



STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Larry Hogan, Governor - Boyd Rutherford, Lt. Governor - Dennis R. Schrader, Secretary

January 13, 2017

The Honorable Edward J. Kasemeyer
Chair
Senate Budget and Taxation Committee
3 West Miller Senate Office Building
Annapolis, MD 21401-1991

The Honorable Maggie McIntosh
Chair
House Appropriations Committee
121 House Office Building
Annapolis, MD 21401-1991

Re: 2016 Joint Chairmen's Report, Page 70, M00F03.04 – Report on Diabetes and Obesity Initiatives and Funding

Dear Chair Kasemeyer and Chair McIntosh:

Pursuant to page 70 of the Joint Chairmen's Report of 2016, the Department of Health and Mental Hygiene (the Department) respectfully submits this report on Diabetes and Obesity Initiatives and Funding. Specifically, it was requested that the report include a detailed analysis of the Department's: 1) current initiatives for addressing obesity and diabetes statewide and by county, 2) spending by county on initiatives addressing obesity and diabetes, and 3) identification of potential long-term dedicated funding streams for programs aimed at reducing diabetes and obesity. This report describes current diabetes and obesity initiatives funded in state fiscal years 2016-2017 by the Department.

I hope this information is useful. If you have any questions regarding this report, please contact Christi Megna, Assistant Director of the Office of Governmental Affairs, at (410) 767-6509.

Sincerely,

Dennis R. Schrader
Secretary

Enclosure

cc: Christi Megna, J.D., Assistant Director, Office of Governmental Affairs
Howard Haft, M.D., Deputy Secretary, Public Health Services
Donna Gugel, M.H.S., Acting Director, Prevention and Health Promotion Administration

Report on Diabetes and Obesity Initiatives and Funding

As required by the 2016 Joint Chairmen's Report, Page 70, M00F03.04

**Maryland Department of Health and Mental Hygiene
November 2016**

**Larry Hogan
Governor**

**Boyd Rutherford
Lieutenant Governor**

**Dennis Schrader
Secretary**

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Acronyms

Body Mass Index.....	BMI
Centers for Disease Control and Prevention.....	CDC
Comprehensive School Physical Activity Program.....	CSPAP
Diabetes Prevention Program.....	DPP
Fiscal Year.....	FY
Healthiest Maryland Businesses.....	HMB
Maryland State Department of Education.....	MSDE
Supplemental Nutrition Assistance Program.....	SNAP
University of Maryland Extension.....	UME
Supplemental Nutrition Program for Women, Infants, and Children.....	WIC

Background

Preventing overweight, obesity, and diabetes are priorities of the Maryland Department of Health and Mental Hygiene's (the Department's) Center for Chronic Disease Prevention and Control. An estimated 1.5 million adult Marylanders are overweight and an additional 1.3 million adult Marylanders are obese (35.3% and 29.6%, respectively).¹ Both of these weight designations are associated with increased risk for certain diseases, including cardiovascular disease (myocardial infarction, angina, coronary heart disease, or stroke) and type 2 diabetes (including prediabetes), with obesity-attributable expenditures estimated to be more than \$3.03 B in Maryland (2009 dollars).^{2,3} Although many complex and interrelated factors contribute to obesity and weight-related illness, proper nutrition and regular physical activity are key recommended strategies to help people maintain a healthy weight or decrease the risks of overweight or obesity.⁴ Because diabetes and obesity are priorities, the Department seeks and submits applications for all relevant federal funding opportunities to address these issues, and to expand the reach and impact of current initiatives. The majority of federal funds for these initiatives are awarded to statewide organizations and local health departments through voluntary, competitive application processes.

Obesity in Maryland

Burden

Obesity and overweight are major contributors to chronic diseases both nationally and in Maryland, and represent significant public health challenges. Elevated body weight increases the risk of morbidity from type 2 diabetes, coronary heart disease, stroke, osteoarthritis, sleep apnea, and some cancers (breast, colorectal, endometrial, and kidney), and is associated with an increased risk of all-cause and cardiovascular disease mortality.⁵ The Trust for America's Health projects that the number of adults who are obese, along with associated disease rates and health care costs, is expected to increase over the next 20 years if nothing is done to address the issue.⁶ Recent estimates indicate that obesity-related costs account for 21% of U.S. medical spending, totaling \$190 B.⁷

Since 2011, the weight of Marylanders has remained relatively stable. There has been a slight reduction in the prevalence of Marylanders who are not overweight or obese (from 35.6% in 2011 to 35.0% in 2015), and there has been a slight increase in the prevalence of Marylanders

¹Maryland Behavioral Risk Factor Surveillance System, 2014, Maryland Department of Health and Mental Hygiene, September 2015 <www.marylandbrfss.org>.

²*Id.*

³Trogdon, J.G., Finkelstein, E.A., Feagan, C.W., Cohen, J.W., "State- and Payer-Specific Estimates of Annual Medical Expenditures Attributable to Obesity," 20(1) (January 2012): 214-20, *Obesity*, September 2015 <<http://www.ncbi.nlm.nih.gov/pubmed/21681222>>.

⁴Centers for Disease Control and Prevention, "Recommended community strategies and measurements to prevent obesity in the United States," 58(RR-7) (2009): 1-30, *Morbidity and Mortality Weekly Report*, 16 September 2016 <<https://www.cdc.gov/mmwr/pdf/rr/rr5807.pdf>>.

