



A Public Health Needs Assessment

Prepared by Public Health Services, September 2014

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Needs Assessment Purpose

The mission of the Department of Health and Mental Hygiene (the Department) is to protect, promote and improve the health and well-being of all Maryland citizens in a fiscally responsible way. The Department's mission touches the life of every citizen in Maryland and is evident in the scope and depth of the programs, offices and administrations that fall within the Public Health Services (PHS) branch. PHS works to improve the health status of individuals, families and communities through prevention, early intervention, surveillance and treatment.

To accomplish this mission, PHS engages with local and community stakeholders ranging from neighborhoods to local health departments, community-based organizations and faith based institutions. Hospitals and health care systems, clinical practices, academic institutions and state partners, including other state government agencies, also contribute to the success of public health in Maryland.

The purpose of this Needs Assessment is to understand the health status of Maryland's diverse communities with a focus on populations who experience poorer health outcomes. The assessment provides a foundation for the general public, community and state leaders to understand the health needs of Maryland.

A majority of the data and assessment for this process occurs through the Maryland State Health Improvement Process (SHIP) housed in PHS.¹ SHIP functions as both a mechanism for ongoing data assessment to identify health needs as well as a community health improvement plan for communities to select strategies and to implement change. SHIP consists of 41 data indicators in five focus areas actively used by over 100 partners including all 24 Local Health Departments (LHDs) and 20 Local Health Improvement Coalitions (LHICs).

This Needs Assessment focuses on four priority areas identified by SHIP partners and input from PHS leadership:

- Priority 1: Access to Care
- Priority 2: Community Health
- Priority 3: Emergency Preparedness
- Priority 4: Patient Safety

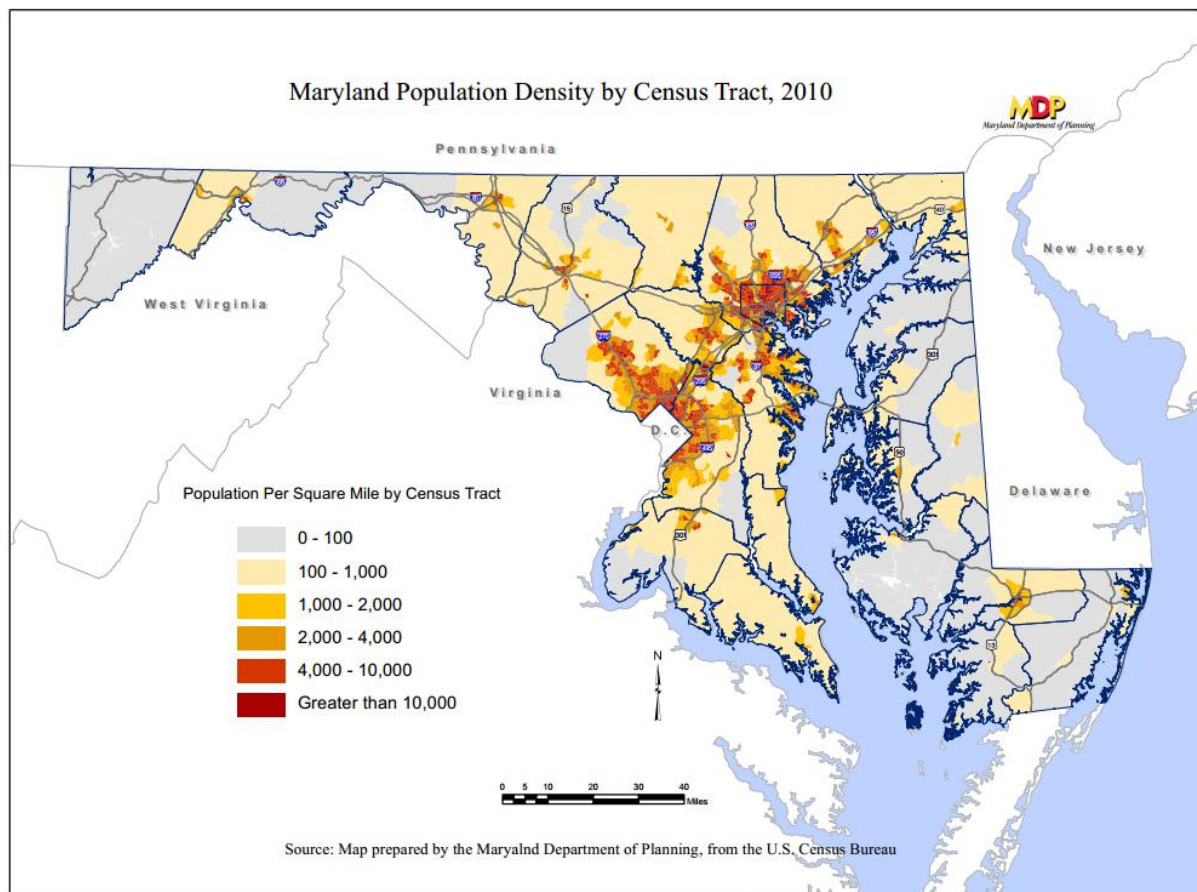
For each priority area the assessment provides baseline data, factors that impact health and details populations who experience poorer health outcomes. Relevant SHIP target goals for improvement are included. Additional data notes and resources to mobilize action can be found

¹ The selection of SHIP data points and the ongoing community use of SHIP mirrors the Mobilizing for Action through Planning and Partnerships (MAPP) process developed by the National Association of County and City Health Officials (NACCHO).

on the SHIP website.² The assessment concludes with a discussion on the strategic use of data and technology to continuously inform policy and program planning at the state and local level.

Maryland Demographics

Maryland is over 9,700 square miles and is home to 5.9 million people. The state is geographically diverse, home to Appalachian Mountains, the Chesapeake Bay and the beaches of the Atlantic Ocean. The state's population core is clustered around the Baltimore Washington Metropolitan Area and has experienced a two year change in median age since 2010 (currently 38).³ Maryland has fewer residents living in poverty (9.4%) and has a higher median household income (\$72,999) and homeownership (68.1%) rate than the nation. Maryland is also more diverse than the national average, with 53.9% of residents identifying as non-Hispanic whites (compared to 63% nationally) and 30% of residents identifying as black (compared to 13% nationally).⁴



Source: Maryland Department of Planning

² Data presented in this document is available through SHIP at <http://dhmh.maryland.gov/ship/SitePages/Home.aspx> and the Virtual Data Unit (VDU) at <http://dhmh.maryland.gov/data/SitePages/Home.aspx>.

³ Maryland Department of Planning, Projections and Data Analysis State Data Center. Available at <http://census.maryland.gov/census2010/maps.shtml>. Accessed April 16, 2014.

⁴ United States Census Bureau, State & County Quick Facts, Maryland

Maryland At A Glance

Demographics	Maryland	U.S.
Total resident population (2013 estimate)	5,928,814	316,128,839
Under age 5	2.7%	2.4%
Under age 18	22.8%	23.5%
Over age 65	13.0%	13.2%
Female	51.6%	50.8%
Male	48.4%	49.2%
Non-Hispanic White	53.9%	63.0%
Black	30.0%	13.1%
American Indian and Alaska Native	0.5%	1.2%
Asian	6.0%	5.1%
Native Hawaiian and Pacific Islander	0.1%	0.2%
Two or More Races	2.5%	2.4%
Hispanic or Latino	8.7%	16.9%
2012 data as percent of total population		
Source: United States Census Bureau, State & County Quick Facts, Maryland		

Births	Maryland	U.S.
Birth rate, all races	12.4	12.6
White birth rate	11.7	12.1
Black birth rate	13.3	14.7
Hispanic birth rate	19.9	17.1
Adolescent birth rate (ages 15-19)	22.1	29.4
2012 data, rate per 1,000		
Source: Maryland Vital Statistics Annual Report 2012, National Vital Statistics Reports Volume 62 Number 9, Births: Final 2012 Data		

Deaths	Maryland	U.S.
Age-Adjusted Mortality Rate	703.2	740.6
White Age-Adjusted Mortality Rate	684.7	738.1
Black Age-Adjusted Mortality Rate	802.8	877.4
Hispanic Age-Adjusted Mortality Rate*	---	1,101.2
*Maryland age-adjusted Hispanic death rate not available		
Maryland age adjusted rates standardized to the projected 2000 U.S. population and are expressed as rates per 100,000 population		
Source: Maryland Vital Statistics Annual Report 2012, National Vital Statistics Reports Volume 61 Number 6, Deaths: Preliminary Data 2011		

Education	Maryland	U.S.
Less than High School	11.5%	14.28%
High School Graduate	26.02%	28.24%
Some College or Associate Degree	26.13%	28.99%
Bachelor Degree	19.98%	17.88%
Master, Doctorate or Professional Degree	16.36%	1.061%
Source: United States Census Bureau, State & County Quick Facts, Maryland		

Poverty	Maryland	U.S.
Percent Persons Below Poverty Level 2008 -2012	9.4%	14.9%
Median Household Income 2008 – 2012	\$72,999	\$53,046
Per Capita Money Income in Past 12 Months 2008 – 2012*	\$36,056	\$28,051
Homeownership Rate 2008 – 2012	68.1%	65.5%
Students enrolled in free or reduced school and community nutrition program**	44.26%	---
*2012 Dollars		
**Percent of free and reduced compared to total enrollment		
Source: United States Census Bureau, State & County Quick Facts, Maryland, Maryland State Department of Education Free and Reduced Price School Meal Data SY2013-2014		

Priority 1: Access to Care

Maryland is a pace-setter in the implementation of health care reform with the ultimate goal to improve population health through access to quality, affordable, culturally appropriate care delivered in the right setting at the right time. The state has enrolled over 300,000 residents into qualified health plans and expanded Medicaid coverage⁵, bringing almost half of the total uninsured population in the state into health care.⁶

Disparities in Access to Health Care

Despite gains in the availability of affordable health insurance to Maryland residents, access to care is more complex than having a health insurance card. Certain populations experience disparities in affording to see a doctor (26.3 % of Hispanics, compared to 13.7% non-Hispanic blacks and 8.5% non-Hispanic whites⁷) while geography, transportation, and availability of services/providers also factor into accessing care. Maryland is home to 136 Health Professional Shortage Area (HPSA) designations and 55 Medically Underserved Areas/Populations (MUA/MUP) designations.⁸ A HPSA occurs when a specified area has shortages of primary medical care, dental or mental health providers. A HPSA may be geographic (a county or service area), demographic (low income population) or institutional (comprehensive health center, federally qualified health center or other public facility).⁹ MUAs and MUPs are areas or populations that have too few primary care providers, high infant mortality, high poverty and/or high elderly population.¹⁰ The federal Health Resources Services Administration (HRSA) works with the Department to designate these areas which dictate eligibility for certain programs and practices to receive loan repayment programs and other health services to improve the recruitment and retention of clinicians and ultimately improving access to health care for residents.

⁵ Report from the Maryland Health Benefit Exchange about Maryland Health Connection. Available at http://marylandhbe.com/wp-content/uploads/2014/04/MHC_UPDATE_041114.pdf. Accessed April 17, 2014.

⁶ *Health Insurance Coverage of the Total Population 2011-2012*, Kaiser Family Foundation.

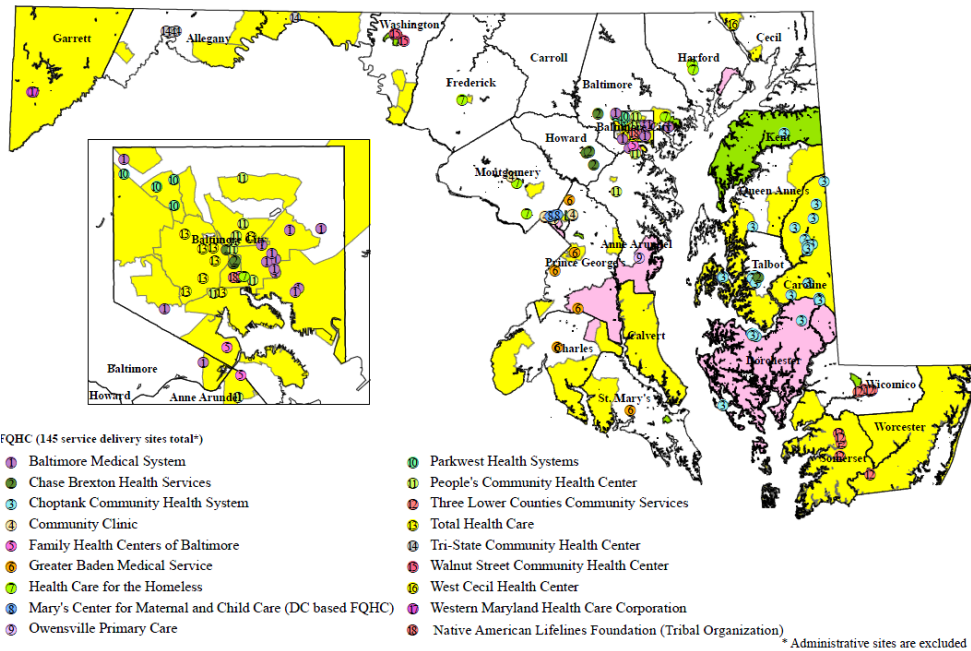
⁷ Maryland Behavioral Risk Factor Surveillance System, 2012.

⁸ Primary Care Office, Maryland Department of Health and Mental Hygiene. As of April 17, 2014.

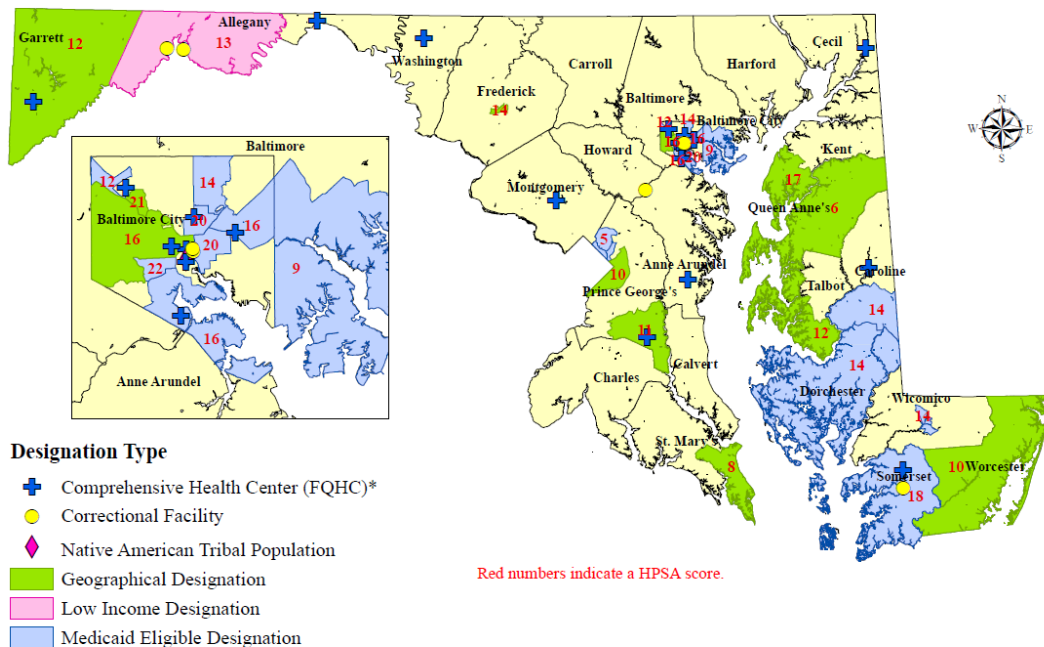
⁹ *Shortage Designation: Health Professional Shortage Areas & Medically Underserved Areas/Populations*, Health Resources Services Administration. Available at <http://www.hrsa.gov/shortage/>. Accessed April 17, 2014.

¹⁰ *Shortage Designation: Health Professional Shortage Areas & Medically Underserved Areas/Populations*, Health Resources Services Administration. Available at <http://www.hrsa.gov/shortage/>. Accessed April 17, 2014.

