

Chronic Disease

Background:

Chronic diseases, including cancer, diabetes, heart disease and stroke are those that develop within the body slowly, sometimes taking years for symptoms to emerge. In 2004, nearly half of all Americans were living with a chronic disease,¹ making it the most common and costly of all health problems, accounting for 83% of all health care spending.¹ A patient is rarely cured of their chronic disease,² yet the majority of all chronic diseases are preventable and controllable, making prevention, screening, and evidence-based management key strategies in reducing the burden of chronic disease.

Chronic diseases impact Mainers across the lifespan, and have far-reaching individual and social consequences. Lost productivity influences a person's ability to work and attend school.¹ For example, among children ages 5 to 17, asthma is the leading cause of school absences from a chronic illness, accounting for an annual loss of more than 14 million school days per year nationally (approximately eight days for each student with asthma).³ It is estimated that cancer, diabetes, heart disease, stroke, and pulmonary conditions like asthma cost Maine about \$4.3 billion dollars per year in lost productivity alone. These costs are in addition to the costs for treatment of chronic diseases.⁴

Chronic diseases are also the leading causes of death for Maine and United States residents. More than 60% of deaths among Maine residents in 2008 were caused by cancer, heart disease, stroke, chronic lower respiratory disease, and diabetes.⁵ The top four causes of death in Maine are chronic diseases: cancer, heart disease, chronic lower respiratory disease, and stroke. Diabetes was the seventh leading cause of death in Maine in 2008.⁶ Another impact for Maine is premature death. The average life expectancy for Maine residents is 77.5 years. Each of these five chronic diseases is also in the top ten causes in Maine of years of potential life lost before age 75, cutting the lives of Mainers short prematurely.⁷

Health Equity Highlight: Education Level

Maine adults with lower education levels are significantly more likely to have asthma, high blood pressure, diabetes, and other chronic diseases, and are significantly less likely to have received certain cancer screenings compared to those with more education.⁵

Among Maine adults with less than a high school education:

- Nearly 1 in 5 (19%) have asthma, 1 in 3 (37%) have high blood pressure, and 15% have diabetes. These rates are much lower among Maine adults who are college graduates; only 8.5% have asthma, 26% have high blood pressure, and 6% have diabetes.⁵
- Only 67% of those aged 50+ years have ever received a colonoscopy or sigmoidoscopy for colorectal cancer screening, compared to 80% of those with a high school education.⁵
- Only 78% of women aged 50+ years have received a mammogram for breast cancer screening within the past two years, compared to 87% of those with a high school education.⁵

Education levels can impact understanding of health information as well as access to health care. Education level is also associated with lifestyle behaviors and certain environmental exposures. These may explain some of the relationships between education levels and chronic disease.

According to the U.S. Centers for Disease Control and Prevention (U.S. CDC), much of the illness and disability associated with chronic disease is attributed to four primary health behaviors: physical inactivity, poor nutrition, tobacco use and excessive alcohol consumption. In fact, the U.S. CDC estimates that 80% of heart disease, 80% of diabetes, and 40% of cancers could be prevented if people would only do three things: eat healthy; be physically active; and not use tobacco.

The Public Health Response:

Effectively addressing chronic diseases takes multiple partnerships across Maine. If residents are exposed to messages that support healthy choices and those behaviors are reinforced and supported where people live, work, learn, and play, the healthy choice becomes the easy choice. State, district, and local partnerships can support the individual at multiple levels. Communities, schools, worksites, and healthcare organizations all play a role. For instance, an individual with supportive family, friends, and co-workers who lives in a community that promotes healthy choices and accesses healthcare providers that provide early detection, follow up, and self-management support is encouraged to manage their chronic disease.