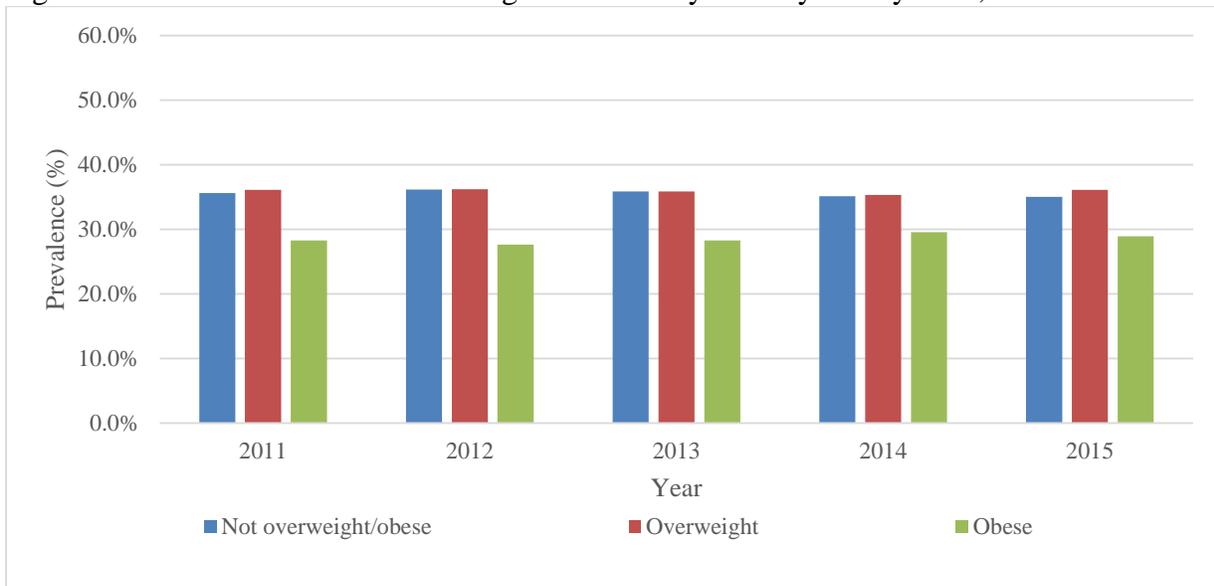
⁵Jensen, M.D. et al., "2013 AHA/ACC/TOS Guideline for the Management of Overweight and Obesity in Adults," *Journal of the American Heart Association*, September 2015 <<http://circ.ahajournals.org/content/early/2013/11/11/01.cir.0000437739.71477.ee>>.

⁶Levi, Jeffrey et al., "F as in Fat: How Obesity Threatens America's Future 2013," 2013, Trust for America's Health, 16 September 2016 <<http://healthyamericans.org/assets/files/TFAH2013FasInFatReportFinal%209.9.pdf>>.

⁷Cawley, J., Meyerhoefer, C., "The Medical Care Costs of Obesity: an Instrumental Variables Approach." 31 (2012): 219-30, *J Health Econ*, September 2015 <<http://www.ncbi.nlm.nih.gov/pubmed/22094013>>.

who are obese (from 28.3% in 2011 to 28.9% in 2015) (see Figure 1).⁸ However, these changes are not statistically significant.

Figure 1: Prevalence of Adult Overweight and Obesity in Maryland by Year, 2011-2015⁹



Overweight and obese weight status is associated with increased risk of prediabetes and diabetes. Compared to Maryland adults who are not overweight or obese, prediabetes is 1.8 times more likely among Maryland adults who are overweight and 3.3 times more likely among Maryland adults who are obese; for type 2 diabetes, the rates are 2.0 and 4.8 times as great, respectively.¹⁰ In addition, as body mass index (BMI) increases into the obese category, the risk factors related to coronary artery disease and other cardiovascular conditions also increase. Studies indicate that obesity independently predicts coronary atherosclerosis. Hypertension is 3 times more common in individuals who are obese than those who are not overweight or obese.¹¹

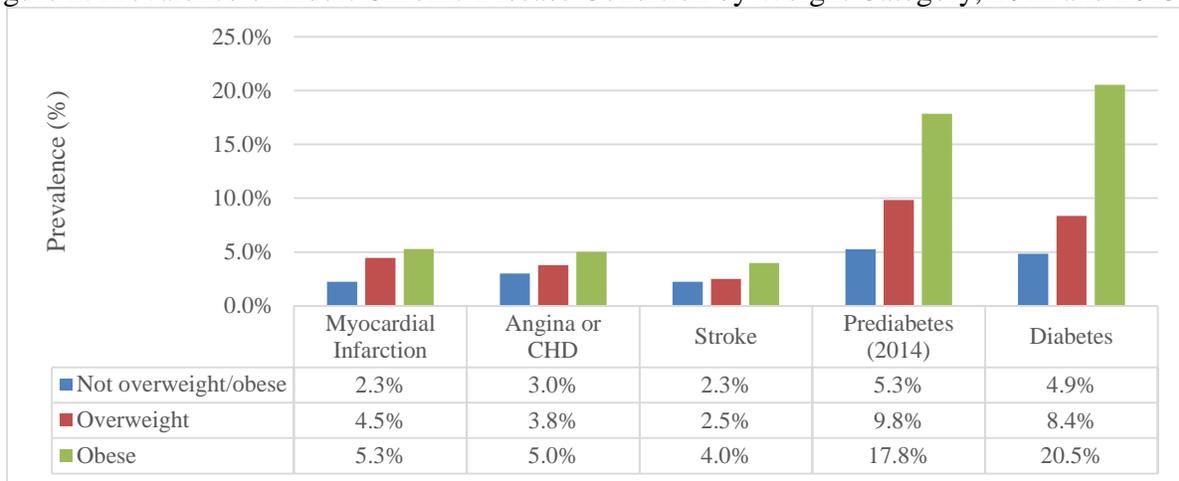
⁸Maryland Behavioral Risk Factor Surveillance System, 2014, Maryland Department of Health and Mental Hygiene, September 2015 <www.marylandbrfss.org>.

⁹Maryland Behavioral Risk Factor Surveillance System, 2014-2015, Maryland Department of Health and Mental Hygiene, 9 August 2016 <www.marylandbrfss.org>.

¹⁰*Id* fn 8.

¹¹Eckel, Robert. "Obesity and Heart Disease." 96 (4 November 1997), *Circulation*, 19 September 2016 <<http://circ.ahajournals.org/content/96/9/3248>>.

Figure 2: Prevalence of Adult Chronic Disease Condition by Weight Category, 2014 and 2015¹²



Note: Prediabetes data were collected in 2014; data on other diseases were collected in 2015.