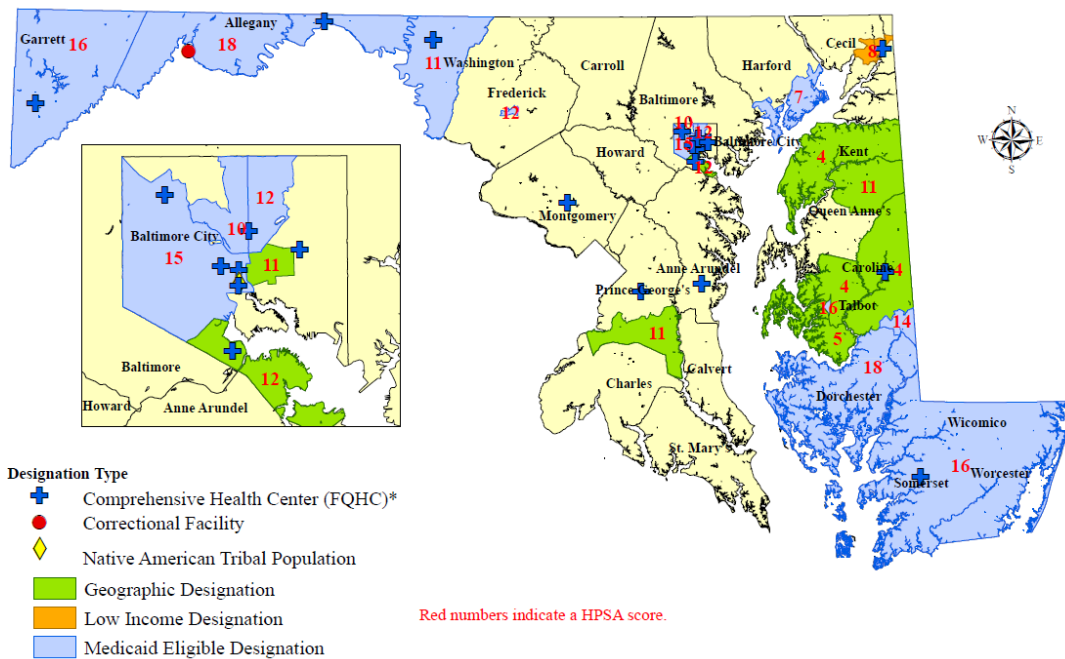
Maryland Medically Underserved Area and Population Designations (MUA/Ps) and Federally Qualified Health Centers (FQHCs) as of 02/20/2014



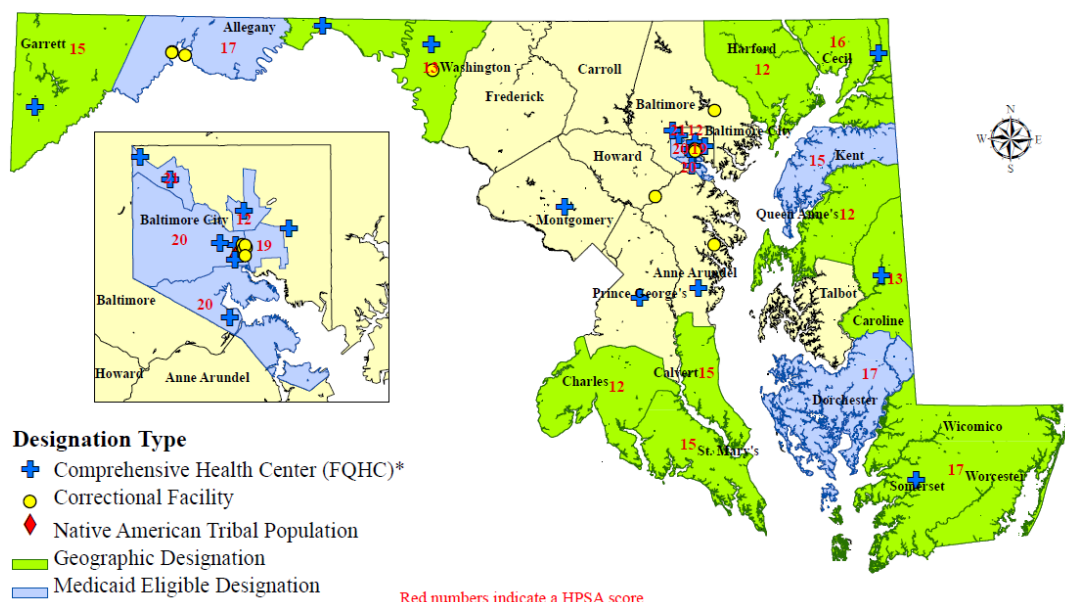
Maryland Health Professional Shortage Area (HPSA) Designations for Primary Care as of 02/20/2014



Maryland Health Professional Shortage Area (HPSA) Designations for Dental Care as of 02/20/2014



Maryland Health Professional Shortage Area (HPSA) Designations for Mental Health as of 02/20/2014



Reducing Preventable Hospitalizations

A reduction in rates of preventable hospitalizations indicates better access to care. Maryland uses the Prevention Quality Indicator (PQI) Composite Measures, developed by the Agency for Healthcare Research and Quality (AHRQ), to track the number of preventable hospitalizations for several conditions such as overall composite, chronic composite and acute composite. Examples of conditions included in the composite measures are diabetes with complications, hypertension, heart disease, asthma, COPD, bacterial pneumonia, and urinary tract infection. Maryland set a goal of reducing the rate of preventable hospitalizations by 10% by 2015. In 2012, the State exceeded its goal, with preventable hospitalizations driven down to 1,438/100,000 population. Despite a reduction in rates of preventable hospitalizations for ambulatory care sensitive conditions (ACSCs), the volume of Emergency Department (ED) encounters for non-emergent conditions has been steadily increasing over the past years, especially for behavioral health illnesses. With a vast expansion of health insurance coverage and a new system of health care delivery in Maryland, the State is in the process of reevaluating the goals and planning in order to set a new goal in the near future. For more information, visit <https://data.maryland.gov/goals/hospitalizations>.

Access to Behavioral Health Care

Access to care for behavioral health conditions is a critical public health need in Maryland. Trends in the rate of emergency department visits for mental health related conditions increased from 2,792/100,000 in 2010 to 3,379/100,000 in 2013. In addition, rates of emergency department visits for addiction-related conditions increased from 1,150/100,000 in 2010 to 1,526/100,000 in 2013.¹¹ Furthermore, percent of illicit drug abuse in Maryland was 7.56% between 2010 and 2012 (increased from 6.82% in 2006-2008).¹² To evaluate adequate access to behavioral health care and other primary care services, Maryland developed a Maryland Health Access Assessment Tool Survey in 2013. Findings from the survey emphasize disparities in access to behavioral health care, especially for uninsured patients in spite of the adequacy of mental health providers at the state level. Total uninsured patients with behavioral health and substance abuse conditions treated in safety net facilities are far less than the number of uninsured individuals with behavioral health and substance abuse problems. An estimate of the number of uninsured with mental health and substance abuse conditions is 286,000, but only about 51,000 received care from safety net facilities.¹³ In response, Maryland has developed policies and goals to improve behavioral conditions. In June 2014, Maryland formed the overdose prevention council to reduce the number of overdose deaths by 20% by the end of 2015. In addition, the state proposed a new health care delivery model to CMS to integrate community health workers into the current system to help improve care for people with chronic conditions including behavioral health problems.

¹¹ Maryland SHIP 2014

¹² 2006-2008 and 2010-2012 NSDUH Substate Estimates of Substance Use and Mental Disorders, SAMHSA

¹³ 2010-2011 NSDUH, SAMHSA and 2012 SAHIE

SHIP Target Goals

Many SHIP measures link to health outcomes of an individual and thus reflect both access to and quality of health care. SHIP is monitoring how these data points may change in the near future as access to affordable, quality insurance plans becomes more available through Medicaid expansion and the launch of the state's insurance exchange, Maryland Health Connection.

Measure: People who cannot afford to see a doctor			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of people who were unable to see a doctor in the past year due to cost.	Maryland BRFSS, 2012	11.6%	11.4%
Measure: Adults with health insurance			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of persons ages 18-64 with health (medical) insurance	U.S. Census Bureau	88%	93.6%
Measure: Children receiving dental care in the past year			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of children (0-20 years of age) enrolled in Medicaid who had a dental visit in the past year	Maryland Medicaid Service Utilization	62.2%	55.4%
Measure: Adolescents who received a wellness checkup in the last year			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of adolescents (ages 13-20 years old) enrolled in Medicaid 320+ days who received a wellness visit during the past year	Maryland Medicaid Service Utilization	52.6%	54.3%
Measure: Emergency department visit rate due to diabetes			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of ED visits for diabetes per 100,000	Maryland HSCRC, 2013	205.1	174.7
Measure: Emergency department visit rate due to hypertension			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of ED visits for hypertension per 100,000	Maryland HSCRC, 2013	265.2	205.4
Measure: Emergency department visits related to mental health conditions			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of ED visits for conditions related to mental	Maryland HSCRC, 2013	3,379.2	2,652.6

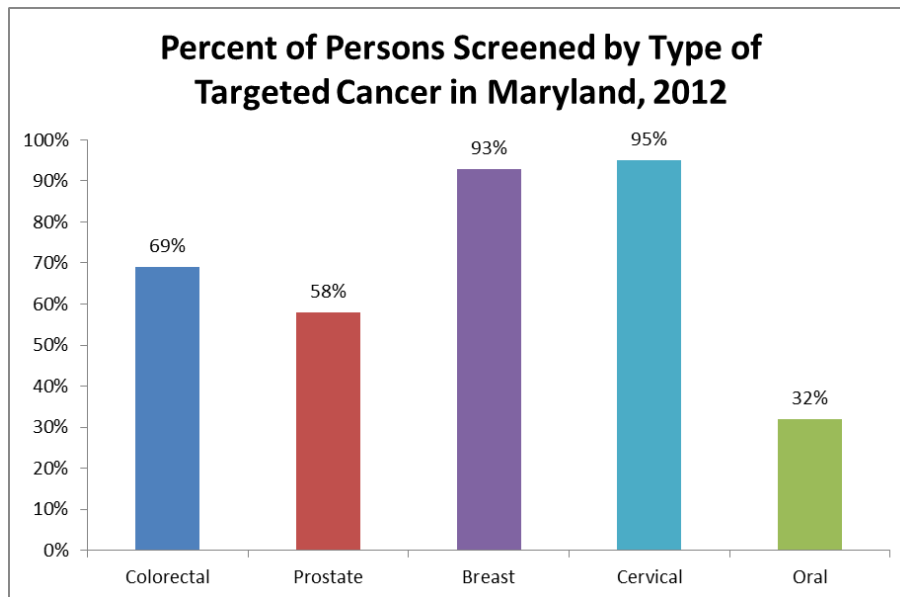
illnesses per 100,000			
Measure: Hospitalization rate related to Alzheimer's or other dementia			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of hospitalizations related to Alzheimer or other dementia per 100,000	Maryland HSCRC, 2013	232.8	274.6
Measure: Emergency department visit rates due to asthma			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of ED visits for asthma per 100,000	Maryland HSCRC, 2013	66.2	52.4
Measure: Emergency department visit rates for addictions-related conditions			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Number of ED visits for conditions related to addictions per 100,000	Maryland HSCRC, 2013	1525.6	1092.3

Priority 2: Community Health

The health areas contained within the Community Health section of the needs assessment cover some of the most basic and yet critical public health functions of the Department ranging from protecting the health of the public through environmental testing and regulation to ensuring access to adequate prenatal care and tobacco cessation.

Cancer

There are seven cancers (lung and bronchus, colorectal, breast, cervical, prostate, skin (melanoma) and oral cancers), targeted for population based cancer control efforts because of their high incidence in Maryland, and/or because they have evidenced based screenings/interventions available. The Behavioral Risk Factor Surveillance System (BRFSS) reports screening data on five of seven cancers targeted in the state of Maryland (colorectal, prostate, breast, cervical, oral). The graph below reflects the percentage of BRFSS respondents screened by targeted cancer in 2012. Among adults age 50 years and older, 69% reported being up-to-date with CRC screening, which includes, FOBT in the past year, sigmoidoscopy in the past 5 years, or colonoscopy in the past 10 years. Among men age 40 years and older, 58% reported ever having had a PSA test. Among women age 40 years and older, 93% reported ever having a mammogram, and among women 18 years and older who have not had a hysterectomy, 95% reported ever having a Pap test. Among adults age 18 years and older, 32% reported ever having an oral cancer screening exam.



Source: Maryland BRFSS Report, 2012

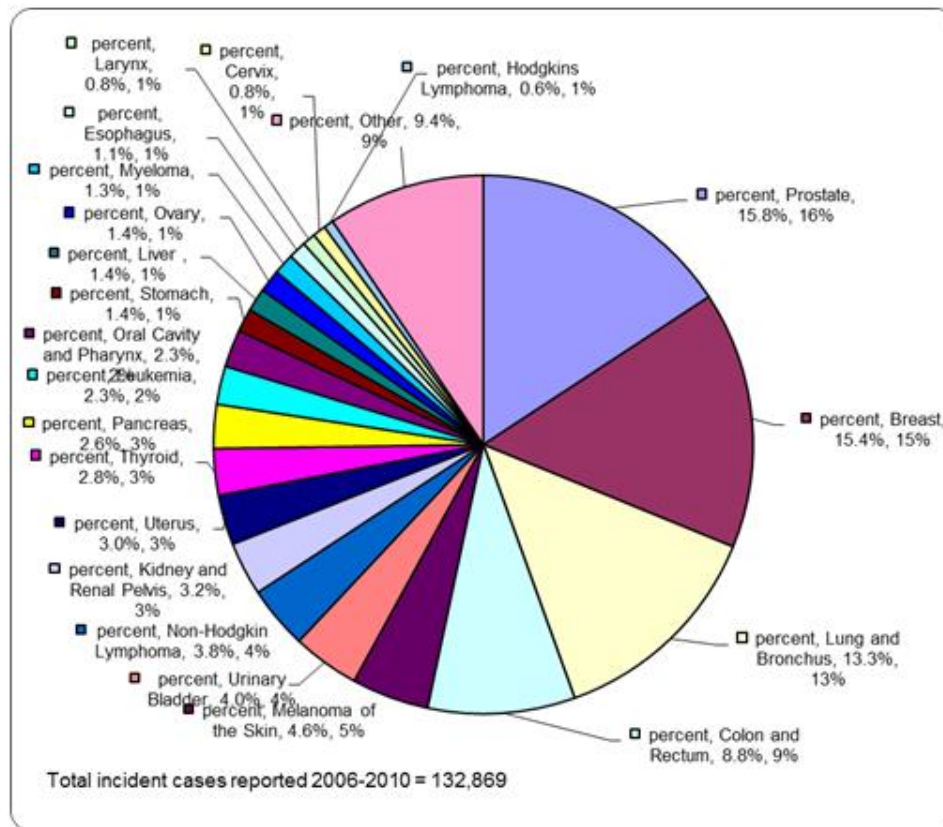
Cancer Incidence

Overall cancer rates have been decreasing in Maryland and significant improvements have been made in the prevention, early detection and treatment of many types of cancer. For the period 2006-2010 Maryland had the 24th highest cancer death rate in the United States and over 27,000 Marylanders reported cancer each year (excluding basal and squamous skin cancers).¹⁴ Approximately one out of every two American men and one out of every three American women will have some type of cancer at some point during their lifetime (also excluding basal or squamous cell skin cancers). Lung cancer accounts for the highest percent (27%) of cancer deaths in Maryland and is mainly caused by smoking. Public health prevention efforts are aimed at reducing known risk factors including smoking.¹⁵ Many cancers can be prevented or they can be successfully treated if the cancer is found when the tumor is small. However, the risk of developing cancer increases with age; therefore, as Marylanders live longer, the number of new cancer cases diagnosed each year in Maryland is expected to increase. Cancer occurs in people of both sexes and all races and ethnic groups with the rate of cancer varying from group to group.

¹⁴ Cigarette Restitution Fund Annual Cancer Data, 2013

¹⁵ ACS Facts and Figures, 2013

Percent of All Incident Cancer Cases by Type of Cancer in Maryland



Source: Maryland Cancer Registry

Cancer: Mortality and Disparities

Cancer mortality rates in Maryland have continually declined for over two decades. Cancer mortality rates have fallen among whites, blacks, and Asian/Pacific Islanders in Maryland. Hispanics and Asians have a lower age-adjusted death rate (85.7 and 97.2 cancer deaths per 100,000) than do non-Hispanic whites (169.6 per 100,000) or non-Hispanic blacks (199.3 per 100,000).¹⁶ While disparities in cancer rates by race have improved, blacks continue to suffer a disproportionate burden of cancer compared to whites. The overall cancer mortality rate for Maryland blacks was 15.7% higher than the cancer mortality rate for Maryland whites in 2010, showing improvement over the 26% rate disparity in 1999.¹⁷

Cancer mortality is higher among blacks than whites for specific cancer sites such as colorectal, prostate, cervical, and breast. Compared to white males, black males in Maryland have higher incidence and mortality rates and the highest late-stage diagnosis for prostate cancer. The incidence of prostate cancer in black males is 1.6 times higher than that in white males, and mortality rates are more than 2.5 times higher in black males than white males. Among all

¹⁶ Maryland Vital Statistics Administration

¹⁷ Cigarette Restitution Fund Annual Cancer Data, 2013

women in Maryland, for the period 2006 to 2010, black females have the highest incidence and mortality rates for colorectal and cervical cancer. White females have higher incidence rates of breast cancer and uterine cancer than black females. Black females experience higher mortality rates from breast and uterine cancer than any other racial or ethnic group.¹⁸

Blacks are diagnosed with cancer at later stages than whites, based on all cancer sites diagnosed in Maryland in 2010. The same is also true for several site-specific cancers. Additionally, in 2010, only 51.8% of black females were diagnosed at the most treatable stage of breast cancer, the local stage, compared to 60.1% of white females who were diagnosed at the local stage.¹⁹ Data from the 2012 Maryland BRFSS reveals that blacks have similar prevalence rates to whites for screening exams such as colonoscopy, mammograms, Pap tests, and prostate-specific antigen (PSA) tests. However, low follow-up rates for abnormal results of screening exams may influence higher mortality, poorer survival rates, and greater late-stage diagnosis rates seen among blacks for colorectal, breast, and prostate cancers in 2010.