Promoting healthy behavior changes (such as regular physical activity, healthy eating, and tobacco cessation) can both prevent and control chronic disease in Maine. Maintaining a healthy weight can help to prevent chronic disease and modest weight loss can help to control many chronic diseases such as prediabetes, diabetes and hypertension. Screening and follow up according to evidence-based guidelines is a key strategy in reducing the burden of chronic diseases. Early detection of chronic diseases is essential to proper treatment and medical care, reducing the risk of death from diseases such as breast, colorectal, oral, cervical, and skin cancer. Management of diseases like asthma, hypertension, high cholesterol, heart failure, and diabetes according to evidence-based guidelines can prevent more severe complications of these diseases, including acute health events, hospitalizations, and death. One component of early detection and management is adequate access to quality care.

The focus for chronic disease management over the next decade will be on key factors related to chronic disease prevention. Representatives from organizations across Maine prioritized the following areas in planning sessions:

- Early detection of late-stage breast and colorectal cancers;
- Promotion of healthy behaviors and self-management for those who have been diagnosed with hypertension, prediabetes, or diabetes; and
- Reducing emergency department use for asthma and hospitalizations for heart failure.

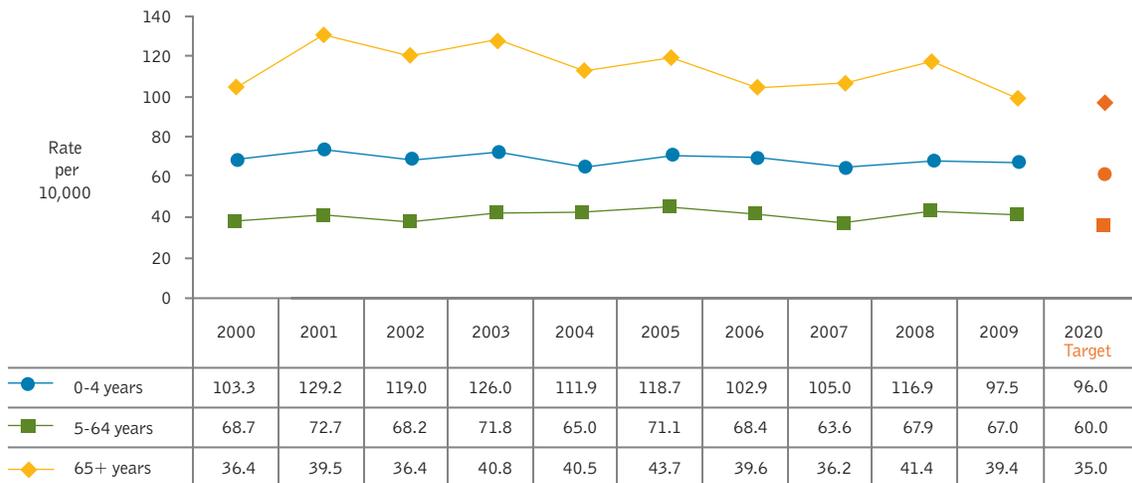
HM2020 Objectives

1. Reduce hospital emergency department visits for asthma

Many asthma-related emergency department (ED) visits can be prevented by proper management of the disease. The prevalence rate of current asthma among Maine adults has increased slightly, but not significantly, from 8.9% in 2000 to 10.0% in 2010; nationally the prevalence rate for adults with current asthma is 8.6%. Maine children ages 5-9 are disproportionately affected by asthma, with a current prevalence rate of 13.6%.

While the ED visit rate for Maine children less than 5 years of age fluctuates up and down from year to year (due to some imprecision in the point estimates), there was a significant decline in rates from 2001 to 2009. In 2009, 97.5 children under age 5 per 10,000 had visited the ED for asthma; the Healthy Maine 2020 goal is to reduce that to 96 per 10,000.

