance system. Each section describes the data source, notes data considerations, and ends with recommendations to fill the data gaps for each data source.

A number of additional data sources were evaluated and not considered suitable data candidates, including:

- **National Longitudinal Survey of Youth** – This survey focuses on marketing and labor trends not health issues.

- **National Health and Nutrition Examination Survey** – This survey focuses on a nationwide sample. They randomly select communities each year to represent a nationwide sample so data is not consistently collected in Alaska, and the data source generally is not geared to report at a statewide level.

- **National Health Interview Sample** – This survey focuses on a nationwide sample as well. The Alaska samples appeared too small to consider as a meaningful source of asthma data.

- **Education and Research Towards Health (EARTH) Study** – The study ended in Alaska and there are no current plans to continue data collection in the future.

- **International Study of Asthma and Allergies in Childhood** – The study ended in 2012 and some of the work continues through the Global Asthma Network. Data was not collected in Alaska.

**Behavioral Risk Factor Surveillance System (BRFSS)**

**General Description**

BRFSS surveys randomly selected adults regarding health-related behaviors by telephone nationwide. The Alaska DHSS manages and implements the survey within Alaska. The survey started in 1991 in the state and currently surveys approximately 200 Alaskans. The survey questionnaire includes three parts: the core set of questions asked in all states, the optional modules that include questions on specific topics chosen by each state, and the state-added questions.

The asthma-specific questions reported systematically include:

- *Has a doctor, nurse or other health profession EVER told you that you had any of the following? (Ever told) you had asthma?*

- *Do you still have asthma?*
The Alaska BRFSS Program systematically reports these asthma questions over time through the Informed Alaskans website. Data is presented by public health regions, metro/micropolitan statistical areas, borough/census areas, tribal health regions, disability status, 125 percent of the federal poverty guidelines, and age group 65+. The BRFSS program provides the raw dataset for additional analysis to those who sign a data sharing agreement and prepare a written statement of a research study. BRFSS asks additional questions around obesity, tobacco use, smoking indoors, and associated behaviors related to asthma.

Because this is a national survey, the Alaska data may be compared to the national data to provide additional understanding of the situation in Alaska compared to the nation.

**Asthma Call-Back Survey**

Nationwide, the BRFSS survey has an additional module called the Asthma Call-Back Survey (ACBS), which, if a state chooses to use the survey, is conducted approximately two weeks after the BRFSS with respondents who reported an asthma diagnosis in their survey. The ACBS module has an adult and a child survey. The survey asks participants in-depth questions regarding the health and experiences of asthma sufferers. Data is collected at both national and state levels, with most states participating in the ACBS each year. The information from the survey allows for better planning and improved tracking in evaluating asthma control programs coordinated by state health departments.

The Alaska BRFSS system completed the Adult and Child ACBS in 2006 and 2007. The previous Asthma Call-Back Surveys were conducted as part of a supplemental grant. The CDC National Asthma Program funded the 2006 and 2007 surveys through grants (approximately $25,000). ALAA, in collaboration with DHSS, applied for this money. However, there has not been a large-enough sample size within any single year for the data to be useful according to the CDC’s data quality guidelines. In addition, the data did not meet the needs of the Alaska Asthma Coalition at the time because there was an expressed need to understand severity of asthma and the sample size was not large enough to conduct analyses. Funding was the primary reason why the ACBS was not continued. Generally, key informants agreed that the ACBS did not provide the type of information necessary for effective general surveillance, health policy, or program evaluation because the total number of respondents was so small. The response rate was small enough that it would take several years of data to create a substantial sample of people.

**Additional Options for Using BRFSS to Collect Asthma Data**

BRFSS asks respondents if they would like to be called back regarding any specific diseases. The program keeps track of these respondents. This tracking provides the ability to call respondents with specific diseases back. These contacts are sometimes used for focus groups and/or could be asked additional questions about asthma. Generally, these respondents tend to be willing to answer more questions about a specific disease. The BRFSS survey is required to survey the core questions so it constrains the number of questions that could be asked. However, state-added questions may be added to the survey, but they are reviewed on an annual basis and there is no guarantee that they will be included yearly.
Data Considerations

BRFSS measures lifetime and current asthma prevalence among adults and the data is available from 2000 to the present. However, the weighting methodology changed in 2011. As a result, it is not best practice to compare the data over time. The State of Alaska BRFSS program recommends comparing data from 2007 and forward within Alaska since they re-calculated the previous years’ data using the new methodology. While BRFSS surveys adults, childhood, lifetime, and current asthma prevalence is also available through BRFSS for 2002, 2004, 2006, and 2007. If a surveyed household had children, the asthma questions were asked. In addition, the Alaska BRFSS used a Random Child Selection module in 2006, 2007, and 2009 to capture demographic information about one randomly selected child in the household. This data was used primarily for weighting purposes.

In order to obtain the raw BRFSS data related to asthma, a data request form would need to be filled out yearly. The BRFSS program maintains and updates the data request forms and does not maintain formal MOU/MOA for data sharing.

Suggested Recommendations

- Begin tracking and reporting the Behavioral Risk Factor Surveillance System (BRFSS) asthma questions by the available sub-groups.
  - Develop trends from 2007 forward using the Alaska data.
  - Beginning with the 2011 data, compile national comparisons using the Centers for Disease Control and Prevention Prevalence and Trends Tool and/or the Web Enables Analysis Tool (WEAT).
- At this time, do not invest resources in conducting the ACBS. It is difficult to obtain an adequate sample size for Alaska, even when combining several years of data.
- If any local survey development occurs around asthma, the ACBS provides a list of questions that have been tested and used nationally. The survey questions would serve as good models of questions around asthma.
- As efforts around asthma data develop, continue to keep in mind that additional questions may be added to the BRFSS survey yearly. Also, additional follow-up among asthmatics may occur using those who responded they had asthma when surveyed for the BRFSS.
- If interested parties want to add questions to the BRFSS survey, they should be engaged in the BRFSS planning process to ensure that their questions are part of the annual BRFSS survey.
Youth Risk Behavior System (YRBS)

General Description

The Youth Risk Behavior System (YRBS) surveys high school students nationwide regarding risk behaviors. Alaska participated during 1995 and the odd years from 1999 to 2013. The asthma-specific questions reported systematically include:

- Have you ever been told by a doctor or nurse that you had asthma?
- Have you ever been told by a doctor or nurse that you had asthma and still have asthma?

Statewide the data may be broken down by gender, race, and school grade.

Data Considerations

In Alaska, the YRBS surveys traditional high schools, alternative high schools (associated with at-risk students), and youth correctional facilities and reports the data for these groups separately. Because the survey takes place in the schools, each school district receives summarized reports regarding their group. While Alaska participated in several years of the YRBS, statewide data is only available for 1995, 2003, 2007, 2009, and 2011 because of adequate sample sizes. The YRBS Program rarely releases the raw data. However, the statewide data is easily accessible on the CDC’s Youth Online tool. In addition, the State of Alaska YRBS Team plans to publish summarized results broken out by the Alaska Public Health Regions on the Informed Alaskans tool for the public to query and access easily.

Suggested Recommendations

- Begin tracking and reporting the YRBS asthma questions by the available sub-groups and compare to the nationwide data where possible using the Informed Alaskans tool (when available) and/or the CDC’s Youth Online query system.
  - Begin tracking statewide trends from the year 2007 and forward.

Childhood Understanding Behaviors Survey (CUBS)

General Description

The Childhood Understanding Behaviors Survey (CUBS) surveys mothers about the health and early childhood experiences of mothers and their toddlers. To be eligible to complete the survey, a mother must have participated in the Alaska Pregnancy Risk Assessment Monitoring System. CUBS began in 2006. The asthma-related questions from the most recent survey (2012-2014) include:

- Has your child ever had repeated episodes of coughing, chest tightness, trouble breathing, or wheezing?
- Has a doctor, nurse, or other health care worker ever told you your child has asthma or an asthma-like condition?
• During the past 12 months, has your child used an inhaler, puffer, or nebulizer for asthma or an asthma-like condition?

Data Considerations

The general CUBS data is routinely reported through reports and data sheets. However, in order to obtain the asthma-specific data, an individual/organization needs to place a data request for the summarized data. Also, it is important to note that the asthma-related questions have changed throughout the phases of the CUBS survey. Appendix I displays a table with the previous questions for reference.

Suggested Recommendations

• Request the CUBS summarized reports for the CUBS data and begin tracking and reporting the asthma-related data from the CUBS Phase 4 Survey.

• Consider participating in the CUBS Advisory Committees to provide expertise regarding the asthma-related questions on the survey for future phases of the survey.

Alaska Bureau of Vital Statistics (ABVS) – Death Data

General Description

The Alaska Bureau of Vital Statistics (ABVS) has maintained death certificate data since 1979. ABVS routinely analyzes and reports the Chronic Lower Respiratory Disease (includes asthma) death rate, which includes deaths from asthma as the primary cause of death. This data is available from 1999-2009 by census area and Alaska Native Regional Corporation boundaries. ABVS maintains the data for asthma deaths as a primary or secondary cause of death, but does not report it publically.

Data Considerations

While the ABVS routinely reports Chronic Lower Respiratory Disease deaths, they do not disaggregate for asthma deaths alone. Because of small numbers and changes in the International Classification of Diseases over time, it would be necessary to work with an ABVS analyst to establish an appropriate rolling time period to report the data. In addition, consider requesting the data to calculate an asthma death rate for any causes (primary and secondary) as well as the asthma death rate as the primary cause and the asthma death rate as a secondary cause of death.

The ABVS maintains birth data, allowing the asthma deaths to be linked with birth data (with appropriate research protocols and agreements in place) to develop risk factors for asthma, including infant birth weight, maternal education, prenatal smoking, and prenatal alcohol use.

Suggested Recommendations

• Begin tracking and reporting the asthma death rate as both a primary cause and a secondary cause of death.

• Request the data from ABVS.
Alaska Hospital Discharge Database (AHDD)

General Description

The Alaska Hospital Discharge Database (AHDD) provides standard information on hospitalizations, including the additional conditions associated with the hospitalization, medical procedures that occurred, the discharge status, the length of stay, billed charges, and payment source. Through collaboration between the Alaska State Hospital & Nursing Home Association (ASHNHA) and DHSS, data collection began in 2001. Through the information collected, the asthma hospitalization rate and additional information related to asthma hospitalizations can be calculated. Alaska submits the data to the National Inpatient Sample and the Kids Inpatient Database Trends so national comparisons can be calculated.

Beginning in 2007, AHDD began collecting information related to an outpatient (emergency room) visit, including the procedures, visit reason, bill charge, and payment source. While the outpatient data is part of the AHDD, it does not fall under the agreement with ASHNHA. This data is not routinely analyzed and reported. In addition, the AHDD contains some pharmacy data, although it is not routinely collected.

Data Considerations

One of the measures routinely reported across the country is the asthma hospitalization rate. The AHDD is the best Alaska data source to obtain asthma hospitalization rates at this time. DHSS and ASHNHA do not routinely report or present this data publically at this time. Efforts are currently in progress to analyze and report the Preventable Hospitalization rates from the data on the Informed Alaskans tool. The asthma hospitalization rate is one component of this work and it should be available to the public within the coming six months. The voluntary reporting to the data system presents some data limitations and may cause the hospitalization rate and associated data to seem questionable in the beginning. However, reporting the data and beginning to analyze it could serve as a starting place to improve upon the data source. The outpatient data could provide the asthma outpatient visits rate and the associated costs, but this data has not been routinely analyzed and reported so it would take substantial work.

Suggested Recommendations

- Maintain communications and work with the staff at the DHSS responsible for this data as they are currently in the process of analyzing the data specific to asthma.
  
  o Provide asthma-related expertise as the staff work on this project.

- Begin tracking and reporting the asthma hospitalization rate and compare to the national data.

- Begin tracking the billed costs associated with asthma hospitalizations and compare to the national costs data.

- Begin discussions with DHSS about the possibility of analyzing and reporting the asthma outpatient visit rate and comparing it to available national data.
• Support efforts to maintain this data system as well as expand and improve upon it if the opportunity becomes available for expansion.

Alaska Medicaid Management Information System (MMIS)

General Description

The Alaska Medicaid Management Information System (MMIS) contains medical claims billed through the Alaska Medicaid program for low-income Alaskans, including filled medical prescriptions. The Division of Health Care Services shares this data with the Division of Public Health through a Memorandum of Agreement for public health reporting.

Data Considerations

While the Medicaid data has not been systemically reported in a manner for asthma programs to use and track, some foundational work exists. Bradford Gessner published several articles assessing the prevalence and burden of asthma among children with Medicaid.

At this time, DHSS is in the process of upgrading the MMIS. Thus, it is currently difficult to obtain Medicaid data without submitting a special request to a programmer. In the future, it is expected that the system will allow easier access to the data and could provide summarized and aggregated reports in a systematic way to non-state health department entities.

Suggested Recommendations

• Begin developing a relationship with Medicaid directors as well as the MMIS data analysts because this data provides information regarding the asthma burden among low-income Alaskans and provides opportunities for data around care management among higher risk populations.

• Work with the MMIS staff to develop a standard aggregated report to begin tracking asthma-related data. The following list contains some starting indicators, but additional information may be calculated through this data. This list serves as a starting place for an aggregated report of:
  
  o The number of distinct patients with asthma.
  
  o The number of emergency department visits for distinct patients identified with asthma.
  
  o The number of hospital admissions.
  
  o The total expenditure for claims associated with asthma.
  
  o The total number of Medicaid patients.
  
  o Total Medicaid expenditure.

• Consider repeating the previous asthma analysis of Alaska Medicaid children to track trends over time among this population.
Anchorage School District School Health Information

General Description

The Anchorage School District (ASD) requires every student to file a Student Health History Form and Release of Information. The most recent form to date includes a check box for “asthma/asthmatic” among a long list of other health condition. The form also asks if the student requires an Asthma Action Plan. The following asthma-related question is included in the form.

- My child will require the following medications(s) at school (Check all that apply)
  - Epi-pen (Parent or Guardian MUST provide epi-pen)
  - Antihistamine (Benadryl)
  - Inhaler

Data Considerations

Currently, this information remains in a paper format. The form is geared for the school nurses to provide appropriate care rather than use as a population health monitoring tool. Such a format may provide some data challenges. In 2005, the Alaska Division of Public Health and the ASD revised the school form to include a validated asthma screen. These efforts were intended to capture young school children who may not appear in other datasets related to asthma. While the data was collected at that time, it has not been analyzed. Appendix J contains the specific asthma screening questions.

Suggested Recommendations

- Develop a relationship with ASD to develop and enhance asthma-related data.

- As work around asthma data develops, keep in mind that the asthma screening tool may serve as a model for capturing data among children.

Alaska Worker’s Compensation Data (ADWC)

General Description

The Alaska Division of Workers’ Compensation (ADWC) maintains information regarding worker’s compensation claims, including occupational asthma-related claims. ADWC contracted with Insurance Services Office, Inc. to develop an electronic database and reporting system for claims. It will contain electronic reports of worker compensation, first reports of injury, and subsequent reports of injury.
Data Considerations

Worker’s compensation data provides occupational asthma data that is not available in other data sources. The data is currently not readily available. According to the Alaska Department of Labor and Workforce Development website, an electronic data system was planned for July 2013. However, it is not clear if this system has been implemented.

Recommendation

- Consider developing a relationship with ADWC and begin discussing possible ways to access and use the future data.

Alaska Air Monitoring Data System

General Description

The Alaska Department of Environmental Conservation (DEC) maintains the Alaska Air Monitoring Data System, which collects air quality data throughout the state. The network monitors larger communities in efforts to cover the largest population exposure, smaller communities representative of a larger region, and specific areas based upon air quality complaints. DEC monitors fine particulate matter, coarse particulate matter, and other related air quality factors through a web-based data collection and reporting system. The data system provides real-time data from the monitors.

Data Considerations

DEC contracted with the State of Washington to maintain an electronic portal that displays data from the Alaska Air Monitoring Data System. The website link is https://fortress.wa.gov/ecy/aaqm/Default.htm, but it does not reliably load. The website presents the real-time data, but it does not present summarized data in a manner that would be helpful to the general health audience.

Suggested Recommendations

- Develop a relationship with the DEC Division of Air Quality to access and report the data in a meaningful and useful way to asthma and respiratory health program managers.

- Consider developing standard reports summarizing the air quality data. The Air Quality in Anchorage: A Summary of Air Monitoring Data and Trends 1980-2010 presents a good example of meaningful ways to analyze the data for health professionals.
National Survey of Children’s Health (NSCH)

General Description

The National Survey of Children’s Health (NSCH) surveys parents of children age 0-17 around a variety of topics, including physical and mental health status, access to quality health care, the child’s family, neighborhood, and other social context indicators. The survey occurs approximately every five years, surveying parents in 2003, 2007, and 2011/2012.

With respect to the asthma-related question, the survey asks the parent to check an asthma box after the following question:

- For each condition, please tell me if a doctor or other health care provider ever told you that [child’s name] had the condition, even if [he/she] does not have the condition now.

Data Considerations

While the survey occurs every five years, most of the data is comparable across years. However, the long timeframe between surveys limits the use of this data for short-term policy and program-level changes. The Data Resource Center for Child & Adolescent Health provides the original data files for additional analysis. In addition, the website reports summarized data at a state and national level, allowing comparisons between states and the nation. The website data tool allows the 2011-2012 Alaska data to be broken down by race/ethnicity, education, gender, socioeconomic status, family structure, and emotional, behavioral, and developmental issues. This survey covers an age range of children not captured in other data sources.

Recommendation

- Consider reporting the statewide data from this survey. It is routinely analyzed, reported, and available on the Data Resource Center for Child & Adolescent Health and it covers some aspects of access to health care among children that is not captured in other data sources.

National Survey of Children with Special Health Care Needs

General Description

The National Survey of Children with Special Health Care Needs surveys parents regarding the health and functional status of children with special health care needs. This includes questions related to physical, emotional, and behavioral health. The survey has a specific focus on assessing access to quality of care, coordination of care services, access to a patient-centered medical home, transitional services for youth, and the impact of chronic conditions on families. The survey collected data in 2001, 2005/2006, and 2009/2010. Generally, the survey occurs every five years.

With respect to asthma-related questions, the survey asks the parent to check an asthma box after the following question:
• For each condition, please tell me if a doctor or other health care provider ever told you that [child’s name] had the condition, even if [he/she] does not have the condition now.

In addition, the survey asks:

• Would you say he/she experiences a lot, a little, or no difficulty with breathing or other respiratory problems, such as wheezing, or shortness of breath?