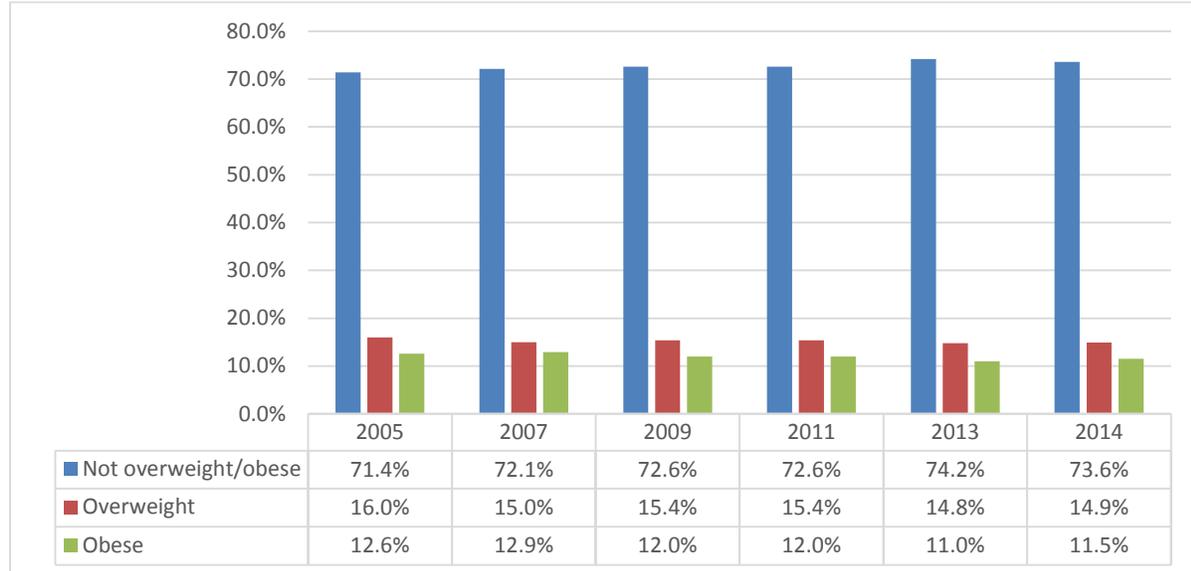
Maryland has made progress in addressing childhood obesity by being one of 19 states and U.S. territories showing small declines in obesity among low-income preschoolers from 2008 to 2011. Following decades of rising rates nationally, obesity among low-income Maryland preschoolers decreased from 15.7% in 2008 to 15.3% in 2011.¹³ Among high school age groups, obesity rates in Maryland have also shown statistically significant declines based on trend analyses using a logistic regression model controlling for sex, race/ethnicity, and grade. Specifically, according to data from the Maryland Youth Risk Behavior Survey, 11.5% of Maryland public high school youth were obese (based on self-reported height and weight) in 2014, compared to 12.6% in 2005.¹⁴ See Figure 3 for overweight and obesity prevalence among Maryland high school students for available survey years.

¹²Id fn 9.

¹³Centers for Disease Control and Prevention, “CDC Vital Signs: Obesity Among Low-Income, Preschool-Aged Children — United States, 2008–2011,” 62(31) (6 August 2013): 629-634, *Morbidity and Mortality Weekly Report*, 6 September 2016 <<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6231a4.htm>>.

¹⁴Centers for Disease Control and Prevention, Maryland Youth Risk Behavior Survey, “Maryland High School Survey: Trend Analysis Report,” 2014 <<http://phpa.dhmdh.maryland.gov/ccdpc/Reports/Documents/2014%20YRBS%20Reports/2014MDH%20Summary%20Tables.pdf>>.

Figure 3: Prevalence of Overweight and Obesity in Maryland High School Youth by Year, 2005-2014



Data sources on youth obesity trends are limited and not widely available. For example, the Centers for Disease Control and Prevention (CDC) has not reported national or state level obesity data on Supplemental Nutrition Program for Women, Infants, and Children (WIC) participants since 2012. Additionally, height and weight data self-reported by middle school youth are not reliable, which eliminates surveys such as the Maryland Youth Risk Behavior Survey as a possible data collection method. Researchers have found that self-reported height and weight among middle school students consistently underestimates the prevalence of overweight, and that self-reported data is significantly different compared to the actual measurement of the student.^{15,16} The self-report bias is less of a problem in high school youth because a literature review identified a closer correlation between self-reported height and weight compared to actual measurements among this age group.¹⁷

Current Department Initiatives

The Department addresses dietary and physical activity behaviors to prevent and control obesity through the implementation of policy, systems, and environmental strategies. Initiatives are informed by evidenced-based strategies identified in the *Guide to Community Preventive Services*, recommendations from national organizations such as the Institute of Medicine and the CDC, and activities and performance measures required for grants awarded to the Department.¹⁸

¹⁵Kolbo J.R., Penman, A.O., Meyer, M.K., et al, "Prevalence of Overweight among Elementary and Middle School Students in Mississippi Compared with Prevalence Data from the Youth Risk Behavior Surveillance System," (15 June 2006), 3(3): 1-10, *Preventing Chronic Disease*, 20 September 2016 <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1636714/>>.

¹⁶Morrissey, S.L., Whetstone, L.M., Cummings, D.M., et al, "Comparison of Self-Reported and Measured Height and Weight in Eighth-Grade Students," (7 November 2006), 76(10): 512-515, *Journal of School Health*, 20 September 2016 <<http://www.ncbi.nlm.nih.gov/pubmed/17096824>>.

¹⁷Sherry, B., Jeffers, M.E., Grummer-Strawn, L.M., "Accuracy of Adolescent Self-Report of Height and Weight in Assessing Overweight Status," (1 December 2007), 161(12): 1154- 1161, *Archives of Pediatrics and Adolescent Medicine*, 20 September 2016 <archpedi.jamanetwork.com/article.aspx?articleid=571673>.

¹⁸The Community Guide is a website that houses the official collection of all Community Preventive Services Task Force (Task Force) findings and the systematic reviews on which they are based. The Centers for Disease Control and Prevention provides administrative, research, and technical support for the Community Preventive Services Task Force.

The Department's current obesity-related initiatives are funded through multiple CDC cooperative agreements.

During state fiscal years (FYs) 2016-2017, the Department awarded more than \$2.57 M to support community obesity-related initiatives, and nearly \$600,000 to support statewide obesity-related initiatives. The Department's implementation of the State and Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke grant provides specific funding to nine high-burden jurisdictions to implement obesity, diabetes, and hypertension prevention activities. These statewide and community initiatives are implemented in collaboration with state agency partners and stakeholders in a variety of settings including: communities, health systems, worksites, schools, and child care. In 2015, the Department added a full-time Obesity Prevention Coordinator, funded through the CDC Preventive Health and Health Services Block Grant, to expand obesity-related activities.

Communities

The Department administers the Maryland WIC program to assist eligible women, infants, and children to achieve improved nutrition and health status, resulting in improved birth outcomes, better early childhood growth and development, and success in breastfeeding. WIC achieves these outcomes through the provision of specific foods to provide key nutrients during critical times of growth; participants also receive extensive nutrition education, breastfeeding promotion and support, and referrals for other health and social services. The Maryland WIC program serves 100,000 families which are comprised of 35,682 women (pregnant or postpartum), 83,758 children (ages 1-4), and 35,716 infants.