Cancer: SHIP Target Goals

Measure: Age adjusted mortality rate from cancer			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Age adjusted mortality rate from cancer per 100,000 population	Maryland Vital Statistics Administration, 2011	165.7	169.2

Chronic Disease

Chronic diseases, including heart disease, stroke and diabetes, are among the leading causes of death, disability, and health care costs in Maryland, currently accounting for 85% of health care costs.²⁰ A chronic disease is defined as a disease that progresses slowly and persists for a long time, such as heart disease, cancer, stroke, COPD, and diabetes. Fortunately, the majority of chronic disease cases can be prevented. Eighty percent of heart disease, stroke, and diabetes can be prevented through proper nutrition, physical activity, and not smoking.²¹ Current trends suggest that death and disability from these diseases will continue to rise. For the first time, children are projected to have shorter lives than their parents. Data on chronic diseases and associated risk factors provide valuable information for strategic planning, evidence-based decision-making, and targeted interventions to reduce the rates of chronic disease and address health disparities in Maryland. The Department is able to summarize chronic disease indicators by jurisdiction in Maryland.

¹⁸ Cigarette Restitution Fund Annual Cancer Data, 2013

¹⁹ Maryland Cancer Registry

²⁰ Anderson, G. Chronic conditions: making the case for ongoing care. Princeton NJ: Robert Wood Johnson Foundation; 2010. Available from: www.rwjf.org/pr/product.jsp?id=50968. Accessed 5/6/14

²¹ World Health Organization. Preventing Chronic Diseases: a vital investment. Geneva, World Health Organization; 2005. Available from: http://www.who.int/chp/chronic_disease_report/full_report.pdf Accessed 5/6/14

Chronic Disease Indicators by Jurisdiction

	Chronic Disease Indicators by Jurisdiction																							
	Allegany	Anne Arundel	Baltimore County	Calvert	Caroline	Carroll	Cecil	Charles	Dorchester	Frederick	Garrett	Harford	Howard	Kent	Montgomery	Prince George	Queen Annes	St. Marys	Somerset	Talbot	Washington	Wicomico	Worcester	Baltimore city
Indicators																								
Overall Health Status ¹	24	4	14	10	19	9	13	7	21*	2	22	11	1	16	2	8	5	6	23	17	18	12	15	20*
Adult Smoking ¹	21	5	8	17	19	12	22	7*	12	6*	17	14	2	9	1	4	10	16	23	3	20	15	11	24*
Youth Smoking ²	13*	9	10*	12	20	7	15	5	14	6	24*	11	3	21	2	1	17*	8	23	19	17	16	22	4
Adult Obesity ¹	16	8*	7*	14	13	4	18	22*	23*	6	10	9	2	17*	1*	19*	3	12	24*	4*	15	20*	11*	21*
Youth Obesity ²	17	7*	12	10	16	4	15	13*	23	3*	19	5	1	22	2*	20	6	8*	24	9	10*	18	14	21
Hypertension ¹	23	8	17	7	6	1	13	11	20	4	12	14	3	10	2	15	8	4	24	21	18	16	19	22*
High cholesterol ¹	21	5*	6	19	1	7	22	15*	18	9	20	14	4	12	13	2*	8	10	23	16	17	11	24	3
Diabetes ¹	23	10	13	5	20	4	7	7	22	5	14	9	1	19*	2	18	3	10	24	12	17	15	16	21*
Asthma ¹	13	11	20	21	15	16	17	7	24	9	2	13	3	3	9	18	11	5	23	7	18	6	1	22
Physical Inactivity ¹	23	3	15*	10	20	4	16	6	19	5	18	11	1	21*	2*	12	8	9	24	7	17	13	14	22*
Fruits/vegetable Intake ¹	17	6	11	14	23*	8	17	21	13	7	19	19	3	5	1	2	22	16	24	4	12	10	9	14
Total Mortality Rate ³	19	8*	9*	10	22	7	20	17	18*	4	15	12	2	16	1*	11*	5	13	23	3*	14	21	6*	24*
Heart Disease Mortality ³	22	10	8*	16	17	7	15	14	11	5	20	13	2	6	1*	18*	3	19	24	4*	9	21	12*	23*
Cancer Mortality ³	11	14	12*	13	20	7	21	17	15	5	4	8	2	19	1*	6*	18	10	22	3	9	24	16	23*
Stroke Mortality ³	23	16*	18*	10	11	24	5	8	13	14	21	15	6	20	2	7*	9	17	1	19	12	4	3	22*
Chronic Lower Respiratory Disease Mortality ³	21	13*	10*	18	24	17	23	16*	8	11	19	15	3	9	1*	2*	12	14	7	5	21	20*	4*	5*
Diabetes Mortality ³	10	14*	12*	9	6	1	19	22	17*	5	24	11*	7	3	2*	20*	8	15	16	4	21	18	13	23*

1. Maryland Behavioral Risk Factor Surveillance System, 2006-2010

2. Maryland Youth Tobacco Survey, 2010

3. Maryland Vital Statistics Administration, 2006-2010

Overall health: Fair and poor health

Smoking: Current smoking

Hypertension and high cholesterol were from 2007 and 2009

Legend

Top Quartile (Best)

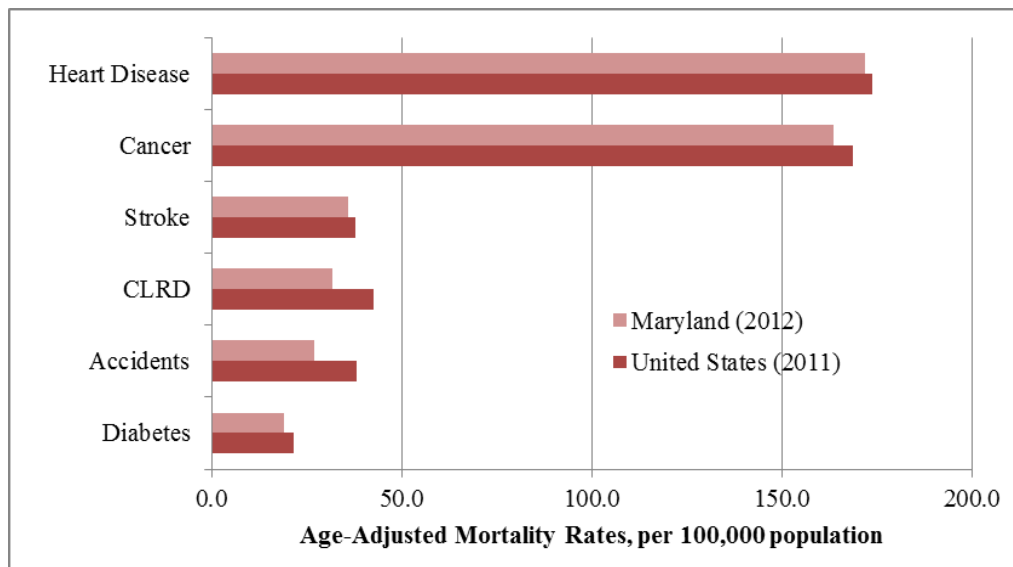
Second Quartile

Third Quartile

Bottom Quartile (Worst)

* Statistically Significant Racial Disparity ($\alpha < 0.05$)

Chronic Disease as a Leading Cause of Death



Source: Maryland Vital Statistics Administration 2012 Annual Report and 2011 National Vital Statistics Report

Diabetes

The prevalence of diabetes among adults in Maryland has grown to 10.0% in 2013, and is above the national level. The average prevalence of diagnosed diabetes was 8.8% among white Marylanders and 11.5% among black Marylanders. Black females (13.2 %) had over 1.5 times the diabetic rates of white females (8.4 %). Additionally, diabetes is associated with increased age (14.0% for those 50-64 years of age, 22.9% for those 65 years and older), having less than a high school education (15.3%), and earning less than \$25,000 annually (13.2%).²²

Diabetes not only is the sixth cause of death in Maryland but often contributes to other causes of morbidity and mortality, such as heart disease²³. The prevalence of diabetes among those who report having a heart attack is 30.9% (significantly above 10.0% reported by the general Maryland adult population). Additionally, prevalence of diabetes among those who report having a stroke is 32.3% (again, significantly above 10.0% reported by the general Maryland adult population).²⁴ Finally, an estimated \$2.4 billion of annual adult medical expenditures in Maryland are attributable to diabetes.²⁵

²² Maryland Behavioral Risk Factor Surveillance System, 2013

²³ Maryland Vital Statistics Administration 2012 Annual Report 2012,

²⁴ Maryland Behavioral Risk Factor Surveillance System, 2013

²⁵ CDC Chronic Disease Cost Calculator, estimate in 2010 US dollars

Heart Disease and Stroke

Heart disease and stroke rank first and third, respectively in cause of death for Maryland residents.²⁶ The public health impact of heart disease and stroke is substantial, both in terms of disease burden and cost. Coronary heart disease (angina or/and heart attack) and stroke are linked to high hospitalization rates and high mortality. Further, an estimated \$5.7 billion of annual adult medical expenditures in Maryland are attributable to cardiovascular disease.²⁷

Controlling risk factors such as high blood pressure, high blood cholesterol and diabetes play an important role in heart disease and stroke prevention. In 2013, over half (64.1%) of Maryland residents were overweight and obese and high blood pressure was a common co-occurring condition among residents who have experienced heart attack or stroke²⁸. It was estimated that heart disease and stroke affected certain segments of the population disproportionately based on race and ethnicity, gender, age, and education and income levels.

The age-adjusted heart disease mortality rate in 2012 for whites was 164.6 per 100,000 population while the mortality rate for blacks was 203.4 per 100,000 population. Black males experienced the highest levels of age-adjusted heart disease mortality. Angina and heart attack were most prevalent among white males. Additionally, coronary heart disease and stroke were most prevalent among Maryland adults aged 55 and over, with a lower household income (\$15k-25k), and with less education. Black females reported the highest prevalence of high blood pressure and obesity.²⁹

Obesity

Overweight and obesity are driving many of Maryland's health disparities. Obesity increases the risk of chronic diseases such as diabetes, hypertension, high blood cholesterol, coronary heart disease, stroke, arthritis, and some cancers (breast, colorectal, endometrial, and kidney). Overweight is defined as having a body mass index (BMI) between 25 and 29.9. Obesity is defined as having a BMI greater than 30. Obesity is a result of consuming more calories than you use. Prevalence of obesity is influenced by environmental factors.

According to the 2012 *F as in Fat* report (Robert Wood Johnson Foundation), current estimated medical costs associated with treating preventable obesity-related diseases range from \$147 billion to nearly \$210 billion per year. If BMIs were lowered by 5 percent, Maryland could save 7.6 percent in health care costs, which would equate to savings of \$13,836,000,000 by 2030.

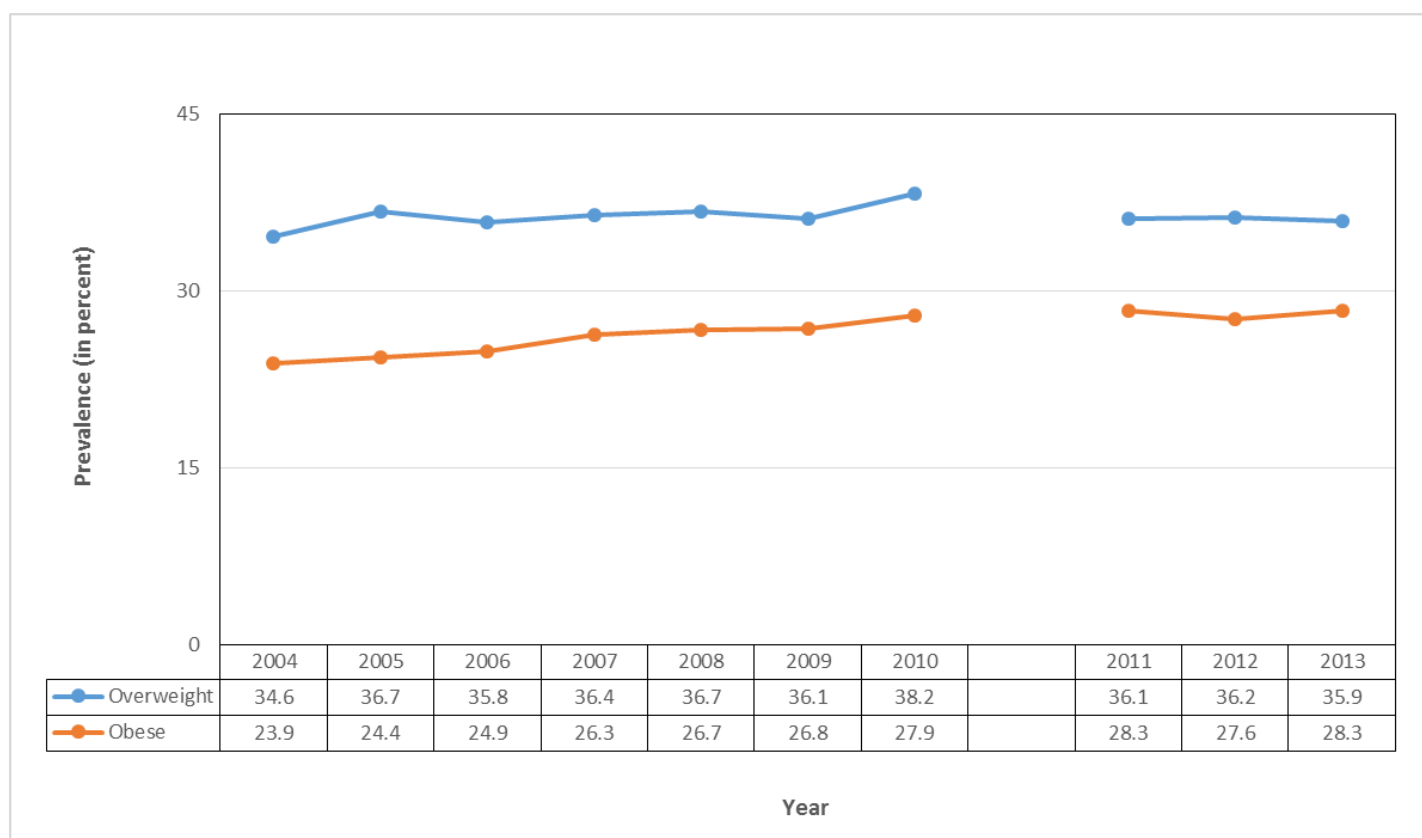
Prevalence of Overweight and Obesity in Maryland Adults, 2004 – 2013

²⁶ Maryland Vital Statistics Administration, 2012

²⁷ CDC Chronic Disease Cost Calculator, estimate in 2010 US dollars

²⁸ Maryland Behavioral Risk Factor Surveillance System, 2013

²⁹ Maryland Vital Statistics Administration, 2012



**2011-2013 BRFSS data should not be compared to prior years due to a change in the BRFSS weighting methodology.*

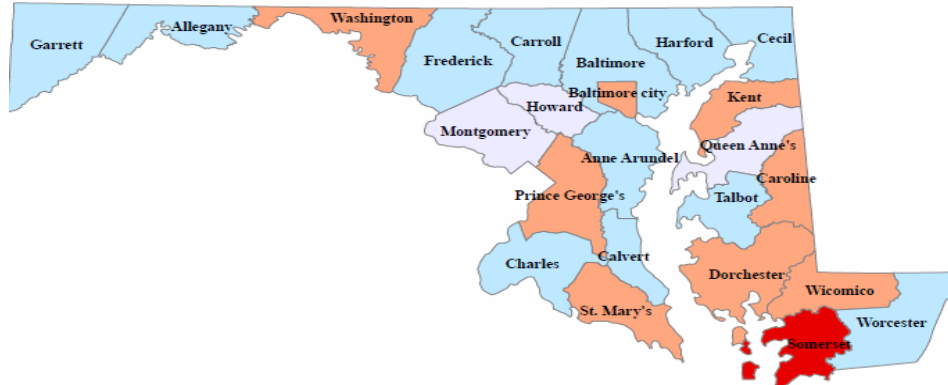
Source: Maryland Behavioral Risk Factor Surveillance System

