The Maine Asthma Coalition Strategic Plan (2019 - 2024)


Department of
Health and Human Services
DIRIGO
MAINE

CONTENTS

Introduction & Background

Maine Demographics and Background

Maine is a large, predominantly Caucasian, rural state. It has a population of 1,344,212 individuals and a population density of 43.6 persons per square mile. This contrasts with the United States population density of 86.2 persons per square mile. Within the state, the population is not evenly distributed, with larger population centers found in the southern and midcoast parts of the state and portions of the north, east and west primarily being forest. Maine also has a relatively older population, with a median age of 45.1 years compared to the U.S. age of 38.1 years. The percentage of the population that is identified as "white" is 94% in Maine compared to 72% in the United States.

Cities in Maine are generally small, especially compared to the Eastern United States. Portland, Maine's largest city, has a population of 66,595. Additionally, many of Maine's cities and towns are "mill towns", meaning they have been built around rivers with two cities geographically next to each other, but separated by a river and with separate governments and services. Examples of these include Portland/South Portland, Lewiston/Auburn, and Biddeford/Saco. Table 1 identifies relevant parameters of the counties within the State, including population centers found within those counties. Figure 1 shows the corresponding regions identified in Table 1.

Figure 1. Maine Counties and Regions

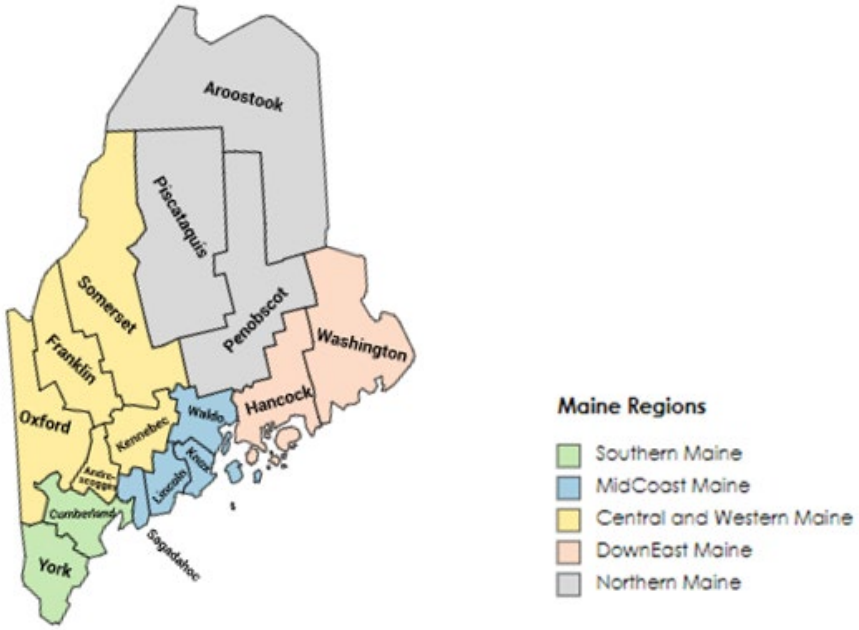


Table 1. Maine Demographics

Region	Population	Population Density (persons per square mile)	Median Household Income ($)	Poverty Rate (%)	Without Health Insurance (%)	Race (%)					Ethnicity (%)
						White	Black or African American	American Indian & Alaska Native	Asian	2+ Races	Hispanic or Latino
Maine	**1,344,212**	**43.6**	**$ 58,924**	**10.9**	**8.0**	**94.0**	**1.6**	**0.7**	**1.1**	**2.1**	**1.7**
United States	**328,239,523**	**86.2**	**$ 62,843**	**12.3**	**9.2**	**72.0**	**12.8**	**0.9**	**5.7**	**3.4**	**18.4**
SOUTHERN MAINE											
York County	204,316	206.3	$ 67,830	7.4	6.7	95.5	0.9	0.4	1.3	1.7	1.7
Biddeford City	21,462	563.3	$ 53,120	11.7		91.3	3.2	0.1	3.4	2.0	2.3
Saco City	19,497	506.4	$ 70,517	7.3		95.8	0.8	0.1	0.7	2.1	1.5
Cumberland County	292,307	349.9	$ 73,072	9.0	5.8	91.7	3.0	0.2	2.2	2.5	2.1
Portland City	66,595	3097.4	$ 60,467	14.6		84.6	8.4	0.2	3.5	2.9	3.0
South Portland City	25,548	2129.0	$ 69,290	8.8		89.8	4.3	0.3	1.6	3.4	2.8
MIDCOAST MAINE											
Lincoln County	34,201	75.1	$ 57,720	12.3	10.0	96.9	0.4	0.4	1.0	1.1	1.2
Knox County	39,759	108.9	$ 57,751	9.9	9.4	96.1	0.5	0.5	0.5	2.1	1.5
Sagadahoc County	35,452	139.6	$ 63,694	9.6	6.5	95.7	0.8	0.4	0.8	2.2	1.7
Waldo County	39,539	54.2	$ 51,931	13.5	11.1	96.2	0.6	0.4	0.5	1.9	1.5
CENTRAL AND WESTERN MAINE											
Somerset County	50,520	12.9	$ 44,256	20.4	9.4	96.5	0.6	0.5	0.4	1.9	1.1
Kennebec County	121,753	140.4	$ 55,365	12.8	7.4	95.7	0.9	0.5	0.9	1.7	1.6

Region	Population	Population Density (persons per square mile)	Median Household Income ($)	Poverty Rate (%)	Without Health Insurance (%)	Race (%)					Ethnicity (%)
						White	Black or African American	American Indian & Alaska Native	Asian	2+ Races	Hispanic or Latino
Franklin County	29,982	17.7	$ 51,422	11.5	10.0	96.5	0.2	0.1	0.4	2.4	1.3
Oxford County	57,550	27.7	$ 49,204	15.1	8.8	96.2	0.4	0.3	0.4	2.5	1.4
Androscoggin County	107,602	230.0	$ 53,509	11.8	8.0	91.4	2.4	0.2	0.8	5.0	1.9
Lewiston City	36,095	1058.5	$ 44,523	18.1		86.8	5.9	0.2	1.1	5.8	2.2
Auburn City	23,187	391.0	$ 49,719	11.3		91.0	1.3	0.2	1.2	5.7	2.0
DOWNEAST MAINE											
Hancock County	54,601	34.4	$ 57,178	10.5	10.2	95.9	0.9	0.5	1.1	1.4	1.5
Washington County	31,491	12.3	$ 41,347	18.9	12.1	90.8	0.8	5.3	0.5	2.1	2.4
NORTHERN MAINE											
Aroostook County	67,809	10.2	$ 41,123	16.1	8.4	94.9	1.0	1.9	0.5	1.6	1.2
Piscataquis County	16,836	4.3	$ 40,890	18.5	10.2	95.8	0.6	0.8	0.8	1.3	1.5
Penobscot County	151,774	44.7	$ 50,808	14.8	8.8	94.5	0.9	1.3	1.0	2.0	1.4
Bangor City	32,095	935.7	$ 46,625	18.9		90.6	1.8	1.2	2.5	3.1	2.0

Purpose of the Strategic Plan

Maine's 5 Year Asthma Strategic Plan was developed to coordinate and guide the activities of the Maine Asthma Coalition. The Strategic Plan is intended to address the state of Maine and includes the following elements:

- A description of the problem across the entire geographic area (Chapter 1)
- A description of groups experiencing the highest asthma burden, their unique needs, and methods for addressing those needs (Chapter 2)
- An assessment of the current availability of asthma control services (Chapter 3)
- A listing of strategic priorities to be accomplished and expected outcomes (Chapter 4)
- A description of activities to be implemented collaboratively by the Maine Center for Disease Control and Prevention Asthma Program (Maine CDC Asthma Program) and its partners (Chapter 4)
- A description of the roles of the Maine CDC Asthma Program and its lead partners (Chapter 4)
- A timeline for completion of the strategic priorities (Chapter 4)

While the Asthma Coalition's purpose in creating this Strategic Plan is to identify and implement strategic priorities for Maine, the most valuable outcome of this planning process has been the journey to produce the document. The process of developing this document has resulted in the sharing of ideas, development of relationships and coordination of efforts within the larger Maine asthma control community. The Strategic Plan has also been a living document, being developed, updated, reviewed, and modified during the grant period.

Role of the Asthma Coalition

The Maine Asthma Coalition is a group of diverse and enthusiastic partners of the Maine CDC Asthma Program that is dedicated to sharing data and resources as we collaborate to address the problem of asthma in Maine. Additionally, the Coalition was tasked with developing this 5-Year Asthma Strategic Plan to identify the strategic priorities and activities on which the group will work collaboratively. A list of organizations in the Coalition can be found in Appendix A.

Plan Development

The Asthma Coalition Strategic Plan was developed over a series of Asthma Coalition meetings held during the lifetime of the grant. Individual sections were presented to the Coalition by the Maine CDC Asthma Program and feedback and discussion were integrated into the plan.

Special Considerations

It is recognized that priorities change and resources during the COVID-19 pandemic have been variable and uncertain. As a result, the Strategic Plan was reviewed on an ongoing basis and adjustments were made as conditions changed.

Relevant asthma prevalence, population counts, and disparity data will be reviewed as available and monitored for evaluation purposes. Within this document, links to relevant data sources are the preferred method to address changes in data, rather than updating figures on a yearly basis. Listings of links to these data sources are available in the Data Sources sections.

Maine is unusual in that it is a primarily rural state with very large counties. Major portions of several counties are unorganized townships which have little to no populations. When evaluating geographic distribution of asthma, county maps or data can give a misleading view wherein a large proportion of the geography seems to have a high or low asthma rate, when, in fact, the population is small and/or concentrated in a small portion of the county. For that reason, identifying disparities in some manner other than geography is attempted where possible.