Data Considerations

While the survey occurs every five years, most of the data is comparable across years. However, the long time frame between surveys limits the use of this data for short-term policy and program-level changes. The Data Resource Center for Child & Adolescent Health provides the original data files for additional analysis. In addition, the website reports summarized data at a state and national level, allowing comparisons between states and the nation. This survey allows for specific queries so it is possible to pull a report showing the percent of children with special health care needs that have asthma and various functional difficulties and limitations. This survey captures information around a population that is not captured elsewhere in the available data sources.

Recommendation

• Consider reporting the statewide data from this survey. It is routinely analyzed, reported, and available on the Data Resource Center for Child & Adolescent Health and it covers some aspects of access to health care among children that is not captured in other data sources. In addition, it captures data for a population not captured in other sources, and for a population that appears to have a higher rate of asthma.

School Health Profiles

General Description

The CDC manages the School Health Profiles, which have assessed school health policies and practices biennially across the country since 1996. Education and health agencies administer the survey among middle and high school principals and health education teachers. The surveys specifically address asthma management activities.

Data Considerations

Alaska has participated in the surveys since 1996. However, weighted samples are only consistently available from 2000 onward. Until 2014, the survey collects a series of several system and policy type questions related to asthma that could be tracked over time throughout multiple years. However, it is not clear if these questions will be asked again in the future. The 2014 survey posted on the website does not contain these questions, but contains less asthma specific questions. Appendix K contains a list of the summarized asthma-specific results from the previous surveys, as well as the 2014 questions. The CDC produces statewide reports of the data with national comparisons over time.
**Suggested Recommendations**

- Consider reporting the asthma questions from this survey over time until 2012, as the questions assess aspects of the school environment not captured in other data sources. Keep in mind that the information may not be available in the future.

**School Health Policies and Practices Study (SHPPS)**

**General Description**

The CDC manages the School Health Policies and Practices Study (SHPPS), which occurred in 1994, 2000, and 2006, and 2012. SHPPS assesses states, districts, schools, and classrooms around eight areas of school health across the K-12 educational span. The states, districts, schools, and classrooms each have different surveys that assess health education, physical education and activity, health services, mental health and social services, nutrition services, health and safe school environment, faculty and staff health promotion, and family and community involvement.

**Data Considerations**

Alaska participated in the survey and the CDC produced a statewide report card designating the policies that the state department of education uses. Because the CDC conducts the survey every six years, local program level changes would be difficult to see over the long term.

**Recommendation**

- Do not use the results from the SHPPS.

**Medical Expenditure Panel Survey (MEPS)**

**General Description**

The Medical Expenditure Panel Survey (MEPS) surveys families, individuals, medical providers, and employers on the health services used, how frequently the participant uses the services, and how the participant pays for the services. In addition, it captures information on the types of insurance held by and available to workers. The household survey asks individuals to provide information regarding any health care service received and follows up with related questions.

**Data Considerations**

The Agency for Healthcare Research and Quality provides the data free, but requires the installation of database management software and a thorough understanding of the MEPS questionnaires, processes, and multiple survey methods. Researchers may link MEPS data to the National Health Interview Survey to better understand the costs in relationship to health outcomes.
This data could provide the full costs associated with episodes of care around asthma and an understanding of how asthmatics access care in Alaska, as well as insurance types. Nevertheless, this dataset is geared for national-level analyses and would provide many challenges to small population areas such as Alaska.

**Suggested Recommendations**

- While MEPS data may provide a source of data regarding costs of an episode of care for asthma, it requires highly skilled staff for analysis. The staff must have a solid understanding of the data, as well as the ability to analyze the data.

- Recognize that MEPS may be a source of information for long-term planning, but it presents difficulties with analysis and reporting in the short-term.

- There are better locally (Alaska) based data sources around costs, but not data regarding how asthmatics use the healthcare system.

**Additional Data Gaps**

In spite of the many sources identified above, data gaps persist.

**School-Related Data**

A lack of school-related data around asthma and wheezing remains a large gap. Interviewees noted the importance of school-related data as a key piece to understanding asthma, especially in rural areas where diagnosis is often difficult.

**Clinical Care – Quality and Management**

Data sharing and reporting of asthma-related clinical care data remains a challenge for Alaska – for both care management and public health monitoring activities. While this challenge exists across Alaska’s private and public health care systems, it is important to note the health systems that have policies and regulations preventing data sharing at this time. The U.S. Department of Defense Military Health System, the U.S. Department of Veterans Affairs, and the Alaska Tribal Health System do not share or report clinical data publically in a way that would be meaningful for an asthma surveillance system in Alaska at this time. In addition, they do not report their data to some traditional public health reporting systems because of exemptions for federally funded institutions.

The absence of coordinated data and data tools that track care management and coordination of care across systems remains a challenge. This concern came up during the key informant interviews. A piece of this includes clinical quality care measures. The data exists within individual medical records and some health insurance providers may calculate the information, but it is not coordinated in a systematic way.

In relation to clinical care, the lack of pharmacy data contributes to the lack of information on managing asthma cases. A key component to understanding asthma severity and management includes understanding the extent and frequency of use of appropriate medications. Such pharmacy data, especially outpatient pharmacy data, is not easily available.
**Environment**

Insufficient data exists around environmental issues related to asthma. The Air Quality Monitoring Network captures a significant portion of data related to air quality. However, not much knowledge or data exists regarding the impacts of aerosolized glacial silt, forest fires, and rural dust exposures. Additionally, only a small amount of research has been done on the burning of different types of fuel, an activity that occurs more in Alaska than other parts of the country.

Little to no data exists around indoor air quality and the indoor environment. The Alaska Native Tribal Health Consortium began a pilot program to address indoor air and began collecting data, but this data describes only a very small group of homes. Since many Alaskans spend a large portion of the year indoors, this appears to be a significant gap.

**Nutrition**

Some research demonstrated diet as a factor in asthma, though few data sources capture diet related information.
Evaluation of Asthma Measures

“Measures” provide ways to assess a population and compare against a standard, goal, or best practice. This section describes national asthma-related measures and provides recommendations on how to use them. Appropriately designed measures are an important part of the process of using data to measure progress toward established goals.

Healthy People 2020 Goals

General description

The U.S. Department of Health and Human Services developed the Healthy People Goals to provide science-based, national goals to improve the nation’s health. The goals aim to encourage collaboration at a local level, empower individuals to better health, and measure health prevention efforts. The Healthy People 2020 Goals cover multiple health topics, including lung health and asthma. Appendix L contains a list of the asthma-related Healthy People Goals, the population addressed by the goal, the target, the baseline, the national data source, and the availability of data to assess progress towards each goal in Alaska.

Suggested Recommendation

- Begin tracking and reporting Healthy People Goal 2020 Respiratory Diseases
  - Asthma 1: Reduce deaths from asthma using the Alaska Bureau of Vital Statistics Death data (ABVS).
  - Asthma 2: Reduce hospitalizations from asthma using the Alaska Hospital Discharge Database (AHDD).
  - Asthma 3: Reduce emergency department visits for asthma using the Alaska Hospital Discharge Database (AHDD).

Healthcare Effectiveness Data and Information Set (HEDIS)

General description

The National Committee for Quality Assurance (NCQA), a private organization dedicated to improving health care quality, produces the Healthcare Effectiveness Data and Information Set (HEDIS). This tool contains quality measures across several domains of care. HEDIS allows comparison of health quality measures across different health insurance companies and health care providers through subscription-based software and online tools. The measures are regularly updated and revised to reflect changes in medical practice through a review process involving stakeholders and external agencies.
HEDIS measures are based upon medical record billing claims to health insurance companies. While health insurance companies and other organizations calculate and report the HEDIS measures internally, they are not routinely reported in a public manner. Aetna Life Insurance Company Alaska and Blue Cross Blue Shield of Alaska use HEDIS measures according to NCQA. The following table lists the asthma-related measures and a brief summary of their definition.

### Asthma HEDIS Measures and Summarized Definitions

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Appropriate Medications for People with Asthma</td>
<td>The percentage of patients aged 5-56 who were identified as having persistent asthma and who were appropriately prescribed medication during the measurement year.</td>
</tr>
<tr>
<td>Asthma Medication Ratio</td>
<td>Patients aged 5-64 who were identified as having persistent asthma and had a ratio of controller medications to total asthma medications of 0.50 or greater during 2012.</td>
</tr>
</tbody>
</table>
| Medication Management for People with Asthma         | The percentage of patients aged 5-64 who were identified as having persistent asthma and were dispensed appropriate medications that they remained on during the treatment period. Within this measure, the percentage of patients who remained on an asthma controller medication for  
  - At least 50 percent of their treatment period   
  - For at least 75 percent of their treatment period |

### Suggested Recommendations

- In the short-term, consider developing relationships with health care insurance companies to obtain summarized reports, since these measures provide quality of care information that is not available elsewhere at this time.

- In the long-term, consider working with health insurance companies to look at the results of these measures in ways that allow a community quality of care improvement process to develop with multiple engaged asthma program partners.

### Quality Indicator Modules – Agency for Healthcare Research and Quality

#### General Description

The Agency for Healthcare Research and Quality (AHRQ), an agency within the federal Department of Health and Human Services, provides various health decision-making tools and data. Unlike, HEDIS, these tools are free and available to the public. AHRQ produces a set of four Quality Indicator Modules described briefly in the following list:

1. Prevention Quality Indicators – A set of measures used with hospital inpatient discharge data to identify the quality of care around preventable hospitalizations (also called ambulatory care sensitive conditions).
2. Inpatient Quality Indicators – A set of measures used with hospital inpatient data. These measures reflect the quality of care inside hospitals.

3. Patient Safety Indicators – A set of measures used with hospital administrative data that record complications and adverse events after surgeries, procedures, and childbirth.

4. Pediatric Quality Indicators – A set of measures used with hospital inpatient discharge data to understand the quality of pediatric health care within the hospitals.

Several measures compose each module. The following table pulls out the asthma-related indicators. There are not any specific asthma measures for the Inpatient Quality Indicator module so it is not listed in the table.

**Asthma-Related Quality Indicators Measures and Summarized Definitions**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention Quality Indicators</td>
<td></td>
</tr>
<tr>
<td>Hospitalization rate of Chronic Obstructive Pulmonary Disease (COPD) or asthma in older adults Admission Rate</td>
<td>Hospital admissions with a principal diagnosis of chronic obstructive pulmonary disease (COPD) or asthma per 100,000 population, ages 40 year and older. Excludes obstetric admissions and transfers from other institutions.</td>
</tr>
<tr>
<td>Hospitalization Rate of asthma among younger adults</td>
<td>Hospital admissions for a principal diagnosis of asthma per 100,000 population, ages 18 to 39. Excludes admissions with an indication of cystic fibrosis or anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.</td>
</tr>
<tr>
<td>Patient Safety Quality Indicators</td>
<td></td>
</tr>
<tr>
<td>Death rate in low-mortality diagnosis-related groups</td>
<td>In-hospital deaths per 1,000 discharges for low-mortality (&lt;.05 percent) Diagnosis Related Groups (DRG) among patients ages 18 and older or obstetric patients. Asthma is among these DRGs.</td>
</tr>
<tr>
<td>Pediatric Quality Indicators</td>
<td></td>
</tr>
<tr>
<td>Asthma hospitalization rate</td>
<td>Admissions with a principal diagnosis of asthma per 100,000 population, ages 2 through 17. Excludes cases with a diagnosis code for cystic fibrosis and anomalies of the respiratory system, obstetric admissions, and transfers from other institutions.</td>
</tr>
</tbody>
</table>

**Suggested Recommendations**

- Begin analyzing and reporting the hospitalization rate of COPD or asthma in older adults using the AHDD.
- Begin analyzing and reporting the hospitalization rate of asthma among younger adults using the AHDD.
- Begin analyzing and reporting the pediatric hospitalization rate using the AHDD.
National Environmental Public Health Tracking Program (NEPHTN)

General Description

The CDC maintains a National Environmental Public Health Tracking Network (NEPHTN). Through a scientifically informed process, the NEPHTN selected environmentally-related hazards and health effect measures to report systematically. The NEPHTN Reporting Tool compiles the data and makes the data easily accessible online. Within this tool, asthma-related indicators are reported under two topics: air quality and asthma. A variety of indicators can be selected and filtered by state and year. Appendix L contains a list of these indicators, the data source, and whether the tool reports Alaska data.

Suggested Recommendations

- Begin reporting the following measures using the BRFSS:
  - Percent of adults ever diagnosed with asthma
  - Percent of adults ever diagnosed with asthma who report they currently have asthma
- Begin working with the DHSS to assess the ability to begin analyzing and reporting the following measures using the AHDD. The data is not reported for Alaska in the tool.
  - Annual age-adjusted rate of emergency department visits for asthma per 10,000 population
  - Annual crude rate of emergency visits for asthma per 10,000 population
  - Annual number of emergency department visits for asthma
- Begin analyzing and reporting the following measures using the AHDD. The data is not reported for Alaska in the tool.
  - Age-adjusted rate of hospitalization for asthma per 10,000 population
  - Crude rate of hospitalization for asthma per 10,000 population
  - Number of hospitalizations for asthma
- NEPHTN provides Alaska data for the following air quality measures for specific borough/census areas. Consider obtaining air quality expertise to provide recommendations on the best way to obtain this data and/or use the data provided.
  - Annual average ambient concentrations of PM2.5 in micrograms per cubic meter, based on seasonal averages and daily measurement. (Monitor only)
  - Percent of days with PM2.5 levels over the National Ambient Air Quality Standard (NAAQS)
  - Number of person-days with PM2.5 over the NAAQS
Healthy Alaskans 2010 Measures

General Description

In parallel with the national Healthy People Initiatives, a Healthy Alaskans Initiative strives to build healthier communities in the state by identifying and implementing health goals. The Healthy Alaskans 2010 initiative produced a three-volume report identifying goals, presenting data, and sharing Alaska stories related to the goals. The Healthy Alaskans 2010 Initiative identified several asthma-related measures. The following table lists these measures and the last column designates whether that data could still be collected with existing Alaska-based data.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Alaska Data Source</th>
<th>U.S. Baseline</th>
<th>Alaska Baseline</th>
<th>Alaska Target 2010</th>
<th>Data Collected in Alaska</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce hospitalizations for asthma (rate per 10,000)</td>
<td>Hospital Discharge Survey (potential)</td>
<td>45.6</td>
<td>Was in Development</td>
<td>Not Applicable</td>
<td>√</td>
</tr>
<tr>
<td>Reduce lifetime asthma prevalence (adults ever told by a doctor that they have asthma)</td>
<td>BRFSS</td>
<td>11% (2000)</td>
<td>11% (2000)</td>
<td>8%</td>
<td>√</td>
</tr>
<tr>
<td>Reduce current asthma prevalence (adults that still have asthma)</td>
<td>BRFSS</td>
<td>7% (2000)</td>
<td>7% (2000)</td>
<td>5%</td>
<td>√</td>
</tr>
<tr>
<td>Reduce the proportion of adults whose activities are limited due to chronic lung and breathing problems</td>
<td>BRFSS (potential)</td>
<td>2.2% (1997) NHIS</td>
<td>Was in Development</td>
<td>Not Applicable</td>
<td>√</td>
</tr>
</tbody>
</table>

DHSS and the Alaska Native Tribal Health Consortium formed a collaboration for the Healthy Alaskans 2020 Initiative to improve the health of all Alaskan communities. The Healthy Alaskan 2020 measures have been preliminarily released and they do not include asthma measures.

Suggested Recommendation

- Because the Healthy Alaskans 2010 Initiative is dated and other recommendations capture the first three measures listed in the table, do not consider it.
Alaska Initiatives Impacting Asthma Data

It is important to consider how asthma surveillance may link with already established data reporting structures. This section describes some on-going efforts throughout Alaska that may support asthma data collection. The section also provides recommendations specific to each initiative.

**Informed Alaskans Initiative**

**General Description**

The Informed Alaska Initiative\(^6\) provides public health data through an easy to use, web-based tool for health organizations, policy makers, program managers, and the general public. This initiative contains two web-based tools: InstantAtlas and the Alaska Indicator-Based Information System for Public Health (AK-IBIS). While these will be separate database systems, they will intertwine seamlessly for the public, but it is important to distinguish them from one another in final recommendations for the asthma data.

AK-IBIS has the capacity to add modules that are only accessible to specific groups or advocacy groups. As an example, a specific tool could be developed which contains all the key indicators related to asthma or lung disease. The data could be stored at DHSS, but accessed by appropriate advocacy groups. This approach would require collaboration with the Chronic Disease Section (within DHSS), but be driven by needs within these advocacy groups. In the query modules, it may be possible to analyze data easily in ways that have not been as accessible in the past, with the possibility to cross-tab asthma status with additional, related indicators within both the YRBS and BRFSS surveys. The tool provides a range of possible uses, from simple indicator reporting to more complex analysis, such as linking Anchorage and Fairbanks air quality data with the responses to asthma questions on a monthly basis for these geographic areas. While more complex analyses are not currently part of the long-term plan for this initiative, the program is exploring interrelationships across departments within the State of Alaska to create data links for more meaningful reporting of the data. In addition, a section within AK-IBIS allows additional information and links to programs and services related to the data topic. As an example, asthma prevalence data may be linked to asthma-related programs throughout the state.

InstantAtlas provides a geographically-based perspective on the data. InstantAtlas currently contains the asthma BRFSS questions by various subcategories. Plans include releasing the YRBS data by regions, which will include the asthma questions.

**Suggested Recommendations**

- Use the Informed Alaskans tool to pull the data and begin reporting the BRFSS asthma questions by various subgroups.

---

• Once the YRBS data is released, use the Informed Alaskans tool to pull the data and begin reporting the YRBS asthma questions by various subgroups.

• Stay informed of the work around the Informed Alaskans tool.

• Consider participating in the IBIS Advisory Committee.

• Consider working with the Chronic Disease section to develop an asthma and/or lung-based module.

• Consider providing local level program information links for additional information to address the asthma-related topics if asthma indicators are developed.

**Alaska eHealth Network (AeHN)**

**General Description**

The Alaska eHealth Network (AeHN) manages the Alaska Health Information Exchange, which serves as an electronic sharing platform of health-related information between electronic health record systems in Alaska. Generally, health information exchanges help avoid duplicate testing, negative drug interactions, and allergic reactions, as well as provide information for better treatment. AeHN implemented a Fairbanks Health Information Exchange pilot with the providers in Interior Alaska. This project is currently ongoing.

AeHN approved the budget to buy six chronic disease related modules to track and share data regarding specific conditions and they designated one module to serve diabetic patients. The other modules have not been determined. This could serve as a module to begin tracking some quality of care and clinical guidelines data to aid in process improvements around care management.

**Suggested Recommendation**

• Consider developing a relationship with AeHN and assess the ability of these modules to provide additional asthma-related data.