Each adult participant and caregiver of infant and child participants receives individual counseling and anticipatory guidance several times during the year while they are in the program. Counseling focuses on identified risk factors, including obesity in adults, the risk of obesity in children, and diabetes in both adults and children. Participants also receive group education every 3 months when they receive their WIC benefits. Local WIC agencies analyze participant risk factor data when making decisions about topics to discuss. Current topics offered by local agencies include: physical activity; food portion sizes; nutritious, quick meals; and fruit and vegetable consumption. Breastfeeding is promoted and supported by the program as the ideal infant feeding practice. Further guidance for younger infants emphasizes sensitivity to hunger and fullness cues and avoidance of early introduction of complementary foods. Guidance for older infants emphasizes appropriate complementary foods and beverages, use of a cup, and age-appropriate play.

Healthy food access is a protective factor against obesity; the initiatives described in this report are categorized as obesity prevention strategies.¹⁹ The Department works with statewide partners including the Maryland Farmers Market Association and the University of Maryland Extension (UME) to improve healthier food access in retail and community venues. Together, the Department and the Maryland Farmers Market Association expanded both: 1) use of Maryland Market Money, a statewide currency distributed to participants in federal nutrition

¹⁹Bell, Judith, et al., "Access to Healthy Food and Why it Matters: A Review of the Research," 2013, The Food Trust, 16 September 2016 <http://thefoodtrust.org/uploads/media_items/access-to-healthy-food.original.pdf>.

benefits programs including the Farmers Market Nutrition Program, WIC Fruit and Vegetable Check Program and the Supplemental Nutrition Assistance Program (SNAP); and 2) acceptance of Maryland Market Money by vendors at farmers markets located throughout Maryland. These efforts increased the food budgets of many low-income Marylanders while also supporting Maryland farmers. The Department also works with UME to train food assistance site staff and volunteers to provide nutrition education at food pantries and food drops, and encourages community groups and organizations to use healthy food donation guidelines for community food donations and drives to support greater access to healthier foods for low-income Marylanders.

The Department promotes evidence-based strategies to increase physical activity and encourages walking as a primary form of daily physical activity. In collaboration with the Department of Natural Resources, the Department is currently piloting the *Healthy Parks Healthy People* program based on the National Park Service's *Healthy Parks Healthy People US*.²⁰ This pilot program educates Maryland physicians on the value parks contribute to healthy living, and asks physicians to encourage patients to take advantage of state parks in their area to increase opportunities for physical activity. Additionally, the Department conducted community walking assessments in the jurisdictions funded by the CDC the State and Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke grant. Local health departments shared assessment findings with community partners and used the findings to enhance and support community walkability. The Department also encourages community organizations and faith-based institutions to offer walking support programs.

Following the Surgeon General's *2015 Call to Action to Promote Walking and Walkable Communities*, the Department created *Walk Maryland Day* to encourage Marylanders to take a walk with classmates, friends, neighbors, and co-workers during a designated day in October. Governor Hogan proclaimed October 5, 2016 as the second annual *Walk Maryland Day*. The event was coordinated by the Department and multiple state agencies including the Maryland State Department of Education (MSDE); Maryland Department of Aging; Department of Natural Resources; UME; and volunteers from the Maryland Advisory Councils on Physical Fitness, Arthritis and Related Conditions, Heart Disease and Stroke, and Bicycle and Pedestrian Access. In addition to event coordination, the group developed resources and messages to encourage and support Marylanders to walk for daily physical activity.

Worksites

Healthiest Maryland Businesses (HMB) is Maryland's statewide worksite wellness program. More than 300 worksites have joined HMB since the program was established in 2010, reaching 267,633 employees.²¹ Participating businesses complete the CDC Worksite Health Scorecard, which assesses worksites' efforts to prevent obesity, heart disease, stroke, diabetes, and related health conditions.²² The HMB statewide coordinator at the Department provides comprehensive guidance and support to six regional HMB coordinators. The HMB regional

²⁰National Park Service, Health Parks Healthy People US, 16 September 2016 <http://www.nps.gov/public_health/hp/hphp.htm>.

²¹Healthiest Maryland Businesses, 16 September 2016 <www.healthiestmdbusinesses.org>.

²²National Center for Chronic Disease Prevention and Health Promotion, "The CDC Worksite Health ScoreCard: An Assessment Tool for Employers to Prevent Heart Disease, Stroke, & Related Health Conditions," January 2014, Centers for Disease Control and Prevention, 16 September 2016 <http://www.cdc.gov/dhds/pubs/docs/HSC_Manual.pdf>.

coordinators work to recruit worksites into the program, provide employers technical assistance to implement nutrition standards and policies that support daily physical activity opportunities, facilitate regional trainings and events, and communicate best practices. In addition to the technical assistance, HMB offers support in the form of mini-grants. For example, in FY 2016-2017, 32 HMB worksites located throughout 17 Maryland jurisdictions were awarded mini-grants to develop lactation support policies and dedicated lactation support rooms, and to implement physical activity policies in worksites. The purpose of offering the mini-grants was to help businesses create a healthful environment where their employees can meet their worksite wellness goals, which may include maintaining a healthy weight, and preventing overweight or obesity among employees.

Child Care

The Department supports improved health of children in child care and school settings by encouraging healthier environments through evidence-based and emerging practices. During the past 5 years, the Department strengthened partnerships with MSDE, UME, and the Maryland Family Network. The Department worked to align efforts to support child care providers and centers' implementation of evidence-based best practices for nutrition, physical activity, and screen time recommended by the American Academy of Pediatrics, the American Public Health Association, and the National Resource Center for Health and Safety in Child Care and Early Education.²³ State agency partners developed standardized training materials and resources for use by local health departments and UME educators resulting in more than 1,000 child care providers completing in-person or online training on healthy eating and physical activity best practices. Additionally, the Department and the MSDE Office of Child Care added a health and wellness achievement based on the Let's Move Childcare Checklist Quiz and Action Plan as part of Maryland's Quality Rating Improvement System (Maryland EXCELS).²⁴

Coordination of State partner activities in child care settings occurs through the Maryland Child Care Wellness Policies and Practices Project. The Project surveyed child care providers in November 2015 to assess child care environments in Maryland, and used the survey findings to develop recommendations to support healthier environments. Additionally, the CDC's Division of Nutrition, Physical Activity, and Obesity featured Maryland's child care wellness efforts in a recently published *State Program Early Care and Education Highlights*.²⁵

Schools

Since 2013, the Department has partnered with MSDE, UME, and the University of Maryland School of Medicine to implement the Maryland Wellness Policies and Practices Project. This multi-year evaluation project assesses local school wellness policies and practices,

²³American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education, "Preventing Childhood Obesity in Early Care and Education: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition," 2011, National Resource Center for Health and Safety in Child Care and Early Education, 16 September 2016 <http://nrckids.org/CFOC3/PDFVersion/preventing_obesity.pdf>.