Age-specific ED visit Rate for Asthma (Principal Diagnosis), Per 10,000 Population, Maine 2000-2009



Source: Behavioral Risk Factor Surveillance System

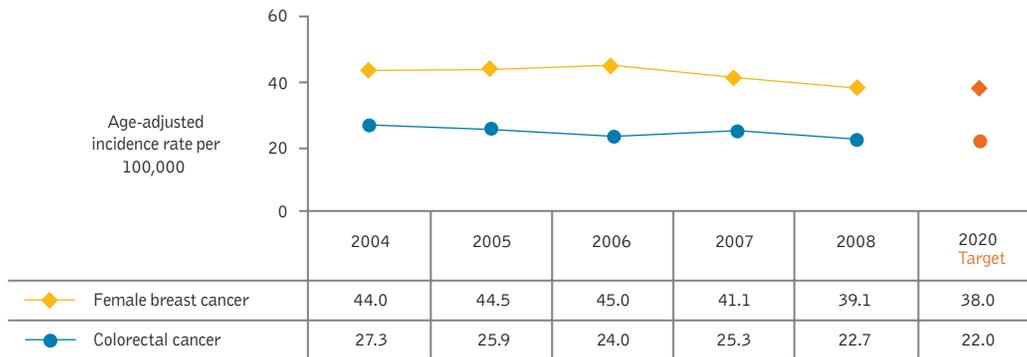
The ED visit rates for those aged 5-64 years and for those 65 or more years also vary considerably from year to year. In general, there was some improvement for age 5 to 64 over past decade, with perhaps a very slight decline, as rates in more recent years were generally slightly lower than those in earlier years. For those 65 and older, there was no improvement over past decade, as rates in recent years were similar to those of earlier years. In 2009 the rate of ED visits for those aged 5 to 64 years was 67 per 10,000 population, and for those aged 65 years or more the rate was approximately 40 per 10,000 population; the Healthy Maine 2020 goal is to reduce those respective rates to 60 and 35 per 10,000 population.

2. Increase the percentage of cancer detected at local stage

Detecting cancer at an early stage is an important strategy to decrease cancer death rates. The five-year overall survival rate for late-stage female breast cancer ranges from 15% to 67%, compared to 75% to 95% among those diagnosed at a local stage. The five-year overall survival rate for patients diagnosed with late-stage colorectal cancer range from 3% to 65%, compared to more than 90% among those diagnosed at local stage. Screening according to guidelines can detect more cancers at an early stage.

The trend chart shows that the incidence of late-stage female breast cancer in Maine declined between 2006 and 2008. The incidence of late-stage colorectal cancer in Maine also generally declined between 2004 and 2008. The most recent year of data indicated that there were 39.1 new late-stage female breast cancers diagnosed per 100,000

Incidence of Late-Stage Colorectal Cancer and Female Breast Cancer, Maine, 2004-2008



Data source: Maine Cancer Registry

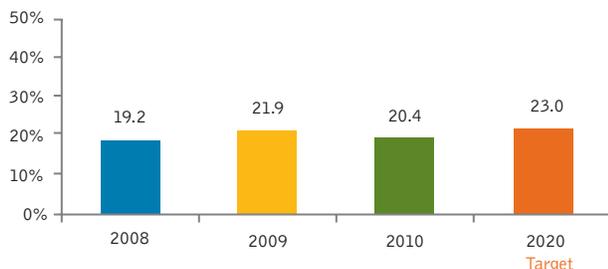
population, and 22.7 new late-stage colorectal cancers diagnosed per 100,000 population; the Healthy Maine 2020 goal is to reduce those rates to 38 and 22 per 100,000 population, respectively.

3. Increase prevention behaviors in persons with prediabetes

People with prediabetes are at very high risk of developing diabetes. With increased prevention

a healthy weight. The Healthy Maine 2020 goal is for 23% of adults with prediabetes to be at a healthy weight.

Percentage of Adults With Prediabetes Who are at a Healthy Weight, Maine 2008-2010

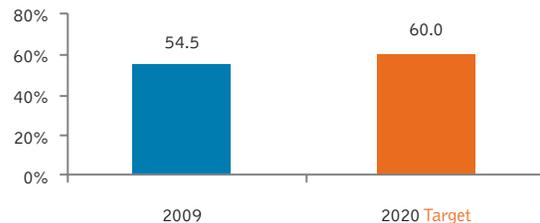


Data source: Maine Behavioral Risk Factor Survey

behaviors, people who are diagnosed with prediabetes can prevent or delay the onset of diabetes. Losing modest amounts of weight and being physically active can prevent or delay the onset of diabetes in people with prediabetes.