Asthma in Maine

The major points identified about prevalence of current asthma—defined by the Behavioral Risk Factor Surveillance System (BRFSS) as individuals that have ever been told that they have asthma by a health professional and still have the condition[9]—for 2020 in Maine include:

- Approximately 1 in 10 Mainers, nearly 115,000 people, have current asthma
- 10.6% of Maine adults have current asthma[7]
- Maine adults have significantly higher rates of asthma compared to adults nationwide
- Maine adults have a significantly higher rate of asthma than Maine children
- Maine children have a current asthma rate of 8.2%[7], which is consistent with nationwide rates

The major points identified about health care utilization due to asthma for 2021 in Maine include:

- Data suggests that emergency department usage for asthma has decreased over time
- An estimated 2,922 individuals had to visit the emergency department due to issues with asthma. This is an age-adjusted rate of 24.4 per 10,000 population[7]
- More women than men had to visit the emergency department due to asthma
- Emergency department visits and hospitalizations due to asthma vary by town
- 204 individuals were hospitalized in Maine. This is an age adjusted rate of 1.8 per 10,000 population[7]
- Asthma hospitalization rates have decreased over time

Major points around mortality associated with asthma in Maine include:

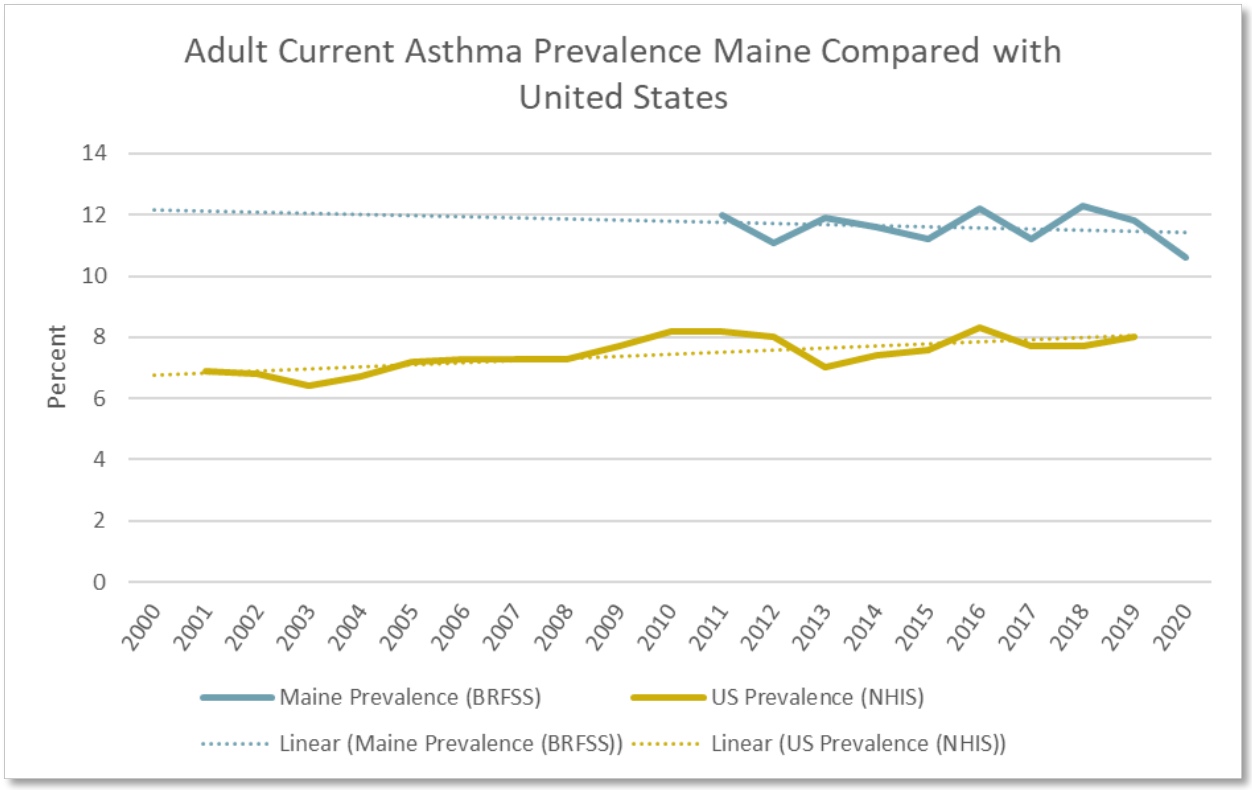
- Between 7 and 20 individuals die due to asthma each year in Maine[3]
- Mortality rates in Maine (8.5 per 1,000,000 population, 2008-2017) are similar to the U.S. rate (9.4 per 1,000,000 population) and continue to be higher among women than men (10.5 vs. 5.9 per 1,000,000 population)

Current Asthma Prevalence

As shown in the 2020 U.S. CDC data, 10.6% of Maine adults (18+ years old), an estimated 226,621 individuals, have current asthma.[7]

Maine's rate is significantly higher than the national prevalence of 9.6% during the same period. According to 2021 BRFSS data, Maine has the highest adult current asthma rate in the country.

Figure 2. Adult Current Asthma Prevalence

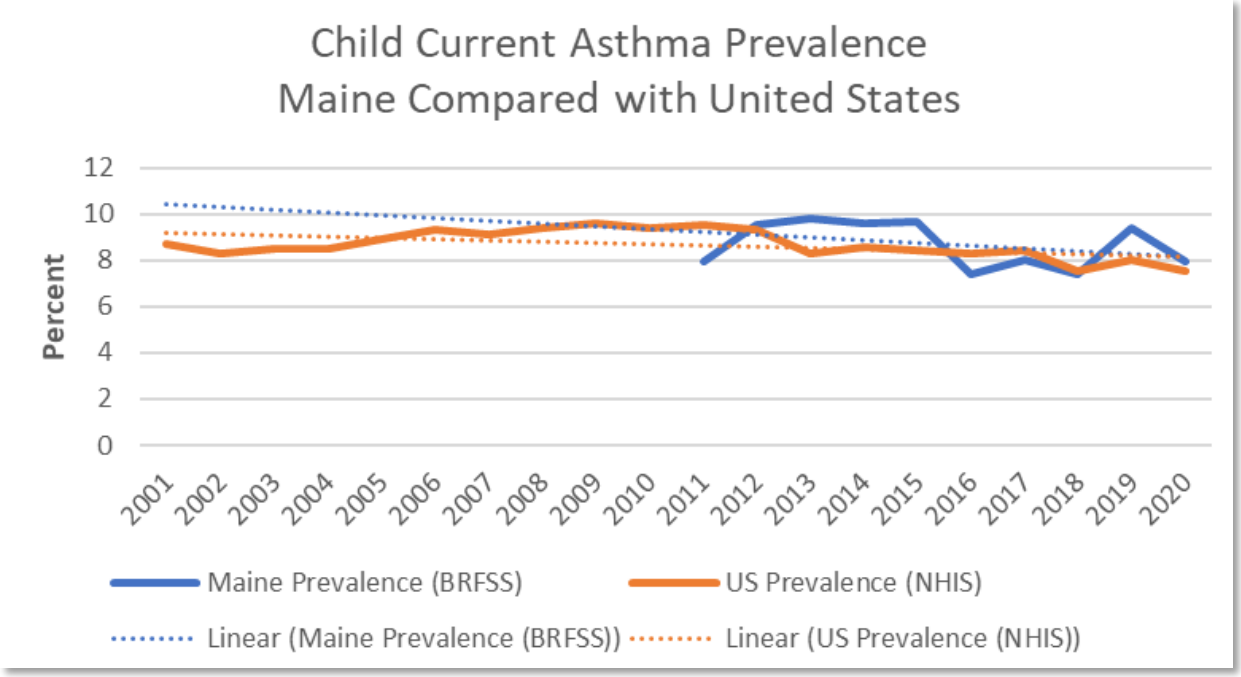


As shown in Figure 2, asthma rates for adults appear to be increasing nationwide based upon the last 19 years of the National Health Interview Survey's (NHIS) data. Maine BRFSS data for the period 2011 to 2020 show the trend in adult current asthma rates is decreasing slightly over time.[a] As expected, adult lifetime asthma prevalence—defined by BRFSS as individuals that have ever been told that they have asthma by a health professional--is significantly higher than current asthma prevalence for both the state of Maine (17.2%) and the United States (14.9%)

[a] BRFSS methodology changed in 2010, so measures of prevalence prior to 2010 cannot be compared to asthma prevalence measures post-2010.

based on BRFSS and NHIS data from 2021. National and State data suggest there is no increase or decrease in asthma rates over time for children (Figure 3).[1,5]

Figure 3. Child Current Asthma Prevalence



Health Care Utilization

Health care utilization by individuals with asthma in Maine is evaluated through emergency department usage data[2,7] and by hospitalization rates.[2,7] Both measures were impacted by a change in ICD coding that was implemented midway through 2015. Coding changes from ICD-9 to ICD-10 impacted the ability to assess trends over the 2014 to 2016 timeframe. That said, data suggests decreasing rates for both emergency department usage and hospitalization during both time frames (Figures 4 and 5).