Based on self-reported height and weight, 64.1% of Maryland adults (2.58 million) were overweight or obese in 2013. Adult obesity prevalence increased by 27% over 10 years, from 21.9% in 2003 to 27.9% in 2010*. Black adults have a significantly higher prevalence of obesity compared to white adults (37.3% and 25.5%, respectively) and black females report the highest prevalence of obesity (40.8%). Adults with a college education and household income of \$75,000 and greater are significantly less likely to be obese. Finally, from 1995-1999, only 1 of 24 Maryland jurisdictions had a prevalence of obesity greater than 25%, but by 2005-2009 this had increased to 19 jurisdictions.³⁰

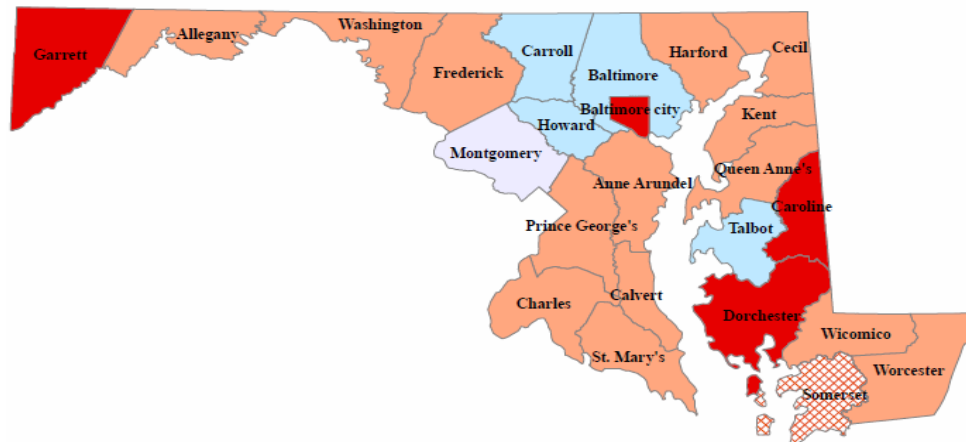
³⁰ Maryland Behavioral Risk Factor Surveillance System, 1995-2012

Map 1. Prevalence of Obesity among Maryland Adults by Jurisdiction³¹

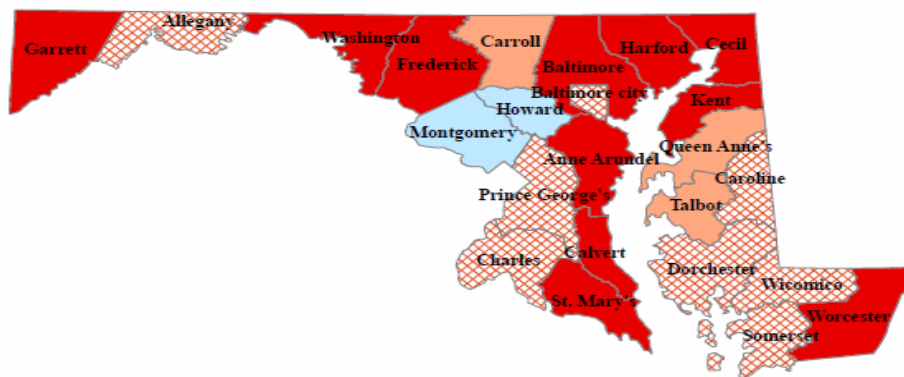
Map 1a. 1995-1999



Map 1b. 2000-2004



Map 1c. 2005-2009



Percent (%) 10.0 - 14.9 15.0 - 19.9 20.0 - 24.9 25.0 - 29.9 30.0 - 45.0

³¹ Maryland Behavioral Risk Factor Surveillance System, 1995-2012

Chronic Disease: SHIP Target Goals

Measure: Children and adolescents who are obese			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of children and adolescents who are obese (current measure is for high school)	Maryland Youth Tobacco and Risk Behavior Survey, 2013	11	11.3
Measure: Adults who are at a healthy weight			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of adults at a healthy weight	Maryland BRFSS, 2013	35.9	35.7
Measure: Emergency department visit rate due to diabetes			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Emergency department visit rate due to diabetes per 100,000 population	Maryland HCSRC, Research Level Statewide Inpatient and Outpatient Data Files, 2012	314.6	300.2
Measure: Emergency department visit rate due to hypertension			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Emergency department visit rate due to hypertension per 100,000 population	Maryland HSCRC, Research Level Statewide Inpatient and Outpatient Data Files, 2012	222.2	202.4
Measure: Age-adjusted mortality rate from heart disease			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Age-adjusted mortality rate from heart disease per 100,000 population	Maryland Vital Statistics Administration, 2012	171.9	173.4

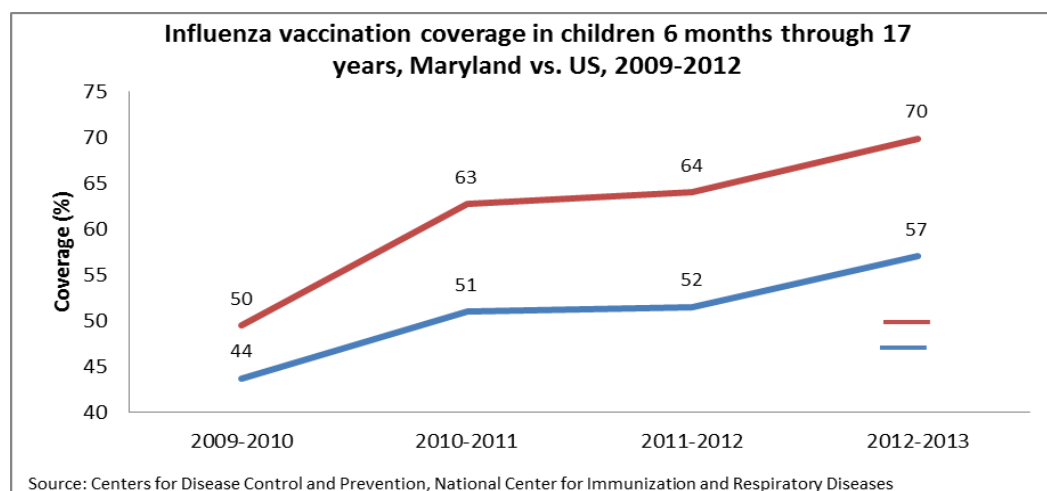
Infectious Disease

Vaccine Preventable Diseases

While vaccinations have been one of the most successful public health tools and are a cornerstone of infectious disease prevention, vaccine preventable diseases such as hepatitis B and pertussis continue to occur in Maryland. In 2012 there were 52 cases of hepatitis B and 369 cases of pertussis in Maryland, the largest number of reported pertussis cases since 1957. Although progress has been made in the past ten years, some immunization rates have not yet

met expected goals. In 2012, the immunization coverage rates among Maryland children 19-35 months old for the full recommended vaccination series (4 doses DTP, 3 doses Polio, 1 dose MMR, 3 doses Hepatitis B, 1 dose varicella, 4 doses PCV) were 67.1%, slightly below the national average of 68.4%.³² The Maryland average is also lower than the Maryland SHIP 2014 target of 80%. However, by the time these children enter kindergarten, as determined by the Maryland annual school immunization survey, a majority of students meet the Maryland school vaccine requirements.

Influenza continues to be a major cause of vaccine preventable disease morbidity and mortality in Maryland. Improving influenza vaccination rates, especially in high risk populations, remains an area of needed focus. While influenza vaccination rates in children 6 months through 17 years has improved over the last few years going from 50% in 2009 to 70% in 2012, during the 2012-2013 influenza seasons Maryland had five influenza-associated pediatric deaths.³³ Maryland's rate of individuals vaccinated annually against seasonal influenza (average 50.4% from 2010-2012) has remained above the US rate (average 43.2% from 2010-2012) but remains below the 2014 SHIP target of 65.6%.



Sexually Transmitted Infections (STI)

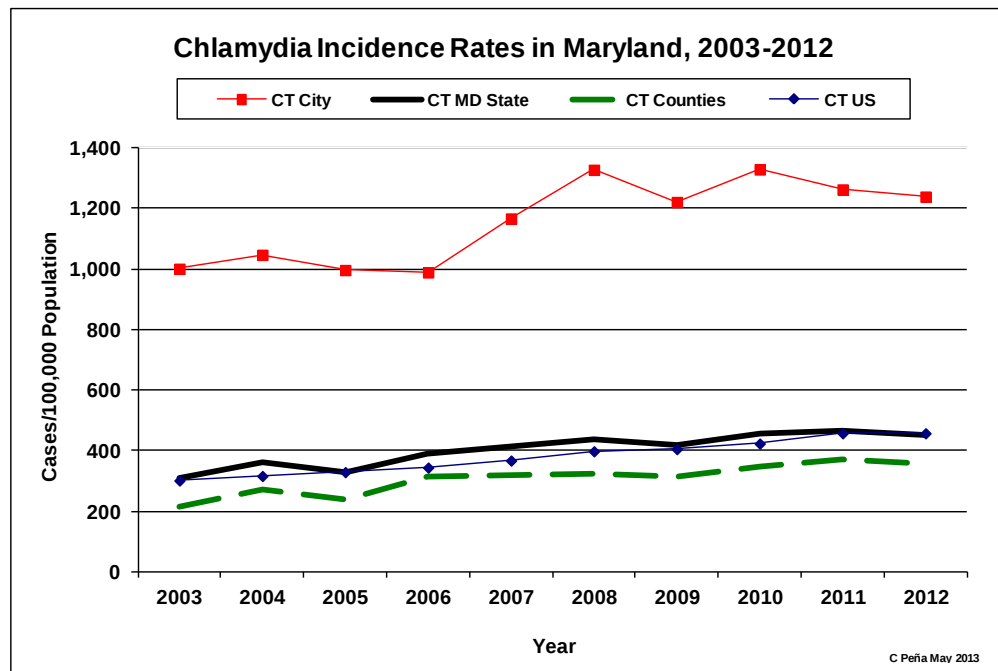
Chlamydia infection is highly prevalent in Maryland, with 26,534 cases reported in 2012 (a rate of 450.9 per 100,000 population).³⁴ It is the most commonly reported communicable disease in Maryland. Chlamydia rates have steadily increased in the past decade with young females ages 15-19 and 20-24 experiencing the highest rates. Males tend to have lower rates than females, which likely reflects screening recommendations that promote chlamydia screening in young,

³² Centers for Disease Control and Prevention, National Immunization Survey, 2012.

³³ Centers for Disease Control and Prevention, 2012 – 2013 State and Regional Vaccine Trend Report.

³⁴ STI Data and Statistics. Maryland Department of Health and Mental Hygiene, Prevention and Health Promotion Administration. Available from <http://phpa.dhmh.maryland.gov/OIDPCS/CSTIP/SitePages/sti-data-statistics.aspx>. Accessed April 22, 2014.

sexually active women. In 2012, Baltimore City had the highest rates in the state, followed by Wicomico and Prince George's counties.³⁵



NOTE: CT City – chlamydia rates for Baltimore City
 CT MD State – chlamydia rates for Maryland State
 CT Counties – chlamydia rates for Maryland counties only (excludes Baltimore City)
 CT US – chlamydia rates for United States

Source: Center for STI Prevention, Prevention and Health Promotion Administration, Maryland Department of Health Mental Hygiene.

The Baltimore-Towson Metropolitan Statistical Area (MSA) has the sixth highest rate of estimated HIV diagnoses in the nation, with 33.8 per 100,000 population, twice the national average (15.9). Using surveillance data reported through June 2012, there were an estimated 922 new HIV diagnoses in the Baltimore-Towson MSA during 2011 and an estimated total of 18,318 diagnosed and reported living cases of HIV on December 31, 2011.³⁶ The CDC estimates that nationally 16% of persons infected with HIV are undiagnosed.³⁷ There may be as many as 21,500 people living with HIV in the MSA, over 3,000 of who are unaware of their infection.

Living adult/adolescent HIV cases in the Baltimore-Towson MSA are:

- Concentrated in Baltimore City (74%)

³⁵ Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2012.

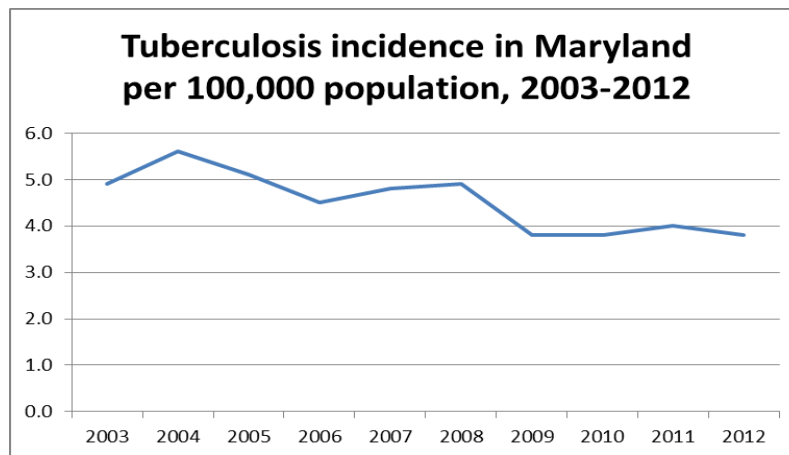
³⁶ Diagnoses of HIV Infection in the United States and Dependent Areas, 2011. HIV Surveillance Report, Volume 23. Centers for Disease Control and Prevention.

³⁷ Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance Data—United States and 6 Dependent Areas – 2011. HIV Surveillance Report, Supplemental Report. Volume 18 Number 5. Centers for Disease Control and Prevention.

- Disproportionately found among men (64%) and non-Hispanic Blacks (79%)
- Persons 30-59 years of age (79%)
- Among living adult/adolescent cases of HIV with a reported risk, the leading HIV exposure categories are:
 - Injection drug use (42%)
 - Heterosexual contact (28%)
 - Men who have sex with other men (25%)

Tuberculosis

Tuberculosis (TB) rates have remained fairly stable with a slight overall downward trend over the past decade in Maryland, primarily due to the adoption of directly observed therapy (DOT) by local TB control programs. In 2012, 226 cases of TB were reported in the State.³⁸ Individuals with co-morbid conditions such as HIV infection or diabetes, incarcerated persons, the homeless, injecting drug users, refugees, and immigrants are some of the populations more at risk for TB than the general population. Maryland continues to be considered a high-incidence state by the CDC. Foreign-born persons continue to represent over 70% of all TB cases statewide, including immigrants choosing to resettle in Maryland, foreign-born workers employed by Maryland businesses, students attending Maryland universities and colleges, and the relocation of refugees from overseas.³⁹ Poverty and lack of access to health care continue to be associated with higher TB case rates in certain other U.S. and foreign-born population sub-groups.



Source: Center for Tuberculosis Control and Prevention, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene: NEDSS.

³⁸ Center for Tuberculosis Control and Prevention, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene: Notifiable disease reporting through the National Electronic Disease Surveillance System (NEDSS).