In Maine, the percentage of people with prediabetes who were at a healthy weight has not improved substantially since 2008, when just 19.2% were at

Percentage of Adults With Prediabetes Who are Getting Recommended Physical Activity, Maine, 2009



Data source: Maine Behavioral Risk Factor Survey

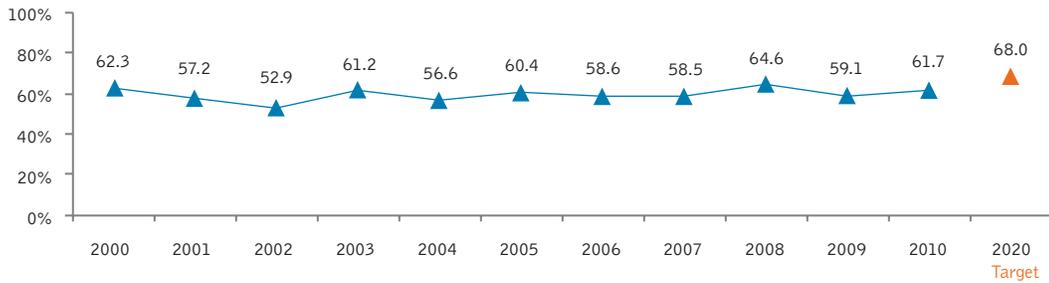
The percentage of adults with prediabetes who were getting enough physical activity was approximately 55% in 2009. The Healthy Maine 2020 goal is 60%.

4. Increase the proportion of persons with diagnosed diabetes who receive formal diabetes education

People with diabetes who receive formal diabetes training are better able to self-manage their diabetes and prevent or delay complications.

The percentage of Maine people with diabetes who have received formal diabetes training has varied somewhat from year to year, but has generally not

Percent of Adults With Diagnosed Diabetes Who Report Receiving formal Diabetes Training, Maine, 2000-2010



Data source: Maine Behavioral Risk Factor Survey

increased substantially over the decade. In 2010 61.7% of Mainers with diabetes had received formal diabetes training; the Healthy Maine 2020 goal is 68%.

5. Increase the proportion of adults with hypertension who meet the recommended guidelines

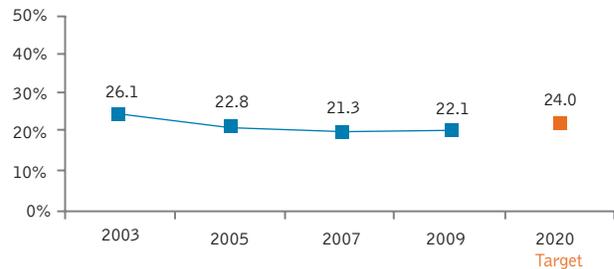
Hypertension (or high blood pressure) is a major risk factor for heart disease, stroke, and kidney disease. Losing a modest amount of weight, limiting sodium intake, engaging in regular physical activity, and avoiding heavy or binge drinking can help control hypertension and prevent complications.

Thirty percent of Maine adults report that they have been diagnosed with high blood pressure, similar to the national rate of 28.7%.

5a. Increase the proportion of adults who report having been diagnosed with hypertension who are at a healthy weight

The percentage of Maine adults with hypertension who were at a healthy weight declined somewhat between 2003 and 2005; the rate was stable for the rest of the decade. In 2009, 22.1% of adults with hypertension were at a healthy weight; the Healthy Maine 2020 goal is 24%.