Figure 5. Asthma Emergency Department Usage

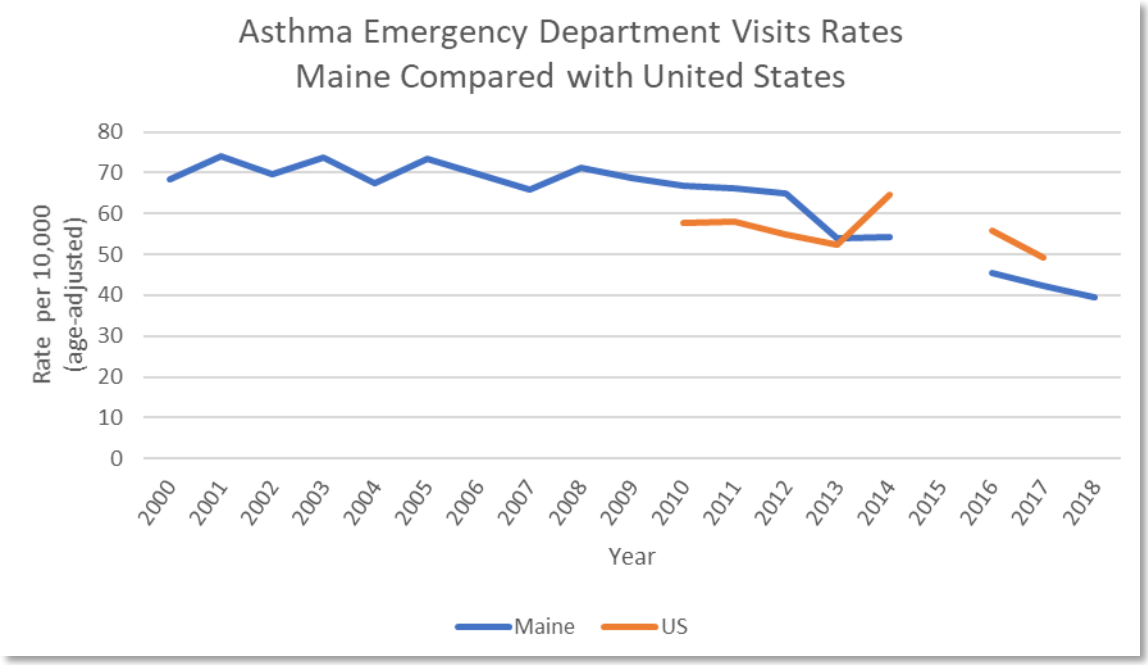
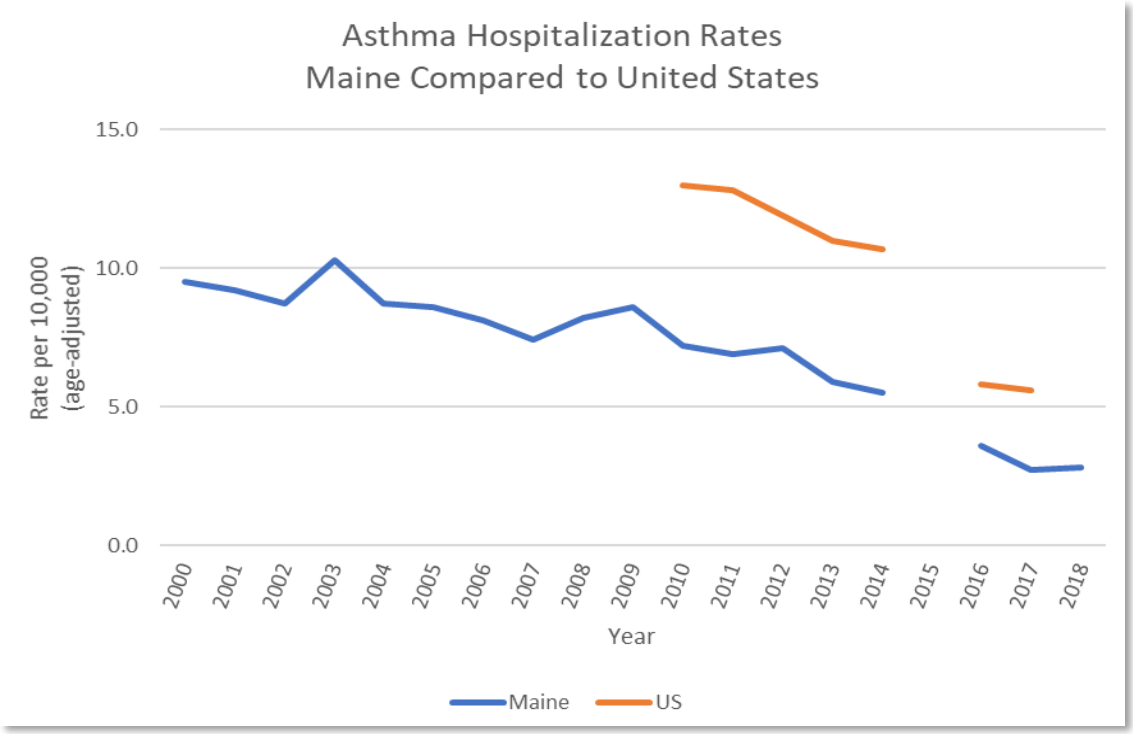


Figure 4. Asthma Hospitalization Rates



In 2021, it is estimated that 2,0224 individuals with asthma visited the emergency department which represents an age-adjusted rate of .24.4 per 10,000 population. More women than men visited the emergency department (Figure 6). Emergency department usage by age shows a relatively high level of usage by young children (ages 0-4) and a secondary peak in the 25-34-year-old range (Figure 7). This is consistent with national data and suspected to be due to health care delivery (i.e. 0–4-year-olds are told to go to the emergency department) and lack of insurance within the 25-34-year-old category.[8] In 2021, 204 individuals were hospitalized for asthma – which represents an age-adjusted rate of 1.8 per 10,000 population.[7]

Figure 6. Emergency Department Usage by Gender

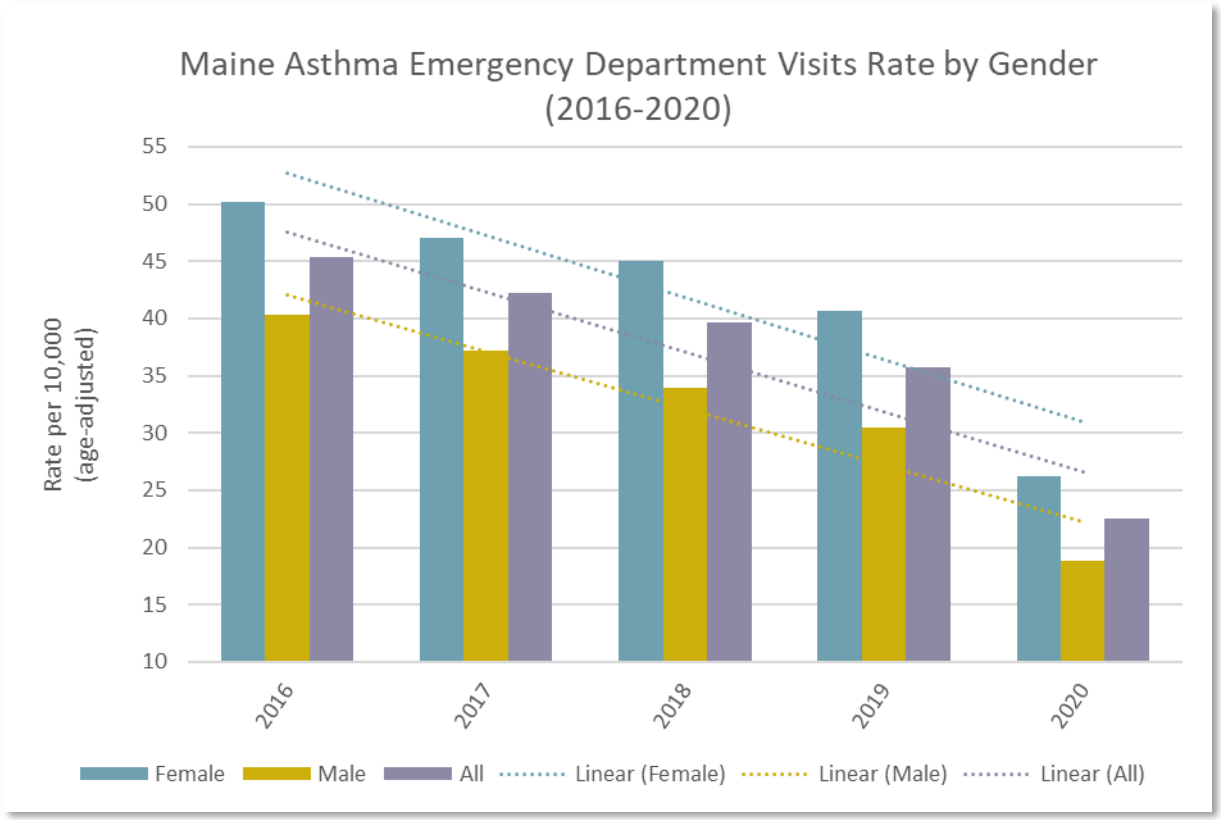
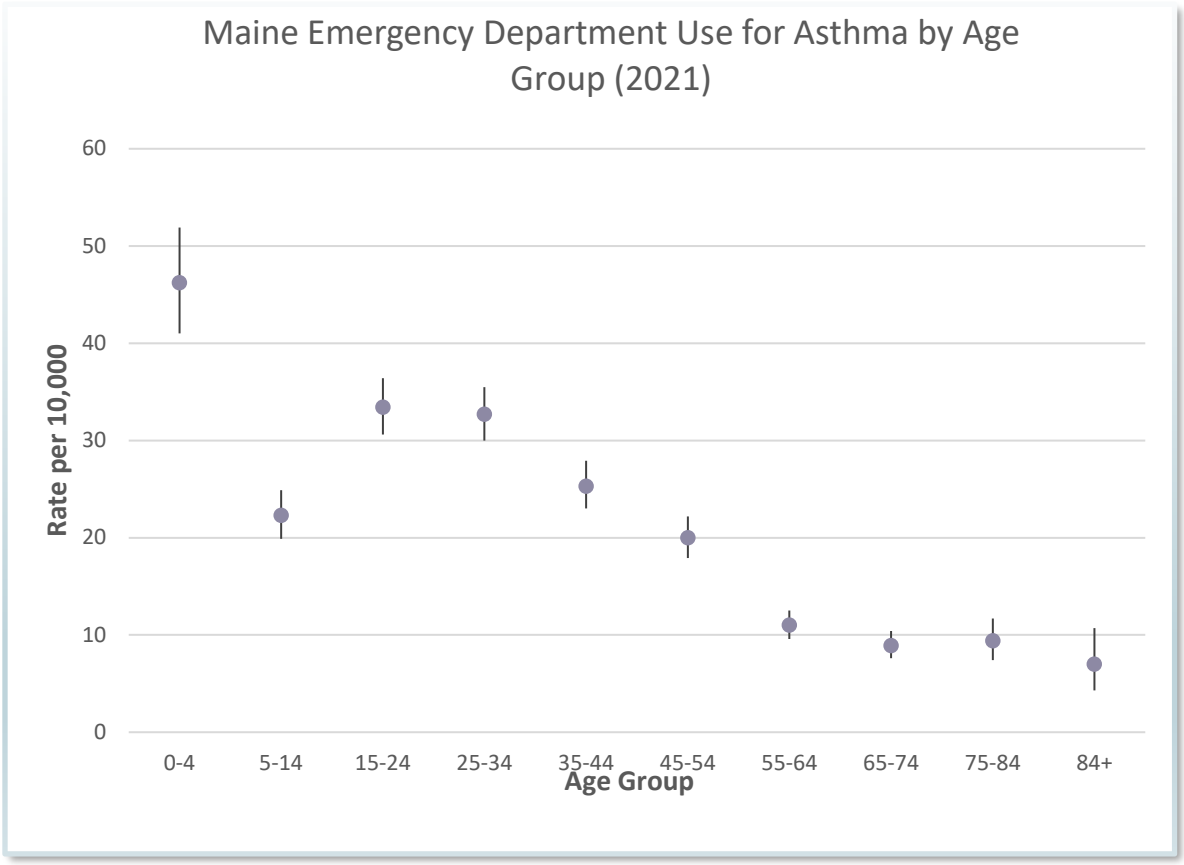
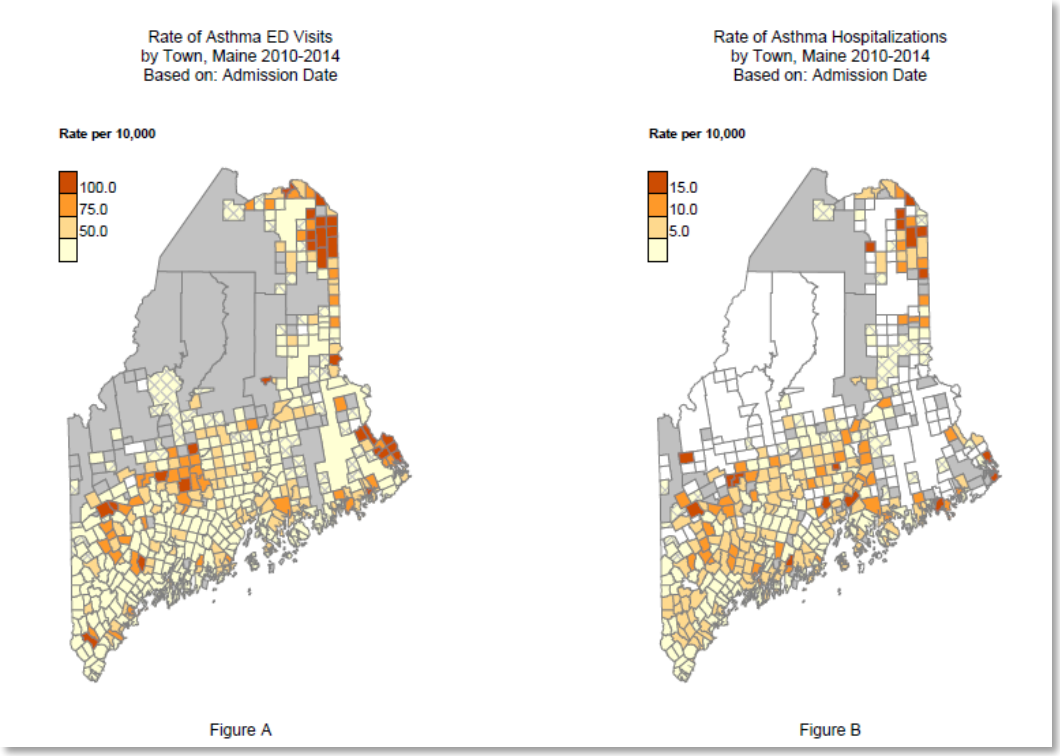