²⁴<https://healthykidshealthyfuture.org/>.

²⁵National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health, "DNPAO State Program Early Care and Education Highlights," February 2016, Centers for Disease Control and Prevention, 16 September 2016 <<http://www.cdc.gov/nccphp/dnpao/state-local-programs/pdf/early-care-and-education-highlights.pdf>>.

develops recommendations based on assessment findings, and disseminates findings to each local school system to support the implementation of school wellness policies and practices. The goal of the Maryland Wellness Policies and Practices Project is to enhance opportunities for healthy eating and physical activity for Maryland students by helping schools and school systems create and implement strong and comprehensive written wellness policies. The Department used the Maryland Wellness Policies and Practices Project findings to develop the framework for the School and Child Care Center Wellness Activity Support funding opportunity that was awarded to local health departments in nine jurisdictions (Calvert, Carroll, Cecil, Dorchester, Garrett, Harford, Howard, Kent, and St. Mary's). This funding award allows local health departments to support schools and child care partners to develop systems and policies that implement updated federal guidelines and other best practices in support of healthy youth.

The Student Healthy Weight Program facilitates communication between pediatricians, parents, and school staff including physical education teachers and school nurses to support elementary students who are severely obese in making lifestyle changes to maintain a healthier weight.²⁶ During the 2015-2016 school year, 50 students from 35 schools throughout three jurisdictions were referred by 15 pediatricians to participate in the program.²⁷ The program engages school staff to provide students nutrition education, physical activity, and behavior change education. The Department created a website containing a toolkit of program materials to help pediatricians and school nurses increase student participation in the 2016-2017 school year.

The Comprehensive School Physical Activity Program (CSPAP) is a multi-component approach for school systems to take advantage of all opportunities for students to be physically active before, during, and after the school day so that they can achieve 60 minutes of daily physical activity. The Department collaborated with MSDE to deliver training on the development, implementation, and evaluation of CSPAP; since 2014, teachers from an estimated 285 schools reaching 141,854 students in 13 counties have been trained on CSPAP; and mini-grants to implement CSPAP were awarded to local school systems in five jurisdictions in FY 2016 with an additional planned award to local school systems in four jurisdictions in FY 2017.

²⁶Severe obesity is defined as weight above the 95th percentile for body mass index (BMI). Source: Kelly, et al., "Severe Obesity in Children and Adolescents: Identification, Associated Health Risks, and Treatment Approaches," 128 (October 8, 2013): 1689-1712, Circulation, 19 September 2016 <<http://circ.ahajournals.org/content/128/15/1689>>.

²⁷<http://phpa.dhmh.maryland.gov/ccdpc/shwp/Pages/about.aspx>.

Current Spending for Obesity Initiatives in Maryland

Table 1. Obesity Spending in Maryland FY 16-17²⁸

Obesity Spending in Maryland FY 16-17			
COUNTY	FY 16	FY 17	Total
Allegany*	\$85,343	\$55,292	\$140,635
Anne Arundel	\$0	\$10,000	\$10,000
Baltimore City*	\$95,157	\$92,239	\$187,396
Baltimore County	\$0	\$12,500	\$12,500
Calvert	\$70,000	\$2,500	\$72,500
Caroline*	\$56,414	\$55,530	\$111,944
Carroll	\$60,000	\$2,500	\$62,500
Cecil	\$60,000	\$0	\$60,000
Charles	\$52,500	\$64,500	\$117,000
Dorchester*	\$118,155	\$118,081	\$236,236
Frederick	\$55,000	\$67,000	\$122,000
Garrett*	\$57,009	\$109,517	\$166,526
Harford	\$12,500	\$62,500	\$75,000
Howard	\$110,000	\$64,500	\$174,500
Kent	\$60,000	\$124,500	\$184,500
Montgomery	\$0	\$0	\$0
Prince George's	\$0	\$15,000	\$15,000
Queen Anne's	\$2,500	\$0	\$2,500
St. Mary's	\$15,000	\$62,500	\$77,500
Somerset*	\$59,878	\$52,848	\$112,726
Talbot	\$0	\$12,500	\$12,500
Washington*	\$108,079	\$128,217	\$236,296
Wicomico*	\$137,474	\$120,885	\$258,359
Worcester*	\$69,122	\$54,129	\$123,251
County Total			\$2,571,369
Statewide Partners**	\$368,370	\$255,100	\$623,470

*County funded through the CDC State and Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke Grant.

**Funding awarded to Crossroads Transportation, Department of Natural Resources, Health Freedom, Inc., Lifebridge Health, Maryland Chapter American Academy of Pediatrics, Maryland Family Network, Maryland Farmers Market Association, Maryland Public Television, Student Healthy Weight Program, Toole Design, University of Maryland Extension, University of Maryland School of Medicine.

²⁸Maryland Department of Health and Mental Hygiene, Center for Chronic Disease Prevention and Control, Obesity Funding in Maryland, Fiscal Year 2016-2017.

Diabetes in Maryland

Burden

In 2015, diabetes prevalence among Maryland adults was 10.4%, which is higher than the national prevalence of 10.1% (2014).^{29,30} Although the diabetes prevalence rate is highest in those older than 65, adults aged 50-64 are the fastest growing subgroup of people with diabetes in Maryland. Diabetes prevalence was highest among Marylanders with less than a high school education or who graduated from high school: 13.2% compared to 7.3% for Marylanders who graduated from college; and Marylanders who earned less than \$15,000 annually had the highest diabetes prevalence (13.9%) among all household income groups.³¹

In 2012, the total cost associated with diagnosed diabetes in the U.S. was \$245 B, an increase of 41% from data collected just five years earlier. This includes \$176 B in direct medical expenses.³² In 2011, Maryland was projected to spend \$7.5 B on diabetes-associated costs in 2015 and \$10.3 B in 2025, including costs related to prediabetes and undiagnosed diabetes.^{33,34} People with diagnosed diabetes incur on average 2.3 times the medical expenses of people without diabetes.³⁵ The largest portion of these expenditures is for treatment of diabetes-related complications.³⁶

Table 2: Diabetes Prevalence in Maryland, 2015³⁷

Diabetes Prevalence	%
Statewide	10.4
By Age Group	
Age 18 to 24	<i>Unable to report*</i>
Age 25 to 34	<i>Unable to report*</i>
Age 35 to 44	4.9
Age 45 to 54	9.8
Age 55 to 64	18.4
Age 65 to 74	22.2
Age 75+	23.7
By Sex	
Male	10.9
Female	9.9
By Race/Ethnicity	

²⁹Maryland Behavioral Risk Factor Surveillance System, 2015, Maryland Department of Health and Mental Hygiene, 9 August 2016 <www.marylandbrfss.org>.