**All Payer Claims Data System (APCD)**

**General Description**

The Alaska Health Care Commission is currently in the process of reviewing and assessing the need for an All Payer Claims Data System (APCD). APCDs include claims data from private insurers, Medicare, Medicaid, state employee benefit programs, dental insurers, children’s health insurers, and self-insured employer plans. This comprehensive health care claims data provides information on costs, quality and utilization patterns for medical, pharmacy, dental, and provider information. These data can be used to provide price comparisons, treatment comparisons, variations in treatment, expenditure patterns and trends, and assess the cost effectiveness of different treatment pathways by demographic and geographic variables. Limitations include the absence of data from globally-funded, unfunded, and excluded care providers. In contrast to a discharge database, claims data does not include patient acuity or discharge status. By capturing this data, policy decisions can be made regarding cost controls, access to care, and quality improvements.
Decisions remain about how this system may or may not interact with other data systems, such as Alaska’s Health Information Exchange or how the data could be used. Nationwide, some of these types of data systems interact with the Health Information Exchange systems and some state health departments report the data as a standard public health reporting process.

An APCD could help estimate the prevalence of asthma, assess standards of care for asthma, examine the financial impact of asthma, and evaluate program impact, as well as determine how people access and use services. A key piece of this system related to asthma is the pharmacy data, which would help identify medication management around types of asthma medications, adverse effects, and associations with asthma.

The public and private benefit of an APCD depends on the variables included and who has access to the data. By way of example, it may be beneficial if the data includes diagnostic and procedure codes and if access is available to longitudinal data at the patient record level. This access would allow for analysis of patients with lung conditions over time and for comparison of different regions or procedures. As with other large-scale data systems, effective analysis requires a thorough understanding of the underlying data fields and the limitations of the data.

**Suggested Recommendations**

- Stay informed of the Alaska Health Care Commission’s efforts around an APCD.
- If an APCD moves towards possible legislation, consider advocating for allowing access to the data for research and public health reporting.
Asthma Data Infrastructure Needs

**Staffing**

In terms of staffing, the CDC’s *Guide for State Health Agencies in the Development of Asthma Programs* recommends that staff supporting surveillance systems have skills in “analyzing data; planning, designing, and implementing data collection mechanisms to support asthma surveillance; developing evaluation models; and interpreting and presenting data clearly to guide asthma program planning.” These persons also should have skills to review environmental data and chronic disease data for possible implications to an asthma program. Finally, the staff should be experienced in the analysis of BRFSS data and other national data sets that collect asthma data.

**Costs**

Costs to maintain an asthma surveillance system ranged from $155,000 to $200,000 based upon budget estimates found in one case study and costs proposed in an Alaska grant application to the National Asthma Control Program. The Oregon Asthma Program’s surveillance activities were estimated at $154,081 during 2008-2009. Oregon’s cost in today’s dollars equals approximately $165,000. Oregon’s Case Study (Appendix F) contains an estimated detailed budget for Oregon. In 2005, the State of Alaska DHSS applied for the Centers for Disease Control and Prevention National Asthma Program Grant. In this grant application, *Addressing Asthma from a Public Health Perspective*, the estimated total program budget at that time was $165,310 including in-kind support. Taking inflation into account, a new cost estimate is about $200,000.

<table>
<thead>
<tr>
<th>Estimated Cost of Asthma Surveillance System in Alaska (2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amount Requested ($)</strong></td>
</tr>
<tr>
<td>Program Coordinator</td>
</tr>
<tr>
<td>Epidemiologist</td>
</tr>
<tr>
<td>Program Evaluator</td>
</tr>
<tr>
<td>Analyst Programmer</td>
</tr>
<tr>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Program Manager</td>
</tr>
<tr>
<td>Epidemiology Consultant</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Data Sharing Agreements**

Data sharing and/or confidentiality agreements are difficult to obtain. Within the two case studies, the asthma surveillance programs functioned within entities with public health authority so data sharing agreements were not necessary.
If a public-private partnership is used to develop an asthma surveillance system and the private partner wants to analyze “raw” data, it will require some data sharing agreements because the private partner will not have public health authority. The development of the data sharing agreements may become important as an asthma surveillance system grows and expands. As noted earlier in the document, it may be possible to develop a basic asthma surveillance system without data analysis, as much of the data is already publically reported, but not presented in a form accessible to asthma stakeholders. Data sharing agreements help build relationships and solidify commitments to the program.

Some alternative options do exist. DHSS and ASHNHA have an agreement to share and use the Alaska Hospital Discharge Database. This may provide some guidance in how to develop these types of partnerships.

Development of a cooperative agreement with an entity with public health authority may provide another route for sustaining and developing an asthma surveillance system. This may include the bestowment of public health authority through a grant process. As part of the Substance Abuse and Mental Health Services Administration (SAMHSA) Strategic Prevention-State Incentive Grants (SPF-SIG) and the State/Tribal Epidemiology Outcomes Workgroup grants, public health authority was given as part of the co-operative agreement between SAMHSA and the grantee. Because the grants were population-level and data-driven, public health data composed a significant proportion of the work for the grant. An organization would be stifled without the ability to access the information. As a result, the grant agreements contained documentation acknowledging that the organization receiving the money had public health authority for the purposes of collecting data for the grants. This may serve as a model to explore as a possibility for development of an asthma surveillance system between other partners and the DHSS Chronic Disease Prevention and Health Promotion.
Recommendations Strategies

This section provides recommendations for short, medium, and long-term strategies for further consideration. This should not be considered an implementation plan, but an outline of some goals and objectives to be used in combination with the recommendations throughout the report.

Overall Challenges

- Funding remains a challenge. The State of Alaska has not received a CDC National Asthma Control Program grant and the odds of getting one appear limited. At this time, the efforts of the Alaska Asthma Coalition rely on short-term funding opportunities.

- Public Health Authority laws do not cover advocacy groups. This presents a challenge to accessing data and to reporting. While most asthma data reporting/surveillance could be completed through publically available data and data requests, data sharing agreements should be established. Data sharing agreements would enable non-public health authority agencies to access the data.

Short-Term Plan (1-Year)

1) Establish Goals

One of the key parts of any data system is a clear sense of its purpose. The purpose of a data system may be determined in a myriad of ways and may change as the data system grows and develops. However, establishing initial goals is an important first step in the process of effective, useful data collection. The development of a data system charter helps frame and establish short-term and long-term goals around data collection. Charters establish the history of the work and reasons for the development of the data system. They include the official name of a data system, mission, principles, goals, structure/organization, time frame, audience, activities, and a way to measure progress.

- Develop an asthma surveillance system rather than an asthma registry.

- At this point, develop a passive surveillance system rather than an active surveillance system. A passive surveillance system could be established immediately and fairly cheaply by beginning to monitor currently available asthma data in Alaska.

2) Develop a Brief Data Governance Manual

Consider developing a short data governance manual. At the beginning of the development of an asthma surveillance system, these manuals are generally brief, but help establish key parts of an asthma surveillance system.

- Establish standard asthma definitions.

- Details of an asthma surveillance system to maintain a sustainable infrastructure:
Develop and document standard operating procedures.

Clarify data storage.

Establish confidentiality policies and data sharing agreements.

- Develop standard ways to analyze the data and document these so they are repeatable.
- Develop quality assurance policies and procedures.
- Document all the asthma data sources and the specific measures as new ones develop. This report provides the current baseline of asthma data available.

3) **ACQUIRE CAPACITY TO REPORT AVAILABLE DATA**

- Staff with epidemiology and/or statistical experience would be necessary to manage and interpret the data. Staffing could be located in house or with a contracted third party.

4) **REPORT THE AVAILABLE DATA**

- Develop a standard method of reporting and sharing the available data documented in the data sources section.
- Update the previous asthma burden reports and report the available data based upon recommendations in this report

**Medium-Term Plan (2-4 Years)**

1) **ENGAGE AND DEVELOP PARTNERSHIPS**

- Develop partnerships with the State of Alaska Chronic Disease Prevention and Health Promotion Section
  - Consider participating in the Informed Alaskans/AK-IBIS Advisory Committee to provide recommendation on lung-related data included in the system. This may include helping establish definitions, supporting the development of the system, and providing recommendations about the data included in the tool. In addition, this person may be able to provide support around asthma-related programmatic information that may be a part of IBIS.
  - Consider convening a group of engaged key asthma data stakeholders (Asthma Data Workgroup) wherein a mutually beneficially partnership may be developed.
  - Develop relationships with private insurance companies to share asthma related data.
  - Identify asthma champions within the DEC who are able to translate information across regulatory and health agencies.
2) **EDUCATION**

- Consider using DHSS’s model around Body Mass Index and obesity-related data collection among the schools as a model to collect, share, and report the asthma data. In addition to the health enrollment form, the ASD school nurses and/or other staff conduct health screenings in kindergarten, 1st, 3rd, 5th, and 7th grade. These screenings check height, weight, vision, hearing, and color vision depending on the grade level.

- Develop relationships with the Alaska Department of Education & Early Development to enable a statewide recognition of the importance of asthma data collection.

- Develop a relationship with the ASD to develop capacity and to report future available data.

3) **FINANCIAL**

- Most asthma surveillance systems are not one database. Instead, they draw upon multiple data sources owned by different organizations. Through partnerships, develop a multi-funded surveillance system so that it is not reliant on one financial source. A multi-funded surveillance system, where multiple partners are engaged in the data development, sustains the system and builds a stronger data infrastructure.

- Work to obtain funding from the CDC National Asthma Control Program and/or core funding from DHSS.

4) **BUILD ADDITIONAL DATA CAPACITY**

- Stay abreast of the Alaska Healthcare Commission’s decisions and recommendations around the All-Payer’s Claim Database. Support the development of this data system for public health reporting and research.

5) **LINK ACROSS PROGRAM REPORTING, STRATEGIC PLANS, AND PROGRAM EVALUATION**

- Begin linking the indicators from the asthma surveillance system across the strategic plan, program reporting, and program evaluation. The indicators should be useful to local-level asthma program managers as they develop programs as well as provide data to evaluate the asthma program.

- Begin establishing data use agreements and/or memorandums of understanding with partners to routinely share data.

**Long-Term Plan (5-10 Years)**

In the long term, some additional implementation strategies may include:

1) Stay abreast of the work around asthma registries. In light of newer technologies and new data collection methods, asthma registries and/or lung-related disease registries may be an effective tool in the future to not only track asthma for public health monitoring, but they may assist in care management of patients.
2) Establish asthma surveillance as a core component of DHSS and/or routine data sharing with other organizations.

3) Develop capacity to complete asthma-related research within specialties unique to Alaska, including glacier silts, cold air, air quality due to wood-burning stoves, forest fires, dust exposure, and diet.

4) Begin to develop routine data collection systems around air quality and related regulations with the DEC.

5) Develop and complete an evaluation of the surveillance system.
## Appendix A: Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABVS</td>
<td>Alaska Bureau of Vital Statistics</td>
</tr>
<tr>
<td>ACBS</td>
<td>Asthma Call-Back Survey</td>
</tr>
<tr>
<td>ADWC</td>
<td>Alaska Department of Worker’s Compensation</td>
</tr>
<tr>
<td>AeHN</td>
<td>Alaska eHealth Network</td>
</tr>
<tr>
<td>AHDD</td>
<td>Alaska Hospital Discharge Database</td>
</tr>
<tr>
<td>AHRQ</td>
<td>Agency for Healthcare Research and Quality</td>
</tr>
<tr>
<td>ALAA</td>
<td>American Lung Association in Alaska</td>
</tr>
<tr>
<td>AK-IBIS</td>
<td>Alaska – Indicator Based Information System</td>
</tr>
<tr>
<td>APCD</td>
<td>All Payer Claims Database</td>
</tr>
<tr>
<td>ASD</td>
<td>Anchorage School District</td>
</tr>
<tr>
<td>ASHNHA</td>
<td>Alaska State Hospital and Nursing Home Association</td>
</tr>
<tr>
<td>BRFSS</td>
<td>Behavioral Risk Factor Surveillance System</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CUBS</td>
<td>Childhood Understanding Behaviors Survey</td>
</tr>
<tr>
<td>DEC</td>
<td>Department of Environmental Conservation</td>
</tr>
<tr>
<td>DHSS</td>
<td>Alaska Department of Health and Social Services</td>
</tr>
<tr>
<td>EARTH</td>
<td>Education and Research Towards Health Study</td>
</tr>
<tr>
<td>HEDIS</td>
<td>Healthcare Effectiveness Data and Information Set</td>
</tr>
<tr>
<td>MEPS</td>
<td>Medical Expenditure Panel Survey</td>
</tr>
<tr>
<td>MMIS</td>
<td>Medicaid Management Information Systems</td>
</tr>
<tr>
<td>NACP</td>
<td>National Asthma Control Program</td>
</tr>
<tr>
<td>NAEPP</td>
<td>National Asthma Education and Prevention Program</td>
</tr>
<tr>
<td>NCEH</td>
<td>National Center for Environmental Health</td>
</tr>
<tr>
<td>NCHS</td>
<td>National Center for Health Statistics</td>
</tr>
<tr>
<td>NCQA</td>
<td>National Committee for Quality Assurance</td>
</tr>
<tr>
<td>NEPHTN</td>
<td>National Environmental Public Health Tracking Program</td>
</tr>
<tr>
<td>NHAMCS</td>
<td>National Hospital Ambulatory Medical Care Survey</td>
</tr>
<tr>
<td>NHDS</td>
<td>National Hospital Discharge Survey</td>
</tr>
<tr>
<td>NHIS</td>
<td>National Health Interview Survey</td>
</tr>
<tr>
<td>NSCH</td>
<td>National Survey of Children’s Health</td>
</tr>
<tr>
<td>NVSS-M</td>
<td>National Vital Statistics System - Mortality</td>
</tr>
<tr>
<td>OAP</td>
<td>Oregon Asthma Program</td>
</tr>
<tr>
<td>OAPSS</td>
<td>Oregon Asthma Program Surveillance System</td>
</tr>
<tr>
<td>OPIWG</td>
<td>Quality and Performance Improvement Workgroup</td>
</tr>
<tr>
<td>RVS</td>
<td>Respiratory syncytial virus</td>
</tr>
<tr>
<td>SAMHSA</td>
<td>Substance Abuse and Mental Health Services Administration</td>
</tr>
<tr>
<td>SHPPS</td>
<td>School Health Policies &amp; Practices Study</td>
</tr>
<tr>
<td>SPF-SIG</td>
<td>Strategic Prevention-State Incentive Grants</td>
</tr>
<tr>
<td>WEAT</td>
<td>Web Enabled Analysis Tool</td>
</tr>
<tr>
<td>YRBS</td>
<td>Youth Risk Behavior Survey</td>
</tr>
</tbody>
</table>
Appendix B: Annotated Bibliography

This annotated bibliography compiles peer-reviewed articles and formal publications about asthma in Alaska. The limited scope of the annotated bibliography left out some important work to note, especially since asthma has been associated with a range of issues from upper-respiratory infections to allergies.

Dr. Rosalyn Singleton has contributed substantially to understanding and tracking respiratory issues, specifically around the respiratory syncytial virus (RSV) and pneumococcal vaccine, throughout Alaska. Many peer-reviewed journals have published her research and it is important to acknowledge this work in establishing a foundation for asthma surveillance and research. However, these articles were not included in the annotated bibliography since the focus of these articles was not asthma.

In addition, Dr. Jeffery Demain and Dr. Melinda Rathkopf have published a substantial amount of research around food allergies, climate change, insect allergies, and pollen. These articles were not included in the annotated bibliography since the focus was not asthma in Alaska.


Keywords: Occupational asthma.

Abstract: Not found.


Keywords: General population, Fairbanks.

Abstract: Gravimetric sampling over a three year period indicates that birch, alder, and poplar pollen and fungus spores are the major aeroallergens from early May to September in the Fairbanks area, Alaska. Of less importance are willows, the grasses, lamb's-quarters, plantain, goldenrod, and wormwood pollen. A standard pollen calendar is presented.


Keywords: Adolescents, adults, food-processing industry, occupational diseases.

Abstract: Data were collected between March 13 and May 13, 1981, when 46 crab-processing workers with marked dyspnea and wheezing visited the Iliuliuk Family Health Service Clinic, the sole provider of medical care in Dutch Harbor. Of the 46, 10 were from neighboring islands or offshore processing ships; 3 had a history of having had similar symptoms before. The other 33 workers (mean age 23 years, range 18-30), who were employed in 4 seafood-processing plants in the immediate Dutch Harbor area, gave no history of previously experiencing such symptoms. The combined employment of these 4 plants was approximately 825 crab-processing workers, giving an approximate rate for
development of dyspnea with wheeze ("crab asthma") of 2 cases per 100 workers per month for the crab-processing season. This is at least 80 times the monthly incidence of new cases of asthma and 8 times the incidence of new cases of bronchitis with wheeze reported for groups of Americans of similar age.

Chimonas, M.A., and Gessner, B.D. "Airborne Particulate Matter from Primarily Geologic, Non-Industrial Sources at Levels Below National Ambient Air Quality Standards is Associated with Outpatient Visits for Asthma and Quick-Relief Medication Prescriptions among Children Less than 20 Years Old Enrolled in Medicaid in Anchorage, Alaska." Environmental research 103.3 (March 2007): 397-404.

Keywords: Children, air pollution, bronchial asthma, antiasthmatic drugs, Arctic regions.

Abstract: In Anchorage, Alaska, particulates with aerodynamic diameter p 10 mm (PM10) arise primarily from natural, geologic sources, and particulates with aerodynamic diameter p 2.5 mm (PM2.5) arise primarily from automobile emissions. The current study used a population-based time-series analysis design to evaluate the effects of daily and weekly PM10 and PM2.5 on respiratory health outcomes among children to 20 years of age residing in Anchorage enrolled in Medicaid. All generated estimating equations models were adjusted for season, year, weekends, temperature, wind speed, and precipitation. Relative to the days with PM10 mass concentration p 13 mg/m3, a significant 9.3 percent increase (RR: 1.093, 95 percent CI: 1.004–1.191) in the rate of outpatient visits for asthma occurred during days with PM10 of 20–33 mg/m3. No further dose–response occurred for days with PM10 X34mg/m3. A significant 18.1 percent increase (RR: 1.181, 95 percent CI: 1.010–1.381) in the rate of quick-relief medication prescriptions occurred during  days with PM10 of 34–60 mg/m3, and a 28.8 percent increase (RR: 1.288, 95 percent CI: 1.026–1.619) occurred during days with PM10X61 mg/m3. Similar results for outpatient asthma visits and quick-relief medication occurred in weekly models. There were no significant associations with PM2.5 in either daily or weekly models. These subtle but statistically significant associations suggest that non-industrial, geologic sources of PM10 may have measurable health effects at levels below current national standards.


Keywords: General population, Anchorage.