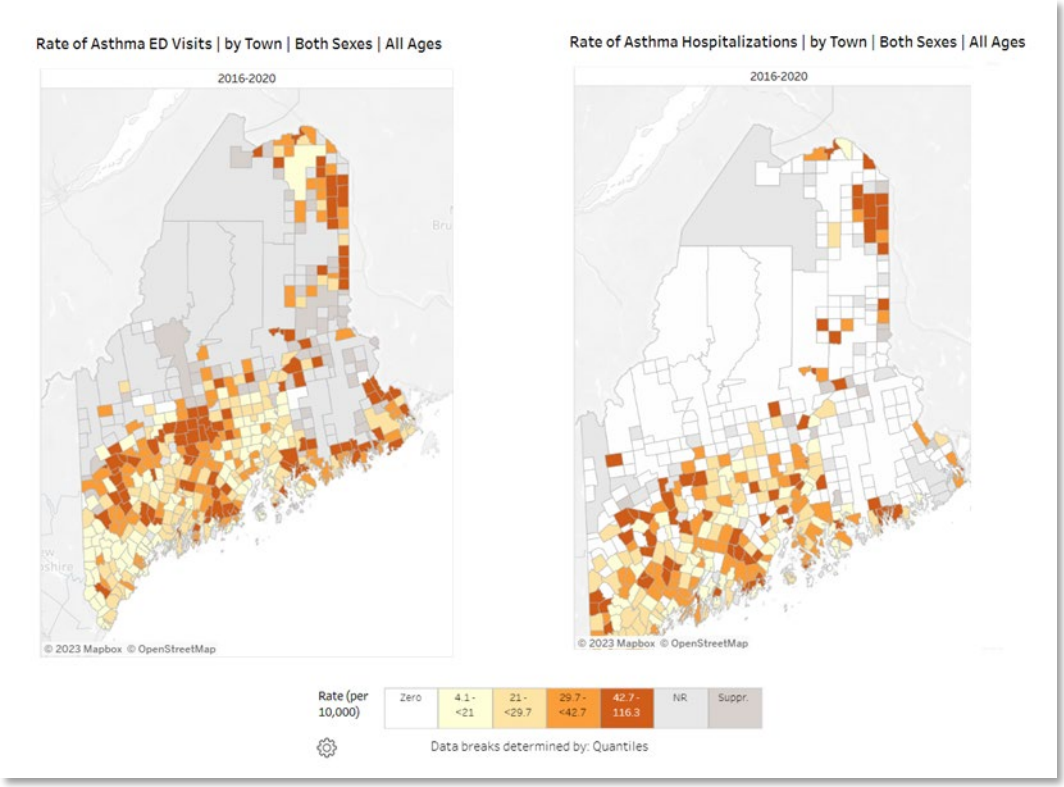
Figure 7. Emergency Department Usage by Age Group



Curiously, both emergency department visits and hospitalizations vary by town – with "hotspots" being seen in the Presque Isle area, the Princeton/Calais/Indian Township area and in the Skowhegan region (Figure 8). It is unclear whether this is due to differences in asthma rates (which are currently not evaluated at the town level) or due to differences in health care delivery and utilization.[4]

Figure 8.Emergency Department Visits and Hospitalizations by Town





Mortality

Between 7 and 20 individuals die due to asthma each year in Maine (Figures 9 and 10). While the numbers are low and not likely to be statistically significant, it appears the trend is either stable or slightly decreasing over time. Mortality rates in Maine (8.5 per 1,000,000 population from 2008-2017) are similar to the U.S. rate (9.4 per 1,000,000 population) and continue to be higher among women than men (10.5 vs. 5.9 per 1,000,000 population).[3]

Figure 9. Asthma Mortality

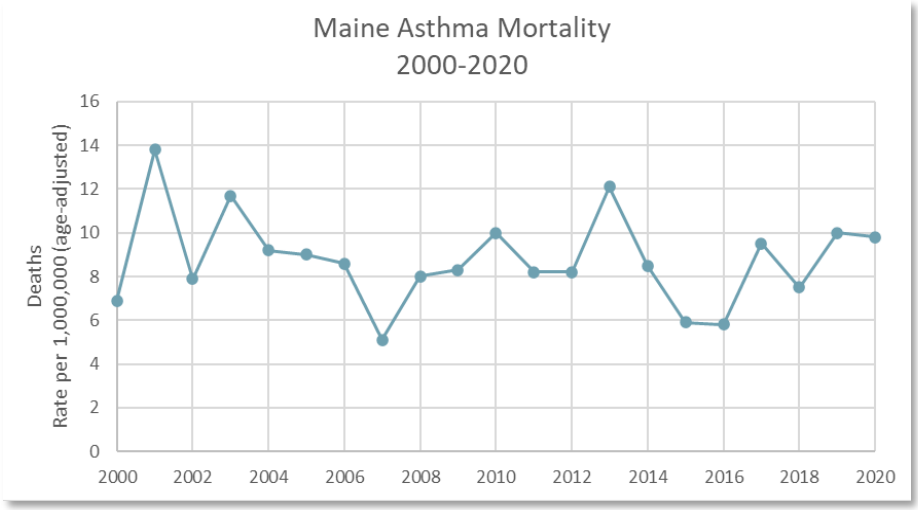
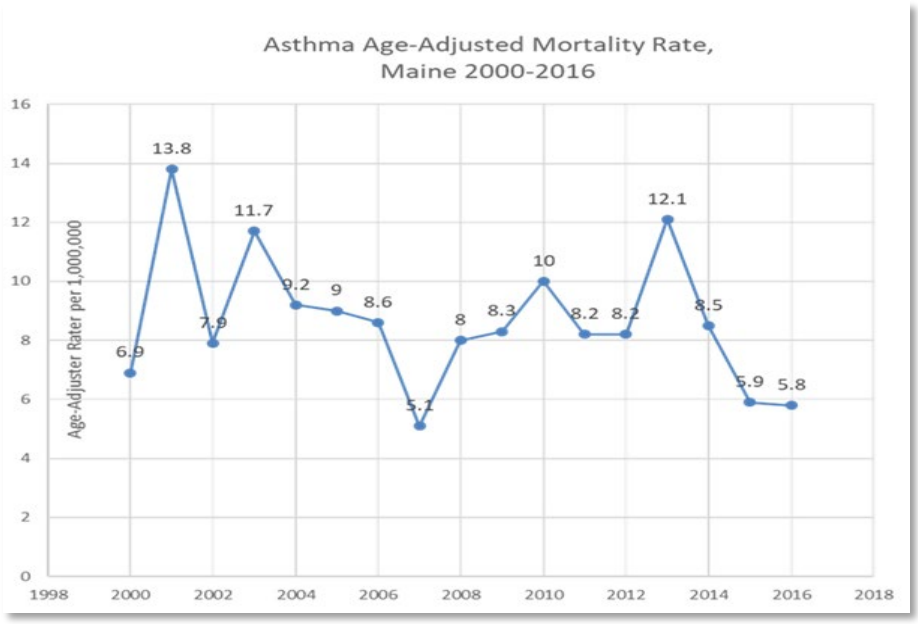


Figure 10. Age-Adjusted Mortality Rate



Data Sources

1. National Division of Population Health. (2015). *BRFSS Prevalence & Trends Data*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. Retrieved September 19, 2019, from https://www.cdc.gov/brfss/brfssprevalence/