³⁰Behavioral Risk Factor Surveillance System Prevalence and Trends Data, 18 August 2016, Centers for Disease Control and Prevention, 16 September 2016 <<http://www.cdc.gov/brfss/brfssprevalence/>>.

³¹Maryland Behavioral Risk Factor Surveillance System, 2015, Maryland Department of Health and Mental Hygiene, 9 August 2016 <www.marylandbrfss.org>.

³²American Diabetes Association, "Economic costs of diabetes in the U.S. in 2012," 36(4) (2013):1033-1046, Diabetes Care, <<http://care.diabetesjournals.org/content/36/4/1033>>.

³³Diabetes 2025 – U.S., State, and Metropolitan Trends, 2010, Institute for Alternative Futures, 16 September 2016 <<http://www.altfutures.org/diabetes2025>>.

³⁴2015 data were not available at the time of publication of this report.

³⁵*Id* fn 32.

³⁶*Id* fn 32.

³⁷Maryland Behavioral Risk Factor Surveillance System, 2014-2015, Maryland Department of Health and Mental Hygiene, 9 August 2016 <www.marylandbrfss.org>.

White, Non-Hispanic	10.0
Black, Non-Hispanic	12.8
Asian	7.4
Hispanic	<i>Unable to report*</i>
Other	12.4
By Education	
Less than High School OR Grade 12 or GED (High school graduate)	13.2
College 1 year to 3 years (Some college or technical school)	10.5
College 4 years or more (College graduate)	7.3
By Income	
Less than \$15,000	13.9
\$15,000 to less than \$25,000	13.5
\$25,000 to less than \$35,000	13.6
\$35,000 to less than \$50,000	12.6
\$50,000 or more	8.1

**Unable to report due to either insufficient sample size of fewer than 50 responses, or because the relative standard error is 30% or greater.*

Prediabetes in Maryland

Prediabetes is a condition where blood glucose levels are higher than normal, but not high enough to be classified as type 2 diabetes. People with prediabetes have an increased risk of developing type 2 diabetes, and are at higher risk of heart disease and stroke. According to the CDC, an estimated 37% of the adult population in the United States has prediabetes (86 million Americans). Based on this estimate approximately 1.6 million Maryland adults would have the condition.^{38,39} The CDC notes that 9 of 10 adults who have prediabetes do not know that they have the condition; in 2014, only 10.5% of Maryland adults (approximately 408,000) reported that a healthcare provider told them they had prediabetes (or borderline) diabetes.⁴⁰ People at risk for type 2 diabetes can prevent or delay the disease by making modest lifestyle changes including weight loss and increased physical activity; these two changes can improve the body's ability to use and process glucose.⁴¹ Testing to detect diabetes is recommended for adults of any age who are overweight (BMI ≥ 24 , or ≥ 22 for Asian-Americans) or obese (BMI ≥ 30), and who have one or more additional risk factors for diabetes such as increased body

³⁸Centers for Disease Control and Prevention, "National Diabetes Statistics Report: Estimates of Diabetes and its Burden in the United States, 2014," 2014, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 16 September 2016 <<https://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>>.

³⁹Maryland Behavioral Risk Factor Surveillance System, 2015, Maryland Department of Health and Mental Hygiene, 9 August 2016 <www.marylandbrfss.org>.

⁴⁰Maryland Behavioral Risk Factor Surveillance System, 2014, Maryland Department of Health and Mental Hygiene, September 2015 <www.marylandbrfss.org>.

⁴¹Knowler, et al., "National Diabetes Prevention Research Study: Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin," 346 (6) (7 February 2002): 393-403, *The New England Journal of Medicine*, <<http://www.nejm.org/doi/full/10.1056/NEJMoa012512#t=article>>.

weight or increased blood glucose levels.^{42,43} For all others, testing should begin at age 45; and, if tests are normal, repeat testing should be conducted every 3 years.⁴⁴

Table 3: Prediabetes Prevalence in Maryland, 2014⁴⁵

Prediabetes Prevalence	%
Statewide	10.5
By Age Group	
Age 18 to 44	5.8
Age 45 to 54	13.9
Age 55 to 64	15.4
Age 65+	14.9
By Sex	
Male	9.9
Female	11.1
By Race/Ethnicity	
White, Non-Hispanic	9.6
Black, Non-Hispanic	12.4
Hispanic, Other, Multiracial	10.1
By Weight Status	
Normal Weight	5.0
Overweight	9.8
Obese	18.0

Current Department Initiatives

The Department supports statewide efforts to prevent and manage diabetes by engaging partners, building and sustaining evidence-based programs, developing statewide resources, and implementing communication and awareness messages. The Department’s current diabetes prevention and management initiatives are funded through multiple CDC cooperative agreements. Historically, \$100,000 of state General Funds have been allocated annually to diabetes prevention and control efforts. In addition, the Department administers a grant to Sinai Hospital to implement the diabetes navigation Medical Home Extender project which is intended to reduce the number of patient hospitalizations related to diabetes and to help program participants manage their diabetes. The project uses trained community health workers to provide in-home support and case management from a registered nurse. During FY 2016-2017, the Department awarded more than \$4.81 M to community prediabetes and diabetes initiatives, and more than \$300,000 to statewide diabetes initiatives. The Department employs a full time Diabetes Program Coordinator who coordinates diabetes initiatives, develops strategic partnerships, and provides programmatic and policy expertise. The Department has leveraged federal funding to support two contractual positions to address diabetes prevention.

⁴²CDC Prediabetes Screening Test, National Diabetes Prevention Program, Centers for Disease Control and Prevention, 16 September 2016 <<http://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>>.

⁴³Centers for Disease Control and Prevention, Diabetes Prevention Recognition Program, July 2016 <<http://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>>.