Abstract: In this study, the association between daily morbidity and respirable particulate pollution (i.e., particles with a mass median aerodynamic diameter of < or = 10 microns [PM10]) was evaluated in the general population of Anchorage, Alaska. Using insurance claims data for state employees and their dependents who lived in Anchorage, Alaska, the authors determined the number of medical visits for asthma, bronchitis, and upper respiratory infections. The number of visits is related to the level of particulate pollution in ambient air measured at air-monitoring sites. This study was conducted during a three-year period, which included several weeks of higher-level particulate pollution that resulted from a volcanic eruption (i.e., August 1992). The particulate pollution was measured by the Anderson head sampler (24-h accumulation). The medical visits of the population at risk were also tallied daily. To help confirm whether PM10 exposure was a risk factor in the exacerbation of asthma, a regression
analysis was used to regress daily asthma visits on PM10 pollution levels, controlling for seasonal variability. A significant positive association between morbidity and PM10 pollution was observed. The strongest association was with concurrent-day PM10 levels. The relative risk of morbidity was higher with respect to PM10 pollution during warmer days.


Keywords: Racing sled dogs, occupational diseases.

Abstract: Athletes who play sports in cold weather, particularly skaters and cross-country skiers, have an increased prevalence of lower airway disease that is hypothesized to result from repeated penetration of incompletely conditioned air into the lung periphery. In this study, the hypothesis was that canine winter athletes also suffer from increased prevalence of lung disease secondary to hyperventilation with cold air. Bronchoscopy and bronchoalveolar lavage was conducted in elite racing sled dogs 24 to 48 hours after completion of a 1,100-mile endurance race. Bronchoscopic abnormalities were classified as none, mild, moderate, or severe, based on the quantity and distribution of intraluminal debris. Eighty-one percent of the dogs (48 of 59) examined had abnormal accumulations of intraluminal debris, with 46 percent (27 of 59) classified as moderate or severe, indicating significant accumulation of exudate. Bronchoalveolar lavage obtained from dogs after the race had significantly higher nucleated macrophage and eosinophil counts compared with sedentary control dogs. The findings support the hypothesis that strenuous exercise in cold environments can lead to lower airway disease and suggest that racing sled dogs may be a useful naturally occurring animal model of the analogous human disease.


Keywords: Alaska Natives, Medicaid, children.

BACKGROUND: Few trend data on asthma prevalence exist for U.S. indigenous populations, and none exist for Alaska Natives. OBJECTIVE: To document the epidemiologic features of asthma in Alaska Natives and nonnatives stratified by urban (Anchorage) and rural (non-Anchorage) residence. METHODS: We conducted a retrospective review of Alaskans younger than 20 years enrolled in Medicaid during 1999 to 2002. Asthma was defined as a claim for International Classification of Diseases, Ninth Revision, codes 493.0x to 493.9x plus asthma-associated medication during the same calendar year. RESULTS: Among 117,080 Medicaid enrollees, the 4-year asthma prevalence was 3.1 percent and was 40 percent to 90 percent greater for urban residents regardless of race. Yearly prevalence increased from 1.0 percent to 2.2 percent (P < .001), with increases in all subgroups. Of 4 predominantly Alaska Native census areas, the area with resident pediatricians and previous participation in asthma research had a 4-year asthma prevalence 5- to 11-fold higher than the other areas. Among persons with asthma, yearly hospitalization risk decreased (from 9.3 percent to 6.8 percent; P = .02) concurrent with an increase in the yearly use of inhaled corticosteroids (from 50 percent to 64 percent; P < .001). Urban Alaska Natives had the greatest decrease in hospitalization risk.
and the greatest increase in inhaled corticosteroid use. CONCLUSIONS: Relatively dramatic demographic differences and temporal trends in asthma prevalence occurred in the absence of known differences or changes in risk factor prevalence. This suggests a role for differences in the use of asthma as a diagnosis for respiratory illness. Failure to diagnose and thus treat asthma may affect outcomes because decreases in hospitalization risk were temporally associated with increases in inhaled corticosteroid use.


Keywords: Children, adults, obesity, smoking, Alaska Native, Medicaid.

SUMMARY RESULTS: During 2004, approximately 12 percent of Alaskan adults (55,400 people) had been told they have had asthma at some point in their lives including 8 percent (37,000) with current asthma. Current asthma was equally common among all age groups and among persons of all educational levels. Obese adults were substantially more likely to report current asthma than other adults (10 percent vs. 6 percent). During 2004, 18,000 adult Alaskans with asthma had one or more routine check-ups for asthma (50,000 total routine check-ups for asthma), 9,000 adults with asthma had an urgent care visit for asthma (27,000 total visits), and 5,500 adults with asthma received emergency room care for asthma (10,000 total visits). Over 50 percent of adults with asthma experienced an asthma attack during the previous year and 25 percent had activity limitations as a result of their asthma. Over 20 percent of Alaskan adults with current asthma have symptoms every day and another 33 percent have symptoms at least weekly. During 2004, approximately 34 percent of children with asthma lived with an adult who currently smokes and 16 percent lived in homes where smoking was allowed. Among persons less than 20 years of age enrolled in Medicaid, asthma prevalence doubled during 1999-2002 while hospitalizations among children with asthma decreased. Among persons less than 20 years of age enrolled in Medicaid who had asthma, Alaska Natives living in Anchorage experienced the greatest decrease in hospitalization and the greatest increase in inhaled corticosteroid use. Rural Alaska Natives continued to report the greatest risk of hospitalization. Compared to non-Natives living in or outside of Anchorage, adult Alaska Native non-Anchorage residents with asthma were more than twice as likely to visit the emergency room during the previous 12 months. Asthma mortality in the U.S. as a whole has decreased significantly since 1994 while asthma mortality in Alaska has increased steadily during 1979-2002. Between 2001 and 2004, known asthma hospitalization charges totaled almost $17 million, approximately $9,200 per hospitalization.

Keywords: Children, Alaska Native, Medicaid.

BACKGROUND: No study of childhood asthma prevalence in Alaska or among Alaska Natives has been conducted. OBJECTIVE: To determine asthma prevalence among Alaska Medicaid enrollees younger than 20 years, with an emphasis on Alaska Natives, the state's largest minority and predominant rural citizens. METHODS: A master database was obtained that included all children enrolled in Medicaid during July 1998 through June 1999. Physician, pharmacy, and hospital claims files for International Classification of Diseases codes 493.0x to 493.9x were linked to this master database. Asthma was defined as any asthma-related care or medication claim. RESULTS: Asthma prevalence among the study population was 6.9 percent. Alaska Natives had a lower asthma prevalence than nonnatives (risk ratio [RR], 0.70; 95 percent confidence interval [CI], 0.66-0.75), but among the subgroup of children residing in the state's major urban center, Alaska Natives had a higher prevalence. Overall, 0.22 percent of the study population experienced an asthma-related hospitalization, with Alaska Natives having a higher risk of hospitalization than nonnatives (RR, 1.6; 95 percent CI, 1.2-2.3). Among hospitalized children, Alaska Natives were less likely to have received a long-term control medication (RR, 0.54; 95 percent CI, 0.33-0.88). CONCLUSIONS: Compared with nonnatives, Alaska Natives have a lower risk of asthma but only among nonurban residents. The increased risk of hospitalization among Alaska Natives may be related to underuse of long-term control medications.


Keywords: Adults, economics.

Abstract: More than 14 percent of the adult population of Alaska, or approximately 64,500 adults, are likely to have been diagnosed with asthma. Over the last 6 years, the rate of asthma has been increasing in the United States, with the rate of increase slightly higher in Alaska. The final report looks at the costs of asthma in order to indicate what is at stake and why asthma research, asthma control, and public health policies are of significant importance to Alaska.


Keywords: Alaska, gasoline exposure, benzene, VOCs, aromatics.

Abstract: Attached garages are known to be associated with indoor air volatile organic compounds (VOCs). This study looked at indoor exposure to VOCs presumably from evaporative emissions of gasoline. Alaskan gasoline contains 5 percent benzene making benzene a marker for gasoline exposure. A survey of randomly chosen houses with attached garages was done in Anchorage, Alaska to determine the exposure and assess respiratory health. Householders were asked to complete a health survey for each person and a household survey. They monitored indoor air in their primary
living space for benzene, toluene, ethylbenzene and xylenes for one week using passive organic vapor monitoring badges. Benzene levels in homes ranged from undetectable to 58 parts per billion. The median benzene level in 509 homes tested was 2.96 ppb. Elevated benzene levels in the home were strongly associated with small engines and gasoline stored in the garage. High concentrations of benzene in gasoline increase indoor air levels of benzene in residences with attached garages exposing people to benzene at levels above ATSDR’s minimal risk level. Residents reported more severe symptoms of asthma in the homes with high gasoline exposure (16 percent) where benzene levels exceeded the 9 ppb.


Keyword: Children.

Abstract: The authors found the use of asthma medication among elementary school children was associated with particulate pollution (particulate matter <10 microm in aerodynamic diameter [PM10]) in a locale where PM10 consisted primarily of coarse fraction material derived from road sanding and reentrained volcanic ash. School nurses' records in 12 neighborhood schools located close to an ambient air monitoring station were abstracted, and the numbers of oral and inhaled doses of asthma medication given daily over a period of 2.5 years were calculated. Time-series regression models, adjusted for autocorrelation, were developed, with temperature, time trend, day of the week, and month as additional variables. Regression models were estimated, and a lagged moving average of PM10 for 7, 14, 21, and 28 days was used. All models showed positive and significant coefficients for PM10 during periods when asthma medication was administered to the school children. However, the 21-day moving average was the best fit to the model.


Keywords: MTBE, Anchorage, Fairbanks.

OBJECTIVES: This ecologic study assessed whether there was a change in health status in Alaska in the winter of 1992-1993 after the introduction of MTBE in gasoline. Methyl tertiary butyl ether (MTBE) is used as a fuel oxygenate in the United States and in Europe. In the winter of 1992-93 MTBE was added to gasoline in the cities of Fairbanks and Anchorage, Alaska. The program was discontinued in Fairbanks in December, 1992, but continued in Anchorage until February 28, 1993. METHODS: Outpatient visits for state employees and dependents (n = approximately 28,000) living in Alaska were compared over three winters by analyzing health insurance claims. RESULTS: Odds ratios were calculated. The odds ratios indicated that the winter of 1992-1993 was not statistically different from previous winters in numbers of claims for upper respiratory illness, bronchitis, headache, or asthma in either Anchorage or Fairbanks. CONCLUSION: There was no increase in claims for respiratory illness in either city after introduction of MTBE.

Keyword: Anchorage.

Abstract: This paper examines the associations between average daily particulate matter less than 10 microns in diameter (PM10) and temperature with daily outpatient visits for respiratory disease including asthma, bronchitis, and upper respiratory illness in Anchorage, Alaska, where there are few industrial sources of air pollution. In Anchorage, PM10 is composed primarily of earth crustal material and volcanic ash. Carbon monoxide is measured only during the winter months. The number of outpatient visits for respiratory diagnoses during the period 1 May 1992 to 1 March 1994 was derived from medical insurance claims for state and municipal employees and their dependents covered by Aetna insurance. The data were filtered to reduce seasonal trends and serial autocorrelation and adjusted for day of the week. The results show that an increase of 10 micrograms/m3 in PM10 resulted in a 3-6 percent increase in visits for asthma and a 1-3 percent increase in visits for upper respiratory diseases. Winter CO concentrations were significantly associated with bronchitis and upper respiratory illness, but not with asthma. Winter CO was highly correlated with automobile exhaust emissions. These findings are consistent with the results of previous studies of particulate pollution in other urban areas and provide evidence that the coarse fraction of PM10 may affect the health of working people.


Keywords: Alaska Native, children.

STUDY OBJECTIVES: To quantify the prevalence and impact of chronic respiratory symptoms among predominantly Alaska Native (AN)/American Indian (AI) middle school students. DESIGN: School-based prevalence assessment using the International Study of Asthma and Allergy in Children survey, with supplemental video material and added questions about productive cough, exposure to tobacco smoke, and the functional impact of symptoms. SETTING: The Yukon-Kuskokwim delta region of western Alaska. PARTICIPANTS: A total of 466 children in the sixth to ninth grades, 81 percent of whom are AN/AI (377 children). INTERVENTIONS: No study intervention. RESULTS: Among the 377 AN/AI children, 40 percent reported one of the following three categories of chronic respiratory disease: physician-diagnosed asthma, 7.4 percent; asthma-like symptoms (ALS) without an asthma diagnosis, 11.4 percent; and chronic productive cough (CPC) without asthma diagnosis or symptoms, 21.5 percent. Symptom prevalence differed substantially between the largest town in the region and rural villages. After an adjustment for demographic factors, exposure to environmental tobacco smoke, active tobacco smoking, and self-report of atopy, village residents were 63 percent less likely to have ALS (p = 0.009), and had a twofold greater risk of CPC (p < 0.001) compared to children living in the town. Children with respiratory symptoms experienced sleep disturbances and accessed clinic visits for respiratory problems more often than did asymptomatic children. CONCLUSIONS: Chronic respiratory symptoms are very common among AN children. CPC is an important nonasthmatic respiratory condition in this population. The differing patterns of respiratory illness within this region may help to elucidate the specific risk factors for asthma and chronic bronchitis in children.

Keywords: Alaska Native, American Indian, Alaska.

Abstract: This study describes the lifetime prevalence of self-reported asthma among American Indian and Alaska Native (AI/AN) people who participated in the Education and Research Towards Health (EARTH) study in Alaska. We conducted a cross-sectional analysis of asthma prevalence by sex and its associations with socio-demographic, health, and environmental factors. Among 3,828 AI/AN adults, we found a higher age-sex adjusted prevalence of asthma (15.4 percent) than is found in the general U.S. adult (11.0 percent) population based on the 2006 National Health Interview Survey. After multivariable analysis, self-reported asthma among men was associated with increased age, unemployment, lower income, and obesity. Among women, self-reported asthma was associated with increased age, being divorced/separated, living in Alaska’s southcentral region, self-reported fair/poor health status, obesity, and indoor mold. The data suggest that AI/AN adults have higher prevalence of lifetime asthma than the general U.S. population. Further study is necessary to understand asthma in this population.


Keywords: Adults, food-processing industry, occupational diseases.

BACKGROUND: Crab processing workers may develop respiratory symptoms and specific IgE responses, but the risk factors have not been fully described. METHODS: In 1998, 107 workers at a crab processing facility completed a survey both at the beginning and end of the processing season. The surveys included standardized symptom questionnaires, spirometry, and serological testing, as well as measurement of workplace airborne crab allergens and microscopic analysis of aerosolized materials. RESULTS: Over the crab processing season, asthma-like symptoms developed in 26 percent of study participants and bronchitic symptoms in 19 percent. Only 9 percent of those with new asthma-like symptoms were IgE-sensitized to crab at the end of the season. Among the crab processing jobs, butchering and degilling workers had the highest incidence of respiratory symptoms. CONCLUSIONS: Both personal and process-related factors appear to affect the development of respiratory symptoms in crab processing workers. In this study, crab specific IgE was not detected in most of the workers with new symptoms.

Keywords: Rural Alaska, Alaska Native, children.

OBJECTIVES: To generate new hypotheses about factors that may contribute to chronic respiratory disease in Alaska Native children in rural Alaska. METHODS: Qualitative formative research with interviews of community members, village healthcare providers, and referral providers in the Yukon-Kuskokwim Delta Region of Alaska. RESULTS: The respondents identified chronic and acute respiratory illnesses as the most important serious child health problems of the region. They believed that chronic respiratory conditions, especially asthma, were increasing. The most frequently discussed potential contributing factors were smoke, dust, feeding practices, socioeconomic conditions, and mold. The intervention mentioned most frequently that would make the greatest impact was a more timely diagnosis of asthma. CONCLUSIONS: Reports of an increase in chronic respiratory problems are parallel with reports of increases in dust and mold in the communities. Further environmental quantitative research is necessary to confirm the importance of these factors. In addition, improved education for identification and treatment of asthma would appear to be beneficial.


Keywords: Alaska Native, children.

OBJECTIVES: To better understand the prevalence of asthma among American Indian and Alaska Native (AI/AN) children and to explore the contribution of locale to asthma symptoms and diagnostic assignment, the authors surveyed AI/AN middle school students, comparing responses from metropolitan Tacoma, Washington (metro WA) and a non-metropolitan area of Alaska (non-metro AK). METHODS: Students in grades 6-9 completed an asthma screening survey. The authors compared self-reported rates of asthma symptoms, asthma diagnoses, and health care utilization for 147 children ages 11-16 self-reporting as AI/AN in metro WA and 365 in non-metro AK. RESULTS: The prevalence of self-reported asthma symptoms were similar for the metro WA and non-metro AK populations, but a significantly higher percentage of metro WA than of non-metro AK respondents reported having received a physician diagnosis of asthma (OR 2.33; 95 percent CI 1.23, 4.39). The percentages of respondents who reported having visited a medical provider for asthma-like symptoms in the previous year did not differ. CONCLUSIONS: The difference in rates of asthma diagnosis despite similar rates of asthma symptoms and respiratory-related medical visits may reflect differences in respiratory disease patterns, diagnostic labeling practices, or environmental factors. Future attempts to describe asthma prevalence should consider the potential contribution of non-biologic factors such as diagnostic practices.

Keywords: Children, Alaska Native.

Abstract: Social science theories of health and place posit that individuals perceive a relationship between characteristics of the geographic location in which they reside and their health, well-being, and self-identity. A number of ethnographies of health and place have studied how urban and suburban populations impacted by industrial pollution or waste have come to perceive a link between rates of cancer and their unhealthy environment. There has been little study of the applicability of the health and place framework to community perceptions of long-term chronic illness. This paper examines the asthma perceptions of Yup'ik parents of asthmatic children using data from semi-structured ethnographic interviews conducted in five villages and one town of the Yukon-Kuskokwim delta of southwest Alaska. Informants cited local climatic features, large-scale changes of the last 30 years to the village built landscape, and ongoing conditions of substandard housing and sanitation as etiological factors associated with childhood asthma. The study suggests the need for further research concerning lay perceptions of one aspect of the epidemiologic transition—the association between chronic illness and place, especially in rural communities undergoing dramatic developmental change.
### Appendix C: Types of Surveillance Systems

#### Types of Surveillance Systems and General Descriptions

<table>
<thead>
<tr>
<th>Surveillance System</th>
<th>General Descriptions</th>
</tr>
</thead>
</table>
| **Routine health information system**       | • Passive system  
• Regular reports are written                                                                                                                                                                                   |
| **Health information and management system**| • Passive system  
• Routine administrative reports                                                                                                                                                                                   |
| **Categorical surveillance**                | • Can be active or passive  
• Tracts data on one or more than one disease or behavior  
• Inefficient as may require multi forms for one patient  
• Could cause allocation problems in staffing                                                                                                                                 |
| **Integrated surveillance**                 | • Combination of active and passive  
• Utilizes single infrastructure to gather information about multiple diseases/behavior  
• Possible duplication and inefficiencies                                                                                                                                                                           |
| **Syndromic surveillance**                  | • Active or passive  
• Based on clinical appearance without laboratory diagnosis  
• May require more investigation  
• Inexpensive                                                                                                                                                                                                     |
| **Periodic population-based survey**        | • Use of repeated surveys  
• Useful to measure effect on population                                                                                                                                                                               |
| **Sentinel surveillance**                   | • Health networks report all cases of specific condition  
• Allows for prompt detection of possible public health problems                                                                                                                                                 |
| **Laboratory-based surveillance**           | • Used for infectious disease monitoring  
• Requires a laboratory                                                                                                                                                                                                 |
Appendix D: Descriptions of Clinical Quality Care for Asthma

In 1991, the Expert Panel Report: Guidelines for the Diagnosis and Management of Asthma was written, followed by revisions (EPR-2) in 1997, 2002, and 2007. Bringing together a wide range of asthma specialists (clinicians, researchers, federal agencies, academics and other health organizations), these guidelines represent the prevailing science-based information for health care professionals. The Guidelines include ten clinical activities, along with suggested action steps, intended to improve quality health care for patients with asthma.