2. Maine Health Data Organization. (n.d). *Hospital Inpatient and Outpatient Databases*. Retrieved from https://mhdo.maine.gov/

3. Maine Data, Research, and Vital Statistics Program. (n.d.). *Maine* Mortality *Database*. Department of Health and Human Services, Maine Center for Disease Control and Prevention, Division of Public Health Systems, Data, Research, and Vital Statistics Program. Retrieved from https://www.maine.gov/dhhs/mecdc/public-health-systems/data-research/

4. Maine Environmental Public Health Tracking Network. *Asthma: Emergency Department* Visits. (n.d.). Department of Health and Human Services, Maine Center for Disease Control and Prevention, Maine Environmental Public Health Tracking Network. Retrieved November 6, 2019, from https://data.mainepublichealth.gov/tracking/

5. National Center for Environmental Health. *National Health Information Survey.* (n.d.). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Environmental Health. Retrieved from https://www.cdc.gov/asthma/data-visualizations/prevalence.htm

6. Yob, D., Huston, S.L., Teach, F., Braddick, J., Severson, D. (2018). *The Burden of Asthma in Maine:* 2006-*2010*. Department of Health and Human Services, Maine Center for Disease Control and Prevention

7. D. Yob, personal communication, 2021

8. Cohen et al. (2020). *Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey, 2019*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Division of Health Interview Statistics. Retrieved from https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur202009-508.pdf

9. National Center for Environmental Health. (n.d.). *Background Information, BRFSS Asthma Prevalence Data*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Environmental Health. Retrieved November 22, 2022, from https://www.cdc.gov/asthma/brfss/default.htm

Populations in Maine Most Impacted by Asthma

In the past, the Maine CDC Asthma Program has looked at targeting efforts based on geography. That is difficult in a state like Maine where counties are large geographically and varied in population density. Geography may not be the best way to allocate resources to address high risk/high burden populations in Maine.

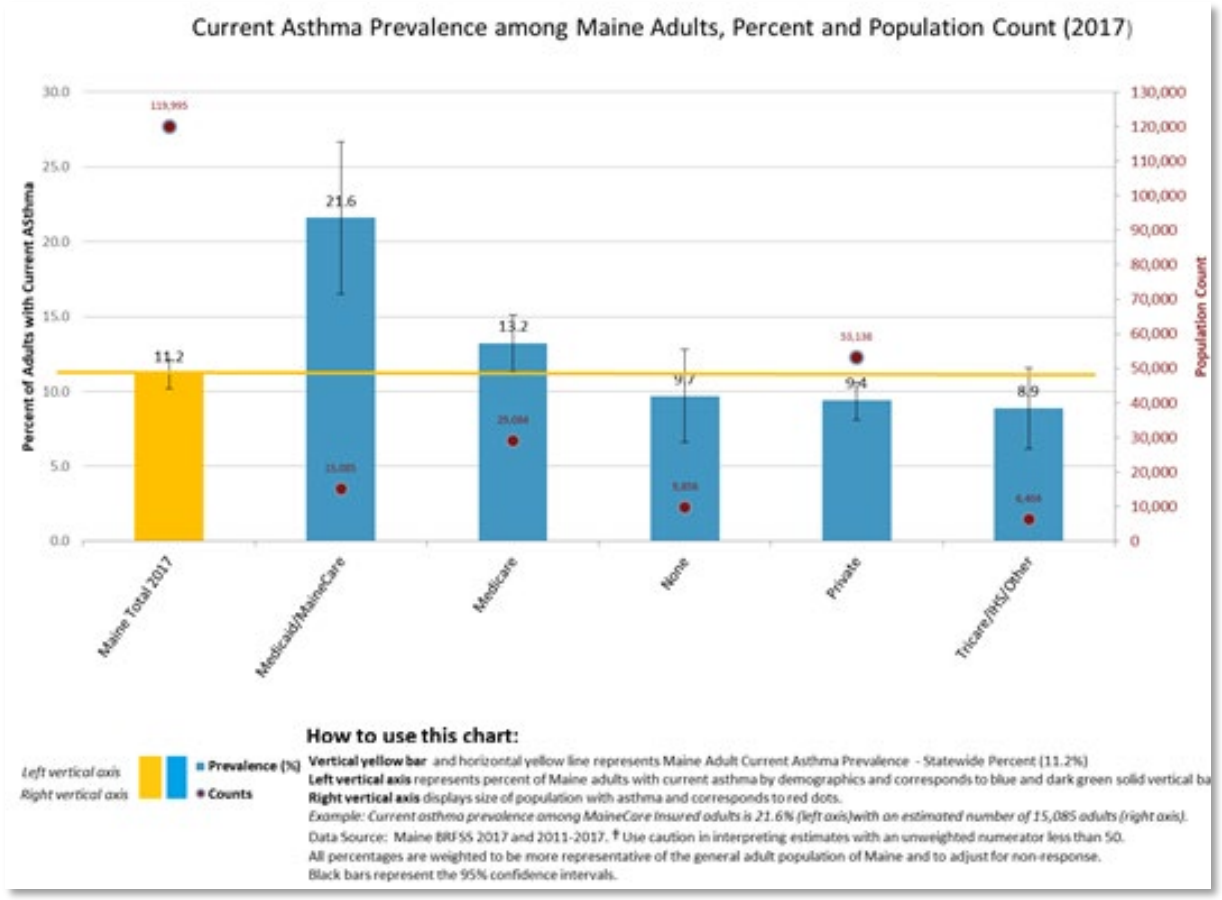
A more valuable approach may be to identify target populations and outreach mechanisms by social determinants of health data gathered by the BRFSS. Analysis of that data suggests that race (in particular, tribal populations), income/insurance status (MaineCare recipients) and sexual orientation (bisexual or homosexual) are categories that may inform targeting of high risk/high burden populations. Additionally, focusing tobacco prevention and treatment efforts will have a positive impact on asthma rates and asthma health care utilization.

Targeting these groups is best achieved with a collaborative effort. Maine's tribal communities include the Aroostook Band of Micmac Indians, The Houlton Band of Maliseet Indians, Passamaquoddy Tribe at Indian Township and Pleasant Point, and the Penobscot Indian Nation. These communities have their own governmental and public health infrastructures which present potential opportunities for partnership. The Asthma Coalition continues to grow its relationships and partnerships with the tribal communities within the historical context of the state with the goal to improve health outcomes.

Development of relationships between the Maine CDC Asthma Program and key lesbian, gay, bisexual, transgender, queer (LGBTQ+) organizations within the state also need to be developed and fostered. Potential organizational partners include Equality Maine, Out Maine, and Maine Transnet. Collaboration with these organizations is essential to understanding the unique needs of these populations as they relate to asthma and for co-creation of solutions to address these needs.

The Maine CDC Asthma Program evaluated BRFSS data that looked at the relationships between asthma rates and various social determinants of health. Those results were compared to the state prevalence. Figure 11 provides an example of one of these analyses: the relationship between insurance status and asthma rates.

Figure 11. Relationship between Insurance and Asthma Prevalence



This graph shows the prevalence rate for the state of Maine as a vertical yellow bar and horizontal yellow line which correspond to the left axis. Both the rates and the counts of populations with asthma are graphed for each insurance category, where the counts are identified with a red dot that corresponds with the right axis. Error bars—seen as vertical black lines--identify the spread of the data. A simple measure of whether the rates of different categories are different is to compare error bars to see if they overlap. If they do not overlap, they are likely to be significantly different. In some social determinant categories, the number of individuals in the category is small enough to make these estimates uncertain.

Similar graphs were developed for both children and adults and for the following social determinants of health categories for the time periods of 2011 through 2017. Aggregated data were used to produce adequate sample size.

Prevalence data for Maine children were captured for the following categories:

- **Annual Household Income**. Children in households with incomes between $15,000 and $75,000 had a current asthma rate similar to the state asthma rate of 8.9% for 2011-2017. Children in households with the lowest incomes (less than $15,000 per year), had a significantly higher current asthma rate of 13.3%. Children in homes with annual incomes greater than $75,000 had an asthma rate that was significantly lower (6.9%) than the state rate.
- **Ethnicity and Race**. Evaluating the relationship between asthma and race and ethnicity in Maine is a challenge due to the small populations – which is reflected in the counts of populations with asthma (small populations) vs. the prevalence (which is high, but with large error bars), especially for the Native American/Alaskan population, Black/African American population, and the two or more races category. Each of these categories had an unweighted numerator of less than 50, requiring caution in interpreting the results. While this is recognized, one can extrapolate to larger populations (such as the total U.S. population) where similar results are found. There are no reasons to suggest that the factors at the national level that are- associated with these populations' disproportionately high burden of asthma also do not operate within Maine.
- **Geographic Census Definitions**. Looking at census definitions yields surprising results. It is surprising that isolated rural areas have lower prevalence rates than the state as a whole and other census categories.
- **Sex**. Relative to the state prevalence of asthma among children of 8.9%, females have a lower rate at 7.1% and males have a higher rate at 10.5%.
- **Age**. The 12-17-year-old age category had a higher prevalence rate of asthma (11.8%) compared to the state rate (8.9%). Children under 12 had a lower rate (7.3%) compared to the state rate.
- **Geography**. As discussed previously, evaluating asthma prevalence at the county level is problematic. Many of the counties had a numerator less than 50, resulting in a caution on how to interpret the data. However, prevalence seems to be elevated above the state rate in Penobscot and Somerset counties. Looking at population counts,

Cumberland, Penobscot and York counties have the largest populations of children with current asthma.

Prevalence data for Maine adults were captured for the following categories:

- **Annual Household Income**. The adult asthma rate in households with incomes greater than $25,000 was relatively similar (as judged by overlapping error bars) to the state asthma rate of 11.2%. Adults with incomes less than $15,000 per year had an asthma rate that was higher (18.6%) than the state rate. Adults in households with incomes between $15,000 and $24,999 also had an elevated asthma rate (16.1%).
- **Insurance status**. Individuals who received MaineCare (Maine's Medicaid program) had a significantly higher rate of asthma (21.6%) compared to the state rate. While this is not surprising given MaineCare is income based (and hence reflects the similar trends we see with income) it does offer a strong opportunity for intervention. Outreach through MaineCare services may be a promising way to reach this high burden population.
- **Sexual Orientation**. Individuals identifying as homosexual (gay or lesbian), or bisexual had higher asthma rates (17.1% and 20.5% respectively) compared to the state rate. Working through LGBTQ+ organizations may provide an opportunity to address these communities.
- **Education**. Those individuals with less than a high school diploma had a higher asthma rate (16.6%) compared to the state rate.
- **Ethnicity and Race**. As is stated prior, evaluating race and ethnicity in Maine is a challenge due to the small populations. However, the sample for American Indian/Alaskan Native populations was large enough to demonstrate an elevated asthma rate (17.3%) compared to the state rate. Those who identified as two or more races also showed an elevated rate of 19.1%.