Percentage of Adults With Hypertension Who Were at a Healthy Weight, Maine, 2003, 2005, 2007, 2009

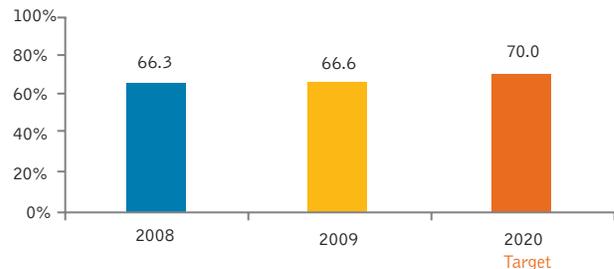


Data source: Maine Behavioral Risk Factor Survey

5b. Increase the proportion of adults who report having been diagnosed with hypertension who report cutting down on salt

The percentage of Maine adults with hypertension who reported cutting down on salt did not change from 2007 to 2009. In 2009 66.6% of adults with hypertension were cutting down on salt; the Healthy Maine 2020 goal is 70%.

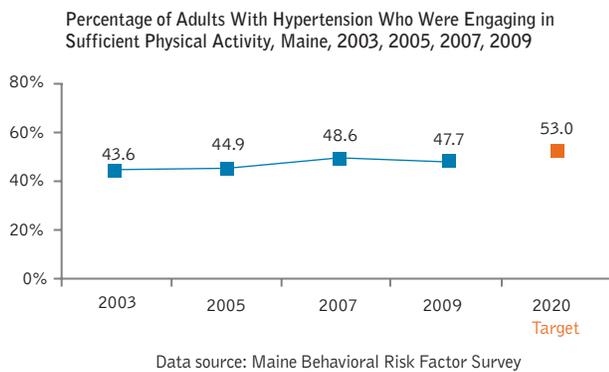
Percentage of Adults With Hypertension Who Were Cutting Down on Salt, Maine, 2007, 2009



Data source: Maine Behavioral Risk Factor Survey

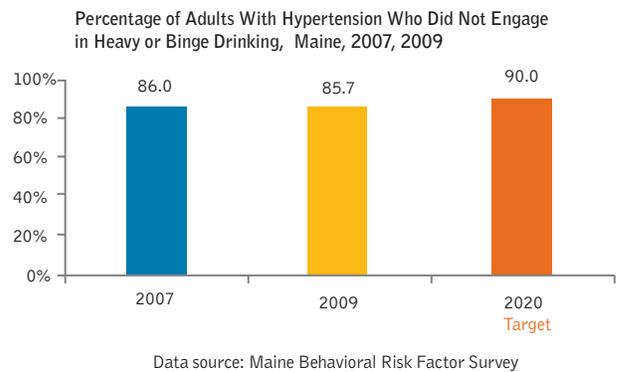
5c. Increase the proportion of adults who report having been diagnosed with hypertension who report engaging in the recommended amount of physical activity

The percentage of Maine adults with hypertension who were engaging in the recommended level of physical activity increased somewhat from 2003 through 2007, and has since been stable. In 2009 approximately 48% of adults with hypertension were engaging in sufficient physical activity; the Healthy Maine 2020 goal is 53%.



5d. Increase the proportion of adults who report having been diagnosed with hypertension who report no heavy or binge drinking

The percentage of adults with hypertension who did not engage in heavy or binge drinking did not improve between 2007 and 2009. In 2009 approximately 86% of adults with hypertension did not engage in heavy or binge drinking; the Healthy Maine 2020 goal is 90%.