⁴⁴American Diabetes Association, “Standards of Medical Care in Diabetes—2016” 39 (January 2016). *Diabetes Care*, 16 September 2016 <http://care.diabetesjournals.org/content/39/Supplement_1>.

⁴⁵*Id* fn 38.

In July 2016, Maryland was one of only two states awarded federal funds from CDC to develop and implement a reimbursement model for Medicaid beneficiaries who participate in evidence-based Diabetes Prevention Programs. This funding gives Maryland Medicaid an unprecedented opportunity to develop a Medicaid reimbursement model for the National Diabetes Prevention Program (DPP). This highly visible 2-year project is fast moving, with initial enrollment of beneficiaries into the National DPP by the fifth month of the project. Four Managed Care Organizations will build systems to: 1) increase testing; and 2) assure referral of and reimbursement for beneficiaries who have prediabetes into the National DPP.

Evidence-Based Programs

The National Diabetes Prevention Program

The National DPP is a year-long CDC-recognized lifestyle change program developed specifically to help people prevent type 2 diabetes. The program is designed for people who have prediabetes or are at risk for type 2 diabetes, but who do not already have diabetes. The National DPP is based on research led by the National Institutes of Health, showing that people with prediabetes who take part in a structured lifestyle change program can reduce their risk of developing type 2 diabetes by 58% when those lifestyle changes result in a 5-7% weight loss and 150 minutes of physical activity a week.⁴⁶ Individuals can participate in the National DPP in an in-person group setting in their community or online, with the first 16 sessions occurring once a week for 4 months and 6-8 sessions occurring once a month for the remainder of the year. A trained lifestyle coach encourages participants to eat a healthy diet; increase their physical activity; and track weight loss, food intake, and physical activity.⁴⁷

To assure standardization among DPP programs, the CDC manages the Diabetes Prevention Recognition Program. There are 42 organizations in Maryland, including local health departments, community organizations, and YMCAs, that are either fully recognized or have pending recognition through this program, and currently deliver the National DPP. Nine local health departments receive federal grant funding to directly provide or to partner with other organizations to provide the DPP. Between July 2012 and July 2016, the CDC reported that 1,270 people in Maryland participated in DPP classes; of the 1,270 participants, 191 completed at least 4 sessions and lost an average of 4.5% of their body weight.⁴⁸

Diabetes Self-Management Education

Evidence has shown that individuals with diabetes who receive diabetes self-management education are more likely to achieve all their recommended self-care behaviors each year, and to better manage their condition.⁴⁹ According to the American Diabetes Association clinical

⁴⁶Knowler, et al., "National Diabetes Prevention Research Study: Reduction in the Incidence of Type 2 Diabetes with Lifestyle Intervention or Metformin," 346 (6) (7 February 2002): 393-403, *The New England Journal of Medicine*, <<http://www.nejm.org/doi/full/10.1056/NEJMoa012512#t=article>>.

⁴⁷Centers for Disease Control and Prevention, Diabetes Prevention Recognition Program, July 2016 <<http://www.cdc.gov/diabetes/prevention/pdf/dprp-standards.pdf>>.

⁴⁸Centers for Disease Control and Prevention, Diabetes Prevention Recognition Program, July 2016, Sent from CDC to Maryland Center for Chronic Disease Prevention and Control, 5 August 2016.

⁴⁹Susan L. Norris, Joseph Lau, S. Jay Smith, Christopher H. Schmid, Michael M. Engelga, "Self-Management Education for Adults With Type 2 Diabetes," 25 (7) (July 2002): 1159-1171, *Diabetes Care*, <<http://care.diabetesjournals.org/content/25/7/1159>>.

guidelines, all people with diabetes should participate in diabetes self-management education to gain the knowledge and skills necessary for diabetes self-care.⁵⁰ The diabetes self-management education program is a 10 hour course appropriate for individuals newly diagnosed with type 2 diabetes, and is delivered by Certified Diabetes Educators from the American Diabetes Association or American Association of Diabetes Educators accredited programs. There are 52 diabetes self-management education programs accredited in Maryland. The overall objectives of diabetes self-management education programs are to: 1) support informed decision making, self-care behaviors, problem solving, and active collaboration with the individual's health care team; and 2) improve clinical outcomes, health status, and quality of life.⁵¹

Diabetes Self-Management Program

The Diabetes Self-Management Program (also called Living Well with Diabetes) is a 6-week program for people with type 2 diabetes. There are 15 Diabetes Self-Management Programs offered throughout Maryland. The Diabetes Self-Management Program is part of the Stanford Chronic Disease Self-Management Program.⁵² The program helps people to adopt and maintain healthy behaviors to live active and fulfilling lives. Program classes are taught by trained peer leaders who also have chronic conditions.⁵³ During FY 2016, there were 85 Diabetes Self-Management Program workshops offered in 15 counties, reaching 569 individuals with type 2 diabetes.

Health Systems Change for Diabetes

The Department collaborates with seven local health departments, the Mid-Atlantic Association of Community Health Centers, and Maryland Medicaid to implement quality improvement processes in health systems, which include provider practices, organizations, and hospitals. The Department leverages these partnerships to build connections between public health entities and health systems by encouraging Federally Qualified Health Centers and private health practices to institutionalize reporting and monitoring of aggregated clinical quality data. For diabetes, the Department encourages health systems to measure progress on National Quality Forum measure 59 (NQF59), which assesses the percentage of members ages 18-75 years with diabetes (type 1 or type 2) whose most recent HbA1c level during the measurement year was greater than 9.0% (indicating poor control of the condition) or was missing during the measurement year.⁵⁴ These health systems are then encouraged to use the data to adopt systems changes to improve diabetes care and outcomes.

⁵⁰American Diabetes Association, "Economic costs of diabetes in the U.S. in 2012," 36(4) (2013):1033-1046, [Diabetes Care](http://care.diabetesjournals.org/content/36/4/1033), <<http://care.diabetesjournals.org/content/36/4/1033>>.

⁵¹Be Healthy Maryland, Maryland Department of Health and Mental Hygiene, July 2016 <<https://coaw.org/DHMH.Public/Home/Home.aspx>>.

⁵²Chronic Disease Self-Management Program (CDSMP) is a 6-week program for individuals with chronic disease to help them adopt healthy behaviors to live fulfilling lives. Source: Maryland Department of Health and Mental Hygiene (DHMH), Be Healthy Maryland, 19 September 2016 <<https://coaw.org/DHMH.Public/ClassDesc/ClassDescHome.aspx>>.

⁵³*Id* fn 50.