  Unfortunately, BRFSS does not distinguish between race and immigrant status. So, for example, recent immigrants from sub-Saharan Africa cannot be parsed out from the "Black or African American" category. Even if they could, the sample size would decrease

further. Of greater concern is the fact that the survey instrument is only offered in English – resulting in recent immigrants likely being under sampled.

- **Age**. Most age categories analyzed had asthma rates similar to the state rate (11.2%). The only possible exception was the age category of 25–34-year-olds who had an asthma rate of 14.8%.
- **Geography**. As discussed previously, evaluating asthma prevalence at the county level is problematic. Prevalence seems to be elevated above the state rate in Penobscot (14.5%) and Somerset (15.4%) counties.

These data were then normalized to the state asthma rates for both children and adults, and then ranked by magnitude (Figures 12 and 13). This effort prioritizes risk factors to help identify target populations for outreach, and/or asthma self-management intervention. Note that these figures only display prevalence, not population counts, and they do not address sample size, or variability and by extension statistical significance. Therefore, they do not allow for comparison across categories to identify populations or potential strategies for intervention.

Figure 12. Child Measures of Asthma Disparities

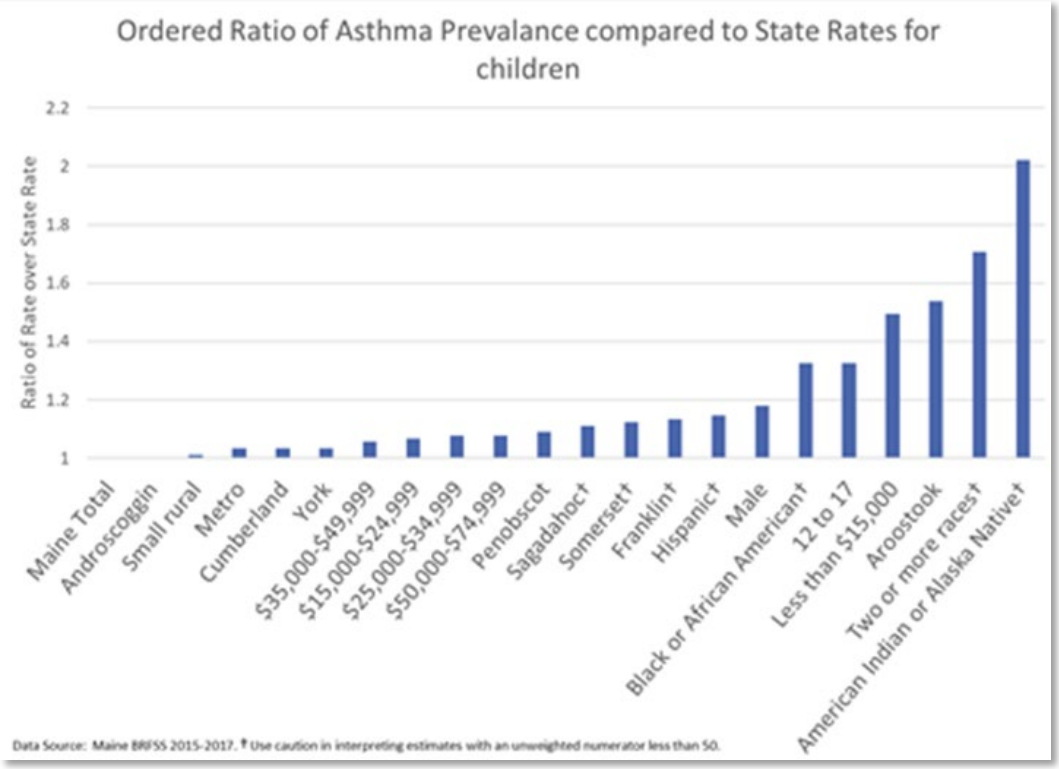
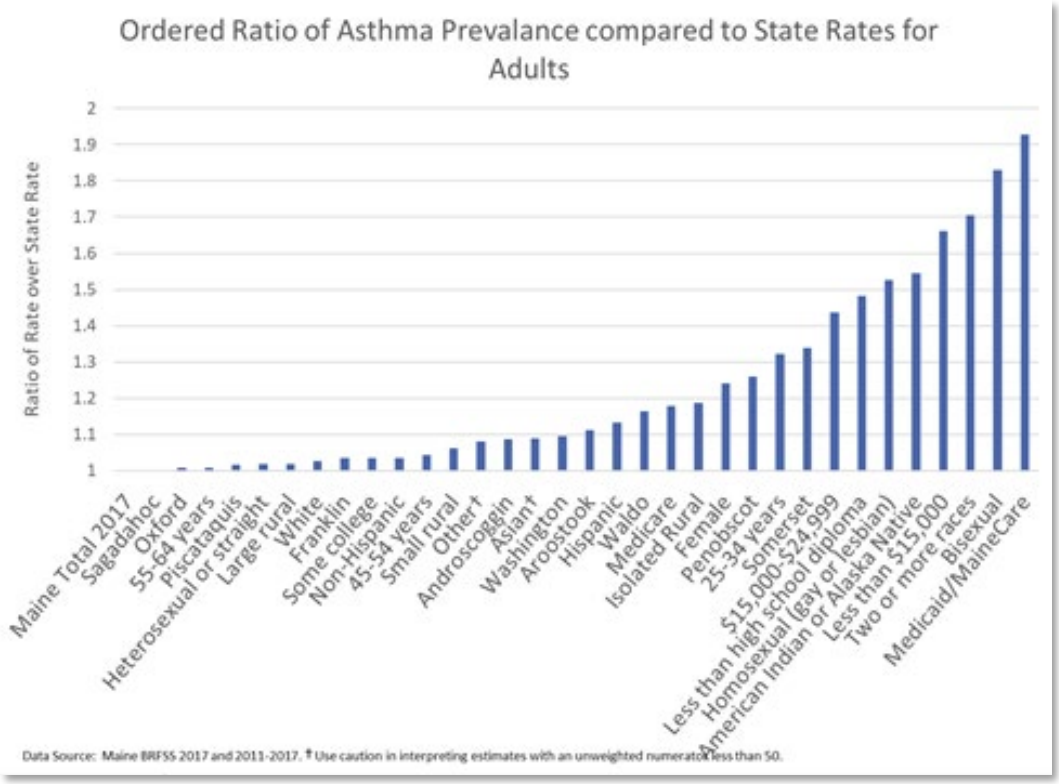


Figure 13. Adult Measures of Asthma Disparities



Current asthma prevalence in adults demonstrates the impact of insurance, sexual orientation, race, income, and education on asthma rates.

Inhaled irritants from tobacco products, marijuana, and vaping, are a significant cause of asthma and have other associated health impacts. BRFSS data from 2018 suggests that 24.5% of individuals surveyed have both current asthma and currently smoke in Maine. In contrast, the overall Maine smoking rate is 17.7% (https://nccd.cdc.gov/weat/#/analysis). Given the strong working relationship between the Maine CDC Asthma Program and the Maine CDC Tobacco Program, coordination of efforts as they relate to asthma control will be a fruitful path to pursue.

In conclusion, it is clear that certain populations (LGBTQ+, American Indian/Alaska Native, MaineCare Recipients and tobacco and other inhaled product users experience a disproportionately higher burden of asthma than other populations. Developing techniques to reach those populations for outreach, intervention and/or referral to the Asthma Self-Management Program will likely be an effective targeted use of resources. While certain populations within Maine don't have a large enough population to confidently identify their burden of asthma, other data can be used to supplement those conclusions.

Asthma Infrastructure

The Maine CDC Asthma Program and the Asthma Coalition opted to define the asthma infrastructure within the state as the potential partners who have been or who may be available to provide Asthma Self-Management Education as the program expands. A special interest was geographic reach of these programs.

Certified Asthma Educators

As of the summer of 2023, there were 24 currently licensed certified asthma educators within the state. There were another 37 listed whose licenses had lapsed. Of the 24 currently licensed, 13 are respiratory therapists, 7 are nurses, 2 are pharmacists and one is listed as having 1000 hours experience (and was our community paramedic trainer from the previous grant period).[1,2] It appears that the landscape of this workforce has changed very little relative to the last scan conducted 3 years ago in 2020.

An analysis of the distribution of asthma educators within the state demonstrates they are more likely to be found in the more populated portions of the state. More rural portions of the state, such as Aroostook and Washington counties, do not have Certified Asthma Educators.

Respiratory Therapists

As of the summer of 2023, there are 628 Licensed Respiratory Therapists within the state of Maine. Of those 628, 10 are Respiratory Care Trainees (who are second year students and can perform some supervised care), 529 are Respiratory Therapists, 87 are Respiratory Technicians (who are entry level graduates), and 2 are Temporary Respiratory Technicians (Maine Licensing). [1,2] The COVID pandemic contributed to a critical shortage of Respiratory Therapists in Maine. This effect is still evident as demonstrated by a further decease (roughly 6%) in Respiratory Therapists from the summer of 2020.

Respiratory Therapists are more evenly distributed across the state, following the population characteristics of the state.

Community Paramedicine Programs

The prior grant (Comprehensive Asthma Control Through Evidence-based Strategic and Public Health) used Community Paramedics as a resource for delivering Asthma Self-Management Education to individuals with uncontrolled asthma. The effort was successful with the community paramedics with which it was initiated (Asthma Self-Management Education Evaluation Report 2020). There is an effort to expand the community paramedicine program within the state. The Maine Emergency Medical Services Board has authority to establish community paramedicine services (Title 32: Chapter 2-B §84 http://legislature.maine.gov/legis/statutes/32/title32sec84.html). They are in the process of developing rules and educational requirements for Community Paramedicine programs.[3] The greatest limitation for developing services for expansion is currently sustainable funding.