**Key Clinical Activity 1: Establish Asthma Diagnosis**

Asthma diagnosis should include a baseline of severity and a recommended course of treatment. For children under the age of 5, medical professionals look for more than three episodes in the last year of wheezing lasting more than one day with affected sleep AND a parental history of asthma OR two of the following: allergic rhinitis, wheezing (not from a cold) or peripheral blood eosinophilia. Children over 5 years and adults with a medical history of episodic respiratory symptoms can be diagnosed with a spirometry test and presumptive treatment.

**Key Clinical Activity 2: Classify Severity of Asthma**

Health care providers classify the severity of asthma by monitoring the patient’s symptoms, spirometry, and the level of medication needed to manage the condition.

**Key Clinical Activity 3: Schedule Routine Follow-Up Care**

As asthma symptoms can vary in severity, regular follow-up visits to a health care provider are required. There should be an appointment a month after the initial diagnosis followed by routine visits every one to six months depending on the severity and patient’s control of the symptoms. After the initial spirometry, subsequent tests should be repeated at least every one to two years or more frequently, if necessary. At each follow-up visit, the physician should review medication use and self-monitoring records (including correct procedures for use of inhalers, spacer, nebulizers, and peak flow meters).

**Key Clinical Activity 4: Assess for Referral to Specialty Care**

It is recommended that physicians co-manage the asthma patient’s condition with a specialist (allergist, pulmonologist or physician with asthma expertise) under certain circumstances such as a single life-threatening episode, if the condition is not responding to therapy, if there are complications such as occupational or environmental factors or if oral corticosteroid therapy is required more than twice in one year or continuously.
**Key Clinical Activity 5: Recommend Measures to Control Asthma Triggers**

It is recommended the patient be tested for allergies and avoid/reduce the triggers that exacerbate the condition. These triggers may include animal fur, dust mites, cockroaches, and tobacco smoke. People whose asthma is exercise-induced can take medications before their work-out to control the symptoms.

**Key Clinical Activity 6: Treat or Prevent All Comorbid Conditions**

Certain conditions can exacerbate asthma symptoms such as respiratory infections, sinusitis, allergic rhinitis, gastroesophageal reflux and medicines such as aspirin and beta blockers. Asthma patients should be provided with the influenza vaccination annually to prevent infections that could aggravate their condition.

**Key Clinical Activity 7: Prescribe Medications According to Severity**

Patients with persistent asthma require daily long-term medications, usually inhaled corticosteroids. Those with more severe symptoms may also require additional medications. The type of medication and dosage prescribed need to be adjusted to the level of severity of the patient’s asthma symptoms.

**Key Clinical Activity 8: Monitor Use of β2-Agonist Drugs**

Patients using more than one canister of short-acting Beta-2 Agonist (β2) drugs per month (which is more than expected usage) might indicate inadequately controlled asthma. Doctors should review the patients understanding and usage of medications while increasing daily long-term control therapy as needed.

**Key Clinical Activity 9: Develop a Written Asthma Management Plan**

A written management plan, developed as part of the provider/patient partnership, provides instructions and easy reference for patients to manage their asthma. The plan should include information on recognizing symptoms, monitoring dosage and frequency of medication, and when it is necessary to seek medical care. It should be reviewed at each office visit. For children, copies of the written plan should be provided to schools and caregivers.

**Key Clinical Activity 10: Provide Routine Education on Patient Self-Management**

To be effective for self-management, asthma education should be a partnership between the patient and health care provider. As part of the management plan, patients should receive instruction in the proper use of medical devices, adjusting dosages, and interpretation of test results. The ability to take asthma medications is a necessary skill for self-management of the disease. Family members should also receive education to understand the medication usage and how to control environmental factors that could exacerbate the symptoms.
Appendix E: State Program Selection Memo

Appendix E contains information collected as part of a “scan” of asthma surveillance systems and related legislation nationwide. This “scan” provided information for a discussion, which led to the selection of two case studies for this report.

This memo proposes three asthma programs to review as part of Task 2 Evaluation of Existing Asthma Surveillance Program. In addition, it provides descriptions of the criteria, processes and decisions used to select these recommended programs.

As part of an initial overview, this memo describes summary results of an assessment of various factors related to the development of an asthma surveillance system. In order to propose specific programs for review, McDowell Group assessed asthma legislation, work-related asthma surveillance systems, local asthma coalitions, and Health Information Exchanges (HIE). In addition, McDowell group reviewed state asthma programs funded by the Centers for Disease Control and Prevention (CDC) through websites, strategic plans, and asthma burden reports. Finally, we spoke with the American Lung Association of the Mountain Pacific’s Regional Director of Health Initiatives.

Recommended Programs

McDowell Group recommends three programs to be evaluated. The following recommendations include two comprehensive programs (California and Oregon), as well as third option selected for a particular program interest.

Recommended Comprehensive Programs:

1. California
   - Displays an all-around comprehensive asthma program
   - Maintains robust asthma data reports including clinical care data
   - Contains indoor and outdoor environmental data around asthma
   - Displays a high level of collaboration across many agencies
   - Supports asthma legislation
   - One of the oldest asthma programs in the country
2. Oregon

- Maintains a robust asthma reporting system and publishes asthma reports
- Established methods for capturing data to ensure health care providers meet the national quality of care guidelines for asthmatics
- Reports data for many high-risk populations
- Supports an ongoing Asthma Data Workgroup who report their work publically including all their methods for developing a medical and pharmacy claim dataset for asthmatics
- Maintains an advanced level of surveillance expertise and completed an evaluation of their already robust asthma surveillance system
- Participates with other environmental health organizations to collect data
- Maintains a strong coalition of partners supporting data collection

Suggested Options by Program Interest (Select One):

1. School Asthma Surveillance Program – Connecticut and Massachusetts maintain school-based asthma surveillance systems. Connecticut mandates asthma data collection in the schools and routinely reports the asthma data collected across multiple school districts.

2. Health Information Exchange (HIE) – Massachusetts and Utah maintain statewide HIE programs and reported clinical asthma data in their statewide asthma programs. However, California and Oregon maintain statewide HIEs and we listed them as possible programs.

3. Work-Related Asthma – Michigan maintains a statewide, work-related asthma surveillance system and environmental specialists manage the statewide asthma program.

4. Alaska Native/American Indian (AN/AI) Relationships – The Minnesota Asthma Partnership maintains the Minnesota American Indian Asthma Team, which examines and supports ways to obtain asthma data among AN/AI organizations. In addition, they developed regional tribal asthma profiles as well as a statewide report focusing on AN/AI populations.

5. Rural/Frontier Communities – The Montana asthma program appears to capture data from remote areas.
In summary, California consistently appeared as a star program throughout all assessments and appears to contain an all-around comprehensive approach to asthma surveillance. Oregon rose to the top of the list for its strengths in its asthma surveillance system and its improvement process around the asthma measures. In addition, Oregon maintains an active Oregon Asthma Surveillance Workgroup. Oregon’s asthma burden reports displayed a wide-range of asthma measures. In addition, the Northwest Indian Health Board manages many health clinics throughout the area and the Northwest Tribal Epidemiology Center provides epidemiology-related services for the area. In some ways, Oregon’s tribal health care system and tribal data reporting mechanism models our Alaska Tribal Health System (ATHS) and the associated Alaska Native Epidemiology Center; perhaps providing models of data sharing policies among tribal agencies.

Finally, the Alaska Asthma Coalition Surveillance Workgroup will select the final program to be evaluated based upon review and discussion of the findings in this brief report.

**Factors Impacting Asthma Surveillance**

McDowell Group considered comprehensive programs, as well as programs with specific strengths that may be pertinent to an Alaska surveillance system. Among the specific strengths, McDowell Group focused specific attention on the following areas:

- Tribal partnerships with data sharing
- Clinical care monitoring systems
- Capturing data across rural areas
- School partnerships and school asthma data
- Ability to capture data with non-gregarious organizations

The following diagram (see next page) displays the myriad of factors considered in our review.
Summary Diagram of Factors to Consider in an Asthma Surveillance Program
Comprehensive State Program Selection

Below is a summary of state asthma programs and their level of comprehensiveness and longevity and provide some backdrop into our recommendations to evaluate California and Oregon programs.

STATE ASTHMA PROGRAMS

Among the programs funded by the CDC National Asthma Program, McDowell Group assessed websites, strategic plans, asthma burden reports, coalitions, and the longevity of the programs. Upon review of these asthma programs, California and Oregon stood out among the crowd. Oregon maintains a comprehensive surveillance system and an active work group re-assessing asthma measures to expand their surveillance work. In addition, it conducted an evaluation of their surveillance system in order to improve upon their already robust reporting system. They produced *The Guide to Improving Asthma Care in Oregon: Indicators for Quality Care in Health Systems* establishing appropriate indicators to improve asthma management and monitor the quality of medical care. California stood out as a comprehensive program covering all the factors displayed in our initial diagram of factors affecting asthma surveillance systems. In addition, both states contained easy to access information about their program and their collaborating partners as well as local efforts around asthma surveillance.

Several states conduct their asthma surveillance activities through the CDC Environmental Public Health Tracking (EPHT) Programs. The EPHT provides a framework for surveillance systems through a ‘pre-designed’ state & local tracking portal, which includes asthma. If it appeared this tool was the state’s only tool for tracking asthma data, we eliminated the program from the selection because Alaska does not have an EPHT Program. Nevertheless, California and Oregon participate in the EPHT models in addition to other asthma surveillance programs so they were not eliminated.

While the length of the program may not indicate the depth and quality of the program, it provided some insight into the longest federally funded programs. Assuming federally funded programs accessed more resources than state-funded alone programs and longer-running programs have more time to develop robust surveillance systems; this assessment provided some guidance to the strength of an asthma program. The established programs may serve as models for asthma surveillance in Alaska. The following table displays the length of the state asthma program from the initial date of receiving federal funds.
### Asthma Program Length Based upon CDC Funding

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iowa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Jersey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utah</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oklahoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Louisiana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Asthma Reporting**

The selection process considered the ability of current programs to report basic asthma measures defined by the CDC National Asthma Control Program. The Program produced state profiles using data provided from the 2011 state grantees. These asthma measures include prevalence among adults and children,
hospitalizations, deaths, patient education, and medication use. The following table displays the 2011 grantees ability to report these measures. This assessment provided an initial understanding of the state asthma programs that were unable to assess basic, core measures. Among the 36 grantees states including the District of Columbia and Puerto Rico, 30 programs reported data for all of these measures.

### 2011 State Asthma Program Profiles Ability to Report Basic Measures

<table>
<thead>
<tr>
<th>State</th>
<th>Asthma Prevalence Measures</th>
<th>Asthma Hospitalizations</th>
<th>Asthma Deaths</th>
<th>Adult Asthma Patient Education</th>
<th>Adult Asthma Medication Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illinois</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Louisiana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Jersey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oklahoma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Texas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utah</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Factors for Third Program Selection

Below is a summary of some key factors and our initial evaluation of others states to serve as a third program for review.

Health Information Exchanges (HIE)

A Health Information Exchange (HIE) program may serve as one avenue to collect clinical data on asthma through a patient’s path through primary care clinics, emergency rooms, hospital stays, and pharmacy prescriptions. The Alaska eHealth Network manages the HIE services in Alaska. The collaboration between a HIE and an asthma surveillance system may provide useful insights into capturing clinical-related asthma data including pharmacy prescriptions. Throughout the country, there are HIE systems at varying geographic levels including county collaborations, statewide, and regional systems. For the purposes of this overview, statewide and regional HIEs were the only systems assessed since Alaska’s HIE serves the entire state. We assumed that longer functioning HIEs may have more established relationships with surveillance registries and other public health monitoring systems. As a result, they may serve as better models than newer HIE systems. According to the State Level Health Information Exchange Consensus Project – Advancing State-Level Efforts to Transform Health care with Health IT report, Utah, Indiana, Delaware, and Massachusetts operated fully functioning programs in 2005. Tennessee established itself as a functioning HIE in 2007. When comparing these selected states with their associated state asthma program websites, Massachusetts and Utah reported many clinic and hospital-based asthma measures in their burden of asthma reports. In addition, these states appeared to have state-mandated (by legislation) collaboration with state health department disease reporting systems. While not as old as the other states, California and Oregon maintain a HIE. Based upon their corresponding websites, California’s program appears fully functional and Oregon’s HIE appears to be expanding their current system. The collaboration of public health disease monitoring systems and HIE systems should be an important consideration in choosing an asthma program.

Occupational and Work-Related Asthma Programs

McDowell Group reviewed state-based work-related asthma programs. While the National Institute of Occupational Safety and Health (NIOSH) monitors work-related asthma nationally and NIOSH maintains one of its eight offices in Anchorage, Congress cut the NIOSH budget substantially in recent years warranting some examination of state-based work-related asthma programs. According to the CDC, there are only five, state-based work-related asthma programs. In addition to these state programs, New York conducts surveillance for all occupational lung diseases including work-related asthma through its Occupational Lung Disease Registry. Other states use varying methods to capture work-related asthma including doctor reporting, worker’s compensation, and poison control data.

<table>
<thead>
<tr>
<th>State-Based Work-Related Asthma Programs</th>
<th>Year Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts</td>
<td>1988</td>
</tr>
<tr>
<td>Michigan</td>
<td>1988</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1988</td>
</tr>
<tr>
<td>California</td>
<td>1993</td>
</tr>
<tr>
<td>Washington</td>
<td>2002</td>
</tr>
</tbody>
</table>
McDowell Group assessed states with legislation designating asthma tracking and/or surveillance systems as a core component of a bill. The National Council of State Legislatures (NCSL) published *Individual State Programs Related to Asthma* in 2003 and reviewed seven states and their associated asthma legislation. In this report, NCSL notes California as having “by far the most comprehensive legislative, statutory and programmatic approach to asthma.” However, the legislation does specify asthma data monitoring.

Of the seven states assessed in this report, Connecticut, Illinois, and Washington designated asthma surveillance systems or asthma tracking and monitoring as part of state law. Connecticut law requires the state health department to survey asthma rates and treatments through local health departments as well as requires school district health assessments to include information about asthma. Illinois law requires the “Department of Public Health (in conjunction with representatives of state and community-based agencies involved with asthma) to develop an asthma information system targeted at population groups with a high risk of suffering from asthma within the following groups: African Americans, Hispanics, the elderly, children, and those exposed to environmental factors associated with high risk of asthma.” While not comprehensive, the Washington law recognized asthma as a disease to include in disease management programs.

In addition to reviewing the above-mentioned report, we scanned the NCSL Environmental Health Databases of legislation from 1998 to 2012 legislative sessions for proposed and enacted legislation around asthma. We reviewed the summary descriptions of 446 bills categorized as asthma-related. Among these, 23 were categorized as asthma and tracking|surveillance|biomonitoring. By deleting duplicates of proposed bills, our selection resulted in 17 bills from 10 states.

Overall, few bills recognized tracking and monitoring as part the asthma legislation in the initial scan. It is possible that these bills addressed data monitoring and tracking among the details of the legislation, but they were not reviewed at this state of the project and they were not categorized by the search tool as tracking|surveillance|biomonitoring. The majority of the bills allow asthmatics to carry prescriptions in the school as well as address the liability of schools and public places hosting organized sports with asthmatic participants. In addition, several bills addressed building code information and exhaust regulations for safer environments for asthmatics. Finally, many addressed the ability for state health insurance programs to cover specific asthma medications. Nevertheless, this scan demonstrates some of the selected states actively proposing asthma surveillance legislation and they are states we considered as we picked the proposed programs. The following table (see next page) summarizes the results.
<table>
<thead>
<tr>
<th>State</th>
<th>Enacted</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>No</td>
<td>State Department of Health Services to designate questionnaire and adopt regulation in implementing a program for the detection of early childhood asthma and would authorize the department to enter into contracts with local entities for the implementation of these procedures.</td>
</tr>
<tr>
<td>California</td>
<td>No</td>
<td>Requires each school district to report to the State Department of Education, the number of pupils who have specified acute or chronic health conditions. Expressed the Legislature’s intent to allocate funds to certain schools for the purpose of hiring a credentialed school nurse.</td>
</tr>
<tr>
<td>California</td>
<td>Yes</td>
<td>Memorialized the President and Congress to enact legislation to ensure the continuation of funding for the National Children’s Study, which is a longitudinal study focusing on a long-term observation of children’s health by genetics and environmental conditions.</td>
</tr>
<tr>
<td>Connecticut</td>
<td>No</td>
<td>Concerns student health data; establishes an initiative to collect and analyze data concerning the prevalence of pediatric chronic disease and related risk factors in schools.</td>
</tr>
<tr>
<td>Connecticut</td>
<td>No</td>
<td>The bill would establish a pilot program to screen girls in grades five and six for asthma.</td>
</tr>
<tr>
<td>Illinois</td>
<td>Pending</td>
<td>Amends the Department of Public Health Powers and Duties Law of the Civil Administrative Code of Illinois. Establishes the Asthma Mobile Pilot Program, and provides that, subject to appropriations, the Department of Public Health shall issue a grant for the program. Provides that the 5-year pilot program shall include initial respiratory health screenings and diagnosis and follow-up medical care from pediatricians specializing in asthma management.</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Pending</td>
<td>Establishes a statewide environmental illness incidence registry.</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Yes</td>
<td>Regulates health care access to data; provides for a health disparities council within the executive office of health and human services to eliminate disparities in health care related to breast, cervical, prostate and colorectal cancers, strokes, heat attacks, diabetes, infant mortality, lupus, HIV/AIDS, asthma and other respiratory diseases; provides for recommendations to increase racial and ethnic diversity in the health care workforce, including doctors, nurses and physician assistants.</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>No</td>
<td>Legislation to establish asthma incidence registries by the Department of Public Health and the Boston Public Health Commission.</td>
</tr>
<tr>
<td>Minnesota</td>
<td>No</td>
<td>Relates to health; requires the commissioner to provide certain registry and surveillance information to the public.</td>
</tr>
<tr>
<td>Missouri</td>
<td>No</td>
<td>Requires health screenings for public school students at certain grade levels.</td>
</tr>
<tr>
<td>New York</td>
<td>No</td>
<td>Authorizes and directs the New York State Department of Health to conduct a study on the high incidence of asthma in the Borough of the Bronx Borough in New York City and to prepare a remedial plan.</td>
</tr>
<tr>
<td>New York</td>
<td>No</td>
<td>Defines asthma as a disease that physicians, hospitals, and other facilities are required to report to the department of health, provides for abstracting work performed by asthma reporting facilities to be performed by certified asthma registrars, directs the department of health to prepare a manual and a dictionary for reporting purposes, directs the commissioner to report to the governor, temporary president, and speaker, provides for confidentiality of case reports.</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>No</td>
<td>Provides for the comprehensive tracking of information concerning asthma.</td>
</tr>
<tr>
<td>Tennessee</td>
<td>Yes</td>
<td>Concerns the Department of Health; directs the department to develop a comprehensive statewide plan to reduce the incidence of asthma in the state on school children; provides the plan would promote the development of school asthma action plans between local education agencies and local health agencies, encourage schools to have individual asthma action plans for students, and encourage in-service training for teachers, and encourage coaches to participate in specified treatment training.</td>
</tr>
<tr>
<td>Tennessee</td>
<td>No</td>
<td>Concerns Health Care; requires the commissioner of health to establish and maintain a registry of chemically sensitive persons; requires health care professionals and facilities to report health-related illnesses cited as relating to the aerial drift of pesticides.</td>
</tr>
<tr>
<td>Vermont</td>
<td>No</td>
<td>This bill proposes to create an asthma and lung research fund and to allow donations by taxpayer check off on the state income tax return.</td>
</tr>
</tbody>
</table>

_Asthma Data Improvement Recommendations_
Other Considerations

COMMUNITY LEVEL PROGRAMS

McDowell Group reviewed some city and county health departments as well as local asthma coalitions as part of the initial assessment. These included New York City, Chicago Asthma Consortium, Durham County Health Department, Multnomah County (Oregon), and the San Diego Regional Asthma Coalition. The majority of these were urban, city-based programs. The local coalitions appeared program based. While they collected data, it appears that their data collection was part of a larger statewide system residing at the corresponding state health department rather than an independent surveillance system.