³⁹ Center for Tuberculosis Control and Prevention, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene: NEDSS

Infectious Disease: SHIP Target Goals

Measure: Children (19-35 months old) who receive recommended vaccines			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of Maryland children 19-35 months old who have received all routinely recommended vaccinations	Centers for Disease Control National Immunization Survey, 2011	78%	80%
Measure: Children and adults who are vaccinated annually against seasonal influenza			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of children and adults who are vaccinated annually against seasonal influenza	Centers for Disease Control Behavioral Risk Factor Surveillance System (BRFSS) and National Immunization Survey, 2012-2013 Season	53.1%	65.6%
Measure: Chlamydia incidence rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Chlamydia infection rate per 100,000 population	DHMH Infectious Disease and Environmental Health Administration, 2012	450.9	431
Measure: HIV incidence rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Rate of adult/adolescent cases (age 13+) diagnosed with HIV per 100,000 population	DHMH Infectious Disease Bureau, Center for HIV Surveillance and Epidemiology, 2011	26.9* *non-Hispanic black rate is 70.3	30.4

Environmental Health

Asthma

Asthma is a chronic lung disease that causes airway restriction and breathing difficulties. Asthma has a high prevalence, morbidity, and mortality rate throughout Maryland and nationwide. The most current data from 2011 indicate that approximately 610,254 (13.8%) Maryland adults and 168,878 (12.6%) Maryland children had a history of asthma.⁴⁰ Of those individuals,

⁴⁰ Maryland Behavioral Risk Factor Surveillance System, 2001-2013.

approximately 372,775 (8.5%) adults and 123,170 (9.2%) children currently had asthma.⁴¹ In 2011, the current asthma prevalence among Maryland children (9.2%)⁴² was statistically comparable to the current asthma prevalence among all children living in the United States (8.7%).⁴³ The 2011 age-adjusted asthma-related mortality rate in Maryland was 12.1 deaths per million population with asthma as an underlying cause only, and 24.7 deaths per million population with asthma as either an underlying or contributing cause.⁴⁴

Asthma: Populations Experiencing Poorer Health Outcomes

Asthma-related health disparities exist with respect to asthma prevalence and outcomes. Asthma affects persons of all ages, races, ethnicities, and genders. However, children, minorities, women, and those of lower socioeconomic status and lower education levels disproportionately bear the burden of asthma.⁴⁵ Children less than five years old with asthma generally have disproportionate numbers of asthma-related hospitalizations and ED visits compared with older persons having asthma. In 2011, the hospitalization rate for children less than 5 years old was 36.0 hospitalizations per 10,000 population compared with 27.3 hospitalizations per 10,000 population for adults aged 65 years and older (Figure 1).⁴⁶ The ED visit rate for children less than 5 years old in 2011 was 192.0 ED visits per 10,000 population compared with an ED visit rate of 16.4 ED visits per 10,000 population for adults aged 65 years and older (Figure 2).⁴⁷ Additionally, African Americans with asthma experience greater morbidity and mortality than Caucasians with asthma. In 2011, the hospitalization rate for non-Hispanic African Americans was 27.0 hospitalizations per 10,000 population compared with 9.5 hospitalizations per 10,000 population for Caucasians (Figure 1).⁴⁸ The ED visit rate for non-Hispanic African Americans was 129.3 ED visits per 10,000 population in 2011, which was four times the ED visit rate for Caucasians in 2011 (Figure 2).⁴⁹ Furthermore, African-Americans die from asthma at a rate more than twice that of Caucasians in the United States,⁵⁰ and African-American children are more likely than Caucasian children to be diagnosed with asthma.⁵¹

Poorly managed asthma takes a substantial financial toll on individuals, the healthcare system, and society.⁵² In 2011, charges for hospitalizations due to asthma totaled over \$70 million; charges for emergency department (ED) visits due to asthma totaled an additional \$30 million.⁵³

⁴¹ Maryland Behavioral Risk Factor Surveillance System, 2001-2013.

⁴² Maryland Behavioral Risk Factor Surveillance System, 2001-2013.

⁴³ *Child Current Asthma Prevalence Rate (Percent) and Prevalence (Number) by State or Territory: BRFSS 2011*. Centers for Disease Control and Prevention, National Center for Environmental Health, Air Pollution and Respiratory Health Branch.

⁴⁴ Maryland Vital Statistics Administration Data 1989-2011. Maryland Department of Health and Mental Hygiene.

⁴⁵ *Asthma Breathing Easier*. National Asthma Control Program, Air Pollution and Respiratory Health Branch, National Center for Environmental Health, Centers for Disease Control and Prevention.

⁴⁶ Maryland Health Services Cost Review Commission Data, 2001-2011.

⁴⁷ Maryland Health Services Cost Review Commission Data, 2001-2011.

⁴⁸ Maryland Health Services Cost Review Commission Data, 2001-2011.

⁴⁹ Maryland Health Services Cost Review Commission Data, 2001-2011.

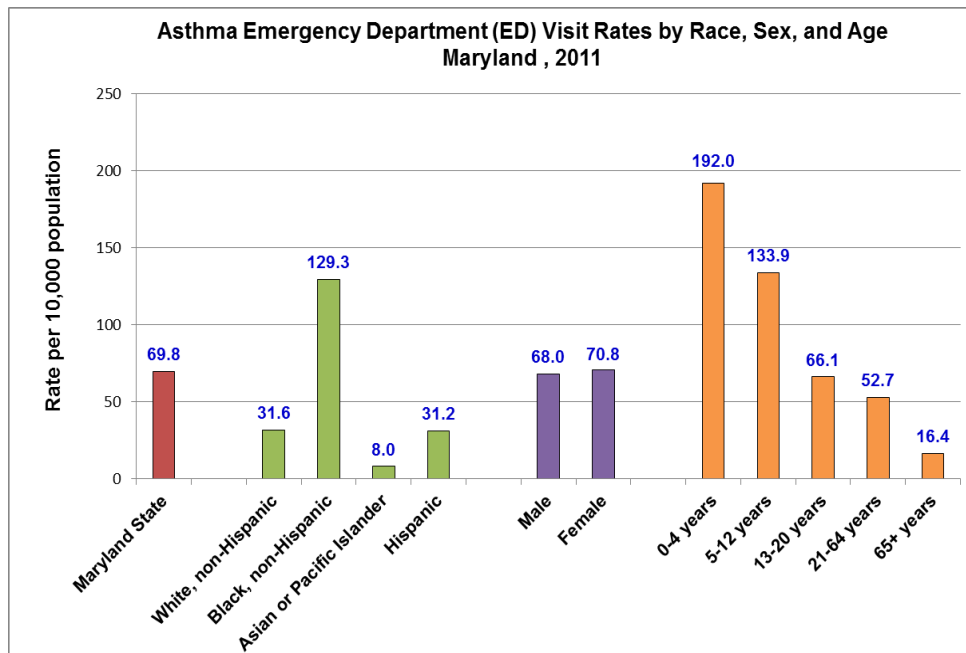
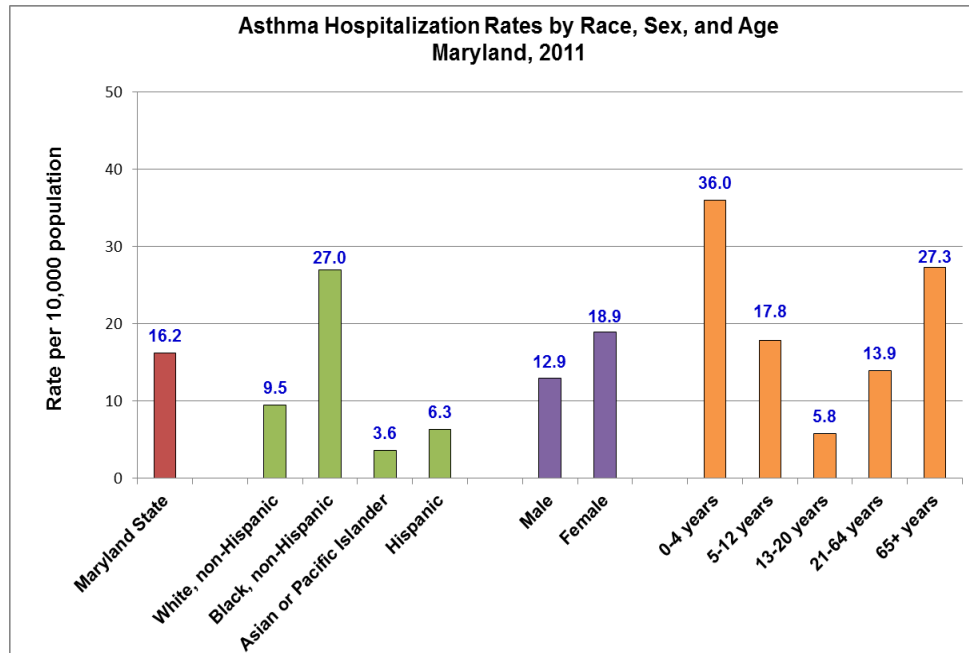
⁵⁰ *National Vital Statistics Reports, Deaths: Final Data for 2010*. Volume 61 Report 4.

⁵¹ Maryland Behavioral Risk Factor Surveillance System Data, 2001-2011.

⁵² James, CV and Rosenbaum, S. Paying for quality care: implications for racial and ethnic health disparities in pediatric asthma. *Pediatrics*, 123 (S3), March 2009.

⁵³ Maryland Health Services Cost Review Commission Data, 2001-2011.

These 2011 costs resulted from 38,835 asthma-related ED visits (age-adjusted rate of 69.8 ED visits per 10,000 residents) and 8,993 asthma-related hospitalizations (age-adjusted rate of 16.2 hospitalizations per 10,000 residents).⁵⁴ This combined cost of approximately \$100 million dollars is largely preventable with proper asthma care and control.



Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Maryland HSCRC, 2011.

⁵⁴ Maryland Health Services Cost Review Commission Data, 2001-2011.

Asthma: SHIP Target Goals

Measure: Air Quality Index (AQI)			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Average number of days the AQI exceeds 100	United States Environmental Protection Agency, 2012	9.3	8.8
Measure: Emergency Department visit rates due to Asthma			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Rate of emergency department visits due to asthma per 10,000 population	Maryland Health Services Cost Review Commission, 2012	59.1* Non-Hispanic Black/African American rate is 116.3	49.5

Childhood Lead Poisoning

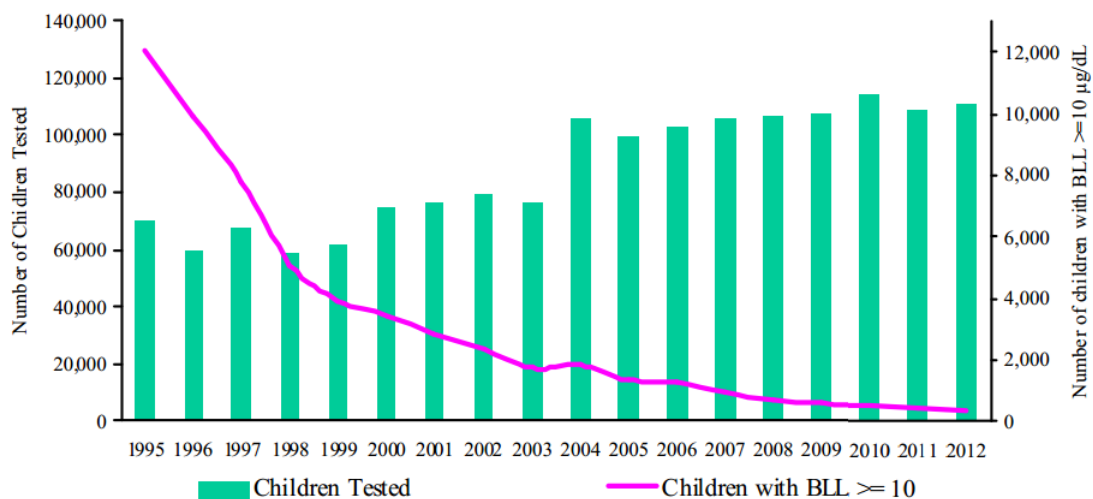
Exposure to lead is the most widespread environmental hazard for children in Maryland. Lead paint dust from deteriorated lead paint or from renovation is the major source of exposure for children in Maryland. Between 75% and 95% of homes built before 1980 are estimated to contain lead paint. Deteriorating lead paint and home renovation in homes built before 1950 is of special concern. Sustained exposure to lead can cause long-lasting neurological damage or death. Effects of sustained exposure include learning disabilities, shortened attention span, irritability, and lowered IQ. For most children, lead exposure occurs through normal hand to mouth activity around lead-containing dust. Elevated blood lead (EBL) level is defined as a level greater than or equal to 10 µg/dL.

During Calendar Year (CY) 2012 a total of 110,539 (21.7%) children were tested out of 509,885 children 0-72 months of age; as identified in the Maryland census population for 2010. This is an increase of 1,005 children tested over the CY 2011 for children tested 109,534 (21.9%) out of a population of 500,702.

- Of those 110,539 children tested, 364 (0.3%) were identified with a blood lead level ≥ 10 µg/dL (Prevalence). This was a decrease of 88 Prevalence cases compared to 452 (0.4%) during CY 2011.
- Of the 364 children identified with a blood lead level ≥ 10 µg/dL, 255 (0.2%) were identified with their first venous or capillary blood lead level > 10 µg/dL (Incidence). This resulted in a decrease of 87 Incidence cases compared to 342 (0.3%) in CY 2011.

- Of the 255 incident cases statewide, a total of 236 cases met the criteria for medical and environmental case management (Confirmed Case). This was a decrease of 56 Confirmed Cases compared to the CY 2011 total of 292.
- In 2012, 1,792 children had their first venous or capillary blood lead level of 5-9 µg/dL compared to 2,129 children in 2011.
- The highest testing rates for children 0-72 months were found in jurisdictions that require testing of all children at age 1 and 2 years. These include: Somerset County (34.3%), Baltimore City (33%), Allegany County (27.2%), and Worcester County (26.4%)

Number of Children 0-72 Months Tested for Lead and Number Reported to Have Blood Lead Level ≥ 10 µg/dL: 1995-2012



Source: *Childhood Blood Level Surveillance in Maryland Annual Report 2012 Lead Poisoning Prevention Program*

Childhood Lead Poisoning: Populations Experiencing Poorer Health Outcomes

Children who live in identified at-risk zip codes are required to have a blood lead test at ages 1 and 2 years of age. Eight counties (including Baltimore City) in Maryland require testing of either all children or of all the children within the county whose zip codes are designated at-risk. Maryland uses a predictive statistical model to determine at-risk zip codes that includes information on poverty, age of housing and levels of lead poisoning. A complete listing of at-risk zip codes is available on the Maryland Department of Health and Mental Hygiene Blood Lead Testing Certificate available at dhmh.maryland.gov or [here](#).

Blood Lead Testing and Blood Lead Level of 5-9 and ≥ 10 $\mu\text{g/dL}$ in At-Risk and Not At-Risk Areas in 2012

Area	Population	Children Tested		Children with BLL 5-9 $\mu\text{g/dL}$		Children with BLL ≥ 10 $\mu\text{g/dL}$	
		Number	Percent	Number	Percent	Number	Percent
At-Risk	112,220	29,943	26.7	1,476	4.9	238	0.8
Not At-Risk	397,665	80,521	20.2	896	1.1	123	0.2
Statewide*	509,885	110,539	21.7	2,375	2.1	364	0.3

* Statewide numbers include county unknown and out of state cases

Childhood Lead Poisoning: SHIP Target Goals

Measure: Children with elevated blood levels			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percentage of children who were tested who had elevated blood lead levels (>10 $\mu\text{g/dL}$)	Maryland Department of the Environment	0.329%	0.177%

Falls

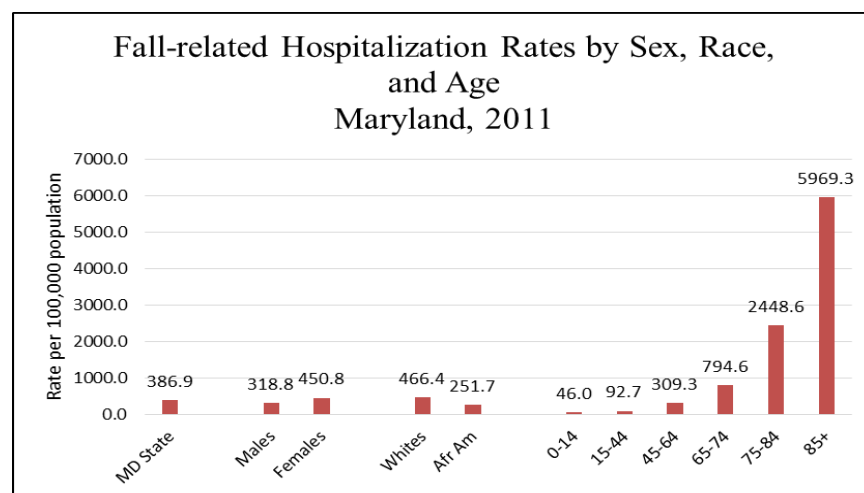
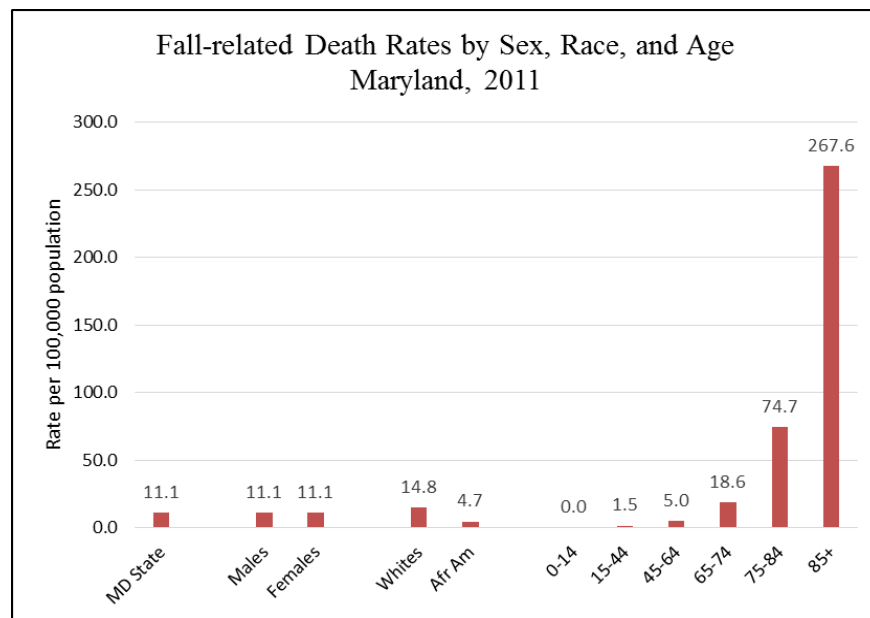
The Centers for Disease Control and Prevention defines a fall as an “injury received when a person descends abruptly due to the force of gravity and strikes a surface at the same or lower level.”⁵⁵ In 2011, falls were the leading cause of injury-related hospitalizations in the state of Maryland, with an age-adjusted rate of 373.2 hospitalizations per 100,000 population. In terms of the financial burden of fall injuries, the costs attributed to fall-related hospitalizations amounted to over \$329 million, the greatest amount out of all other causes of injury, and comprised nearly half of the total lengths of hospitalization stay.⁵⁶ These costs do not take into account any other adverse health outcomes that required hospitalization such as traumatic brain injuries (TBIs) or fractures that resulted from the falls. A total of 645 fall-related deaths were recorded in 2011 for the state of Maryland.