Current Community Paramedicine programs within the state include:

- Belfast Ambulance & Rescue Service
- Boothbay Region Ambulance
- Central Lincoln County Ambulance
- Charles A Dean Ambulance Service
- Delta Ambulance
- Memorial Ambulance Corps
- *Northern Light Mayo Hospital
- *Northern Light Medical Transport
- *NorthStar
- Peninsula Ambulance Corps
- Searsport Ambulance Service
- *St George Ambulance
- *United Ambulance Service
- Waldoboro Emergency Medical Services
- Winthrop Ambulance Service

Those marked with an asterisk were part of the Asthma Self-Management Education Program in the prior grant cycle. The distribution of existing Community Paramedicine Programs across the state shows significant gaps in Aroostook, Washington, and York Counties.

Community Health Workers

Community Health Workers (CHWs) were used in the previous Asthma Grant (Comprehensive Asthma Control Through Evidence-based Strategic and Public) to provide Asthma Self-Management Education. Community Health Workers are a useful partner for reaching individuals in immigrant communities, transient communities, or communities with a lack of resources. In the prior grant, Maine Access Immigrant Network and Greater Portland Health were used to provide Asthma Self-Management Education to recent immigrants within the Portland region.

As of May 2023, the Maine CHW Initiative (MECHWI)—a network of CHWs and allies focused on strengthening the CHW profession in Maine—has 127 individuals that identify as CHWs in its network. A survey that aims to capture a more complete picture of the number and distribution of CHWs in Maine is forthcoming.[4] The following organizational members of the MECHWI employ Community Health Workers:

- AK Health and Social Services
- Aroostook Mental Health Center
- City of Portland
- Community Clinical Services
- DFD Russell
- Djibouti American Community Enrichment Project
- Eastport Health Center
- Fish River Rural Health
- Gateway Community Services
- Greater Portland Health
- Healthy Community Coalition (Franklin Hospital)
- Healthy Lincoln County
- Hometown Health Center
- Immigrant Welcome Center
- Northern Light Inland Hospital
- Lewiston Auburn Family Enrichment Services
- Maine Access Immigrant Network
- Maine Community Integration
- MaineHealth
- Maine Health Care Partners
- Maine Medical Center
- Maine Mobile Health Program
- MaineGeneral
- Mano en Mano
- Multicultural Community and Family Support Services
- New Mainer's Public Health Initiative
- Northern Light Mercy

- Portland Public Schools
- Rangely Health & Wellness
- Sacopee Valley Health Center
- Spectrum Generations
- St. Croix Regional Family Health Center
- The Opportunity Alliance
- Tri-County Mental Health Services
- Western Maine Community Action
- York Community Service Association
- York County Community Action
- Penobscot Community Health Center
- New England Arab American Organization
- Wabanaki Public Health & Wellness[4]

This list is not inclusive of the full scope of organizations that engage CHWs. For instance, many of the tribes have Community Health Nurses or Community Health Representatives who would be options for community prevention, education work, or Asthma Self-Management Education. Community Health Workers are primarily found in the more populated portions of the state.

School Nurses

An annual survey collecting data from the 2022-2023 school year identified 328 public and private schools in the state.[5] A data search conducted in summer 2023 revealed that there were 652 nurses (459 full time equivalents) working in Maine schools. This represents a sharp increase from pre-pandemic numbers and may be associated with an influx in COVID funding to schools (and therefore may not be a sustained trend). As might be expected, the distribution of school nurses across counties roughly correlates with county-level population sizes.[6]. While schools are distributed across the state, the state of Maine only requires one school nurse per School District. School Districts vary in the number of children and the number of schools within their district, so the number of children a school nurse serves can vary significantly.

Public Health Nurses

There are 9 Public Health Districts within the state of Maine: the 8 districts identified below and one tribal district that is managed by the Waponahki Public Health Program and serves all Maine tribes.[7]

The state of Maine is in the process of restaffing public health nurses, but currently the staffing is:

- District 1 and 2: 6 nurses (York and Cumberland Counties)
- District 3: 4 nurses (Androscoggin, Franklin, and Oxford Counties)
- District 4: 2 nurses (Midcoast Region)
- District 5: 8 nurses plus 1 Public Health Nurse Referral Specialist (Kennebec and Somerset Counties)
- District 6: 2 nurses (Penobscot and Piscataquis Counties)
- District 7: 0 nurses (Washington and Hancock Counties)
- District 8: 3 nurses (Aroostook County)

State of Maine Public Health Nursing is committed to implementing the Maine Asthma Self-Management Education Program and is likely to begin initiation and training in the spring of 2021.

An additional component of the resources available to the Asthma Self-Management Education are resources to address the environmental risk factors for asthma. Table 2 identifies the currently known programs that are available, the type of housing they address and whether the assistance is a grant or loan. Note that all programs may not be available to all recipients of Asthma Self-Management Education and may have income or other requirements.

Table 2. Resources Available in Maine to Address Housing-Related Asthma Triggers

Program Name	Type Of Housing	Focus	Which Asthma-Related Issues Addressed?	Type Of Assistance
Lead Hazard Control/ Healthy Homes	Private/ Rental	Lead remediation, health, and safety	Moisture/mold Pest exclusion Ventilation	Grant/loan
Central Heating Improvement Program (CHIP)	Private	Replacement of heating units	Combustion byproducts	Grant
Weatherization	Private/ Rental	Tighten building envelop	Moisture/mold Pest exclusion Ventilation	Grant

Program Name	Type Of Housing	Focus	Which Asthma-Related Issues Addressed?	Type Of Assistance
Home Repair	Private	Home repair, remove hazardous materials, health, and safety	Moisture/mold Pest exclusion Ventilation	Grant/ loan
Mobile Home Repair	Private	Repair or replace mobile homes	Moisture/mold Pest exclusion Ventilation	Grant
Emergency Repair	Private	Emergency health and safety repairs	Moisture (severe leaks)/mold	Grant/ loan
Housing Rehabilitation	Rental	Energy, lead-hazard control, accessibility, repair, and weather-related improvements	Moisture/mold Pest exclusion Ventilation	Loan
Community Aging in Place	Private	Minor repairs including gutters, minor plumbing, storm doors, health, and safety	Moisture/mold	Grant
Single Family Housing Repair Grant-USDA	Private	Remove health and safety hazards	Moisture/mold	Grant
Single Family Housing Repair Loan-USDA	Private	Repair, improve, or modernize, remove health and safety hazards	Moisture/mold Pest exclusion Ventilation	Loan
Rebuilding Together	Private	Minor home repairs	Moisture/mold	Volunteer assistance
Habitat for Humanity Home Repair	Private	Home repairs	Moisture/mold Pest exclusion Ventilation	Volunteer assistance/ loan

Data Sources

1. The National Board for Respiratory Care. (n.d.). Retrieved from https://www.nbrc.org/

2. Maine Office of Professional and Occupational Regulation. (n.d.). *Board of Respiratory Care Practitioners*. Maine Department of Professional and Financial Regulation, Office of Professional and Occupational Regulation. Retrieved from https://www.maine.gov/pfr/professionallicensing/professions/board-respiratory-care-practitioners

3. Maine Emergency Medical Services. (n.d.). *Community Paramedicine*. Maine Department of Public Safety, Emergency Medical Services. Retrieved from https://www.maine.gov/ems/boards-committees/community-paramedicine

4. B. Hummel, Maine Mobile Health Program, personal communication, May 23, 2023.

5. Maine Department of Education. (June 2023). *School Health Annual Report*. Retrieved from https://neo.maine.gov/DOE/neo/DCAR/Reports/MainReport

6. T. Diaz, Office of School and Student Supports, Maine Department of Education, personal communication, June 2023.

7. Maine Public Health Nursing Program. (n.d.). *Division of Public Health Nursing*. Maine Department of Health and Human Services, Center for Disease Control and Prevention, Division of Public Health Nursing, Public Health Nursing Program. Retrieved from https://www.maine.gov/dhhs/mecdc/public-health-nursing/index.shtml

Strategic Priorities

Process

Asthma Coalition discussions between July 2020 and January 2021 identified a series of strategic priorities which were of interest to the Coalition. The Coalition then discussed and voted upon the strategic priorities to rank them and identify the final priorities.

Several of the identified strategic priority options had sub options that were identified and voted upon as well.

- Support/Expand Asthma Self-Management Education Program (ASMEP)
- Pursue MaineCare Approval of Reimbursement for ASMEP Home Visiting for MaineCare Members
- Education for Providers on Use of Spirometry to Distinguish Between COPD and Asthma
- Hotspot Analyses for Towns with Higher-than-Average Emergency Department Visits/ Hospitalizations
- Continued Coordination with the Maine CDC Tobacco Program and Partners
- Education on Effective Landlord/Tenant Communication
- Outreach – Making the Maine CDC Asthma Program a Clearinghouse for Materials to be Used by Coalition Members and Others

Priorities

Survey results identified the following strategic priorities to pursue.

Support / Expand Asthma Self-Management Education Program

The Asthma Coalition decided to support the soon-to-be-implemented Asthma Self-Management Education Program. The ASMEP is a client-based intervention for individuals with uncontrolled asthma that addresses proper medication usage, use of asthma action plans, smoking cessation, trigger knowledge, possibly a home visit and referrals to programs to address trigger reduction if appropriate. The strategic priority of focus will be the development of supplementary educational materials to support the Asthma Self-Management Education Program.

Continued Coordination with the Maine CDC Tobacco Program and Partners

The Maine CDC Asthma Program is already coordinating with the Maine CDC Tobacco Prevention and Control Program and their partners. That said, tobacco and secondhand smoke are major asthma triggers. It is also the case that other 'combustibles' such as marijuana, incense, wood smoke, etc., can be detrimental to lung health. The Asthma Coalition decided that a strategic priority of interest was support in the form of education and outreach for non-traditional tobacco products (e.g., vaping, etc.). The Coalition will coordinate with the Maine CDC Tobacco Program and their partners, such as the Center for Tobacco Independence, to ensure that any efforts address needs and gaps and provide materials that are of value to all programs.