AMERICAN LUNG ASSOCIATION MANAGED PROGRAM MODEL

McDowell Group interviewed the American Lung Association of the Mountain Pacific’s (ALAMP) Regional Director of Health Initiatives to gain greater insight to asthma surveillance systems in the Western states. Currently, there are no asthma surveillance systems maintained by advocacy groups or other local agencies that could serve as a model for Alaska. Hawaii is the only state that captures school data well because one school district exists; whereas, the other states have multiple, locally controlled school district jurisdictions to consider in data collection. When asked about a model for rural data collection, none came to mind. In summary, the American Lung Association participates, collaborates, and supports asthma surveillance systems, but they do not maintain them. Generally, the respective state health departments maintain them.

INNOVATION

While Florida and Louisiana are newer programs, they completed substantial work on assessing measures and issues of developing surveillance systems, and were considered as models offering “fresh ideas” and additional ‘lessons learned’ in the establishment of a surveillance system. Of the two programs, Louisiana appears to have a stronger surveillance system. The Louisiana Asthma Surveillance Collaborative started in 2005 and an ongoing team assesses asthma measures and surveillance. Florida established itself in 2009 and recently completed a review of their asthma data and different measures within the system, developing a 2010-2014 Asthma Surveillance Work Plan.

Illinois appears to have a strong asthma program through legislation, asthma reporting, and they are highlighted in the national CDC Asthma Control reports. Based upon our prior knowledge, Chicago and Illinois served as a leader among innovative asthma research and measurement. However, the State of Illinois website produced errors and we were only able to access the Illinois Strategic Plan for Asthma.

To mesh with Alaska’s “frontier” health care system, Montana was also examined. Montana maintains an Asthma Care Monitoring System distributed at no cost to primary care clinics to manage asthma patients. Further examination is needed to distinguish how (or if) this data feeds into a statewide surveillance system. Nevertheless, this program may provide a sense of the ability to capture clinical care data at small, rural clinics.
Appendix F: Oregon Case Study

Introduction

This section summarizes key information related to the asthma surveillance program compiled from information from the Oregon Asthma Program through the website, an interview with program staff, and program publications.

Background

The Oregon Asthma Program (OAP) started in 1999 through funding from the Centers for Disease Control and Prevention (CDC) National Asthma Program. The Oregon Department of Human Services provides administrative support, while other public health programs and state agencies provide in-kind support.

Oregon Asthma Program Surveillance System (OAPSS)

OAP created and maintains the Oregon Asthma Program Surveillance System (OAPSS) as a requirement of the CDC National Asthma Program funding. The purpose of the OAPSS is to “provide a comprehensive description of the burden of asthma so that policy makers, health practitioners, program administrators, persons with asthma and their families, and the media have the information needed to addresses this chronic disease burden and lead to data-driven public health actions and health policy changes” (Garland 2009).

Organization

The OAP is located within the Oregon Department of Human Services, Division of Public Health, Office of Disease Prevention and Epidemiology, Section of Health Promotion and Chronic Disease Prevention (HPCDP). The asthma program sits under the Chronic Disease Programs. It is separate from the Chronic Disease Registry Section.

Description

OAPSS is a conglomeration of databases compiled and reported upon systematically rather than one data system containing all the variables related to asthma. The OAPSS is not one database linking all the asthma into one data system. Rather it is a collection of multiple datasets. Multiple data sources are managed and stored in differing formats. OAPSS calls these ‘reporting sources.’ Some may or may not be linked together. They use multiple data management and reporting mechanisms for each reporting source. All of these sources have different standards, policies, and procedures related to the reporting source. The following table provides a general summary of the data sources, types of data, and storage formats. These are provided from multiple entities across multiple state agencies.
### Summary of Different Types of Reporting Sources

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Data Type</th>
<th>Data Format</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division of Medical Assistance Programs</td>
<td>Clinical Data including emergency room visits, hospital visits and medication</td>
<td>Excel sheets</td>
<td>Secure Network Drive</td>
</tr>
<tr>
<td>Data and Quality Improvement Workgroups (Private Insurance)</td>
<td>Clinical Data including emergency room visits, hospital visits and medication</td>
<td>Excel sheets</td>
<td>Secure Network Drive</td>
</tr>
<tr>
<td>Hospital Discharge Index</td>
<td>Hospitalization data</td>
<td>Unknown</td>
<td>Centralized data warehouse</td>
</tr>
<tr>
<td>Oregon Healthy Teens Survey</td>
<td>Self-reported survey data</td>
<td>SPSS dataset</td>
<td>Secure Network Drive</td>
</tr>
<tr>
<td>BRFSS</td>
<td>Self-reported survey data</td>
<td>SPSS dataset</td>
<td>Secure Network Drive</td>
</tr>
<tr>
<td>BRFSS Asthma Call Back</td>
<td>Self-reported survey data</td>
<td>SPSS dataset</td>
<td>Secure Network Drive</td>
</tr>
<tr>
<td>Vital Statistics</td>
<td>Death certificates</td>
<td>Data analysis tool provided by Surveillance System</td>
<td>Vista PHW Surveillance System (Vital Statistics)</td>
</tr>
</tbody>
</table>

### DATA TEAM

HPCDP maintains a Surveillance Team composed of research analysts and epidemiologists to coordinate and streamline surveillance efforts so multiple programs are not duplicating the same work. In addition, this team works on data system infrastructure so the data may be easily shared and linked across multiple data systems. Some of the topics addressed by this Surveillance Team are:

- Standard operation procedures
- Standard processes of running repeat analysis
- Quality assurance of data
- Developing system data analysis plans
- Developing lists of common data elements across multiple data systems and maintain documentation on the use and definitions of these standard data elements
- Document data sources
- Maintain a tracking system for data requests and changes to the data systems
- Developed a ‘system wiki’ – documents the step-by-step process of gathering the data as well as the changes, uses, and errors for all the data sources used by OAPSS

As part of standard processes of the Surveillance Team, OAP in collaboration with partners determined an asthma definition to use throughout the surveillance system. OAP applies different asthma case definitions depending on the type of data used – survey data or claims/pharmacy data. Lifetime asthma refers to an adult who self-reports they have ever been told they have asthma by a medical professional (doctor, nurse or other health professional). Current asthma refers to someone who self-reports they have ever been told they have asthma by a medical professional (doctor, nurse or other health professional) and they self-report having asthma when taking the survey. For claims/pharmacy data, the definition of asthma or persistent asthma includes:

- At least one emergency department visit with a principle diagnosis of asthma; or
- At least one acute impatient discharge (hospitalization) with a principle diagnosis of asthma; or
- At least two outpatient asthma visits with asthma as one of the listed diagnosis; or
- At least three asthma medication dispensing events.
**OAPSS Asthma Definitions**

**Health Surveys**

**Lifetime Asthma**
An adult who has ever been told they have asthma by a medical professional (doctor, nurse or other health professional)

**Current Asthma**
Someone who has ever been told they have asthma AND they have asthma when taking the survey

**Claims and Pharmacy**

**Asthma or Persistent Asthma**
At least one emergency department visit with a principle diagnosis of asthma; OR
At least one acute impatient discharge (hospitalization) with a principle diagnosis of asthma; OR
At least two outpatient asthma visits with asthma as one of the listed diagnosis; OR
At least three asthma medication dispensing events.

**ANALYSIS TOOLS**

The OAPSS uses statistical software for analysis of the data. This includes STATA for the survey data and SAS for the non-survey data. The VistaPHw surveillance system provides analysis tools to calculate the death rates. All the statistical analysis program and script files are stored as well as commented so that results can be repeated and verified. All the analysis output files are saved as well. When possible, it is a standard practice to report the numerator, denominator, standard error, confidence interval, and the relative standard error.

**BUDGET**

The estimated costs for the asthma surveillance system for 2008-2009 included personnel (administrative, technical support, supplies), fringe benefits (FICA, Social Security, state retirement, medical/disability insurance, Worker’s Compensation), travel (in-state, out-of-state and mileage reimbursements), supplies, contracts (surveys) and other miscellaneous expenses (telephone, graphic design, printing costs). The personnel costs include one full-time equivalent analyst/epidemiologist.
Estimated Cost of Asthma Surveillance System, 2008-2009

<table>
<thead>
<tr>
<th>Estimated cost</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$64,966</td>
</tr>
<tr>
<td>Fringe (at 53.2 percent)</td>
<td>34,562</td>
</tr>
<tr>
<td>Travel</td>
<td>3,667</td>
</tr>
<tr>
<td>Supplies</td>
<td>540</td>
</tr>
<tr>
<td>Contracts</td>
<td>31,790</td>
</tr>
<tr>
<td>Other</td>
<td>18,556</td>
</tr>
<tr>
<td><strong>Total Estimated Cost</strong></td>
<td><strong>$154,081</strong></td>
</tr>
</tbody>
</table>

**Strategic Plan**

The Oregon Asthma Leadership Plan contains seven main goals. Each of these goals is linked with specific measures to monitor the Oregon Asthma Program success. In this manner, the Strategic Plan integrates the data within the surveillance system throughout the entire Asthma Program. This linkage appears to be an important use of the asthma surveillance system. The table following this section lists the measures and the associated data source for these measures.

In addition to integrating data accountability throughout the Strategic Plan, it contains specific strategies related to asthma surveillance. These include:

- “Create data specifications and develop data systems to disseminate pharmacy, outpatient, hospitalization, and Emergency Department data to healthcare practitioners in Oregon to support care management of people with asthma.”
- “Develop tools and resources to assist healthcare practitioners in building capacity for data sharing at the clinic and health system level.”
- “ Cultivate new data sources to measure and report changes in asthma health outcomes for vulnerable populations.”

One of the other goals states children with asthma attending Oregon schools will receive high quality asthma care, support, education, and monitoring from their school. One strategy related to this goal includes:

- Cultivating “new data sources to identify and monitor students with asthma and their school and health outcomes” (Oregon Asthma Network 2006).
### Oregon Strategic Plan Measures and Data Sources

<table>
<thead>
<tr>
<th>Oregon Strategic Plan Measures</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce the hospital discharge rate due to asthma (discharges per 10,000 population).</td>
<td>Hospital Discharge Index</td>
</tr>
<tr>
<td>Reduce the mortality rate due to asthma (deaths per 1,000,000 population).</td>
<td>Vista PHW</td>
</tr>
<tr>
<td>Reduce the percentage of people who report one or more emergency department or urgent care visits in the past 12 months due to asthma.</td>
<td>Oregon Data and Quality Improvement workgroup</td>
</tr>
<tr>
<td>Increase the percentage of people with asthma who report good or excellent health status.</td>
<td>BRFSS</td>
</tr>
<tr>
<td>The number of members of the Oregon Asthma Network.</td>
<td>Oregon Asthma Network Database</td>
</tr>
<tr>
<td>The number of times Oregon Asthma Network activities are highlighted in the media.</td>
<td>Department of Human Services Media Clippings</td>
</tr>
<tr>
<td>The number of organizations in the Oregon Asthma Network that represent vulnerable populations.</td>
<td>Oregon Asthma Network Database</td>
</tr>
<tr>
<td>Of those survey respondents who were told by their doctor to use inhaled steroids every day, the proportion who reported “every day” or “most days” when asked: “Which statement best describes how often you use your inhaled steroids?”</td>
<td>Oregon Survey of Adult Asthma</td>
</tr>
<tr>
<td>The proportion of the above group who were dispensed at least one daily-inhaled anti-inflammatory during the identification year.</td>
<td>Oregon Survey of Adult Asthma and health plan claims data</td>
</tr>
<tr>
<td>The number of self-management and healthcare provider education materials available on the Oregon Asthma Resource Bank.</td>
<td>Oregon Asthma Program publication data</td>
</tr>
<tr>
<td>The total number of Living Well with Chronic Conditions Master Trainers in Oregon.</td>
<td>Living Well with Chronic Conditions data</td>
</tr>
<tr>
<td>The total number of Living Well with Chronic Conditions Leaders in Oregon.</td>
<td>Living Well with Chronic Conditions data</td>
</tr>
<tr>
<td>The percent of Oregonians with asthma who have completed a Living Well with Chronic Conditions Workshop.</td>
<td>Living Well with Chronic Conditions data</td>
</tr>
<tr>
<td>The rate of asthma hospitalizations (age-adjusted rate per 10,000 population).</td>
<td>Hospital discharge data</td>
</tr>
<tr>
<td>The percent of people who report one or more emergency department or urgent care visits in the past 12 months due to asthma.</td>
<td>BRFSS</td>
</tr>
<tr>
<td>The percent of insured Oregonians aged 4–55 with persistent asthma who were dispensed one or more inhaled corticosteroids in one year.</td>
<td>Asthma Data Workgroup</td>
</tr>
<tr>
<td>The percent of ED visits for asthma among insured Oregonians aged 4–55.</td>
<td>Asthma Data Workgroup</td>
</tr>
<tr>
<td>The percent of ED visits for asthma among insured Oregonians aged 4–55 that were followed by an outpatient respiratory visit within 30 days.</td>
<td>Asthma Data Workgroup</td>
</tr>
</tbody>
</table>
| The percent of survey respondents who answered “yes” to all of the following questions:  
  • Has a doctor or nurse explained each of the following to you:  
  • What to do when you have a severe attack? | Oregon Survey of Adult Asthma |
- How to adjust medication when your asthma gets worse?
- What things can make your asthma worse and how to avoid them?

| The number of health plans that use the Technical Specifications for Quantifying Measures in the Guide to Improving Asthma Care in Oregon: Measuring Quality of Care in Health Systems to measure their asthma care. | Asthma Data Workgroup Survey of health systems and plans |
| The number of health systems/plans in Oregon that provide asthma pharmacy data to medical practitioners on a timely basis. | Asthma Data Workgroup Survey of health systems and plans |
| The number of health plans in Oregon that provide the following services:  
  - Asthma medication  
  - Asthma education  
  - Tobacco cessation | Make it Your Business Campaign Report/Survey of health systems and plans |
| The proportion of adult Oregonians with asthma who report that their doctor or other healthcare provider ever gave them information on how to avoid the things that make their asthma worse. | BRFSS |
| The proportion of adult Oregonians with asthma who do not smoke tobacco. | BRFSS |
| The proportion of adult Oregonians with asthma who are not exposed to secondhand tobacco smoke in a typical week. | BRFSS |
| The proportion of adult smokers who report having smoke-free homes. | BRFSS |
| The proportion of survey respondents who indicated that the following statement is true: “I recognize things that make my asthma worse.” | Oregon Survey of Adult Asthma |
| The proportion of adult Oregonians with asthma who report that their doctor or other healthcare provider ever gave them information on “how to identify things that make their asthma worse and how to avoid them?” | Oregon Survey of Adult Asthma |
| The number of businesses or people signed up to receive Clean Air Action Day Advisories. | Clean Air Action |
| The percent of Oregon schools that responded “yes” to the following questions:  
  - Does your school have an Indoor Air Quality Management Plan?  
  - Do facilities and maintenance staff conduct routine procedures to check and maintain the level of indoor air quality? | Oregon School Health Policies and Practices Study |
| The percent of Oregon Schools that responded “yes” to the following questions:  
  - Does your school identify and track all students with asthma?  
  - Does your school identify and track student absences, which are reported to be asthma related? | CDC School Health Profiles |
| The percent of Oregon Schools that responded “yes” to the following questions:  
  - Does your school educate school staff about asthma?  
  - Does your school educate students with asthma about | CDC School Health Profiles |
asthma management?

- Does your school teach asthma awareness to all students in at least one grade?