Falls: Populations Experiencing Poorer Health Outcomes

Males and females experienced the same rate of 11.1 deaths related to fall injuries per 100,000 population. Females experienced higher rates of hospitalization related to falls compared to males (450.8 versus 318.8 hospitalizations per 100,000 population, respectively). Whites had a higher fall-related death rate, 14.8 deaths per 100,000 population, compared to African Americans, 4.7 deaths per 100,000 population. Over 80% of the 645 fall-related deaths occurred

⁵⁵ Definitions for WISQARS Nonfatal, Injury Center. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention, 2007. <http://www.cdc.gov/ncipc/wisqars/nonfatal/definitions.htm#nonfatalinjury>. 25 April 2014.

within the elderly population over 65 years of age. Whites had substantially higher rates of fall-related hospitalizations than did African Americans, over 80% higher (466.4 versus 251.7 hospitalizations per 100,000 population, respectively). The elderly population 65 years and older comprised about 66% of the 22,549 fall-related hospitalizations.⁵⁷ Falls contribute to a high burden of morbidity and mortality in the general population, particularly among the elderly, for which adverse health sequelae such as TBIs following falls are of notable concern. Falls are among the most serious and common problems that threaten independence and quality of life for older adults and strongly predict placement in a skilled-nursing facility among older adults living in the community.⁵⁸



⁵⁷ All data on fall-related deaths from: *Injuries in Maryland: 2011 Statistics on Injury-related Emergency Department Visits, Hospitalizations and Deaths*. Maryland Department of Health and Human Hygiene, Prevention and Health Promotion Administration, Environmental Health Bureau, 2011.

⁵⁸ Tinetti ME, Williams CS *Falls, injuries due to falls, and the risk of admission to a nursing home*. *N Engl J Med*. 1997 Oct 30;337(18):1279-84

Note: Fall-related deaths are identified with methodology used in the annual “Injuries in Maryland” report; therefore, rates are not directly comparable to the SHIP measure of fall death rates. Falls are defined using ICD-10 codes W00-W19 (unintentional), X80 (self-inflicted), Y30 (undetermined) and Y01 (assault).

Source: *Maryland HSCRC, 2011.*

Falls: SHIP Target Goals

Measure: Fall related deaths			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Rate of fall related deaths per 100,000 population	Maryland Vital Statistics Administration, 2009-2011	8.0	6.9

Food Borne Illness

Contaminated food in the US causes an estimated 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths annually.⁵⁹ Approximately 1,000 reported disease outbreaks (local, regional, and national) each year highlight the challenges of preventing these infections. However, most food-borne illnesses are not documented. Most food-borne infections cause diarrhea, ranging from mild to severe. Persons in susceptible populations can develop severe complications, such as hemorrhagic colitis, bloodstream infection, meningitis, joint infection, kidney failure, paralysis, miscarriage, and other problems. Beyond health effects, food-borne illnesses can cause emotional and economic hardship; for example, Salmonella alone causes approximately 1 million food-borne infections and costs \$365 million in direct medical expenditures annually.⁶⁰ In Maryland in 2012, 1,920 total cases of potential food-borne illness were reported with 523 hospitalizations and 10 deaths.⁶¹

Maryland Illnesses Caused by Pathogens Commonly Transmitted in Food, 2012

Agent	Total Cases	Incidence Per 100,000 Population	Hospitalizations	Deaths	Case Fatality Percent (%)
Campylobacter	604	10.36	96	1	0.19%
Listeria	16	0.27	15	1	6.25%
Salmonella	907	15.56	300	3	0.33%
Shigella	182	3.12	48	1	0.55%
E coli 0157	32	0.55	14	0	0

⁵⁹ Scallan E, Hoekstra RM, Angulo FJ, Tauxe RV, Widdowson M-A, Roy SL, et al. *Foodborne illness acquired in the United States—major pathogens*. Emerging Infectious Diseases. Volume 7, Number 15 – January 2011.

⁶⁰ *Making Food Safer to Eat*. CDC Vital Signs June 2011. Available from <http://www.cdc.gov/vitalsigns/foodsafety/index.html>. Accessed June 5, 2014.

⁶¹ Environmental Health, Prevention and Health Promotion Administration, Maryland Department of Health and Mental Hygiene, Foodborne Diseases Active Surveillance Network (FoodNet).

E coli non 0157	36	0.62	8	0	0
Vibrio	47	0.81	17	3	6.38%
Yersinia	10	0.17	1	0	0
Crypto- sporidium	83	1.42	23	1	1.20%
Cyclospora	3	0.05	1	0	0
Total	1,920	---	523	10	0.5%
<i>Source: DHMH FoodNet.</i>					

Food Borne Illness: SHIP Target Goals

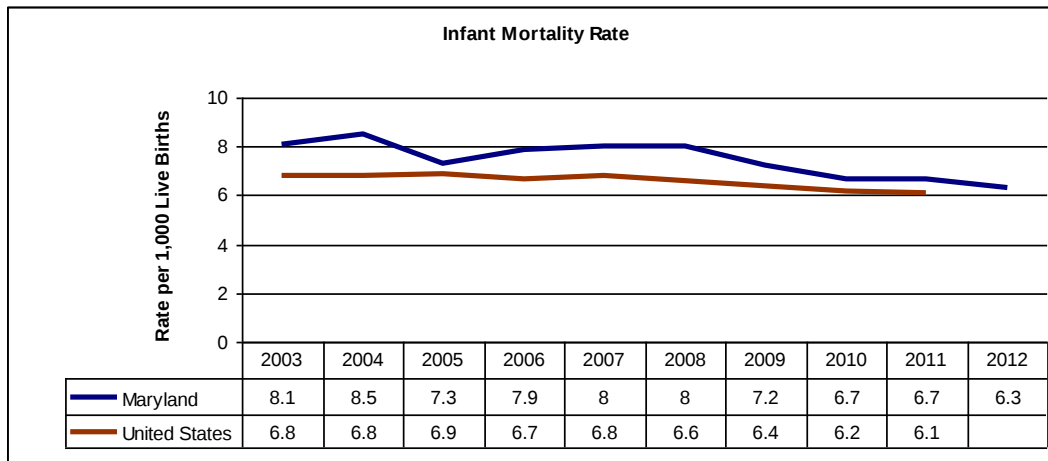
Measure: Salmonella Infection Rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Salmonella infection rate per 100,000 population	DHMH Infectious Disease and Environmental Health Administration, 2012	16.2	12.7

Maternal and Child Health

The Department has a number of programs designed to ensure that babies are born healthy and have the support they need for healthy growth and development. These include programs to prevent infant mortality, reduce unintended pregnancies, expand prenatal care, promote the use of folic acid before and during pregnancy, prevent fetal alcohol spectrum disorders, provide newborn screening follow-up services, and encourage breastfeeding.

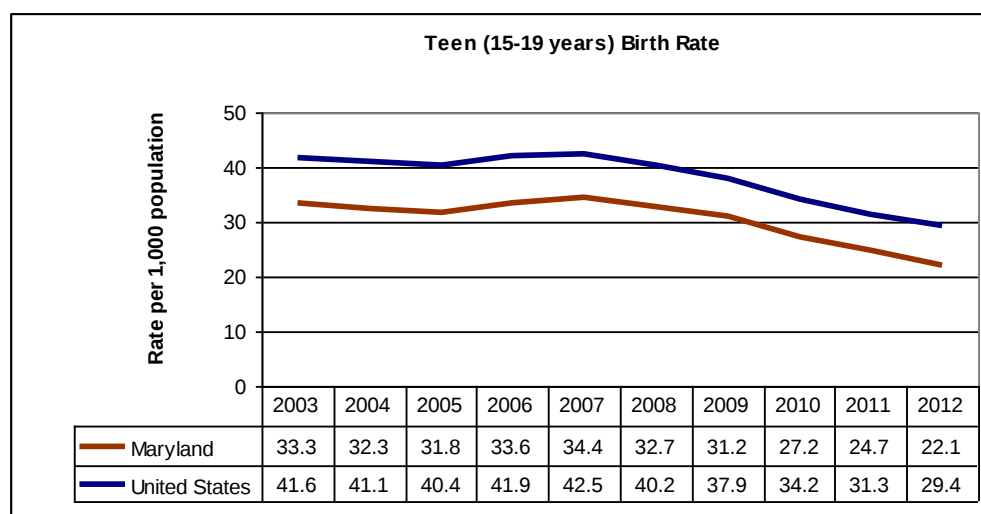
Infant mortality, the rate of infant deaths per 1,000 live births, is not only a measure of the health status of mothers and infants but is also recognized as a measure of the overall health of communities. The infant mortality rate in Maryland has historically been higher than the national rate. Maryland has seen significant declines in infant mortality over the last 50 years, but decreases have been less dramatic in the last decade. In 2012, 72,751 infants were born in Maryland. Together, prematurity and low birth weight represent the leading causes of infant mortality. Premature and low birth weight infants are at higher risk for numerous complications and medical conditions and are more likely to die within the first year of life than infants born at full term. Maryland's incidence of low birth weight (birth weight < 2,500 grams) was 8.8% in 2012 and the incidence of very low birth weight (birth weight <1,500 grams) was 1.7% overall. While prematurity and low birth weight are the most common cause of infant death and account for 27.7 percent of infant deaths in Maryland in 2012, other major causes include: congenital abnormalities/birth defects (15.3 percent), Sudden Infant Death Syndrome (SIDS) (10.3 percent), and maternal complications of pregnancy (7.2 percent).⁶²

⁶² Maryland Vital Statistics Administration Annual Report, 2012



Source: Maryland Vital Statistics Administration Annual Report, 2012

Planning for each pregnancy, having a healthy pre-pregnancy weight, and maintaining a well-balanced diet improves the likelihood of a positive birth outcome. Smoking is a high-risk behavior that contributes to preterm birth and low birth weight and can be changed prior to pregnancy through cessation efforts. Behavioral changes made after birth can also decrease infant mortality risks. Adolescent pregnancy can have significant personal, social, and health consequences for parents and children. Teen mothers are less likely to finish high school than their peers and more likely to receive public assistance. Infants born to teen mothers are at higher risk for prematurity, low birth weight, and mortality than those born to older mothers. Maryland has seen a decline in births to teen mothers over the last ten years. From 2003 to 2012, the teen birth rate declined by 11.2% and was consistently under the national average.



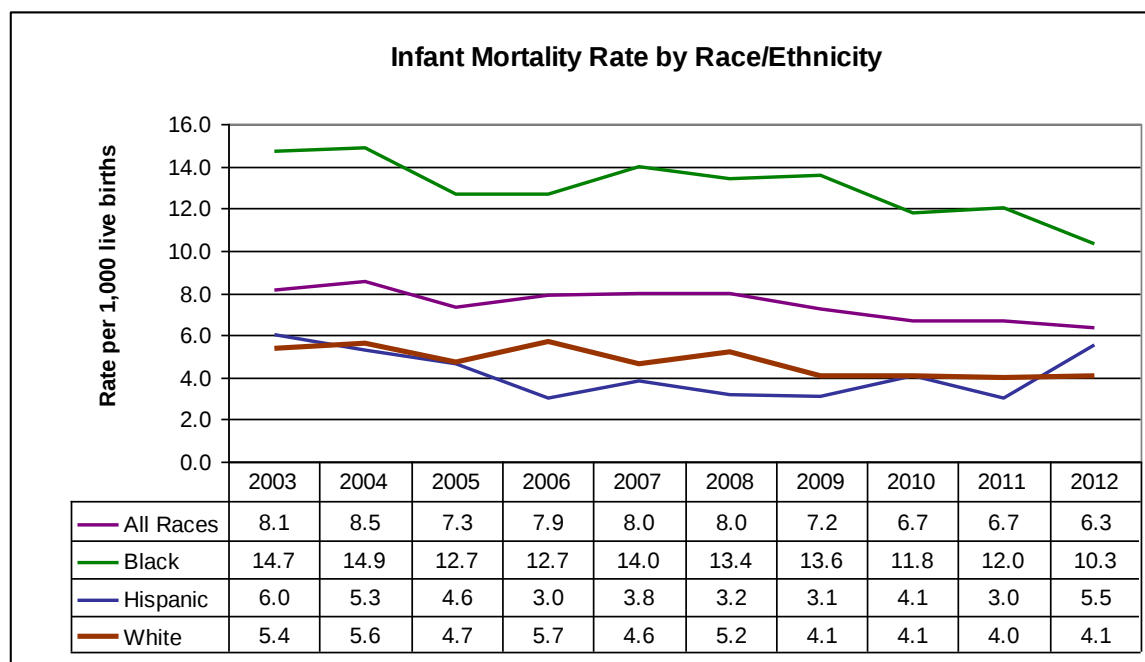
Source: Maryland Vital Statistics Administration Annual Report, 2012

Early and adequate prenatal care is important for the health of mothers and their infants and results in better health outcomes. Prenatal care provides pregnant women with education about a healthy pregnancy, healthy pregnancy monitoring, and checks for potential complications. For

every \$1 invested in prenatal care, \$3 are saved in future health care costs. In Maryland, the percent of births to women receiving late (in the third trimester) or no prenatal care was 6.9% in 2012.

Maternal and Child Health: Populations Experiencing Poorer Health Outcomes

Large racial disparities exist in infant mortality rates in Maryland, with African American infants two to three times more likely to die within the first year of life than White infants. Maryland's infant mortality rate is 10.3 deaths per 1,000 live births among African Americans compared to 4.1 among Whites, and 5.5 among Hispanics.⁶³ The Vital Statistics Administration reports that in 2012, African Americans had higher rates of both prematurity and low birth weight as compared to Whites and other races.