6. Reduce hospitalizations of older adults with heart failure as the principle diagnosis

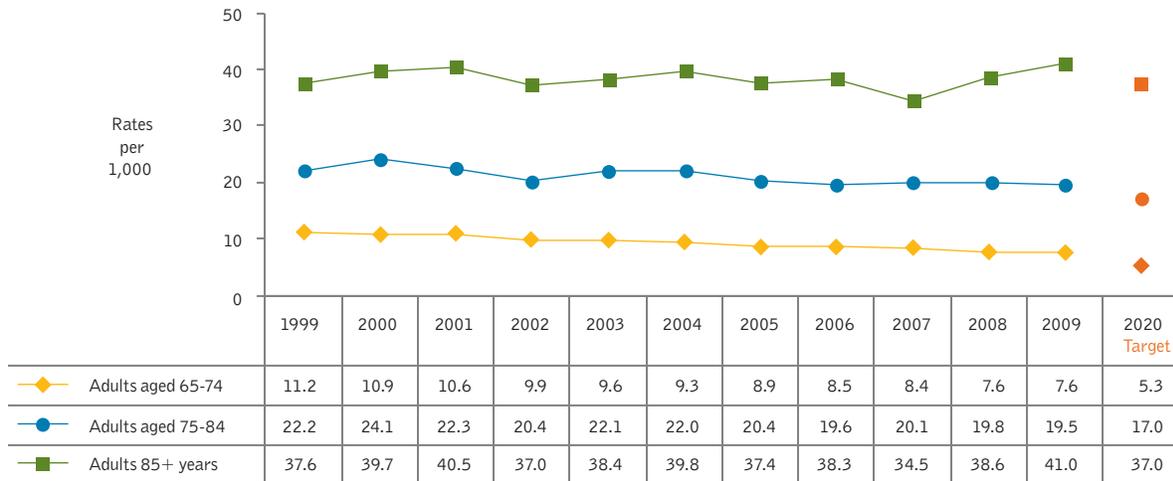
People with heart failure are six to nine times more likely to suffer sudden cardiac death than the general population. Heart failure hospitalizations have been increasing over time in the U.S.

Fortunately, heart failure can be prevented by treating or preventing conditions that lead to heart failure (like hypertension, coronary heart disease, and heart attack) and evidence-based medical management of heart failure can improve outcomes.

Among Maine residents 65-74 years of age, there was a steady decline of 32% in the heart failure hospitalization rate between 1999 (11.2 hospitalizations/1,000 population) and 2009 (7.6 hospitalizations/1,000 population). The Healthy Maine 2020 goal is to reduce this rate to 5.3 hospitalizations per 1,000 population.

Among Maine residents 75-84 years of age, the heart failure hospitalization rate varied slightly from year to year, however between 1999 and 2009 it declined 12% from 22.2 hospitalizations per 1,000 to 19.5. The Healthy Maine 2020 goal is to reduce that rate to 17 hospitalizations per 1,000.

Among Maine residents over the age of 85, the heart failure hospitalization rate varied considerably from year, making it somewhat difficult to interpret the trend. But, in general, the heart failure hospitalization rate did not improve between 1999 and 2009; and rates may have increased in recent years. In 2009 there were 41 hospitalizations for heart failure per 1,000 population. The Healthy Maine 2020 goal is to reduce this rate to 37 hospitalizations per 1,000.



Data source: Maine Inpatient Database

Methodology notes

1. Reduce hospital emergency department visits for asthma

SUB OBJECTIVES:

- 1a. Reduce hospital emergency department visits for asthma among children under 5 years.
- 1b. Reduce hospital emergency department visits for asthma among children and adults aged 5 to 64 years.
- 1c. Reduce hospital emergency department visits for asthma among adults aged 65 years and older.

Measures: Rate of emergency department visits for asthma (principal diagnosis) per 10,000 population in the age group.

Numerators: Number of Maine resident people in each age group with an emergency department visit for asthma as a principal diagnosis.

Denominators: Number of Maine residents in each age group.

Date source: Maine ED Database created from Maine Inpatient and Outpatient Databases. Asthma: ICD-9-CM code 493 (493.xx) as principal diagnosis.

Target setting method: 10% decline (from the 2007-2009 3-year average for children under age 5; from the 2009 rate for other age groups).

Other notes: The measure is the same as Healthy People 2020, but the data source is different. HP2020 uses the National Hospital Ambulatory Medical Care Survey, which does not provide state-level data.

2. Increase the percentage of cancer detected at local stage

SUB OBJECTIVES:

- 2a. Reduce the incidence rate of late-stage female breast cancer.