The percent of Oregon Schools that responded “yes” to the following questions:

- Does your school obtain and use an Asthma Action Plan (or individualized Health Plan) for all students with asthma?
- Does your school provide intensive case management for students with asthma who are absent 10 days or more per year?

| Number of schools who have Title 1-A targeted assistance status and have participated in an American Lung Association of Oregon program, or are an Asthma Friendly School. | Oregon Department of Education Title 1-A School-wide/TAS database |
| Number of schools who have Title 1-A school wide status and have participated in an American Lung Association of Oregon program, or are an Asthma Friendly School. | Oregon Department of Education Title 1-A School-wide/TAS database |
| Total number of schools that participated in an American Lung Association of Oregon Program, or are an Asthma Friendly School (includes schools not eligible for Title 1-A status). | Oregon Department of Education Title 1-A School-wide/TAS database |
| The percent of Oregon worksites that offer employees classes, workshops, lectures or special events on smoking cessation. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that offer employees classes, workshops, lectures, or special events on managing chronic disease. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that offer employees pamphlets, books, newsletters, or videos on smoking cessation. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that offer employees pamphlets, books, newsletters, or videos on managing chronic disease. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that have written policies reinforcing Oregon’s Smokefree Workplace Law. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that have posters about Oregon’s Smokefree Workplace Law in addition to the signs that the law requires to be posted at all entrances. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites where smoking is not allowed at any entrance. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that encouraged employees to participate in community stop smoking programs. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that offer flu shots to employees, but not as part of the employees’ health insurance or job entrance exam. | Oregon Healthy Worksite Assessment |
| The percent of Oregon worksites that refer people with known chronic disease for free or discounted disease self-management classes. | Oregon Healthy Worksite Assessment |
Quality of Care, Asthma Performance Improvement and the Asthma Surveillance System

The Oregon Asthma Program has completed and continues some leading work on ways to measure quality of asthma care and linking it with performance improvement efforts within clinical settings.

Asthma Data Workgroups

Two asthma data workgroups work in collaboration with the OAP. The first is the Asthma Data Workgroup (ADWG). This workgroup is a partnership between OAP and Oregon’s largest private and Medicaid health plans. The second workgroup includes the Oregon Division of Medical Assistance Programs (DMAP), Quality and Performance Improvement Workgroup (QPIWG). DMAP administers state health insurance programs including Medicaid and the Children’s Health Insurance Plan. Through this workgroup, OAP measures and reports asthma data consistently across all OHP managed health plans and OHP members not in managed health plans. Oregon is the only state accessing asthma data for the entire Medicaid and Chip population (Garland 2010).

The OAP developed the Guide to Improving Asthma Care in Oregon: Indicators for Quality Care in Health Systems (the Guide). This Guide was developed with the OAP and multiple partners to provide population-based indicators that health plans and systems could calculate to monitor the quality of medical care for people with asthma. The end goal of the Guide is to develop simple, quality of care recommendations that included population-based goals and indicators.

The guide promotes “consistent treatment of people with asthma and to facilitate optimal delivery of asthma care in the primary care setting.” The Guide is “based on a set of procedures that are clinically relevant and measurable for defined populations and therefore lend themselves to systematic monitoring.”

The Guide was developed in 2001 and updated in 2005 and 2008 through the collaboration of health professionals, health plan administrators, researchers, pharmacist, quality auditors, professional organizations, and persons with asthma. The Guide based its policies and measurements on the NAEPP guidelines for the Diagnosis and Management of asthma and the expert panel report guidelines for the diagnosis and management of asthma-update on selected topics 2002 and 2007.

The guide contains detailed information about:

1. Clinical Recommendations
2. Quality measurements
3. Quality outcomes

In order for the OAPSS to capture asthma data and quality of care data, a common definition must exist. Technical specifications for measure asthma care in Oregon accompany the Guide. The technical specifications establish patient eligibility criteria, asthma case definitions, and other information necessary to quantify the measures.
Private health plans provide surveillance data voluntarily or they provide it as part of their quality improvement requirements for receiving Medicaid and SCHIP funding.

**Oregon Laws**

Oregon does not have any laws that specify asthma data collection and the laws do not require a statewide registry. However, the OAP works under other public health related laws. They gather death data from the authority of the state to capture vital statistics, share, publish, and distribute the data. In addition, the program gathers medical claim data based upon a law giving the Oregon Department of Human Services the authority to abstract data from all hospitals for discharged patients.
Appendix G: Utah Case Study

Background

The Utah Asthma Program (OAP) was created in 2001 with funding from the Centers for Disease Control and Prevention (CDC) National Asthma Program. Two epidemiologists, one who also serves as the program evaluator; a program manager; and a health program specialist staff the asthma program. The program is part of the Utah Department of Health’s Bureau of Health Promotion.

Utah Asthma Program Surveillance System

General Description

The Utah Asthma Program Surveillance System is intended to “provide stakeholders with the most pertinent and up-to-date information on the burden of asthma in the state,” with an ultimate goal of reducing that burden and increasing “the quality of life for persons with asthma.”

The surveillance system provides data that is actively used by the Utah Asthma Program to “maintain awareness” of the disease and to develop, guide, and evaluate programs, as well as public health interventions.

The Utah Asthma Program collects asthma data from a variety of sources in Utah in order to provide information to stakeholders and to inform program development. In program development, the data is used to identify target populations that can benefit from program services and guidance. The surveillance system is also useful in tracking the success of asthma program interventions. Data is collected on an ongoing basis, allowing for program staff to monitor changes in data, and adjust program elements accordingly over time.

Program Description

Epidemiologists from the Utah Asthma Program administer the surveillance system. The epidemiologists gather existing data from a number of sources, including surveys, public health records, and statistics. The majority of the data come from various offices in the Utah Department of Health, including the Office of Public Health Assessment, Office of Vital Records and Statistics, Office of Health Care Statistics, Division of Health Care Financing, and the Tobacco Prevention and Control Program. From most sources, data collection is ongoing. Data include information from the Behavioral Risk Factor Surveillance System (BRFSS) survey, Utah Youth Tobacco Survey (YTS), the Youth Risk Behavior Survey (YRBS), and the Student Health and Risk Prevention (SHARP) Statewide Survey. Data from death certificates, inpatient hospital discharges, and emergency departments is also collected, in addition to data from the Consumer Assessment of Healthcare Providers and Systems (CAHPS), Healthcare Effectiveness Data and Information Set (HEDIS), Commercial HMO, Medicaid, and Children’s Health Insurance Program (CHIP). Data are also derived from the Utah Department of Environmental Quality.

---

8 Calanan, 2008.
Data on youth are derived from two school-based surveys: the YRBS, which monitors health risk behaviors among adolescents (9th through 12th grades) in Utah; and the Prevention Needs Assessment, which is part of SHARP, that collects data from youths in grades 6, 8, 10, and 12 (some samples are taken from grades 7, 9, and 11). The SHARP survey focuses on “adolescent substance use, anti-social behavior, and the risk and protective factors that predict these adolescent problem behaviors.” Both the SHARP and YRBS are administered every two years. Utah School Health Profiles are two surveys, one of school principals, one of lead health education teachers that also include asthma management activity.

Hospital data is obtained from the Utah Inpatient Hospital Discharge Database. This database draws information from billing forms. Data obtained includes emergency room billing information, patient characteristics, medical codes, and services received for in-patient hospital stays. The Utah Emergency Department Encounter Databases provides similar information to the hospital data: emergency room billing information, patient characteristics, medical codes, and services received. Death certificates are obtained from the Utah Death Certificate Database.

A Utah Asthma Program surveillance team sets surveillance targets using the Health People 2020 Asthma Objective.9

**DATA MANAGEMENT**

Data are managed by the program from which they originate. Once obtained, Utah Asthma Program epidemiologists manage and analyze the data (that is unidentified or de-identified prior to obtainment) in the surveillance system.

An Asthma Case Definition Work Group reviewed and developed preliminary definitions for mortality and hospital discharge case classification, prevalence case definition, and clinical and laboratory case definitions.

**BUDGET**

The Utah Asthma Program receives 100 percent of its funding from the Centers for Disease Control and Prevention National Asthma Program. Though limited information was available on budget, the program seems to operate on an annual budget of $300,000 to $400,000. In 2008, the program’s budget was $335,000. In 2010, the CDC obligated $396,000 to Utah’s asthma program.

**INTEGRATION WITHIN CHRONIC DISEASE**

In addition, Utah has made efforts to integrate the asthma program and surveillance as part of chronic disease. The surveillance system provides data that is actively used by the Utah Asthma Program to “maintain awareness” of the disease and to develop, guide, and evaluate programs, as well as public health interventions.

---

Publications

The program publishes a statewide report that summarizes data from the surveillance system. The report is intended to inform stakeholders about the extent of asthma’s burden on Utah. The program aims to publish a burden report every two to three years. Thus far, two burden reports have been published, one in 2009 and one in 2012. The program also publishes more targeted burden reports that concentrate on sub-populations, such as youth or the elderly. Other reports published recently within the program are also based on the data gathered through the surveillance system. These reports include asthma trigger reports (for such issues as indoor air quality triggers and secondhand smoke) and health care utilization reports.

Interventions

Most of the asthma program’s work is driven by the data collected in the surveillance system. An evaluation of the program states, “Each intervention should be data-driven and have an evaluation component. Surveillance data is (or should be) used to guide planning of these interventions, to help evaluate their effectiveness, and also to determine specific focus areas in grant writing.”

Interventions listed by the program include work focused on schools, child care facilities, professional education, work-related asthma, indoor and outdoor environmental factors, asthma in the elderly, and coordination with other public health interventions.

Online Data Access

Data from asthma surveillance system is included in the Utah Department of Health’s Indicator-Based Information System for Public Health (IBIS-PH). This public health database allows public access to an abundance of asthma-related data, including child and adult prevalence, asthma management, and asthma emergency department and hospital visits. The data also provides data on indicators for air quality factors that are linked with asthma.

The epidemiologists use IBIS for pulling data and displaying data. Internally, the epidemiologists have access to data that may not be accessible to the public. They are able to pull data, such as vital statistics data, and analyze it in a meaningful way for the asthma program. This part of IBIS is useful and easy to the staff. In addition, the Utah Asthma Program uses IBIS to display data indicators and related links and information for individuals interested in more information about asthma.

Asthma-Related Air Quality Monitoring and Guidance

The Utah Asthma Program works with agency partners to monitor air quality, including ozone, temperature inversions, and particulate levels and provide education and intervention for respiratory health in the state. The Utah program provides air quality guidelines for the general population, as well as for especially sensitive populations such as very young children and the elderly.

---

10 Calanan, 2008.
Recess Guidelines

Utah provides air quality guidelines for schools to follow in determining when to cancel recess or other outdoor activities due to poor air quality. The guidelines work to balance the benefits of outdoor exercise with respiratory health. In practice, the guidelines are only useful for schools with access to air quality monitoring station results for their area. The guidelines are provided to assist with school decisions, though school officials are not under any legal obligation to follow the guidelines. The guidelines were developed through a partnership between the Utah Department of Environmental Quality, the State Office of Education, and the Utah Department of Health.

Ozone Guidelines

High ozone days occur in Utah, especially in Salt Lake County where high ozone days were recorded for over 40 days between 2001 and 2011. Utah has established an ozone education program that provides information on ozone season, as well as recommendations for outdoor activity during ozone season, and a symptom tracking worksheet for individuals to track their symptoms and associated ozone levels.

Inversion Research

The Utah Asthma Program collaborated with a number of different agency partners at the Utah Departments of Health and Environmental Quality, as well as with the National Weather Service on a project to analyze linkages between asthma prevalence and air quality. Utah Asthma Program surveillance system data was used for this analysis, along with other state and national data. Specifically, the study examined the implications of PM 2.5 levels for people with asthma during temperature inversions. Researchers examined the data for possible associations between the frequency of emergency department visits and either wintertime inversions or increases in ambient levels of PM 2.5. The study found a correlation between the length of an inversion and the frequency of emergency department visits due to asthma (days 5-7 of an inversion were associated with a 42 percent increase in the probability of an emergency department visit with a primary diagnosis for asthma). This one-time study is not part of ongoing surveillance of these factors.

UTAH ASTHMA PLAN 2012-2016

In an effort to attain and disseminate quality data, the Utah Asthma Program outlines a series of steps in the 2012-2016 Utah Asthma Plan designed to improve the asthma surveillance system. These steps include:

- Fill exiting data gaps by adding at least one new data source to the surveillance system.
- Disseminate surveillance system data to appropriate stakeholders through IBIS, burden reports, information for specific audiences, and data for use in annual strategic planning and interventions related to asthma.
- Improve existing data sources.

---

11 High ozone days occur when the maximum 8-hour average ozone concentrations are over the National Ambient Air Quality Standard.
• Utilize the Utah Asthma Task Force to maintain surveillance system infrastructure.12

**SYSTEM ADVANTAGES**

The Utah Asthma Program data surveillance system demonstrates a number of elements that are instructive models for development of a system in Alaska.

• Simplicity. Utah’s passive system is simple in that it consolidates existing data from IBIS and other easy to access sources. Such simplicity in access to data makes the system easy to operate, requiring little training or coordination. Additionally, data collection and management are not overly time consuming, and data management does not require data entry or editing. The system has the potential to become more complex if more outside sources of data utilized (such as pharmacy and air quality data).

• Flexibility. Additional data sources can be incorporated relatively efficiently into the system. Also, asthma-related questions can be amended and added to BRFSS (and the YTS and YRBS with a bit more effort) depending on program interests. In addition to data-related flexibility, funding, apart from funding for the asthma program epidemiologist, would likely not greatly impact the system, as most data sources are pre-existing.

• Quality Data. Generally, according to a 2008 evaluation of the system, the quality of data included in the system accurately describes the burden of asthma on the state. This conclusion seems to relate mostly to BRFSS data, while evaluation cites concerns with the quality of several other data sources in the system.13

• Ease of Use. The data is available through a number of different formats, including written reports and online formats. Online accessibility for the public, through IBIS, is an important component of the program’s overall effectiveness.

• Timeliness. Data is available in system within a few months of publication. Thus, annual trends are easier to identify.

**SYSTEM WEAKNESSES**

According to program evaluations, several data sets within the Utah surveillance system can be improved or supplemented. Data, especially for very young or elderly segments of the population, is sensitive to possibilities for under-reporting, partially because of definitions used for asthma (doctor-diagnosed versus symptom-driven). As an example, asthma mortality data issues arise from death certificate data, as this data set may underestimate asthma-related mortality.

A chart in the 2008 system evaluation summarizes the effectiveness of system components.

---

13 Calanan, 2008.
### Summary of the Attributes of the Asthma Surveillance System\(^\text{14}\)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>BRFSS</th>
<th>YRBS</th>
<th>YTS</th>
<th>Vital Records</th>
<th>Hospital</th>
<th>ED</th>
<th>HEDIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simplicity</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Very Good</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Poor</td>
</tr>
<tr>
<td>Data Quality</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td>-</td>
</tr>
<tr>
<td>Acceptability</td>
<td>Very Good</td>
<td>Good</td>
<td>Good</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Very Good</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Good?</td>
<td>Good?</td>
<td>Good?</td>
<td>Fair</td>
<td>Fair</td>
<td>Fair</td>
<td>Very Good</td>
</tr>
<tr>
<td>Representativeness</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Good</td>
</tr>
<tr>
<td>Timeliness</td>
<td>Very Good</td>
<td>Fair</td>
<td>Fair</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Very Good</td>
</tr>
<tr>
<td>Stability</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Very Good</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Excellent</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^{14}\) Reproduced from the 2008 Evaluation of the Utah Asthma Program Surveillance System.
Appendix H: List of Key Informants

- Mary Bell, Nurse Consultant II, Health & Social Services, Women’s, Children’s, and Family Health
- Stephanie Wrightsman-Birch, Public Health Nurse V, Health & Social Services, Women’s, Children’s, and Family Health
- Jeffrey Demain, Physician, Allergy, Asthma, and Immunology Center of Alaska, LLC.
- Deborah Erickson, Executive Director, Health & Social Services, Commissioner’s Office
- Andrea Fenaughty, Health Program Manager III, Health & Social Services, Chronic Disease
- David Frankl, Physician, Alaska Veterans Affairs Healthcare System
- Yvonne Goldsmith, Health Program Manage III, Health & Social Services, Women’s, Children’s, and Family Health
- Mary Ellen Gordian, Retired Professor, University of Alaska
- Richard Hall, Director of Statewide Health Information Management Services, Alaska Native Tribal Health Consortium
- Rebecca Madison, Executive Director, Alaska eHealth Network
- Stephanie Monahan, Executive Director, All Alaska Pediatric Partnership
- Alice Rarig, Planner IV, Health & Social Services, Health Planning and Systems Development
- Melinda Rathkopf, Physician, Allergy, Asthma, and Immunology Center of Alaska, LLC.
- Troy Ritter, Applied Sciences Manager, Alaska Native Tribal Health Consortium
- Brian Saylor, Retired Professor, University of Alaska Institute of Circumpolar Health
- Gail Schiemann, Senior Manager of Health Education, American Lung Association in Alaska
- Rosalyn Singleton, Immunization Consultant, Pediatrician, Alaska Native Tribal Health Consortium
- Beverly Stewart, Regional Director of Health Initiatives, American Lung Association of the Mountain Pacific
- Marge Stoneking, Director, American Lung Association in Alaska
- William Streur, Commissioner, Health & Social Services
- Rebecca Topol, Health Program Manager III, Health & Social Services, Chronic Disease
- Thad Woodard, Pediatrician, Alaska Center for Pediatrics
- Charles Utermohle, Public Health Specialist II, Health & Social Services, Chronic Disease
- Margaret Young, Public Health Specialist II, Health & Social Services, Women’s, Children’s, and Family Health
Appendix I: CUBS Questions

CUBS Phase 2 Questions - 2008

- For each item, circle Y (Yes) if a health care provider has ever said your child had the condition or circle N (No) if not.
  - Asthma or wheezing treated with inhalers, puffers or nebulizer.
- Is there any mold or mildew larger than the size of a dollar bill on any surface inside your home? (No/Yes)
- Which of the following statements best describes the rules about smoking inside your home?
  - No one is allowed to smoke anywhere inside my home.
  - Smoking is allowed in some rooms or at some times
  - Smoking is allowed anywhere inside my home

CUBS Phase 3 Questions – 2009-2011

- For each item, circle Y (Yes) if a health care provider ever told you your child had the condition, even if he or she does not have the condition now, or circle N (No) if not.
  - Asthma or wheezing treated with inhalers, puffers or nebulizers
Appendix J: School District Asthma Screening Program

Please complete the following regarding your child’s breathing.

1. Ever diagnosed with asthma Y/N If yes, is an inhaler use Y/N.

2. During the last two years, has your child had repeated episodes of any of the following health conditions?
   a. Asthma (Y/N)
   b. Cough (Y/N)
   c. Trouble breathing (Y/N)
   d. Chest tightness (Y/N)
   e. Bronchitis (Y/N)

3. During the last two year, has your child been treated in an emergency room or hospital for episodes of cough, chest tightness, trouble breathing or wheezing? (Select the one best answer)
   a. Never
   b. One time
   c. Two times
   d. Three times
   e. Four times

4. How often does your child miss school because of cough, chest tightness, trouble breathing or wheezing?
   a. Never
   b. <5 days per year
   c. 5-10 days per year
   d. >10 days per year

5. Does your child have episodes of cough, chest tightness, trouble breathing or wheezing (select the one best answer):
   a. Never
   b. Rarely
c. Sometimes

d. Often

e. Most of the time

6. **In the past four weeks, how often has your child used a medicine (syrup, inhaler, or breathing machine) to treat episodes of cough, chest tightness, trouble breathing, or wheezing?**

   a. Never

   b. <2 days week

   c. 2 or more but not every day

   d. Every day

   e. > once a day on most days

7. **In the past four weeks, how often has your child had episodes of cough chest tightness, trouble breathing, or wheezing in the morning or in the day time?**

   a. Never

   b. <2 days week

   c. 2 or more but not every day

   d. Every day

   e. > once a day on most days
Appendix K: School Health Profiles

This appendix contains the asthma-specific questions to previous School Health Profiles, the summarized questions systematically reported, and the future 2014 asthma-related questions.