Education on Effective Landlord/Tenant Communication

The last strategic priority identified was to develop educational material promoting effective landlord/tenant communication around property maintenance. This is an issue that has been identified repeatedly amongst tenants who have healthy homes concerns – namely that they are afraid to discuss issues with the landlord for fear of retaliatory eviction. Additionally, landlords have expressed frustration when issues are not brought to their attention in a timely manner resulting in more costly repairs. The goal would be to produce a single "piece" (or outreach effort) that would identify best practices for communication between landlords and tenants to reduce those concerns. Some work has already been done on this by the Maine Indoor Air Quality Council (MIAQC) in their Mold and Moisture Guidance for Landlords and Tenants. The Center for Tobacco Independence also has experience with these types of efforts – in that they've been very successful identifying the benefits of smoke-free housing. There is interest in a piece like this from multiple programs – including the Childhood Lead Poisoning Prevention Program.

Workgroups

The Asthma Coalition established three workgroups to organize efforts around the three identified strategic priorities. The Maine CDC Asthma Program is the lead for each workgroup and serves in a facilitator/management role with the overarching responsibility of assembling

partners for working sessions, contracting communications work, and monitoring progress towards target outcomes. The Maine CDC Asthma Program's communications partner, Rinck, will support these projects by assisting with the creative and production processes.

ASME Workgroup

This workgroup is convened around Strategic Priority 1: development of supplementary educational materials to support the ASMEP. Its goal is to deliver education about the ASMEP to potential referrers of clients to the program (e.g., school nurses, family doctors, WIC educators, etc.) so that they feel comfortable initiating referrals and answering basic questions from clients.

The group consisted of members from the following organizations:

- Rinck Advertising
- MaineHealth
- Partnerships For Health
- Department of Education, Office of School and Student Supports
- Maine Association of School Nurses
- American Lung Association
- Public Health Nursing
- Maine Access Immigrant Network
- Maine CDC Asthma Program
- Barbara Chilmonzyk, Allergy, and Immunology specialist

The meetings were led by the Maine CDC Asthma Program. Members met on May 24, 2021, June 28, 2021, and July 27, 2021.

The group determined that it would achieve this goal through development of an ASMEP brochure for dissemination to program referrers. The activities being undertaken in support of this objective include message development and identification of modes of communication and distribution methods. An outreach plan and messaging for the brochure has been developed. Completion of this product is projected for the fall of 2023.

Tobacco Workgroup

This workgroup is addressing Strategic Priority 2: development of educational and outreach communications for non-traditional tobacco products. During the timeline of the project, both members and focus have changed: some members moved to new positions and the objective shifted to creating an outreach piece that communicates the adverse impacts of Electronic Nicotine Delivery Systems (ENDS) on asthma and overall lung health.

The group consisted of members from the following organizations:

- Maine Center for Tobacco Independence
- Maine Tobacco Prevention and Control Program
- Maine Department of Education
- Maine CDC Asthma Program
- Maine Access Immigrant Network
- Rinck Advertising
- Maine Association of School Nurses
- Partnerships for Health
- MaineHealth

Michelle Wells of the Center for Tobacco Independence led the effort until she moved to another position in the fall of 2021. Meetings were held on May 10, June 14, and August 9, 2021.

The group developed a draft piece which targets youth and adult populations with asthma that use ENDS. The aim of the piece is to drive users to the Maine Vaping Quit Support Line for help and resources for quitting. The group determined that formative research was needed to guide message development, so a literature review was conducted by the Maine CDC Asthma Program's evaluator, Partnerships for Health, which produced findings on the body of evidence around the association between ENDS and respiratory health. Finalization, printing, and production of the piece was delayed due to lack of funding. During that time, new, similar pieces had been developed and the group was reformed in the winter of 2022 to discuss whether the draft piece is duplicative or if it should be produced. It was determined that there

was a need for this messaging and the content was finalized. The anticipated completion date of this outreach piece is the fall of 2023.

Landlord-Tenant Workgroup

This workgroup is tasked with work on Strategic Priority 3: development of an educational piece promoting effective landlord-tenant communication around healthy homes issues. As described previously, the goal of this material is to facilitate communication between landlords and tenants about property maintenance issues so that early intervention can be undertaken to fix physical issues in the home environment.

The group consisted of members from the following organizations:

- Maine State Housing Authority
- Maine Indoor Air Quality Council
- Center for Tobacco Independence
- Public Health Nursing
- Maine Access Immigrant Network
- Dept of Agriculture, Board of Pesticide Control
- Penquis Community Action Program
- Community Concepts Inc.
- City of Lewiston, Code Enforcement
- Coastal Health Communities Coalition
- Maine Apartment Owners and Managers Association
- Pine Tree Legal
- Healthy Androscoggin
- Partnerships For Health
- Maine Environmental and Occupational Health Programs

The group was led by Erin Arneson of the Environmental and Occupational Health Programs, and it met on May 3, 2022, June 7, 2022, July 19, 2022, and August 2, 2022.

The workgroup identified tenants and property owners as the target audiences, more specifically, low-income and immigrant tenants and property owners that value the health of their tenants and quality of their properties. Activities in process for this initiative include message development that aligns with existing guidance from MIACQ and other partners; identification of topics to address (e.g., mold and moisture, pests, lead, etc.); and formative research on landlords' needs and priorities. Partnerships for Health will perform the formative research in the form of a landlord survey that will collect data around the extent to which respondents address healthy homes issues and barriers to taking action. Results from the survey are expected in early 2023 and will inform messaging and identification of dissemination methods. The date of completion will be fall of 2023.

Summary

Despite improvements in asthma services and care in Maine, asthma remains a challenge that requires sustained attention by this Coalition and other asthma stakeholders. In 2020, the prevalence of current asthma among adult Mainers was slightly higher than the national rate (10.6% vs. 9.6%, respectively). Although the prevalence of current asthma among Maine children in 2020 was comparable to the national rate (8.2% vs. 7.5%, respectively), this statistic signals a need for improvement. This is also true of efforts relating to health equity.

Like national asthma trends, the burden of asthma in Maine is distributed unequally. In 2018, populations with current asthma rates above the State rate include Mainers with low incomes (i.e., annual incomes of less than $15,000), MaineCare recipients, individuals with a low educational attainment status (i.e., less than high school), ethnic and racial minorities (e.g., tribal groups), and LGBTQ+ groups. Additionally, Mainers living in Penobscot and Somerset counties appear to have elevated asthma rates. These data on asthma disparities can be used to more effectively target and tailor asthma interventions to these populations. One such intervention that utilizes these data in this way is the ASME Program.

The ASME Program has been implemented by various types of medical and non-medical professionals including certified asthma educators, respiratory therapists, community paramedics, community health workers, and public health nurses. The Coalition identified gaps in the geographic distribution of these professionals as part of its work to support expansion of the reach of the ASME Program to the previously described high burden populations. Within the professions that were found to be inequitably distributed, it was observed that this inequity ran along rural/urban divisions with more professionals present in populated counties vs. rural counties. This finding illustrates a potential barrier to equitable delivery of ASME, information that can be utilized to improve the program's reach. Recognizing an opportunity to increase the impact of ASME, the Coalition identified the ASME Program as a potential focus during the process of developing its strategic priorities.

This process of identifying and selecting Coalition priorities resulted in the selection of three priorities and the formation of three workgroups tasked with carrying out work on their respective priority. Each priority centers around delivering education and outreach but for specific audiences and with different aims in mind. The ASME Workgroup, for instance, is developing a promotional brochure for potential referrers to the ASME Program to increase program participant enrollment. Similarly, the Tobacco Workgroup is creating a communication piece to inform users of Electronic Nicotine Delivery Systems (ENDS) about these products' harms. Finally, the Landlord-Tenant Workgroup is providing landlords and tenants in rental properties with an informational tool to facilitate improved communication about healthy housing issues. Measurement of the success of these outreach products at achieving their aims, as well as the success of the Coalition as a whole, will be performed by the Maine CDC Asthma Program's evaluator, Partnerships for Health.

Appendixes

Appendix A. List of Asthma Coalition Members

Sandy Albert	Community Concepts Inc.
Jessica Bonthius	Environmental Public Health Tracking, Maine CDC
Pamela Bryer	Department of Agriculture, Board of Pesticide Control
Karyn Butts	Environmental and Occupational Health Programs, Childhood Lead Poisoning Prevention Program
Barbara Chilmonczyk, MD	Retired Allergist-Immunologist
Hillary Colcord	Maine Primary Care Association
Christy Crocker	Maine Indoor Air Quality Council
Candice Davis	St. George Ambulance
Celia Demos	Public Health Nurse, Public Health Nursing
Tammy Diaz	Maine Department of Education
Loretta Dutill	Value Based Purchasing Division, MaineCare
Pat Endsley	School Nurse, Maine Association of School Nurses
Martine Eon	Maine Medical Center
Kyme Ferenc	Manager of Housing Services, Maine State Housing Authority
Jennifer Fortin	Spectrum Generations
Eric Frohmberg	Maine CDC Asthma Program
Kelly Gardner	Community Asthma and COPD Expert, Asthma and Allergy Network
Jennifer Giosia	Penquis Community Action Agency
Jocelyn Haney	Community Health Education Coordinator, Houlton Band of Maliseets
Candy Henderly	Director, Penobscot Nation Health Department
Sara Huston	Epidemiology, University of Southern Maine
Nikki Jarvais	Rinck Advertising
Sarah Lewis	Maine Access Immigrant Network
Becca Matusovich	Partnership for Children's Oral Health
Thomas A. Mellow	Pediatric Pulmonologist, Maine Medical Center
Teresa Merrill	School Nurse, Gorham Public Schools
Michelle Mitchell	Partnerships for Health (Maine CDC Asthma Program evaluator)

Christine O'Connor	Asthma Educator
Emma Halas O'Connor	Pine Tree Legal Assistance
Chris Paulu	Environmental Public Health Tracking, Maine CDC
Emily Poland	Maine Department of Education
Kendall Penndorf	Partnerships for Health (Maine CDC Asthma Program evaluator)
Hillary Peterson	Maine Department of Agriculture
Charles Ranson	Waldo Community Action Partners
Leigh Riley	Maine Asthma Program
Peter Rinck	Rinck Advertising
Sarah Rines	Center for Tobacco Independence
Daphne Russell	Community Paramedicine, United Ambulance
Dennis Russell	Community Paramedicine, United Ambulance
Brent Stapley	Maine Community Action Association Housing Council
	Waldo Community Action Partners
Rhonda Vosmus	Certified Asthma Educator, InterMed
Martha E Webster	Maine Bureau of Air Quality
Denise Yob	Epidemiology, University of Southern Maine