Measure: Age-adjusted incidence rate of female breast cancers diagnosed at late-stage. Incidence rates are per 100,000 and age adjusted to the 2000 U.S. standard population.

Numerator: Number of new female breast cancers diagnosed at late-stage during a year. Late-stage breast cancers include cancers classified as regional or distant in SEER summary stage 2000 system.

Denominator: Estimated total female population during that year.

Target setting method: 10% decline from the 2006-2008 3-year average.

- 2b. Reduce the incidence rate of late-stage colorectal cancer.

Measure: Age-adjusted incidence rate of colorectal cancer diagnosed at late-stage. Incidence rates are per 100,000 and age adjusted to the 2000 U.S. standard population.

Numerator: Number of new colorectal cancers diagnosed at late-stage during a year. Late-stage colorectal cancers include cancers classified as regional or distant in SEER summary stage 2000 system.

Denominator: Estimated total population during that year.

Target setting method: 10% decline from the 2006-2008 3-year average. The measure is the same.

Other notes: This measure is different from the Healthy People 2020 measure. The Healthy people 2020 objective focuses on reducing invasive colorectal cancers. Invasiveness of a tumor is determined by histology of tumor (ICD-O-3). The Healthy Maine 2020 objective focuses on reducing late-stage colorectal cancer incidence. Late stage is determined by Derived Summary staging method.

3. Increase prevention behaviors in persons with prediabetes

SUB-OBJECTIVES:

3a. Increase the proportion of adults diagnosed with prediabetes who report engaging in the recommended amount of physical activity.

Measure: Percentage of adults who report being diagnosed with prediabetes who report engaging in the recommended amount of physical activity (30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week).

Numerator: Number of adults who report being diagnosed with prediabetes and who report engaging in the recommended amount of physical activity.

Denominator: Number of adults who report being diagnosed with prediabetes and who responded to physical activity questions.

Target setting method: 10% increase from the 2009 prevalence.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Created variable for prediabetes using prediab1 and prediab. Per SH code preidab1 2 = no, or only during pregnancy to be compatible with prediab. Recommended amount of physical activity is 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week. The HP2020 measure is slightly different: to increase the proportion of persons at high risk for diabetes with prediabetes who report increasing their levels of physical activity. The measure here is the most comparable Maine data available.

3b. Increase the proportion of adults diagnosed with prediabetes who are at a healthy weight.

Measure: Percentage of adults who report being diagnosed with prediabetes who have a BMI ≥ 18.5 and < 25

Numerator: Number of adults who report being diagnosed with prediabetes and whose BMI is ≥ 18.5 and < 25

Denominator: Number of adults who report being diagnosed with prediabetes and who have a valid (non-missing) BMI.

Target setting method: 10% increase from the 2009 prevalence.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Created variable for prediabetes using prediab1 and prediab. Per SH code preidab1 2 = no, or only during pregnancy to be compatible with prediab. Created BMI variable from continuous BMI variables (_BMI4 and/or _BMI2) since calculated variable included individuals < 18.5 .

2009 data has a numerator < 50 . The HP2020 measure is slightly different: to increase the proportion of persons at high risk for diabetes with prediabetes who report trying to lose weight. The measure here is the most comparable Maine data available.

4. Increase the proportion of persons with diagnosed diabetes who receive formal diabetes education

Measure: Percentage of adults with diagnosed diabetes who report receiving formal diabetes training.

Numerator: Number of adults with diagnosed diabetes who report receiving formal diabetes training.

Denominator: Number of adults with diagnosed diabetes (excluding gestational diabetes and prediabetes)

Target setting method: 10% increase from the 2010 prevalence (61.7).

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. The numerator and denominator and the data source are as for Healthy People 2020, but the HP2020 is age adjusted, while the HM2020 measure is not. For this reason, they cannot be directly compared.

5. Increase the proportion of adults with hypertension who meet the recommended guidelines

SUB-OBJECTIVES:

5a. Increase the proportion of adults who report having been diagnosed with hypertension who are at a healthy weight.