Previous School Health Profiles Asthma Questions

Is there a full-time registered nurse who provides health services to students at your school? (A full-time nurse means that a nurse is at the school during all school hours, 5 days per week.) (Mark one response.)

a. Yes
b. No

At your school, how many students with known asthma have an asthma action plan on file? (Students with known asthma are those who are identified by the school to have a current diagnosis of asthma as reported on student emergency cards, medication records, health room visit information, emergency care plans, physical exam forms, parent notes, and other forms of health care clinician notification.) (Mark one response.)

a. This school has no students with known asthma.
b. All students with known asthma have an asthma action plan on file.
c. Most students with known asthma have an asthma action plan on file.
d. Some students with known asthma have an asthma action plan on file.
e. No students with known asthma have an asthma action plan on file.

At your school, which of the following events are used to identify students with poorly controlled asthma? (Mark all that apply.)

a. This school does not identify students with poorly controlled asthma.
b. Frequent absences from school
c. Frequent visits to the school health office due to asthma
d. Frequent asthma symptoms at school
e. Frequent non-participation in physical education class due to asthma
f. Students sent home early due to asthma
g. Calls from school to 911, or other local emergency numbers, due to asthma

Does your school provide each of the following services for students with poorly controlled asthma? (Mark yes or no for each service.)

<table>
<thead>
<tr>
<th>Service</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Providing referrals to primary healthcare clinicians or child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>health insurance programs ..................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. Ensuring an appropriate written asthma action plan is obtained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. Ensuring access to and appropriate use of asthma medications,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spacers, and peak flow meters at school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>d. Offering asthma education for students with asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>e. Minimizing asthma triggers in the school environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>f. Addressing social and emotional issues related to asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g. Providing additional psychosocial counseling or support services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>as needed .............................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>h. Ensuring access to safe, enjoyable physical education and activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>opportunities .......................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>i. Ensuring access to preventive medications before physical activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.................................................................................................</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
How often are school staff members required to receive training on recognizing and responding to severe asthma symptoms? (Mark one response.)

a. More than once per year  
b. Once per year  
c. Less than once per year  
d. No such requirement

Has your school adopted a policy stating that students are permitted to carry and self-administer asthma medications?

a. Yes  
b. No  → Skip to Q48

Does your school have procedures to inform each of the following groups about your school’s policy permitting students to carry and self-administer asthma medications? (Mark yes or no for each group.)

<table>
<thead>
<tr>
<th>Groups</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Students</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. Parents and families</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

At your school, who is responsible for implementing your school’s policy permitting students to carry and self-administer asthma medications? (Mark one response.)

a. No single individual is responsible  
b. Principal  
c. Assistant principal  
d. School nurse  
e. Other school faculty or staff member

FAMILY AND COMMUNITY INVOLVEMENT

During the past two years, have students’ families helped develop or implement policies and programs related to each of the following topics? (Mark yes or no for each topic.)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. HIV, STD, or teen pregnancy prevention</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. Tobacco-use prevention</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. Physical activity</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>d. Nutrition and healthy eating</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>e. Asthma</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

During the past two years, have community members helped develop or implement policies and programs related to each of the following topics? (Mark yes or no for each topic.)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. HIV, STD, or teen pregnancy prevention</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>b. Tobacco-use prevention</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>c. Physical activity</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>d. Nutrition and healthy eating</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>e. Asthma</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
SCHOOL HEALTH PROFILES SUMMARIZED REPORT

The following list contains the asthma-related data calculated from the questions listed in the previous section.

- Percentage of schools with a full-time registered nurse who provides health services to students at school.

- Percentage of schools that implemented a policy permitting students to carry and self-administer asthma medications by communicating the policy to students, parents, and families, and by designating an individual responsible for implementing the policy.

- Percentage of schools that had an asthma action plan on file for all students with known asthma.

- Percentage of schools that identified students with poorly controlled asthma by keeping track of them in at least three different ways.

- Percentage of schools that provided intensive case management for students with poorly controlled asthma at school.

- Percentage of schools that required all school staff members to receive annual training on recognizing and responding to severe asthma symptoms.

- Percentage of schools that provided parents and families with health information to increase parent and family knowledge of asthma.

2014 ASTHMA-RELATED SURVEY QUESTIONS

With respect to asthma-related questions, the 2014 principal survey asks:

- Has your school ever used the School Health Index or other self-assessment tool to assess your school’s policies, activities, and programs in the following area? Asthma (Y/N)

- Does your school have a protocol that ensures students with a chronic condition that may require daily or emergency management (e.g. asthma, diabetes, food allergies) are enrolled in private, state or federally funded insurance program if eligible? (Y/N)

- Does your school routinely use school records to identify and track students with a current diagnosis of the following chronic conditions? School records might include student emergency cards, medication, records, health room visit information, emergency care and daily management plans, physical exam forms, or parent notes. (Mark yes or no for each condition) Asthma (Y/N)

- Does your school provide referral to any organization or health care professional not on school property for students diagnosed with or suspected to have any of the following chronic conditions? Include referrals to school-based health centers, even if they are located on school property. (Mark yes or not for each condition). Asthma (Y/N)
With respect to asthma-related questions, the 2014 teacher survey asks:

- **During this school year, have teachers in your school tried to increase student knowledge on each of the following topics in a required course in any of grades 6 through 12?** (Mark yes or no for each topic).
  Asthma (Y/N)

- **During the school year, did your school provide parents and families with health information designed to increase parent and family knowledge of each of the following topics?** (Mark yes or not for each topic.)
  Asthma (Y/N)

- **Would you like to receive professional development on each of the following topics?** (Mark yes or no for each topic)
  Asthma (Y/N)

- **During the past two years, did you receive professional development (e.g. workshops, conferences, continuing education, or any other kind of in-service) on each of the following topics?** (Mark yes/no for each topic)
  Asthma (Y/N)
## Appendix L: Healthy People 2020 Goals

### Healthy People 2020 Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Population</th>
<th>Target</th>
<th>Baseline</th>
<th>Data Source</th>
<th>Alaska</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 1 (RD-1): Reduce deaths from asthma</strong></td>
<td>Children &amp; adults under 35 years</td>
<td>Not Set</td>
<td>3.4 per million¹</td>
<td>NVSS-M, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults aged 35-64</td>
<td>6.0 per million</td>
<td>11.0 per million¹</td>
<td>NVSS-M, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults aged 65 &amp; older</td>
<td>22.9 per million</td>
<td>43.3 per million¹</td>
<td>NVSS-M, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 2 (RD-2): Reduce hospitalizations for asthma</strong></td>
<td>Children under 5 years</td>
<td>18.1 per 10,000</td>
<td>41.4 per 10,000¹</td>
<td>NHDS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children &amp; adults aged 5-64</td>
<td>8.6 per 10,000</td>
<td>11.1 per 10,000¹</td>
<td>NHDS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults aged 65 &amp; older</td>
<td>20.3 per 10,000</td>
<td>25.3 per 10,000¹</td>
<td>NHDS, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 3 (RD-3): Reduce emergency department visits for asthma</strong></td>
<td>Children under 5 years</td>
<td>95.5 per 10,000</td>
<td>132.7 per 10,000²</td>
<td>NHAMCS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children and adults aged 5-64</td>
<td>49.1 per 10,000</td>
<td>56.4 per 10,000²</td>
<td>NHAMCS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults aged 65 &amp; older</td>
<td>13.2 per 10,000</td>
<td>21.0 per 10,000²</td>
<td>NHAMCS, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 4 (RD-4): Reduce activity limitations</strong></td>
<td>Persons with current asthma</td>
<td>10.2%</td>
<td>12.7%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 5 (RD-5): Reduce school or workdays missed</strong></td>
<td>Children with asthma aged 5-17</td>
<td>48.7%</td>
<td>58.7%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults with asthma aged 18-64</td>
<td>26.8%</td>
<td>33.2%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 6 (RD-6): Increase formal patient education</strong></td>
<td>Persons with current asthma</td>
<td>14.4%</td>
<td>12.1%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td><strong>Respiratory Diseases</strong></td>
<td><strong>Asthma 7 (RD-7): Increase proportion of persons with current asthma who receive</strong></td>
<td>Persons who receive written asthma management plans from health care provider</td>
<td>36.8%</td>
<td>33.4%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Persons with prescribed inhalers who receive instruction on use</td>
<td>Not set</td>
<td>95.9%³</td>
<td>NHIS, CDC, NCHS</td>
</tr>
<tr>
<td>Persons who receive education about appropriate response to asthma episode, including recognizing early signs and symptoms or monitoring peak flow results</td>
<td>68.5%</td>
<td>64.8%³</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------</td>
<td>-------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons who do not use more than one canister of short-acting inhaled beta agonist per month</td>
<td>90.2%</td>
<td>87.9%³</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons who have been advised by health professional to change things in home/school/work environment to reduce exposure to irritants or allergens to which they are sensitive</td>
<td>54.5%</td>
<td>50.8%³</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons who have had at least one routine follow-up visit in past 12 months (Developmental)</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persons whose doctor assessed their asthma control in past 12 months (Developmental)</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults who have discussed with doctor whether asthma was work related (Developmental)</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>NHIS, CDC, NCHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase numbers of States, Territories, and District of Columbia with comprehensive asthma surveillance systems at the State level</td>
<td>47 areas</td>
<td>43 areas⁴</td>
<td>NACP, NCEH, CDC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Baseline data from 2007.
²Baseline data from the 2005-2007 time period.
³Baseline data from 2008.
⁴Baseline data from 2009.
Note: See Appendix A for abbreviation descriptions.
# Appendix M: National Environmental Health Tracking Program Measures

## National Environmental Health Tracking Program Measures Related to Asthma

<table>
<thead>
<tr>
<th>Measure</th>
<th>Data Source</th>
<th>Alaska</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asthma Prevalence among Adults</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of adults ever diagnosed with asthma</td>
<td>BRFSS</td>
<td>✓</td>
</tr>
<tr>
<td>Percent of adults ever diagnosed with asthma who report they currently have asthma</td>
<td>BRFSS</td>
<td>✓</td>
</tr>
<tr>
<td>Percent of adults with active asthma diagnosed within the past five years</td>
<td>BRFSS</td>
<td></td>
</tr>
<tr>
<td>Percent of adults with active asthma with an attack in the past year</td>
<td>BRFSS</td>
<td></td>
</tr>
<tr>
<td>Percent of adults with active asthma with one or more routine doctor’s visits in the past year</td>
<td>BRFSS</td>
<td></td>
</tr>
<tr>
<td><strong>Asthma Prevalence among Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of children ever diagnosed with asthma</td>
<td>BRFSS</td>
<td></td>
</tr>
<tr>
<td>Percent of children ever diagnosed with asthma who currently have asthma</td>
<td>BRFSS</td>
<td></td>
</tr>
<tr>
<td><strong>Emergency Department Visits for Asthma</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual age-adjusted rate of emergency department visits for asthma per 10,000 population</td>
<td>State ER Data</td>
<td>✓*</td>
</tr>
<tr>
<td>Annual crude rate of emergency department visits for asthma per 10,000 population</td>
<td>State ER Data</td>
<td>✓*</td>
</tr>
<tr>
<td>Annual number of emergency department visits for asthma</td>
<td>State ER Data</td>
<td>✓*</td>
</tr>
<tr>
<td><strong>Hospitalizations for Asthma</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age-adjusted rate of hospitalization for asthma per 10,000 population</td>
<td>Hospital Discharge Data</td>
<td>✓*</td>
</tr>
<tr>
<td>Crude rate of hospitalization for asthma per 10,000 population</td>
<td>Hospital Discharge Data</td>
<td>✓*</td>
</tr>
<tr>
<td><strong>Annual PM2.5 Levels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual average ambient concentrations of PM2.5 in micrograms per cubic meter (based on seasonal averages and daily measurement) (Monitor + Modeled)</td>
<td>EPA</td>
<td>✓*</td>
</tr>
<tr>
<td>Annual average ambient concentrations of PM2.5 in micrograms per cubic meter (based on seasonal averages and daily measurement) (Monitor only)</td>
<td>EPA</td>
<td>✓*</td>
</tr>
<tr>
<td><strong>PM2.5 Days above Regulatory Standard (Monitor + Modeled)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of days with PM2.5 levels over the standard</td>
<td>EPA</td>
<td></td>
</tr>
<tr>
<td>Number of person-days with PM2.5 over the standard</td>
<td>EPA</td>
<td></td>
</tr>
<tr>
<td><strong>PM2.5 Days above Regulatory Standard (Monitor Only)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of days with PM2.5 levels over the National Ambient Air quality Standard (NAAQS)</td>
<td>EPA</td>
<td>✓*</td>
</tr>
<tr>
<td>Number of person-days with PM2.5 over the National Ambient Air Quality Standard</td>
<td>EPA</td>
<td>✓*</td>
</tr>
</tbody>
</table>
### Air Quality & Mortality Benefits

<table>
<thead>
<tr>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number of deaths prevented</td>
<td>EPA</td>
</tr>
<tr>
<td>Estimated percent change in death rate from baseline</td>
<td>EPA</td>
</tr>
<tr>
<td>Ranked grouping of counties based on percent change in death rate from baseline</td>
<td>EPA</td>
</tr>
</tbody>
</table>

\*\* denotes available, but not necessarily reliable.
Appendix N: List of Measures Presented in the Asthma Burden Reports

Alaska Asthma Burden Reports

Two major asthma burden reports were written in Alaska: *Asthma in Alaska 2006 Report* and *Asthma in Alaska 2007 Report*. This section attempts to capture the measures reporting in these reports because efforts around asthma surveillance has changed over time. Some measures that were available for these reports may not be available at this time. If a measure was used in both reports, it was listed one time in the table. In other cases, additional data may be available. These measures are noted elsewhere. The following table summarizes the main indicators presented in these reports with their associated data source. The table shows if the data is systematically collected over time in other systems in Alaska and assigned an accessibility rating by the following accessibility ranking based upon information available in 2013:

1. Accessible without data request
2. Requires data request from hosting organization
3. Requires data request and analysis on data owner or data analyst
4. Not available at an Alaska level

### Asthma Burden Reports

<table>
<thead>
<tr>
<th>Measure</th>
<th>Data Source</th>
<th>Systematic</th>
<th>Accessible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime Asthma - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Gender - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Age Group - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Education - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Income - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Alaska Region - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Diabetes - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Weight - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Current Asthma by Smoking Status - Adults</td>
<td>BRFSS</td>
<td>√</td>
<td>1</td>
</tr>
<tr>
<td>Clinical Care – Adult Asthmatics</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Clinical Visits – Adult Asthmatics</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Clinical Complications – Adult Asthmatics</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Asthma Symptoms – Adult Asthmatics</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Asthma Medication – Adult Asthmatics</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Child ever had asthma</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Child currently has asthma</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Child Asthmatics living with smoker</td>
<td>BRFSS Asthma Call Back Survey</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Data Points</td>
<td>Data Source</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Child asthmatic living with home tobacco policy</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Child asthmatic by parental attitude toward cigarette smoke</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma prevalence</td>
<td>Medicaid</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma medication use</td>
<td>Medicaid</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Lifetime asthma by race/ethnicity and residence</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Current asthma by race/ethnicity and residence</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Clinical Visits – Adult Asthmatics by race and residence</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Clinical Complications – Adult Asthmatics by race and residence</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Asthma Symptoms – Adult Asthmatics by race and residence</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Asthma Medication – Adult Asthmatics by race and residence</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma prevalence by race and residence</td>
<td>Medicaid</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma medication use by race and residence</td>
<td>Medicaid</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma hospitalization by race and residence</td>
<td>Medicaid</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Asthma hospitalization rates by gender, primary diagnosis, &amp; age group</td>
<td>AHDD</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Asthma hospitalization charges</td>
<td>AHDD</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Pediatric asthma mortality</td>
<td>ABVS</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Asthma mortality</td>
<td>ABVS</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Former Asthma - Adults</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Asthma status by health status</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Asthma status by physical health</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Asthma status by activity limitations</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Worker’s Compensation respiratory illness claims</td>
<td>Worker’s Compensation</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Child currently has asthma by region</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Child currently has asthma by gender</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Child currently has asthma by poverty</td>
<td>BRFSS Asthma Call Back Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Asthma among Kindergarten &amp; 1st Grade Students – Anchorage</td>
<td>Asthma School Survey</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Inhaler Use in Schools - Anchorage</td>
<td>Anchorage School District</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Asthma &amp; Flu Shot or Spray</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Asthma &amp; Ever Had a Pneumonia Shot</td>
<td>BRFSS</td>
<td>√ 1</td>
<td></td>
</tr>
<tr>
<td>Modeled Asthma Outpatient Visits per 100,000</td>
<td>Calculated based upon national estimates</td>
<td>√ 3</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>Source</td>
<td>Notes</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>Asthma &amp; Visiting a Health Care Provider</td>
<td>BRFSS</td>
<td>✓</td>
<td>1</td>
</tr>
<tr>
<td>Alaska Community Health Center Visits</td>
<td>Alaska Community Health Centers</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Alaska Family Medicine Residency Program Asthma Visits by gender, age, &amp; month</td>
<td>Alaska Family Medicine Residency Program</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Length of Hospital Stays Days, Percentile</td>
<td>CMS</td>
<td>✓</td>
<td>3</td>
</tr>
<tr>
<td>Prices of Anchorage Asthma medications</td>
<td>Asthma Study</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Costs of Outpatient asthma Visits</td>
<td>DHHS OMB</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Costs of Emergency Department Asthma Visits</td>
<td>DHHS OMB</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>National Asthma Hospital Costs</td>
<td>CMS</td>
<td>✓</td>
<td>4</td>
</tr>
<tr>
<td>Medical Transport Flight Costs</td>
<td>Medicaid</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Mean Daily Charges for Asthma-Related DRGs</td>
<td>CMS</td>
<td>✓</td>
<td>3</td>
</tr>
<tr>
<td>Asthma hospitalization costs</td>
<td>AHRQ</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Pharmacy Costs</td>
<td>Unknown</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>