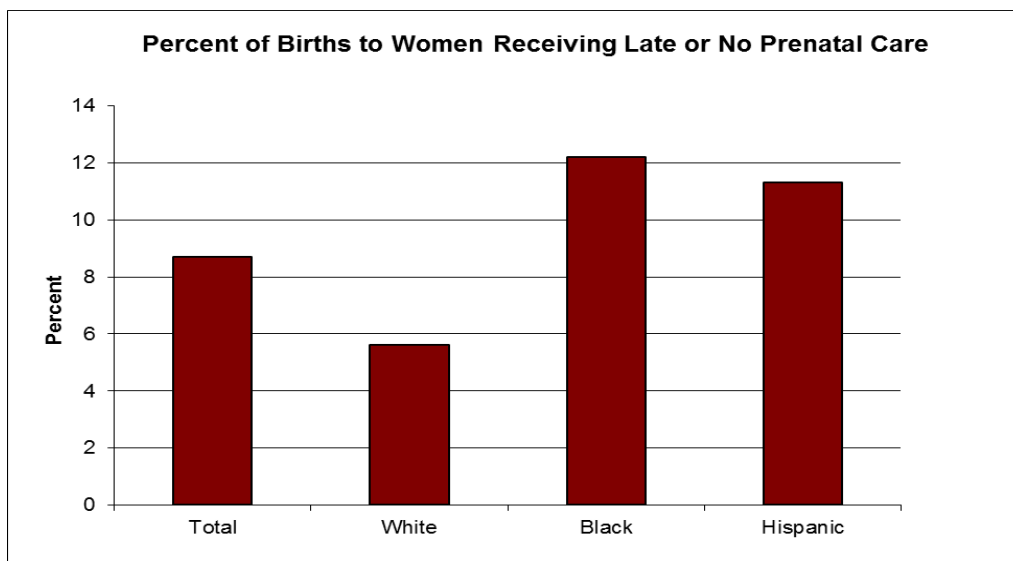
Source: Maryland Vital Statistics Administration Annual Report, 2012

In 2012, birth rates for adolescents, ages 15-19 years, were highest among Hispanics. There were 44.6 births per 1,000 Hispanic adolescents, as compared to 33 births per 1,000 African American adolescents and 12.3 births per 1,000 White adolescents. African American women and Hispanic women were more likely to receive late or no prenatal care than women of other races⁶⁴.

According to the 2011 Maryland PRAMS survey, the most common reasons that women did not receive prenatal care in the first trimester were: they could not get an appointment, they did not have insurance or enough money, or the doctor/health plan would not start care earlier.

⁶³ Maryland Vital Statistics Administration Annual Report, 2012

⁶⁴ Maryland Vital Statistics Administration Annual Report, 2012



Source: Maryland Vital Statistics Administration Annual Report 2012

Maternal and Child Health: SHIP Target Goals

Measure: Infant death rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Infant death rate per 1,000 live births	Maryland Vital Statistics Administration, 2012	6.3* *African American rate is 10.3	6.6
Measure: Sudden unexpected infant death rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Sudden unexpected infant death rate per 1,000 live births	Maryland Vital Statistics Administration, 2007-2011	.092* *Non-Hispanic Black/African American rate is 1.71	.089
Measure: Teen birth rate			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Rate of births to teens ages 15-19 years of age per 1,000 population	Maryland Vital Statistics Administration, 2011	24.7* *Black/African American rate is 36.1 and Hispanic rate is 45.9	29.6

Measure: Babies with low birth weight			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percentage of live births that are a low birth weight (2500 grams or less)	Maryland Vital Statistics Administration, 2011	8.9%* *Black/African American is 12.6%	8.5%
Measure: Early prenatal care			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of pregnant women who receive prenatal care beginning in the first trimester	Maryland Vital Statistics Administration, 2009	80.2%* *Black/African American is 73.2%, Hispanic rate is 68.1%	84.2%

Oral Health

Oral health is a critical part in the daily lives of the citizens of Maryland. While access to dental care in Maryland has increased for some populations, the ability to receive timely, affordable dental care continues to be a challenge. Maryland has 21 area and 18 facility dental HPSAs.⁶⁵ According to the Maryland State Board of Dental Examiners, as of January 2014 there are 4,148 licensed dentists in the State of Maryland who were active practitioners with the majority practicing in general dentistry. Approximately 16% of the states' dentists are specialists, with the most common specialties being orthodontics, pediatric dentistry, oral surgery, and endodontics. About 79% of the dentists are centrally located within Maryland in Howard County, Baltimore County, Montgomery County, Prince George's County, Anne Arundel County and Baltimore City. There are 2,887 licensed dental hygienists in the State of Maryland in 2014 with the majority also practicing in central Maryland.⁶⁶ Almost 29% of dentists billed one or more services in 2012 and 52.3% of children ages 0 – 20 enrolled in Medicaid for any period during the year received one or more dental services.⁶⁷

Oral cancer exams are a part of routine dental visits. Roughly 37.8% of persons in Maryland 40 years of age and older reported they had an oral cancer exam in the past year (2010).⁶⁸ In 2010, the DHMH Center for Cancer Surveillance and Control reported 669 new cases of cancer of the oral cavity and pharynx and 141 deaths of oral cancer in Maryland.

Adults who report that they have visited the dentist or dental clinic within the past year has remained fairly constant at 72.7% in 2012 (compared to 73.7% in 2010); 73.8% of Maryland adults report that they have had a teeth cleaning in the past year. Approximately 57% of adults

⁶⁵ Primary Care Office, Maryland Department of Health and Mental Hygiene. As of April 17, 2014.

⁶⁶ Maryland State Board of Dental Examiners, 2014

⁶⁷ 2013 *Annual Oral Health Legislative Report*, Maryland Department of Health and Mental Hygiene

⁶⁸ Cigarette Restitution Fund Annual Cancer Data, 2013

report that they had all their permanent teeth, while 15% of adults 65 and over had all their natural teeth extracted.⁶⁹ Preventive dental cleanings are also critical for pregnant women to avoid oral infections. In 2012 approximately 21,708 pregnant women 21 years and older were enrolled in Medicaid for at least 90 days. Of those, 30.1% received a dental service. The Pregnancy Risk Assessment Monitoring System (PRAMS) 2010 data shows 56.5% of Maryland mothers reported to have had their teeth cleaned in the 12 months prior to pregnancy.

Populations Experiencing Poorer Health Outcomes

Expanding access to dental care for Maryland's low income children is a critical public health need. Oral disease is the most common disease among children in the United States. Nationally, it affects three out of every five children and is more common than asthma. Low-income children suffer five times the number of cavities than children from middle and upper income families. Maryland has taken significant steps to reduce oral disease in children through innovative policies and programs. The state has seen a 41% decrease in untreated tooth decay in Maryland's school children between 2001 and 2011⁷⁰ and over 100,000 fluoride varnish applications have been applied by medical providers through Maryland's Mouths Matter fluoride varnish program, an initiative launched in 2009 designed to prevent tooth decay in high-risk children throughout the state.

Percentage of Children who had at Least One Dental Encounter by Age Group, Enrolled for Any Period in Medicaid**

Table 5: Percentage of Children who had at Least One Dental Encounter by Age Group, Enrolled for Any Period in Medicaid**					
Age Group	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012
0-3*	12.1%	18.1%	22.5%	25.1%	27.9%
4-5	46.9%	55.1%	59.7%	63.1%	64.8%
6-9	51.9%	59.5%	63.6%	66.3%	67.8%
10-14	47.4%	55.0%	58.7%	61.2%	62.9%
15-18	38.4%	44.9%	48.5%	51.3%	52.4%
19-20	22.3%	29.0%	32.1%	34.2%	35.1%
Total	35.8%	42.8%	47.0%	50.1%	52.3%

* Most newborns and infants are not expected to use dental services. As a result, the dental service rate for the 0-3 age group should be interpreted with caution.

** The study population for CYs 2008-2012 measured dental utilization for all qualifying individuals in Maryland's Medical Assistance program, including fee-for-service (FFS) and HealthChoice MCO enrollees. The following coverage groups were excluded from the analysis: S09, X02, W01, and P10.

⁶⁹ Maryland Behavioral Risk Factor Surveillance System, 2012 and 2010

⁷⁰ Oral Health Survey of Maryland School Children, Maryland Department of Health and Mental Hygiene

SHIP Target Goals

Measure: Children receiving dental care in the past year			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of children (aged 0-20 years) enrolled in Medicaid (320+ days) who had a dental visit during the past year	Maryland Medicaid Service Utilization, 2011	60%	55.4%

Tobacco

In a recent 2014 report, the U.S. Surgeon General concluded that “For the United States, the epidemic of smoking-caused disease in the twentieth century ranks among the greatest public health catastrophes of the twentieth century...” The report goes on to document that smoking is not merely linked to disease, but is a cause of numerous cancers, heart diseases, lung diseases, reduced fertility and numerous other serious chronic illnesses. According to the American Cancer Society, smoking is the most preventable cause of death in the United States. The average annual smoking-attributable mortality rate for Maryland in 2001-2004 was 261.9 per 100,000 (23rd in the nation).⁷¹ A 2003 report by the Roswell Park Cancer Institute estimated that in addition to those dying prematurely, almost 150,000 adults suffer from one or more smoking-caused cancers and/or chronic diseases.⁷² In Maryland, 11% of adults identify as a current smoker.⁷³

Among high school youth, tobacco use decreased 31.9% between the fall of 2010 and the spring of 2013 from 24.8% to 16.9%.⁷⁴ Despite the apparent short-term success among high school youth, it is estimated that still more than 50,000 Maryland high school students start using tobacco for the first time each year. Additionally, more than 70% of tobacco-using high school youth are turning to fruit and candy flavored tobacco (grape, cherry, strawberry, peach, chocolate, vanilla, cotton candy, etc.).⁷⁵ The popularity of flavored tobacco products coincides with an increasingly positive perception among non-smoking high school youth regarding smoking. When asked if smoking makes youth “look cool” or “fit in” more than 20% of youth responded in the affirmative. This is a 43% increase between 2010 and 2013 alone – since 2000 the increase is 63.5%.⁷⁶

⁷¹ Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) – Adults, software. Department of Health and Human Services (HHS), Centers for Disease Control and Prevention (CDC). Available from <https://apps.nccd.cdc.gov/sammec/login.asp>. Accessed May 5, 2014.

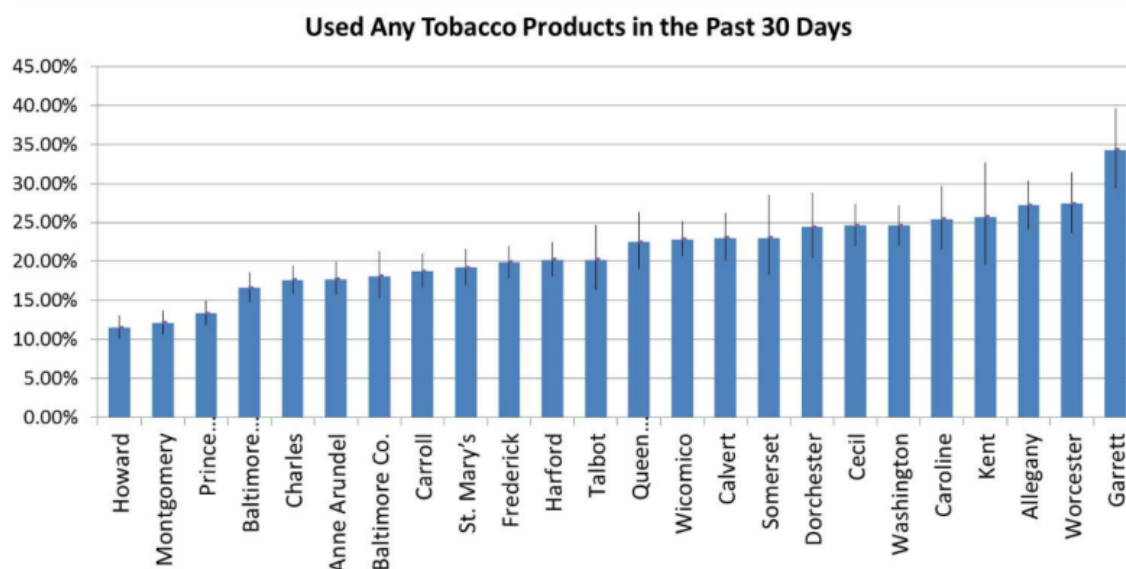
⁷² A Hyland, Q Li, J Bauer, GA Giovino, J Yang, KM Cummings. *Cigarette Smoking - Attributable Morbidity by State*. Department of Health Behaviors, Roswell Park Cancer Institute.

⁷³ Maryland Behavioral Risk Factor Surveillance System, 2012

⁷⁴ Maryland Youth Tobacco and Risk Behavior Survey, 2010 and 2012

⁷⁵ Maryland Youth Tobacco and Risk Behavior Survey, 2013

⁷⁶ Maryland Youth Tobacco Surveys, 2000 and 2010. Youth Tobacco and Risk Behavior Survey, 2013



Source: Maryland Youth Tobacco Survey, 2013

Populations Experiencing Poorer Health Outcomes

The prevalence of tobacco use is greatest among those living in rural areas, those with lower educational attainment, lower incomes, with mental health conditions, and among those who abuse alcohol. For example, in Maryland just 6.6% of college graduates currently smoke cigarettes as compared to 23.8% of those with only a high school diploma, GED, or less. Among those with a household income of less than \$50,000 a year, 23.1% smoke cigarettes as compared to just 9.6% if earning \$75,000 or more a year.⁷⁷

Prevalence of Cigarette Smoking in Maryland Adults by Region

Demographic Characteristic	Prevalence of Cigarette Smoking
Region	
Baltimore City	22.7%
Baltimore Metro	17.7%
Montgomery	8.2%
Prince George's	14.4%
Eastern Shore	17.6%
Northwest	20.7%
Southern	18.2%

Source: Maryland Behavioral Risk Factor Surveillance System, 2013

⁷⁷ Maryland Behavioral Risk Factor Surveillance System, 2013

Prevalence of Cigarette Smoking in Maryland Adults

Demographic Characteristic	Prevalence of Cigarette Smoking
Highest Educational Attainment	
High School Graduate or Less	23.8%
Some College	17.7%
College Graduate	6.6%
Household Income	
Less than \$15,000	34.7%
\$15-\$24,999	22.5%
\$25-\$49,999	19.7%
\$50-\$74,999	14.9%
\$75,000+	9.6%
Mental Health Status	
Ever Diagnosed with a Depressive Disorder	30.3%
Ever Diagnosed with an Anxiety Disorder	29.4%
Alcohol Abuse	
Chronic Drinking	31.7%
Binge Drinking	28.5%
Race/Ethnicity	
Non-Hispanic White	16.8%
Non-Hispanic Black	17.4%
Hispanic	11.0%
Gender	
Female	13.7%
Male	19.4%

Source: Maryland Behavioral Risk Factor Surveillance System, 2013

SHIP Target Goals

Measure: Adults who currently smoke			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of adults who currently smoke	Maryland Behavioral Risk Factor Surveillance System, 2012	16.2%	14.4%
Measure: Adolescents who use tobacco products			
Data Point	Data Source	Data Finding	2014 SHIP Goal
Percent of adolescents who used an tobacco product in the last 30 days	Maryland Youth Tobacco Survey, 2013	16.9%	22.3%

Priority 3: Emergency Preparedness

The Office of Preparedness and Response (OP&R) prepares for and responds to significant public health events, including pandemics, natural disasters and acts of terrorism. OP&R is responsible for staffing the Department's Command Center during a significant public health event such as a pandemic, natural disaster, act of terrorism or any incident that requires the coordination of state level health department resources. All staff are trained in the National Incident Management System (NIMS) and Incident Command System (ICS). The Department's Command Center coordinates the state health department response to an incident in collaboration with the Maryland Emergency Management Agency's Emergency Operations Center and other state agencies.

OP&R organizes and prepares for public health and medical emergencies through statewide partnerships with public, private and government agencies to coordinate an effective emergency response for the health and safety of all residents of Maryland. OP&R also coordinates the recruitment, registration, training, activation and deployment of professional volunteers willing to assist with response and recovery efforts. OP&R is responsible for providing guidance and technical assistance to all local health departments and hospitals with regard to public health and healthcare emergency preparedness planning and activities throughout the State of Maryland. OP&R works cooperatively with all local health departments and hospitals statewide to develop and operationalize preparedness plans, coordinate training, and provide resources to build the capacity and capability to respond to public health emergencies.

The Centers for Disease Control and Prevention (CDC) and Assistant Secretary for Preparedness and Response (ASPR) have developed and implemented two sets of national standards for public health and healthcare preparedness under the Public Health Emergency Preparedness (PHEP) and Healthcare Preparedness Program (HPP). CDC and ASPR assist both state and local planners through the use of a capabilities-based planning tool known as the Capabilities Planning Guide (CPG). The CPG is a self-assessment tool for awardees to assess their current level of preparedness based on the national standards to identify strengths and gaps, as well as inform and further develop state and local planning priorities.

The public health preparedness capabilities now represent a national public health standard for state and local preparedness that better prepares state and local health departments for responding to public health emergencies and incidents and supports the accomplishment of the ten Essential Public Health Services. Similarly, the healthcare preparedness capabilities are standards designed to enable hospitals and healthcare facilities to improve surge capacity and continue the delivery of essential healthcare services during and after a disaster.