⁵⁴Hemoglobin A1c, or HbA1c, is a blood test to determine average blood glucose levels in the last 2 to 3 months. Source: American Diabetes Association, 19 September 2016 <<http://www.diabetes.org/living-with-diabetes/treatment-and-care/blood-glucose-control/a1c/?referrer=https://www.google.com/>>.

Specific projects:

- Seven local health departments are working to implement quality improvement processes to improve diabetes outcomes in 25 practices across the state. With assistance from local health departments, medical practices monitor and report NQF59 (poor diabetes control) data at least quarterly, and do Plan-Do-Study-Act rapid cycle improvement processes to drive population health improvement.
- The Mid-Atlantic Association of Community Health Centers, Maryland's Primary Care Association, is building a centralized data warehouse to drive quality improvement efforts in all Maryland Federally Qualified Health Centers. The Mid-Atlantic Association of Community Health Centers is implementing technologies to pull data from Federally Qualified Health Center Electronic Health Records, aggregate the data into a centralized system, and use the data to identify and share best practices.
- Maryland Medicaid supports Managed Care Organization quality improvement efforts related to diabetes, including advocating for Diabetes Self-Management Education reimbursement to help Medicaid recipients with diabetes learn to manage their condition. Maryland Medicaid evaluates Managed Care Organizations on several diabetes-related measures as part of the annual HealthChoice evaluation and Value-Based Purchasing Program. If Managed Care Organizations perform well on Value-Based Purchasing Program measures, they are eligible for an incentive payment; if they perform poorly, they are required to pay a penalty.⁵⁵ Managed Care Organizations also work closely with health care practices serving their members to implement systems changes and improve health outcomes.

Communication and Awareness

The Department created the statewide communication campaign “Power to Prevent Diabetes” to increase awareness of prediabetes and encourage Marylanders to take the CDC Prediabetes Screening Test.⁵⁶ Marylanders are encouraged to visit the “Power to Prevent Diabetes” website to complete the prediabetes screening test and locate a local Diabetes Prevention Program.⁵⁷ “Power to Prevent Diabetes” videos can also be found on YouTube.⁵⁸

In March 2016, the Department launched Be Healthy Maryland, a referral website that helps individuals and health care providers find evidence-based community programs, including DPP, diabetes self-management education, and the Diabetes Self-Management Program. The site enables community partners and providers to make referrals to DPPs, and provides data tracking tools for Lifestyle Coaches to support program data collection and quality assurance. The Department conducts extensive outreach to encourage community programs to enter class information onto the website and to become active users.

⁵⁵HealthChoice Evaluations are available at: <https://mmcp.dhmh.maryland.gov/healthchoice/pages/HealthChoice-Evaluation.aspx>.

⁵⁶CDC Prediabetes Screening Test, National Diabetes Prevention Program, Centers for Disease Control and Prevention, 16 September 2016 <<http://www.cdc.gov/diabetes/prevention/pdf/prediabetestest.pdf>>.

⁵⁷www.powertopreventdiabetes.org.

⁵⁸Power to Prevent Diabetes on YouTube: <https://www.youtube.com/watch?v=eJWscVA1Le8>.

Current Spending for Diabetes Initiatives in Maryland

Table 4. Diabetes Spending in Maryland FY 16-17⁵⁹

Diabetes Spending in Maryland FY 16-17			
COUNTY	FY 16	FY 17	Total
Allegany*	\$180,685	\$110,585	\$291,270
Anne Arundel	\$0	\$0	\$-
Baltimore City*	\$460,314	\$424,478	\$884,792
Baltimore County	\$0	\$0	\$-
Calvert	\$115,000	\$195,475	\$310,475
Caroline*	\$107,828	\$106,059	\$213,887
Carroll	\$0	\$54,000	\$54,000
Cecil	\$145,000	\$197,000	\$342,000
Charles	\$125,000	\$125,000	\$250,000
Dorchester*	\$126,309	\$106,162	\$232,471
Frederick	\$125,000	\$125,000	\$250,000
Garrett*	\$114,017	\$99,033	\$213,050
Harford	\$0	\$0	\$-
Howard	\$125,000	\$125,000	\$250,000
Kent	\$0	\$72,000	\$72,000
Montgomery	\$125,000	\$124,977	\$249,977
Prince George's	\$0	\$0	\$-
Queen Anne's	\$0	\$0	\$-
Saint Mary's	\$111,095	\$109,930	\$221,025
Somerset*	\$119,756	\$105,695	\$225,451
Talbot	\$20,000	\$0	\$20,000
Washington*	\$101,159	\$117,434	\$218,592
Wicomico*	\$154,947	\$112,770	\$267,717
Worcester*	\$138,244	\$108,259	\$246,502
County Total			\$4,813,209
Statewide Partners**	\$209,910	\$110,000	\$319,910

* County funded through the CDC State and Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke Grant

** Funding awarded to Consortium for Older Adult Wellness (COAW), Direct Media, Inc., Maintaining Active Citizens (MAC), National Association of Chronic Disease Directors

⁵⁹Maryland Department of Health and Mental Hygiene, Center for Chronic Disease Prevention and Control, Diabetes Funding in Maryland, Fiscal Year 2016-2017.

Conclusion

Identification of Potential Long-Term Dedicated Funding Streams for Programs Aimed at Reducing Diabetes and Obesity

The majority of obesity prevention and type 2 diabetes prevention and control initiatives in Maryland are funded through federal grants awarded by the CDC. Federal funding is allocated on an annual basis and, therefore, long-term sustainability is not guaranteed. The Department's Center for Chronic Disease Prevention and Control actively seeks funding opportunities, and in the last five years has been awarded all obesity and diabetes related grants for which it has applied. Additionally, in order to secure additional funding to expand efforts in Maryland, the Department encourages and supports external partners' applications for funding that is not available to state governments.

The Department will continue to enhance existing partnerships and coordinate with other agencies to identify opportunities for collaboration, and to align priorities to support programs aimed at reducing the prevalence of diabetes and obesity. While the Department maintains a robust local public health infrastructure to support obesity and type 2 diabetes prevention initiatives, many areas of influence remain that could improve diabetes and obesity outcomes, such as increasing the number of evidence-based programs in the community and working with providers to increase referrals to prevention and self-management programs. The Department is fortunate to have received several federal grants focused on obesity and diabetes. Federal funding for obesity initiatives can only be used for prevention, and prevention activities may not improve clinical outcomes for those who are overweight or obese. As overweight and obesity are serious and costly concerns in Maryland, systemic and cultural change is needed to make healthy weight the normal weight in the State again.