Measure: Percentage of adults with hypertension who have BMI ≥ 18.5 and < 25.0 .

Numerator: Number of adults who report having been diagnosed with hypertension and who report a BMI ≥ 18.5 and < 25.0 .

Denominator: Number of adults with hypertension with a valid (non-missing) BMI.

Target setting method: 10% increase from the 2009 prevalence.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Created BMI variable from continuous BMI variables (`_BMI4` and/or `_BMI2`) since calculated variable included individuals < 18.5 . Similar HP2020 measure is developmental.

5b. Increase the proportion of adults who report having been diagnosed with hypertension who report cutting down on salt.

Measure: Percentage of adults with hypertension who report cutting down on salt.

Numerator: Number of adults who report having been diagnosed with hypertension and report cutting down on salt.

Denominator: Number of adults with hypertension who responded to the question on whether they are cutting down on salt.

Target setting method: 5% increase from the 2009 prevalence, consistent with the target already established in 2011-2020 Statewide CVH/Diabetes Plan.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Those who responded that they did not use salt were grouped into the “not cutting down on salt” category because the vast majority of sodium in the diet is through processed foods, not through consumer use. Similar HP2020 measure is developmental.

5c. Increase the proportion of adults who report having been diagnosed with hypertension who report engaging in the recommended amount of physical activity.

Measure: Percentage of adults with hypertension who engage in recommended amount of physical activity.

Numerator: Number of adults who report having been diagnosed with hypertension and report 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week.

Denominator: Number of adults with hypertension who responded to the physical activity questions.

Target setting method: 10% increase from the 2009 prevalence.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Used this variable in BRFSS multiyear dataset: _RFPAREC. Recommended amount of physical activity: 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week. Similar HP2020 measure is developmental.

5d. Increase the proportion of adults who report having been diagnosed with hypertension who report no heavy or binge drinking.

Measure: Percentage of adults with hypertension who report no heavy or binge drinking.

Numerator: Number of adults who report having been diagnosed with hypertension and report: For men, not having five or more drinks on one occasion and not having more than two drinks per day on average. For women, not having four or more drinks on one occasion and not having more than one drink per day on average.

Denominator: Number of adults with hypertension who responded to the alcohol consumption questions.

Target setting method: 5% increase from the 2009 prevalence.

Other notes: Data are statistically weighted to be more representative of the general adult population of Maine and to adjust for non-response. Created variable for no heavy or binge using: _RFDRHVY and _RFBING4. Similar HP2020 measure is developmental.

6. Reduce hospitalizations of older adults with heart failure as the principle diagnosis

SUB-OBJECTIVES:

6a. Reduce hospitalizations of adults aged 65-74 years with heart failure as the principal diagnosis.

6b. Reduce hospitalizations of adults aged 75-84 years with heart failure as the principal diagnosis.

6c. Reduce hospitalizations of adults aged 85+ years with heart failure as the principal diagnosis.

Measure: Age-specific hospitalization rate for heart failure (principal diagnosis) per 1,000 population. Heart failure: ICD-9-CM code 428 (428.xx) as principal diagnosis.

Numerator: Number of Maine residents in each age group with a hospitalization for heart failure as the principal diagnosis.

Denominator: Number of Maine residents in each age group.

Target setting methods: 30% decline from the 2009 rate for adults aged 65-74 years, 10% decline from the 2009 rate for other age groups.

Other notes: This is similar to the Healthy people 2020 objective, with a slight difference in the data source. The age groups and ICD-9-CM codes are the same. The HP2020 measure data source is the CMS Chronic Condition Data Warehouse, which contains Medicare and Medicaid beneficiary, claims, and assessment data linked by beneficiary across the continuum of care. The major difference between this and our Maine Inpatient Database is that the Maine Inpatient Database is a database of inpatient visits, while the CMS Chronic Condition Data Warehouse is a database of individuals.

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