The Maryland Office of Preparedness and Response utilizes these national standards at the state and local level as a systematic process by which to strategically prevent, plan for, and respond to potential public health threats. While demonstrations of capabilities can be achieved through

different means (e.g., exercises, planned events, and real incidents), jurisdictions are encouraged to use routine public health activities to demonstrate and evaluate their public health preparedness capabilities.⁷⁸ The table below represents an overall snapshot of Maryland's status in meeting the public health preparedness capabilities using the CPG tool. The scores are based on a rating scale of 1-5, with 5 meaning 'full ability/capacity' and 1 meaning 'no ability/capacity' for Status and 5 meaning 'critical' and 1 meaning 'not relevant' for Importance. Per the CPG, Status is defined as an awardees current ability or capacity to perform the functions of the capability. Importance of the capability is defined as how important a capability is relative to a jurisdiction meeting all other needs.

2013 Maryland Public Health Emergency Preparedness Capability Status Summary

Capability Name	Status 2011	Status 2013	Importance 2011	Importance 2013
Community Preparedness	3.10	3.38	4.02	4.05
Community Recovery	2.86	2.84	3.75	3.84
Emergency Operations Coordination	3.71	3.81	4.25	4.17
Emergency Public Information and Warning	3.6	3.79	4.3	4.27
Fatality Management	2.69	2.76	3.61	3.57
Information Sharing	3.55	3.72	4.0	4.08
Mass Care	3.3	3.33	3.85	3.81
Medical Countermeasure Dispensing	4.12	4.13	4.43	4.48
Medical Material Management and Distribution	3.74	3.73	4.0	3.93

⁷⁸ *Public Health Preparedness Capabilities: National Standards for State and Local Planning*. U.S. Department of Health and Human services Centers for Disease Control and Prevention. March 2011. Page 3.

Medical Surge	3.06	3.13	4.07	3.96
Non-pharmaceutical Intervention	3.15	3.21	3.63	3.67
Public Health Surveillance	3.81	3.94	4.36	4.26
Responder Safety and Health	3.35	3.27	4.02	3.97
Volunteer Management	3.07	3.04	3.52	3.72

The Office of Preparedness and Response collaborates and works cooperatively with state and local offices such as the Maryland Emergency Management Agency, Office on Aging and Department of Human Resources to develop preparedness and response strategies and capabilities that address the public health, mental/behavioral health and medical needs of Maryland's at-risk populations in the event of a public health emergency.

There are no Preparedness and Response SHIP measures at this time. However, the Office of Preparedness and Response engages with all 24 Local Health Departments and state partners to identify and meet programmatic capabilities for the local and state level as described above. In addition, the Governor has identified the following core goals for a prepared Maryland:

1. Mass casualty/hospital surge (both PHEP and HPP capabilities)
2. Biosurveillance (PHEP capability)

The Office of Preparedness and Response maintains a comprehensive website of resources for mobilization across diverse areas of response. [Click here](#) for more information.

Priority 4: Patient Safety

Patient safety is a health care profession discipline that aims to create a trustworthy health care delivery system.⁷⁹ A key component to accessing quality health care in Maryland is ensuring patient safety through monitoring the quality of care in Maryland's approximately 14,000 health care and community residential programs.⁸⁰ All hospitals and health-related institutions in Maryland must be licensed. The Office of Health Care Quality (OHCQ) within the Department licenses and certifies health care facilities, including those participating in Medicare and

⁷⁹ *What Exactly is Patient Safety?* Agency for Healthcare Research and Quality.

⁸⁰ *Fiscal Year 2013 Annual Report and Staffing Analysis*. Office of Health Care Quality, Maryland Department of Health and Mental Hygiene.

Medicaid Programs. OHCQ uses state and federal regulations which set forth the minimum standards for the provision of care and conducts surveys to determine compliance.

Healthcare-Associated Infections

Healthcare-associated infections (HAI) are infections that patients acquire while receiving medical treatment for other conditions. HAIs are the most common complication affecting hospitalized patients, with between 5 and 10 percent of patients acquiring one or more infections during their hospitalization.⁸¹ The US Centers for Disease Control and Prevention (CDC) estimates the direct costs of HAIs in the US to be \$28 to \$45 billion annually.

In 2006, the Maryland General Assembly expanded the authority of the Maryland Health Care Commission statute to allow the Commission to collect and report information on healthcare-associated infections in hospitals. Additional reporting and monitoring of HAIs and HAI prevention activities have ensued, including, in November 2013, required reporting of Carbapenem-resistant Enterobacteriaceae (CRE). Certain information on HAI process measures are publicly reported for each Maryland hospital in the Commission's Maryland Hospital Performance Evaluation Guide, including rates of central line-associated blood stream infections (CLABSI). CLABSI rates in Maryland have been improving since 2010; however CLABSIs and other HAIs remain a major cause of morbidity, mortality, and health-related costs in Maryland.⁸²

Hospital Performance: Central Line Associated Blood Stream Infections (CLABSI)

Performance Measure	CY2010	CY2011	CY2012	Difference (CY2010 vs CY2012)
All ICU CLABSIs	364	267	186	Improvement (48.90% reduction)
Adult/Pediatric Intensive Care Units				
CLABSIs	323	224	155	Improvement (52.01% reduction)
Hospitals with 0 Infections	10	15	15	Improvement
Hospitals Better than National Experience	2	3	9	Improvement
Hospitals Same as National Experience	40	40	36	Improvement
Hospitals Worse than National Experience	3	2	0	Improvement
Maryland Standardized Infection Ratio	1.06	0.75	0.53	Improvement
Maryland Performance (using SIR)	Same	Better	Better	Improvement
Maryland Adult/Ped ICU Central Line Days	158,222	152,422	149,382	
Neonatal Intensive Care Units (NICUs)				
Hospitals with NICUs	16	16	16	
CLABSIs (total)	41	43	31	Improvement (24.39% reduction)
Hospitals with 0 Infections	4	3	4	No Change
Hospitals Better than National Experience	2	2	1	Decline
Hospitals Same as National Experience	14	14	15	Decline
Hospitals Worse than National Experience	0	0	0	No Change
Maryland NICU Central Line Days	27,299	25,926	25,892	

* The Standardized Infection Ratio (SIR) is a summary measure used to compare the infection rate of one group of patients to that of a standard population.

⁸¹ *National Action Plan to Prevent Health Care-Associated Infections: Road Map to Elimination*. U.S. Department of Health and Human Services. Available from http://www.health.gov/hai/prevent_hai.asp. Accessed June 5, 2014.

⁸² *Healthcare Associated Infections Progress: Maryland*. Centers for Disease Control and Prevention. Available from <http://www.cdc.gov/hai/pdfs/stateplans/factsheets/md.pdf>. Accessed June 5, 2014.

Moving Forward: Strategic Use of Data and Technology

The availability and use of technology to support timely data-driven decisions is a strategic focus of the Department in policy and program planning at the community, regional and state level. The depth and breadth of data available through the Department, combined with GIS mapping, is opening doors for community and local public health practitioners to better understand the health of their population, as well as to track progress on health improvement.

Integrating Data to Support Local Health Action

The Maryland State Innovation Model (SIM) proposed Community Integrated Medical Home (CIMH) explores the intersection of public and clinical health, using integrated data as a backbone for deploying targeted health interventions supported by access to alternative data sources including all payer claims data and the Chesapeake Regional Information System for our Patients (CRISP). The Center for Analysis and Information Services (CAIS), a Center within the Maryland Health Care Commission (MHCC), has ongoing responsibility for managing a Medical Care Data Base, commonly referred to as the All-Payer Claims Database (APCD). It contains health services, prescription drug, and eligibility data from all private carriers in the state. In addition, annual Medicare eligibility and services data are included. It is currently used to generate consumer-focused reports on cost and quality, and for research studies. By 2015 Medicaid data will be included as well as pharmacy benefit management (PBM) data to enable reporting on prescription claims-based measures state-wide without adding additional reporting burden on practices.

Maryland has one of the most advanced health information exchanges (HIEs) in the United States. Chesapeake Regional Information Systems for our Patients (CRISP) is the state-designated HIE. All Maryland acute care hospitals submit encounter data to CRISP. As a result, its capabilities include live admission/discharge/transfer (ADT) feeds from all Maryland hospitals, which power its Encounter Notification System (ENS). The ENS alerts participating primary care physicians (PCPs) in real time when their patients are admitted to or transferred/discharged from a hospital. This free service is available to all PCPs and other providers with a direct care relationship with patients. Currently, over 3,000,000 patients are covered within the ENS, resulting in over 6,000 notifications every day. In addition to hospital data, CRISP also contains lab data from 30 of the 46 hospital-based labs and Maryland's two main private labs, Quest and Labcorp. CRISP also contains radiology imaging data and has master patient index capability. Maryland providers can utilize the online CRISP portal to obtain discharge summaries, consultation and operative notes, lab results, transfer summaries, histories, and other information.

CIMH will analyze data from sources like APCD, CRISP, SHIP and the Department's Virtual Data Unit (VDU) in an aggregate fashion on a geographic basis, providing the ability to conduct "hot spotting" in order to identify geographically defined areas with poor health outcomes or

costly patterns of health service utilization to target intensification of community outreach and community interventions.

APPENDIX A: SHIP PARTNERS

The following organizations and individuals participate in the State Health Improvement Process (SHIP) either creating the first SHIP iteration in 2012 or the continuous annual meetings and data updates in 2013 and 2014.

Department of Health and Mental Hygiene

Center for Cancer Prevention and Control
Community Health Resources Commission
Department of Human Resources
Developmental Disabilities Administration
Health Care Financing
Health Services Cost Review Commission
Infectious Disease and Environmental Health Administration
Maryland Board of Pharmacy
Maternal and Child Health
Medicaid Office of Planning and Finance
Mental Hygiene
Office of Information Technology
Office of Minority Health and Health Disparities
Office of Oral Health
Office of Preparedness and Response
Office of the Chief Medical Examiner
Office of the Secretary
Public Health Services
Public Relations
Vital Statistics Administration

Other State Government Participants

Governor's Workforce Investment Board
Maryland Community Health Resources Commission
Maryland Department of Aging
Maryland Department of Human Resources
Maryland Health Care Commission
Maryland Health Services Cost Review Commission
Maryland State Council on Child Abuse and Neglect
Maryland State Department of Education
Maryland Statewide Advisory Commission on Immunization
Office of the Governor

Local Health Departments

Allegany County Health Department
Anne Arundel County Health Department
Baltimore City County Health Department
Baltimore County Health Department
Calvert County Health Department
Caroline County Health Department
Carroll County Health Department
Cecil County Health Department
Charles County Health Department
Dorchester County Health Department
Frederick County Health Department
Garrett County Health Department
Harford County Health Department
Howard County Health Department
Kent County Health Department
Montgomery County Health Department
Queen Anne County Health Department
Prince George's County Health Department
Somerset County Health Department
St. Mary's County Health Department
Talbot County Health Department
Washington County Health Department
Wicomico County Health Department
Worcester County Health Department

Local Health Improvement Coalitions

Allegany County Health Planning Coalition
Baltimore County Health Coalition
Calvert Community Health Improvement Roundtable
Cecil County Community Health Advisory Committee
Garrett County Health Planning Council
Harford County Local Health Improvement Process
Healthy Anne Arundel
Healthy Howard, Inc.
Healthy Montgomery
Healthy Saint Mary's Partnership
Partnerships for a Healthier Charles County

Prince George's Healthcare Action Coalition
Somerset County Local Health Improvement Coalition
The Healthy St. Mary's Partnership
The Partnership for a Healthier Carroll County
Tri County Health Improvement Plan (T-CHIP)
Washington County Health Improvement Coalition
Wicomico County Local Health Improvement Coalition
Worcester County Local Health Improvement Coalition

Academic Institutions

Johns Hopkins University Bloomberg School of Public Health
Johns Hopkins University School of Medicine
Towson University
University of Maryland Baltimore County, Hilltop Institute
University of Maryland Institute for Healthiest Maryland
University of Maryland School of Law
University of Maryland School of Medicine
University of Maryland School of Social Work

Hospitals and Hospital Systems

Adventist Health Care
Anne Arundel Health System
Atlantic General Hospital
Baltimore Washington Medical Center
Choptank Community Health System
Holy Cross Health
Howard County General Hospital
Johns Hopkins Hospital
Lifebridge Health
Medstar Health
Mercy Medical Center
Suburban Hospital
Western Maryland Health System

Non-Profit & Other Community Organizations

Advocates for Children and Youth
Baltimore Buprenorphine Initiative
Baltimore Child Abuse Center
Baltimore Community Health Action Team / BCHAT
The Center For Children (MD)
Chesapeake Regional Information System for our Patients (CRISP)

Commonhealth ACTION
Community Clinic, Inc. (CCI)
Delmarva Foundation
EcoCityFarms - Prince George's
Family Health Centers of Baltimore
Garvey Associates
Health Policy Research Consortium (HPRC)
HealthCare Access Maryland
Health Care for the Homeless – Baltimore and Maryland
Maryland Association of County Health Officers
Maryland Citizen's Health Initiative
Maryland Health Care for All
Maryland Hospital Association
Maryland Rural Health Association
Maryland Women's Coalition for Health Care Reform
Maryland Physicians Care
Maryland Catholic Conference
Maryland State Medical Society (MedChi)
Mosaic Community Services
Network of Public Health Law
Physician Associates of Maryland
Primary Care Coalition of Montgomery County
Public Policy Partners
Tri-State Community Health Center
United Way of Calvert County

APPENDIX B: VDU DATA PORTALS

Data portals are interactive websites that allow the user to query for data, create tables, and generate charts, graphs, or maps.

Behavioral Risk Factor Surveillance System (BRFSS)

The Maryland Behavioral Risk Factor Surveillance System (BRFSS) contains data from an annual statewide telephone survey that tracks prevalence and trends over time for a wide variety of risk factors and health conditions. Maryland conducts approximately 11,000 interviews annually.

Maryland Assessment Tool for Community Health (MATCH)

Maryland Assessment Tool for Community Health (MATCH) features Vital Statistics data (births, deaths, population) and Health Services Cost Review Commission hospitalization data for Maryland residents.

Maryland Cancer Surveys

The Maryland Cancer Survey (MCS) is part of an ongoing surveillance project to provide information on cancer screening rates, knowledge of cancer and cancer screening, and lifestyle factors related to cancer risk behaviors among Maryland residents age 40 years and older. In addition to overall cancer screening prevalence, the MCS reports the percentage of respondents up-to-date with certain screening tests based on screening intervals recommended by the American Cancer Society.

Maryland Health Quality Portal

The Maryland Health Quality Portal contains information on health insurance plans, hospitals, long-term care facilities, physicians, and allied health professionals in Maryland. The information is intended for users to make more informed decisions about their health care.

Medicaid eHealth Statistics

The Medicaid eHealth Statistics website presents Medicaid data for the state of Maryland. Available data includes enrollment and eligibility, service graphs and maps, long-term care, and health care utilization data based on diagnostic groups.

Outcomes Measurement System Datamart (OMS)

The Outcomes Measurement System (OMS) Datamart is designed to track adults, children, and adolescents receiving outpatient mental health treatment services in Maryland's Public Mental Health System (PMHS). Data are available for the following life domains: living situation, employment/school, psychiatric symptoms, functioning, alcohol and substance use, legal system involvement, and general health, including smoking.

Pregnancy Risk Assessment Monitoring System (PRAMS)

The Maryland Pregnancy Risk Assessment Monitoring System (PRAMS) is a statewide survey of women who have recently delivered live born infants. PRAMS contains data on maternal behaviors and experiences that may be associated with adverse pregnancy outcomes and includes questions relating to prenatal care, obstetric history, smoking, alcohol use, physical abuse, contraception, economic status, maternal stress, and infant health, assisted reproduction, contraceptive use, depression, oral health, chronic disease, physical activity, and infections.

State Health Improvement Process (SHIP)

Maryland's SHIP provides data used for accountability, local action, and public engagement to advance the health of Marylanders. Data for 41 critical health objectives are displayed for state and local areas. Race and ethnicity breakdowns are shown when possible.

StateStat

StateStat is a performance measurement and management tool implemented by Governor Martin O'Malley to track outcome and strategy measures within State agencies. The Department of Health and Mental Hygiene's StateStat tracks data on a biweekly, monthly, quarterly, and annual basis to measure program performance with core outcomes in 22 critical public health areas. Tables and maps of outcome and strategy measures are available on the StateStat website.

The services and facilities of the Maryland State Department of Health and Mental Hygiene (DHMH) are operated on a non-discriminatory basis. This policy prohibits discrimination on the basis of race, color, sex, or national origin and applies to the provisions of employment and granting advantages, privileges and accommodations.

The Department, in compliance with the Americans with Disabilities Act, ensures that qualified individuals with disabilities are given an opportunity to participate in and benefit from DHMH services, programs, benefits and employment opportunities